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SPRING 2021



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INSIDE

THIS ISSUE

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² Statistics Canada, "Household spending, Canada, regions and provinces," November 25, 2019.

³ CMHC, "Mortgage and Consumer Credit Trends National Report – Q4 2019," December 2019.

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Spring 2021

Published by Engineers Geoscientists Manitoba
870 Pembina Highway, Winnipeg, Manitoba R3M 2M7
Phone: 204-474-2736 Fax: 204-474-5960
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Available in alternate formats upon request

THE KEYSTONE PROFESSIONAL

The official publication of Engineers Geoscientists Manitoba



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Publication management and production by:



3rd Floor – 2020 Portage Avenue
Winnipeg, MB R3J 0K4
Ph: 204-985-9780 Fax: 204-985-9795
E-mail: info@kelman.ca
www.kelman.ca

Managing Editor: Reba Lewis
Art Design/Production: Kiersten Drysdale
Marketing Manager: Jeff Kutny
Advertising Coordinator: Stefanie Hagidiakow

Send change of address to:
The Keystone Professional,
Engineers Geoscientists Manitoba,
870 Pembina Highway, Winnipeg, MB, R3M 2M7
E-mail: info@EngGeoMB.ca
www.EngGeoMB.ca

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.

Publications Mail Agreement #40065075.
Return undeliverable copies to: lauren@kelman.ca





DR. MARCIA FRIESEN

Dean, Price Faculty of Engineering

DEAR ENGINEERS GEOSCIENTISTS MANITOBA COMMUNITY,

It is with an appreciation of the past and with optimism for the future that I took on the role of Dean of the Price Faculty of Engineering as of January 1, 2021.

The Price Faculty of Engineering is a vibrant place to be, with approximately 1,890 undergraduate students and 500 graduate students. As faculty and staff, we can't wait to be face to face with students again when conditions allow.

Beyond the degree programs, the Price Faculty of Engineering also supports the needs of industry through the ENGAP Program for Indigenous Canadians, the IEEQ Program for newcomers to Manitoba, the WISE Kid-Netic K-12 STEM outreach program, the Co-op/IIP Program, and extra-curricular student-led design competition teams which regularly place in national and international competitions.

The Faculty is also a significant research hub which includes research partnerships with Manitoba industry of diverse sizes and configurations.

In 2019, we celebrated the completion and opening of the Stanley Pauley Engineering Building, made possible by donations from Stanley Pauley, government investments and the generous donations of our community through the University's Front and Centre campaign.

In March 2020, we celebrated a transformational gift from Dr. Gerry Price and family which was recognized by naming the Price Faculty of Engineering. The Price endowment will allow the Faculty to create more opportunities for undergraduate students to study engineering through the 2020s.

As we plan further enrollment increases in the 2020s, we want to do so in a way where everyone can see the opportunities inherent in an engineering career and can see themselves in it. We will continue to extend our curriculum to emphasize design across programs and integrate Indigenous knowledges and perspectives in authentic ways, to consider new program options in both degree and non-degree areas, to support our student-led extra-curriculum, and to support our research endeavours which include partnerships with industry.

Our students are waiting to take their place in solving the problems that need engineering as part of the solution. They are looking to their engineering education as the foundation they need to enact their visions and goals.

We have the opportunity to not only provide them with the technical foundation but to inspire and model a culture of leadership and service. This encompasses many threads, including paying attention to the culture of our profession both in the Price Faculty of Engineering and in our practice community, to ensure that we are creating environments where people feel a sense of belonging and trust, from which true engagement arises.

Without this, we're missing out on people's best.

I look forward to getting to know more of you over the next few years. I invite you to contact me at Marcia.Friesen@umanitoba.ca at any time.

Dr. Marcia Friesen, P.Eng., FEC
Dean, Price Faculty of Engineering



Time

As a geoscientist, I am, of course, very intrigued by the timescales and cycles of earth processes. Time, in general, is an interesting subject. We often would like more of it, and sometimes we don't know where it went, but it is always moving forward. It doesn't wait for us. You don't get it back after you have spent it. Sometimes, it is just simply most important to waste a little, especially when with those in our lives that are most important to us.

The dedication of time is critically important in becoming a licensed professional, and in carrying out what we do. There are no short cuts! The global pandemic has driven change in how we look at time, and, especially where we spend it in our practice. We have adapted to become more flexible than what used to be the norm. These days, with teams dispersed, being able to wisely use the time that one has, while remaining accountable and fully committed, shines through.

Our time here, in terms of the geological timescale has been relatively short, but we have generated significant change to communities and our environment. As practitioners, we are sustained and grown

“ These days, with teams dispersed, being able to wisely use the time that one has, while remaining accountable and fully committed, shines through. ”

by the many technical issues that require examination, understanding, and solving. We are also recognizing that the settings where these matters unfold are becoming increasingly complex. We spend most of our time solving problems for our owners. This is at the core of what we do, and where we establish our immeasurable value. But it is also time to take a moment and pay close attention to where we are, and where we are headed.

Activity is underway at the Association to work with industry and the Government of Manitoba under the Building Regional Adaptation Capacity and Expertise (BRACE) Program to build content that will help our practitioners and decision makers integrate climate resiliency into the practice. This is a great example of planning and work being done now, to create a better future. As time goes forward, this kind of

design practice will be necessary to ensure great outcomes. There are probably many more examples of these kinds of initiatives out there, but it is hard to capture them here in 500 words or less.

There is still time available to us, and now more than ever is the time to be strategic. It is time in our practice to make intentional, meaningful, and sustainable plans to right past harms, in the spirit of collaboration and reconciliation. It is time for our practice to be diverse and inclusive. It is time now to pay the price of putting in the hard work to plan well. This will create value for the future. This will give us options.

So, as each of us, from time to time, reflects and checks in on where we are at and where we are headed, take a moment in time to think it through, make a plan, and do it well. Time will tell.

If you have any questions or comments, please e-mail me at President@EngGeoMB.ca. ☎



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How Has the **Pandemic** Affected **You?** The **Profession?**

It has been a year since many have pivoted to working at home. For me, it began on March 16, 2020. I recall coming home from a winter vacation in February and seeing many travellers wearing masks. I had been following the virus story online as it was just beginning to come out of Wuhan, China, but didn't think it would affect me in Canada. Whoa, was I wrong!

Have you been working at home too? Most people I speak with are working from home. Some have the added pressures of assisting children with online schoolwork, while others are providing support to elderly parents and senior citizens. Most feel isolated. A few continue to go to a worksite; observing new rules for safety, distance, and minimizing contact with coworkers and the public.

Probe Research

About one month after the pandemic took effect in Manitoba, Probe Research conducted a survey to find out how Manitobans were coping. Here's what they found: 18% were laid off; 80% said flexible work arrangements were "important to very important"; 71% said their mental health was "somewhat worse to a lot worse", and 42% said that professional associations (like EngGeoMB) should have more influence on public policy issues after the pandemic.

I have witnessed some changing behaviours as a result of isolation. Daily routines that were once thought to be normal have turned out to be habits. The habit of picking up coffee on the drive to the office has been replaced with a new habit – sitting in bed and sipping a coffee before starting work. Some habits have been broken. What about smoking and the consumption of alcohol? Stresses that increase with feelings of isolation and loneliness can lead to an increase in

“Have you been working at home too? Most people I speak with are working from home. Some have the added pressures of assisting children with online schoolwork, while others are providing support to elderly parents and senior citizens. Most feel isolated.”

activities that may not be beneficial. I hope that you've been able to manage these cravings. Reach out to your support network; family, friends, a coworker, or EAP (employee assistance program) counsellor if you need help.

The Profession

The profession has been affected in several ways. Some layoffs have occurred, while a few local firms have seen the need to fill new positions. Most practitioners have been forced to learn Teams, Zoom, Webex, or other video conferencing software for attending project meetings online. More inspections and site visitations are being completed by video on handheld devices, with remarkable success. Technology is playing a big role in moving us forward despite physical restrictions.

Applications for membership to EngGeoMB have slowed due to the reduced migration of newcomers to Canada, but this will pick up again once restrictions on international travel are lifted. In a typical year, half of all applicants are from outside Canada. The detrimental effects of globalization got a boost because the world has further shifted to more online, and computer-based delivery of services. Small firms can't compete with off-shore pricing of services. Large firms can't compete with big data, algorithms, AI, and design work done by computer

programmers and other non-engineers. Because of technology, is engineering becoming a virtual profession? Ubiquitous, yet more invisible than before! No matter what the effects are on the profession, EngGeoMB has faced challenges in the past century and will move forward into the next 100 years with the strength and competency of its practitioners.

Book Recommendation

I have been enjoying downloading several digital books from the Winnipeg Library to my Kobo e-reader. I recommend *The Moment of Lift* by Melinda Gates (Flatiron Books, 2019). If you're curious about what this billionaire philanthropist has to say, then get this book. I became aware of her book when I viewed the Netflix interview by David Letterman (*My Next Guest Needs No Introduction*). With a degree in computer science, she is a strong advocate for introducing girls and women to STEM careers. I am inspired by the perspective she presents on gender equality and the many personal stories from friends, colleagues inside Microsoft, and visiting locations in Africa and Asia.

Your feedback is invited and welcomed. If you have any thoughts on anything you read in *The Keystone Professional*, please e-mail me at GKoropatnick@EngGeoMB.ca. Have a great day! ☺

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Manitoba Trailblazers



NHI LE

Nhi Le was born and raised in Winnipeg. She got her bachelor's degree in biosystems engineering at the University of Manitoba. She has spent most of her career designing steel water tanks with many uses, including water retention, fire protection, and underwater filming for movies. She develops programs that help streamline the engineer-to-order process for adapting the modular water tanks for site-specific projects. Nhi is also an active volunteer with the Association. She has volunteered with the Provincial Engineering and Geoscience Week Committee since 2016, participating in running the annual Spaghetti Bridge Competition for grades K-12. She also has been a mentor for the Women in Engineering and Geoscience Mentorship Program and presented to high school students on the STEM/STEAM track about engineering and project management. Nhi believes in helping the next generation of students to see the diversity and potential in engineering as a career path. She loves pointing out the varied applications of her water tanks to kids to show them that engineering is more than just math and science. She has been sent to Alberta oil fields, drought-stricken areas of Texas, earthquake-prone California mountains, and Hollywood movie sets as an engineer, all for the same products.



RYAN BRACKEN

Ryan Bracken was born and raised in Winnipeg. After graduating from the University of Manitoba with an industrial engineering degree, he soon entered the workforce. Ryan had an early drive to enter the food industry, where he began his career at Maple Leaf Foods. In 2012, he moved from the animal-protein industry to the plant-protein industry, helping to build and grow Hemp Oil Canada and, later, Manitoba Harvest into the largest and most successful branded and ingredient-focused hemp food companies in the world. Upon exiting the business, both as an owner and VP of Innovation, Ryan, along with co-founders Shaun Crew and Barry Tomiski, started Merit Functional Foods in July 2019. As co-founder and co-CEO, Ryan has led the funding, construction, and now commissioning of the world's first pea and canola protein manufacturing facility. Merit Functional Foods will be producing the world's highest quality plant-based proteins with unique and differentiated functional and sensory performance, for use in many of the world's largest branded makers of food and beverage products.



HEATHER SMART

Heather Smart began her engineering career at a small manufacturing company that made engine block heaters for the automotive industry. Two years later, she moved to StandardAero, where she worked in different mechanical engineering roles, supporting the T56 engine, eventually becoming a subject-matter expert in component repair. After 13 years in the aerospace industry, Heather left the workforce to pursue a master's degree, specializing in aerospace superalloys. With her newly acquired academic experience, she took on an applied research role at Red River College (RRC), where she participated in procurement and installation of major capital assets to support collaborative industrial research projects and facilitate commercialization of emerging technologies. Heather gained proficiency in advanced manufacturing during her time at RRC, which prepared her for her current role as Director of Engineering at Precision ADM. She now leads a growing team of engineers performing multiple disciplines to support manufacturing for the medical, aerospace, and energy sectors. Throughout her career, Heather has maintained a dedication to the recruitment and retention of women in engineering, volunteering as a mentor and serving on committees that coordinate events such as conferences, speaker series, networking, grade school STEM programs, and Girl Guide Engineering Badge Day. ☯



G I R L P O W E R

INSPIRE THE GIRLS IN YOUR LIFE TO BECOME **ENGINEERING** AND **GEOSCIENCE** READY

BY L. STEPNUK, EIT

Engineers Geoscientists Manitoba's Girl Power campaign is designed to inspire girls to consider their futures in engineering and geoscience, inform them of the pre-requisites needed, and help link the importance and possibilities tied to their high school curriculum. Girl Power allows students of all genders to earn a t-shirt using their problem-solving skills in physics, chemistry, and math from the Manitoba grade 9 curriculum and to trace a path from where they are, to where they could go.



T-Shirt tags include pre-requisites for admission in engineering programs. By taking these courses in high school, students can be a force that drives the world.

The online portion of the Girl Power campaign was launched at the beginning of March 2020 before course selection for the 2020 academic year. Unfortunately, due to COVID-19 restrictions beginning in mid-March last year, the in-person portion of the campaign which included career fairs, science symposiums, and classroom and after-school program visits, was postponed due to the cancellation of these events and programs. Fortunately, the online campaign continues to gain traction with the help of our committee champions at WISE Kid-Netic Energy, Manitoba Education, and across various school divisions. We want to reach more students!

HOW CAN YOU HELP?

In 2018, 64 of the 224 (22.2%) students who were admitted to the Price Faculty of Engineering at the University of Manitoba were women, and 106 of the total 399 (21.0%) students who applied were women. We can improve those application rates.

Girls want to make the world better. Girls want to be inspired. Girls want good careers. Make sure they know that engineering and geoscience offer many ways to do that. Make sure they take the pre-requisites in high school to be ready to study engineering and geoscience. Show them some of the Manitoba women who are making it happen.



Send your daughters, granddaughters, nieces, friends, friends with kids, and grandkids, as well as the teachers in your life, to GirlPowersTheAnswer.ca to learn more about the women featured above and to earn a free t-shirt using their grade 9 physics, chemistry, and math skills.

Alicia Hill and Atlanta Geleta are two of the four women at various stages of their careers; a student, an intern, a professional engineer, and a professional geoscientist, featured in the Girl Power campaign. Learn about them below and read their full stories at GirlPowersTheAnswer.ca.

Alicia Hill is a graduate of the Engineering Access Program (ENGAP) at the University of Manitoba. She uses her degree to improve the quality of life of children.

"Flashback to eight-year-old me, watching the two women in my life work as health care aides care for adults with disabilities. My mom and my grandma taught me compassion and empathy while working to improve the quality of life of their patients. My dad, on the other hand, taught me how fun math and science were!

They helped create who I am today. An Indigenous woman of science, wanting to use her knowledge and degree in engineering to help improve the quality of life for everyone. While working on my capstone design project in my final year of university in the Prosthetics and Orthotics department at the Rehabilitation Centre for Children, I realized that I could utilize my degree to help children. My work ethic during the project and interest in the

[rehabilitation] field helped me secure my current position as an orthotics technician at the Centre. Now, how cool is it that I get to fabricate orthotic devices for kids every day?! Taking engineering has allowed me to have many different work experiences, which have provided me with a varied skill set."

Atlanta Geleta recently graduated from the Price Faculty of Engineering at the University of Manitoba. While a student, she led a team of other students to design, build, and race an electric car at an international competition. "My passion is to help others and create technological (clean energy) solutions that improve the communities we live in. This is what drove me to pursue a career path in mechanical engineering. I strive to build a cleaner, safer, and more sustainable future by applying my product design, testing, and project management skills developed through co-op placements, Formula SAE, and academia," says Atlanta. ☺

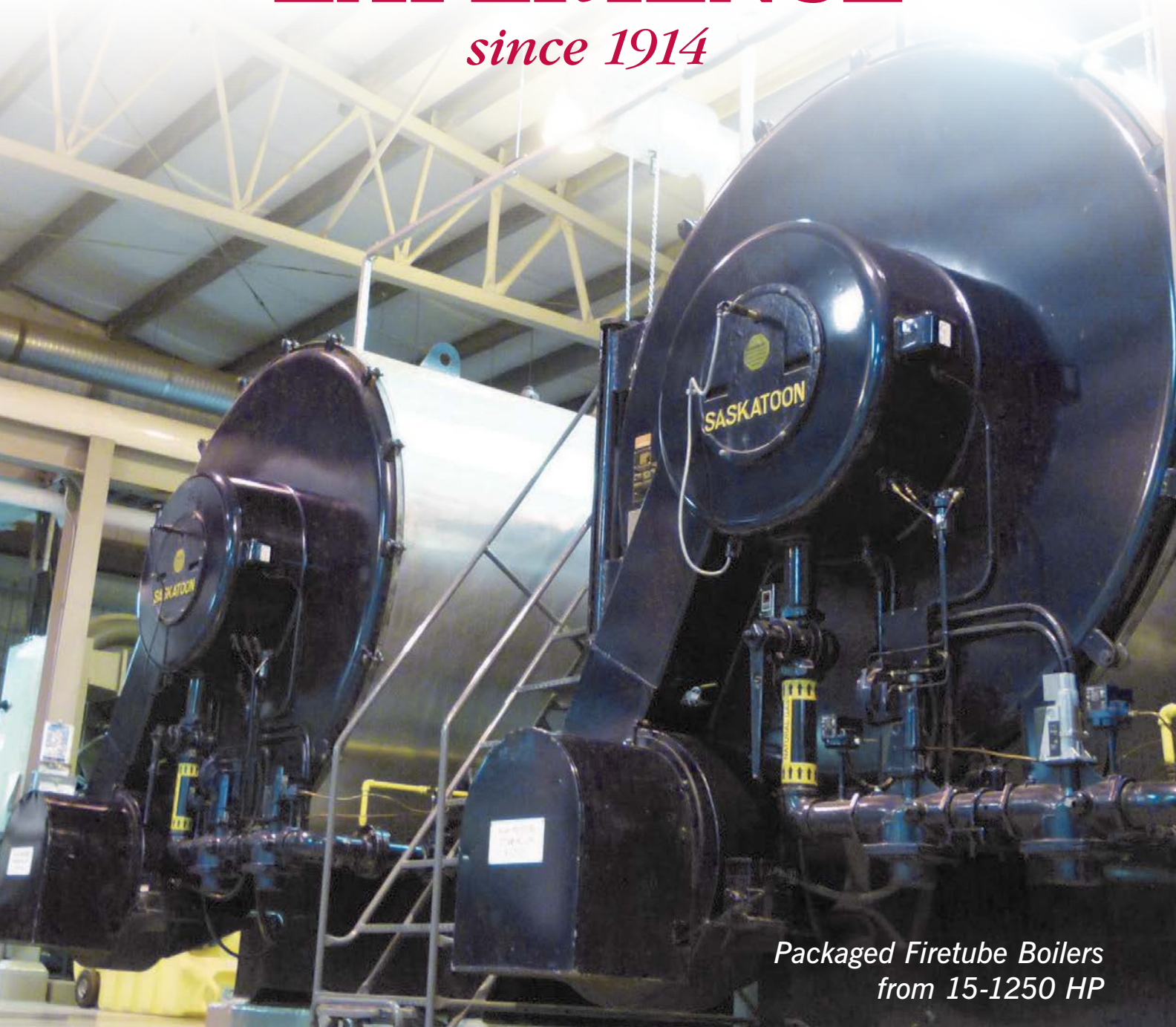




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By A. Crocker, Manager of Development & Inspections for the Planning, Property & Development Department

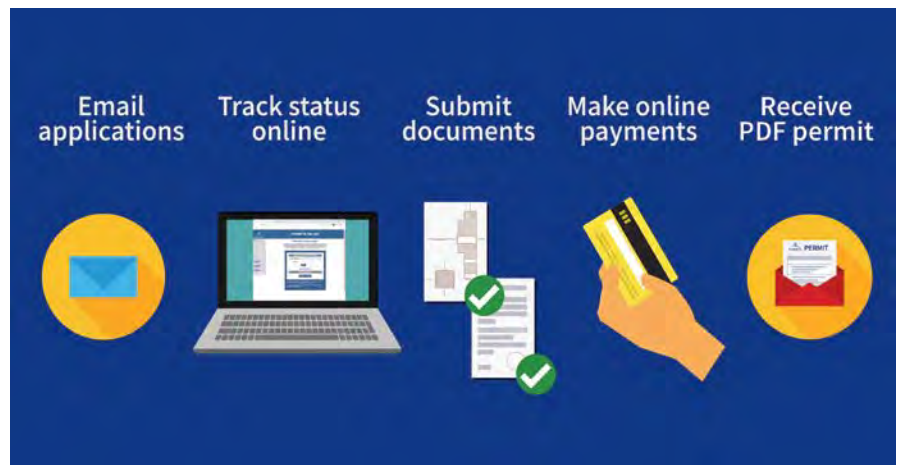
On October 13, 2020, the Planning, Property, and Development Department (PP&D) launched digital development-permit services. Introducing these services eliminated paper processing of development permit applications, allowing us to serve our customers and other City stakeholders more efficiently.

“We listened to our customers, including a number of industry stakeholders, and developed additional opportunities to offer digital services,” says Martin Grady, Administrator of Zoning & Permits. “We are happy to state that since October, all residential and commercial permit applications can be submitted digitally.”

Going paperless offers a lot of customer benefits. Using digital submissions, PP&D can provide faster processing for customers in real time, eliminating the delays that naturally result from hard copy circulation of files to multiple departments. Also, submitting and receiving information via e-mail offers a convenient alternative to an in-person visit to the Zoning & Permits Office.

Additional advantages include that customers no longer need to submit six copies of an application package. “Plus, it’s safe and convenient to submit your application and receive your permit documentation digitally from the comfort of your home or office,” says Grady. Digital submission is available for all PP&D customers, including homeowners, developers, and professional architects and engineers.

Customers who would like to submit digital development permit applications are asked to group and name applicable



PDF files as per the Digital Submission Requirements¹. The PDF application and supporting documentation can then be e-mailed to ppd-permit@winnipeg.ca. If additional information is required during the review of an application, customers are able to upload documentation directly into Permits Online². Once an application is approved, the customer will receive their permit via e-mail along with a link to a ZIP file to download the approved supporting documentation.

If paper applications are submitted, they will be digitized at intake by PP&D and uploaded electronically into the permitting system. “Once uploaded, all required reviewers will be able to view the application immediately and provide comments on the drawings electronically,” says Grady. “We no longer rely on hard-copy circulation of files.”

If additional information is submitted, all reviewers will have access to the uploaded information at the same time

and be notified electronically of the submission to initiate the re-review.

Implementation of this initiative enables the department to be completely digital in the review and issuance of all permit applications. This includes residential and commercial development, building, trade, and occupancy permits. Learn more about digital permit services by visiting the Digital Permit Applications³ webpage.

If you have any questions about the digital submission of permits, please call Permits Direct Line at 204-986-5140 or visit the City of Winnipeg Digital Permit Applications website at <https://www.winnipeg.ca/ppd/permits/DigitalPermitApplications.stm>.

¹ <https://www.winnipeg.ca/ppd/permits/DigitalPermitApplications.stm#2>

² https://ppdportal.winnipeg.ca/Permits/menu/logon_a.jsp

³ <https://www.winnipeg.ca/ppd/permits/DigitalPermitApplications.stm> +

Leveraging Your Soft Skills: Communication

By K. Dodds, P.Eng.

I think organizations sometimes struggle to set up their leaders for success. You would not ask an engineer to model a complex flow equation without giving them the appropriate software. Why, then, do we promote people into leadership and management positions without providing them with the training and the tools required for success?

In today's fast-paced world, we tend to overcomplicate things. Much of what follows will not be novel, but it never hurts to be reminded of the basics. We all know the importance of the base of any structure.

That leads me to four characteristics that I consider fundamental and foundational elements for any good leader: communication, delegation, authenticity, and decisiveness. This will be the first of four short articles highlighting each characteristic mentioned above. While this list is not exhaustive, spending time focusing on these areas will certainly increase your effectiveness as a leader or manager in your organization.

Communication is foundational in how we interact with those around us, in our workplaces and in the world at large. If you are the prototypic engineer, you likely have a blunt communication style.

While working with similar individuals who share the same coding system as you, this may not be an issue. But I'd like you to picture a time when you tried to communicate a message to a colleague or partner and you thought that there was no issue, you may have just been sharing facts, data, content, or plain old feedback. But when you were done the recipient was confused, frustrated, or, worse, angry.

To be superior communicators, we need to understand the interpersonal models of good communication. If you think of this in terms of a process flow diagram, you can picture a sender (yourself) forming a message which transmits through a conduit to the receiver (your colleague). The challenge is the conduit through which the message flows is not clear. It gets disrupted by "noise". That noise could be many things: the environment, and/or psychological, social, and/or structural barriers that disrupt the sender's intended message. If any portion of the message gets distorted, it is possible that the sender and receiver will not have a common understanding of what is being communicated.

So how do we ensure the information that we are communicating is received in the manner intended? Are we working from the same codebooks? What is the sender's ability to encode a message to their intended audience, and what is the audience's ability and motivation to receive it?

It is important that, when communicating, we find something that is shared. For example, a shared mental model, motivation, ability, or experience. More and more, in today's new world order, we communicate by e-mail, and this produces a litany of challenges for interpreting tone, messaging, and/or emotion.

We are experts at rejecting our own emotional perspective when interpreting messages. As such, e-mails are routinely perceived as more negative than the sender intends because we are placing our own biases on, or attributing our feelings to, them. So, what can we do? It may sound basic, but take the time to highlight phrases, use expressive language, or throw in an emoji. Now, I will admit I struggled with this when it was first pointed out to me. I considered e-mail just another tool to transmit a message and could not understand why I should have to incorporate superfluous language into my purely factual communications.

Here's the secret sauce, it's not about you!

So, despite a trend to the opposite in a world where I receive e-mails from people asking if it is okay to call me, I dare you to be different. I challenge you to skip the text, stop typing that message, and just pick up the phone or, when it is possible again, meet with someone face to face to have a coffee and engage in conversation. ☺

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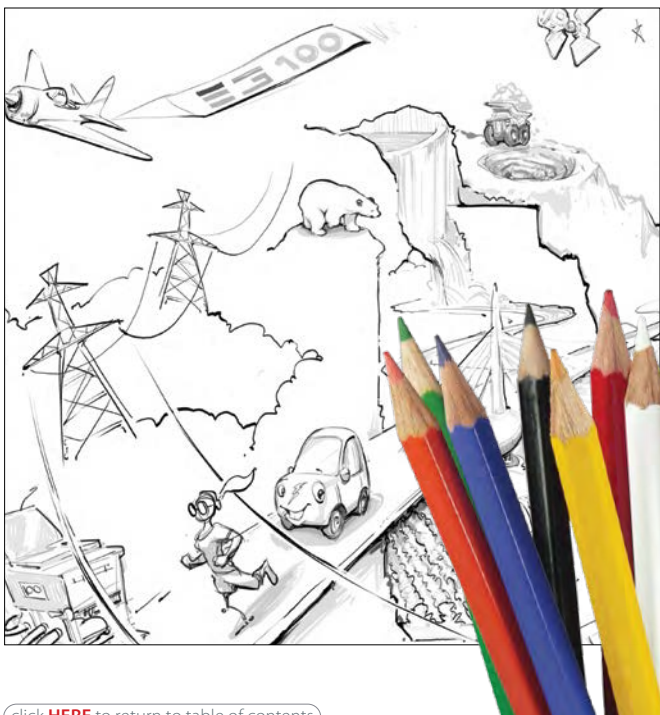
national ENGINEERING AND GEOSCIENCE MONTH

With the inability to do outreach in person as we would normally do in March during Provincial Engineering and Geoscience Week (PEGW) due to pandemic restrictions, the Association, along with eight of the twelve other provincial and territorial regulators from across Canada, formed a Digital Engagement Working Group to pool skills, expertise, and resources. Together the group worked to create digital events to replace in-person activities that will reach students from kindergarten to post-secondary and professionals. Over the last six months, five existing initiatives were redesigned and scaled for a national audience.

- Digital Scavenger Hunt (K to Grade 6)
- Engineering Design Challenges (Grades 6 to 8)
- Future City Experience (Grades 6 to 8)
- Online Game (Grades 9 to 12)
- Life-Long Learning (post-secondary students and professionals)


COLOURING CONTEST

In celebration of our Centennial year and National Engineering and Geoscience Month, we want you to show us your colouring skills. This fun colouring contest is open to youth and those young at heart. For more info visit <http://www.EngGeoMB.ca/ColouringContest>.



SPAGHETTI BRIDGE BREAKING

Due to the pandemic restrictions, we are not able to run our Spaghetti Bridge Competition like previous years. However, we recognized that many teachers enjoy incorporating the building of their spaghetti bridges into their STEM curriculum therefore we will be hosting our first virtual bridge breaking. If you've always been curious about this event, you'll be able to tune-in online on March 25 to watch as our professional engineers break spaghetti bridges.

For more information about our National Engineering and Geoscience Month activities, see our Events Calendar at <http://EngGeoMB.ca/Events.html#EngGeoWeek>. 



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Looking into the Future

By R. Reichelt, P. Geo.(SM), FGC

Geology is historical science. That is, it looks into the evidence of the earth's past to understand the present condition of the planet. Such an understanding can also give some insight into the future. I'd like to bring you a brief look at the future from the viewpoint of a geoscientist. The emphasis will be on the challenges to our professions – accessing resources, cleaning up the legacy of the past, and the likely future of our society, using history as a guide.

Challenges

Human societies can be seen as energy machines that take control of energy sources and use that control to make the things deemed necessary to that society. For most of human history, that energy was almost entirely solar. The sun grew

the food that powered human and animal labour. Other sources of energy, such as firewood and wind, were also, ultimately, solar in origin. The key advance of the industrial era was to use the stored energy of fossil fuels to power our manufacturing and food production. Utilizing fossil fuel energy sources allowed the population of humans to grow from less than a billion at the beginning of the industrial age, about 300 years ago, to approximately 7.8 billion people today.

The challenge for the future will be to find enough energy to meet our needs. The biggest sources of fossil fuel energy today are petroleum, coal, and natural gas. However, the inexpensive sources of these resources are being depleted. We aren't going to run out of fossil fuels any time soon, a common misconception

of the peak oil hypotheses, but future fossil fuel resources will become more expensive to recover. The best way to envision this is to compare the energy inputs required to develop a resource to the return on that investment, i.e., Energy Return on Investment (EROI). The EROI for conventional petroleum sources developed over the past 100 years was typically 10. That is, spending one unit of energy on exploration and development would result in ten units of energy produced. Non-conventional petroleum sources, such as oil sands and oil from shale deposits, often have EROI in the order of 5 to 3. The future challenge in developing these resources will be to make their extraction more efficient.

"So, what about alternative energy resources?" you may ask. To make large-scale use of resources, such as wind, hydroelectric, solar, and nuclear, the systems need to produce more energy than it takes to build the systems. Hydroelectric power is a proven winner in this respect, except that there are limited sites available for future dams. Solar and wind are promising, but the lifecycle cost of these technologies may exceed the value of the energy they produce. Nuclear power faces similar challenges with regards to lifecycle costs, together with the additional problem of safe waste disposal.

The uses that we make of energy will, in part, determine the needs for other resources. For example, what will we need if we replace petroleum-powered transportation with electric vehicles (EVs)? The answer is that we probably need to find additional sources of metals such as lithium (for batteries), cobalt, tantalum, niobium, and rare earth elements (for the electronic controls in these devices) as well as the old standbys of copper and aluminum (for electricity transmission). Resource depletion may have some effect on the costs of these materials, and I would not be surprised if private EVs become the plaything of the rich, while the rest of us become dependent on electric-powered mass transit.

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Another call upon our energy resources will be the need to clean up the legacy of our industrial past. Many places have been contaminated by spills of industrial chemicals and fuels. These represent an ongoing risk to human and environmental health. Most of my career was spent in this field and the current trend is to move from intrusive remediation techniques, such as excavation and ex-situ treatment, to in-situ solutions, such as bioremediation and in-situ chemical treatment. I expect this trend to continue. A particular challenge comes from existing nuclear waste; it is difficult to find a technical solution that meets the high expectations for long term safety.

The Long Run

John Maynard Keynes is famously quoted as saying, "In the long run we are all dead". From a geological perspective, there is some truth in that quote, since, at some point in the future, we will join the 99% of all species that have gone extinct. We hope that human extinction is a long way off, although it is within the realm of possibility that we will bring that fate upon ourselves.

While the prospects for the survival of the human race may be good into the distant future, there are no guarantees for our industrial civilization. If history is any guide, every great society of the past has gone through the cycle of birth, growth, decadence, and collapse. There is no reason to believe that our Western civilization is any different.

My opinion is that we are at a plateau in the development of our civilization. If we do not overcome the technical, cultural, political, and economic challenges that face us, then our fate will be that of Tikal and Babylon. Alternatively, technical advances and cultural renewal may make a brighter future for our society possible.

Overall, the challenges noted above should not be insurmountable barriers. Our most difficult challenges may not be technical, but rather cultural, political, and economic. As citizens, geoscientists and engineers will need to add our expertise and wisdom to the cultural and political discourse on these issues. We have agency in these matters, and are not entirely at the mercy of historical forces beyond our control.

Further Reading

If you wish to pursue to issue of the predicament of Western civilization, I suggest starting with the three following books:

- Catton, William R., 1978, *Overshoot, the Ecological Basis of Revolutionary Change*, University of Illinois Press, Chicago, USA
- Tainter, Joseph A., 1988, *The Collapse of Complex Societies*, Cambridge University Press, Cambridge, UK
- Toynbee, Arnold J., 1946, *A Study of History*, Oxford University Press, Oxford, UK (Note: the abridged 2 volume edition, published in 1965 by Dell Publishing of New York is the most accessible version of Toynbee's work) ⊕



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Meet the People That Make Life Work Better

Kristin Petaski, P.Eng.

Member Profile

By R. Lewis



Speak to just about any engineer and ask them what got them interested in the field and, nine times out of 10, you will hear about that unquenchable desire to solve problems. Kristin Petaski is no different. Not only has Kristin's career centred on problem solving, she has also placed special emphasis on making working conditions, equipment, and the like safe for others in her current position at Workplace Engineering Solutions, where she has been a Machine Safeguarding and Risk Assessment

Specialist for the past nine years. With 14 years in the field of engineering already under her belt, Kristin's enthusiasm for her profession has only grown, something she attributes to those "never-a-dull-day" opportunities that her job constantly brings her way. And, even with all the challenges that balancing family life and work life can present, the mother of two applies much of the same problem-solution concepts to that aspect of her life, for the best outcomes.

What was the catalyst for you entering the engineering profession?

I enjoyed math and science class as a kid, so engineering was a good fit. But I think what really sold it was my desire to solve problems. I can remember reading the University of Manitoba engineering brochure in high school and the manufacturing engineering description really resonated with me. I could see how I tried to find efficiencies in my personal life, and knew that I had the right mindset for optimizing production lines. My parents kept my sisters and me very busy with activities, and they often relied on me to figure out how they were going to organize all the drop-offs and pick-ups so that everyone made it to their practices and games on time. I think my sister only got left somewhere once!

What does a typical workday look like for you?

What is typical is that every day is different, and that's what I enjoy most about my job. I get to do so many

different things that I never get bored with what is typical. One day I may be out visiting clients, performing on-site risk assessments, or delivering safety and efficiency solutions. The next day I might be in the office writing reports, putting together proposals, or working on business and marketing strategies. Some days I am local or travelling the province, country, or North America presenting on the benefits of machine safety, giving training presentations, or sitting on committees to shape the industry. There is no typical day, and that's something not everyone gets to say about their job.

What advice do you have for people considering entering the engineering profession?

Engineering is a very versatile field. You can pursue basically any industry through engineering, and it opens so many doors. You can't go wrong with a degree in engineering, whether you choose to work as an engineer your whole life, or whether you use it as a stepping stone

to another path. I am always fascinated when I meet someone in a completely different profession that still wears their iron ring with pride.

What's the most rewarding part of your career?

I love the ability to work together and collaborate with the people working on the shop floor. When everyone works together, we come up with great solutions that not only make the job safer, but also easier for the workers. I have countless stories of returning to a workplace after we have modified machinery to see workers taking ownership and pride in the new process. It's a truly rewarding experience when you can sit back and understand how you helped to make someone's workday better.

What are the three most memorable projects you've worked on?

My most memorable project speaks to the previous question perfectly and why I truly love what I do. It was just a simple guarding assessment and installation on a small CNC (computer numerical control) milling machine. The machine was wide open and fully accessible to both the operator and other workers and bystanders in the area. Through a collaborative risk assessment, we determined that the machine should be enclosed within a perimeter fence and interlocked access gate. Although there had never been an injury on this machine, we knew that it was possible for someone to enter the hazard zone during operation, or for a part or tool to fly out. We worked together with the operator to design a system that would work with their production needs and still protect against the hazards. Only a few days after

we installed the guarding system, the tooling exploded while machining a part and a large piece flew towards the operator. The fence blocked the flying debris and saved the operator from a very serious injury. I will never forget visiting the facility a few weeks later and speaking with the operator who was so grateful for the guarding we had implemented just days earlier.

My second most memorable project was the creation of our web-based risk assessment tool, WESguard. It was a novel idea to take our manual risk assessment, machine safety audit, and project management system and turn them into an online tool. WESguard allows us to perform all parts of the audit directly on the shop floor and collaborate continuously with our clients throughout the project. It was challenging and exciting to figure out how to adapt our process and watch all the benefits of a collaborative, effective safety tool come to life. This project truly is a legacy beyond the physical guards and training. It empowers employers to protect their workers, passing on our expertise to clients so they can ensure their workers go home safely after every shift.

My third most memorable project was the conversion of an assembly line from batch production to “just-in-time” delivery. I had the opportunity to redesign processes as well as research, purchase, and install new equipment. The most challenging part was not the redesign of the process, but figuring out how to convert the assembly line without interrupting production. I found that determining the optimal sequencing of process changeover was a puzzle that I thoroughly enjoyed.

Do you have a ‘dream project?’ If so, what is it?

Anytime I see a Cirque du Soleil performance, I watch the stage and the apparatus movement and design more than the performers. I see all the crush, pinch, and sever points, and I wonder how they safeguard those hazards. I think it would be neat to work on a set like that and ensure all the moving parts function safely.

What do you get out of engineering that you couldn’t get out of any other line of work?

Engineering gives you the power to implement real change. I often hear people complaining about systems and procedures with their job and I immediately start thinking about how things could be done better. I find that working daily to make things safer and run more efficiently makes everyone’s lives better. It’s a great feeling to know that the work I do today will ensure that someone goes home safe to their family tomorrow.

Are there Engineers Geoscientists Manitoba initiatives that you are involved in or support?

I have enjoyed supporting efforts to increase the participation of women in STEM careers. I have participated in the Committee to Increase the Participation of Women in Engineering (CIPWIE) mentorship program and the Women in Manufacturing Action Committee.

What makes your current job such a great place to work?

We’ve developed such great relationships with our clients and partners that it feels like working with family every day. Our amazing clients consider us friends, not just an engineering firm that they hired. It was their support and powerful endorsements that grew Workplace Engineering Solutions into what it is today.

What do you hope the engineering and geoscientist professions will look like 20 years from now here in Manitoba?

I’d like to see us continue to work towards becoming a more diverse profession, particularly with more women in the field. The best ideas come from diverse collaboration and that is the best way to see our province thrive. Having two daughters, I would be proud to see them as engineers one day. My oldest is only four, but loves puzzles, taking things apart, and seeing how they work and finding ways to fix things. I know she sees the world how I did growing up, wanting to know how all the pieces fit together and how she can make it better. I love watching her brain work as she figures out how to reach a toy under the bed, or the cookies on the top shelf of

the cupboard. I have a great sense of pride when her first reaction to breaking a toy is “Oh Mom, I know how I can fix this”. I want her, and all little girls, to be encouraged to follow their dreams and not feel like they are limited by gender roles.

When you’re not working, you can be found...?

Well right now I’m spending a lot of time at home just like everyone else! I enjoy playing volleyball with my senior women’s indoor team or water skiing at the lake in the summer. Most of my time is spent together with my amazing family. We have two girls, four and almost one, and they keep us very busy!

How much of a balancing act is family life and work life and what’s your secret to keeping on top of both?

Balancing family and work can be a real challenge, and is still somewhat of a stigma at times. I have two young girls and they demand a lot of time and attention. I love my work, but family is number one. Being a working mother doesn’t mean I have to choose one over the other, but it does require being able to solve yet another puzzle around time management, process management, and stress management. That’s why I enjoy a career with a flexible schedule, so that I can be there for sick days, soccer games, and special family events. But that also means that I’m occasionally working early mornings or late nights, as needed. I find the flexibility allows me to meet the goals of both work and home.

What tips can you offer to young engineers just starting out in the field or persons who are considering engineering as a career?

The best advice I can give is the advice I was given by my first mentor (and current business partner). If you want to do a job right, involve the people who actually do the work every day. Go down to the shop floor or construction site or wherever you’re working and talk to the people there. Include them in your brainstorming and project planning. No matter how much you think you know, they know more. The best engineers learn how to gather that knowledge and use it to develop ideas that work with the process instead of making the process fit the idea. ☺



Investigation Committee

By D. Wawryk

You may have read the notices posted under the *Engineering and Geoscientific Professions Act* (the Act) and the Association's Discipline By-law, however do you know the steps that occurred prior to these notices to be posted? Let's start with our Act and Code of Ethics and how our Investigation Committee uses them in their investigation process. While the Act is the legislation that empowers the Association to self-regulate, which includes the review and discipline of persons practising engineering or geoscience in Manitoba, our Code of Ethics (the Code) ensures that practitioners always apply their specialized knowledge and skill in the public interest with honesty, integrity, and honour, and conduct themselves in a spirit of fairness and tolerance when dealing with fellow professionals. As a general guide, our Code outlines the spirit of the Association member's professionalism. Failure to follow this Code may be considered unskilled practice, professional misconduct, or both.

In this first of a two-part series, we will review the discipline process once a complaint has been submitted against one of the Association's practitioners or holders of a Certificate of Authorization. The complaints and discipline process reviews

past practice to prevent future actions that fall below the standard expected of professional engineers and geoscientists. Please note that this will be a general overview, and reference to the Act and By-laws should be made for a comprehensive description of the processes involved.

Any person may file a complaint about the conduct of a current or former practitioner. When the Association receives a complaint, the disciplinary process is initiated, and the Investigation Committee becomes involved.

The Investigation Committee is composed of no fewer than five people appointed by Council with:

- Two-thirds or more who are practitioners from a variety of fields of engineering and geoscience;
- less than one-third who are "lay" members representing the public.

Fifteen committee members currently sit on the Investigation Committee, and they have a wide range of experience. Cumulatively, the current committee members have been registered with the Association for over 265 years and have over 85 years of Investigation Committee experience. That is a lot of engineering and geoscience experience around one table or Teams meeting! The Investigation Committee's mandate is to investigate complaints and concerns received from both the public and members of the Association, as well as to consider questions on professional conduct received from Association members.

Investigation Committee members must ask themselves: Do the allegations, if true, constitute professional misconduct or unskilled practice? Is there evidence to support the allegations?

An action is considered professional misconduct or unskilled practice if it has any of the following six elements:

- detrimental to public interest;
- considered unbecoming;
- considered misconduct;
- in contravention of an Act, By-laws, or Code of Ethics;
- a result of a lack of skill or knowledge; or
- a result of an incapacity or unfitness to practice.

If the Investigation Committee is satisfied that the complaint falls within its mandate, the committee will investigate the matter. The complainant and the investigated person are notified that an investigation has been initiated. The investigated person is provided with a copy of the complaint and is asked to provide a written response. That response is then forwarded to the complainant to provide them with the opportunity to provide additional information on the matter.

An investigation may also include the following actions:

- interviewing the complainant;
- interviewing the investigated person;
- interviewing other people involved in the matter;
- gathering documentation;
- engaging an expert to review technical aspects.

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Complaints made to Engineers Geoscientists Manitoba are classified into two broad categories:

- Discipline (Complaint Against a Member)
- Enforcement (Unauthorized Practice)

However, not all investigations include all of the above potential actions. Once the investigation is complete, the Investigation Committee determines whether they will dismiss the matter or pursue disciplinary options. The complainant and the investigated person are notified if the matter has been dismissed.

If the Investigation Committee determines that there is sufficient evidence of professional misconduct or unskilled practice, it may seek to resolve the matter by way of a joint agreement or penalty proposal. To resolve a matter by penalty proposal, which circumvents a costly hearing and, in most cases, leads to a resolution, the investigated person and the Investigation Committee agree on a set of charges and penalties. The Investigation Committee cannot decide guilt unless the practitioner accepts fault.

If fault is not accepted by the practitioner, innocence or guilt is decided by the Discipline Committee. When a charge is forwarded by the Investigation Committee to the Discipline Committee, the next stage of the disciplinary process is the hearing. This may be an expensive, lengthy process, and should be avoided whenever possible.

In the next issue, we will review the process once the Discipline Committee becomes involved in a complaint. Do you have questions about the investigation or discipline process? Send them to DWawryk@EngGeoMB.ca and we will either include them in the next Committee Spotlight or have a member of the Professional Standards team reach out to you. ☎

	Active Investigation Files	New Complaints	Files Closed
2016	26	22	9
2017	30	21	5
2018	30	14	17
2019	24	11	20
2020	15	20	17



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Kathryn Atamanchuk Wins Manitoba Aerospace All-Star Award



Congratulations to **Kathryn Atamanchuk**, P.Eng., FEC, who was named the recipient of the Manitoba Aerospace All-Star Award of Excellence for Builder and Education/Training in December 2020. Currently an Engineer-in-Residence

(EiR) for the local Aero-Engine Test and Advanced Digital Manufacturing sectors, Kathryn teaches at the graduate and post-graduate levels at the Price Faculty of Engineering, University of Manitoba. She is Canada's second female EiR and is passionate about diversity in engineering. Kathryn is involved with the coordination of the Association's Women in Engineering and Geoscience Mentorship Program and serves on the Investigation and Nominating Committees.

Three Manitobans Named Fellows of the Engineering Institute of Canada

In January 2021, the Engineering Institute of Canada announced the winning recipients of its 2021 senior engineering awards and fellowship inductees. Of the twenty-four named, three inductees are members of the Association. We extend our congratulations to **Dr. James Blatz**, P.Eng., FEC and **Dr. Ekram Hossain**, P.Eng., and **Dr. Yi Zhang**, P.Eng., who were inducted as EIC Fellows for their exceptional contributions to engineering in Canada.



Dr. James Blatz



Dr. Ekram Hossain



Dr. Yi Zhang

Remembering Dean Emeritus, Dr. Douglas Ruth



On January 11, 2021, **Dr. Doug Ruth**, P.Eng.(Ret), FEC, passed away after a battle with cancer. Dr. Ruth served as the Dean of the faculty of engineering at the University of Manitoba from 1999 to 2010, overseeing the construction of the Engineering & Information Technology Complex (EITC) and further expansion of the Faculty's programs and services.

In addition to serving as Dean, Doug was a core faculty member for more than 30 years and an Association member for nearly 47 years. Doug was the second of the University of Manitoba's three NSERC Chairs in Design Engineering and

championed new concepts such as Engineers-in-Residence and industry-based design courses, both of which have seen tremendous success with students.

Dr. Ruth's legacy was honoured many times within the Price Faculty of Engineering and the Association. In 2014, he was awarded the Champion of Engineering Education Award for his relentless commitment to the education of engineers in the province of Manitoba. When he retired in 2018, he was honoured as Dean Emeritus and the laneway entering the EITC was officially renamed the "Doug Ruth Laneway" in recognition of his years of service to the Faculty. The *Doug and Beverly Ruth Centenary Award in Engineering* has been set up in his memory by his family.



*Photo credit: Price Faculty of Engineering, University of Manitoba

Chinese Members Chapter Donates to Elementary School

As part of the Centennial celebrations, the Chinese Members Chapter purchased 55 STEM books which they donated to the Whyte Ridge Elementary School and the IEEQ Program at the University of Manitoba. As part of their donation, some of the books chosen were about female scientists or engineers, in the hope to inspire more girls to find the beauty of science and learn how they can change the world by using science.



2021 Project Donate Engineering Challenge

Canadian Blood Services is asking engineering firms to roll up their sleeves to save a life by participating in Project Donate Engineering Challenge from March 1 to 13. Over the past year, Canadian Blood Services has implemented many changes in their donor centres to maximize donor and staff safety during the pandemic, while still allowing them to collect blood which continues to be essential for the health and well-being of patients across the country.

You can donate at the central Canadian Blood Services clinic on William Avenue or one of the mobile clinics taking place across the province. Canadian Blood Services will provide LifeBus transportation for up to five people to and from the clinic on William Ave. To book a group appointment or a LifeBus shuttle to the Winnipeg Blood Centre, call 204-789-1056, or e-mail groupbookermb@blood.ca. To book an individual donation appointment download the GiveBlood app or visit www.blood.ca.

We hope you will join in the annual Project Donate Engineering Challenge as we once again rally the engineering sector in Winnipeg to save lives!



NOTICE

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

This is notice that on November 10, 2020, Mr. N.A. Garcia, P.Eng. consented to the registration of a conviction and issuance of a reprimand 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's issuance of a certification letter for the inspection of a private residence and detached garage in rural Manitoba.

In the course of his involvement in this project Mr. Garcia:

- certified the foundation and structural systems were functional and did not pose life and safety hazards, with full knowledge that a structural assessment had not been performed, and with full knowledge that this did not meet the requirements of the RM to have a structural engineer review the structures, and
- made statements in this letter that fell outside his area of professional practice and competency.

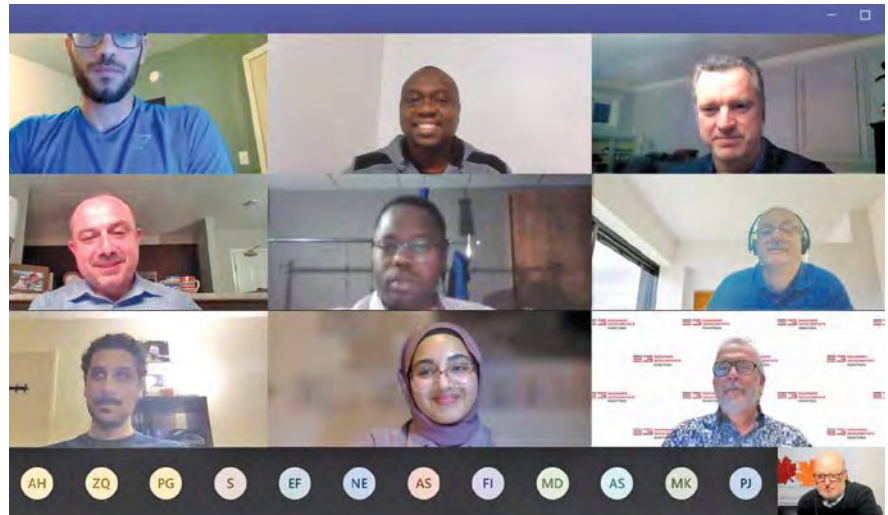
In addition to the reprimand, Mr. Garcia:

1. is restricted from practicing structural engineering until he satisfies the Association that he is competent to do so,
2. is required to take and pass an ethics course within six months,
3. is required to write to the RM and the homeowner retracting the Letter of Certification,
4. must refund in full the fees paid by the homeowner for the inspection and corresponding report, and
5. must complete an additional 30 Formal Activity Hours and 30 Informal Activity hours.

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

Happy 4th Birthday to the Arab Members Chapter!

On January 19, the Chapter hosted a virtual birthday celebration to continue to support each other at both professional and social levels. The Chapter extends their appreciation to Association President Jason Mann and CEO & Registrar Grant Koropatnick, and Shali Zhang from the National Bank for bringing greetings and to all the students, members, and guests from other chapters who attended. Congratulations Laith Alsheikh, Segun Olatunji, and Amritpal Singh Sidhu, the winners of the 2021 Arab Members Chapter engineering student bursaries.



FORE! Mark your Calendars!



Our 17th Annual Making Links Engineering Classic is on June 17, 2021, at the Links at Quarry Oaks.

For more information, visit EngGeoMB.ca/Events.html.



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Engineers Geoscientists Manitoba Sons & Daughters Bursary Draw

Every year the Association gifts students continuing the professional lineage in their immediate family.

The bursary is open to sons and daughters of Association members in good standing, who are enrolled in 1st year engineering or geoscience studies at any Canadian Engineering Accreditation Board (CEAB) recognized university or college.

Learn more about the students who were randomly drawn for the \$1,000 bursaries in 2020.

More information about this bursary and other scholarships can be found on our website at <http://www.enggeomb.ca/Scholarships.html>.

Joseph Nardella

General engineering – University of Manitoba

Why did you choose to study engineering?

My mom is an engineer and I've discussed her job with her most of my life, so I became interested from that aspect. I found myself interested in natural phenomena as a child, and I always wanted to know about the reasons behind them. I also enjoy math and physics, so I figured that engineering would be a good application of both.

What are your career aspirations?

I am considering applying to both mechanical and computer engineering. I am quite interested in both subjects, so I have yet to make a decision either way. I hope that the intro courses that I take this year will give me an idea of what I enjoy doing.

Jordyn Mailey

Electrical engineering with concentration in biomedical – University of Manitoba

Why did you choose to study engineering?

Engineering opens doors to a lot of opportunities. As well, the skill set that engineers have is very valuable and versatile.

What are your career aspirations?

I want to work in the biomedical field and create and design devices that save lives and increase people's quality of life.

Ilona Zrinyi

Bachelor of science, undeclared engineering – University of Manitoba

Why did you choose to study engineering?

I think it is really intriguing to be able to use our knowledge of the physical world around us and apply it to creating technology that will then further our knowledge into understanding the world around us. There are so many things humans have yet to discover. I chose engineering in hopes that one day I can apply my own research and knowledge to discover more about the physical world around us.

What are your career aspirations?

I would like to specialize in either medical technology or aerospace engineering. It would be so amazing to be able to help those who are in need of medical devices that have yet to be invented. By designing those devices, I can help those who need them.

If I decide to specialize in aerospace engineering, I would like to work for NASA and do my own mission into outer space. It would be such an amazing honour to be able to do my own research in space about the unknowns that are in space.

Elizabeth Ling

Bachelor of engineering, civil – McGill University

Why did you choose to study engineering?

Engineers provide solutions for many of the problems that society faces. I chose to study engineering because I would find my job meaningful, and the impact of engineers is very visible within society.

What are your career aspirations?

I've always enjoyed math and physics. The prospect of using these skills in the workplace is very appealing. I would like to work on the structural components of buildings, but this might change as I continue to learn about the different jobs a civil engineer can have.

Natalie Amber Campbell

Aerospace engineering – Ryerson University

Why did you choose to study engineering?

I chose to study engineering because I enjoy the analytical thinking (the 'exercising' of my brain) aspects of both math and the sciences. I look forward to applying the critical thinking skills I'm developing in school to real world problems.

What are your career aspirations?

My career aspirations are to work for NASA one day, as well as joining the military to learn how to fly fighter jets (I may never fly a spaceship, but fighter jets are the next best thing).



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A. Ajinai	T.R. Devlin	T.M.E.A.M. Khalifa	W.W. Ng	B.J.W. Sperl
A.F. Al Massri	T.P. Dinh	M.W. Klimenko	F.G. Niemeyer	G. St-Arneault
R.E. Almiron Bonnin	M.G. ElGendy	N.D. Klippenstein	P.K. Nyabeze	S. Stiller
N.T. Ariyawardena	N. Elsaleet	S.J. Kohler	O.E. Oladapo	D. Storrow
M.U. Arshad	D.S. Eskildsen	J. Kovacevic	O.A. Olatunji	L.J. Su
A. Avizheh	M.S. Fair	C.M. Kwasniak	T.M. Otten	D. Suh
C.A. Baker	D.J. Ferg	A.L.L. Laban	S. Pan	S. Suri
V. Banthia	L. Fikr	D.R. Lake	B.A. Peake	B. Tabrizi
Y.V. Baril	R.K. Fitzsimmons	S. Lehouillier	S.W. Peng	Y. Trach
S.K. Bawden	B.D. Fletcher	E.M. Lemee	N.A. Playle	I.N. Venneman
S.C. Black	J.F. Gauthier	A.F. Leslie	R. Ramchandrar	T.Q. Vo
K.E. Boch	D.A.F. Gerow	J.C. Letwinetz	B. Ramos	J.H. Vorster
S.W. Bodtker	S. Giang	D.A. Levin	D.J. Ranseth	M.J. Wallsten
D.L. Bonnet	M.E.M. Gougam	C. Loblick	I.S.S. Rehman	C.Y.Y. Wang
P.N. Botha	L.B.M. Guidolin	P.A. Lopez Hernandez	S.M. Rezazadah	Q. Wang
A.R. Budowski	K.A. Gunn	A.D. Maronese	J.S. Roadley	L.E.S. Wazney
L.C. Busch	J.L. Harrison	L.R. Martin	J.T. Robinson	W.B. Weaver
W.C. Caldwell	R.B. Heck	I.F. Masood	M.E. Roemer	N.K. Woelcke
K.M.J. Coleman	V. Heshmati	C.R. Mathies	N. Sasanian	J. Yan
M.A. Craig	N.R. Howe	B.R. McDonald	C.R. Scollard	J. Yang
R.J.F. D'Costa	N.A. Jacobson	R.D. McIvor	A. Shah	S. Yavari
N. Damani	P. Jacques	C.G. McKinnon	M.P.B. Sheppard	W.S. Young
C.R. Davies	M. Jalayer	R.D. Mills	J.D. Sigurdson	R. Yue
I.S. Davies	S.N. Jones-Duch	A.E. Mohamed	C.S. Simpson	H. Zhang
J.E. Davis	J. Katzer	D.G. Morris	V. Singh	N. Ziaolhagh

Interns

Z. Abhazim	C.N. Desu	L.C. Inglis	R. Raju	M.A. Sottana
H. Al-Hassani	B.D.D. Doell	A.P. Kerr	N.T. Reinsch	R.C. St. Hilaire
G. Al-Shaar	J.N. Doerksen	M. Khalid	A.A.A. Rittaler	M.D. Stevenson
J.K. Anderson	D. Eckhardt	R.D. Krockner	C.M. Roy	P. Thapa
A. Babaei	J.D. Elias	J.V. Mack	P.V. Salapata	P.D. Toews
B.R. Baker	H.S.A.A. Elsis	C.J. Mandock	S.C. Sanchez	B.D.D. Trinidad
S. Belmoubarik	J. Forde-Hyde	M. Mazor	M.S. Scherger	L. Uppal
K.C. Bergen	M.S. Franca	R.R.G. McCallum	L.R.T. Schulz	R. Ushadevi
S.R. Borlase	J. Garcia	M.M. Morelli	A.A.H.M. Semendary	N.H. Vakani
D.M. Braun	L.M. Giesbrecht	A. Muthuraj	T. Sengoz	J.M. Veliz Pino
P.H. Buhler	M.S. Gill	T.J. Nelson	A. Sharma	Q. Wang
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A.K.V. Carlin	O. Hryntsiv	S. Parwani	I. Singh	
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Discipline by the Numbers

The vast majority of our members are fortunate enough to not have intimate knowledge of our discipline processes. This is obviously good for the individual practitioners but is also good for the professions. The disciplinary process can be very costly, both to the investigated person and to Engineers Geoscientists Manitoba.

To get a sense of how rare it is for a practitioner to be involved in the disciplinary process, we can look at some statistics from the past four years. On average, there are 17 new complaints made each year. However, approximately 25% of these complaints are against a practitioner whose name has already been before the Investigation Committee. Even if we conservatively assume an average career of 40 years, based on current membership numbers we can estimate that about 500 practitioners will end up before the Investigation Committee over the course of their career. Given that Engineers Geoscientists Manitoba has about 8,500 practitioners, the odds of ever having a complaint against you is less than 6%.

However, even if a member receives a complaint against them, it is rare for a matter to end up at a hearing before the Discipline Committee. In the last 10 years, only eight distinct members have had a charge against them forwarded to the Discipline Committee. The rest of our files either result in a dismissal, a formal caution, or resolution by way of a joint agreement between the Investigation Committee and the investigated person.

One of the reasons that the Investigation Committee regularly seeks to resolve matters by way of a joint agreement is because of the external costs of having a hearing. Regardless of the outcome, the Association and the investigated person will incur tens of thousands of dollars in legal-counsel costs alone. As we will see in a few examples below, the cost varies considerably, but it is never an insignificant amount.

“In the last 10 years, only eight distinct members have had a charge against them forwarded to the Discipline Committee.”

In one hearing that occurred many years ago, the member was required to pay approximately \$25,000 towards the Association's costs. This represented two-thirds of the costs incurred by Engineers Geoscientists Manitoba for legal counsel representation during the initial hearing. In this matter, the member appealed to Council and was then ordered to pay an additional \$17,000 towards the costs of the appeal.

In a more recent matter, Engineers Geoscientists Manitoba incurred a total of more than \$85,000 in legal costs for a hearing that lasted only a few days. The member was ordered to pay one-third of the costs, as they were only found guilty of one particular of the charges made against them.

A key element to understand is that, when establishing the costs of these hearings, the member is only required to contribute towards a portion of the costs of the hearing. In addition, the costs do not include time spent by staff to prepare for and support the hearing. The true cost to Engineers Geoscientists Manitoba is even higher than described in these examples. Finally, these costs don't capture the

amount paid by the member directly to their legal counsel in the preparation and delivery of their defence.

When looking at the statistics for hearing costs, it appears that these values are increasing too. In one matter that is currently underway, Engineers Geoscientists Manitoba has incurred more than \$100,000 in legal costs. The hearing for this matter has not even begun in earnest.

As mentioned above, the magnitude of these costs is one of the reasons that the Investigation Committee regularly looks to resolve matters by way of a joint resolution.

The Association is also seeking legislation changes. These changes would improve the clarity of our processes and eliminate redundant steps in the disciplinary process and, ultimately, improve how we operate.

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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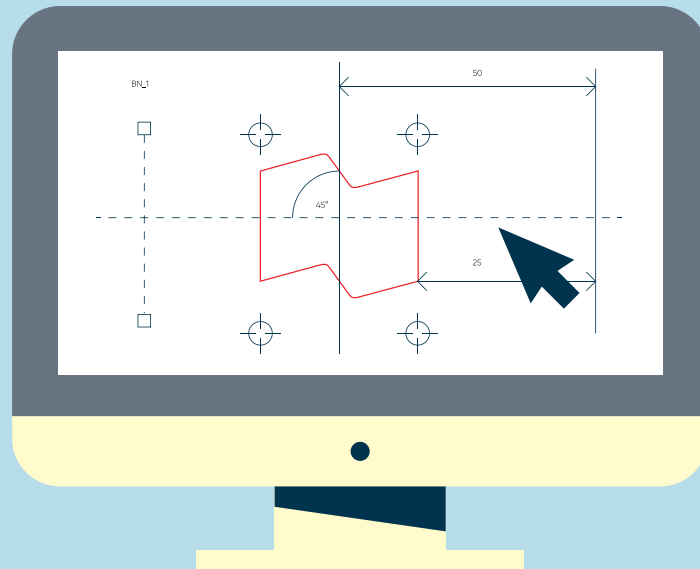


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