

The official  
publication  
of Engineers  
Geoscientists  
Manitoba

# THE KEYSTONE PROFESSIONAL

AUTUMN 2016

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### Ingenium 2016

Protecting Public  
Infrastructure

Government  
Relations  
Strategic Plan  
2016–2020



## Ingenium

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# OCTOBER

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Theme:  
*Great Expectations*

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Published by Engineers Geoscientists Manitoba  
870 Pembina Highway, Winnipeg, Manitoba R3M 2M7  
Phone: 204-474-2736 Fax: 204-474-5960  
Email: [apegm@apegm.mb.ca](mailto:apegm@apegm.mb.ca)

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# THE KEYSTONE PROFESSIONAL

The official publication of Engineers Geoscientists Manitoba



## AUTUMN 2016

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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  
Email: [info@kelman.ca](mailto:info@kelman.ca)  
[www.kelman.ca](http://www.kelman.ca)

Managing Editor: Jeremy Brooks  
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  
Email: [apegm@apegm.mb.ca](mailto:apegm@apegm.mb.ca)  
[www.apegm.mb.ca](http://www.apegm.mb.ca)

Publications Mail Agreement #40065075. Return undeliverable copies to: [lauren@kelman.ca](mailto:lauren@kelman.ca)



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## See You at **Ingenium**

In my first *Keystone* article as President, I wrote about the privilege of self-regulation which we enjoy in Manitoba. Our Association is entrusted by the provincial government to protect and promote the public interest by ensuring the professional excellence of its own members. Over the past year, I have on several occasions heard from members, questioning the priority of public interest versus member interest.

In early July 2016, the Quebec government took away the independence of the OIQ to self-regulate the engineering profession by placing it into a trusteeship. This decision was several years in the making, dating back to the findings of the Charbonneau Commission in 2012, and likely precipitated by increased media attention over the past few months.

Right around the same time, the government of British Columbia removed the privilege for the Real Estate profession in that province to

self-regulate. *The Globe and Mail* reminded us "that all professions, industries and occupations that are self-regulating need the confidence and trust of the public to be effective. Regulatory bodies, whether elected or appointed by their members, have to keep in mind that they must put the public interest ahead of the specific interests of their members".

These two significant decisions give all provincial regulating bodies a wake-up call, to pay close attention to their primary mandate to protect the public. This does not mean that members' needs should be ignored, but it does mean that the needs of the public must be, and be seen to be, put ahead of the needs of members.

As I have mentioned on several occasions, in mid-September, Council is conducting a review of our Ends. The Ends define what needs are to be met by the Association, for whom specifically, and how much the results

are worth. A copy of our current Ends are found on our Association website.

Anyone wishing to provide Council with input regarding revisions to the Ends is welcome to send it to me by email, at [lmcfarl@mts.net](mailto:lmcfarl@mts.net).

Despite your warnings to expect the year to zip by, it is surprising to me how quickly the end of my term has crept up on me. I would like to thank the staff and volunteers of the Association, who have helped Council to identify and gain traction on some key initiatives over the past year.

I draw your attention to one initiative – changing the AGM from the Friday morning to the Thursday afternoon, the same day as our Ingenium Professional Development conference. The format change is intended to allow more of our members to attend the AGM this year. This is just one way Council is working to increase engagement with members. I look forward to seeing as many of you as possible at Ingenium. ☺



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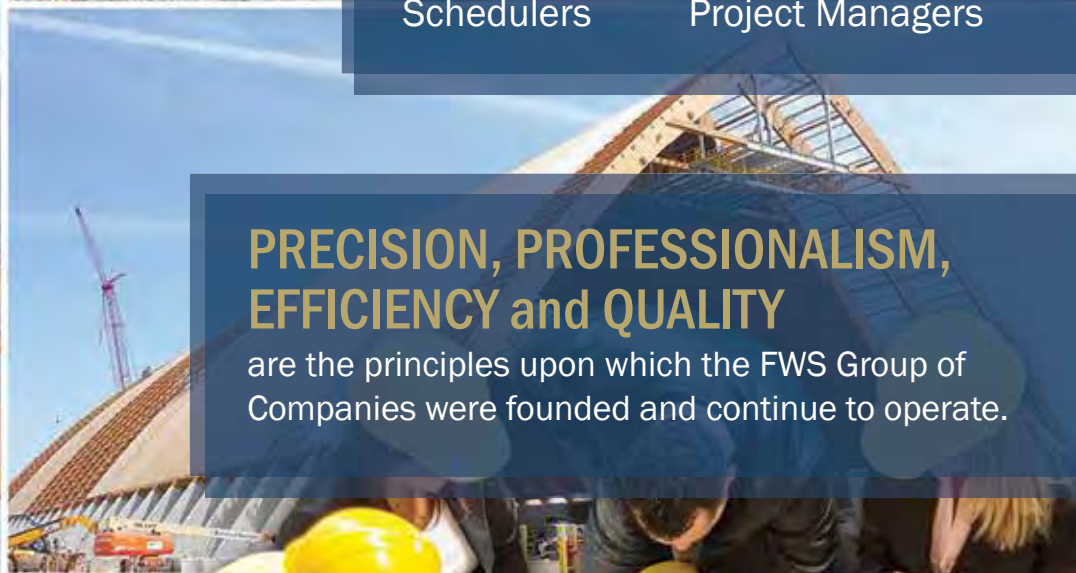
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## Breakfast foursome: a model for mentoring

Experts say that breakfast is the most important meal of the day. There is some debate over what comprises the best menu items for optimal nutrition, but a good breakfast is key to starting each day. I like bacon and eggs. No, I really like bacon and eggs with fried onions and hash browns. However, a diet including too much bacon and eggs will make me a chubby guy and could negatively affect my heart and vascular system's performance.

In the past, a few members have asked me: "Does the Association have a mentoring program?" Some large engineering regulators in Canada have formal programs with conferences and a system for matching junior professionals with mentors. The Engineers Geoscientists Manitoba Pre-registration (intern) Program links supervisors, mentors and experience reviewers, but the purpose is licensing and not so much to do with career development or networking.

I think mentoring works best when done informally. I know an amazing engineer who is a fabulous mentor. It's not surprising, because away from



engineering, he has a stellar track record as a youth hockey coach. At his workplace, he has guided many younger members with career boosting tips, advice, and guidance. I once asked him if he could help create a mentors program. He declined saying: "I just do what I do. You don't need a program". Oh, I get it. Mentors just mentor. One-at-a-time, they have profound influence on others. I like it.

I have an idea. Restaurant tables are set-up for groups of four. I recommend getting together for breakfast as four professionals: One senior, one mid-career, one early career, and a new grad or intern. You likely know some professionals in these various stages of their careers. There is no magic to filling a table of four. Pick some names that you think might make up a good group. Maybe a co-worker, niece, nephew,



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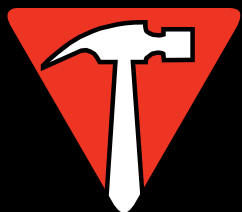
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new employee in the department or a senior you met at an Association event. Let serendipity guide you. I've been amazed at the chain of connections that can take place by fluke; leading to a new professional contact and lasting friendship. So, don't over-think it.

Why not start next week? Make a few calls. Send an email. You'll be glad you did. The exchange that takes place between professionals at different stages of career progress is both informative and rewarding. Start by simply sharing your story: "Hi, I'm Grant and I'm an engineer." It's doesn't have to be expensive either. If you eat breakfast early, many cafes and restaurants offer a "breakfast special" for less than ten bucks. Rotate the tab. One month you pay. The next someone else pays. What's forty bucks three times per year for good professional guidance and camaraderie? That's a good investment if you ask me.

If you'd like to talk about this model for mentoring, give me a call. Let's go for breakfast! I'd enjoy sharing my experience and stories with you. I'd also enjoy hearing about your career path, personal interests and future aspirations.

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In a previous issue of the KP Magazine I wrote about branding and marketing in an article titled: "This is Your Brand". Near the bottom, I spoke about the new lapel pins. Many readers sent me an email requesting a pin. We still have more pins. If you'd like one, just send me an email and I will send you one. We have stainless steel P.Eng. pins for engineers and brass P.Geo. pins for geoscientists.



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Each of us enters this world with an innate personality that determines how we interact, engage, energize, think, and navigate our surroundings. Understanding who we are and being able to recognize traits in those around us can help make our teams and relationships more effective.

Leaders embrace differences.

### **Writing Reports**

Reports are a major deliverable but many technical professionals are not confident in their writing skills. Even with advanced communication tools, the report is still the main way firms distribute their ideas and findings.

Leaders recognize the power of well-written documents.

### **Thinking Ethically**

Good decisions are ethical decisions and require logic. Unlike a legal course, we take a philosophical perspective at how/why individuals act, react, and decide what to do.

Leaders are defined by their actions.

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Dr. M.G. Britton,  
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## And professional privilege

July 6, 2016, was a ‘bad news’ day for self-regulating professions in Canada. A press release from the *Office des Professions* in Quebec announced that “Quebec’s professional regulatory body for engineers, the *Ordre des Ingénieurs du Québec (OIQ)*, has had its power of self-regulation revoked and has been placed under trusteeship of the provincial government”. The Office stated that it “determines that the effective execution of its activities of control of the profession and the financial stability of the OIQ are seriously affected, to the point of putting in doubt the capacity of the OIQ of carrying out its primary mission of protecting the public”.

That same day, *The Globe and Mail* reported that “On June 29, B.C. Premier Christy Clark withdrew the Real Estate Council of British Columbia’s ability to regulate the real estate profession in the province, ...”.



Details of the two cases obviously vary, but the root cause for the actions taken relates directly to failure to protect the public. Indeed, Tony Wilson’s *Globe and Mail* column headline stated that

“self-regulating professions must regulate in the public interest – or else”. He went on to explain that, in his view, the public interest is “... putting the interest of the public ahead of the specific interest of the people and the profession being regulated”. Here in Manitoba, our Act defines public interest as “... the well-being, convenience and concern of the public at large”. Maybe it is just me, but I prefer our local definition.

While the above mentioned actions to withdraw the privilege of self-regulation are directly aimed at two specific ‘professional’ organizations, they should cause all such organizations, including Engineers Geoscientists Manitoba, to take a long and hard look at the origins of our responsibilities and how we deliver them.

In his book, *What Technology Wants*, Kevin Kelly suggests that, “to see where technology is going, we need to see where it has come from”. Given that our specific self-regulating organization is based on technology, this is probably a good suggestion.



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The concept of professions, and their 'right' to self-governance seems to have originated during the mediaeval era. Historians suggest that those in authority recognized that special skills were required to provide specific services. It has been suggested that those original authorities were most concerned with protecting their health, their wealth, and their ultimate fate. These concerns led to the identification of doctors, lawyers and priests as the original 'professions'. At that point in time, the 'right' of self-governance within the individual professions was simply a group 'privilege' that provided a means of assuring quality of service.

Today, the number and types of professions far exceed those three originals, but the original underlying concepts of professionalism seem to remain. Each professional organization is populated by individuals with specific qualifications that are deemed to be necessary for the proper functioning of society. Each profession is given the 'privilege' of self-governance in exchange for regulating the qualifications and performance of its members.

Here in Manitoba, *The Engineering and Geoscientific Professions Act* specifically charges our Association to, among other things, "govern and regulate the practice . . .", "promote and increase, . . . , the knowledge, skill and competency. . . of its members, and . . . persons governed or regulated by it", and "advocate where the public interest is at risk". In my view, this is simply a restatement of the concerns addressed by our mediaeval ancestors. Probably the most significant 'modern' change relates to today's requirement that professionals serve 'in the public interest'. That being said, I suspect the public was not the group the mediaeval authorities were concerned about.

Mediaeval authorities granted the 'privilege' of self regulation to what we now call professions in order to assure that those who practised those professions were qualified to deliver skilled services. That need is still the underlying justification for professional 'privilege'. The Provincial Acts that confirm our 'privileged' status outline both our 'rights' and our 'responsibilities'.

The July 6 announcements should serve as a reminder to each of us that,

"The 'right' to establish, and grant, the rule of professional status belongs to the public. The 'responsibility' to maintain the status falls squarely on our shoulders."

here in Canada, the public, by virtue of actions taken by their elected officials, are now playing the role of mediaeval authorities, and if our performance does not meet their standards, our 'privileged' status can be withdrawn.

The 'right' to establish, and grant, the rule of professional status belongs to the public. The 'responsibility' to maintain the status falls squarely on our shoulders. We can either use it (properly) or lose it. ☩



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# Thoughts on Engineering Design

## ... and learning from structural failures

Dr. M.G. Britton, P.Eng. FEC



Shelter failure site, viewed from windward direction.

**H**enry Petroski refers to structural failure as an 'unintended experiment'. During the overnight wind storm on July 20th, a friend of mine, Barry

Prentice, hosted such an experiment at his experimental airship facility at St. Andrew's Airport. The shelter that housed their airship research project failed under the wind load.

The shelter in question was a fabric-covered metal arch. It provided the unobstructed space, both vertical and horizontal, needed to conduct the airship development work they were undertaking. This type of shelter is in common use across Canada.

Barry provided a picture (see above) of the 'morning after'. He commented "the first attached picture shows you how the failure occurred. Somehow it picked up the building over the stuff inside and pushed it about 35 feet east. The failure appears to have started at the southwest corner, and

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"The failure appears to have started at the southwest corner, and then just opened up like a zipper."





“Observing what happened in a structural (or other) failure provides valuable clues as to how systems function. But, before we can make full use of those clues, we need to understand more about why the failure happened.”

then just opened up like a zipper”. In spite of the ‘mess’ they were able to recover most of the equipment that had been inside.

Typically wind blowing over an arch causes a pressure on the windward side, uplift on the ‘roof’, and suction on the leeward side. Campers who have spent the night in a pup tent during high winds will have visual memories of this sort of ‘loading’.

My observation of the picture, and Barry’s ‘zipper’ comment, led me to suggest that the ‘anchors’ on the windward side had probably failed under a combination of the lateral and uplift loads. This failure would have allowed wind access to the interior of the shelter and turned the cover into a sail.


Barry’s reaction to my suggestion was, “you are right. All the bolts that were holding the base of the building were sheared off”. He wondered if stronger bolts could have prevented the failure.

Obviously this is all pure speculation, but . . . if the bolts had not failed, it is highly probable that the arches would have collapsed and the equipment within the space would likely have been damaged. We will never know. This ‘unintended experiment’ confirmed that wind loads on fabric-covered arches can result in significant stresses at the foundation connection level. It did not provide any useful information as to the possible result if the foundation connections had not failed.

Stepping back and considering possible lessons learned suggests that this ‘unintended experiment’, like most ‘unintended experiments’, provides interesting, but incomplete information. In this case, strengthening the foundation bolts that failed load seems to be a logical reaction. But, strengthening that part without knowing what effect it will have on the total system is probably not wise.

Observing what happened in a structural (or other) failure provides valuable clues as to how systems function. But, before we can make full use of those clues, we need to understand more about **why** the failure happened.

And while I ponder what I may have learned about wind loading on fabric-covered arch buildings, Barry and his associates will clean up the site and consider how they can get back to the task of developing airships. ⚡



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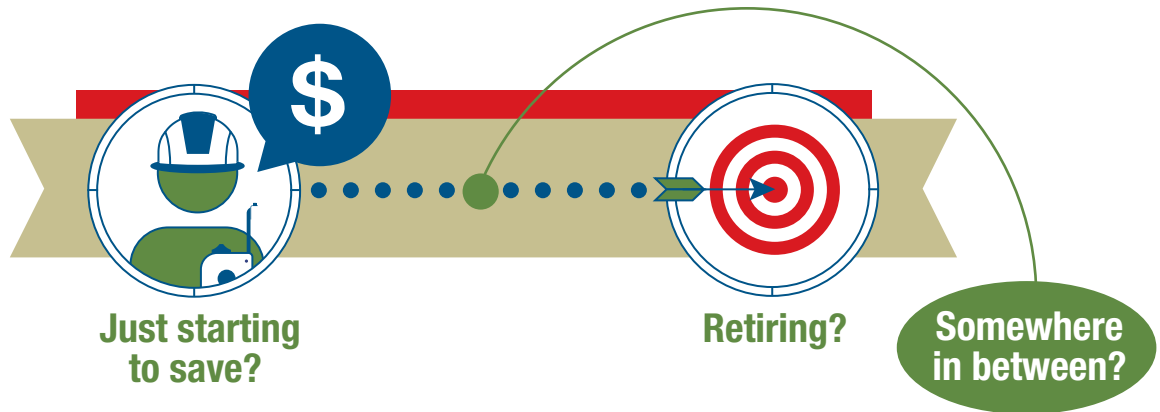
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**OCTOBER**

**25-28.2016**

**Theme:**  
**Great Expectations**

## **WELCOME TO INGENIUM 2016**

As Association President, I warmly welcome you to *Ingenium*, the Engineers Geoscientists Manitoba Conference for 2016.

This year's conference explores the theme of 'Great Expectations'. Boasting nearly 8000 members, our Association is certainly Great. Standing on the cusp of our hundredth anniversary, it is only fitting that we focus on a theme of 'Great Expectations'. Expectations for the future of the engineering and geoscience professions, where such things as self-driving cars and alternate energy sources become an everyday reality, fuels excitement for the future.

On behalf of the Engineers Geoscientists Manitoba Council and the members of the Association, thank you for attending *Ingenium* and I wish everyone a rewarding experience.

Sincerely,  
Lesley McFarlane, P.Eng. FEC  
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- ✦ Exposure to new talent in the engineering and geoscience fields

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*This proposal outlines all levels of sponsorship as well as conference events. If you are unable to contribute financially, we'd be pleased to discuss in-kind sponsorship. Contact us to discuss a sponsorship package tailored to your needs, including all levels and forms of in-kind contributions. Sponsorships are time sensitive and secured on a first-come, first-served basis.*

## EVENTS

### ▶ TUESDAY

# 25

#### **New Members Luncheon**

This luncheon is held bi-annually to recognize new members and present them with their license certificate. Attendance is by member invitation and additional purchased tickets, offering approximately 200 new members and guests, Association Councillors and staff, and other family and friends the opportunity for more intimate conversation and socializing adding to the appeal of this enjoyable and informal gathering.

### ▶ WEDNESDAY

# 26

#### **Recognition Wine & Cheese**

This reception is to honor Association Past Presidents, new Association Life Members, and those receiving their new Engineers Canada FEC and Geoscience Canada FGC designations. Attendance is by invitation and additional purchased tickets, and it is a wonderful opportunity for this intimate group to gather and socialize while receiving their certificates and pins.



## EVENTS

### ▶ THURSDAY

27

#### Professional Development Seminars

The popularity of this well-attended event speaks to its value in supporting the professional development of association members. Multiple track sessions on 'Great Expectations' through our Profession, in the Workplace, in the Province, in members' Personal Career, and Technology will be offered at this informative event.

#### Partners Program

The Partners Program runs during the same time as the Professional Development Seminars and the Business Meeting to provide activities and networking opportunities for the companions of conference attendees.

#### Business Meeting & Reception

The Annual General Business Meeting is the 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 for the Association President.

### ▶ FRIDAY

28

#### Tour & Networking Lunch

Informative tour for conference attendees and out of town delegates. Includes networking lunch to follow.

#### Awards Gala Dinner & Dance

Fine cuisine and highly enjoyable entertainment set the stage for a first-class evening honoring member achievements and corporate contributions to the professions. Approximately 300 guests will be joined by representatives from government and industry on this special evening followed by great entertainment and dancing.

Forward inquiries to:



**Angela Moore,**  
*Manager of Operations*  
870 Pembina Highway  
Winnipeg, MB  
R3M 2M7

p ▶ 204.474.2736 ext. 233

f ▶ 204.474.5960

e ▶ [amoore@apegm.mb.ca](mailto:amoore@apegm.mb.ca)



## SPONSORSHIP OPPORTUNITIES

### Platinum Level: Event Benefactor (only 1 available in each category) .....\$2,500\*\*

- |   |   |   |
|---|---|---|
| <input type="radio"/> New Member Luncheon       | <input type="radio"/> Business Meeting                  | <input type="radio"/> Awards Dinner and Entertainment |
| <input type="radio"/> Recognition Wine & Cheese | <input type="radio"/> Professional Development Seminars | <input type="radio"/> Gala Dance                      |
| <input type="radio"/> Partners Program          | <input type="radio"/> Tour & Networking Lunch           |   |

- Naming rights for the sponsored event
- Name and corporate logo on all event signage
- Priority tickets (6 seats)\* at Awards Gala Dinner & Dance
- 3 Conference Registrations (includes Professional Development Seminars, Annual General Meeting, Breakfast, Lunch, Coffee Breaks, and AGM Reception)
- Include a 100 word write up in conference information package for all participants
- Acknowledgement in all event material for members and guests
- Direct weblink from company logo on Engineers Geoscientists Manitoba website
- Banner advertisement on Ingenium App featuring company as a Highlighted Exhibitor with direct weblink to company website
- Splash Screen advertisement on Ingenium App option
- Booth opportunity
- Acknowledgement in AGM article in the Winter issue of the Keystone Professional and on the Engineers Geoscientists Manitoba website
- Verbal acknowledgement at your sponsored event

### Gold Level .....\$1,000\*\*

- Priority tickets (4 seats)\* at Awards Gala Dinner & Dance
- 2 Conference Registrations (includes Professional Development Seminars, Annual General Meeting, Breakfasts, Lunch, Coffee Breaks, and AGM Reception)
- Name and corporate logo on all event signage at both events
- Verbal acknowledgement at the Gala Dinner
- Direct weblink from company logo on Engineers Geoscientists Manitoba website
- Banner advertisement on Ingenium App featuring company as a Highlighted Exhibitor with direct weblink to company website
- Acknowledgement in AGM article in the Winter issue of the Keystone Professional and on the Engineers Geoscientists Manitoba website
- Acknowledgement in all event material for members and guests
- Booth opportunity

### Silver Level .....\$650\*\*

- 2 seats\* at the Awards Gala Dinner & Dance
- 1 Conference Registration (includes Professional Development Seminars, Annual General Meeting, Breakfasts, Lunch, and coffee breaks)
- Verbal acknowledgement at the Professional Development Seminars Luncheon
- Acknowledgement in all event material for members and guests
- Direct weblink from company logo on Engineers Geoscientists Manitoba website
- Listed as Highlighted Exhibitor on the Ingenium App including direct weblink to company website
- Acknowledgement in AGM article in the Winter issue of the Keystone Professional and on the Engineers Geoscientists Manitoba website
- Acknowledgement on event signage
- Booth opportunity

### Bronze Level .....\$300\*\*

- |                         |   |   |
|-------------------------|---|---|
| • Recognition at event  | • Acknowledgement in AGM article in the Winter issue of the Keystone Professional and on the Engineers Geoscientists Manitoba website | • Listed under Sponsors on Ingenium App |
| • Name on event signage |   |   |

\* Sponsors may donate unoccupied seats to engineering students, engineers and geoscientists-in-training, clients, or other special guests as desired.

\*\* Sponsorship/Supporter amounts subject to GST.



## SPONSORSHIP OPPORTUNITIES

### Refreshment Break Sponsor ..... \$1,500\*\*

- 2 seats\* at the Awards Gala Dinner & Dance
- 2 Conference Registration (includes Professional Development Seminars, Annual General Meeting, Breakfasts, Lunch, Coffee Breaks, and AGM Reception)
- Verbal acknowledgement at the Professional Development Seminars Luncheon
- Acknowledgement in all event material for members and guests
- Tent signs at Refreshment Breaks
- Direct weblink from Company Logo on Engineers Geoscientists Manitoba website
- Listed as Highlighted Exhibitor on the Ingenium App including direct weblink to company website
- Acknowledgement in AGM article in the Winter issue of the Keystone Professional and on the Engineers Geoscientists Manitoba website
- Acknowledgement on event signage
- Booth opportunity

### Wine Sponsor ..... \$1,500\*\*

- 4 seats\* at the Awards Gala Dinner & Dance
- 2 Conference Registration (includes Professional Development Seminars, Annual General Meeting, Breakfasts, Lunch, Coffee Breaks, and AGM Reception)
- Verbal acknowledgement at the Awards Gala Dinner & Dance
- Acknowledgement in all event material for members and guests
- 1 bottle of White Wine and 1 bottle of red wine on each table with sticker of company logo
- Direct weblink from company logo on Engineers Geoscientists Manitoba website
- Listed as Highlighted Exhibitor on the Ingenium App including direct weblink to company website
- Acknowledgement in AGM article in the Winter issue of the Keystone Professional and on the Engineers Geoscientists Manitoba website
- Acknowledgement on event signage
- Booth opportunity

### Bag Sponsor ..... \$1,500\*\*

- 2 seats\* at the Awards Gala Dinner & Dance
- 2 Conference Registration (includes Professional Development Seminars, Annual General Meeting, Breakfasts, Lunch, Coffee Breaks, and AGM Reception)
- Verbal acknowledgement at the Professional Development Seminars Luncheon
- Acknowledgement in all event material for members and guests
- Company logo on delegate bag and promotional material
- Direct weblink from company logo on Engineers Geoscientists Manitoba website
- Listed as Highlighted Exhibitor on the Ingenium App including direct weblink to company website
- Acknowledgement in AGM article in the Winter issue of the Keystone Professional and on the Engineers Geoscientists Manitoba website
- Acknowledgement on event signage
- Booth opportunity

\* Sponsors may donate unoccupied seats to engineering students, engineers and geoscientists-in-training, clients, or other special guests as desired.

\*\* Sponsorship/Supporter amounts subject to GST.







# Ingenium

Where *great minds*  
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## ► TUESDAY

**25** New Members  
Luncheon &  
Certificate  
Presentation

## ► WEDNESDAY

**26** Recognition  
Wine & Cheese

## ► THURSDAY

**27** Professional  
Development Seminars  
*Theme: Great Expectations*

Partners Program

97<sup>th</sup> Annual General  
Business Meeting

AGM Networking Reception

## ► FRIDAY

**28** Tour and  
Networking Lunch

Awards Gala  
Dinner & Dance

# OCTOBER

## 25-28.2016

*Theme:*  
*Great Expectations*

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## Thursday, October 27, 2016

7:30–8:30	<b>Registration &amp; Continental Breakfast</b> – <i>Loggia, Lobby Floor</i>				
8:30–9:15	<b>Welcome and Keynote</b> – <i>Provencher Ballroom, Lobby Floor</i> <i>Keynote Speaker: Hon. Cliff Cullen, Minister Minister of Growth, Enterprise and Trade</i>				
	<i>...In the Profession</i>	<i>...In your Workplace</i>	<i>...In the Province</i>	<i>...In your Personal Career</i>	<i>...In Technology</i>
9:20–10:20	Government Relations Panel Discussion	RGI Learning Finding a Mentor/ Becoming a Mentor – Lisa Moretto	EIT Manitoba's Water Management Strategy – Avery Simundsson	Cognitive Biases and Humility – Alexander Hogeveen Rutter, P.Eng.	Girder-Slab® Method of Construction in Canada – Peter Timler, P.Eng.
10:20–10:40	Coffee Break & Booths – <i>Mezzanine Floor</i>				
10:40–11:40	Accreditation, Licensing, and Specialization – Jim Graham, P.Eng.	Building a New Landscape of Safety and Health – Jamie Hall	Great Expectations in Ice Engineering – Chris Swallow, P.Eng.	RGI Learning Putting the P in P.Eng. – Ann Christoffersen	Advanced Digital Manufacturing – Jared Kozub, P.Eng.
11:45–12:45	Culture in the Engineering Workplace – Marcia Friesen, P.Eng.	RGI Learning Becoming a Leader in your Organization – Ann Christoffersen	The Challenges and Successes of U of M Engineering Student Competition – Friends of Engineering	RGI Learning Being an Effective Team Player and Team Builder – Lisa Moretto	New Technical Innovations by U of M Engineering Students – Friends of Engineering
1:00–1:50	<b>Lunch</b> – <i>Concert Ballroom, 7th Floor</i>				
2:00	<b>Annual General Business Meeting</b> – <i>Crystal Ballroom, 7th Floor</i>				
	<b>Post AGM Reception</b> – <i>Provencher Ballroom, Lobby Floor</i> <i>sponsored by Friends of Engineering</i>				

## THE KEYSTONE PROFESSIONAL

To reach professionals through *The Keystone Professional* magazine and its targeted readership, contact Jeff at your earliest convenience to discuss your company's promotional plans for 2016-17.

**Jeff Kutny**, Marketing Manager

**E-mail:** [jeff@kelman.ca](mailto:jeff@kelman.ca) **Phone:** 866-985-9789 **Fax:** 866-985-9799





## Keynote Speaker

### Honourable Cliff Cullen Minister of Growth, Enterprise and Trade

Cliff Cullen was born and raised on a grain and cattle farm near Wawanesa and graduated from the University of Manitoba with a diploma in agriculture. He was first elected MLA for Spruce Woods in 2004 and was re-elected in 2007, 2011, and again in 2016.

He has been involved in his community for many years, serving as captain of the volunteer fire department and volunteering on various community boards such as the Glenboro Community Development Corporation, Community Round Table, Glenboro Curling Club, and the Glenboro United Church.

Cliff is an ardent activist for the environment. He has held the position of President of the Manitoba Weed Supervisors Association and the provincial manager of the Association for a Clean Rural Environment.

On May 3, 2016, he was named Minister of the new department of Growth, Enterprise and Trade.



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## Presentation Abstracts

### Panel Discussion: Government Relations Strategic Plan 2016-2020

The purpose of the panel is to discuss new ideas and concepts for modification and changes to the Association to make it a more cohesive working business within the government relations area. The past two year's efforts in government relations will be discussed, and input will be sought from the members into future strategic priorities. Discussion on the creation of Government Relations Advisory Committee will be brought forth throughout the conversation to compliment the execution of the strategic plan.

The overarching goal of the Association's government relations activity is the creation of a relationship where government officials in all areas think "engineering and geoscience means Engineers Geoscientists Manitoba". Engineers Geoscientists Manitoba will be their first call as a reliable source of information, new policy ideas, and as a partner in satisfying the consumer (who is also the voter).

**Panel: James Blatz, P.Eng., FEC, Michael Gregoire, P.Eng., FEC, Allan Silk, P.Eng., FEC, Andre Marchildon, and, Randy Herrmann, P.Eng., FEC Moderator: C. Scott Sarna**



**Dr. James Blatz, P.Eng., FEC**, obtained his BSc (1996) and PhD (2000) in Civil Engineering from the University of Manitoba and completed an

NSERC Post-Doctoral award at the GeoEngineering Centre at Queen's-RMC. He joined the Department of

Civil Engineering at the University of Manitoba in 2001 and served as the Associate Head of the Department of Civil Engineering, and also served as Associate Dean (Research and Graduate Programs) in the Faculty of Engineering prior to his current appointment as the Associate Vice-President (Partnerships) at the University of Manitoba. His research as a Professor in the Department of Civil Engineering focusses in the areas of risk management for civil engineering infrastructure and technical aspects of temporary and permanent flood protection works. James is also the founding President of TREK Geotechnical, a consulting engineering services firm located in Winnipeg with over 20 employees that provides geotechnical consulting services in Western Canada.

He serves on numerous boards and committees for technical societies and other organizations; most notably, he served from 2009 to 2014 on the Natural Sciences and Engineering Research Council of Canada (NSERC). He previously served on NSERC's Executive Council, was Chair of the NSERC National Committee on Grants and Scholarships and was a member of the NSERC Prairies Advisory Council. He was appointed by Engineers Canada from 2011 to 2014 to the Canadian Engineering Accreditation Board that is responsible for accreditation of Engineering programs nationally.



**Michael Gregoire, P.Eng., FEC**, works in the areas of Investigations, Discipline, Enforcement, Legislation, Standards, and the Continuing

Competency as the Director of Professional Standards at Engineers Geoscientists Manitoba. Prior to taking on this role in 2008, Michael worked in the world of consulting engineering.



**C. Scott Sarna** is an accomplished leader and experienced consultant, specializing in business and politics. He was born in

Winnipeg and has lived in Canada, Australia, and the United States. His political background started as a co-campaign manager and brought him to his role today as a political lobbyist. In 2010, he ran as a candidate for Member of Parliament. He has been a business consultant and business leader for his entire career, in addition to being the CEO of Royal Sire Ltd.



**Allan Silk, P.Eng., FEC**, graduated from the University of Manitoba in 1985 with a Bachelor of Science in Computer Engineering. For most

of his career, Allan has specialized in operational planning at Manitoba Hydro. During his career, Allan has participated in and led many inter-utility taskforces and committees investigating transmission capability. Allan also has worked on international projects for Manitoba Hydro International in Guatemala, Saudi Arabia, and Tajikistan.

Allan is a Professional Engineer in the Province of Manitoba. In November 2004 he commenced a one-year term as President of the Association



of Professional Engineers and Geoscientists of Manitoba. In 2008, Allan was awarded a Fellowship from Engineers Canada. Allan is a member of IEEE.



**Andre Marchildon** is a remarkable, energetic and focused student, completing his fourth year at the University of Manitoba in the Mechanical

Engineering Program. As the Senior Stick President he represents over 1,700 undergraduates and works with a council of 90 dedicated student leaders, managing a budget of one quarter million dollars.

Mr. Marchildon has held leadership positions in several organizations including the University of Manitoba Engineering Society and the Congress of the Canadian Federation of Engineering Students, and was a Cabinet Minister in the Manitoba French Youth Parliament. He also gives his time to St. Amant, working with those who have developmental disabilities. As busy as he is, Mr. Marchildon has maintained an outstanding academic record – he is a young man well prepared for an exciting career in the field of engineering.



**Randy Herrmann, P.Eng., FEC,** is the Director of the Engineering Access Program (ENGAP) at the University of Manitoba. He

graduated from the University of Manitoba in 1988 with a Bachelor

of Science Degree in Geological Engineering. He is a member of Engineers Geoscientists Manitoba and the Professional Engineers of Ontario.

Over the years, Randy's life and work within Indigenous communities and within the engineering field has shown him the lack of engineers of Indigenous ancestry and the obstacles faced by native students to obtain a degree. His desire to help change these factors and make it easier for Indigenous students to pursue an Engineering Degree led him to become Director of ENGAP, a position he has held since 1998.

#### Finding a Mentor/ Becoming a Mentor

We can't expect our managers to manager our careers and we can't expect ourselves to know all it takes to get us where we want to go. This is where mentoring comes in. Mentoring gives us a bridge, a link, a compass to help guide us. Unlike coaching, which often teaches a skill, mentoring has a broader development goal. This session describes what a mentoring relationship is, the benefits of being a mentor and having a mentor, and explains the roles of each.



**Lisa Moretto**

Lisa is the President of RGI International, Inc. with offices in Winnipeg, MB and Rochester, NY.

She has 23 years'

experience teaching business and technical communication courses for government agencies, private corporations, consulting firms, and professional societies. Her courses

consistently receive positive reviews. She is an engaging and interactive presenter and a frequent invited speaker at international conferences. She co-teaches the well-respected technical writing course Engineers Geoscientists Manitoba offers each year.

She has experience as an Information Developer for IBM in the US and as a Learning Products Engineer for Hewlett-Packard in the UK. Lisa holds a BS in Technical Communication from Clarkson University, Potsdam, New York, and an MS in User Interface Design from the London (England) Guildhall University.

She has co-authored four books with Ron Blicq: *Get to the Point!*, *Guidelines for Report Writing*, and *Technically Write!* with Prentice Hall, and *Writing Reports to Get Results* with the IEEE Press.

Lisa is an adjunct professor at the Rochester Institute for Technology, where she teaches Technical Writing, Business Communication, and Effective Technical Communication. She is the Immediate Past President of the Rochester Engineering Society and contributes a monthly article to the RES Magazine. She is an active member of the Society for Technical Communication and the IEEE Professional Communication Society.

She has presented to various industries and organizations throughout Manitoba including Manitoba Hydro, Cangene, Richardson International, Health Canada, Cargill, Engineers Geoscientists Manitoba, MTS/ Allstream, and several engineering firms including Genivar, KGS Acres, and Tetra Tech/Wardrop.

## Presentation Abstracts

### Manitoba's Water Management Strategy

At one point, Manitoba was a leader in Canada for its water management. However, we have failed to keep that torch aloft. Expected changes in climate across the Canadian prairies call for greater frequency and intensity of widespread drought punctuated by unpredictable and extreme rainfall events, making effective use of our water resources increasingly important. Discussions of global food security have grown in volume and intensity and changing and unpredictable weather have added fuel to the fire. We need to bring these issues further into our control to increase food productivity and operation efficiency.

Great expectations for Manitoba's Water Management Strategy are not only common sense; they are necessary to continue to improve crop production for a future that will need increased crop efficiency more than ever to feed an increasing population on a decreasing land base for an industry that is a significant player in our economy. This presentation will discuss the current issues facing Manitoba's ability to effectively manage its water resources and technologies.



**Avery Simundsson, EIT**

Avery Simundsson is a Mechanical Engineer, graduated from the University of Manitoba. She

has studied in Australia, Mexico, and Germany in the fields of biomedical engineering, control engineering, and product development. Being born

and raised on a mixed farm in the North Interlake has given her cause to better understand the economics of large-scale water management for success and disaster management in the agricultural sector. Her passion for agriculture and its development in Manitoba has led her to become a Project Leader with the Prairie Agricultural Machinery Institute in Portage la Prairie.

### Cognitive Biases and Humility

There are a number of cognitive biases that impair humans' ability to function at maximum intellectual capacity. Due to engineering culture and education, engineers can actually be more susceptible to overconfidence bias.

This presentation uses the presenter's own experience in making mistakes to discuss the value of humility, learning from mistakes, asking questions, seeking help, and admitting ignorance. It will seek to address the psychological and perceived professional barriers to humility and how to overcome them.

The presenter will lead a discussion of what makes a "conservative" estimate and how to account for unknown-unknowns. The presentation will also touch on data blindness and how to incorporate non-engineering experience into engineering tools and models.

Finally, the presentation will delve into how admitting one's ignorance and mistakes can be beneficial to the province, technology and, counter-intuitively, a member's own career.

Adapted to a professional/experienced audience, this presentation is based on a one-hour

lecture delivered to EITs at Manitoba Hydro and first-year Management Engineering students at the University of Waterloo.



**Alexander Hogeveen Rutter, P.Eng.**

Alexander Hogeveen Rutter graduated from the University of Waterloo in Electrical Engineering and

has experience working at power companies in British Columbia and Ontario. He recently attained his P.Eng. designation and is currently the System Reliability Engineer for Manitoba Hydro's System Control Centre. He is the editor of the MHPEA newsletter, a mentor with Junior Achievement Manitoba and a board member of SAM Management, a non-profit housing provider. He recently completed his Certificate in Management and considers himself a world-leading expert in making mistakes.

### Girder-Slab Method of Construction in Canada

With a little more than a decade since inception, testing and filing for international patents, the US-developed, Girder-Slab® System for the multi-story residential construction market has achieved well over 130 projects south of the Canadian border, the majority of which have been employed in the past few years. What is creating this surge in interest in an alternate structural framing method to long-standing conventional construction systems for hotels, student residences, apartments, senior care facilities and condominiums? Three words: *faster, cheaper, easier.*



Through an ingenious modification to market abundant structural rolled beam shapes allowing conventional 8" or 10" pre-stressed, pre-cast hollow-core planking support on the bottom flange, a shallow structural system is produced that can meet the spanning demands of the residential/hospitality building infrastructure market.

As a learning objective for the session, participants will receive relevant design guidance and will understand the benefits of its application through recent project examples constructive within challenging environments.



**Peter Timler,  
M.Sc., P.Eng.**

Peter is President of West-Cascadia Consultants; a specialized engineering and management

business that promotes advanced construction methods. He manages a challenging position that fuses early project involvement with application of innovative technological approaches to projects instilling better value for owners, architects, engineers and construction managers. As a former civil engineering graduate of McMaster University (Bachelors) and the University of Alberta (Master of Science) as well as leading from past senior positions in the steel fabrication industry along with many years in private structural consulting, he is known for taking theory into practice and shares several prestigious awards. Most recently he authored the CISC Code of Standard Practice Appendix on Digital Modeling; a guideline to Building Information Modeling protocol for successful integration with current fabrication technology.

### Accreditation, Licensing, and Specialization – Is a Bachelor's Degree Enough?

Licensing as a professional engineer or geoscientist in Canada requires a bachelor's degree from an accredited program, or equivalent qualifications. It also requires additional years of supervised practical experience as a Professional-in-Training.

The Canadian Engineering Accreditation Board (CEAB) currently directs bachelor programs towards a broadly-based *education* in engineering. Many employers accept the need for a broad education, but also want young engineers to have specialist *skills-training* for practice. These requirements appear at first sight to be difficult to reconcile.

We propose that CEAB and Canadian universities should develop broadly-based *educational* bachelor programs that can be completed, on-average, in four years. Subsequent masters programs will provide *skills-training* for employability and eventual licensing.

This presentation discusses the current regulatory framework in Canada and what is happening in other countries. It also outlines current policies of the CEAB and how they influence universities' responses to the needs of employers of new graduates.



**Dr. James (Jim) Graham, P.Eng.**

Jim Graham holds BSc, PhD, and DSc degrees from Queen's University, Belfast, Northern Ireland.

He is a Fellow of the Engineering Institute of Canada, and a professional

engineer in the Province of Manitoba. He has been Scientific Editor of the Canadian Geotechnical Journal; and Vice-President Technical, President and until 2007, Secretary General of the Canadian Geotechnical Society. He is currently Professor Emeritus, in the Civil Engineering Department, University of Manitoba.

Dr. Graham has received many awards, including the Stirling and K.Y. Lo Medals of the Engineering Institute of Canada, the Medal for Distinction in Engineering Education from CCPE, the Saunderson Award for Excellence in Teaching from the University of Manitoba, and the highest award of the Canadian Geotechnical Society, the R.F. Legget Medal.

Dr. Graham's research interests have included failure loads in sands, yielding in soft natural clays, elastic viscoplastic modelling of settlements, unsaturated soil mechanics, slope stability, and the behaviour of road embankments on thawing permafrost. He acts as reviewer for many research journals, research granting agencies, and consultants.

### Building a New Landscape of Safety & Health in Manitoba Workplaces The Role of the Professional Engineer

Across Canada, Manitoba holds the dubious honour of having the highest workplace injury rate of all provinces and territories. With the creation of SAFE Work Manitoba in 2014, Manitoba now has a public agency focused solely on reducing workplace injuries and illness. SAFE Work Manitoba has established a path forward that will fundamentally change

## Presentation Abstracts

the landscape of injury and illness prevention in Manitoba. Protecting the public and workers from injury and illness is central to the role of the professional engineer. In addition, professional engineers can play a unique role in helping workplaces fulfill their responsibility to ensure a safe and healthy workplace for all workers.

This presentation describes the strategic initiatives that are currently underway to create a new landscape of safety and health in all industries in the province, and connects the role of professional engineers to these strategic initiatives and enlist all engineers in joining the effort to dramatically reduce workplace injury and illness in Manitoba.



**Jamie Hall, P.Eng., MBA**  
**Chief Operating Officer, SAFE Work Manitoba**

Jamie joined SAFE Work Manitoba as

Chief Operating Officer in May 2014. He believes that we are on the cusp of monumental improvements in safety performance in Manitoba and in society as a whole. He is thrilled to be a part of the community of safety leaders who are building the momentum for this change.

A former Manitoba Hydro executive, Jamie has also served on the Board of Directors of Safety Services Manitoba. Presently, Jamie is also a sessional instructor in the University of Manitoba's Asper MBA program delivering a course on executive responsibility and ethics.

Jamie is a professional engineer with a B.Sc. in Electrical Engineering and an MBA with a specialty in Human Resources.

### Great Expectations in Ice Engineering – An Updated Risk Management Framework for Ice Designs based on Emerging Research and Technology as a Response to Climate Change

As ice cover operators face operational pressures from shortened seasons, they are seeking to safely and confidently optimize the time available for transportation of goods and resource exploration. The current framework for determining allowable loads, on ice, provides very little structure for confidently navigating an appropriate risk management framework. Ice engineers are incorporating technology and innovation within a modern risk management framework that assists in design.

Combined effects of climate change and increasing industry demands are fuelling requirements for research to provide expanded theoretical knowledge and field tested validation of solutions for difficult operational challenges. The integration of Ground Penetrating Radar (GPR) technology for ice thickness measurement, combined with enhanced efforts to understand ice performance in the field, provides an opportunity to increase understanding and to craft a more relevant and effective risk management framework to enhance the safety and operational success of operations on ice.



**Chris Swallow, P.Eng.**

Chris is a critical thinker with over 27 years within industry and the Canadian Forces. He has extensive

experience in project leadership roles,

consulting engineering, construction management, environmental oversight and infrastructure support services in Canada and abroad. He has developed exceptional interpersonal skills through extensive community relations experience and numerous public speaking engagements. Chris excels at conceptual & detailed planning, complex situations, with proven success in strategically restructuring organizations to meet objectives. Recognized for outstanding leadership, problem solving, critical thinking skills, and a talent for quickly gaining trust and building high performance teams.

### Putting the P in the P.Eng.: What They Didn't Teach You at University

So you've graduated from an engineering program, you have your license, and you even have years of experience in your technical field. But are you a "professional" engineer? Too often the curricula and PDH sessions are filled with specific technical skills but lack the "soft skills" training that help us adapt and flex to situations and to communicate and interact with others. Beginning with the results of an Engineering Manager Survey of what skills a young engineer requires, you will then be provided with a quick overview of the skills you need to succeed. After this session, you will be able to self-assess what areas you need to develop to become a successful professional.



**Ann Christoffersen**

Ann has been an RGI Consultant for 20 years and has been in the technical communication field since 1990. She has



developed and delivered written and oral communication skills courses in the United States, Canada and Mexico. She co-teaches the well-respected technical writing course Engineers Geoscientists Manitoba offers each year.

She holds a BS in Computer Science and Mathematics from Clarkson University and has a Master of Science degree in Instructional and Performance Technology from Boise State University. She is a Certified Human Performance Analyst specializing in Front End Analysis, developing training programs to support major systems acquisitions. Ann is retired from the US Army Reserve, with over 20 years combined service from Active Duty, National Guard, and Reserve components.

Ann has been a technical writer for Accelerated Technology, Inc. working with programmers and customer support to develop effective user guides. As a consultant, she has worked with companies to comply with various portions of the Americans With Disabilities Act. She was also an outreach instructor for South Western Oregon Community College and the University of Southern Alabama teaching business writing skills and editing skills. Ann has also worked with the IEEE press reviewing and editing several books prior to publication, and written several columns for the Society for Technical Communication.

Ann teaches regularly to the General Electric, Engineers Geoscientists Manitoba, Manitoba Hydro, SaskTel, TetraTech, and several engineering consulting firms. Her teaching experience is extensive, across varied audiences, and she has mentored many other presenters.

### Advanced Digital Manufacturing – Unlocking Design Potential to Build the Future

Leading-edge Advanced Digital Manufacturing™ processes such as additive manufacturing (AM)/3D printing are becoming more widely accepted as production-ready technologies. These processes have already illustrated advantages in medical, aerospace and industrial sectors that will be discussed.

A major challenge is educating experienced engineering professionals and future professionals. Most universities or colleges are not yet teaching additive manufacturing design or manufacturing methods, yet global OEMs like GE, Airbus, Michelin and Stryker, are spending hundreds of millions of dollars on AM technologies and factories.

Professional development is key to keep us up to speed and comfortable with these relatively new technologies. To compete on a global scale with other countries in AM, it will be critical for developing advanced manufacturing expertise and leadership roles in Canada.

Questions to be discussed include:

- Where should engineering professionals start with AM?
- How to get students in our university system familiar with these technologies?
- What standards exist for AM?



**Jared Kozub, P.Eng.**

Jared Kozub is a professional engineer at Precision ADM in Winnipeg. With over a decade of design and manufacturing engineering experience in the medical

device and manufacturing industries, Jared channels his passion for additive manufacturing / 3D printing to develop optimal engineering solutions for clients.

### Culture in the Engineering Workplace: Ways in Which Our Culture Can Shape Our Working Style

Manitoba's workforce is already culturally diverse and is expected to become even more so in the future. Within culture, we share specific preferences, ways of thinking, and ways of doing with a group of people, but not with all people. We all operate out of a cultural style, but often our own culture is invisible to us until we bump up against another cultural style. Cultural differences can then lead to misunderstandings, misinterpretations, and outright conflict in the workplace with direct consequence on morale, team cohesion, and productivity. This session will identify how different cultural styles and backgrounds often show up in day to work processes, will help uncover the deeper inherent cultural values, and will offer strategies to both employees and managers who work in culturally diverse engineering settings.



**Dr. Marcia Friesen, P.Eng., FEC**

Marcia Friesen, P.Eng., is Director of the Internationally-Educated Engineers Qualification program (IEEQ) at the University

of Manitoba, and Associate Professor. She leads the team that develops and delivers the IEEQ program, which is

## Presentation Abstracts

a qualifications recognition pathway for recent newcomers to Manitoba to have their foreign engineering credentials recognized for registration with Engineers Geoscientists Manitoba. Prior to joining the University of Manitoba, Marcia worked as a design engineer in environmental and agricultural engineering consulting services with several local firms. Marcia is also Past-President of Engineers Geoscientists Manitoba, is on the board of the Canadian Engineering Memorial Foundation, and is a member of ACEC-Manitoba's TWICE committee.

### Becoming a Leader in your Organization

Leadership is about inspiring others, not just telling them what to do. We often hear about "born leaders". Yes, some people come into this world with leadership characteristics, however, for the rest of us, we can learn skills and develop qualities and confidence to become true leaders. This session explores attributes and principles surrounding effective leadership and provides ways to incorporate them into your work activities so you will be recognized as a leader.

**Ann Christoffersen**

### Being an Effective Team Player and Team Builder

For most of us, teamwork is a part of everyday life. Whether it's at home, in the community, or at work, we are often expected to be a functional part of a performing team. This session explores the different aspects of a team, demonstrates how to become a top-notch team performer, and describes ways leaders can create highly functional teams.

**Lisa Moretto**







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# INFRASTRUCTURE

‘where the public interest is at risk’

By R. Reichelt, P.Geo, FGC

Outside of those professional engineers whose job it is to worry about these things, few people concern themselves with the state of our public infrastructure. That is, until something goes wrong. When things go wrong it can be blamed on a failure to maintain public infrastructure. Such failure can not only lead to inconvenience, but it can also compromise public safety. One example of this is found in our municipal water system.

We often take clean drinking water for granted. It was not always so. The City of Winnipeg built the Shoal Lake Aqueduct in 1917 specifically to address the issue of safe drinking water supplies for the City<sup>1</sup>. Prior to the commissioning of the Aqueduct, the water supply for Winnipeg came from a combination of wells and surface water. It was not always safe to drink what came out of the tap; between 1904 and 1906, 4,000 people in Winnipeg caught typhoid fever, 377 of whom died. Water from the Assiniboine River in the municipal water system was found to be the cause of the epidemic.

For examples from more recent times, take a look at some of the under-developed nations of the world. In recent years, there have been epidemics of cholera, a water borne disease, in places such as Haiti, Pakistan, and Zimbabwe<sup>2</sup>. Natural disasters, poverty, and maladministration all combine to make it very difficult for these countries to

find the means to build and maintain safe drinking water systems. As a result, they pay the price in terms of public health and that price falls heaviest on the poorest members of their societies.

When a society falls behind in the building and maintenance of their public infrastructure, it can be said that they suffer an “infrastructure deficit”. In Canada, an organization called



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**“If we neglect our public infrastructure and allow our infrastructure deficit to grow, we could yet again face the prospect of public health problems that we have not had to address for over a century.”**

The Canadian Infrastructure Report Card<sup>3</sup> estimated that “One-third of our municipal infrastructure is in fair, poor or very poor condition, increasing the risk

of service disruption”. In Manitoba, the Association of Manitoba Municipalities estimated that “Manitoba’s infrastructure deficit

exceeds \$11 billion<sup>4</sup>. The estimated “infrastructure deficit” includes all publicly funded infrastructure including municipal water systems, wastewater systems, roads, and bridges.

We are fortunate that, at present, our municipal water systems are safe to use. However, if we neglect our public infrastructure and allow our infrastructure deficit to grow, we could yet again face the prospect of public health problems that we have not had to address for over a century.

The *Engineering and Geoscientific Professions Act* that established Engineers Geoscientists Manitoba states that one of the purposes of our Association is to “advocate where the public interest is at risk”. Advocating for the proper upkeep of our infrastructure and addressing our infrastructure deficit can be seen not only as a matter of public interest but also as matters of vital public safety.

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Each scholarship will assist the candidate to pursue studies or research in a field other than engineering. The discipline should favour the acquisition of knowledge which enhances performance in the engineering profession. Candidates must be accepted or registered no later than September 2017, in a faculty other than engineering.

**APPLICATION DEADLINE: March 1, 2017**

**Application forms are available at [engineerscanada.ca/scholarship-program](http://engineerscanada.ca/scholarship-program) or by contacting the Engineers Canada Scholarship Program at [awards@engineerscanada.ca](mailto:awards@engineerscanada.ca)**

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## References

1. APEGM Heritage, 2013, *Winnipeg Water Supplies*, [http://heritage.apegm.mb.ca/index.php/Winnipeg\\_Water\\_Supplies](http://heritage.apegm.mb.ca/index.php/Winnipeg_Water_Supplies)
2. Ryan ET (2011) *The Cholera Pandemic, Still with Us after Half a Century: Time to Rethink*. PLoS Negl Trop Dis 5(1), <http://journals.plos.org/plosntds/article?id=10.1371/journal.pntd.0001003>
3. *Canadian Infrastructure Report Card (CIRC)*, 2016, <http://www.canadainfrastructure.ca/en/index.html>
4. Association of Manitoba Municipalities, 2016, <http://www.amm.mb.ca/issues/infrastructure/>



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# Government Relations Strategic Plan 2016–2020

By C. Scott Sarna, Director of Government Relations

In a regulated profession such as engineering or geoscience, it is important to maintain a respectful and productive relationship with the decision-makers in government. For Engineers Geoscientists Manitoba, this means working with the Manitoba government to ensure that engineering and geoscience professions and stakeholders are not adversely affected by changes in laws and regulations, and to ensure that both are a key resource for the government to rely on for information and support within the engineering and geoscience area of expertise.



The overarching goal of the Association's government relations activity is the creation of a relationship where government officials in all areas think "engineering and geoscience

means Engineers Geoscientists Manitoba". Engineers Geoscientists Manitoba will be their first call as a reliable source of information, a source of new policy ideas, and a partner in satisfying the consumer (who is also the voter). Creating this relationship requires the formation and execution of a Government Relations Strategic Plan, a clear and thorough communications strategy, to further engagement of the members with government, to connect with MLAs locally, and to take action through an active Government Relations Committee. Positive interaction with government will allow Engineers Geoscientists Manitoba to achieve its broader strategic goals and bolster communication and public relations efforts.

Key resources in the implementation of the Government Relations Strategic Plan include Engineers Geoscientists Manitoba's President, CEO and Registrar, Director of Government Relations, Director of Professional Standards, Director of Admissions, the Association of Consulting Engineers Canada (ACEC), and Association members at various levels.

All individuals taking part in the Government Relations strategy will be fully briefed through talking points on relevant issues so that the Association speaks as one and conveys a clear message to the government. Any questions can be directed to Engineers

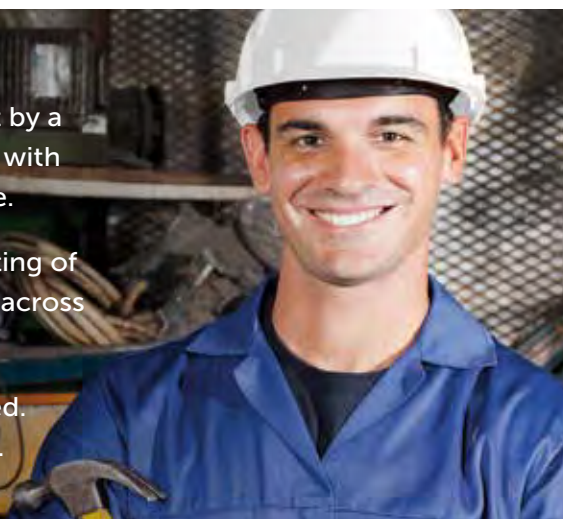
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Geoscientists Manitoba's Government Relations Department, which will be monitoring and reporting on issues as well as developing effective communication tools to ensure messaging is concise.

Engineers Geoscientists Manitoba members will be kept informed through periodic contact and with regular news pieces, such as e-News posts on the Association website and sent out in email, and articles in the Association's quarterly news publication, *The Keystone Professional*, detailing government activity specifically affecting the engineering and geoscience professions and general political news.

**Strategic Plan items for 2016-2017 include:**

- Checking consistency with the Act, By-Laws, Policies and Procedures
- Association Policy Procedure and Systems for Legislation: Act, By-Laws, Guideline, Code of Ethics
- Recruitment and Retention – Environmental Scan within Association
- Recruitment and Retention – Environmental Scan beyond Engineers Geoscientists Manitoba
- Government Relations Advisory Committee
- Government Officials Information Sessions
- Government Relations Public Awareness Program
- Public Perception – Social Media – 2017
- Engineers Canada Bridging Government and Engineers
- ACEC Government Relations Coordination
- Government Officials – Outreach Program
- Geoscientists Canada
- Engineers Canada – Public Affairs Committee
- Government Officials – Association Events
- University Funding

*Government Relations activity addresses Engineers Geoscientists Manitoba Ends as outlined below.*

**Ends E-4**

E-4: For government and regulators to understand and support the role of

Engineers Geoscientists Manitoba Government Relations (Engineers Geoscientists Manitoba).

- E-4.1 The provincial government will provide clearly defined regulatory authority.
- E-4.2 Government will dialogue with the professions in developing public policy, codes and standards.
- E-4.3 Related professions and occupations will agree to an integrated regulatory framework.

Engineers Geoscientists Manitoba's Government Relations Strategic Plan can be accessed at <http://www.apegm.mb.ca/pdf/GR/StrategicPlan2016.pdf>.

If you have any questions or would like to provide feedback, please contact Soffia Baragar, Administrative Assistant Government Relations, at [sbaragar@apegm.mb.ca](mailto:sbaragar@apegm.mb.ca). ☎



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# Did you know?

Did you know that Engineers Geoscientists Manitoba members enjoy the lowest fee in Manitoba?

Council's philosophy on fees has been to raise the fee \$10 per year to provide a small cushion against inflation. This has been a prudent practice since 2012; resulting in program growth without calling on the members for a special levy. As it was in 2006, Engineers Geoscientists Manitoba occupies the bottom rung on the regulatory ladder of professional fees in Manitoba.

Notwithstanding an unusually low professional fee, a few express displeasure with the amount. This is puzzling, since 81% of the membership don't pay out of their own pocket, but receive their professional fees as a staff benefit.<sup>1</sup> For those that pay their own fee, you can claim a rebate on Line 212 of your annual personal income tax return.<sup>2</sup>

The following table shows the basic 2016 practicing fees for professions in Manitoba:

PROFESSION	PRACTISING FEE <sup>3</sup>
Association of Manitoba Land Surveyors	\$2,878
Law Society of Manitoba	\$2,730
College of Physicians & Surgeons	\$1,700
CPA – Chartered Accountants	\$1,300
Manitoba Veterinary Association	\$1,280
CPA – Regular Member	\$985
Manitoba Teachers Society	\$956
Manitoba Association of Architects	\$900
Manitoba Pharmaceutical Association	\$890
CPA – Certified General Accountants	\$700
College of Physiotherapists	\$675
College of Occupational Therapists	\$525
College of Registered Nurses	\$443
College of Licensed Practical Nurses	\$389
<b>Engineers Geoscientists Manitoba</b>	<b>\$380</b>
<b>Engineering or Geoscience Intern</b>	<b>\$190</b>

<sup>1</sup> Engineers Geoscientists Manitoba Member Salary Survey 2014.

<sup>2</sup> Canada Revenue Agency online source: <http://www.cra-arc.gc.ca/tx/ndvdl/tpcs/ncm-tx/rtrn/cmpltng/ddctns/lns206-236/212/menu-eng.html>

<sup>3</sup> Some professional fees may have changed since these numbers were compiled.

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Explore the company. Find out where you excel. Engineer your future.

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Follow us on: [www.linkedin.com/company/manitoba-hydro](http://www.linkedin.com/company/manitoba-hydro)

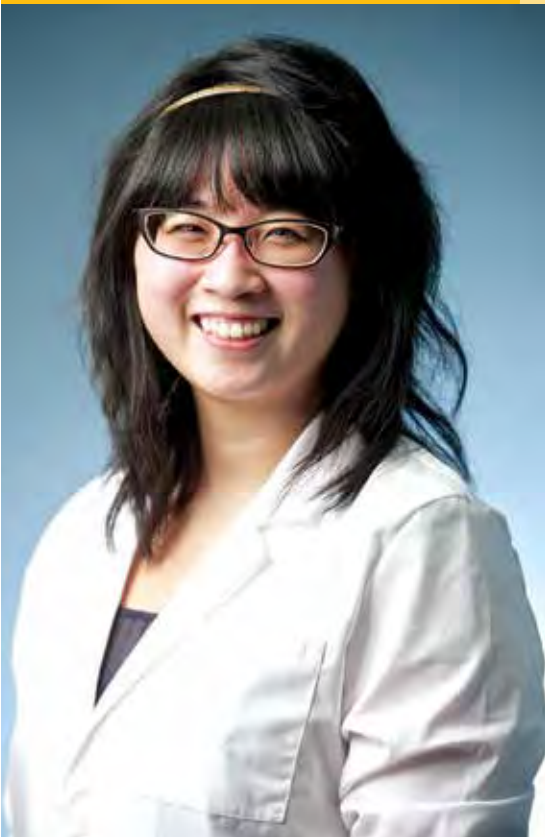
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## FACULTY OF ENGINEERING STUDENTS AVAILABLE NOW! Hiring Incentive Programs:

### Co-op Education Tax Credits

The CEATC family of tax credits provide qualified employers with a percentage of the wages and salaries paid to co-operative education students and recent graduates working in Manitoba.

**Co-op Students Hiring Incentive:** for placement of co-op education students into employment in Manitoba, lasting ten weeks or more, and linked to their studies. The credit has recently increased to 15% (from 10%) of net wages and salaries, up to a lifetime maximum of \$5,000 per student. The credit is earned when the student completes a placement.

**Co-op Graduates Hiring Incentive:** for hiring recent co-op education graduates into permanent employment in Manitoba, linked to their area of study. The credit has increased to 15% (from 5%) of net wages and salaries, earned on completion of each of the first two consecutive years of full-time employment, to a maximum credit per year of \$2,500 per graduate. There is no limit on the number of co-op graduates for which an employer may be credited.

For full details, visit: [http://www.edu.gov.mb.ca/ald/tax\\_credit/index.html](http://www.edu.gov.mb.ca/ald/tax_credit/index.html)

### NSERC Funds

#### **Industrial Undergraduate Student Research Awards (IUSRA)**

The IUSRA helps companies hire an undergraduate-level student to undertake a research and development project. These awards are designed to give students practical experience in an industrial setting that complements their studies.

The awards are valued at \$4,500/student/16 week term and suitable projects can include design, operations research, mathematical analysis, computer programming, data collection and testing. For further information go to: [http://www.nserc-crsng.gc.ca/Students-Etudiants/UG-PC/USRAI-BRPCI\\_eng.asp](http://www.nserc-crsng.gc.ca/Students-Etudiants/UG-PC/USRAI-BRPCI_eng.asp) or contact the regional office rep, Kathleen Lorenzo at 204-984-6301 or [Kathleen.lorenzo@nserc-crsng.gc.ca](mailto:Kathleen.lorenzo@nserc-crsng.gc.ca) to discuss your project and eligibility.

*For more information and assistance with regards to your eligibility, applications, and forms required, our administrative staff in the Engineering Co-op/IIP office would be pleased to assist you in taking advantage of these financial incentives.*

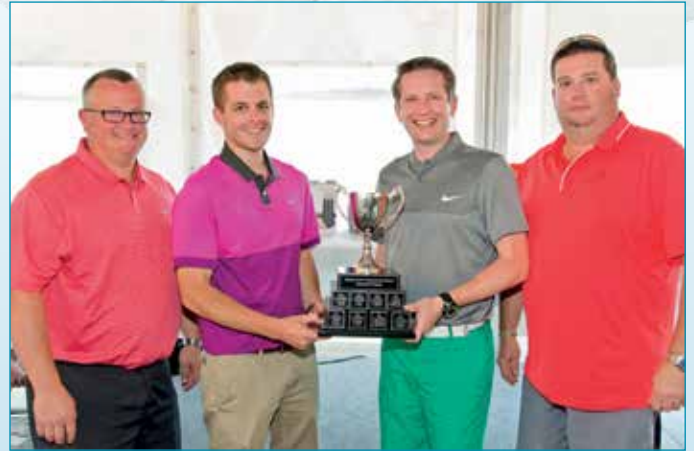
### **Did You Know?**

Employers can take advantage of over \$2,000 in tax credits and wage subsidies by hiring a Faculty of Engineering Co-op/IIP student. It's good business!

# Making Links Engineering Classic 2016



1st Place Team: Scott Sarna, Paul Croteau, Richard Kachur, missing – Michael Gregoire, P.Eng.



2nd Place Team: Shane Miller, Mike Miller, Travis Clarke, Sean Baldwin



3rd Place Team: Drew Monnier, Robert Taylor, missing – Dwight Klassen



Great West Life Representative, Leo Martins and Roger Petursson, P.Eng. MLEC Chair, present cheque to Dean of the Faculty of Engineering, University of Manitoba, Jonathan Beddoes, P.Eng.



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## Welcome New Members

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J. Ahmed	A.T. Chiu	S.L. Juganas	O.J.A. Ogunlowore	A. Singh
O.W. Akano	I.Y.H. Chu	J.N. Kabak	J.K. Olson	A. Singh
H.Z. Al Dahhan	S. Cliche	S.E. Karaman	B.R. Paizen	G.E. Smalley
S. Alhamadani	P.E. Cline	G.J. Kosztyo	S.P. Pantel	L. Sotola
M.S.J. Alzamer	M.I. Cunningham	L.O. LaBere	E.D.J. Pasay	S.H. Stark
G.H. Anderson	F. Dabiri	L. Lamwertz	D.M. Patel	D.N. Stevens
K.G. Anderson	J.N. Dean	L.S. Lapham	E.M. Peterson	A.F. Taferner
M.A. Bakkelund	D. Despres	M. Larocque	P.S. Pinder	P. Taillefer
C.A. Barrett	R.A. Dominguez Pineda	M. Lebeau	N. Planet	Y.S. Tegegn
B.C. Barroga	R.J. Enns	D.J. Lehman	Y.S. Ponweera	C. Tessier
J. Bastien	H.N. Erebor	E. Lidstone	H. Pouryafar	V. Thayil Kizeke
B.H. Beames	J. Fan	C.H. Lin	B.F. Powell	R.M. Thom
E.D. Beaudet	S.J. Foubert	J.J.J. Luchanko	J.J. Quon	S.C.C. Tsang
A. Bhatt	P.A. Fournier	R.L. MacDonald	L.J. Ramo	K.D. Unterschultz
C.L. Boisjoli	J. Glogowski	J.R. MacIntyre	B. Raybaud	A. Uprety
W.T. Bolduc	J.S. Grant	K.J. Mamchuk	A.F. Rose	M.K. VanAlstyne
S.J. Bond	B.E. Green	O.S. Maqsood	P.S. Roy	M.J. Vanderydt
J.O. Bondhus	N.L. Gurova	S.A. Martineau Gelly	L.L. Ruchkall	A. Viau
A.Y. Bouimadaghane	S.G. Heikoop	R.S. Mattu	J.Y. Ruiz	M.G. Vikse
T.J. Boyachek	D.J. Hine	W.K.W. Maver	S.B. Ruxton	B. Vitharana
M.E. Brunel	J. Holland	D.J. McAllister	B.E. Ryan	G.J. Waldie
J.S. Buenavides	P.A. Hooge	D.N. Mendoza	P. Salvo	J.D. White
S. Campagna	F.T. Hristov	X.D. Meng	V.R. Schmidt	P. Wilaipon
V. Campagna	E. Humphrey	D.S. Mickelson	R.H. Schmidtke	C.T. Wong
J. Carriere	I.M. Iacoucci	L.J. Mogentale	D.G. Schor	N. Wu
S.D.W. Carron	A. Ijdir	P.J. Moore	J. Shao	W.H. Ye
F. Charbonneau	I.J. Issa	M.M.Z. Moustafa	K. Sharples	
M.Y. Chatfield	S.K. Iyengar	T. Mubarik	J.J.S. Sidhu	
G. Chelvanayagam	L.L. Jackson	E.Z. Nejat	C.L.J. Simpson	

## Members-in-Training

A. Abramovski	R.E. Dumadag	D.A. Johnston	M.K. MacDonald	E.P. Rajaratnam
O.J. Adebajo	R.S. Dyck	G.D.A. Joyce	S. Maniquiz	Y. Rakhshani Fatmehsari
S. Ahmed	F.S.M. Elizalde	T. K	J.N. Marek	C. Rose
L.D. Apuugum	D.S. Eskildsen	B.M. Kallert	A.G. Megyeri	Z. Rubinchik
A.R. Armijooyon	M.A. Falconer	J.A. Kaminski	N. Mehareb	M.M. Sadik
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## Annual Volunteer Appreciation Event

On Tuesday, June 28, more than 100 Association volunteers and their families came out to Shaw Park for the Association's Annual Volunteer Appreciation Event. Attendees enjoyed a beautiful evening which started off with a BBQ dinner in the picnic area and then sat back and watched our hometown fish, the Goldeyes, face off against the Gary Southshore Railcats.

The Association would like to thank all of our volunteers for all their hard work throughout this past year!



## Correction

On page 24 of the Summer 2016 issue of the *Keystone Professional*, Notice to Members article, it's shown that there will be four professional engineer positions to be filled on Council as of October 2016. The correct number of professional engineering positions to be filled on Council as of October 2016 will be three.

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*So enjoy this magazine...and **KEEP THINKING GREEN.***

# Non-Practising Members

One of the benefits of having regulatory business carried out by committees is the way in which tidy solutions can be derived. A case in point is the work by two of our committees and the issue of members who are away from practice for an extended period. Their work precipitated the upcoming bylaw change that will add a new membership category.

Through the ProDev Program, the requirement to report ongoing professional development has raised some questions about practising, that had not yet been previously addressed. These questions are put to the professional engineers and geoscientists that make up our Continuing Competency Committee (CCC). One such question related to the issue of members who are on parental leave or are experiencing long-term medical issues that prevent them from practising.

The Bylaws currently provide one option for members that are non-practising; the Retired Member category. Members in the Retired Member category retain the right to title, and the right to vote on bylaw changes and council elections. In declaring themselves as retired, Retired Members

voluntarily forego their right to practice. Since the implementation of ProDev five years ago, this category recognized that members who officially declare themselves as retired from practice do not need to maintain competency through on-going professional development, particularly because they are not planning to return to the practising category.

The Retired Member category is problematic, however, for people who are planning to return to practice at some point in the future. The moniker alone implies that the person has ended their career; that they will not practice again. As some members have appropriately noted, this is completely inappropriate for someone who is taking care of their baby for a few years, but is at the beginning of their career.

The Retired Member category is equally inappropriate for people who are struggling with a long-term disability. In some cases, a professional member may be battling a disease that could end their life prematurely. As one of those members pointed out, going into a 'retired' category felt like giving up.

The solution proposed by the CCC was to add a new category of membership. The

new category, which will be called Member On-Leave, recognizes two important aspects for members that are on parental leave or long-term disability. The first aspect is that these members may be away from practice for three to five years or more, but definitely intend to return to practice. The second aspect is that there is a process for ensuring that the member experiences a smooth transition back to competency after an extended period of time on leave.

With respect to the latter, members who are seeking to return to active practice after an extended period work with the CCC. This process was described in a Closing Notes article last year. In summary, the aim is to ensure a quick return to competency for the member. With this goal in mind, the following examples are factors that help to shape the path:

- years of professional practice prior to the leave,
- years on-leave, and
- area of practice.

Once the CCC proposed the development of the new Members On-Leave category, the development of this by-law included consultation with various members and committees. For example, the Committee for Increasing the Participation of Women in Engineering was approached for their input. As it turned out, this committee had independently determined that a new category in this vein was required. It was therefore a natural fit for them to provide input into the development of the new bylaw.

Subsequently, the bylaw creating the Members On-Leave category was reviewed by the CCC, CIPWIE, staff, three councillors, and legal counsel. The final proposal was then reviewed and approved by all of Council at their June meeting. If you have any questions about this proposed bylaw, or any of the other proposed bylaw changes, please contact Engineers Geoscientists Manitoba.

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@apegm.mb.ca](mailto:mgregoire@apegm.mb.ca). ☎

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**S**crew piles are a fast growing technology in Manitoba which are being used with more and more frequency and on a wide range of projects. As a result, various screw pile companies are popping up.

It is good in that credible competition locally validates the technology of screw piles and helps it advance towards common use and acceptance.

It is also concerning. At the time that this article is being written, proper local criteria and guidelines for screw piles is largely lacking in Manitoba. Unless some logical guidelines for screw piles are put in place, engineers, consumers and installers will make costly mistakes.

Below are 3 important requirements that any professional screw pile contractor should meet before earning consideration for a project.

#### **#1. TORQUE MONITORED INSTALLATIONS VERIFY THE CAPACITIES REQUIRED ARE ACHIEVED.**

Engineers with extensive experience working with screw piles have gained very high levels of confidence in the technology because they understand the empirical relationship between installation torque and the capacity. Such engineers require installers to achieve minimum torque values on every project.

From time to time, screw piles will be pre-engineered using formulas and information from a geotechnical report. When this is the case, the probability of screw pile failure is low but due to the unpredictable nature of soil from one point to a few feet over, savvy engineers still require installers to monitor and confirm the torques achieved during installation.

#### **#2. ENGINEER STAMPED LETTER OF COMPLIANCE FROM 3<sup>RD</sup> PARTY ENGINEER.**

Requiring a letter of compliance, allows design engineers to specify screw pile locations and capacities on a plan without having to become experts in screw pile design and installation.

A professional screw pile company can provide you with an engineer stamped letter compliance. This is where an engineer with expertise in screw piles, reviews the installation logs and then certifies that the screw piles installed meet design criteria. To avoid conflicts of interest it is best for a letter of compliance to come from a third party engineer.

#### **#3. THE SCREW PILES ARE DEEP ENOUGH FOR AN UP TO 8 FOOT MANITOBA FROST LINE.**

Screw piles have earned a reputation for unparalleled stability in expansive soils; this is especially true for screw piles with a shaft of 3.5in (89mm) or less which are commonly considered non-displacement piles. The catch of course is that the screw pile must be long enough to anchor the helical blade(s) below Manitoba's extreme frost line.

It is important to measure a screw pile from the top of the helical and then negate 6in (152mm) above grade to allow for ground swell; therefore, a 7ft (2.13m) screw pile is really a 6in (152mm) screw pile or, depending on helical pitch, less than a 6ft (1.83m) screw pile. A popular DIY screw pile has a helical that is 26in (660mm) from the base of the pile, so the 8ft (2.44m) screw pile is really only 5ft-10in (1.78m)!

Insisting that the 3 criteria above are met will help to weed out the "cowboys" and reinforce screw piles as a foundation solution that is both predictable as well as dependable.



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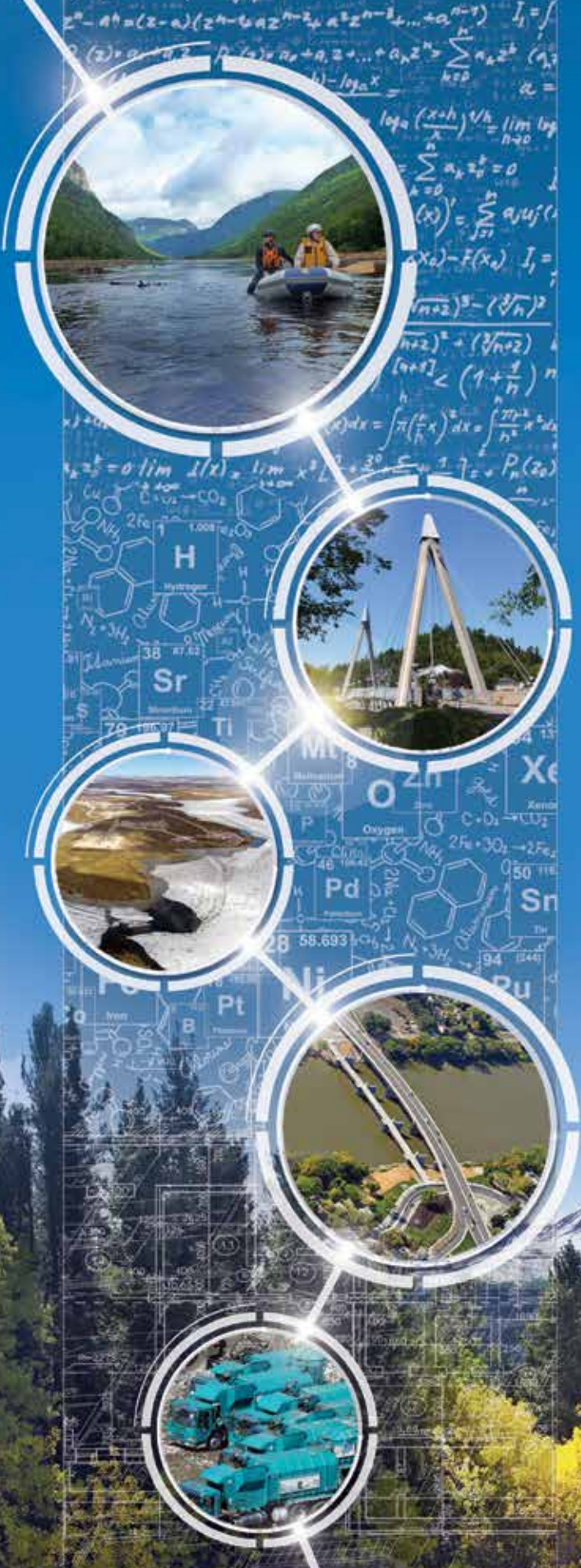



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