

The official publication of the Association of Professional Engineers and Geoscientists of the Province of Manitoba

THE KEYSTONE PROFESSIONAL

SUMMER 2013

INSIDE THIS ISSUE

Tomorrow's Engineers Use Their Noodles

Engineers Must Learn to Become Artists

Continuing Professional Development



PM#40065075



Design Build
Construction Management
Construction & Renovation



Remote and **Northern** Construction is **M&L's** specialty. With over **15 years of experience** and hundreds of remote construction projects under our belt, we provide a level of remote construction expertise unchallenged in the industry.

M&L has the resources, knowledge and equipment to guarantee that your remote construction project is completed on time and on budget in the **most challenging, rugged** and hard to reach places in Canada.

Safety. Quality. Innovation. Accountability. Integrity.



M&L General Contracting Ltd.
T: 1-877-907-2612
W: mlgeneralcontracting.com



Copyright M&L General Contracting Ltd.

Manitoba | Saskatchewan | North-Western Ontario | Alberta | Arctic Territories

RELAX



Relax with **CONCRETE PIPE**

Bringing your work home with you? Does the budget on your latest sanitary sewer or storm drain project have you worried about getting the best return on investment?

Why not specify precast concrete pipe and rest assured? When you factor in proper installation, maintenance and replacement costs with pipe material costs over the life of the project, precast concrete pipe is the best value. Simply specify precast concrete pipe, knowing that you've made the confident choice, and relax.

Just think of it as the rare occasion when it's all right to get caught napping.

INLAND
HEIDELBERGCEMENT Group

MANITOBA
INLAND PIPE
P.O. Box 4080 RPO Redwood Centre
Winnipeg, MB, R2W 5K8
2494 Ferrier St., Winnipeg, MB, R2V 4P6
Toll Free tel: 1 877 WPG PIPE (974 7473)
Office tel: 204 334 4300
Fax: 204 334 7957

www.inlandcanada.com

SASKATCHEWAN
INLAND PIPE
300 10th Ave., Regina, SK, S4N 6G7
Toll Free tel: 1 877 WPG PIPE (974 7473)
Office tel: 204 334 4300
Fax: 204 334 7957

Working together to build our communities®



©2004, ACM. All rights reserved

DID YOU KNOW COR™ CERTIFICATION WILL SOON BE MANDATORY ON ALL PUBLIC PROJECTS IN MANITOBA?

Practical Solutions for a Safer Workplace



The Construction Safety Association of Manitoba is an authority having jurisdiction to grant COR™ and Small Employer COR™ Certification in the province of Manitoba. Contact us to get started today.

Government COR™ Policies Timeline

- **Beginning January 1, 2013**
bidders and subcontractors must be COR/SECOR™ certified or enrolled in the program, where the project value is \$100,000 or greater.
- **Beginning April 1, 2013**
bidders and sub-contractors with more than 10 employees must be engaged in apprenticeship training.
- **Beginning January 1, 2014**
all bidders and subcontractors must be COR/SECOR™ certified.
- **Beginning April 1, 2014**
all bidders and subcontractors must be engaged in apprenticeship training.



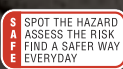
Safety Construction Orientation Training

Designed to meet the growing needs of industry, CSAM's new Safety Construction Orientation Training (SCOT) - THE SAFETY PASS online training program provides all construction workers with a basic understanding of industry-specific health and safety training applicable to Manitoba job sites. Comprised of 13 modules, the course can be taken in its entirety at www.constructionsafety.ca.

For more information, visit our website or call the CSAM Winnipeg office at (204)-775-3171.

For more information, please contact us at:

www.constructionsafety.ca | WINNIPEG: 204.775.3171 | BRANDON: 204.728.3456



Summer 2013

Published by the Association of Professional Engineers and Geoscientists of the Province of Manitoba
870 Pembina Highway, Winnipeg, Manitoba R3M 2M7
Phone (204) 474-2736 Fax (204) 474-5960
E-Mail: apegm@apegm.mb.ca

APEGM Council

D.J. Nedohin-Macek, P.Eng. (President);
A. Pawlikewich, P.Eng. (Past President);
C. Beaumont Smith, P.Geo.; L. Escobar, P.Eng.;
M. Friesen, P.Eng.; R.M. Lemoine, P.Geo.;
J. Nicholson, P.Eng.; R.G. Rempel, P.Eng.;
S. Rosenberg, LLB; G. Schaub, P.Eng.;
D.N. Spangelo, P.Eng.; H. Procyshyn, P.Eng.;
S. Vieweg, CMA

Chairs – Boards & Committees

R.J.J. Hermann, P.Eng. Aboriginal Professional Initiative
D.S. Jayas, P.Eng. Academic Review
G. Lodha, P.Geo. Awards
L.M.K. Melvin, P.Eng. Committee for Increasing the Participation of Women in Engineering
A.D. Erhardt, P.Eng. Communications
D. Stregger, P.Eng. Discipline
R. Sri Ranjan, P. Eng. Environment & Sustainable Development
E.G. Phillips, P.Eng. Experience Review
D. Chapman, P.Eng. Heritage
A.E. Ball, P.Eng. Investigation
R. Petursson, P.Eng. Sports & Social (MLEC)
A.Pawlikewich, P.Eng. Nominating
W.T. Jackson, P.Eng. Professional Development
J. Rooney, P.Eng. Public Awareness
J. Guenther, P.Eng. Registration
F.A. Roberts, P.Eng. Safety
S. Quigley, P.Eng. Salary Survey
D.S. Jayas, P.Eng. CCPE Director
R.A.S. Reichelt, P.Geo. CCPG Director
E. Sapnu, P.Eng., Filipino Members Chapter,
J. Hilchey, P.Eng. Thompson Chapter
K.A. Cumming, EIT Westman Chapter

APEGM Staff

G. Koropatnick, P.Eng., Executive Director & Registrar
S.E. Sankar, P.Eng., P.E., Director of Admissions
M. Gregoire, P.Eng., Professional Standards Officer
W. Boyce, Manager, Operations & Finance
L. Dupas, Admissions Coordinator
C. Shymko, Assessment Officer
A. Moore, Events & Communications Coordinator
S. Bruce, Accounting & Membership
M. Polson, Registration Coordinator
C. Camara, Admissions Coordinator in Training
D. Vander Aa, Volunteer Coordinator
A. Reddoch, Programmer
D. Kisiloski, Operations Assistant
K. Koop, Receptionist

Communications Committee

L.P.B. Chan, EIT; A.D. Erhardt, P.Eng., Chair;
R. Foster, P.Eng.; J.L. Gratton, P.Eng.; E.Hancox,
P.Eng.; A. Kempman, P.Eng.; L. Robinson, P.Eng.; A.K.M.
Shafullah, EIT; D. Strang, P.Eng.; R. Znidarec, P.Eng.

The Communications Committee would like to hear from you. Comments can be forwarded to us by email: amoore@apegm.mb.ca. Members are also encouraged to submit articles and photos on topics that would be of interest to the membership.

Although the information contained in this publication is believed to be correct, no representation or warranty, expressed or implied, is made as to its accuracy and completeness. Opinions expressed are not necessarily those held by APEGM or the APEGM Council.

THE KEYSTONE PROFESSIONAL

The official publication of the Association of Professional Engineers and Geoscientists of the Province of Manitoba



SUMMER 2013

FEATURES

- ▶ Why Engineers Must Learn to Become Artists 16
- ▶ Canada Has a Serious Shortage of Engineers 18
- ▶ Tomorrow's Engineers Use Their Noodles 19
- ▶ Ireland and Canada Enhance International Mobility for Professional Geoscientists 20
- ▶ Continuing Professional Development 21
- ▶ Professionally and Personally Speaking 22
- ▶ Summary of the Roger Alan Kane Charges 24

DEPARTMENTS

- ▶ President's Message _____ 6
- ▶ Executive Director's Message _____ 8
- ▶ Engineering Philosophy 101 _____ 10
- ▶ Thoughts on Design _____ 12
- ▶ Engineers Without Borders _____ 14
- ▶ Send Us Your Photos _____ 29
- ▶ Member Update _____ 30
- ▶ Closing Notes _____ 33
- ▶ Advertising Information Centre _____ 34

Publication management and production by:



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

Managing Editor: Scott Kelman
Art Design/Production: Kiersten Drysdale
Marketing Manager: Darrell Harris
Advertising Coordinator: Stefanie Ingram

Send change of address to:
The Keystone Professional, APEGM,
870 Pembina Hwy, Winnipeg, MB, R3M 2M7
e-mail: apegm@apegm.mb.ca
www.apegm.mb.ca

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





Keep Talking

When I became President,

I believed that most of Canada had the same definition and similar licensing models for Engineers and Geoscientists. Since assuming the office of the President, I have travelled to Engineer's Canada meetings and Geoscientists Canada meetings and to Calgary (APEGA), Regina (APEGS) and Toronto (PEO) for their Annual General Meetings. While sharing what is happening in Manitoba with our Advocacy Task Force review, Licensee reviews and typical Council issues, I have learned that across Canada there are different definitions of engineering and geosciences, and along with that, different interpretations.

Engineers Canada and Geoscientists Canada are working on developing a common framework across the country. The Canadian Framework for Licensure (http://www.engineerscanada.ca/e/pj_cfl.cfm) is an evolving, dynamic model for all Canadian engineering regulators to enhance their ability to regulate the practice of professional engineering to better serve and protect the public interest. When Association Presidents and Executive Directors/Chief Executive Officers discuss the elements within the Canadian Framework for Licensure, such as Competencies for Engineers-in-Training or Fairness in Registration Practices, we bring forward our best practices and discuss what other associations do in an effort to develop a common basis for use by all.

Geoscientists Canada is also working on achieving a pan-Canadian framework, and released the Framework for the development of Geosciences Professional Practice Guidelines (http://www.ccpq.ca/profprac/en/Documents/Approved%20GPPG%20Framework%20document-Geoscientists%20Canada%20BoD%20Nov%206%202010%20BoD_E.pdf) in 2010.

Geoscience, unlike Engineering, does not have a Canada-wide accreditation board, and therefore all of the responsibilities of ensuring applicants have met academic and experience guidelines to be registered professionals are met within individual Associations. This drives the need for a common document outlining academic qualifications review criteria and experience guidelines to be used across Canada.

An important understanding of why this work is important is that (i) due to mobility acts across Canada, and (ii) the effort to ensure that Engineers and Geoscientists can travel freely and perform work functions without hindrance, we need to work together with all associations across Canada to licence Engineers and Geoscientists and hold them to the highest standard for professionalism, ethics, academic qualifications, and work experience. This is why we discuss these items at every Engineers Canada and Geoscientists Canada board meeting; to ensure that we are all speaking the same language and on the same page.

Because the Acts across Canada that govern Geosciences and Engineering do not use the same words, there is a variety of interpretations as to the scope and definition of Engineering and Geosciences. As mobility requirements have increased, so has the need for a defined scope for engineering and geosciences that is consistent from one jurisdiction to another. Other associations are attempting to achieve this by reviewing their Acts and updating the wording to reflect terms used across the country in other, more recent, Acts, or by reviewing the frameworks

developed by Engineers Canada and Geoscientists Canada and determining where elements can be implemented within their council governance policies or manuals of admissions.

While discussing issues with other Associations, another advantage of travelling to the other Annual General Meetings is networking and learning about efforts across Canada in all areas of Association business. Saskatchewan has recently launched an advertising campaign, "We See More," (<http://youtu.be/nq10v3GJETA>) promoting the Engineering and Geosciences professions, while Quebec has remained in the public eye with articles around the Charbonneau Commission, an Association-wide mandatory ethics exam, and the investigation of engineers involved (<http://www.oiq.qc.ca/en/iam/public/Pages/accueil.aspx>). Ontario is working hard to repeal the Industrial Exemption which sees Engineers in the Manufacturing industry exempted from licensure (http://www.engineeringinontario.ca/?page_id=12). Newfoundland and Labrador is working on moving their advocacy items to their Consulting Engineers association, as recent act changes have removed advocacy from all self-regulating professions in the province. In March alone, Alberta had 1,000 applicants; resulting in significant work to diligently license applicants within a timely manner while dealing with their 67,000+ membership needs (<http://www.applyatapega.ca/>). British Columbia was wondering how to get more of their high-tech Engineers to register (us Computer Engineers do not typically do so unless our employer demands it).

New Brunswick has released an interactive online magazine for its membership, and is not producing a paper copy any longer (<http://www.apegnb.com/flash/issuewinter13/index.html>).

Each Association across Canada, whether dealing with just Engineers, just Geoscientists or Engineers and Geoscientists has, at any one time, a number of issues they are dealing with. And all issues impact the rest of Canada. One Association's decision can cause us to have to revisit our Act or review our management of our registration processes, because no one Association is a legal island. We all have mobility applicants from across Canada. We all have public safety concerns, ethics issues, continuing competency concerns and regulatory decisions made that can have nationwide consequences. We all have neighbours with licensed Engineers and Geoscientists who need to work in Manitoba. Our efforts are to ensure that the public remains safe by licensing all

“

Just like any industry, the best way to learn about issues that may impact you is to keep talking – and we do this through travel, reports, reading each other's magazines and asking other Associations what is happening within their jurisdiction.

”

those who practice within Manitoba and across Canada – and the world.

Just like any industry, the best way to learn about issues that may impact you is to keep talking – and we do this through travel, reports, reading each other's magazines and asking other Associations what is happening within their jurisdiction. I encourage you to

do the same by visiting the Engineers Canada and Geoscientists Canada web sites, reading magazines from other Provincial Associations, and asking questions that concern your area of expertise; you never know where you will learn about the next best practice you will want to bring home, or the pitfall that awaits you. ☒

L. Chabot Enterprises Ltd.

fully qualified for a wide range of construction services

- **Manufacture & Supply Base and Stone Products:**
 - Granular Aggregates
 - Limestone Products
- **Heavy Equipment Rentals**
- **Roadway Construction**
- **Flood Protection**
- **Provincial, Municipal, Civic, Institutional and Commercial Earthworks Projects**



Box 17, Group 545, R.R.#5 Winnipeg, MB R2C 2Z2
T: (204)224-1565 | F: (204)222-4754 | E: chabotsg@mts.net
www.chabotenterprises.ca



Notes from the Road

Springtime at APEGM means a series of trips to neighboring associations in Alberta, Saskatchewan and Ontario. Here are some notes from attending the APEGA, PEO and APEGS meetings and conferences.

The first trip I attended was to the APEGA annual general meeting and conference in Calgary. As always, it was a good time for networking and professional development. Thanks to Mark Flint, CEO and his staff, we are always given a big Alberta welcome and treated like royalty.

Each year the members of APEGA and their families show works of art at an exhibition immediately before the big awards dinner. Members and delegates can mingle, glass of wine in hand, and view the many paintings, photographs and sculptures created by engineers, geoscientists and their spouses and family members. It is an impressive display of creativity. Maybe we should try this in Manitoba.

It was a pleasant surprise to see so many engineers and geoscientists exploring the creative and enigmatic world of art. What happened to the applied sciences? What about the natural laws attached to earth, light, weight and matter? These are suspended in the art world and often stretched to show peculiar and fascinating images and

themes beyond the material world of steel, concrete and the physical elements.

The second trip was to the big city lights of Toronto or as I cryptically say in text messages: "Tee-Oh." I love going to Toronto – great place to visit, but I would not want to live there. Professional Engineers Ontario or 'PEO' is the biggest engineering regulator in Canada with 80,000 members. Their AGM is defined by spirited debate, respectful disagreement and the occasional rude comment during coffee breaks. All-in-all the members in Ontario are engaged, involved and working hard to promote and defend the profession. They have an enviable government relations program. You might like to know, I did not pay the StubHub price of \$620 for two tickets to see the Habs play the Leafs at ACC on Saturday night. Good thing too – the home team lost 4-1 and the fans poured out onto Bay Street after the game in a bad mood.

The third and final trip of the springtime was to the 'Queen City' – Regina, Saskatchewan; for the APEGS conference and annual meeting. I have told others, and it is no exaggeration, that the APEGS meeting is my favorite. The hospitality is genuine, generous and indicative of the strength and steadfastness of prairie folks. Year-by-year, the members in Saskatchewan have welcomed me

and the president with gifts, good wishes and stimulating dialogue about issues and trends affecting their professional practice. This year, I attended several PD conference sessions: recruiting women into the profession, K-12 curriculum, law & ethics and how to give back to your community. The best part was the handshake and warm welcome from past presidents. Thanks to Leon Botham, Peter Jackson, Shawna Argue, Rick Kullman and many others for their enduring friendship and professional support over the years.

Canada is the best country in the world to live and work. We can practice the professions of engineering and geoscience; protecting the public with high standards, pride and honour because of APEGA, PEO and APEGS (and the other provinces too) providing the framework for good self-governance.

I am always glad to get back to Winnipeg, my home-sweet-home, but I surely enjoy visiting our colleagues all over Canada. Once more, thanks to our neighboring associations for standing-on-guard for the public and the professions. It was good to see you again. Until next year – may you enjoy good success and good engineering and geoscience!

As always, I appreciate your feedback. Send me an email on anything you read in the KP magazine: gkoropatnick@apegm.mb.ca ☎



Canada is the best country in the world to live and work. We can practice the professions of engineering and geoscience; protecting the public with high standards, pride and honour because of APEGA, PEO and APEGS (and the other provinces too) providing the framework for good self-governance.



WINNIPEG

932 Erin St.
Winnipeg, MB R3G 2W5
Phone: 204.772.0366
Toll Free: 800.883.9984
Fax: 204.783.2049



lewis instruments ltd.
WINNIPEG | SASKATOON
www.lewisinstruments.com

SASKATOON

1810B Saskatchewan Ave.
Saskatoon, SK S7K 1P9
Phone: 306.955.3947
Toll Free: 877.955.3947
Fax: 306.955.3945

SOLUTIONS FOR WIDE FORMAT PRINTING AND SCANNING

When it comes to high-speed printing and scanning of wide format technical documents with professional grade quality, you can count on Lewis Instruments to provide your office with the right solution. We supply the best products in the industry when it comes to CAD/GIS printing, and we offer in-house reprographic services at our shop.

**We Provide Top-Notch Equipment Sales & Service.
We Stock Paper, Ink and Toner For All Brands.
We've Been In The Business For Over 60 Years.**



SALES | SERVICE | SUPPLIES | PRINT SERVICES
WIDE FORMAT MULTIFUNCTION SYSTEMS | WIDE FORMAT CAD/GIS PLOTTERS
WIDE FORMAT GRAPHIC ARTS PRINTERS | HIGH SPEED SCANNERS

Contact me today to learn more.

NOLAN KLASSEN | Wide Format Sales
nklassen@lewisinstruments.com | Cell: 204-296-6625



The Evolution of Your
SIGNATURE



YOUR OFFICIAL DOCUMENTS HAVE TO BE DULY AUTHENTICATED

Paper documents need to bear your wet stamp and signature. Electronic documents require your official digital signature certificate issued by APEGM. Today, over 6000 engineers across Canada have traded their wet stamp in favour of their official digital signature certificates. Get more information on how to authenticate your electronic documents by contacting Sales at 1-888-588-0011 and select option 2, or visit www.notarius.com/APEGM.

www.notarius.com/APEGM





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

The Impact of Amending an Act

The 'tag line' I use in my e-mail signature is an often cited Yogi Berra quote: "In theory there is no difference between theory and practice. In practice there is." For me it sums up the root cause of many of the contractions we encounter as engineers.

A widely accepted concept of professional licensure is founded on the assumption that those who practise a profession are best able to judge the qualifications for, and the delivery of, services provided by that profession. On the basis of this assumption, in many countries, professions have been granted the right of self-regulation, typically within constraints imposed by legislation. It is further assumed that all professionals accept responsibilities relating to the delivery of their specific services. In our world of engineering, probably the most significant of these responsibilities, apart from the requirement to remain technically competent, is to protect the public interest relating to physical, economic and environmental impacts of our work.

In Manitoba the practice of professional engineering "means any act of planning, designing, composing, measuring, evaluating, inspecting, advising, reporting, directing or supervising, or managing any of the foregoing, that requires the application of engineering principles and that concerns the safeguarding of life, health, property, economic interests, the public interest or the environment" (The Engineering and Geoscientific Professions Act). This definition of professional engineering is more-or-less consistent across the country.

Under the Canadian Constitution, governance of professions is a provincial responsibility. This results in some jurisdictional variations regarding "details", but in general, the "national tone" is consistent. One significant variation among Acts governing engineering has been

the existence of an "industrial exception" in Ontario. However, the Professional Engineers Ontario web site now advises "With approval by the Ontario government of the repeal of the so-called industrial exception on September 1, 2013, those responsible for professional engineering work in relation to production machinery or equipment must be licensed by Professional Engineers Ontario (PEO)". This will bring licencing requirements in Ontario more in line with the rest of Canada. Of more importance, however, is the fact that "engineers" working in Ontario industry will be subject to the professional responsibilities that apply to all other engineers.

"In our world of engineering, probably the most significant of these responsibilities is to protect the public interest relating to physical, economic and environmental impacts of our work."

Based on comments supporting the change to the Ontario Act, it seems that one of the motivations is to improve workplace safety. In a PEO Press Release, Ontario Attorney General John Gerretsen is quoted as saying: "Repealing the industrial exception in the Professional Engineers Act will improve oversight to help workers and the public stay safe and promote more efficient and productive workplaces." Basically they are telling companies that those who do "professional engineering" within their organizations must be professional engineers. The government's assumption seems to be that professional

engineers will comply with their professional responsibilities and as a result a safer workplace will evolve.

In previous columns I have shared my long past experience when Mr. Kennedy, the President of Beaver Lumber, sent me to Ontario and told me to "be an engineer." He knew, and I learned, that being 'an engineer' meant I had responsibilities beyond those of other Beaver Lumber employees. He knew, and I learned, that I could exercise those responsibilities only because he provided me with an environment in which that was possible. It was his authority, not government authority, that made the process work.

Many people have told me that my Beaver Lumber experience was unique. The findings of a 2012 study conducted by APEGBC suggests that those people may be correct. Their survey found that "A third of all respondents (30%) reported experiencing pressure to compromise professional or ethical standards in their work for competitive or financial reasons." (Innovation, March/April 2013). British Columbia does not have an 'industrial exception.' Does this suggest that the anticipated benefits of the change to the Ontario Act might be more theoretical than real? Where is the 'Mr. Kennedy' in this new situation?

The change in the Ontario Act will require that "... those responsible for professional engineering work ..." must be professional engineers, with all the rights and responsibilities that implies. As professional engineers working in Ontario industry they will have a legal, ethical, and professional responsibility to comply with the conditions of their Act. They will now be in the same situation as all professional engineers across Canada. They will have, as we now have, 'responsibility', but will they, do we, have 'authority'?

And that takes us back to Yogi Berra's observation. ☩

ASPER MBA



You're one
degree away
from the
**career of
your dreams**

Break new ground in
your career and your life
with an Asper MBA

FLEXIBLE PROGRAMMING

Customize our program to fit your life.
Earn your degree in one year, or take
up to six. The choice is yours.

INFORMATION SESSIONS

Register online. Discover how the
Asper MBA will transform your career –
and your life.

umanitoba.ca/asper/mba



ASPER  SCHOOL OF
BUSINESS
75 Years of Excellence in Business Education


UNIVERSITY
OF MANITOBA

Thoughts on Design

... and some old meanderings

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

Recently, as I waded through boxes of files that have accumulated over the years, I stumbled on a handout I had prepared for students in their final year Agricultural Engineering Design Project. I called this 1993 document "Design – is what engineers do!". It was made up of half a dozen short essays, each of which addressed design from a different perspective. In the Forward I suggested that "... it will provide you with non-technical reflections on the varied nature of the design process in which you will become actively engaged".

In my view, the issues addressed in the essays are still relevant. If design is, as I claimed in the handout, "... at the very base of our being.", it might be

worth the time required for those of us who are well past graduation to pause and reflect.

The first essay was entitled 'A place to begin.' Basically it addresses the problem of finding a satisfactory definition for the term 'design.' The 1994 graduating class of Agricultural Engineers had been exposed to the constrained question, correct answer environment that is characteristic of undergraduate engineering. They were, when they received this document, at the front end of an industry-based design project and were about to discover the challenge of addressing 'messy' problems that did not have singular, correct answers. However, their academic strengths and understanding were based on about

three-dozen typical university courses. I wanted to help them understand that things were different once they left the campus. And today, it is equally important that we reflect on what we brought to the job when the ink was still drying on our graduation certificates as we look at the fresh new graduates who are entering our various workplaces. Design is still very much undefined.

New engineering graduates, then and now, have survived a very intense, technically dominated education process. They have seen some occasional concession to training but by-and-large, they have been immersed in equations, numbers, programs and technical details. The second essay 'a philosophical concept?' was an attempt to expose my students to the fact that there is a philosophical base that underlies our technical biases. Billy Koen's definition of the Engineering Method ("... the strategy for causing the best change in a poorly understood or uncertain situation within available resources.") provided a means of illustrating the uncontrolled variables that are common to most design situations. Not everyone will agree with this approach, but as we get further away from our graduation date and more deeply imbedded in our professional lives, we need to evaluate how we go about moving from problem to solution, and the 'other' issues we include or ignore.

The third essay 'a collection of details?' was intended to remind students that details matter, both before and after graduation. It also pointed out that details vary with areas of specialization. As undergraduates, students are exposed to a broad range of classes, each of which contains a glimpse of the details specific to that class. Beyond graduation, specific details in specific areas are not just important, they are

**GENERAL • MECHANICAL
ELECTRICAL • CIVIL CONTRACTORS**

SEWER TREATMENT SYSTEMS CONSTRUCTION MANAGEMENT
DESIGN BUILDING WATER TREATMENT SYSTEMS
INDUSTRIAL COMMERCIAL

NIME

NEWTON MECHANICAL / ELECTRICAL INC

25 BOYS ROAD
204-415-1052
www.newtonmechanical.com

**NATIONAL
COR
STANDARD**

critical. The closing line in this essay notes *"if design is a process, it must be end product independent, but successful application of the process is dependent on details."* But, those of us who have been practising our profession for a number of years should probably take a few moments to reflect on this reality. We cannot allow 'details' to become the prime driver in design because that will surely prevent innovation.

Engineering students, often see our world as the centre of all that is important. The fourth essay, *'a business?'* was intended as a reminder that what we produce is a part of a larger commercial/industrial complex. The function of a business is to produce a return on investment. Many of the people 'in control' in the business world see engineering as a costly appendage rather than a core necessity. In most work environments we must be prepared to 'make our case' in terms the 'managers' can understand. Given that engineers understand the technical issues, we have an advantage in the 'business' debate if we take the time to understand the 'commercial' side of the issue. 'Design' is, in itself, a business with its own set of costs and constraints. We need to remember the *"...within available resources."* part of Billy Koen's Engineering method.

We practice engineering under the legal constraints of our Act. The fifth essay *'a personal responsibility?'* was intended as a brief discussion of the implications, personal, legal and technical, of being an engineer. It stressed the need for each of us to maintain our personal competence, regardless of where we might be employed. Given that many students look to graduation as a time when they can finally stop having to prove their competence, it was intended as the bad news side of the event. Engineers are hired because we provide some specific technical competence that the organization requires. Left unattended, competence can erode.

The final essay, *'is there a right answer?'* was a brief review of the preceding five attempts to put 'Design' into some sort of post-academic perspective. Over the past, unspecified, number of years I have

"Engineers are hired because we provide some specific technical competence that the organization requires."

often reflected on each of the topics I identified as 'essays.' I admit to being disappointed that I have not been able to bring a greater area of clarity to the questions posed. But maybe it is more important to encourage others to think about these foundations of what we do, and where we do it. We are members of a

profession. Professions are composed of competent people who accept personal responsibility for their work. As engineers we do design, in many different shapes and forms. And after all is said and done,

DESIGN

- is what engineers do! ☩

Tell your friends



GARRETT AGENCIES

Engineers Canada Insurance Plan applications are now available online at garrett.ca

www.garrett.ca

1.800.661.3300

info@garrett.ca

Sponsored By:



Endorsed By:



Underwritten By:



Systemic, Scalable Change Goes National in Ghana



This content was taken from the "What's New" section of the ewb.ca website, which you can check out for other articles about EWB's work in Africa.

It is an exciting time to be at an Agricultural College in Ghana. In less than three years, the EWB team has helped our local partners realize significant change in agricultural education. Lecturers have new participatory education techniques to use, and can take advantage of new, engaging opportunities to interact with and learn from each other. Students now benefit from experiential learning that is focused on agribusiness and entrepreneurship, and they are developing the skills and insights that they need to prosper, or help others prosper, in a sector that has the potential to create jobs and wealth among the poorest segments of Ghana's population.

This progress was achieved by incredible people on the ground, and made possible by supporters in Canada and around the world. But, how did a small team of staff, volunteers and local partners improve education at every public Agricultural College in Ghana, for less than \$115,000, in less than three years? And how is this change now owned and driven by local people within the agriculture education system?

The Problem

Despite the importance of agriculture to Ghana's economy, local youth see it as a 'fall back' career or 'poor man's work,' with little opportunity to truly prosper. EWB's research revealed that the challenges faced by Ghana's Agricultural Colleges represented a significant opportunity to change this perception. Lecturers at these colleges were given little training in education, and did not have many opportunities to share their knowledge and experience with peers at other colleges. As a result, learning experiences were largely based on textbook memorization and theory, with little focus on developing practical business skills and experience. That was a problem – many of these students would go on to become Agricultural Extension Agents with Ghana's



Ministry of Food and Agriculture (MoFA), and would be responsible for supporting farmers and helping them find success – business success.

EWB's Role

EWB had been working with MoFA for about five years when we were invited to explore opportunities to collaborate with Ghana's public Agricultural Colleges. It looked like a good fit – we knew MoFA and the challenges it faced, and we had unique insights into Ghana's agriculture sector and rural farmers' realities. This was a chance to work with the institutions that prepare young Ghanaians for work in this sector.

So, beginning in 2009, EWB dedicated staff, volunteers, and resources to working with the Agricultural Colleges. The Agribusiness and Entrepreneurship (A&E) project was born.

The Systemic Innovation

The A&E project focused on two key needs within the Agricultural Colleges: the first was unlocking Lecturer potential, through training that emphasized experiential

and participatory teaching techniques to better engage students. The second was helping students realize their potential by preparing them for business success.

This curriculum was not dreamt up in a Toronto boardroom. It already existed and was in use. But it focused on 'the traits of an entrepreneur', not experiencing entrepreneurship, or 'you can be an entrepreneur.'

It was designed to inform, not engage or inspire. To address this gap, EWB worked with Mr. Ishak S., a Lecturer at Kwadaso Agricultural College and our first partner, to enhance the curriculum using a combination of his insight and EWB's experience in Ghana's agriculture sector. The new curriculum emphasized business skills, management and team-work. At the same time, EWB worked to incorporate participatory education techniques that made lessons 'real.' Students did not read about agribusinesses, they worked in teams to create one (amazingly, all were successful, and some students are continuing with their agribusiness beyond school).

The project was then refined with our partners to ensure ownership and

support within Kwadaso Agricultural College. We knew we were on a good path when, during the prototyping phase, a survey of graduating students indicated that almost 80% planned to start their own business upon graduation, an incredible change in student attitudes. We were subsequently invited to help establish the program at a second college.

The Next Step

The course was working and everyone seemed happy – program completed, right? Not even close. We had successfully piloted the program, refined it and even replicated the success at another college – but there are five public Agricultural Colleges in Ghana. And more than that, the changes had not been built into the system. The biggest challenge was yet to come: realizing systemic change that impacted every student at every public Agricultural College in Ghana. We needed to spread the curriculum and tools (and the knowledge required to deliver it) to Lecturers in all five colleges

in a way that could be sustained without EWB's presence.

Beginning in 2011, EWB helped our partners organize networking events where they could meet their peers and share knowledge. The A&E program was naturally a major topic of discussion. We continued this into 2012, even hosting an event for Principals at the colleges.

In the next months, our team supported three more colleges as they implemented the course for the first time. At the same time, the team was acting as a conduit between Lecturers at different colleges – when one Lecturer would find an innovative, highly-effective approach, we had share it with others, establishing the beginnings of a peer-to-peer learning network.

EWB was then able to step back, letting the peer-to-peer network stand on its own and become the primary support mechanism for Lecturers at all colleges.

The Results So Far

As you can see, systemic change – real change – is about a lot more than training

and curriculum. As a result of the EWB team's efforts, the change was not just adopted – it was spread to the national level by local champions. In total, close to 500 students per year will now benefit from the new course that emphasizes business and entrepreneurial skills, which they can use to start their own ventures, or to provide enhanced support to farmers as Agricultural Extension Agents. The first class to experience the A&E program will be graduating this year – we hope to have an update soon!

Local Chapter Update

If you are on the Winnipeg City Chapter mailing list you will have seen some of the recent events at the local level. The next events will be Development Drinks (June 11) and a Barbeque (July 18). For more information visit winnipeg.ewb.ca.

The Run to End Poverty is a Canada-wide event, and in Winnipeg it will be on June 16, as part of the Manitoba Marathon. For more information go to <https://r2ep.ewb.ca> or email winnipeg@ewb.ca. ☎



Your Geosynthetic Solutions Provider and Supplier

- Geomembranes (HDPE, LLDPE, PVC, PPE, EPDM, GCL, Bituminous, Trisoplast)
- Geogrids (Uniaxial, Biaxial, Fiberglass, Composite)
- Geotextiles
- Erosion Control Products
- Bolted Steel Tanks

To find out what Titan can do for you,
Call 1-866-327-1957 or visit us at
www.titanenviro.ca





Why Engineers Must Learn to Become Artists

Pat Sweet , Engineering.com, May 13 2013

If you went to engineering school in Canada, you have probably heard the slogan 'Engineers Rule the World', or ERTW. My friend Erica Lee Garcia recently posted a challenge to ERTW, suggesting that engineers should spend their time trying to save the world as opposed to ruling it. In fact, Engineers Save the World has been the Engineers Without Borders rallying cry since 2009, in sharp contrast to the idea of ruling it.

I am a much bigger fan of saving the world than ruling it.

It occurs to me, though, that in order for engineers to save the world, they must change the world. And in order to change the world, engineers must learn to become artists.

Enter the Artist

In his book *Linchpin*, author and business guru Seth Godin argues that artists are people who change the world for the better. You do not need to be able to paint a portrait, compose a song, or execute some sort of interpretive dance to be an artist though.

To be an artist is to give the gift of self. From this standpoint, anyone can be

an artist. Parents and business owners and bakers and teachers can all be artists. Anyone who passionately invests themselves into their trade for the benefit of others is an artist.

Artists adopt a 'pay it forward' mentality. They strive to give gifts of self that can never truly be repaid. In fact, it is not about getting paid. Godin argues, and I agree, that if you live an artist's life and you're willing to live within your means, money will not be much of a problem for you.

I believe that engineers need to become artists.

Why Engineers Must Learn to Become Artists

First, I will make the distinction between vocation and profession. I believe engineering is, for the most part, a profession. It describes what you do and how you do it. 'Artist', on the other hand, is a vocation, and has more to do with why you do what you do. If you think about things this way, it is easy to see how an engineer can use their skills to fulfill their vocation - to change the world. An engineer can be artist.

And this is the crux of the matter. Engineers have incredible skills to offer the world. There is an enormous opportunity for engineers to make real change for the people around them. I do not think, though, that many engineers adopt this mentality. Most engineers are 'daily grind' kind of people. They show up to work, do their work, collect their paycheque, and go home.

I believe that if engineers were able to find a sense of true purpose in what they do, they would be better engineers, and happier people. Imagine how great life would be if you felt like everything you did really mattered. Even the most mundane of tasks can be made easier to handle if you can see the greater purpose.

Challenge Yourself and Become Indispensable

I want to issue a challenge to every engineer reading this post.

My challenge is this: figure out what your purpose is. Why is it that you do what you do? Why is it important? Who is it important to?

Once you figure this out, write it down and live by it. Anyone who does this can become indispensable to their employers and clients. If you can do this, you'll have done a wonderful thing for your career.

About Pat Sweet

Pat Sweet is a Professional Engineer working in Ontario, Canada. He is a full-time vehicle engineer focusing on commuter train electrical subsystems and the author behind the Engineering and Leadership blog, where he shares his thoughts and experiences on leadership, productivity and career advice for engineers. ☎

bockstael.com

Bockstael
Manitoba's Builder

65

ENGINEERS CANADA -
SPONSORED TERM LIFE PLAN

1948 - 2013

65 YEARS OF ONGOING SUPPORT

SPECIAL ANNIVERSARY OFFER:
SAVE 50% OFF TERM LIFE COVERAGE!*

www.manulife.com/KP

Sponsored by:



Engineers Canada is the business name
of the Canadian Council of Professional Engineers



Underwritten by The Manufacturers Life Insurance Company. Manulife, Manulife Financial, the Manulife Financial For Your Future logo and the Block Design are trademarks of The Manufacturers Life Insurance Company and are used by it, and by its affiliates under license.

*Limited availability. Regular rates resume April 1, 2014.

CANADA

HAS A SERIOUS SHORTAGE OF ENGINEERS

James Dyson

Reprinted from The Globe and Mail, Wednesday, April 10 2013

Railroads. Snowmobiles. Even the smartphone. Canada and its engineers have always found inventive methods to build and connect across an immense landscape. But without enough young Canadians enrolling in engineering programs, this legacy is in jeopardy.

Canada is facing a shortage of engineering talent. A recent report by Engineers Canada shows growth in mining, transportation, and energy, along with 95,000 Canadian engineers retiring by 2020. With current immigration trends not slated to fill the gap, Canada's future depends on nurturing its brightest problem solvers to become the highly skilled engineers of tomorrow.

In 2011, Canada produced fewer than 12,000 new engineers, while India and China produced a combined 3.5 million. The U.K. is twice as populous as Canada, but produces seven times as many engineers. And no, we do not have enough either.

The recipe is there – whenever I work with Canadians in the Dyson laboratories or abroad, it is obvious that Canada is already equipped with engineering potential. Despite a relatively small population, four of Canada's largest universities were named among the world's top 50 engineering schools last year.

Canadian engineer Joseph-Armand Bombardier dreamed of a vehicle that could 'float on snow,' and created the first snowmobile. His legacy continues to this day, with the firm that bears his name being just as inventive. Its engineers are developing rail cars that predict their own maintenance needs, helping Bombardier become the world's leader in passenger rolling stock.

Other Canadian engineering success stories like BlackBerry make headlines all over the globe, with its latest Z10 and Q10 devices hopefully spurring a revival. And no matter where in the world we are, Canadian astronaut Chris Hadfield, commander of the International Space Station and a trained engineer, soars above us at 462 kilometres per minute.

But even with Canadian high-school students ranked in the top ten for international math and science scores, not enough young Canadians are attracted to – or graduating from – engineering programs.

Last year, a low proportion of graduates in science, technology, engineering, and mathematics (STEM) meant the Conference Board of Canada gave a C grade for Canadian post-secondary education in these fields.


So what is the solution? Canadians, much like Britons, must continue to get young people interested in engineering at an early age. Children already have a natural spark for engineering. Educators, policymakers, and parents must fuel that spark and keep them imagining, building – and ultimately pursuing a career in engineering.

Canada's National Engineering Month in March is a start – students across the country built model bridges, experimental structures and designed devices of the future. And the Canadian

government, with Canada's Perimeter Institute, is creating classroom kits that share the benefits of a STEM career with every Ontario high-schooler.

In 2011, The James Dyson Foundation also donated the Engineering Lab at Vancouver's Science World. Here, almost a million children have learned valuable engineering skills by constructing elaborate marble chutes out of varied materials and dissecting mechanical machines to get at their guts.

But in order to engineer a prosperous future, more young Canadians must be inspired to engineer, to understand through disassembly, and to solve problems. It is up to government to set the example, and over to universities and industry to lead the way in their own fields, and through supporting the next generation. Engineers, with their combination of logic, dogged intention and creative imagination, are the ones to meet the challenges the world faces.

The opportunity is huge, and a Canadian legacy depends on it. 

Sir James Dyson is a British industrial designer, and founder and chief engineer at Dyson. He is challenging university and college students to submit their best inventions for the 2013 James Dyson Award until August 1 at jamesdysonaward.org.

Tomorrow's Engineers Use Their Noodles;

APEGM uses pasta to build bridges and to help bridge the hunger gap

By Tristen Gitzel, EIT

2013 proved to be another successful year for the APEGM Spaghetti Bridge Competition. Grade 1-12 students demonstrated their engineering creativity Saturday, March 9, 2013 at Kildonan Place Shopping Centre. Each student carefully constructed a bridge from spaghetti and white glue for the event, where volunteers from APEGM loaded the bridge until its inevitable collapse.

This competition is a vehicle for celebrating and reminding Canadians of the importance of engineering to their lives and as a career choice. The Association of Professional Engineers and Geoscientists of Manitoba (APEGM) engaged and motivated the students this year; in order to surpass their goal of 10,000 pounds of pasta being donated to Winnipeg Harvest. For every pound of weight the bridge held before fracture, a pound of pasta was to be donated to Winnipeg harvest.

"In 2012, the cumulative weight supported by all bridges was 11,689lbs. This year, we increased our cumulative weight to 12,305lbs, our all time high. The students of Manitoba worked hard and built strong bridges which showed by surpassing our results from last year" said Angela Moore, APEGM Events & Communications Coordinator.

In order to get students (and their teachers) excited to crush their masterpieces publically, APEGM provided pizza parties to classes that brought ten students or more. More importantly, cash prizes were given out to the student with the bridge that held the most weight in each grade (1-12). There

were grand prizes for Grades 1-6 and 7-12, as well as a new donation to their charity of choice for the 'Parent Bridge' category. Due to this year's success and interest, next year's results may be even greater. Start planning your designs now APEGM members.

"It is great to see students, teachers and engineers come together to build strong bridges in support of Winnipeg Harvest. Many bright, young minds applied a lot of engineering ingenuity with glue and spaghetti. This year's contest entries held up 12,509 lbs! With our partners Canada Safeway and Peak of the Market, Harvest is going to receive a large donation of food from the Engineers & Geoscientists of Manitoba" said Grant Koropatnick, P.Eng., APEGM Executive Director & Registrar.

APEGM's donation was matched by food donations from Winnipeg Harvest partners, Canada Safeway and Peak of the Market. "Utilizing pasta to construct bridges is a great way to inspire tomorrow's engineers. By including such a generous donation to Winnipeg Harvest, it helps illustrate that building bridges to reduce the number of people relying on food banks is important for any professional moving forward", says David Northcott, Executive Director at Winnipeg Harvest.

"There are more bridges to build as we try to reduce by half, the number of people using food banks by 2020" says Northcott. Each month, over 55,000 Manitobans use food banks. More than 47% of the clients are children.

APEGM and the Public Awareness Committee (PAC) would like to thank all the



volunteers that made this event possible, without their support events like these would be impossible. The Spaghetti Bridge competition was part of a series of events on Saturday & Sunday, March 9-10, 2013 to celebrate Provincial Engineering and Geoscience Week (PEGW). Other events included Children Activities on Sunday afternoon, a special Imax presentation, and a new Design Competition.

"It is always a lot of fun to glue spaghetti together, load it and then watch the weight climb until it explodes! This year, we have added the Design Category so young budding engineers (and parents) can apply their skills at aesthetic design. Let's figure out how to make these bridges both strong and beautiful!" said Grant Koropatnick, P.Eng.

The celebration is part of a National Engineering Month occurring across Canada throughout March 2013. PEGW is held for the public with the goal of improving awareness of the engineering and geoscience professions and their numerous contributions to improving the lives of Manitobans. PEGW also promotes careers in engineering and the geosciences to young people of all ages. ☺



Ireland and Canada Enhance International Mobility for Professional Geoscientists

Vancouver – Geoscientists Canada is pleased to announce the recent signing of a Mutual Recognition Agreement with The Institute of Geologists of Ireland, which took place in Dublin, Ireland on May 1.

The Agreement will enhance the international mobility of professional geoscientists by facilitating licensed geoscientists in one country to be licensed in the other country, with greater ease. The Agreement allows Canada's professional geoscientist designation ('P.Geo') be seen as equivalent to Ireland's, similarly named, professional geoscientist designation ('P.Geo'), and vice versa. It will also help streamline professional registration of Irish geoscientists wishing to become licensed in Canadian jurisdictions and Canadian geoscientists wishing to become registered with the Institute of Geologists of Ireland.

The President of Geoscientists Canada, Timothy Corkery, P.Geo, stated "We are delighted to have been able to facilitate this important first international Mutual Recognition Agreement for the Canadian profession of geoscience and to be entering it with the Institute of Geologists of Ireland. This first Agreement, for us, is modeled very closely on a similar agreement signed for the engineering profession between Ireland and Canada in 2009. This parallelism makes particular sense in a Canadian context, given that many of Geoscientists Canada's constituent associations regulate both geoscientists and engineers together as part of the same professional body."

The Institute of Geologist of Ireland has had a mutual recognition agreement

with the UK's Geological Society of London, which has responsibility for the Chartered Geologist ('CGeol') designation, since 2001. The IGI also retains MRAs with equivalent professional geoscientific bodies in Australia (AusIMM), United States (AIPG) and South Africa (SAPNSC). The Institute is an active member association of the European Federation of Geologists and is the designated national licensing authority for Ireland, for the European Geologist designation ('EurGeol').

Mr. Corkery went on to say "This new Agreement is the end result of much hard work that was initiated some years ago as part of Geoscientists Canada's Internationally-Trained Geoscientists Project, concluded in 2012, which was funded through the Government of Canada's Foreign Credential Recognition Program. Among its objectives, this project supported due diligence activities pursuant to possible international mutual recognition agreements with entities governing geoscience practice in several other countries. Our thanks go to the many geoscientist volunteers and staff of our constituent associations in Canada who worked on this initiative, and also to our colleagues in Ireland for their reciprocal contributions and effort, leading to this agreement."

Commenting about the Agreement, The President of the Institute of Geologists of Ireland, Dr Deirdre Lewis, P.Geo, said "This MRA is a very important achievement for the Institute and for geoscience on both sides of the Atlantic, given the international mobility of many professional geologists and the increasing requirement

for designated 'competent' or 'qualified persons' in reporting to statutory authorities and stock exchanges around the world. We are delighted that we have reached this juncture with our colleagues in Geoscientists Canada."

The Agreement, which was approved by the Board of the Institute of Geologists of Ireland in December 2012, and by the Board of Directors of Geoscientists Canada in March 2013, will take effect in Canada as it becomes ratified by Geoscientists Canada's constituent associations. The Agreement will become effective immediately in Ireland.

Geoscientists Canada is the national organization of the 10 provincial and territorial associations that regulate the practice of geoscience in Canada. The Geoscience profession, which is made up of many specialized practice disciplines, currently comprises over 13,000 Professionals Geoscientists and Geoscientists-in-Training across Canada.

The mission of Geoscientists Canada is to develop consistent high standards for licensure and practice of geoscience, to facilitate national and international professional mobility, and to promote recognition of Canadian geoscientists.

Geoscientists Canada is the business name of the Canadian Council of Professional Geoscientists.

Contact:

Oliver Bonham, P.Geo.
CEO - Geoscientists Canada
604-412-4888
www.ccpge.ca ☎



**EXHILARATION
AT FIRST SIGHT.**
The MINI Roadster

Chris Brown
Birchwood BMW • MINI Winnipeg
TEL: 204-793-6980

chrisbrowncars.com



Professional Errors and Omissions Insurance for Engineers

Malcolm C. Cook
Principal

Ph: (204) 944-1929 • Cell: (204) 791-2083
Fax: (204) 942-3762
malcolm@wsjinsurance.ca

282-240 Graham Ave. (Skywalk) • Winnipeg, MB R3C 0J7

CONTINUING PROFESSIONAL DEVELOPMENT

Arthur Erhardt, P.Eng.

What is it?

As a self-regulated profession, it is the Association's responsibility to ensure that the public is both protected and confident in the work that the membership performs. The Continuing Professional Development program (or CPD), which the APEGM membership voted in at the 2011 Annual General Meeting, is based upon the model used by the Association of Professional Engineers and Geoscientists of Alberta. The goal of the program is to help ensure competence to practice; which ultimately is of value for both the professional and for the public.

What is required?

The CPD program requires that a professional maintain a total of at least 240 Professional Development Hours (or PDH) over the course of a three-year period comprised from a minimum of three groups out of six categories each year. The six categories are:

- Professional Practice – The day-to-day practice of engineering or geoscience requires a professional to maintain and improve upon their skills.
- Formal Activity – These include professional development sessions, academic courses and courses offered in classroom settings.
- Informal Activity – Typically shorter in duration and not involving any evaluation, activities which provide an expansion of knowledge, skills or judgment such as self directed study, attendance at trade shows and conferences, technical presentations or structured meetings and discussions with one's peers
- Participation – Participating in activities that promote peer interaction and exposure to new concepts, such as mentoring a Member-in-Training, or serving on a professional committee. Also included are volunteer activities that require professional and ethical behavior, such as coaching amateur sports or charitable work
- Presentations – Any presentation of a technical or professional nature that

occur outside a professional's normal day-to-day activities.

- Contributions to Knowledge – Activities such as patents, the development of industry standards or the publication of a paper in a peer-reviewed journal.

How is it recorded?

These activities can be reported manually, however the ideal method is for activities to be inputted online through the association's website. When a member logs in to their profile, the home page lists a summary of CPD hours to date, and each category is a link to a page where additional activities can be recorded.

It should be noted that there are maximum targets per three year period that exist for each category:

Professional Practice	150 PDH
Formal Activity	90 PDH
Informal Activity	90 PDH
Participation	60 PDH
Presentations	60 PDH
Contributions to Knowledge	90 PDH

How is it enforced?

In situations where a practicing member has not complied with the requirements of the program, the Continuing Competency Committee who is responsible for administering the program, may forward the matter on to the Investigation Committee as a formal complaint.

For members who comply with another approved CPD program, or in cases of special circumstances where it may not be possible to meet the requirements of the program, applications can be made to the Continuing Competency Committee that will be reviewed on a case-by-case basis with the possible reduction or exemption of CPD requirements.

How has it been received?

It has been over a year since APEGM membership voted in Continuing Professional Development. As of early May, more than 85% of APEGM members have registered for an APEGM online ID.



Of those, almost 65% have tried using the online CPD reporting log.

Even though the Association is only 17 months into the initial 36-month window, almost 1500 members have already achieved their 240-hour CPD requirement. There have also been 160 exemptions that were approved in 2012, with another 80 in 2013 due to CPD commitments having been fulfilled in other Associations.

As expected, Professional Practice dominates the CPD categories. The table below highlights the CPD entries that have been made as of May 2013:

Category	Entries	CPD Hours Reported
Informal Activity	16565	151,160.72
Professional Practice	9170	487,894.99
Formal Activity	8697	125,398.31
Participation	8430	129,040.25
Presentations	3424	33,113.11
Contributions to Knowledge	2325	45,439.34

Notes about your CPD Report

It is the responsibility of Engineers and Geoscientists to ensure that as professionals, we continue to remain steadfast in our pursuit of knowledge in order to be able to understand and overcome the challenges that are faced in our ever-changing industries. The homepage for a member's online APEGM profile contains a friendly reminder of how many categories and CPD hours you still require along with the amount of time you have to fulfill these requirements. To date, APEGM members have reported on 972,046.72 hours of Continuing Professional Development. Have you reported yours? ☺

G. Koropatnick, P.Eng.

This is a new column you will see me write from time-to-time. I thought of it while walking along River Road one sunny day on my vacation. It is my job to speak professionally on behalf of the engineers and geoscientists of Manitoba, but often I am asked by a member to speak personally on a topic or question that is relevant to daily life apart from professional practice. This column is my attempt to share some professional thoughts and personal comments with you. If you are interested in one and not the other, well, you can scan read past the boring part. If you are not interested in either. . .

STOP NOW and turn the page! LOL

PROFESSIONALLY SPEAKING

You may wonder: What are the current issues facing our professions right now? Well, here are three as determined at a strategic planning session of the APEGM council: (1) public perception of the professions (2) recruitment and retention of future professionals and (3) government relations. If you have been around the profession for a while, you will know that a common topic discussed amongst engineers is the question: "How come the public doesn't seem to know what we do?" This question gets a lot of air-time around the water cooler and over a glass of beer or two. It is not an easy one to answer and I am not going to get into it here.

Recruiting future engineers and geoscientists into the professions is a task we share with the universities and high schools. Retaining them is another challenge we face. Many other professions (like medicine, law and accounting) cherry-pick our grads and retrain them as biomedical engineers, hip & knee surgeons, legal tech experts and technical business analysts. Do we like it that this happens? Not really, but we should be proud that a B.Sc. Engineering or a B.Sc. Geology degree provides a solid base education for many other notable professions.

Spending time talking to ministers, politicians and local government leaders is something we do not do on a regular basis. Oh, I know some members who write their MP regularly and some even campaign for candidates at election time. We can do more in this area. Watch for future emails and *KP* articles on these three important issues facing our professions.

PERSONALLY SPEAKING

Let us shift over to the personal side. What are you doing to enrich the community around you? I am referring to the community where you live, interact with family, friends, neighbours and members of the general public. Engineers and geoscientists have a lot to offer away from the office, so

what is your contribution? Do you coach minor hockey, soccer or softball at your community centre? Do you serve on the board at your local church, synagogue, temple or mosque? What about the parent council at your kids' school? Maybe you are one of those dedicated volunteers who knock on doors for CancerCare, Heart & Stroke, the Kidney Foundation or Winnipeg Harvest? I hope you are, because the public of Manitoba needs help in these important areas. Engineers and geoscientists work hard every day bringing tremendous benefits to our society through their professional employment. However, I would like all of us to consider steps we can take to get involved in our communities; to give back some personal time, with people, to make a positive change beyond our technical practice.

"I would like all of us to consider steps we can take to get involved in our communities; to give back some personal time, with people, to make a positive change beyond our technical practice."

TAKE CARE OF YOURSELF

What are you doing to care of yourself? Are you feeling tired, achy and lack energy? Perhaps you need to make a few small changes in lifestyle. Let me remind you that I am no 'spring chicken.' I am fifty-something and had a few extra pounds at the beginning of the year. It was not my intention to lose weight as a new year resolution, but the results have been satisfying. I observed another member at a meeting recently who was looking a lot thinner than before. I said "Hey Todd yer lookin' good – I can tell you have lost some weight." He said: "I have." I too feel great for losing nearly 20 pounds: my clothes fit again, my joints don't ache and occasionally someone will say to me – "Hey Grant yer lookin' good" and that is nice.

NO GUARANTEE

There is no guarantee in life. We all hope for a long and healthy life. I read the obituary pages and too often see an untimely passing due to accident or disease. There is no guarantee of anything. The guarantees and warranties on consumer goods

sold by retail vendors are often inadequate. Many products barely last longer than the warranty period. Similarly, I always thought my body parts would last for the full duration of my life. Boy was I wrong. After jogging for 18 years and enjoying every stride, my left knee has decided that I have passed its expiry date. Sad news – there is no warranty clause for a knee. Sure I know a good surgeon who would love to give me a titanium replacement, but I am not going that route. Instead, I am changing my fitness regimen to include more walking, some biking and yoga. Yes, yoga. Have you tried it? No? Well, do not knock it until you try it. Too mystical and new-agey for you? Hahaha! There is no magic or mystery to it. It is one of the best workouts to increase strength and flexibility. My sweetie has done yoga for years and after some cajoling she took me to a class. It was an interesting experience for a guy who considers himself to be a life-long athlete and not a 'yoga type.'

THE REAL MESSAGE

Here is the real message, being fully engaged in a professional career and fully engaged in giving back to your community = a productive and happy life. Yes, I said earlier "there are no guarantees", but whatever you are doing (or not doing), do not sit at home in front of the TV or iPad wasting endless hours each week. Stand up and get involved in something new – whether

"Being fully engaged in a professional career and fully engaged in giving back to your community = a productive and happy life."

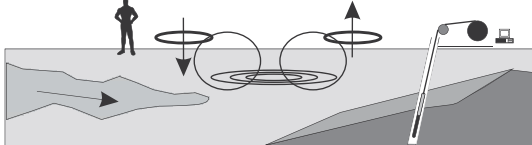
it be volunteering or personal fitness. Both have the potential to improve your health, lower your cholesterol and blood pressure and brighten your outlook. Your body will thank you. Your partner will notice. Your quality of life will improve. Oh, and the registrar might notice too. LOL

By the time you read this edition of the KP, summer will be waning and the back-to-school season will be upon us soon. I hope that you are doing well and that you are thinking about ways to increase your professional and personal activities for the benefit of yourself and others. ☺

As always, I appreciate your feedback. Send me an email on anything you read in the KP magazine: gkoropatnick@apegm.mb.ca


Hayles GeoScience Surveys Ltd.
Surface & Borehole Geophysics

- landfills, lagoons, & waste sites
- large areas and depths of coverage
- site characterizations
- seepage plumes
- underground storage tanks
- overburden depth & type
- micro-topography surveys
- gravel / clay searches
- near-surface geology
- Vs₃₀ foundation studies



511 Robinson Avenue
 Selkirk, Manitoba R1A 1E5

phone: (204) 482 5249
 www.haylesgeoscience.ca

Christie's
OP office[®]
plus
 simply more 

Darin Avanthay
 General Manager

Christie's Office Plus

#8 - 2166 Notre Dame Ave. Winnipeg, MB R3H 0K2
 Bus 204-489-3989 • Mobile 204-955-0649 • Fax 204-488-1746
 Email darinwpg@christiesop.com • Web www.christiesop.com

DACO Piling

Specializing in steel pilings for Residential, Commercial, Industrial, and Agricultural needs. With our diverse selection of piles and installation equipment we can provide a unique solution for any project.

We supply and install:

- Pipe Piles (Micro Piles)
- Screw Piles
- Sheet Piles (Steel or Composite)
- Timber Piles
- H-Piles
- Rock Drilling
- Excavating
- Small Demolition Jobs

204-392-5121
www.getdaco.com



SUMMARY OF THE ROGER ALAN KANE CHARGES

DECISION AND REASONS

In the matter of a hearing under *The Engineering and Geoscientific Professions Act*, and in the matter of charges regarding the conduct of **Roger Alan Kane**, a member of the Association of Professional Engineers and Geoscientists of Manitoba.

This matter came on for hearing before a panel of the Discipline Committee commencing on December 13, 2010 and continued on April 6, 2011 at a hearing room at the Association of Professional Engineers and Geoscientists of Manitoba in Winnipeg.

THE CHARGES

The Investigation Committee submitted the following charge against Kane relating to alleged unskilled practice and professional misconduct, as defined in section 46(1) of *The Engineering and Geoscientific Professions Act*.

The Amended Charge submitted by the Investigation Committee alleged that, while providing professional engineering services for his client, in connection with the design and development of an air chiller design, and during subsequent conduct in response to requests from the Executive Director and Registrar,;

1. Mr. Kane's company, R.A. Kane Sales and Service (doing business as Trane Sales & Service (Winnipeg), did not have a Certificate of Authorization,
2. R.A. Kane Sales and Service was not a Sole Proprietorship,
3. R.A. Kane Sales and Service engaged in the practice of professional engineering, including and evidenced by:

- a. A response to Company A's request for proposal consisting of an undated letter, a report and proposal dated July 31, 2007;
 - b. The design and development of an air chiller and associated equipment system; and
 - c. Preparation and issue of drawings.
4. The said drawings were not sealed, in violation of Canon 2.8 of the Code of Ethics and section 26(1) of *The Engineering and Geoscientific Professions Act*,
 5. R.A. Kane Sales and Service (doing business as Trane Sales and Service (Winnipeg)), issued drawings to its client for which Mr. Kane had professional responsibility,
 6. Mr. Kane's failure to ensure that R.A. Kane Sales and Service acquired a Certificate of Authorization prior to and while engaging in the practice of professional engineering constituted professional misconduct, as it contravened Canon 1.3 of the Code of Ethics, and
 7. By not holding a Certificate of Authorization, R.A. Kane Sales and Service contravened Article 57 of *The Engineering and Geoscientific Professions Act*.

JOINT SUBMISSION BY MR. KANE AND THE INVESTIGATION COMMITTEE

The Investigation Committee and Mr. Kane submitted a Statement of Agreed Facts and Documents which was marked as Exhibit 2. The Statement of Agreed Facts provided as follows:

"For the purpose of the above proceeding the parties agree on the following facts:

1. That Mr. Kane became registered with the Association of Professional Engineers and Geoscientists of the Province of Manitoba ("APEGM") as a professional engineer on October 11, 1972 and remains so registered.
2. Mr. Kane is the president and directing mind of R.A. Kane Sales and Service Ltd. (the "Kane Company").
3. The Kane Company does business under the names Trane Canada, Trane Sales & Service (Winnipeg) and Trane Winnipeg.
4. Attached at Tab 1 hereto is a true copy of a request for proposal issued by Company A (the "RFP") in respect of a project entitled "SP1005 Air Chiller Design Build – Eliminate Heat Stress in the Refinery Tankhouse" (the "Project").
5. The Kane Company prepared and provided a response to the RFP. Attached at tab 2 hereto is a true copy of part of said response.
6. Company A retained the Kane Company to complete the Project.
7. Attached at Tab 3 are true copies of drawings marked "issued for construction" (the "Construction Drawings") issued by the Kane Company in respect of the Project which Construction Drawings were sent to Company A and its representatives prior to construction on or about March 7, 2008.
8. Attached at Tab 4 are enlarged copies

of the lower right corner of each page of the Construction Drawings.

9. With the exception of an electrical drawing referred to as Trane Drawing Number QS-330-E-03 which was sealed by Engineer X, none of the Construction Drawings were sealed when issued and sent to Company A.
10. Attached at Tab 5 are true copies of the final version of the drawings issued by the Kane Company in respect of the Project.
11. The original electrical drawings and the structural drawings were sealed by Engineer X and Engineer Y, respectively, as indicated on the drawings attached at Tab 5.
12. The drawings attached at Tab 5 were not sealed by Mr. Kane when they were issued to Company A or its representative.
13. Subsequently, at Company A's request, Mr. Kane sealed certain specific drawings.
14. Attached at Tab 6 are true copies of a project schedule and progress certificate created by the Kane Company and provided to Company A on or about June 25, 2008.
15. The Kane Company has never held a certificate of authorization issued by APEGM nor has it ever made application to APEGM for a certificate of authorization."

EXPERT WITNESS

In addition to relying on the Statement of Agreed Facts and Documents, the Investigation Committee called an expert witness. The expert witness was qualified as an expert in the practice of engineering and in the principles governing the profession of engineering and the use of the seal with the consent of counsel.

The expert witness' report dated December 6, 2010 concluded:

- a) on the basis of the documents reviewed, both Trane and Mr. Kane engaged in the practice of engineering;
- b) the documents reviewed by the expert witness were engineering drawings, plans or documents;
- c) any drawings in respect of which an engineer seeks approval or any drawings issued 'for construction' should be sealed and signed. The final

iteration of the drawings, either 'issued for record – as built' or 'as built' would typically not be sealed by an engineer unless he had verified the installation on site in sufficient detail to know that what is reflected on the drawings is in fact what was built;

- d) Mr. Kane's corporation ought to have obtained a Certificate of Authorization in relation to the work it did on this project; and
- e) adequate insurance or other performance guarantees by a corporation do not displace the need for a corporation to obtain a Certificate of Authorization.

REASONS OF THE PANEL OF THE DISCIPLINE COMMITTEE

The Panel is unanimously of the view that Mr. Kane committed professional misconduct in two respects. Firstly, by issuing construction engineering drawings to a customer without sealing them, he acted contrary to s. 26(1) of the Act and Canon 2.8 of the Code of Ethics. Secondly, in failing to ensure, as the directing mind of R.A. Kane Sales & Service, that the company obtain a Certificate of Authorization prior to delivering engineering services, he acted contrary to s. 57 of the Act and Canon 1.3 of the Code of Ethics.

Failure to Seal Drawings:

The Panel finds that the unsealed construction drawings at Tab 3 of Exhibit 2 were mechanical engineering drawings. The drawings were stamped "issued for construction." They were not labeled "draft for discussion purposes" in which case they might not have needed to be sealed. The construction drawings themselves clearly reveal themselves to be engineering drawings. The customer had also requested in its request for proposal that it receive drawings sealed by an engineer and therefore the customer clearly expected to receive sealed engineering drawings. The timing that is typical for such drawings to be issued to the customer is prior to construction (due to the issues previously noted regarding "as built" drawings being difficult to verify for sealing).

Further, R.A. Kane Sales & Service referred to the drawings as "detailed

engineering drawings" in the document that it prepared at Tab 6 of Exhibit 2.

The Panel further accepts the evidence of the expert opinion of the expert witness on this point.

The Panel rejects Mr. Kane's explanation that he did not want to seal drawings which partly showed pre-existing systems and partly showed what R.A. Kane Sales & Service was actually going to do as part of this project. This is not a good explanation. It is possible to label parts of the drawings as representing an existing or pre-existing system and to label other parts of the drawings as showing what is to be done in connection with the current project. It would be clearly understood when an engineer seals such a drawing that he is only sealing and validating new engineering work.

The Panel finds that Mr. Kane issued unsealed engineering drawings. Mr. Kane admitted in the Statement of Agreed Facts that the construction drawings at Tab 3 of Exhibit 2 were issued by R.A. Kane Sales & Service and sent to the customer on or about March 7, 2008. The Panel is of the view that the word "issue" in s. 26 of the Act means when the drawings are given to the customer.

Tab 4 of Exhibit 2, which is a blow up of the construction drawings at Tab 3, are clearly stamped "issued for construction March 7, 2008". Tab 6 of Exhibit 2, the workflow document, prepared by R.A. Kane Sales & Service, provides that "final drawings were sent March 6, 2008". Mr. Kane admitted in his evidence that he issued the drawings. He admitted responsibility for the mechanical drawings. He is shown on these drawings as both the discipline engineer and the "checker" of these drawings.

Section 26(1) of *The Engineering and Geoscientific Professions Act* provides as follows:

Seal by member

26(1) Every member shall be issued an electronic seal, a manual seal or both an electronic seal and a manual seal and the member shall validate or impress his or her seal, as prescribed by the by-laws, on every engineering or geoscientific estimate, specification, report, working drawing, plan and other engineering document issued by the member.

Canon 2.8 of the Code of Ethics provides as follows:

2. Each practitioner shall regard the physical, economic and environmental well-being of the public as the paramount responsibility in all aspects of professional engineering and professional geoscientific work.

Specifically, and without limiting the generality of this statement, each practitioner shall:

2.8 seal all plans and other engineering or geoscientific documents which 'The Engineering and Geoscientific Professions Act' stipulates shall be sealed, whether acting in the professionally responsible capacity of a consultant or an employee. The Panel finds that Mr. Kane breached both s. 26(1) of the Act and Canon 2.8 of the Code of Ethics and thereby committed professional misconduct but did not commit unskilled practice.

Failure to Obtain Certificate of Authorization:

Turning now to the second issue of the Certificate of Authorization, this Panel is unanimously of the view that R.A. Kane Sales & Service engaged in the practice of professional engineering in this case. Mr. Kane admitted in his evidence that it had done so. The expert witness was of the opinion that it had done so and this Panel accepts

the opinion of the expert witness. Mr. Kane admitted in his evidence that in his response to the RFP he applied engineering principles, that he was an application engineer and that he signed his response to the RFP at Tab 2 of Exhibit 2 as "Roger A. Kane, P.Eng. Trane Sales & Services (Winnipeg)." This Panel relies in addition on the engineering drawings themselves contained at Tab 3 and Tab 4 of Exhibit 2 and finds that R.A. Kane Sales & Service provided engineering services on this particular project.

Section 57 of *The Engineering and Geoscientific Professions Act* provides as follows:

Prohibitions on practice

57 Except as otherwise provided in this Act, no person who is not a member, a holder of a certificate of authorization, a temporary licensee, or a specified scope of practice licensee shall:

- a) engage in the practice of professional engineering or the practice of professional geoscience within the province; or
- b) act in such a manner as to lead any person to believe that he or she is authorized to fulfill the office of, or act as, a professional engineer or professional geoscientist within the province.

Canon 1.3 of the Code of Ethics provides as follows:

1. Each practitioner shall obey the laws of the land.

Specifically, and without limiting the generality of this statement, each practitioner shall:

- 1.3 make responsible provision to comply with statutes, regulations, standards, codes, by-laws and rules applicable to all work.

Mr. Kane admitted in the Statement of Agreed Facts and Documents that he was the directing mind of R.A. Kane Sales & Service. This Panel heard evidence, and finds as fact, that Mr. Kane was also a director, officer and shareholder of that company. Mr. Kane admitted that he benefited financially from the work of the company.

Mr. Kane admitted that he knew that a corporation had to obtain a Certificate of Authorization prior to providing engineering services. Mr. Kane did not offer a good reason as to why he did not ensure that R.A. Kane Sales & Service obtained that Certificate of Authorization before delivering engineering services to this customer. He stated that he did not want to. He stated that it would put his company at a competitive disadvantage. This second statement is not accepted as a reasonable excuse by this Panel.

Canon 1.3 of the Code of Ethics requires Mr. Kane to make responsible provision to comply with statutes and regulations. Mr. Kane clearly had the power to ensure that R.A. Kane Sales & Service complied with s. 57 of the Act. Indeed, from the evidence heard by the Panel, there was no other individual that had the power except for Mr. Kane. If Mr. Kane did not ensure compliance by the corporation, no one else could. Here, s. 46(1) of the Act clearly provides that contravention by a member of the Code of Ethics constitutes unskilled practice or professional misconduct or both. The Panel finds that Mr. Kane failed to comply with Canon 1.3 of the Code of Ethics. Section 46(1) of the Act therefore leaves this Panel with little discretion in the matter and we find that Mr. Kane committed professional misconduct but not unskilled practice.

Counsel for Mr. Kane argued that Canon 1.3 of the Code of Ethics ought to be considered as similar to criminal law and be given a strict construction, and that therefore Mr. Kane cannot be held responsible for the fact that his company did not obtain a Certificate of Authorization.



This Panel asked counsel if they had any case law on the point and were told they did not.

This Panel finds that its decision is not affected by the interpretive approach to be applied to these governing provisions. Regardless of whether this Panel strictly construes the governing provisions, or construes them more purposefully to reflect the intention of the Legislature and APEGM to protect the public, the Panel would still find that Mr. Kane contravened Canon 1.3 of the Code of Ethics and s. 57 of the Act.

DECISION

This Panel of the Discipline Committee finds that Mr. Roger Alan Kane, P.Eng., while registered as a professional engineer in the Province of Manitoba, displayed conduct which constitutes professional misconduct in two respects:

- a) in issuing engineering drawings for construction to his client without validating or impressing his seal on those drawings as required by s. 26(1) of *The Engineering and Geoscientific Professions Act* and Canon 2.8 of the Code of Ethics; and
- b) as the directing mind of R.A. Kane Sales & Service, failing to cause that company to acquire a Certificate of Authorization prior to and while engaged in the practice of professional engineering contrary to s. 57 of the *The Engineering and Geoscientific Professions Act* and Canon 1.3 of the Code of Ethics.

REASONS FOR PENALTY

This panel of the Discipline Committee accepts that the concept of authentication of documents and the obtaining of a Certificate of Authorization for a corporation that carries on the practice of engineering are central to the profession of engineering and of sufficient importance that, even on a first offence, a fine is a more appropriate penalty than a reprimand. The argument on behalf of Mr. Kane that he thought he had a good reason not to seal the as-built drawings and that the expert witness agreed with him that as-built drawings might not have to be sealed by a professional engineer, does not assist him because the charge of which Mr. Kane was convicted was a charge of failing to seal construction drawings. Further, the comments that Mr. Kane made himself at

the conclusion of the hearing appeared to indicate that he still does not accept that what he did was wrong and therefore there is a need for specific deterrence of Mr. Kane as well as general deterrence in relation to the conduct in question.

On the other hand, the years of volunteer service that Mr. Kane provided to his profession, coupled with his spotless record, do entitle him to some measure of leniency. Mr. Kane's volunteer service is particularly exceptional, and should mitigate the penalty that would otherwise be appropriate.

In addition, Mr. Kane did not deliberately and flagrantly violate the rules that govern his profession, which would be an aggravating factor. He had an honest, yet mistaken, belief that he was right and that APEGM was wrong. He likely continues to hold that view, which is a reason to require that he complete the Professional Practice Test, but that is not a reason to unduly penalize him monetarily.

Accordingly, the panel finds that a fine of \$1,000.00 is an appropriate penalty and consistent with the factors that it should consider in relation to the issue of penalty as set out in the Jaswal case.

As to the investigation and hearing expenses, Mr. Kane's cooperation at the outset of the hearing, by agreeing to tender by consent a statement of agreed facts and documents, is a practice to be encouraged. Without that statement of agreed facts and documents, the hearing would have been much longer and more complicated. With those agreements in hand, counsel and this panel were able to focus without difficulty on only the matters in dispute.

Further, while this panel found Mr. Kane to have engaged in conduct which constitutes professional misconduct, he was not found to have engaged in unskilled practice, which was part of the original charge.

Mr. Kane's cooperation by way of agreement and his successful challenge to part of the original charge should be factored into the order for costs. The panel is guided by the decision in Jaswal. There, the Court reviewed a decision of the Medical Board regarding a doctor who was found guilty of professional misconduct. In reviewing the order of costs, the Court stated at paragraph 51:

"It is necessary, therefore, to determine the factors appropriate to the proper exercise of the judicial discretion to make an order for payment or partial payment of expenses. In my view, based on the submissions of counsel, the following is a non-exhaustive list of factors which ought to be considered in a given case before deciding to impose an order for payment of expenses:

1. the degree of success, if any, of the physician in resisting any or all of the charges;
2. the necessity for calling all of the witnesses who gave evidence or for incurring other expenses associated with the hearing;
3. whether the persons presenting the case against the doctor could reasonably have anticipated the result based upon what they knew prior to the hearing;
4. whether those presenting the case against the doctor could reasonably have anticipated the lack of need for certain witnesses or incurring certain expenses in light of what they knew prior to the hearing;
5. whether the doctor cooperated with respect to the investigation and offered to facilitate proof by admissions, etc.;
6. the financial circumstances of the doctor and the degree to which his financial position has already been affected by other aspects of any penalty that has been imposed."

There was a dispute between counsel for the IC and counsel for Mr. Kane as to whether Mr. Kane was contacted by IC during the investigation and given an opportunity to respond. While the panel notes that it would be very unusual for a member not to be given an opportunity to respond to a complaint before a charge was authorized by IC, the dispute between counsel without any evidence being led on the point leaves this panel unable to determine whether or not Mr. Kane was given an opportunity to respond to the complaint and the nature of that opportunity.

In conclusion, the panel finds that, applying the factors in Jaswal, it would be appropriate not to order Mr. Kane to pay the full investigation and hearing expenses.

Summary of the ROGER ALAN KANE charges

Instead, we order that he pay two-thirds of the investigation and hearing expenses or \$25,500.00.

In terms of the other related relief, and keeping in mind that Mr. Kane has still not caused his company to apply for a Certificate of Authorization, it is appropriate to order him to do so and to also write and pass the Professional Practice Test. The argument made on behalf of Mr. Kane that paragraph 47(1)(e) of *The Engineering and Geoscientific Professions Act* did not confer upon this panel the power to order him to cause his corporation to apply for a Certificate of Authorization is not well founded. Paragraph 47(1)(e) of that legislation provides as follows:

"47(1) If the panel finds that the conduct of an investigated person constitutes unskilled practice of professional engineering or professional geoscience, or professional misconduct, or both, the panel may make any one or more of the following orders:

- (e) impose conditions on the investigated person's entitlement to engage in the practice of

professional engineering or professional geoscience, including the conditions that he, she, or it ..."

The use of the words "including the conditions" in paragraph (e) make it clear that this panel is given a general power to impose conditions on Mr. Kane's entitlement to engage in the practice of professional engineering and that the six items listed below merely constitute a non-exhaustive list of examples of conditions that could be imposed.

There was no opposition by counsel for Mr. Kane to the publication of Mr. Kane's name and the circumstances relevant to the finding of professional misconduct and this panel so orders. In the event Mr. Kane does not comply with any of these orders, his certificate of registration shall be suspended until these orders are satisfied.

DECISION:

The panel of the Discipline Committee therefore orders that:

1. Mr. Kane shall pay to the Association of Professional Engineers and Geoscientists of the Province of Manitoba (hereinafter

"APEGM") a fine of one thousand (\$1,000.00) dollars within ninety (90) days of the date upon which the Order is signed;

2. Mr. Kane shall pay to APEGM the costs of the investigation and hearings in the sum of twenty-five thousand five hundred (\$25,500.00) dollars within ninety (90) days of the date upon which the Order is signed;
3. Mr. Kane shall cause R.A. Kane Sales & Service to submit to APEGM a complete application for a Certificate of Authorization within thirty (30) days of the date upon which the Order is signed;
4. Mr. Kane shall write and pass the Professional Practice Test within ninety (90) days of the date upon which the Order is signed;
5. if Mr. Kane does not comply with any of these requirements, his certificate of registration shall be suspended until the terms of the Order are satisfied;
6. APEGM shall, after the expiration of any appeal period, publish Mr. Kane's name and the circumstances relevant to the finding of professional misconduct in the *Keystone Professional*. ⊕



A LEADING GLOBAL FIRM OF COMMUNITY-MINDED PEOPLE WHO MAKE A DIFFERENCE

GENIVAR is a leading Canadian engineering, architectural, environment and project management company. Recent mergers that combine the strengths of GENIVAR, WSP and Smith Carter have created a global entity with 15,000 employees, working in over 300 offices located across six continents.

**BUILDINGS - MUNICIPAL INFRASTRUCTURE - PLANNING
TRANSPORTATION - ARCHITECTURE - INDUSTRIAL - ENERGY
ENVIRONMENT [LEED®] - LANDSCAPE ARCHITECTURE**

careers.genivar.com
www.genivar.com



CIMA+
Partners in excellence

When business gets bigger, so do we.

With 40 offices across Canada, and the number of employees having doubled since 2007, CIMA+ is ready to offer you the highest caliber of expertise for all of your projects. To reach one of our experts in Winnipeg in the fields of engineering, project management, urban planning and geomatics, visit our Web site.

cima.ca

Buildings | Energy | Environment | Industry | Infrastructure International | New Technologies | Project Management
Transportation | Urban Planning and Landscape Architecture

Send Us Your Photos!

We want to know what makes our members tick in a digital way when they are not working. The pictures can be engineering or geotechnical based OR they can be photos of anything else that intrigues you.

Requirements:

1. Please send pictures in **JPG format**.
2. The picture should **not** have the time and date embedded by the camera visible on the image.
3. The picture should **not** have any visible water marks on the image.
4. Note the following in your email submission:
 - (a) Your first and last name
 - (b) Tell us a bit about the photo. Provide one or two sentences describing why the subject really grabs you.
 - (c) Provide a title if you have one

All photos by M. Gregoire, P.Eng.

"Black and White Museum" – When my wife and I had a weekend in New York, visiting the Guggenheim was at the top of the priority list, even if it was only to walk around the exterior of the building, as we did. For a photographer, unique buildings present an immeasurable amount of inspiration.



"Ice on Plant" – It never ceases to amaze me how chance conditions result in the best photographs. Taken just outside my office, the grounds staff had left the watering equipment on even though freezing conditions were forecast. I was able to snap this before the sun had melted it all away again.



"Fire" – Luckily, Parliament hill was quiet enough on this day that I could get a long shot at the Centennial Flame without people blocking the shot. Doubly lucky was that I was able to catch the couple walking by before they left the shot. I'm really happy with the Seurat-esque result.



"Rocks with Wood Chips" – An overcast day conspired with decayed cedar to create this tangy memory of a walk along a coastal beach with my family.



"Fighting Geese" – I really like the way the muted nature of these colours contrasts with and is superseded by the variation in contrast and dynamic composition. Taken at the Winnipeg Zoo.



"Pots Outside House" – The cityscape in Old town Albuquerque, NM offers up as much variation in colours, textures and flavour as does the authentic Mexican cuisine.

Welcome New Members

B.S. Abrera	B.W.B. Chin	P. Guerra	C.B. Lee	J.M. Pritchett	H.V. Tran
V. Afanasev	M.A. Clark	M.W.R. Halliday	J.N. Lemon	M. Qadir	P.T. Truong
S. Aghazadeh	S.H. Corden	S.M. Haque	C.A. Lichtenthaeler	D.S. Reimer	C.J. Turner
C.J. Andrelunas	S.J. Cripps	B.M. Harder	Y.B. Liu	D.A. Roberts	S.R. Varanasi
S. Aryan	E. D'Souza	C.W. Harms	M.H.A. Mady	S. Rudenja	C.M.I. Venturi
G.T. Ash	D.S. Dalrymple	P.O. Hartmann	D.S. Magnusson	R.D. Schapf	J. Viramontes Perez
P.F. Ast	J.P.B. DeBenedet	K.D. Hay	F.V. Manarin	M.J. Schmalz	W. Wang
L.M. Ataya	L. Desgagne	L.E. Hebert	W.J.C. Manning	J. Senechal	C.D. Webster
D.M. Baliad	V.B. Divekar	M.V. Hibbert	R.L.O. Marohn	J. Shao	J.A. Wiebe
J.T. Bannard	Y. Du	D.I.S. Hisanaga	J.W. McCreary	K.M. Shaw	R.J. Wilson
S.T. Bayer	O.M.S. Eissa	V.W.L. Ho	T.G. McFeron	C.J. Slama	S.S.Y. Wong
S.A. Bdour	D.D.J. Ellis	B.E. Holowick	N.Z.S. Mekhail	J.D. Small	V. Wong
D. Begovic	T.L. Findlay	M.J. Hunt	J.J. Melendez	J.A.J. Smith	B.C. Wood
C.J. Bell	C.A. Fisher	T.D. Inkpen	T.W. Middleton	M.A. Soiferman	P.B. Wozniak
D.B. Bernardin	M.B. Fisher	S. Jayakody	R.G. Millar	A.R. Sribniak	C.M. Wren
M.A. Bhajji	S.L. Fisher	Z. Jefic	L.A. Misura	M.A. Starzynski	J.H. Wu
G. Boci	Y. Fraiter	R.A. Jenkins	S.C. Mudun Kotuwage	T.F. Stein	Q. Yan
A.D. Boettcher	K. Gaglo	G.A. Jimenez Yamasaki	G.B. Nickel	K.E. Stienstra	K.J. Ye
D.A. Bossons	M.K. Gajda	C.M. Kan	R. Olaviaga	M.J. Stobart	S.S.A. Younan
F. Bourget	S.E. Gamble	T.L.P. Kempers	M.R. Paetkau	K.A. Sukhoy	N.G. Zavitz
J.C. Carter	A. Ghoneim	R.H. Khattak	S.J. Page	T.J. Sutherns	C. Zhang
J.L. Carter	T.D. Gibson	S.J. Kim	N.C. Peach	H.P. Sweeney	Q.B. Zhang
R. Castano	G. Glogowski	E.L. Kirsh	J.A. Peters Dechman	W. Tessler	Y.K. Zhou
G.C. Chan	J.F. Gonzalez	X.B. Kou	S. Piche	G. Thomas-Vargas	
M.S. Chana	D.B. Gray	M.S. Kozarsky	M. Ponnampalam	W. Tian	
A.M.H. Chau	R.L. Gribben	R.M. Lalonde	D. Popa	J.W.Y. Ting	
J.P.J. Chiasson	D. Grujic	W.W.L. Lau	D.A. Prescott	D.C. Toop	

Certificates of Authorization

AP Promotes Manitoba Inc.
 Britespan Building Systems Inc.
 Cameron Structural Engineering Consulting Inc.
 Computerized Structural Design, S.C.
 Engineering Link Incorporated
 Eramosa Engineering Inc.
 Ferguson Corporation
 Focus Corporation
 Hall Engineering Co. Ltd.
 HDK Consulting Incorporated
 Hogan & Greenfield Design/Build Ltd.
 Ibsasa Enterprises Inc.
 Jablonsky, Ast and Partners
 Kirkham Geosystems Ltd.
 LCI Engineering Inc.
 M.V. Shore Associates (1993) Ltd.
 North American Foundation Engineering Inc.
 Northern Crane Services Inc.
 R2 Resource Consultants, Inc.
 Revelstoke Design Services Ltd.
 Ryall Engineering Limited
 SKC Engineering Ltd.
 Steenhof Building Services Group
 TNAI Engineering Ltd.
 Transmission Design Consultants (TDC)
 TWS Engineering Ltd.
 Valentin Engineering Ltd.
 VAW Systems Ltd.
 Webster Structural Engineering Inc.
 Westman Steel Industries o/a Canada Culvert

Members-in-Training

F.S. Adri Putro	K.J.B. Dick	W. Li	J. Shao
I.S. Agu	B.S. Dupont	X. Li	M. Shokri
W.S. Ahmad	T.A. Emadi	Z.X. Li	A.A. Smith
J.J. Aird	C.M. Escobedo	A. Majeed	S. Soleymani
O.W. Akano	C.O. Etuk	M.P. McMahon	K.D. Stockwell
J.A.J. Albo	J.M. Fehr	R.J. McMillan	Y.I. Sukhorukov
M.S.J. Alzamer	B.S. Friesen	F. Mosallat	D.B. Trenchard
A.Y. Aming	J.G. Fris	N.R. Moscovitch	L.T. VanderVegte
E. Anema	D.M. Gowryluk	S. Neduvattakeril	K.R. Vishwakarma
A. Azarbarzin	M.A.G. Grafeneder	Shanmughan	J.K. Vokey
K. Badubi	N.L. Gurova	K.J. Neufeld	E.N. Whitmore
R.A.C. Boresky	M.A. Hamilton	K.R. Novakowski	S.G.W. Withthige
E.L. Boscov	K.K. Hargreaves	J.W. Oakes	M.C.Y. Wong
J.A. Briones Fullante	R.G. Hernandez	C.W. Otto	J. Wu
J.M. Brown	S.R. Hildebrand	S.P. Pantel	M.E. Wushke
D.H. Caballero	J.W. Illott	S.J. Peters	I. Yahyaie
E.D. Cabana	S.M. James	B.W. Pierce	B. Zhang
B.W. Carels	S.G. Jozwiak	S. Prabhakaran	Q. Zhao
H. Chen	N.M. Kesler	T.S. Reeve	
H. Choi	A. Khorsand	K.D. Rutherford	
J.D.A. Cid	L.A. Kirton	M. Safari	
J.S. Conrad	A.A. Kishk	R.J.C. Samadan	
J.A. Crocker	V.M. Krahn	D.P. Seidel	
N.E. Dewar	B.J. Laidlaw	F.H. Serafin	
B.V.F. Dick	P. Lakshminarasimhan	A. Shafullah	

Licensees

R. Barac	J.L. Fennema	R.L.J. Kluzak	S. Vala
J.E. Fee	C.M. Franklin	Y.M. Moehlenkamp	

Annual General Meeting

The 2013 Annual General Meeting of the Association of Professional Engineers and Geoscientists of the Province of Manitoba will be held on Friday, October 25, 2013 at the Fort Garry Hotel, 222 Broadway, Winnipeg, MB.

Nominations for Election to the APEGM Council

The Nominating Committee of APEGM requests recommendations from members and members-in-training for nominees who they consider to be qualified to participate in the governance of the Association and who are willing to so serve the engineering and geoscience professions in Manitoba. There will be four professional engineer positions, one professional geoscientist position, and one member-in-training position to be filled as of October 2013.

The Committee will consider recommendations received by the

secretary up to the close of business on Friday, September 13, 2013. In the event insufficient recommendations are received, the Committee may exercise its prerogative to put forward a slate of candidates for election that is equal to the number of positions to be filled. Persons submitting a recommendation are required to obtain the consent of the professional member being recommended and to provide a curriculum vitae or biographical sketch.

Members can also be nominated directly and be on the ballot for the 2013 election by the completion of the prescribed nomination form. The form can be obtained from the Association office or from the website at www.apegm.mb.ca/NominationsForCouncil.html. The consent of the nominee must be obtained.

By-Law Changes

By-Law 17.1 prescribes that any proposal to introduce new By-laws, or to repeal or

amend existing By-Laws, must, unless initiated by the Council, be signed by not fewer than six members. Proposals must be given to the secretary at least 42 days before the meeting. In this case, the date for the receipt of a proposal is Friday, September 13, 2013.

Resolutions

By-law 5.1.4 prescribes that resolutions put forward at an Annual General Meeting must be in writing, signed by the mover and seconder, and received by the Secretary no less than 48 hours prior to the commencement of the meeting. Either the mover or the seconder must be present in person or by distance conferencing at the meeting for the resolution to be considered.

Grant Koropatnick, P.Eng.
Secretary

Overcoming Barriers to Successful Employment for Internationally Educated Engineers

Dr. Sandra Ingram gave a Professional Development talk entitled "Overcoming Barriers to Successful Employment: An Exploratory Study on the Role of Cooperative Education Programs in Enhancing the Career paths of Internationally Educated Engineers" on February 21, 2013. Dr. Ingram is an educational sociologist by training and much of her research is related to underrepresented groups in engineering, such as women, aboriginals, and international engineering graduates.

The study that was the primary focus of her presentation was related to the participation of international engineering graduates (IEGs) in a practical work experience co-op

program, as part of their enrollment in the IEEQ program in the Faculty of Engineering at the University of Manitoba in 2010. The study involved focus groups with IEGs both before and after a four month co-op program, as well as with their supervising employers. It was found that the areas that the international graduates tended to struggle with were social/cultural norms and interactional styles more than the technical aspects of the work. The findings of Dr. Ingram's research showed that the co-operative program had significant value in establishing networking and mentorship opportunities and instruction in cross cultural differences, and thereby allowed the IEGs to develop more 'social capital'

in their Canadian engineering work experience. Given that seven out of 12 of the new accreditation requirements for engineering programs are non-technical or professional skills, it is important that internationally trained engineering graduates are provided with opportunities to develop these skills. The participating international graduates felt that the co-operative education program was beneficial. Participation in such programs may be a way to reduce barriers that IEGs face when securing relevant employment in their newly adopted country.

If you are interested in hearing more about this work or Sandra Ingram's other research, you may contact her at sandra.ingram@ad.umanitoba.ca.



ACEC-MB Awards of Excellence

On Wednesday, April 17, 2013, the Association of Consulting Engineers of Manitoba (ACEC-MB) hosted the 2013 Manitoba Awards of Excellence in Consulting Engineering Gala Dinner and Awards. This was the 14th consecutive year for the event and the 35th anniversary for ACEC-MB (formerly CEM).

Representatives from government, industry and the business community joined Manitoba's consulting engineering community in celebrating the outstanding contributions to society made by consulting engineers.

The goal of the Awards of Excellence Program is to encourage Manitoba's consulting engineers to be creative, and to strive for excellence in all they do. The event informs the public that standards of excellence exist and are being met in Manitoba.

This year, 28 projects were submitted in the following award categories: Building Engineering, Infrastructure/Transportation, Municipal and Water Technology, Environmental, Industrial and Energy Resource Development.

The projects are evaluated by an esteemed judging panel of industry leaders and in keeping with the program's mandate of honouring excellence in engineering, projects must meet a minimum standard to be selected for an award. The submission that best represents the program's standards of excellence will be presented with the prestigious **Keystone Award**.

ACEC-MB also presents three individual awards to exceptional Manitoba Consulting Engineers that have been chosen from colleague submissions and voted on by the ACEC-MB Board of Directors.

The Engineering Action Award will be presented to an engineer in recognition of his or her volunteer activities for outstanding service and dedication to the association, the Canadian consulting engineering profession and the community.

The Rising Star Award will be presented to an engineer in recognition of his or her exceptional achievements in the early years of their career. The final individual award is The Lifetime Achievement Award presented to a Manitoba engineer in recognition of his or her leadership, achievements and contributions to consulting engineering.

2013 Award Winners

Keystone Award

Winnipeg James Armstrong Richardson International New Air Terminal Building & Central Utilities Building Upgrade – SMS Engineering Limited

Awards of Excellence

Winnipeg James Armstrong Richardson International New Air Terminal Building & Central Utilities Building Upgrade – SMS Engineering Limited

Rankin Inlet Mens' Correctional Healing Centre – Accutech Engineering Inc.

Winnipeg's First Rapid Transit Corridor – Southwest Transitway – Dillon Consulting Limited

Disraeli Bridges Project – Tetra Tech
Red River Floodway Inlet Control Structure Trunnion Anchor Replacement – KGS Group and SNC Lavalin Inc.

GE Aviation Engine Testing, Research and Development Centre – KGS Group and MCW/AGE

Awards of Merit

Richardson College for the Environment – SMS Engineering Limited

Osborne Street Bridge Rehabilitation and Widening – Tetra Tech

Red River Floodway Inlet Control Structure Mechanical and Electrical Upgrades – KGS Group and SNC Lavalin Inc.

Headingley Wastewater Treatment Facility – Stantec Consulting Ltd.

Lake of the Prairies Spill Response – AMEC

Pointe du Bois Spillway Replacement Project, Eco-Hydraulic Studies – KGS Group

Colonsay and K3 Greenfield Substations: 230 kV GIS and 15 kV Distribution Systems – Hatch Ltd.

Vanscoy 138kV Power System Project – SNC-Lavalin Inc.

Individual Awards

Rising Star Award:
Kimberly Yathon, P. Eng. Tetra Tech Inc.

Engineering Action Award:
Ron Typliski, P. Eng. AECOM

Lifetime Achievement Award:
Tim Stratton, P. Eng., FEC Stantec Consulting Ltd.

“The goal of the Awards of Excellence Program is to encourage Manitoba's consulting engineers to be creative, and to strive for excellence in all that they do.”

Obey the Laws of the Land

Our Code of Ethics has a canon that requires all of our practitioners to “obey the laws of the land.” At first glance, this might seem like a self-evident requirement. However, this topic has been a contentious issue for our disciplinary process.

Doubtless, there are many members who expect that all APEGM practitioners should be ‘law-abiding citizens.’ It might surprise these members, then, when they find out that members who fail to obey the laws of the land are not always disciplined. Does this mean our system has flaws? To answer this, we need to examine the purpose for having this, our first, canon.

One potential purpose of having this canon is to ensure that the public retains a high level of confidence in the profession. Anytime there is a string of media stories regarding a member of a profession that has broken the law, the public’s perception of that profession is diminished. Take, for example, Harold Shipman, who was a medical doctor in the U.K. that was convicted of fifteen counts of murder. Mr. Shipman was labelled ‘Dr. Death,’ which clearly creates a black mark for the medical community and adversely affected the public’s opinion of doctors.

However, APEGM has a canon that requires practitioners to “uphold and enhance the honour, integrity and dignity of the engineering and geoscientific professions.” The language of this canon speaks to the potential purpose of Canon 1 I described above. If the purpose, then, of Canon 1 is to avoid black marks on the professions that may be caused by stories in the media, then it would be redundant when considering Canon 4.

Another potential purpose of Canon 1 relates to a principle that I’ve described before; that of good character. It is my

“Anytime there is a string of media stories regarding a member of a profession that has broken the law, the public’s perception of that profession is diminished.”

opinion that when a member fails to obey the laws of the land, their actions are potentially an indication that they lack the good character expected of a professional. This is not to suggest that a minor infraction, such as traffic act violations, should result in disciplinary action. However, major criminal acts, such as sexual assault, speak to the character of the individual.

Historically, APEGM has not disciplined members for breaking the law unless the infraction related specifically to the practice of engineering or geoscience. For example, in the years that I have been in this role, there have been three members that were issued formal cautions for practising architecture, which is a violation of the Manitoba Architects Act. These violations clearly involved the offering of services by the member. The Investigation Committee therefore provided direction to these members regarding the expected standard as it pertains to the grey areas between architecture and engineering.

In other cases where a member has been accused of breaking the law, the Investigation Committee has occasionally recognized that the alleged violation has not been proven. Since it is not the role of APEGM’s Investigation Committee to enforce regulations and acts other than the Engineering and Geoscientific Professions Act of Manitoba, the Investigation Committee has, in these cases, informed the complainant that the matter will not be reviewed until such time as the alleged

violation has been confirmed by the proper authority.

What about cases, though, where the violation by a member is removed from the place of practice? To date, the Investigation Committee has determined that these are not issues that the APEGM disciplinary process should deal with. The philosophical reasoning is that a person should not be punished twice for the same offence. As an example, consider that the most severe punishment that the Association can administer is that of striking a member from the roster, which would mean that the person has lost their livelihood. Is it just for someone to be punished both with time and jail as well as a loss of their income?

Despite this well-considered position, other regulators have determined that some types of criminal acts are worthy of disciplinary action. They have even gone so far as to explicitly define certain criminal acts as being crimes of moral turpitude. For those regulators, a member convicted of murder would face disciplinary actions, while a member convicted of breaking and entering would not.

One of the principles of self-regulating professions is that the membership determines the standard to which all are expected to abide. So, what do you think? Should members who are guilty of certain crimes be disciplined even when that act was conducted outside the workplace? If you found out that a member was guilty of extortion, for example, would it trouble you to know that no disciplinary action was taken? ☩

The *Keystone Professional* wishes to thank the following companies and organizations for their advertising support. Please think of them when you require a product or service. We have tried to make it easier for you to contact these suppliers by including their telephone numbers and websites. You can also go to the electronic version at apegm.mb.ca and access direct links to any of these companies.

Company	Page	Phone	Web address
AMEC	26	204-488-2997	www.amec.com/careers
ASPER School of Business	11		www.umanitoba.ca/asper/mba
Birchwood BMW	20	204-793-6980	www.chrisbrowncars.com
Bockstael Construction Limited	16	204-233-7135	www.bockstael.com
Christie's Office Plus	23	204-489-3989	www.christiesop.com
Cima+	28	204-257-2462	www.cima.ca
Construction Safety Association of Manitoba	4	204-775-3171	www.constructionsafety.ca
CTTAM	36	204-784-1088	www.cttam.com
Daco Piling	23	204-392-5122	www.getdaco.com
Garrett Agencies Ltd	13	800-661-3300	www.garrett.ca
GENIVAR	28	204-477-6650	www.genivar.com
Hayles Geoscience Surveys Ltd.	23	204-482-5249	www.haylesgeoscience.ca
Inland Pipe	3	204-334-4300	www.lehighhansoncanada.com
Joro Consultants Ltd.	35	204-786-9015	www.joroconsultants.com
L. Chabot Enterprises Ltd.	7	204-224-1565	www.chabotenterprises.ca
Lewis Instruments Ltd.	9	800-883-9984	www.lewisinstruments.com
M&L General Contracting Ltd.	2	877-907-2612	www.mlgeneralcontracting.com
Manulife Financial	17	877-598-2273	www.manulife.com/kp
Newton Mechanical	12	204-415-1052	www.newtonmechanical.com
Notarius	9	888-588-0011	www.notarius.com/apegm
Titan Environmental Containment Ltd.	15	866-327-1957	www.titanenviro.ca
WSJ Insurance	20	204-944-1929	

To reach professionals through *The Keystone Professional* magazine and its targeted readership, contact Darrell at your earliest convenience to discuss your company's promotional plans for 2013.

Darrell Harris, Marketing Manager

E-mail: darrell@kelman.ca **Phone:** 877-985-9793 **Fax:** 866-985-9799





599 Portage Avenue, Winnipeg, Manitoba, R3B 2G3 | (204) 786-9275 | www.joroconsultants.com

Joro Consultants Inc. is a Canadian-owned and operated environmental consulting firm focused on environmental and biological research and monitoring. Our mission is to provide innovative and efficient services to address industrial environmental issues through mitigation and monitoring solutions.

Joro provides clients with a wide range of services including:

- Environmental field studies, surveying, and monitoring programs
- Wildlife monitoring, aerial/ground surveys, and telemetry
- Habitat assessments
- Wildlife population modelling
- Traditional ecological knowledge acquisition
- Geomatics, spatial data analysis, and mapping
- Cumulative effects assessments



Joro is also pleased to offer ALCES®, a landscape cumulative effects simulation tool for land-use planners. Joro, as a corporate affiliate with the ALCES Group, provides innovative solutions to land-use planning and cumulative effects assessment in Manitoba. ALCES is a strategic-level simulation tool intended for use by planners, resource managers, the scientific community, industry, and the general public to assist them in making sustainable land-use decisions. ALCES allows diverse stakeholders located in municipalities and other jurisdictions, to explore the economic, ecological, and social considerations of different land-uses on specific landscapes.

For more information on ALCES, please see www.alces.ca.

Please contact Joro Consultants at e.mccance@joroconsultants.com for more information about our services.





CTTAM

Certified Technicians and Technologists
Association of Manitoba

C.E.T.

CERTIFIED
ENGINEERING
TECHNOLOGIST

**The Technology
Professional**

THE CERTIFIED TECHNICIANS AND TECHNOLOGISTS
ASSOCIATION OF MANITOBA

www.cttam.com