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AUTUMN 2015



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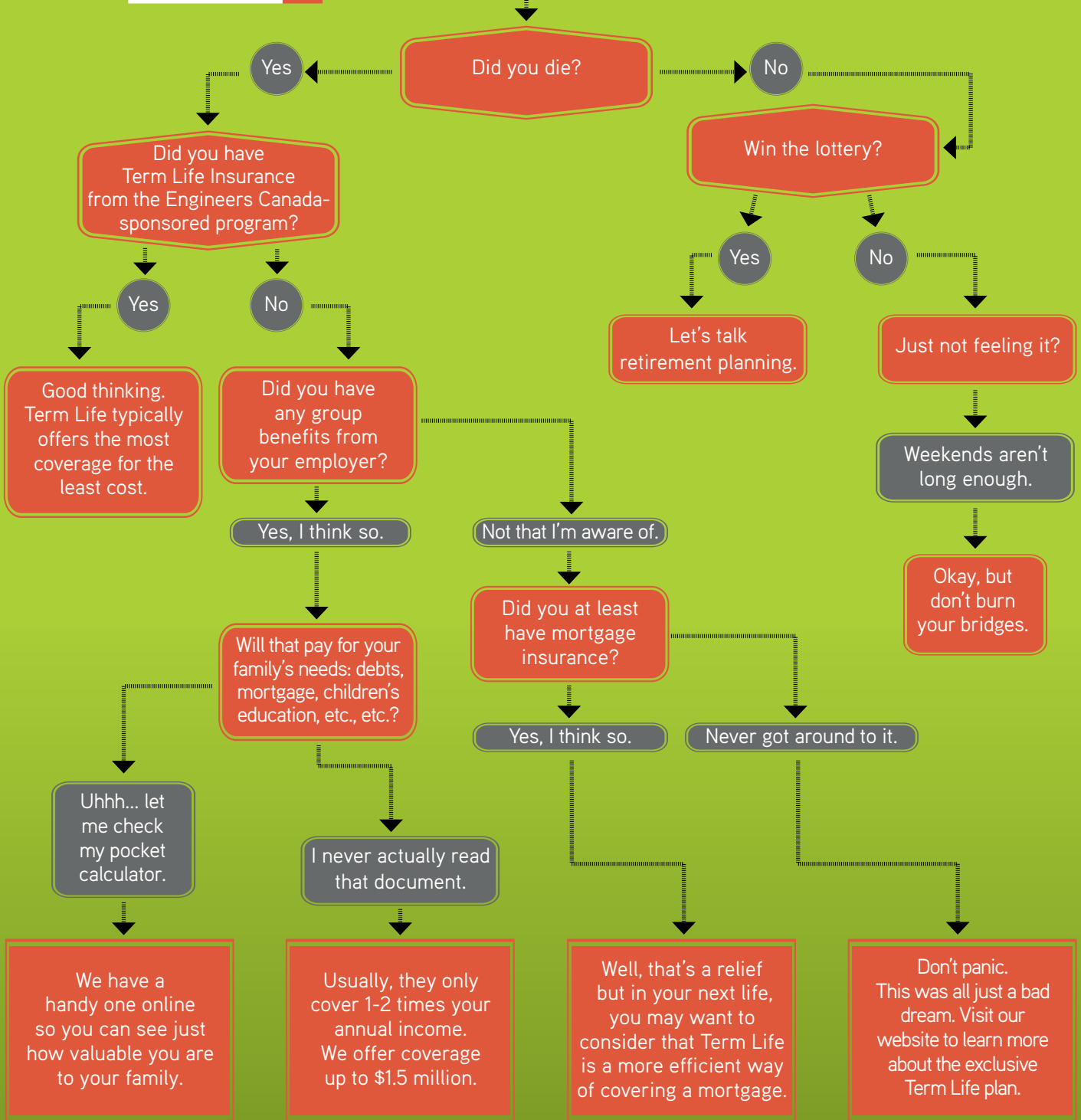
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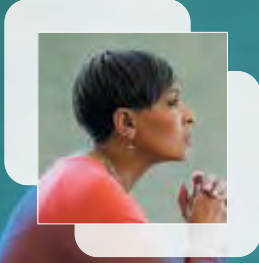
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THE KEYSTONE PROFESSIONAL

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AUTUMN 2015

FEATURES

- ▶ **Ingenium 2015** 19
- ▶ **30 by 30 and Women in Engineering in Manitoba** 36
- ▶ **Unconscious Bias in the Workplace** 38
- ▶ **MLEC Classic 2015** 40

DEPARTMENTS

- ▶ President's Message 7
- ▶ CEO's Message 10
- ▶ Engineering Philosophy 101 12
- ▶ Thoughts on Engineering Design 15
- ▶ Member Update 42
- ▶ News & Notes 45
- ▶ Closing Notes 48
- ▶ Advertising Information Centre 50

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Who are the **Owners** Anyway?

Greetings. I hope the summer has done you well.

As engineers, our greatest responsibility is to the general public. Regardless of the kind of work we are individually engaged in, ultimately, in some way we are accountable to and responsible for the safety of the public. As Councillors, we are elected by members to represent them and ensure the Association governs as a regulatory body on behalf of the general public. The concept is simple. Yet confusion sometimes occurs about the role of the Association member, the responsibilities of Council, the expectations of the membership and how we are to govern and connect with owners.

The ownership group in an *equity based* organization is clearly the *shareholders*. The focus is on delivering a return on the investment made by the organization's shareholders. Board members may also be shareholders, representing other shareholders. These kinds of boards are familiar to us from where we work or from dealing with

corporations in the private sector or even from where we invest.

In some *non-profit* organizations, a board is responsible to the stakeholders who are members of the organization. Members are easily identifiable as and similar to the position of *shareholders* in an equity based organization. Board members may also be stakeholders. We are all familiar with these kinds of member based or industry organizations to which we all belong. Boards are responsible to deal with and understand the needs of its members

and often to ensure alignment with core principles.

Professional associations are established as regulatory bodies. So who are the owners of a regulatory body? Although intuitively the answer may be its members – it is not. The owners are the *general public*. Individual members of the Association are the customers, not the owners.

Can a member also act as an individual within the general public on an assignment served by other engineers or geoscientists taking professional



Did you notice our name change and new logo? Council approved the name change September 12, 2013 and after a lot of hard work, our new logo is ready!

As of September 2015 the Association of Professional Engineers and Geoscientists of Manitoba will be known as Engineers Geoscientists Manitoba.

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responsibility? The answer is yes. A member may act in the capacity of an individual of the general public. In this capacity, the engineer/geoscientist member may serve as an excellent example of understanding the process better than a typical representative of the general public. However, the individual may not act in both roles at the same time.

Members or customers use the products and services of an association; expecting immediate return on the service to benefit them personally.

Continuing with the customer metaphor, the point-of-sale for the member is the front counter at the Association office. Sometimes the organizational point of contact is the website, CEO, or other staff person.

Owners are the people, on whose behalf the board determines the *Ends*, expect future returns, and have a long term perspective on how to benefit the common good of the community. The organizational point of contact is the board.

The board (or the Association's Council) is the link between the organization and the ownership. The board acts as a governor, represents the owner and does not focus on efficiencies and effectiveness in the operation of the Association. The CEO is authorized to make reasonable interpretations of Board policies and to do whatever works to achieve the Ends without being imprudent, illegal, or unethical, as defined in the policies.

I hope this short explanation helps to better inform any member who may be considering a verbal or written appeal to the President, Council/ Councillors about the day to day operations of the Association. Unlike a public elected council, Engineers Geoscientists Manitoba Councillors do not have agendas or platforms related to issues or promises and do not deal with the day to day operations of the Association. Perhaps this will assist in the selection of future Councillors to serve as representatives for the owners we serve. Think about this important quality as you vote in the upcoming Council election.

Policy governance under the Carver Model® is fundamentally different than the typical board model you may be familiar with. The policy governance principles are related to Ownership Linkage; namely maintaining a connection with owners to fulfill governance on their behalf. The Association is at the stage of getting representative input to obtain information from owners, to inform the understanding of the Ends. This will help to develop a long range plan for Ownership Linkage, continuing to provide ownership in the process of Ends development.

It has been a privilege to attend and represent Engineers Geoscientists Manitoba at the General Meetings of other provincial associations, Engineers Canada, and Geoscientists Canada so far this year. It helps to understand how well Manitoba is positioned, with policies, leadership, direction, and accomplishments such as the ProDev program, and online reporting systems relative to other provinces. We have much to be proud of. ☺

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Artsies, Aggies, and Architects

There have been some great rivalries through history. Many from the world of sports and some from other match-ups in chess, auto racing and others. Here is my list: Montreal Canadiens vs. Boston Bruins, Boston Red Sox vs. New York Yankees, Chicago Bears vs. Green Bay Packers, Manchester United vs. Liverpool, Arnold Palmer vs. Jack Nicklaus, Muhammad Ali vs. Joe Frazier, Magic Johnson vs. Larry Bird, Roger Federer vs. Rafael Nadal, Bobby Fischer vs. Boris Spassky, Niki Lauda vs. James Hunt. What great rivalries are part of your personal history?

When I was an engineering undergrad, there were some campus interfaculty rivalries. I don't know if they still exist today. Back then, engineering students were reputed to play pranks on Arts, Agriculture, and Architecture students. Practical jokes, minor vandalism, and a few physical assaults took place; apparently under the banner of 'just plain fun'. There was some affinity with the nurses, and teachers too. I don't recall any interactions with the doctors, lawyers or business students.

Artsies & Aggies

Nicknames were assigned to these rival groups. Students from the Faculty of

Arts were called 'Artsies' while Faculty of Agriculture students were known as 'Aggies'. Others were lumped into these groups too. For example, anyone studying Fine Arts and Interior Design would be quickly amalgamated into the broad category of Artsie. I don't recall a particular nick name for students from the Faculty of Architecture.

I recall one time when the Aggies backed-up a farm truck and dumped a load of manure through a window into the student council office in the lower level of the engineering building. I don't recall what the engineers did to retaliate, but I'm sure they did something. One time the engineers put a Volkswagen Rabbit car atop the Tier Building in mock of the Artsies.

Shared Opportunities

I think it's time to forget these old rivalries. Let the old ghosts dissipate into history. Let's forget them in favour of new cooperation, collaboration and shared opportunities. For example, engineers and architects work closely every day in the development of the built environment. The cooperation and collaboration are well documented in

the beautiful buildings and structures we see in our city, country and around the world. Continuing to proliferate false notions, rumors and stories about our architecture colleagues is not fair. In fact, it's unprofessional. So let's end the old habit.

Double Dean

Jonathan Beddoes, PhD, P.Eng. has been the Dean of the Faculty of Engineering since 2011. Recently, the University of Manitoba asked Dr. Beddoes to help give leadership to the Faculty of Architecture by filling the vacant dean's position for a short term. This is a huge task and responsibility. Dean of both faculties? At the same time? Wow! I don't know if this has ever happened before in the history of the university, but it looks like a great opportunity for building a shared future with our architecture colleagues. For anyone who might think this is some kind of takeover by the engineers, you need not fear. It's not. Jonathan Beddoes is a thoughtful, respectful and honorable person who happens to be an engineer. I'm certain he will work respectfully and collaboratively with the architecture faculty, students and design community to ensure the health and vitality of the architecture programs at the U of M. I invite all engineers to support Dean Beddoes and to support our architecture colleagues, professors, students, Faculty of Architecture staff, and in the design communities of Winnipeg and Manitoba. This is an exciting time for both professions!

Remember our slogan and tell others that... **"My life's work, makes life work better."** Your feedback is important. If you have any thoughts on anything, please email me at gkoropatnick@apegm.mb.ca. ☎

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GeoConvention 2016 is taking place March 7-11, 2016. Our technical program and exhibition floor are at the Telus Convention Centre from March 7-9 with additional activities and events planned for March 10th and 11th. With low commodity prices and an ever changing economic and business environment, it is imperative that the industry optimize the way in which it operates. Whether enhancing recovery methods or finding the optimal path for a horizontal well; maximizing the return of capital employed or simply, Optimizing Resources, the theme for GeoConvention 2016, is key to success. Please join us and contribute as speaker, exhibitor or sponsor.

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M.G.(Ron)
Britton, P.Eng.

Does a 'profession' have 'value'?

I will admit to being taken aback when a long-time engineering colleague told me his answer to the question why you should pay dues to the provincial associations and which is now something I tell young engineers, "it is a club and if you want to be able to call yourself an engineer with a capital E you join." Clearly he no longer sees value in his provincial association or the profession it represents. Does my opposing view have any more validity than his?

If this is, in fact, a debate about 'value', it is best to go back to the dictionary and confirm the meaning of the term. According to the *Oxford University Press*, the noun 'value' means "the regard that something is held to deserve; importance or worth" and/or "material or monetary worth". Shifting from 'value' to 'values', suggests "principles or standards of behaviour" and/or "the numerical amount denoted by an algebraic term". As a verb, the definition of 'value' is "estimate the value of" and/or "consider to be important or beneficial".

Unfortunately these definitions offer opposing perspectives. 'Value' is either a philosophical representation of principles, standards, and importance, or a monetary return. My personal view with respect to the 'value' of the profession is squarely in the philosophical camp. This perspective will no doubt bias my opinions.

In order to begin the consideration of our profession's 'value', it might be worth looking at the structure of 'professions' in general, both past and present.

It seems to be more or less agreed that our Canadian concept of professions originated in medieval Europe. At some point during that period the three 'learned professions', medicine, law, and divinity, emerged as 'callings' that were seen as necessary to protect the public's health (medicine), wealth (law), and ultimate fate (divinity). There are two obvious cornerstones underlying this ancient concept of professionalism:

1. a specialized type of knowledge, and
2. an obligation to protect/serve those who did not possess that knowledge.

On the assumption that members of each profession were best qualified to make decisions regarding their profession they were given the right to establish their own conditions of entry and to oversee the activities of the membership. Historians suggest that control within the three professions may have been more theoretical than real, but the concept was established.

If we fast forward to the 21st century, we find a significantly greater number of groups claiming professional status and the existence of significantly more legal constraint than was the case in medieval times. However, the logic of those two cornerstones upon which professions were originally founded, knowledge and obligation, seem to persist.

Since Confederation, legal responsibility for governance of professions in Canada has been assigned to provincial/territorial



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legislatures. 'Local' legislators create acts that establish professional associations. The acts require the professional associations to create and enforce the operational procedures under which each profession functions. The legislation is still founded on the assumption that those who practice a profession are in the best position to 'control' it.

When one looks at the various provincial engineering acts that govern our profession today, it is easy to argue that our current legislators are in philosophical agreement with their medieval European predecessors. Specific wording in our engineering acts varies, but their intentions seem consistent. Using the Manitoba Act as an example, we have three stated 'purposes of the Association'. One clause establishes a governing body and the other two echo the medieval corner stones:

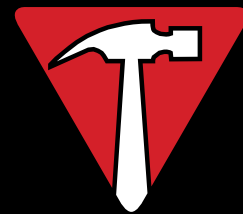
- 3(a) govern and regulate the practice of professional engineering and professional geoscience in Manitoba; (the Association)
- 3(b) promote and increase, by all lawful means and in the public interest, the knowledge, skill and competency of its members and students in all things relating to the professions of engineering and geoscience; (specialized knowledge and responsibility to the public) and
- 3(c) advocate where the public interest is at risk. (responsibility to the public).

Obviously this agreement between medieval and current authorities with respect to the purpose of a profession reflects a long-standing consistency of purpose. Professionals still have a specialized type of knowledge and a responsibility to protect the public. All that has been added by current legislators is a requirement that each self-governing profession function under an administration structure to assure compliance with their stated purpose.

But this discussion is about the question of 'value'. It seems reasonable to suggest that, from the perspective of the public, having a means of identifying persons who possess specialized knowledge and skills is useful. It seems

reasonable to suggest that, from both individual and public perspectives, having a body that oversees and enforces the competence of its practitioners is also useful. It seems reasonable, to me, to accept that one can assign 'value' to a concept that provides these sorts of useful assurances, as long as both the organization and its members respect the philosophy that the system is based on. Without that underlying respect of purpose, the profession will become an 'old folk's club'.

So, does our profession have 'value'? Because I subscribe to the 'philosophical representation of principles, standards, and importance' definition of 'value', I assume the answer is 'YES'. I do this in spite of being aware that the definition of the verb 'assume' is accept as true without proof. But we engineers know that design, our fundamental approach to problem solution, is typically based on assumptions. I'm comfortable with that. I hope you are. ⊕



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Thoughts on Engineering Design

...how, why and for whom?

M.G. (Ron) Britton, P.Eng.

In October 2014, the Royal Academy of Engineering issued a document entitled *"The Universe of Engineering – A call to action"*. One of the statements contained therein; "At its heart, engineering is a creative activity that seeks to solve technical problems to improve our well-being and to tackle society's challenges"; resonated with me because it seemed to sum up my perspective on engineering in general, and design in particular. I must admit, however, that the day-to-day tasks associated with the practice of engineering can cause my perspective to seem more than a bit idealistic.

But I have heard people suggest that realism is founded on attempts to make idealism functional. Perhaps it is worth considering this approach.

The quotation I have cited can be reworded to something like: engineering is about using the design process to meet an intended purpose. In defence of this rewording, consider that the *Oxford University Press* defines the verb 'design' as "plan or intend for a purpose", and the noun 'purpose' as "the reason for which something is done or for which something exists". On the other hand, the adjective 'creative' means "involving the use of the imagination or original ideas in order to create something". 'Design' and 'purpose' suggest that there may be some restrictions that one must live with. 'Create' implies a freedom that, at best, must be toned down to fit into real situations. On the other hand, creativity might be the only way to overcome restrictions. As engineers, we do, or at least should, strive to "...solve technical problems to improve our well-being and to tackle society's challenges".

Design efforts must work within, or around, codes, standards, budgets, workable design aids, lack of precedent,

material availability, available technical skills beyond the design phase, and an endless string of other project specific limitations. A great deal of design creativity is devoted to finding ways to deal with this list of constraints. There is, however, another design constraint we often ignore, or maybe fail to recognize, the influence of client bias. I was introduced to this type of constraint in the school of hard knocks.

As a very young engineer I had the privilege of working in the London, England, offices of the Canadian wood industry. Specifically, I was a Technical Councillor with the Plywood Manufacturers Association of British Columbia. My responsibility was to provide technical support to organizations and individuals who were using Canadian wood products. At that time the wood industry was promoting, without a great deal of success, the introduction of timber wall

framing in the housing market. Basically they were looking at replacing 11" brick cavity walls with insulated wood studs. The technical, environmental, and cost advantages notwithstanding, 'authorities' always took the stance that they were not prepared to deal with another "Great Fire of London". Given that floor and roof systems in 'typical' British house construction invariably used 'timber', I had difficulty understanding how brick walls and 'timber' walls and roofs were any more fire-safe than typical Canadian construction. However, numerous 'authorities' assured me that they were not prepared to ignore an almost 300-year-old lesson.

Given my experience with British housing authorities, you can imagine my surprise when the Heathrow Airport Authority contacted me to discuss the use of wood in aircraft hangers. It turned out that they required information on



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the rate at which mass timber burned. They were planning the addition of a new hangar that would have a glued laminated roof structure. The reason for making this design decision related to safety. They explained that, given the open nature of aircraft hangars, fires were characterized by rapid temperature increases. Since steel loses its structural strength at high temperatures and it was not possible, at that time, to determine temperatures that were being generated around the trusses, they could not send people into the building to remove the aircraft. On the other hand, since they would have a reasonable estimate of when a fire started, and if they could estimate the rate at which the mass wood members were being burned, they could predict, with acceptable reliability, when the roof would collapse, and therefore, they would likely be able to rescue the aircraft. They were confident with their assumptions and needed my help to convince their insurance company. And by the way, that hangar was under construction when I flew out of Heathrow to come home.

The school of hard knocks provides many lessons for all of us. The trick is to remember those lessons, because they constitute what is referred to as experience.

My English experience taught me to take a careful look at 'why' a project was being forced in what I may have perceived as an 'unreasonable' direction. Clients may have thought through the details of their situation, like the Heathrow Airport Authorities. Alternately, they may simply be relying on a 'history' lesson, like the London housing authorities. Regardless, as clients, they often introduce project constraints that require special design considerations. The design may be ours but the project is theirs.

I still feel comfortable with the quotation that I cited at the beginning of this discussion. Yes, it is idealistic, and yes, there are 100 and 1 constraints and restrictions that impact our ability to conform with that idealism, but as Robert Browning noted many years ago, "...a man's reach should exceed his grasp, or what's a heaven for?" I believe that is still good advice for every engineer. ⊕

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WELCOME TO INGENIUM 2015

As Association President, I warmly welcome you to *Ingenium*, the Engineers Geoscientists Manitoba Conference for 2015.






This year's conference explores the theme of 'Diversity'. The opportunity to embrace and promote diversity exists in all aspects of life, and *Ingenium* offers something for everyone as we each make our contributions to the engineering & geoscience community in Manitoba and Canada.

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,
Howard Procyshyn, P.Eng. FEC
President, Engineers Geoscientists Manitoba

BENEFITS

Ingenium is a premier professional development opportunity for the engineering and geoscience community in Manitoba. With participants representing a cross-section of the 7,000 members who work in the province's private and public sectors, this multi-day event offers substantial value to program sponsors:

-  Excellent networking and business development opportunities
-  Exposure to senior decision-makers in the industry
-  Association with a well-organized and productive event
-  Recognition as a supporter of excellence in engineering and geoscience
-  Exposure to new talent in the engineering and geoscience fields

Program sponsors will also receive a sponsor recognition package commensurate with their level of support.

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

20> TUESDAY

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 Councilors 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.

21> WEDNESDAY

Recognition Wine & Cheese

This reception is to honour 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.

22> THURSDAY

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

EVENTS *Continued*

Manitoba 'Diversity' through our Profession, in the Workplace, in the Province, and in members' Personal Careers will be offered at this informative event.

Partners Program


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

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23> FRIDAY

Business Meeting & Breakfast

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.

Partners Program

The Partners Program runs during the same time as the Business Meeting and Breakfast to provide activities and networking opportunities for the companions of AGM attendees.

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.

SPONSORSHIP OPPORTUNITIES

All Sponsors will receive:

- Acknowledgement in all event material for members and guests
- Acknowledgement in AGM article in the Winter issue of the Keystone Professional and on the APEGM website
- Acknowledgement on event signage
- Booth opportunity

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

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|---|---|---|
| <input type="radio"/> New Member Luncheon | <input type="radio"/> Business Meeting | <input type="radio"/> Awards Dinner and Entertainment |
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| <input type="radio"/> Partners Program | | |

Unique Benefits

- Naming rights for the sponsored event
- Priority tickets (6 seats)* at Awards Gala Dinner and Dance
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- Splash Screen advertisement on Ingenium App option
- Verbal acknowledgement at your sponsored event

Gold Level\$1,000**

Unique Benefits

- Priority tickets (4 seats)* at Awards Gala Dinner and Dance
- 2 Conference Registrations (includes Professional Development Seminars, Annual General Meeting, Breakfasts, Lunch, and Refreshment Breaks)
- Verbal acknowledgement at the Gala Dinner
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Silver Level\$650**

Unique Benefits

- 2 seats* at the Awards Gala Dinner and Dance
- 1 Conference Registration (includes Professional Development Seminars, Annual General Meeting, Breakfasts, Lunch, and Refreshment Breaks)
- Verbal acknowledgement at the Professional Development Seminars Luncheon
- Direct weblink from Company Logo on APEGM website
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Bronze Level\$300**

Unique Benefits

- Recognition at event
- Name on event signage
- Listed under Sponsors on Ingenium App

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

** Sponsorship/Supporter amounts include GST.

SPONSORSHIP OPPORTUNITIES

All Sponsors will receive:

- Acknowledgement in all event material for members and guests
- Acknowledgement in AGM article in the Winter issue of the Keystone Professional and on the APEGM website
- Acknowledgement on event signage
- Booth opportunity

Refreshment Break Sponsor \$1,500**

Unique Benefits

- 2 seats* at the Awards Gala Dinner and Dance
- 2 Conference Registration (includes Professional Development Seminars, Annual General Meeting, Breakfasts, Lunch, and Refreshment Breaks)
- Verbal acknowledgement at the Professional Development Seminars Luncheon
- Tent signs at Refreshment Breaks
- Direct weblink from Company Logo on APEGM website
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Wine Sponsor \$1,500**

Unique Benefits

- 4 seats* at the Awards Gala Dinner and Dance
- 2 Conference Registration (includes Professional Development Seminars, Annual General Meeting, Breakfasts, Lunch, and Refreshment Breaks)
- Verbal acknowledgement at the Awards Gala Dinner and Dance
- 1 bottle of White Wine and 1 bottle of Red Wine on each table with sticker of company logo
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Bag Sponsor \$1,500**

Unique Benefits

- 2 seats* at the Awards Gala Dinner and Dance
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TUESDAY

APEGM New Members
Luncheon & Certificate
Presentation

21>

WEDNESDAY

Recognition
Wine & Cheese

22>

THURSDAY

Professional
Development Seminars
Theme: Diversity

Partners Program

23>

FRIDAY

96th Annual General
Business Meeting

Partners Program

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Thursday, October 22 • The Fort Garry Hotel

7:45 - 8:30am	Registration & Continental Breakfast – Loggia, Lobby Floor			
8:30 - 9:15am	Welcome and Keynote – Provencher Ballroom, Lobby Floor Keynote Speaker: Hon. Kevin Chief, Minister of Jobs and the Economy			
	<i>...In the Profession</i>	<i>...In your Workplace</i>	<i>...In the Province</i>	<i>...In your Personal Career</i>
9:20 - 10:20am	“Good Guy or Bad Guy: Which One Are You?” – Grant Koropatnick, P.Eng. FEC	“We’ve Come A Long Way Baby! – But Are We There Yet?” – Chitra Paliwal	“30 by 30 in Manitoba” – Indra Kalinovich, EIT (ON), Lindsay Melvin, P.Eng. FEC, and Michelle Wadelius, P.Eng.	“Creating a Winning Personal Image” – Ann Christoffersen
10:20 - 10:40am	Coffee Break & Booths – Mezzanine Level			
10:40 - 11:40am	Panel Discussion: “Government Relations Strategic Priorities”	“Unconscious Bias in the Workplace” – Indra Kalinovich, EIT (ON)	“Looking Back, Moving Forward” – Ron Britton, P.Eng. FEC, and Richard Jones, P.Eng.	“Understanding Personalities: Myers Briggs Type Indicator” – Lisa Moretto
12:00 - 1:30pm	Lunch & Keynote – Provencher Ballroom, Lobby Floor Keynote: “Situation Critical” Speaker: Jay Shaw, Winnipeg Fire Paramedic Service			
1:40 - 2:40pm	“Showing Them How It’s Done! The modus operandi of the Experience Review Committee” – Jitendra Paliwal, P.Eng.	“Ethics and The Only Thing That Is Constant” – Michael Gregoire, P.Eng. FEC	“Diverse Engineering Students Today for Diversity in our Future Engineering Profession” – Jonathan Beddoes, P.Eng.	“Diversity Applied to Teamwork” – Rolando Jeria, P.Eng.
2:40 - 3:00pm	Coffee Break & Booths - Mezzanine Level			
3:00 - 4:00pm	“Association Chapters – Uniting Diversity” – Steven Wu, P.Eng.	Panel Discussion: “Diversity in the Workplace”	“Encouraging Indigenous Engineers” – Randy Herrmann, P.Eng. FEC	“Putting the P in P.Eng.: What They Didn’t Teach You at University” – Lisa Moretto



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Morning Keynote Speaker: Hon. Kevin Chief



Growing up in Winnipeg's North End, Kevin Chief quickly learned to spot people who could see potential where

others might only see hardship.

They were everyday people, including teachers, coaches, business owners and other mentors who helped him learn to believe that no matter who you are or where you come from, there are always opportunities to give back.

After attending Strathcona Elementary School, Kevin found that

his talent for basketball gave him a sense of generosity in his neighbourhood, playing for Isaac Newton Jr. High and Tec Voc High School. It also opened opportunities for further education when he played for the University of Winnipeg Wesmen as a two-time all star athlete and graduated with a Bachelor Degree majoring in Justice.

Before entering politics, Kevin spent a decade working in education as Coordinator of the Innovative Learning Centre at the University of Winnipeg, Director of the Winnipeg Aboriginal Sport Achievement Centre and

Community Networker with the River East Transcona School Division. He was appointed Minister of Children and Youth Opportunities in 2012, Minister responsible for the City of Winnipeg in 2013, and currently serves as Jobs and the Economy Minister.

He is always looking to learn from the experience and ideas of people who have overcome hardship and adversity and want to help others do the same.

Kevin, his wife Melanie and their two sons Hayden and Kellan live in the North End, where he is the MLA for Point Douglas and a high-steppin' square dancer.

Lunch Keynote Speaker: Situation Critical

Emergencies and disasters may not always be preventable, but the consequences and hazards can be significantly reduced if we prepare, mitigate, and have the right mind set. All too often the post disaster inquiry will show where we could have stopped or drastically reduced destruction and possibly saved more lives. Situational awareness, risk perception, and the normalization of deviance are concepts that need to be explored in today's diverse work environment. What if you could predict the future and stop it? What skills do we need as professionals to make sure we don't fall prey to complacency, tunnel vision, and team dysfunction? How do our own experiences shape our perceptions in a positive and or negative way during times of stress? This session will give an

introduction to these concepts and help us understand how to prevent, prepare, and reduce our risk for a critical failure.

Speaker: Jay Shaw



Jay Shaw has been involved in the emergency services for over 18 years, working in hospital emergency rooms, rural EMS

departments and the fire service. Currently Jay is in his 14th year as a member of the Winnipeg Fire Paramedic Service as a Firefighter Paramedic where he has been a part of both the technical rescue and water rescue teams. Jay writes for *Firefighting in Canada Magazine* and has been published in Canada and the US for article

relating to the emergency services and disaster management. Currently Jay is seconded to assess and re-write the Fire Paramedic Services operational polices, and support the Winnipeg Emergency Preparedness Program.

Jay also consults for Workplace Education Manitoba as an independent education and training consultant focusing on assessing need, instruction design, and delivery in leadership, management and communication courses. Jay has done work with companies such as Boeing, New Flyer, American Biaxis, as well as many smaller private companies.

Jay holds a Master's degree in Disaster and Emergency Management from Royal Roads University where his research interest is focused in risk perception and barriers to emergency preparedness.

**Good Guy or Bad Guy:
Which One Are You?**

There are a lot of examples of bad character in the news media these days. Corporate directors committing fraud. Police shootings of innocent people. Elected officials stealing from the public purse. Celebrities committing sexual assaults. What were they thinking?

This session will explore the topic of good character as it relates to professional practice. What is good character? What does history have to say about it? How does one maintain good character? Can it be lost? Can it be regained? Are you born with it or is it developed as one grows? Examples of unethical and illegal behavior that creeps into daily life will be highlighted with files from the Investigation Committee archives and other notable sources.

**Speaker: Grant Koropatnick,
P.Eng. FEC**



Grant Koropatnick, P.Eng. FEC, is the CEO and Registrar for Engineers Geoscientists Manitoba. He is a graduate Civil

Engineer and holds a certificate in Human Resource Management from the University of Manitoba. With more than 20 years' experience, he has held technical and managerial positions in human service environments including the University of Manitoba and the Pembina Trails School Division. Born and raised in Winnipeg, Grant enjoys a variety of interests in his spare time including running for fitness, writing, public speaking, and philanthropy.

**We've Come A Long Way Baby! –
But Are We There Yet?**

The role of women in corporate environments has gone through a huge transformation in the last decade. Still, issues related to 'glass-ceilings' and

'old-boys clubs' dominate the discussions when it comes to equitable treatment of genders in modern workplaces. This presentation explores the journey of women in professional careers and identifies the obstacles they face when compared to their male counterparts.

Speaker: Chitra Paliwal



Chitra Paliwal has worked across continents in industries such as finance, banking, and aviation. After years of corporate experience, Chitra

realized that interpersonal communication and professional development are routinely undermined in most workplaces. With the workforce becoming increasingly diverse, she felt the need to raise awareness and use her experience to bring a positive change. She is passionate about developing the most important capital any business has, which is the human resource. She believes in life-long learning and is currently pursuing higher education in this field. Chitra loves to work with people and actively volunteers her time at her workplace and the Immigrant Centre to mentor and guide newcomers to Canada.

30 by 30 in Manitoba

30 by 30 has now received national support across all provinces and territories. Join this session to find out what 30 by 30 is, and how this initiative impacts you. There will be an analysis of the percentage of women in engineering in Manitoba and comparisons will be made across Canada. Explore some of the perceived challenges to women in engineering, such as "the leaky pipe", which represents the continuous loss of women in science and engineering as they progress in their career. Trained engineers with experience are a

coveted asset for any organization – recommendations will be shared on how to increase the number of women entering engineering education programs, and workplace strategies that have been demonstrated to attract and retain women.

**Speakers: Indra Kalinovich, EIT (ON),
Lindsay Melvin, P.Eng. FEC, and
Michelle Wadelius, P.Eng.**



Indra Kalinovich, EIT (ON), is an Associate with the Winnipeg, Manitoba office of Dillon Consulting, where she tackles environmental

challenges, such as PCBs in the Canadian Arctic, and the wide-spread use of firefighting foams in airports. She holds a Ph.D. in Civil Engineering from Queen's University. Prior to joining Dillon, Indra worked at the University at Buffalo (SUNY) as a postdoctoral hydrogeochemist, and is presently an Adjunct Faculty member of the Civil Engineering Department at the University of Manitoba.



Lindsay Melvin, P.Eng. FEC, holds a Bachelor of Science in Mechanical Engineering, a Master of Science in Mechanical and

Industrial Engineering and a Master in Business Administration, all from the University of Manitoba. She has enjoyed various positions at Manitoba Hydro as a System Modelling Engineer, a Senior Market and Risk Studies Engineer, and a Senior Business Performance Engineer. Lindsay is currently the Distribution Portfolio Management and Controls Section Head at Manitoba Hydro. A Fellow of Engineers Canada, Lindsay is an active volunteer in the engineering

community. She co-chaired the 13th National Conference of the Canadian Coalition of Women in Engineering, Science Trades and Technology (CCWESTT) held in Winnipeg in 2010, chaired Engineer Geoscientist Manitoba's Committee for Increasing the Participation of Women in Engineering and Engineers Canada's Women in Engineering Committee, and served as councillor for the Manitoba Hydro Professional Engineers' Association.



Michelle Wadelius, P.Eng., holds a Bachelor of Science in Civil Engineering from the University of Manitoba. She is a Structural Engineer in

the Bridges and Structures department at MMM Group Limited working in inspection, design, project management, and specializing in the inspection of precast concrete structures. Michelle is involved in Engineers Geoscientist Manitoba's Committee for Increasing the Participation of Women in Engineering as an Outreach Coordinator and has assisted in the preparation of committee annual reports and Keystone Professional articles. She has performed the analysis of Engineers Geoscientists Manitoba member data, in working to achieve Engineers Canada's 30 by 30 goal.

Creating a Winning Personal Image

You don't get a second chance to make a first impression. Are you creating the "right" impression of you, your abilities, and your organization? Just like choosing a book based on the cover, people determine your reputation by how they perceive you. This session will help you understand how people form an opinion of you and will teach you ways to ensure it is a positive opinion. Discuss how to walk, talk, dress, and interact with clients, customers, colleagues, and the general public.

Speaker: Ann Christoffersen



Ann has been an RGI Consultant for 17 years and has been in the technical communication field since 1990. She has developed and delivered written and oral communication skills courses in both the United States and Canada.

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.

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

Panel Discussion: Government Relations Strategic Priorities

A panel of experts from various industries, with connections to different levels of government. 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 year's efforts in government relations will be discussed, and input will be sought from the members into future strategic priorities. The review of this panel will be published through an e-news bulletin and on the website.

Panel: James Blatz, P.Eng. FEC, Michael Gregoire, P.Eng. FEC, and Allan Silk, P.Eng. FEC. Moderated by 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 committee's 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, where he provided solutions to problem buildings.



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

born in Winnipeg, Manitoba 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 key business leader for his entire career. In addition to being the CEO of Royal Sire Ltd., he is the CFO of a multinational real estate company.



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.

Unconscious Bias in the Workplace

There's been a lot of discussion on unconscious bias in the workplace lately – and how, when left unchecked, it can negatively impact an organization's performance. So what exactly is unconscious bias? How do our good intentions lead to these seemingly bad outcomes? These biases are unconscious, and being aware that they exist (in yourself, in your workplace) is the first step. In this session, we'll discuss methods for identifying biases and what that means for the workplace, followed by an interactive discussion on effective workplace policies and practices that have been proven to interrupt bias in the workplace.

Speaker: Indra Kalinovich, EIT (ON)

Looking Back, Moving Forward

The application of engineering and geoscience knowledge has evolved, and continues to evolve, in a diverse and

adaptive way. This presentation will focus on the importance of understanding the origins of our profession and the technology it utilizes. These origins, particularly as they relate to Canada's historic Anglo/European roots, still impact our perceived place in society, and the roles we are expected to fulfill. Failures and successes from here at home and around the world provide sources of understanding that help shape future directions.

Understanding the reasons behind those successes and failures provide a foundation beyond strict technical analysis. While engineering progress is founded on the application of science, it is also a process of adaptation, and that requires an understanding of the past in order to impact the future.

Speakers: Ron Britton, P.Eng FEC, and Richard Jones, P.Eng.



Dr. Ron Britton, P.Eng. FEC, is the Associate Dean of Design Education in the Faculty of Engineering at the University of Manitoba. Born in

Regina and raised in Lang, Saskatchewan he obtained his B.Sc. in Civil Engineering degree from the University of Saskatchewan, M.Sc. in Agricultural Engineering from University of Manitoba and Ph.D. in Agricultural Engineering from Texas A&M University.

Ron spent five years working in industry between his B.Sc. and his M.Sc. During that time he was employed by Shell Oil, the Plywood Manufacturers Association of British Columbia, and Beaver Lumber. His work took him from Winnipeg to London, England, and Toronto. During that time he concentrated on the design of buildings, with an emphasis on wood, and ultimately focusing on agricultural buildings.

Ron has held academic appointments at both Texas A&M and the University of

Manitoba. He rose through the ranks in the Agricultural Engineering (now Biosystems Engineering) departments. He now holds appointments in both Civil Engineering and Biosystems Engineering in addition to his administrative responsibilities.

Ron is an honorary lifetime member of the Society for Teaching and Learning in Higher Education, and a member of numerous other technical and education related societies. Ron is a 3M Teaching Fellow and has received a number of other awards including the Engineers Geoscientists Manitoba Merit Award and Outstanding Service Award. Ron was also instrumental in the establishment of the Internationally Educated Engineers Qualification Program which assists foreign trained engineers to achieve their P.Eng in Manitoba.



Richard Jones, P.Eng., is an experienced meeting facilitator, a professional engineer by training, and a graduate of several of the Royal Air Force

Colleges. He has lived in North America for over 30 years and has been a member of Engineers Geoscientists Manitoba since the 1980s. He was also a member of the Royal Aeronautical Society, The Institution of Mechanical Engineers and a Chartered Engineer in the United Kingdom.

Now retired, Richard was a Principal Consultant for several consulting companies. In his career he has lectured at the University of Manitoba on Quality issues, served as a Chairman and CEO for small companies, and as general manager for the Canadian plant of a US-based multi-national defense electronics manufacturer.

He provides expertise in project team chartering, project execution, and teambuilding. He has worked with large and small clients in the US, Canada, Asia and Europe, and at remote, clients' construction locations. He is often called

in to assist Project Managers in dealing with team-related problems at critical times in the project's life cycle. In this role he has worked from Norway to Uzbekistan with a range of companies including Norsk Hydro, CH2M HILL, Ellerbe-Becket, ARCO, OMI and ABB.

Understanding Personalities: Myers Briggs Type Indicator

In the words of the singer "Lady Gaga": *We were born this way!* 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. Have you ever come away from a meeting with a completely different understanding of the outcomes than those of others who attended? What we hear, perceive and decide is affected by our personality. This session will introduce you to the Myers Briggs Type Indicator tool and walk you through a self-assessment. You will also learn about additional resources to help you further your knowledge in this vast field and apply type research to conflict, team building, communication, and leadership.

Speaker: Lisa Moretto



Lisa is the President of RGI International, Inc. with offices in Winnipeg, MB and Rochester, NY. She has 21 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 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.

Showing Them How It's Done!: The modus operandi of the Experience Review Committee (ERC)

For all members-in-training (MITs), it's a bit of a conundrum how their engineering experience, volunteer service, and professional development are assessed. The Chair of the ERC will shed light on the constitution, functioning, statistics, and the diverse nature of MIT files that the ERC reviews every month.

Speaker: Jitendra Paliwal, P.Eng.



Dr. Jitendra Paliwal, P.Eng., is a professional engineer, university professor, and motivational speaker. He has been volunteering his time with Engineers

Geoscientists Manitoba since 2007 and now chairs the Experience Review Committee. He uses his academic and industry experience to deliver talks related to workplace diversity, professional behavior, conflict resolution, and work-life balance.

Ethics and The Only Thing That is Constant

Many of us have a natural tendency to consider morality as a set of rules carved in stone. What is considered morally acceptable, however, changes through time and is different from one region to another even at a given point of time. We will review Engineers Geoscientist Manitoba's Code of Ethics, its changes, and its differences when compared to other codes of ethics and conduct.

Speaker: Michael Gregoire, P.Eng. FEC

Diverse Engineering Students Today for Diversity in our Future Engineering Profession

From a university perspective, it is clear that to promote a future diverse engineering workforce, we need diversity among current engineering students. More importantly, university engineering programs strive to graduate the highest calibre engineers in which the skills associated with innovation, design, creativity, and problem solving are maximized. Heterogeneity as opposed to homogeneity among engineering students is more apt to building into graduates the multiple perspectives required for creatively designing the innovative solutions needed to address the myriad of societal issues to which engineers are asked to contribute.

This session will provide an overview of why diversity is enshrined in the vision statement of the Faculty of Engineering at the University of Manitoba, and will explore the multiple initiatives designed to ensure that participants increasingly reflect societal diversity.

Speaker: Jonathan Beddoes, P.Eng.



Dr. Jonathan Beddoes, P.Eng., Dean, Faculty of Engineering at the University of Manitoba, has an engineering career that includes industrial product

and process development, research in industrial and government laboratories, as well as extensive experience in academia. Prior to joining the Faculty of Engineering at the University of Manitoba in 2011, for eighteen years he was a faculty member in the Department of Mechanical and Aerospace Engineering at Carleton University, Ottawa, including six years as Department Chair. He has taught engineering courses at all levels from first year to graduate studies. Before joining academia he worked at Pratt & Whitney Canada Inc., and Alcan Aluminium for ten years. His research interests have included high strength aluminum alloys for aircraft applications, casting and processing of aluminum for high value added sheet products, processing/recycling of Al-Si alloys, and high temperature materials for gas turbine applications. He is the (co-) author of more than 60 research papers, three patents and two books dealing with industrial processing of engineering materials.

Diversity Applied To Teamwork

Specialization and diversification are changing the work of engineers; globalization and rapidly changing technologies are challenging engineers in ways that were completely unknown to earlier generations. The key is to develop competencies well beyond the technical matters in order to properly communicate these technical solutions to the entire world. Fortunately, we do not work alone; we establish a teamwork network with different disciplines and individuals. Drawing on personal experience in a variety

of international mining settings, and applying the analogy of a soccer team to establishing successful teamwork strategies, this presentation will explore how your team can work better together towards your goals.

Speaker: Rolando Jeria, P.Eng.



Rolando Jeria, P.Eng., has been with Shoreline Gold Inc. for the last 2 years as Chief Mining Engineer. Graduating from the University

of Chile in 1974, his career began in an iron ore open-pit mine as an EIT, then an undersea coal mine, working in operations. Immigrating to Canada in 1977, Rolando lived in Quebec, working for Noranda Group in the Gaspé Copper Mines for around 2 years in their open pit division for the mine planning department. He then moved to Sparwood, BC, where he worked for 10 years in underground and open pit coal mines as a senior planning and geotechnical engineer. His first position in Manitoba was in Thompson, as General Manager of a contractor company servicing mainly INCO, now Vale. After 2 years in Thompson, he returned to Chile for 18 years, where he worked as a contractor in his own company, as a Mine Superintendent for an underground copper mine and ran his own narrow-vein gold mine. While working in various managerial positions for contractor companies, he learned project management techniques applied to the largest open mines in the world, such as Chuquicamata of CODELCO.

Association Chapters: Uniting Diversity

The registered members of Engineers Geoscientists Manitoba represent a diverse range of backgrounds and nationalities, and many have come from around the world to practice in

our province. Considering the current international composition of Manitoban inhabitants and the professionals who work in the engineering and geoscience fields, this session, led by the Chinese Members Chapter, will explore the benefits of offering specific chapters and discuss how members can set up their own chapter.

Speaker: Steven Wu, P.Eng.



Steven Wu, P. Eng., holds a Master of Science degree in Biosystems Engineering from the University of Manitoba. He is a building science engineer and senior project manager at Crosier Kilgour and Partners Ltd. in inspection, design, project management, and specializing in building envelope remediation, heat-transfer computer modeling, and concrete restoration. Steven is actively involved in a variety of community work. He sits on the Board of Lindenwoods Childcare Centre and is leading a committee to build a natural play space within the daycare centre.

Steven set up the Engineers Geoscientists Manitoba's Chinese Members Chapter together with a few other members in 2014. He has also been involved in the Registration Committee for the past three years. He is currently serving as the Chair of the Chinese Members Chapter, and is the incoming Chair for the Registration Committee.

**Panel Discussion:
Diversity in the Workplace**

All companies face challenges supporting and maintaining a productive, diverse workforce. From recruiting to retaining staff, all sizes of businesses can struggle with diversity and inclusivity. This panel brings

together representatives, including those from companies named as *Canada's Best Diversity Employers*, to discuss the issues and share their experiences and successes. Now entering its ninth year, *Canada's Best Diversity Employers* recognizes employers across Canada that have exceptional workplace diversity and inclusiveness programs, recognizing successful diversity initiatives in a variety of areas.

**Moderated by Michael MacKay, EIT.
Panel members to be announced.**



Michael MacKay

is an Electrical Engineer-in-Training with KGS Group where his professional practice is focused on hydroelectric, industrial and municipal projects.

Michael's past work experience includes management roles with his family's finance business, and oil and gas production engineering for EnCana in Calgary and Northeastern BC. Michael graduated from the University of Manitoba with his degree in Electrical Engineering. Michael currently sits on three committees with the Association of Consulting Engineering Companies of Manitoba.

Encouraging Indigenous Engineers

Did you know that less than one percent of engineers in Canada are Indigenous, and there is a strong demand for engineers with an Indigenous background? This session will consider the barriers faced by Indigenous students, and what is being done to encourage them into the field of engineering. Focusing on ENGAP, the most successful program of its kind in North America, participants will learn how the program works, the challenges it faces, and their goals for the future.

Speaker: Randy Herrmann, P.Eng. FEC



Randy 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.

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

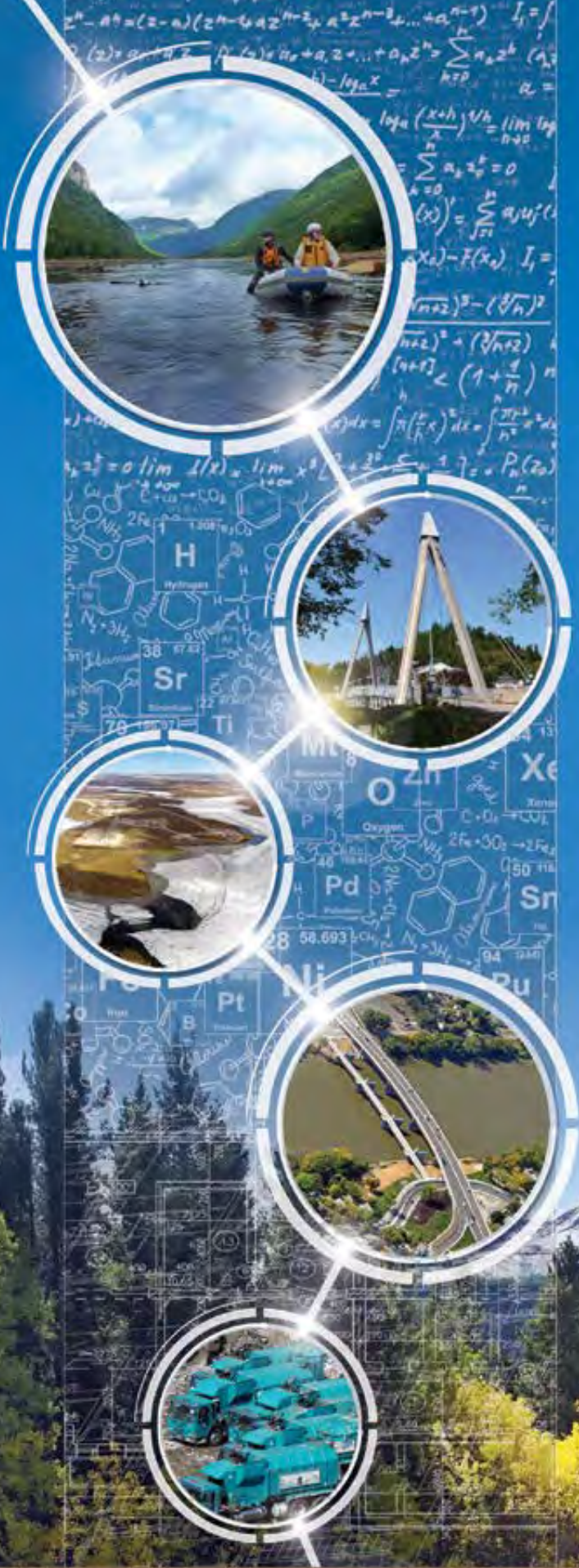
So you've graduated from an engineering program, you have your license, and you even have years of experience in your technical field. But are you a "professional" engineer? Too often the curricula and PDH sessions are filled with specific technical skills but lack the "soft skills" training that help 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.

Speaker: Lisa Moretto



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30 by 30

and Women in Engineering in Manitoba

By
M. Wadelius,
P.Eng.

Gender equity is an important subject in engineering in Manitoba and nationally. Engineers Canada, the national organization of the provincial associations that regulates the engineering profession in Canada, has recognized the importance that increasing the participation of women in the profession plays. Therefore they have announced a revised goal that thirty percent (30%) of newly licensed engineers are women by the year 2030 (30 by 30).

What does 30 by 30 mean? Applying this goal means that 30% of engineers in training (EITs) who become professional engineers (P.Eng.) on an annual basis would be women by the year 2030. In other words, if 100 EITs attain a professional engineer's license, then 30 of those engineers would be women. Measuring membership at this point allows us to ensure that women graduating from an engineering education program and registering as EITs become registered as professional engineers.

Why 30%? The United Nations considers 30% to be a critical mass which is needed for the benefits of diversity to "make a visible impact" (United Nations Department of Economic and Social Affairs, 2005). In other words, once a small group (e.g. women in engineering) within a population (i.e. P.Eng.) becomes 30% of the large group, they have reached the "tipping point" for the mass adoption of ideas.

In order to achieve 30%, we must undertake initiatives and actively monitor and work towards that goal. We won't reach 30 by 30 without pursuing the goal. Furthermore, reaching 30 by 30 will be a major milestone.

To help understand where Manitoba sits with respect to the "30 by 30" goal set by Engineers Canada, the Engineers Geoscientists Manitoba Committee for Increasing the Participation of Women in Engineering (CIPWIE) has captured data in all facets of female engineering

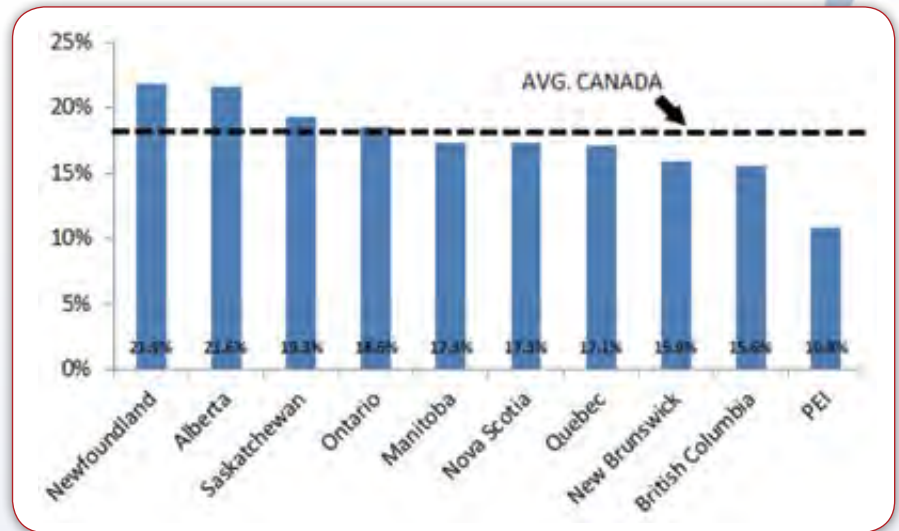


Figure 1: Undergraduate Enrolment of Females by Province, 2012 (FTE)¹



Figure 2: University of Manitoba, Faculty of Engineering, Percentage of Female Enrolment (FTE) by Program, Winter 2014 Term²

*B.Sc. Undeclared refers to students in their 1st/2nd year of studies.

involvement in Manitoba, including data on both Engineers Geoscientists Manitoba membership as well as enrolment in engineering programs at the University of Manitoba (U of M).

Figure 1 illustrates the undergraduate enrolment of females by province in 2012 for Full Time Equivalent (FTE)

students. In 2012, the national female average was 18.1% with Manitoba enrolment at 17.3%.

Figure 2 compares data obtained from the Office of Institutional Analysis (OIA) at the U of M from the Winter 2014 term [2]. The percentage of undergraduate female enrolment at the U of M currently sits at

18.4%. From this chart and other national data it appears that women are highly represented in streams of engineering that more directly impact the environment such as biosystems engineering (47.2%). The chart also shows that there is much work to be done to increase female participation in some of the more traditional engineering programs such as electrical (16.5%), computer (13.9%), and mechanical (11.4%) engineering which are below the national average for female enrolment.

Figure 3 tracks Engineers Geoscientists Manitoba female engineering membership over the last ten years. Although the percentage of women practicing engineers has increased over this time frame, the current trend line is not growing at a significant rate.

The percentage of women currently practicing engineering in Manitoba is 8.5% which is below the 2013 national average where "13.3% of engineering members (excluding students) were female" [4]. With only 18.4% in Manitoba undergraduate programs, recruitment into engineering education programs remains a key consideration to achieve the 30 by 30 goal. CIPWIE plans to begin tracking cohort data to determine retention trends and progression through education, members-in-training, and professional licensure. CIPWIE is currently preparing suggested questions for the Engineers Geoscientists Manitoba salary survey to assist in tracking the percent of newly licensed engineers and to monitor progress towards Engineers Canada's 30 by 30 goal.

So what now? We may not be at 30% yet but we are on our way. At its January 22, 2015 meeting Engineers Geoscientists Manitoba Council passed a motion that "Council supports the initiative and target

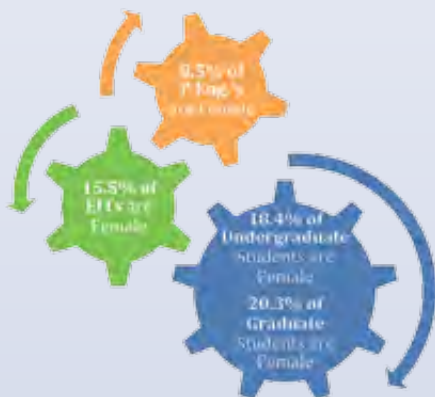


Figure 3: Percentage of Female Engineers to Total APEGM Engineering Membership³

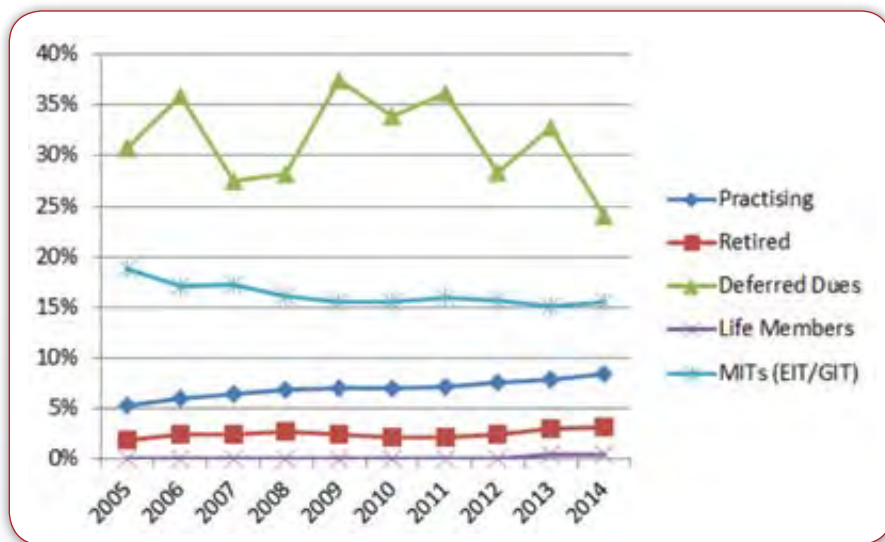


Figure 4: 2014 APEGM & University of Manitoba Statistics

proposed by Engineers Canada that thirty percent of newly licensed engineers are women by the year 2030 (30 by 30)." The 30 by 30 Goal has now received support from all provinces and territories [5]. CIPWIE is currently developing a proposal to identify steps that our association can take towards achieving this target in

Manitoba as the trends show that it will not happen organically. Together, 30 by 30 can be a reality. ☺

For more information on this topic please see the breakout session at Ingenium 2015, more information at, www.apegm.mb.ca/Ingenium.

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Unconscious Bias in the Workplace

By I. Kalinovich, Ph.D., EIT (ON)

Managers don't come to work thinking about how they can leave women out of hiring and advancement.¹ In fact, recent survey results in the US shows that the vast majority of people agree that gender has nothing to do with people's intelligence or their capacity for innovation.² So, we approach hiring and promotion decisions without any deliberate bias. But when we look at the data on hiring, on pay, on retention, and on promotion, women appear to face a disadvantage.

So, how do we reconcile our good intentions with these seemingly bad outcomes?

You Don't Know What You Don't Know

Without being aware of it, we often think in very positive ways about others who are similar to us. This isn't always bad. This 'in group favouritism' can lead us to act generously: We offer favours and help others out when we have things in common. It also leads us to think generously. When we share things in common, we give people more benefit

“Women are dramatically underrepresented in STEM fields, and in some disciplines, the proportion of women is actually declining.”

-Dr. Corinne Moss-Racusin

of the doubt. We notice their good qualities and don't pay as much attention to their failings. And, research shows, we're often not even consciously aware of this generous thinking: It's an implicit (or unconscious) form of bias. These biases can have subtle effects: from shuffling the order of résumés, to *unknowingly* providing opportunities preferentially (such as during 'feast' or 'famine' cycles in consulting industry). In traditionally male fields, résumés bearing female names receive fewer callbacks, or are offered lower starting salaries than men – even if the woman's qualifications are better. Similar results have been found for résumés with black-sounding or Muslim names. Just as in-group favouritism (as described above) is important, other types of implicit biases, e.g. “our group” versus “their group” are important. Some examples affecting women in STEM

(Science, Technology, Engineering and Mathematics) are shown on Figure 1. Research has shown that explicit biases are minor contributing factors to driving women out of the workforce^{3,4,5}. If we want STEM to be inclusive professions, we need to take steps to recognize implicit bias, and control for it in our hiring, retention and promotion decisions.

This isn't just some feel-good suggestion: in Canada and elsewhere in the world, encouraging university students to choose a program in STEM has long been a defining outcome of national innovation strategies⁶. Diverse teams are more productive teams⁷. Companies with more women in leadership roles perform better^{8,9}.

Next Steps

There are steps you can take as a colleague, a manager, or an employee, to reduce unconscious bias in the workplace.

1. Check yourself. Take Harvard University's Implicit Association Test (<https://implicit.harvard.edu/implicit/takeatest.html>)
 - Ex.** Think about who you do favours for: who do you help? who do you coach informally?
2. Check your work environment. Identify whether an issue exists.
 - Ex.** In many companies, women are expected to do disproportionate amounts of “housework,” which includes both domestic tasks, like planning parties, and undervalued tasks, such as those listed in Table 1.

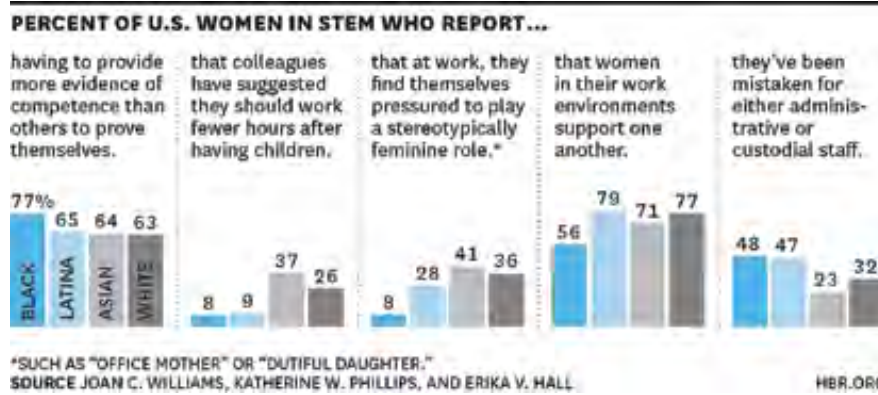


Figure 1: The Five Types of Biases Women Face in the Workplace: 1-Prove it Again, 2-Maternal Wall, 3-Tightrope, 4-Tug of War, 5-Isolation (largely affecting non-Caucasian females). Adapted from Harvard Business Review, 2015¹⁰

3. Implement bias interrupters (<https://hbr.org/2014/10/hacking-techs-diversity-problem>) that can be incorporated in to existing business operations and ‘interrupt’ decision-making processes.

Issue(s): Women negotiate less than men during hiring. Notable pay gap between males and females.

Why: Women don’t negotiate as often as men when being hired when there is no explicit statement that wages are negotiable.

Desired Outcome: Reduce gender pay gap.

Solution: It was found that introducing the two words “salary negotiable” closed the negotiation gap between men and women, and it closed the pay gap between the male and female hires by 45%.¹¹

The point is, these biases are unconscious, and being aware that they exist is the first step. **Don’t** establish metrics, document bias, and then do nothing – that’s a potential recipe for legal liability. Implementing interrupters are effective and provide short-term options beyond elaborate cultural change initiatives for organizations that actively seek to minimize unconscious bias in the workplace. ☘

For more information on this topic please see the breakout session at Ingenium 2015, more information at, www.apegm.mb.ca/Ingenium.

Industry	House Work	Glamour Work
High Tech	Managing projects	Writing the code
Consulting	Managing projects, delivering work, mentoring colleagues	Developing new clients, Managing C-suite relationships, serving as subject matter experts
Academia	Being dean of students or on the admissions committee	Publishing in prestigious journals
Science	Organizing and executing lab work	Publishing in prestigious journals, strategic planning of future research direction
Your Work Environment	What are the “house work” tasks at your place of work?	What are the “glamour work” tasks at your place of work?

Table 1: House work versus domestic tasks in the workplace. Adapted from Harvard Business Review, 2014¹⁰.

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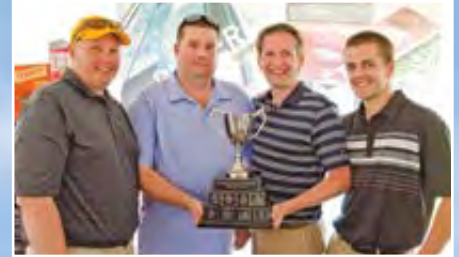
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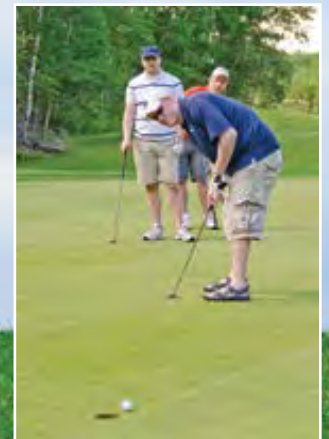
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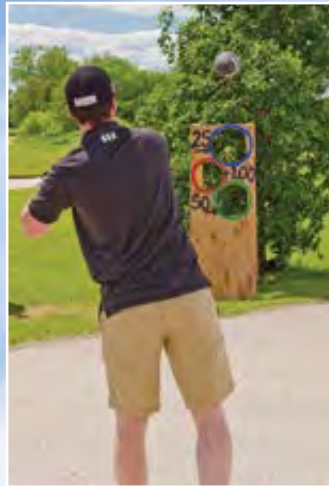
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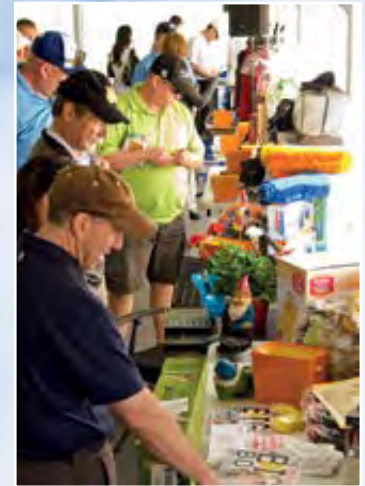
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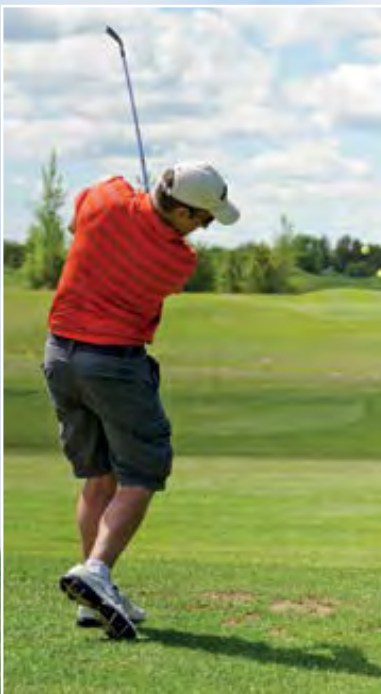
One of the competitions



Raffle prizes



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



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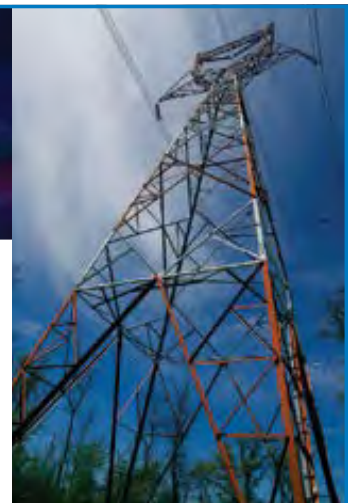
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Report on Canadian Market for Engineers Highlights Key Tensions

The recently released 2015 Engineers Canada Labour Market Study provides ten-year supply/demand projections for 14 engineering occupations (individual disciplines and engineering managers). The report, by the national forum of provincial engineering regulators, highlights a couple of key market tensions.

First, it sees increasing demand for replacement of retiring, experienced baby-boom engineers, while noting that new entrants do not have the skills set that retirees have acquired during their work experience. This tension may be balanced through inter-provincial or international migration of experienced workers.

Second, it sees strong demand for engineers in western Canada while noting that most engineering degrees are granted in Ontario and Quebec. Thus, a westward migration of engineers is to be expected. Assuming current oil and gas capital expenditure declines are temporary, the report expects the tension to be balanced once again by migration and immigration.

You can read more about the trends, plus breakdowns by occupation and province in the full report available at engineerscanada.ca. ☎



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Engineers Geoscientists Manitoba Government Relations Director

By C. Watters, GIT



Engineers Geoscientists Manitoba is pleased to welcome Scott Sarna as Government Relations Director. Scott was born in Winnipeg and pursued a career in business and government relations after graduating from the University of Manitoba with a double major in accounting and organizational behavior.

The Association's 2013-2014 Annual Report talked about the strategic priorities until 2017, which included establishing a proactive presence with various levels of government, continued growth of

membership in underrepresented communities and increasing the public perception of engineers and geoscientists as a multi-faceted profession.

The Association is continually growing and its highly skilled members play an important role in shaping Manitoba. Engineers and geoscientists are increasingly relied upon to develop and design key infrastructures for the province and Scott's position as Government Relations Director will allow the Association to communicate its needs to various levels of government.

Scott has successfully held various business roles, but his political background started as a co-campaign manager. He has since been a political advisor on several campaigns and in 2010 he ran as a candidate for Member of Parliament. These political positions have given Scott the skills necessary to promote the Associations issues directly to the government and allow the continued growth of our Association. ⚡

Bill 21 Update

By G. Koropatnick, P.Eng., FEC

The spring session of the Manitoba Legislative Assembly officially broke for the summer on June 30, 2015. Not much happened around the province during the dog days of July and August. Just prior to the summer break, new house rules were passed. Changes to the rules were made to ensure that the legislature operates at pre-determined, set times; so that MLAs, government staff and the public will know in advance when the house is to sit. The Manitoba Legislative Assembly will sit next on October 20, 2015.

With the house risen, along with the new rules governing the legislature, Bill 21 remains at the second reading stage. Although the second reading has been approved, we are awaiting the hearing at the standing committee stage. After this stage, the bill will go to the third reading and hopefully, royal assent shortly thereafter. When the house resumes sitting in October, we will re-engage the process. In the meantime, we are checking our notes, responding to questions that come to the inbox and staying in touch with our partners in government to see if there is anything we can do to assist the legislative members in their passing of Bill 21.

If you have any thoughts on Bill 21, please email me at gkoropatnick@apegm.mb.ca.

For more information on Bill 21 please visit www.apegm.mb.ca. ⚡





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Volunteer Appreciation Night

On Tuesday June 23, 2015, Association volunteers and their families came out to Shaw Park for the Engineers Geoscientists Manitoba Annual Volunteer Appreciation Event. They enjoyed a beautiful evening that started off with a BBQ in the picnic area and then we took in our hometown fish, the Goldeyes, face off against the Gary Southshore Railcats. Although the Goldeyes couldn't break their losing streak, the Association scored a home run with all the volunteers who attended and we hope that everyone had a wonderful evening.

Engineers Geoscientists Manitoba would like to thank all of its volunteers for their hard work throughout this past year. ☺

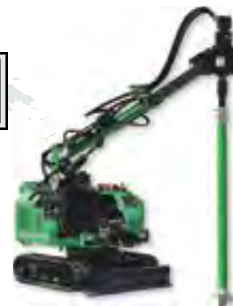


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Competency Interrupted

How long can a member be away from practice and still be considered competent? This is a question that the Continuing Competency Committee (CCC) and the Registration Committee have grappled with recently. Not surprisingly, the answer depends on several factors.

Last year, Engineers Canada developed a useful model guideline on Returning to Active Practice that served as an initial discussion point for the Association's committees when they first considered this question. Like all of Engineers Canada's model guidelines, this document serves to give guidance to all of the provincial regulators, but it does not require that any province adopt it in its entirety.

The Engineers Canada model guideline suggests that members who have been away from practice for an extended period could be classified based on the time that they've been away. According to their model

guideline, members who have been away from practice should be classified as either: less than two years, between two and six years, and more than six years.

The Engineers Canada model guideline goes on to suggest, for members who have been away less than two years, resumption of practice should be fairly automatic. The CCC agreed with the two-year boundary. However, they also determined that a regulator like the Association, which requires reporting of continuing professional development, should also require that these members show compliance with the ProDev Program as soon as they resume practice.

Note that compliance with the ProDev Program does not necessarily mean that a member must show activities that meet the overall targets of the program. A member that has been away from practice will likely be unable to demonstrate activities that

would count for the Professional Practice category, which would make it very hard to report 240 hours of professional development over the three-year period. However, if approved for abatement, these members will still be in compliance with the ProDev Program.

At the other end of the spectrum, the Engineers Canada model guideline suggested that members who have been away from practice for more than six years be treated as new applicants. For Association members, that could be interpreted to mean that the member's academic credentials would be re-assessed and that they would have to undergo 48 months of experience review. The CCC felt that this was unnecessarily burdensome for a member who is returning to practice.

The CCC did agree that after a lengthy period of time away from practice, a member would need to do some significant upgrading. What they established, in the end, was that members who have been away for a very long period of time should undergo some supervised practice before being granted full practising rights. Through a stint of supervised practice, the member can employ the advice of a peer to determine the extent to which the standards have changed in their area of practice.

In assessing the six-year boundary period suggested by the Engineers Canada guideline, the CCC then asked itself the following question:

"Regardless of their area of discipline, after what period of time spent away from engineering/discipline would it be guaranteed that a member will need some form of supervised practice before resuming unrestricted practice?"

They determined that there are no areas of practice where a member



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could be away from the industry for more than eight years and be expected to competently resume practice immediately. In other words, in some areas of practice, it will be considered reasonable that a member could be out of work for seven years but, if they've been keeping abreast of changes through professional development activities, then they may return to practice without first undergoing supervised practice.

The CCC therefore adopted an eight-year boundary instead of the six-year boundary suggested by Engineers Canada. This is not to say that if a member has been away for less than eight years that the member won't be required to undergo supervised practice. If a member's area of practice is one that undergoes significant changes over short periods of time, then the CCC may recommend supervised practice even if that member has been away from practice for five or six or seven years.

In fact, for members that have been away from practice for a period of time between two and eight years, the CCC determined that they will review each file on a case-by-case basis. The CCC would use the conditions at either end of the spectrum to guide them in their decisions for these cases.

A member who has been away from practice for 30 months may simply be asked to provide a CV and report their ProDev activities. A member that has been away for 90 months may very likely be asked to undergo supervised practice.

In the interest of consistency, the Registration Committee decided to adopt this same policy in their future considerations. This will require a change to the Manual of Admissions, which is forthcoming. In the interim, individuals who have resigned their membership and are re-applying will continue to be processed in accordance with the current Manual of Admissions.

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. ☎

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