

THE KEYSTONE PROFESSIONAL

Spring 2009

Inside this issue:

Electric Vehicles – Then and Now

APEGM Office - On the Move

VEHICLE SAFETY STANDARDS

Association of Professional Engineers and
Geoscientists of the Province of Manitoba
www.apegm.mb.ca



THE KEYSTONE PROFESSIONAL

SPRING 2009

Published by the Association of Professional Engineers and Geoscientists of the Province of Manitoba

870 Pembina Highway, Winnipeg, Manitoba R3M 2M7

Ph. (204) 474-2736 Fax (204) 474-5960

E-Mail: apegm@apegm.mb.ca

APEGM COUNCIL

D.D.J. Himbeault, P.Eng. (President); M.T. Corkery, P.Geo. (Past President); A.M. Aftanas, P.Eng.; A.M. Chapman; S. Dresen, RN; W.C. Girling, P.Eng.; R.M. Lemoine, P.Geo. B.R. Malenko, P.Eng.; I.J. Montufar, P.Eng.; R.A.S. Reichelt, P.Geo.; C. Rodych, BID; E.M. Ryczkowski, P.Eng.; B.L. Shortt; D.N. Spangelo, P.Eng.; J.C. Woods, P.Eng.

CHAIRS – BOARDS & COMMITTEES

| | |
|---------------------------|---------------------------------------|
| R.J.J. Hermann, P.Eng. | Aboriginal Professional Initiative |
| D.S. Jayas, P.Eng. | Academic Review |
| A.D. Erhardt, EIT | Communications |
| D.N. Spangelo, P.Eng. | Discipline |
| D. Grant, P.Eng. | Emerging Issues |
| G. Lodha, P.Geo. | Environment & Sustainable Development |
| E.G. Phillips, P.Eng. | Experience Review |
| R. Matthews, P.Geo. | Geoscience Issues Task Force |
| D. Chapman, P.Eng. | Heritage |
| A.E. Ball, P.Eng. | Investigation |
| D.N. Spangelo, P.Eng. | Legislation |
| P. Kochan, P.Eng. | Sports & Social (MLEC) |
| D.S. Jayas, P.Eng. | Nominating |
| W.T. Jackson, P.Eng. | Professional Development |
| J. Rooney, P.Eng. | Public Awareness |
| K.J.T. Kjartanson, P.Eng. | Registration |
| F.A. Roberts, P.Eng. | Safety |
| S. Quigley, P.Eng. | Salary Survey |
| L.M.K. Melvin, P.Eng. | Women's Action Committee |
| D.A.J. Ennis, P.Eng. | CCPE Director |
| G.M. Ostry, P.Eng./P.Geo. | CCPG Director |
| S.J. Peter, P.Eng. | Kelsey Chapter |
| J. Hilchey, P.Eng. | Thompson Chapter |
| D.G. Ford, P.Eng. | Westman Chapter |

APEGM STAFF

G. Koropatnick, P.Eng., Executive Director & Registrar;
 S.E. Sankar, P.Eng., PE., Director of Admissions;
 M. Gregoire, P.Eng., Professional Standards Officer;
 W. Boyce, Manager, Operations & Finance; L. Dupas, Admissions Coordinator;
 A. Moore, Events & Communications Coordinator; S. Bruce, Accounting & Membership;
 M. Polson, Registration Coordinator; C. Camara, Receptionist;
 A. Reddoch, Programmer; C. Shymko, Assessment Officer; J. Tenszen, Events Assistant

COMMUNICATIONS COMMITTEE

A.D. Erhardt, EIT, Chair; H.A. Buhler, EIT; P.H. Boge, P.Eng.; D.J. Etcheverry, GIT;
 R. Foster, P.Eng.; R. Garcia, EIT; D.H. Grant, P.Eng.; E.P. Hancox, P.Eng.; A.N. Kempan, P.Eng.;
 S. Mayadevi, EIT; C.J. McNeil, P.Eng.; M.R. Minhaz, EIT; R. Song, EIT; S.B. Williamson, P.Eng.

- The Communications Committee would like to hear from you.
- Comments can be forwarded to us by email: commfeedback@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.

Front cover photo by Leif Anderson.
 Leif Anderson is an amateur photographer in Winnipeg, MB, who is slowly being pulled into the world of professional photography. He has been strongly involved in the hobby for eight years and is captivated by the depth of the craft.

| | |
|----|----------------------------------|
| 3 | President's Message |
| 4 | Engineering Philosophy 101 |
| 5 | Executive Director's Message |
| 7 | Thoughts On Design |
| 9 | Engineers Canada CEO Message |
| 12 | Council Reports |
| 14 | APEGM Networking Dinner |
| 25 | The Brown Sheet |
| 10 | APEGM Office - On the Move |
| 16 | Electric Vehicles - Then and Now |
| 20 | Vehicle Safety Standards |

FEATURES



Don Himbeault, P.Eng.
President's
Message

ARE WE DOING ENOUGH?

As I write this, I have just completed a mandatory on-line course to verify that I understand my employer's independence policies with regard to what I can hold as financial interests. Those that work in the financial services world will know the regulatory environment is getting a lot more complicated, and many new measures are being put in place to ensure that people in a position of trust are independent in their actions and statements. These measures are taken seriously, in that tracking systems are in place, infractions are reported to governing authorities, and termination of employment can result for employees who don't comply with the rules. Thus, it was a sigh of relief when I got a passing grade on the course.

Then, I think about the reporting requirements with regard to the Engineering and Geosciences professions in our province. What are we doing

to assure that our professionals are practicing with competence and that the public is protected? After all, for many of us, our work product has a direct or indirect impact on the physical safety and well being of the public, which certainly ranks in importance with the integrity of our economic system. Currently at APEGM, we have our Code of Ethics and the annual compliance signoff that ensures that our members are maintaining their competency. Is this enough?

Council has been considering our status relative to the systems in place or being planned in the other Canadian Engineering and Geoscience Associations. It is evident we are trailing behind, and Council agrees in principle that some action is required to enhance our system. Being a self regulated profession, we have the luxury of deciding what this system will look like, but

this also raises the challenge in reaching a consensus on what form this will take, as I'm sure there will be many different views. Of note is that with the upcoming rollout of the new APEGM website, with member sign-in and on-line capabilities, there is the potential to implement an easy and convenient system.

Consultation with the membership is planned and will be an important part of this process. Watch for information sessions, forums, or other means used to reach out to members. Your input is welcome and encouraged, since in the end, the system is there to serve us.

Our work is important, and in a direct or indirect way, has an impact on the well being of the public. We should give it with the attention it deserves. ■

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 three professional engineer positions and one professional geoscientist position to be filled as of October 2009.

The Committee will consider recommendations received by the secretary up to the close of business on Friday, September 11, 2009. 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 2009 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/practice/infomem/nominations.html. The consent of the nominee must be obtained.

Grant Koropatnick, P.Eng.
Secretary of Council

Engineering Philosophy 101

Who Knows Who We Are?

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

A recent Scientific American article reported on a survey of school children. The statement that caught my eye noted that "... some 85 percent of kids surveyed ... said they were interested in science, technology, engineering and mathematics." However, "... nearly two-thirds polled said they may ultimately pursue other professions because they don't have a mentor or understand what's involved in a science, math or engineering career." The journalist went on to note that this was "... hardly surprising" noting that in the past most "... science-talent contest winners" that she profiled "... had mentors."

This last comment struck home because last week my two youngest grandsons both came to me for ideas, and assistance, for this year's science fair projects. Both of them are now doing preliminary work on "engineering" projects. I guess that makes me a "mentor", but I will have to wait to see if I can claim to have had any effect.

We conduct surveys with our first year engineering students each year to try and determine why they decided to enter the Faculty. Advice from parents, grandparents, uncles, and aunts are the most frequently cited influences. Neighbors and friends of the family are the second largest group. Further, our surveys suggest that most of the people our students identify as their sources of information are engineers, work for engineers, or know someone who is an engineer.

Obviously these surveys are just that, surveys. But they do provide anecdotal evidence that students want something beyond the "you are good in math and science" or "you can make a lot of money" type of advice. And it seems logical to conclude that those who do not get direct advice about engineering careers are less likely to select engineering.

So the anecdotal evidence suggests that students need mentors to encourage them to become engineers. Mentoring, by its nature, is a relationship that requires individuals to come forward and make a commitment.

Organizations can facilitate the process, but it still boils down to someone doing something. SAE operates a program called World in Motion that provides economical,

hands-on, proven projects tied to the elementary school science curriculum. But it also requires an Engineer who will work with the teacher and the students. Again, this requires the direct involvement of a mentor.

While the evidence suggests that individual mentoring is very important, there is a danger in concluding that it is THE solution to encouraging more young people to seek out careers in engineering. Our University of Manitoba surveys of Engineering students have identified family, friends, and neighbors as the most important people students rely on for advice. If those individuals happen to be "engineering friendly" then there is a good chance they

will encourage students to consider engineering. But what about the family, friends, and neighbors who have no understanding of who we are, or what we do? Where do they get their information to help the students in their lives make career choices?

Targeted awareness efforts, like National and Provincial Engineering Week and the Engineers Canada advertising campaign, are important vehicles in reaching people who are not familiar with "our" world, but they can be seen as "self serving". The public is very cynical about advertising and public relations campaigns.

Would it help to publish regular "expressions" of pride in our profession and the accomplishments of our members? Law offices and Accounting firms regularly run small ads in the Business section of newspapers announcing the hiring of new graduates and congratulating staff members who have been called to the bar or have passed their CA exams. Their Associations regularly advertise the list of individuals who have met some milestone or other.

Does this sort of information do anything more than send a message that these professions exist, they are populated with people who have accomplished something, and they keep employing new graduates? Does it also provide people from outside those professions, particularly those who advise students regarding career choices, with a contact to find a mentor, or at least some information? Or are we the only profession in which potential students require mentoring?

“If you don't know where you are going, you might wind up someplace else.”



Grant Koropatnick, P.Eng.
Executive
Director's Message

CONFRONTING THE STEREOTYPES

We don't like stereotypes. In general, there are many out there to be encountered. They can sometimes bias our opinion of others in a negative way. This is true of engineers.

How many times have you been accused of being boring, cheap and too analytical? Sadly, more often than we care to admit. I'm not out to compile a list of all the slanderous stereotypes of engineers, but these three come to mind.

So how should we confront these stereotypes of our profession? The good folks from AA would say that step one for solving any problem is admitting that you have a problem. So, for the sake of this article, let's admit that we have a problem: sometimes, John and Jane Doe in the public think we're boring, cheap and a bit too analytical. How should we respond? Consider the following:

FUNKY NOT BORING

When we sat down with the interior designers from Ideate Design Consultants to create a layout for the new office, I remember saying, "I don't want this place to be boring." I further said, "I want the space to be high-tech and funky." Now the word "funky" is NOT typically associated with engineers. High-tech maybe, but definitely not funky.

I think I surprised them, but as you can see from our new office, they met the challenge famously! I hope you agree that our new office has a high-tech and funky look. One courier came in and asked, "Can you tell me where the engineer's office is?" He didn't recognize us... the high-tech and funky engineers.

GENEROUS NOT CHEAP

On a recent trip back to Winnipeg, I hopped into a taxi at the airport and got a surprise. My cab driver was not what I expected. Instead, his image conjured up memories from an old movie: a crusty old guy, with stubble on his face, smelling of nicotine, thick horn-rimmed glasses and a ragged ball cap on his head. He barked out: "Where are we going?" I gave my usual answer: "St Vital... near the park."

When he asked for the name of my street, I knew this guy was different. He actually knew my street. He said he used to live nearby. Normally, my cab ride costs me \$30 bucks, but this guy took all the short cuts and got me home and the meter registered only \$25.40. When I told him to write it up for \$30 bucks, he exclaimed, "Well, thank you very much." I was tired, glad to be home and feeling generous toward this old soul.

After signing the chit and returning the paperwork to him, he jumped out and grabbed my bags from the trunk and said to me, "You're an engineer aren't you?" I said, "Oh, is it obvious?" He said, "Sure... the iron ring!" I thanked him for noticing and wished him a good evening. It made me glad I had given him a nice tip in advance. My suggestion: the difference between a good tip and a great one is often a mere loonie or twoonie. So give that extra buck or two and be generous not cheap.

CRAZY SMART

Did you see the Ford truck commercial that ran during the Super Bowl? The one where engineers were referred to as "crazy smart"? If you missed it, go to

YouTube and search for "2009 Ford F-150 Crazy Smart." Like many Super Bowl commercials, this one is a great one. In an efficient 30 seconds, engineers get mentioned in a very positive way.

It's too bad we don't get more recognition like this in the mass media. However, the ad went on to explain how everyone cheated off the engineers in science class; how the engineers designed a truck with great gas mileage, increased horsepower and utilized "A+ thinking". I should confess that I drive a Ford truck, but regardless of my bias, this ad made me proud to be an engineer.

I realize that it is not easy to change stereotypical thinking, but I am committed to doing my utmost to make a difference each day. Join with me in celebrating our professions with some added style, generosity and friendly intelligence.

Your feedback is invited and always welcomed. If you have any thoughts on anything you read in the KP, please email me at apegm@apegm.mb.ca or message me through Facebook. ■

Attention APEGM Members: Interview Panellists Wanted

S. Sankar, P.Eng.

APEGM is seeking senior professional engineers and geoscientists to help conduct interviews of internationally educated engineering and geoscience graduates. We need a wide variety of people with different disciplines and sub-disciplines because applicants must be matched as closely as possible to the interviewers.

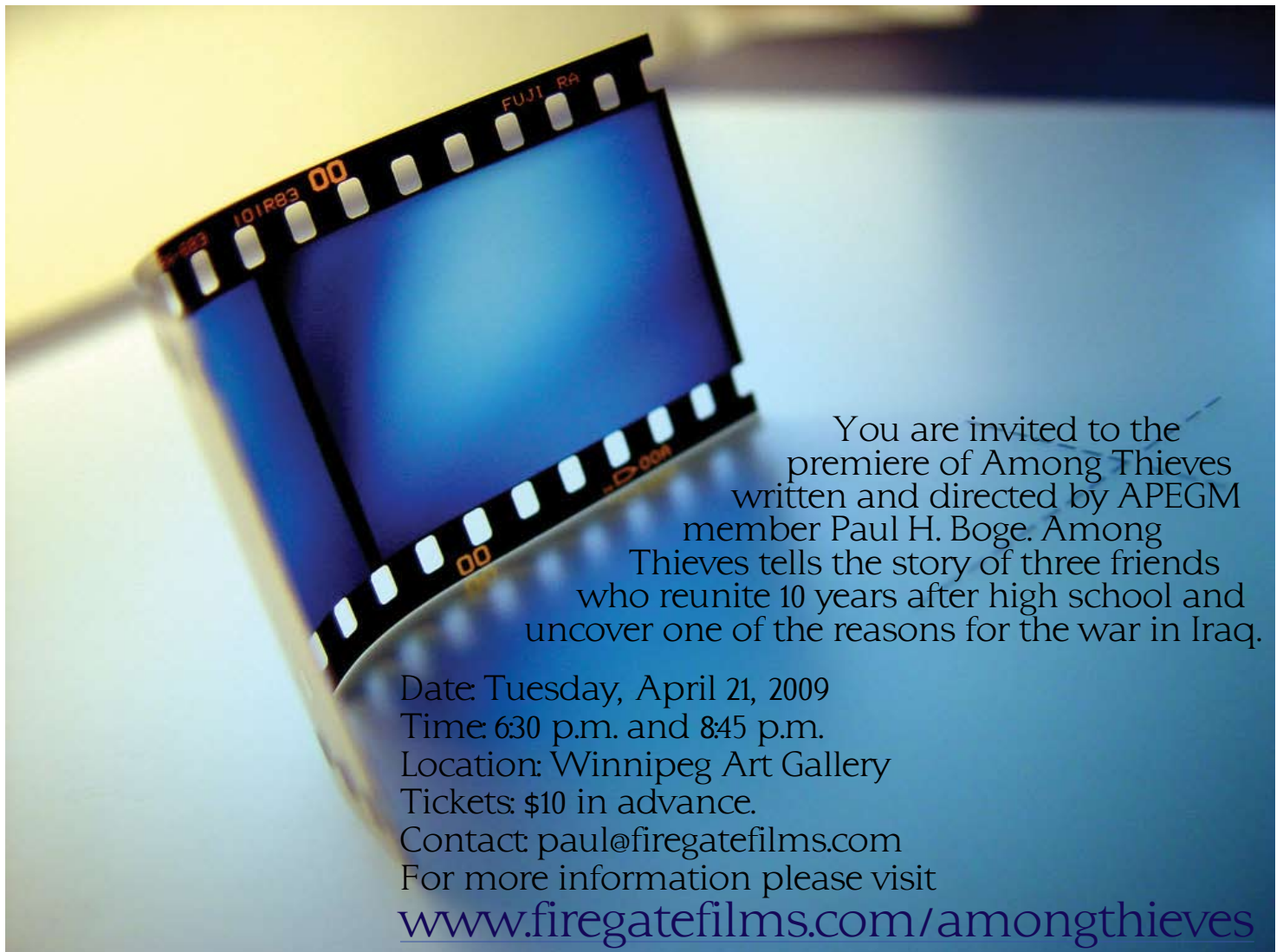
To sign up, please submit your name and discipline to APEGM, ideally with a current curriculum vitae or other evidence of at least 5 years of relevant experience in your field. You must be a registered member in good standing with APEGM.

If you are asked to serve on an interview panel and if you are willing and able to serve at that time, you will be asked to study the applicant's submitted information and then participate in the interview itself. Typically, the interview takes place over a lunch hour with panellists meeting one hour

earlier to discuss interview procedure and ½ hour later to formulate the recommendation. Lunch will be provided to the panellists.

I hope you will consider this terrific volunteer opportunity, as this is a way to find out more about how APEGM works, help your fellow future engineers and geoscientists and learn how engineering and geoscience is done around the world. Interviews are 'one-shot' deals. You are not required to come to monthly meetings and you participate only when requested.

If you are interested in being included on this volunteer list, please contact Sharon Sankar, P.Eng., Director of Admissions at ssankar@apegm.mb.ca and use the subject header: Interview Panellist. ■



You are invited to the premiere of *Among Thieves* written and directed by APEGM member Paul H. Boge. *Among Thieves* tells the story of three friends who reunite 10 years after high school and uncover one of the reasons for the war in Iraq.

Date: Tuesday, April 21, 2009
 Time: 6:30 p.m. and 8:45 p.m.
 Location: Winnipeg Art Gallery
 Tickets: \$10 in advance.
 Contact: paul@firegatefilms.com
 For more information please visit
www.firegatefilms.com/amongthieves



M.G. (Ron) Britton, P.Eng.
Thoughts On
Design

. . . AND THE “WHOLE MEAL DEAL”

I have become involved with an international organization that operates under the title CDIO. The initials stand for Conceive, Design, Initiate and Operate. The objective of this group is to define and support Engineering Education “structures” that produce graduates who have minimum difficulty making the transition from student to junior engineer.

The Syllabus and Standards CDIO espouses provide a comfortable “home” for me and my views on Engineering Education. As well, having access to like-minded people from all the continents of the world with whom I can share ideas and experiences should help minimize mistakes as we work to change the learning environment here at home.

Interestingly, this has also helped me, thanks to the unofficial sessions over a glass or two of processed barley, gain a better perspective on why there is so much debate over the definition of “design”.

Most of the original members of CDIO came from Mechanical Engineering. Their understandable focus was to find ways to make their graduates fit into the work-a-day world of manufacturing. Most companies, then and now, use engineers to develop ideas, make those ideas “buildable”, set up the manufacturing process and then make sure the process proceeds smoothly. So you have: Conceive, Design, Initiate and Operate.

However, under this manufacturing sequence, traditional Engineering input is most critical during the second step. This is where materials are selected, parts are sized and both inputs and outputs are

specified. Concepts need to be refined by Engineers, production initiation also requires technical understanding, and maintenance of a working system is founded on technical input. As a result Engineers have always shared steps one, three and four with others who have different types of background.

Maybe the subdivision of the technical tasks was/is a simple extension of the production line. If a machine was/is assembled by a series of individuals, each of whom provides “specialized” input, doesn’t it follow that the “Engineering” of that same machine can benefit from “specialized” input?

Regardless of the reasons behind the developments, from the prospective of “turf”, step two was the “Engineer’s world”, and since Engineers do “Design”, that must be what was/is happening in step two. So in the minds of many in the Engineering world, “Design” became defined as the “selection” and “sizing” of the parts needed for the final product.

But in other industries, for many reasons, the option for “over-the-wall” development was not workable. Often the groups responsible for “product” delivery were/are small enough that the few Engineers available became/ become involved in all four steps. For these Engineers, the “selection” and “sizing” component of the job was/is important, but they had/have to develop the concepts and deliver the final product as well. Again, in the finest tradition of “design is what Engineers do”, these individuals saw/see “Design” as all steps, from start to finish. Because they saw/see that the thought processes they used/use

are consistent throughout the project, the broader definition was/is seen as more reasonable.

Clearly the definition of “Design” is more important in the development of an Engineering curriculum that it is in the day-to-day operation of industry. Most employers are looking for graduates with a breadth of skills and abilities. Twenty-one year old “specialists” have limited value in most industries.

Engineering graduates should bring the “whole meal deal” of problem solving skills, practical understanding and professional attitude along with their fresh new degrees. As long as our academic programs graduate people with these characteristics, it doesn’t much matter how we define “Design”. ■

In Memoriam

The Association has received, with deep regret, notification of the death of the following members:

*Bruce Braaten
Dominique Borneuf
Mervyn Keys
Richard McComb
Vernon McGregor*

Brockhouse Canada Prize Winner

G. K. Andrejevic, EIT

The Brockhouse Canada Prize for Interdisciplinary Research in Science and Engineering recognizes outstanding Canadian teams of researchers from different disciplines who came together to engage in research drawing on their combined knowledge and skills, and produced a record of excellent achievements in the natural sciences and engineering in the last six years.

The Brockhouse Canada Prize competition is held annually. It supports Dr. Bertam Neville Brockhouse's vision of interdisciplinary teamwork and collaboration in Canadian research and celebrates the excellence he exemplified in his career. The prize is accompanied by a team

research grant of \$250,000 which may be used to support the direct costs of university-based research and/or the enhancement of research facilities. The grant may be distributed in one lump sum or up to five instalments, depending on the needs of the recipients.

This year, the prize goes to Drs. Digvir S. Jayas and Noel D. G. White for their integration of engineering, biology and mathematics to solve stored-grain ecosystem problems. A reception to celebrate their team's success was held at the University of Manitoba, February 25, 2009.

In addition to his role as Acting Vice-President of Research at the University of Manitoba, Dr. Digvir Jayas is a Biosystems Engineer and Past President of APEGM (2006). Congratulations Digvir! ■



Dr. Digvir Jayas, Brockhouse Canada Prize Winner



With your group you have privileges



FOR YOUR HOME, ENJOY THE BENEFITS OF PREFERRED RATES AND EXCEPTIONAL SERVICE

Thanks to The Personal and the Association of Professional Engineers and Geoscientists of Manitoba, you have access to home group insurance. Why not take advantage of it?

Get a quote: 1-888-476-8737

thepersonal.com/apegm



THE CHOOSE YOUR PRIVILEGE CONTEST

Imagine EXHILARATING ADVENTURES valued at

\$50,000

created exclusively for you!

SPORT PACKAGE

ENTERTAINMENT PACKAGE

To enter, request a quote. For contest details visit: thepersonal.com/privilegecontest

Certain conditions apply. Auto insurance is not available in Manitoba, Saskatchewan or British Columbia due to government-run plans.



Chantal Guay, P.Eng., M.Env.
Engineers Canada
CEO Message

MESSAGE FROM THE ENGINEERS CANADA PRESIDENT - RICHARD FLETCHER, P.ENG.

Our national association achieved much success in 2008. We moved forward on many initiatives focused on important issues such as labour mobility, strengthened strategic relationships, and launched our national promotional campaign.

We are now, with our Canadian Engineering Leadership Forum partners, setting the stage for the future through the planning of the national engineering summit *Leading a Canadian Future: The New Engineer in Society*.

To take place in Montréal from May 19 to 21, the summit will provide us with an opportunity to look at our collective future as a profession and how we can better achieve our vision even during challenging and changing times.

The importance and value of our profession's forward thinking was confirmed last month. Our Inter-Association Mobility Agreement, first signed in 1999 to allow professional engineers to expeditiously obtain a full licence in other Canadian jurisdictions without compromising public safety, was an important step to our profession being able to embrace the Labour Mobility Agreement signed on December 5, 2008, by Canada's labour and trade ministers.

This new agreement, to come into effect April 1, 2009, is intended to facilitate all licensed professionals to be recognized as qualified to practise their profession in all provinces and territories where their profession or occupation is regulated.

The commitment to the concept and work since 1999 to ensure national mobility for our profession

by the constituent members is to be commended. Engineers Canada is proud of its role in the evolution of the agreement and will continue to provide support through working with federal officials to assure that their government understands the engineering profession's leadership in addressing this and other nationally important issues.

Our work has not only had national success, but international as well. We have collaborated with many nations on issues pertaining to engineering accreditation in the interest of those systems respecting our system, as well as to a better understanding of the other systems and how they relate to ours. We recently participated in the World Engineers' Convention held from December 2 to 6 in Brasilia, Brazil.

The Convention included the 31st Pan American Federation of Engineering Organizations (UPADI), the organization of the western hemisphere engineering organizations annual meeting, and the meeting of the World Federation of Engineering Organizations.

As chair of the Federation's Committee on Engineering and the Environment, Engineers Canada is assuring world economies, and our federal government, understand the value of Canada's engineering profession as a leader in addressing environmental challenges.

Our Canadian Engineering Leadership Forum collaboration is also important in addressing the current challenging economic times. Recently, the Canadian Federation of Engineering Students issued the Ottawa Declaration strongly urging all levels of government to avoid

funding cuts to science and engineering programs.

We must have the professionals that graduate from these programs to support Canada in the future global economy. Engineers Canada and its constituent members need to be active in support of this request as our governments deal with their declining revenues and desire to create immediate economic stimulation. This is a matter that will require attention.

Looking ahead to our February 12 Board meeting to be held in Ottawa, we are currently preparing to discuss and approve the process for the needed review of Engineers Canada's strategic plan.

Our future plan must embrace the fact that the world is changing at an accelerated pace and ensuring relevance of the profession remains critical – requiring concerted efforts at the provincial and national levels.

The information that will be garnered through the national engineering summit will be an exceptional source of insight and should be the cornerstone of the process that will result in the development of a new shared vision for our engineering profession of the future.

This new vision then provides the perfect occasion to look at our strategic plan and to validate the organization's future direction. Engineers Canada is the organization of the 12 licensing bodies, and we need to continue to come together to look at how we as a group can identify and move the organization's strategic objectives forward to benefit all

continued on page 13



New APEGM Office - 870 Pembina Hwy

APEGM Office - On the Move

C. McNeil, P.Eng.

On Nov 28th 2008 APEGM moved their office to its new location and is now located at 870 Pembina Highway. Although

In the main lobby you will find touch screen displays with our web site and upcoming events.

The view from the lobby highlights the aesthetically pleasing use of curved surfaces in the design of the building and offices.

I recently spent some time with William Boyce, APEGM's Manager,

Operations & Finance, to get a tour of our new facilities and find out what it means to us as members and why the decision was made to move.

The new building was build and is owned by FWS Pembina Limited. They

were also the landlord at our previous location and APEGM has a long and strong relationship with them.

The association made the decision to move as we had outgrown our previous location. When APEGM started at the old location we had six staff members in a 3700 sq. ft office. Since then APEGM staff has grown to 11 full-time and one part time employee. This growth in staff was due to an increase in membership by about 1200 members and the addition of new program initiatives.

The new location is approximately 7200 sq ft and has 12 offices, 2 workstation areas and 3 conference rooms. The main conference room has technology such as a video projector, smart board and conferencing phones. This room has



Reception

just a couple of doors from their old location, the new building is worlds apart in functionality and design.

From the time you walk into the new building it has the air of professionalism.

From the reception area, to the displays in the lobby, the building reflects the professionalism that we are known for. The use of curved surfaces and the strategic use of art, displays and technology makes this an office that all APEGM members can be proud of.



Touch Screens



Front Lobby - View from Reception

a divider so it can be divided into two smaller rooms.

The office also has a full kitchen and is set-up with the ability to cater events. The office was designed to maximize functionality and security. It features a secure lockable sliding filing system for record storage and other features to keep information secure.

William tells me that with the new conference space APEGM can now host many of their own events instead of relying on outside locations. The location is designed to be actively used by our members instead of just being a place to drop off your yearly dues.



Main Conference Room

The offices themselves are designed to maximize natural lighting, as seen here in his office Grant Koropatnick, P.Eng., our Executive Director & Registrar.

The staff of APEGM would encourage all members to stop by and see the new office. An official ribbon cutting ceremony will be held at 11:00 a.m. on March 4, 2009 during Provincial Engineering and Geoscience Week, followed. ■



Grant Koropatnick, P.Eng., enjoying the sunlight

Council Reports

Thursday, December 4, 2008

A. Kempan, P.Eng.

This meeting was unique for several reasons. It was the first Council meeting in APEGM's new building, just after the association had made a rapid move into the new premises. The new location was a work in progress as evidenced by several workmen making last minute adjustments to the decor. Everyone was impressed with the spacious new meeting room and its advanced video capabilities.

However, the room had no tables or chairs, both of which were due to be delivered at any minute. Everyone made profitable use of the waiting time to meet and greet, but as time passed it became clear the furniture delivery was delayed. Lunch was available though, so Council had a stand-up meal in the new room. Mercifully, APEGM staff came up with a stack of dusty folding chairs which became the sole furniture item for the meeting. Councillors arranged themselves campfire-style on the folding chairs and the meeting started at 1:20 PM. Everyone bore the unusual circumstances with good grace, due in no small part to the Executive Director's unflagging sense of humor.

After introductions and approval of the agenda Councillor Malenko drew Council's attention to an article in the November 15, 2008 issue of the Winnipeg Free Press. The article contained comments made by a city councillor. Mr. Malenko thought those comments portrayed engineers in an unfavorable light and he wondered if the association should respond in some way. Council deferred the issue to later in the meeting.

Executive Director Grant Koropatnick took Council on an orientation session since this was the first meeting for new Councillors. APEGM's new video system was put to the test with an inspiring seven-minute video from Engineers Canada. The key message was "professional engineers see what others don't."

http://www.engineerscanada.ca/e/ne_media.cfm?nid=74&vid=1&keyword=#keyword#

The video was targeted at young people, to inform them about the profession and to encourage them to join the ranks. The Executive Director provided an information dump regarding APEGM operations: they had 5,585 members, of which 5,309 were engineers, and 276 were geos, and included life members and MITs. APEGM was one of 12 regulators, one that was unfairly regarded as "strict." APEGM had ten elected and four appointed Councillors and was a \$1.5 million operation. When the topic turned to APEGM committees, Councillor Reichelt asked whether the Geoscience Committee would disappear. Mr. Koropatnick said it would morph into something new.

Government relations were improving and monthly meetings with students were a possibility. Councillor Spangelo asked about the new fairness in registration act. APEGM was doing it right for years, so had nothing to fear in that regard. In addition, the fairness commissioner was a friend to APEGM. As far as daily operations were concerned APEGM had the finest staff

anywhere, Mr. Koropatnick said. They all wanted to accomplish the goals of the organization and have some fun doing it.

After the break, old fold-up tables were added to the room's furniture inventory so the meeting restarted in relative comfort, this time with chairs AND tables. Council turned to the important business of electing a Vice President and a member of the Executive Committee. Vice President came first. Keep in mind the successful candidate will serve as President next year. Two members were nominated, Councillor Spangelo and Councillor Woods. Mr. Spangelo declined to run so Mr. Woods emerged as Vice President.

The Executive Committee member position had more candidates; Councillors Girling, Spangelo, Ryczkowski, and Reichelt agreed to run. After the votes were counted Councillor Ryczkowski was declared a member of the Executive Committee. More positions were filled: Councillor Spangelo became liaison to the Engineering Architecture Joint Board and liaison with the APEGM Foundation fell to Councillor Woods.

Former Executive Director Dave Ennis had served with distinction for two years as APEGM's director with Engineers Canada and after a vote, Council extended his term with that organization for one year. One last recruitment task was left, who was to serve on the APEGM-CTTAM joint board? APEGM would help by compiling a slate of candidates.

The meeting was winding down when Council reviewed the action item list and the agenda for the next meeting. It was agreed that APEGM's Professional Standards Officer would provide a report at the next meeting. Monitoring reports were assigned to various Councillors for the next meeting.

The meeting returned to the respect for engineers issue brought up by Councillor Malenko at the beginning of the meeting. Councillor Woods thought a brief meeting with city Council might help clear the air. Mr. Malenko said it should be an association to do the talking as consultants could appear to be criticizing their clients.

Council conducted a self-evaluation of the meeting and gave itself a clean bill of health before adjourning at 4:45 PM. ■

continued from page 4, Engineering Philosophy 101

There is no singular solution to the problem of accessing students who feel uncertain about a career in engineering. But we need to broaden our approach. As a profession, we take pride in finding solutions to complex problems. Well, this problem is complex.

That old "philosopher" Yogi Berra once observed, "If you don't know where you are going, you might wind up someplace else." Think about it. If we don't recruit Engineering students, we won't have Engineering graduates. ■

Thursday, January 15, 2009

A. Erhardt, EIT

Following a brief lunch, President Don Himbeault called the meeting to order at 12:40 p.m. The agenda was quickly reviewed and accepted and things began with a presentation by Past President Tim Corkery about the latest possible revision to the Manual of Admissions. Past President Corkery indicated that the key to the Manual was that it conformed to the requirements as set out by the Engineering and Geoscientific Professions Act. The Manual is to be based upon the Act and the Bylaws that fall under the Act. There was great debate as to how the Manual would now work with the Academic Review Committee and the Experience Review Committee. Following the debate, a motion was put forward to pass along the latest revision of the Manual to legal council before returning to APEGM Council for final review and decision.

President Himbeault then described a meeting that occurred with Yellowquill College that falls under the category of Ownership Linkage. The debate that arose centered on how APEGM and Yellowquill College could work together in a way that would benefit both groups. Comments were made asking about existing programs such as ENGAP and whether the linkage could be fostered through those programs. Councillor Bryan Short indicated that given the impact of engineering, in particular by Manitoba Hydro, and geoscience has had upon northern Manitoba and the First Nations people, that this kind of outreach would be valuable for both sides: helping the First Nations understand what engineers and geoscientists do, but also helping us understanding our impact upon them.

The next item on the agenda was a presentation on the Member-In-Training online application by Director of Admissions Sharon Sankar and APEGM systems developer and programmer Andrew Reddoch. Ms. Sankar discussed the background of the new website and why it was created. Mr. Reddoch explained the technical background of the new website, and provided a detailed walk-through of the site and its features at its current developmental stage. The hope is to have it ready for beta testing by selected members in the very near future.

APEGM Professional Standards Officer Mike Gregoire offered up a brief PowerPoint presentation as to his role for the association. He described that as the Standards Officer, his role is not just about enforcement, but also includes recruitment, information, education and the continual review of the Code of Ethics. He also outlined several of his goals for the near future, such as educating companies about APEGM and their role, the development of practice guidelines, mediation and continuing professional development. Councillor Rick Lemoine had recently stepped down from the Investigations Committee as he was now on APEGM Council. As such, his vacant committee position needed to be filled. Council reviewed and approved the appointment of Rob Matthews, P.Geol. to the Investigations Committee.

Next on the agenda was the topic of continuing professional development. As it currently stands, APEGM is one of two associations across Canada that does not have continuing professional development (CPD) for its members. The other association that does not have CPD is currently exploring the issue as well. Everyone agreed that the concept of CPD is great, but the challenge is to implement a program that gains widespread support by the membership. Councillor Alan Aftanas brought up the issue of how this would impact employers with members using a portion of work time to obtain their CPD requirements. According to the Code of Ethics, CPD must occur. The issue would be how these hours are reported. A motion was made to inform the Professional Development Committee to move forward with CPD. One possible next step was to use "meet and greet" sessions to poll members' ideas about CPD programming.

Executive Director Grant Koropatnick proposed the idea of inviting observers to attend Council meetings. With the new APEGM offices and the larger meeting space, the membership, along with MLA's, the media, students and others should be encouraged to attend future meetings. Council agreed with the idea and discussed which particular groups to extend invitations to first.

An article from the Winnipeg Free Press which spoke very negatively about consulting engineers and their interactions with large government projects was circulated at the December Council meeting and at the time, Council agreed to discuss it further. Since the December meeting, President Himbeault had contacted the head of the Consulting Engineers of Manitoba in regards to the article, and their response was that engineers are very highly regarded by civil departments in the province. A suggestion of responding to the article was made, indicating that APEGM has an investigation process in place, along with a Professional Practice Officer, should there be concerns as to the actions of any engineer or geoscientist. After discussions within Council, it was decided that nothing should be done at this time, aside from taking the article as another reason for the need to educate the public about APEGM and the role it plays in protecting the interests of the public.

As things began to wind down, the outstanding items were reviewed and monitoring reports were reviewed and assigned. Council performed the standard evaluation of the meeting, and it was adjourned at 4:50 p.m. ■

continued from page 9, Engineers Canada Message

Canadian citizens. I look forward to constructive dialogue in the coming months.

If you have thoughts or comments on this note, or our profession, I would be pleased to hear from you. Please send your comments to executive.office@engineerscanada.ca
Richard Fletcher, FEC, P.Eng.
President, Engineers Canada ■

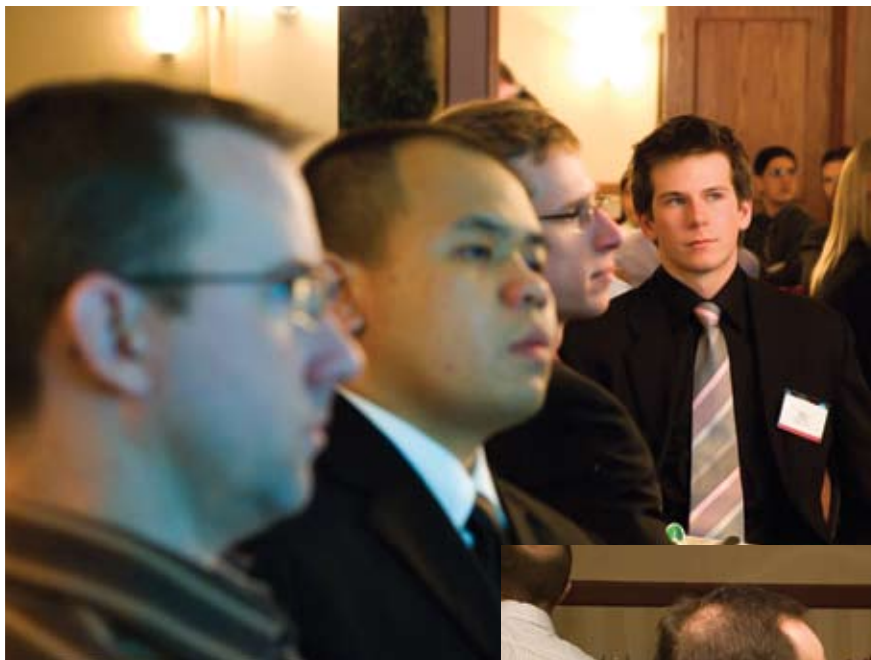
APEGM Networking Dinner

January 31, 2008

H. Buhler, EIT

The economy was on everyone's mind at this year's APEGM Networking Dinner. Though all the speakers echoed the belief that engineers in Manitoba would weather the economic drought well, the atmosphere was significantly more sobering when compared to last year's Networking Dinner.

The 2008 Networking Dinner was full of confident students, convinced that there were more jobs available



students with figures from the recent salary poll completed by APEGM. The study found that junior engineer's salaries increased approximately 9% over the last year; where as senior engineer's salaries increased only 3%.

So with the desire to improve their networking skills approximately 150 students and professionals flocked to the Networking Dinner. The guest speaker, Ken Cooper, talked in detail about the importance of networking skills. In today's society we have an abundance of networking devices at our disposal such as Facebook, cell phones, email, and texting. However, these devices have prevented us

then graduating students. This year's Networking Dinner presented a completely different group of students. Students no longer appeared as certain that jobs will be waiting for them and the desire to meet professionals became a little more frenzied.

Despite this, most speakers spoke of the link between economy and energy supplies which should lead to an increased demand for engineers in the next few years. Don Himbeault, APEGM president, encouraged





Many thanks are extended to the APEGM Public Awareness Committee and the APEGM office for taking the time to coordinate and plan the event. Thanks are also in order to the University of Manitoba Engineering Society for assisting with planning and communicating information on the event to students. ■

from further developing our networking skills involving direct personal contact. The ability to sell ones self is a key component in being a competent engineer and project manager.

With this in mind, Mr. Cooper, made a challenge for a student to come up to the podium and 'sell' themselves to the room in 30 seconds. Amazingly enough two students took up the challenge, a 4th year mechanical students was the first to answer the challenge and provided an entertaining 30 second introduction of himself to the audience. The second student, a 2nd year mechanical student, used his 30 second to advertize for sponsorship for a university run organization and as a final pitch mentioned he would also be interested in a summer job.

The evening then moved on to the main event, the networking version of Speed Dating. At the signal, all the students in the room would stand up, move to a new table, and speak to a new professional. The goal of this exercise was to get as much information and hopefully, a business card exchanged in the two minutes allotted. After two minutes, the signal would sound and there was a mad rush of students trying to get at the few highly desired professionals. Speed Dating was certainly an innovative and entertaining method of meeting numerous people in a very sort period of time.



Electric Vehicles – Then and Now

A. Erhardt, EIT

Given the current energy concerns that exist throughout North America, there has been a serious push towards the development of hybrid and alternative energy vehicles. As of July 2006, there were over 60,000 low speed battery powered vehicles in use in the United States, compared to over 250 million internal combustion engine passenger vehicles. But there was a time when the electric car dominated the marketplace!

The first electric carriage was made back in the 1830's. As improvements were made to batteries and the related technologies, electric vehicles continued to be developed, especially in France and Great Britain. In the 1890's, the first commercial fleet of electric cars appeared as taxis in New York City, boasting a top speed of just over 30km/h.

However, in the 1920's, as American infrastructure improved, requiring longer-range vehicles and domestic oil findings decreased the price of gasoline; the electric vehicle began to fall behind. Thanks to Henry Ford and the mass production of the internal combustion engine, the electric vehicle was quickly vanishing from the marketplace.

Electric vehicles began a resurgence with the creation of the REVA Electric Car Company in India. Following several years

of development, the first REVA rolled off the assembly line in 2001. The company has continued to grow, and a new assembly plant is nearing completion, with the capacity to produce 30,000 units per year.

There are currently two main types of electric vehicles: Low Speed or Neighbourhood Electric Vehicles (NEV's) which typically achieve maximum speeds of approximately 40km/h, and then those which are capable of driving 60km/h and up. While sales continue to grow in the United States, the development of the electric car in Canada has been limited, partially due to Transport Canada.

Federal regulations approving NEV's for public road use excluded many

manufacturers, including the Ontario based, Quebec manufactured ZENN Motor Company's NEV offering, known as the Zenn. After years of political red tape, the ZENN was finally approved. However, as of November 2008, only a select few municipalities in BC allow NEV use, provided they are equipped with warning signs and yellow flashing lights indicating themselves as slow moving, much like large construction vehicles.

In June 2008, Quebec started a three-year project allowing NEV use, but only on inner city streets.

While some of the major automotive manufacturers have talked about developing electric vehicles, things remain at the conceptual stage. While



Think Ox



Tesla Roadster

quicker recharge times.

The latest versions are now utilizing nano-technology to improve both charge capacity and recharge speed. And as electric cars become more common, more options become available for charging. Recently Ontario announced

an agreement with Better Place Inc. to expand the charging network in Canada, while the government would study ways to promote electric based transportation options.

Given the advancements over the last 10 years, electric vehicles are once again becoming a viable option. The price tag of these vehicles varies from US\$25,000 to over US\$100,000 however, so while they are an environmentally friendly green choice having an operating cost of pennies per kilometer, the initial costs can be a negative that is too large to overcome. ■

several NEV manufacturers like REVA in India and GEM Electric Motorcars in North Dakota continue to grow, the applications for these vehicles are limited, given their limited range and speed. But, as technology improves more and more crash-tested highway-speed electric cars are becoming available. A few short years ago, there was only one manufacturer that could boast this claim. Today that number has climbed to at least five.

The key to any electric vehicle is the battery itself. Battery life and recharge times are very important as they directly impact the range and speed of the vehicle. The newest highway speed electric cars use lithium ion batteries to achieve not only maximum range, but



ZENN

Automotive Improvements

as viewed by David Grant, P.Eng.

► Competing Alternative Fuels

Mark Jacobson, professor of Civil and Environmental Engineering and director of the Atmosphere/Energy Program at Stanford University, recently conducted a careful study that ranked alternative vehicle fuels, from best to worst.

Wind, waves, tides, falling water, sunlight (concentrated by mirrors, and other means) and subterranean steam can be turned into electricity. This can be used to power vehicles. Oily crops and algae can be processed into compression-ignition fuel. Food crops can be turned into Ethanol, as can plant waste such as straw and wood chips. The evaluation took into account not only costs and fuel efficiency, but also the consequences of byproducts (gaseous, sooty, etc.)

Ethanol from food crops came in "dead last". Using it for fuel is 40% more expensive than fossil, and between 3% better and 12% worse in Green House Gas terms, than 'doing nothing' with pure hydrocarbon.

Because they put out nasty byproducts, some favourites fared poorly in the studies. Burning wood and straw pellets seems benign in greenhouse gas (GHG) terms, but can make a lot of furans and black carbon particles which float around, warming the air for years. If the enzymes from termite gut germs could be mass produced, the ethanol so produced would be somewhat more 'green' than that made from food like corn and wheat. I recently considered a job designing a Massachusetts enzyme-ethanol plant. So far

this is not a commercial process. All the fuel alcohol now used is from food grains.

Wind powered battery cars and wind powered fuel cell cars were the best, in environmental terms, but so expensive that they are many years away from feasibility.

Ethanol has already received huge support from the automotive industry and the U.S. government. If this money had gone, instead, into small wind-powered electrics, our average vehicle would now be far 'greener'. Google will find you further objective information on this work if you look up "Mark Jacobson Stanford".

► The Evolution of Ethanol as a Motor Fuel

There were cars before there were gasoline stations. Early spark-ignition cars ran on anything that would evaporate and burn. Benzene, gasoline, or alcohol are just a few examples. Early compression-ignition (diesel) engines would run on what did not evaporate. A model T would run on pure alcohol (but not beer, luckily!).

Starting 80 years ago, gasoline refined from crude oil dominated the private vehicle fuel world. Decades later, Brazil began fueling its cars with ethanol from sugar cane, in response to its lack of local hydrocarbon resources, and a severe trade balance problem. A lot of Brazilian cane has been grown on land wrested from the rainforest. Slash & burn farming cannot make "renewable energy". North American grain-based ethanol is so dependent on fossil-fueled fertilizer and farm fuel that it is not renewable either.

A race engine running on pure ethanol can

run much higher compression than with gasoline. It does not make as much power per cubic inch. Gasoline would always beat ethanol in a displacement-limited series like Formula 1. In big displacement, unlimited drag racing, "alcohol dragsters" have always done well.

Almost 30 years ago, Porsche was experimenting with M15 fuel, with methanol (primarily from natural gas) to extend the gasoline.

When the media convinced the public that we were running out of fossil fuel, and that CO₂ in the air was a problem, politicians like George W. Bush had some choices to make. Real action, such as fuel-tax surcharges and pressure toward smaller vehicles could have weaned Americans from their hydrocarbon addiction. They would also almost certainly have made any politician enacting them lose at re-election time. It would also have cost

a lot of campaign funds. Instead, George W. Bush held the someday-carrot of a Hydrogen economy out to the driving public. He also bought lots of friends by giving a lot of Federal money to those who made commercial grain alcohol.

Those who knew, pointed out that a gallon of ethanol has less fuel value than a gallon of gasoline, and that it took about a gallon of farm (fossil) fuel to make that gallon of ethanol. Fuel ethanol supporters like Archer Daniels Midland overwhelmed these truths. They could not change the physics though.

In the past 8 years, as fuel ethanol was heavily subsidized, many other changes were ignored. Increased fuel taxes, better CAFE numbers (corporate average fuel economy, the average for all of GM or all of Toyota), and other measures could have reduced our use of crude oil far more than use of E10.

► Fuel Separation: What No One Ever Told You about Gasohol

Our Provincial government decided to force all gasoline retailers to put an average of at least 8% ethanol in all our gasoline, starting a year ago. This increases the amount of fuel you need for a given trip, by 5 to 10%. In winter, prairie fuel is largely pentane, which gives really bad fuel 'mileage', so your car will start at -40C. With alcohol in the mix, even more pentane is needed. Winter fuel is even worse for fuel consumption than summer

gasohol. Small wonder your car uses so much more gas than its new car label said! Gasohol also makes your car vulnerable to fuel separation.

In the old days (up to 2007) when water got into an underground gasoline storage tank, it sat on the tank bottom. Every day or so, the gas station manager dipped in a wooden stick with a bit of paste smeared on the end. If there was an inch of water, the tip of the

stick turned red. If the water layer was deeper, the station would have the water pumped out. Now, any water that gets in dissolves in the fuel. If too much water dissolves, the fuel will quickly separate. The retailer and its customers will know right away. If only a fraction of a gram of water sneaks into each liter of gasohol, you go on your way without realizing there is a problem. When your fuel gets much colder (think of a -35C night on a

lonely road) your fuel starts to separate into a gasoline layer on top and a watery alcohol layer on the bottom. Your car pumps this lower phase to the engine, which cannot run on it, and it stalls.

Testing Fuel

Until recently, there was an ASTM test (D6422) for separation of gasohol. It was expensive and painstaking to carry out. Inter-lab testing proved unreliable, so the test was dropped.

Bumpers

Remember when the first 2.5 and 5 mph bumpers appeared in the 70s? They were intended to reduce insurance costs by dropping the cost of a minor bump to zero. Prior to that point, a bumper was a steel bar which could be dented or scratched if struck. A new bumper cost between \$50 and \$150. The 1980s bumper on an Omni, a 944, or a Pony is very strong, and mounted on a pair of sturdy 'shocks'. If you hit the end of your underground parking spot with one of those cars, you will not find any damage. Try that in any 2008 car! A 2 mph oops can now cost you \$1000. So you can see things got better then far worse.

About 20 years ago, the US and Canada quietly dropped all such requirements. Annual insurance costs have risen at least \$100/car as a result. Shiny new cars and SUVs need hundreds to thousands of dollars in repairs when they hit a pole or barrier at 2 or 5 mph in IIHS tests. When asked, the standard carmaker response (often repeated by Government officials) is that modern bumpers protect us from near fatal (30 mph) collisions.

Roll Over Protection Standards

We all know that modern race cars can survive quite horrendous crashes. NASCAR and WRC cars can tumble endlessly without maiming the occupants. Even Manitoba ice race cars go upside-down once in a while. Their structures are reinforced so that the passenger compartment ends up in pretty much its original shape. Rollovers kill 10,000 motorists every year in the United States of America. Canadian rollover deaths tally to more than 1000 per year.

The National Highway Traffic Safety

In 2008, I developed the new test method for this property of E10 gasoline. The test is quick and reliable. It will replace D6422. It is ready for evaluation and inclusion in the ASTM test method book and our fuel specifications.

After bringing this to the attention of both Manitoba Cabinet members, and their top scientific advisors in November and early December, there is still no sign that the Manitoba Government will be doing any testing of this crucial fuel property, or the

This is untrue. A structure that can save your life can be capped by a zero damage bumper as easily as with a flimsy plastic cover.

SIDE IMPACTS: Even with their impact beams inside, modern doors do not protect very well. A 3 cm piece of thin-wall steel tube, bolted inside the light steel box that is your door, is no match for a battering ram bumper with an over 2-ton SUV/truck behind it. Therefore, automakers have decided to slightly strengthen the side structure of their vehicles.

All of this is inconsequential if the intruding bumper is a foot above all of the structure, and entering at an angle. The 2 possible solutions are bumper height rules, and improvements to the bumpers of heavy vehicles. If the truck's bumper hits the rocker panel of your car, forces need not be resisted by the flimsy door. If the truck's bumper is engineered to cushion the blow, the chances of a car's occupants surviving go up exponentially. Transferring the energy of a side impact to the best parts of the victim vehicle, and in a controlled way, reduces the load

Administration (NHTSA) has been debating (for decades) improving their current standard, which allows a roof to crush by 5" with a load of 1.5 times the weight of the vehicle, applied gently to the roof. When you think about it, having the ceiling 5" lower is a big deal. A lot of us ride within an inch or two of that ceiling. If you are momentarily hanging from your seat belt, not sunk into the seat, that 2 inches goes away. With the roof violently crushed by 5" and your shoulders a couple of inches higher than when you got in,

water content of the fuel Manitobans are offered.

Anyone driving beyond the reach of a cell phone in cold weather is at risk. Do you know where the cell-phone blank areas in Manitoba are? If you might cross one in cold weather, call ahead. Have the folks you are driving toward call you if you are late arriving. If you do not answer, they should head out toward you, just in case!!

on the occupants as that vehicle accelerates away from the impact.

Without these two changes, none of us can survive an unexpected, hard hit on the side of a car.

Some race cars have lots of 'structure' between the occupants and the door-skin. Other vehicles cannot easily penetrate this structure. Of course this creates problems, getting in and out of such vehicles. Putting all of the onus on the victim car to provide safety to the occupants is doomed to fail. There is no sign that Washington will recognize this any time soon. There is even less chance that the province of Manitoba will ever do anything to protect us in these situations.

Airbags and anti-lock brakes help protect you from YOUR mistakes. A good bumper system can protect others from your mistakes. The most tragic side impacts are those that kill innocents. If you are slowing or stopped in a line of cars, and an SUV fails to even slow for a stop sign beside you, you may not even see it coming.

there is not much room left for your precious head.

NHTSA proposed the first standard in 1971. GM and Ford vehicles of the day failed it. The standard was last adjusted in 1973. These same vehicles passed. The result was roof structures which fail in common roll-overs, and kills the occupants, even when the roof does not fail in terms of this standard. About 250,000 have died in rollovers since 1973. Canada and Saudi Arabia use the 1973 NHTSA

continued on page 23

VEHICLE SAFETY STANDARDS

A. Erhardt, EIT



When you climb into your car with friends or family, the first thought that crosses your mind usually has to do with the conversation at hand, the best way to get where you're going or what to listen to on the radio. What is often overlooked is getting from point A to point B safely. It is impossible to control all of the elements that can factor into an accident, but how do we know that the vehicle that we're in will keep our loved ones and us safe should it be involved in the unforeseen?

The Canadian government oversees the automotive manufacturing industry through the Motor Vehicle Safety Act (or MVSA). Coming into effect in 1972, the goal of the Act was to regulate the manufacture and importation of vehicles and vehicle components in order to minimize the risk of death or injury to drivers and passengers, as well as damage to the environment. Since its implementation, the number of traffic deaths in Canada have been reduced from 6,700 to 2,700 in 2007.

In order to minimize the tremendous forces that occur in an accident, a variety of safety features and systems must be incorporated into the design of a vehicle, and it is the Act that defines the minimum requirements that must be met to maximize passenger safety. The MVSA not only covers passenger cars, but also extends to motorcycles, buses, trucks, trailers and even snowmobiles.

The MVSA also calls for manufacturers to inform the public as to any defects or subsequent recalls that are discovered following the production and release of vehicles for sale in the marketplace. It requires detailed notice to be provided to the Minister of Transportation as to all of the facts and details behind an issue.

This includes the number of vehicles that the issue covers, a time line outlining the events which led to the discovery of the defect, copies of the documentation provided to the public in regards to the defect and the submission of quarterly reports updating the number of vehicles affected and the number that have been repaired to date, even if the repair only required a visual inspection. The goal is to keep manufacturers responsible and pro-active in the resolution of any issue that may have arisen in order to prevent a potential threat to any individual's safety.

The MVSA also contains a list of minimum safety regulations that must be adhered to by manufacturers and

importers. These regulations cover a wide variety of items, including occupant restraint systems, braking systems, crash protection requirements, ground clearance, lighting and head lamps, noise emissions and tire selection. Test requirements and ratings are all clearly defined. The detail goes so far as to ensure the minimum coverage by the windshield wipers for example, as well as providing a standard for display identification and colour for dashboard symbols such as high beams or an ABS malfunction.

While the MVSA provides a level of protection for new car owners at a national level, the safe guards that in place for used car buyers vary from province to province. Whether the province's insurance is provided by a governmental-run entity, such as here in Manitoba or British Columbia, or by private companies, minimum insurance levels are set by each province's or territory's ministry responsible for transportation.

Several provinces have attempted to address both safety concerns and consumer protection through the requirement of a governmental regulated vehicle inspection that is required prior to registering a vehicle. The main purpose of these inspections is to ensure that vehicles are maintained to the provincially set safety standards and to ensure the vehicle's roadworthiness, while also providing some peace of mind for the purchaser that the vehicle they are about to buy



is not a lemon. However, the frequency of these inspections varies greatly across Canada. The chart found below highlights the requirements:

Many insurance providers recommend having a pre-purchase inspection performed, regardless of provincial requirements. But the frequency of the inspections is very important. Provinces such as British Columbia or Saskatchewan require an inspection prior to a vehicle first being registered within the province. However, once registered, no additional inspection is necessary.

How does this ensure that vehicles within the province continue to remain roadworthy and safe? Both Manitoba and Ontario require inspections on changes of ownership, but again the question arises, how do you know that the car you've owned and operated for the last ten years doesn't have an exhaust leak, or a weakened frame rail due to rust and corrosion?

Many of the Maritime Provinces take the issue of vehicle safety an additional step by requiring annual inspections to any vehicle registered within the province. As explained on a Nova Scotia Motor Vehicle Inspection Question and Answer pamphlet, "The condition of a vehicle changes over time. The age of the vehicle, the driving habits or the operator, the type of roads and frequency of use all contribute to the wear of a vehicle. A yearly inspection check lets you know if your vehicle is still safe to drive".

Categories Covered by MVSA for Passenger Vehicles

- | | | |
|--------------------------------------------|--------------------------------------------------------|-----------------------------------------------------------|
| • Location and ID of Controls and Displays | • Vehicle Identification Number | • Interior Trunk Release |
| • Transmission Control Functions | • Hydraulic Brake Fluids | • Power Operated Window, Partition and Roof Panel Systems |
| • Windshield Defrosting and Defogging | • Anchorage of Restraints | • Occupant Restraint Systems in Frontal Impact |
| • Windshield Wiping and Washing System | • Accelerator Control Systems | • Seat Belt Assemblies |
| • Hydraulic and Electric Brake Systems | • Light Vehicle Brake Systems | • Seat Belt Assembly Anchorages |
| • Brake Hoses | • Occupant Protection | • Anchorages for Restraint Systems |
| • Alternate Requirements for Headlamps | • Head Restraints | • Windshield Mounting |
| • Tire Selection and Rims | • Driver Impact Protection | • Side Door Strength |
| • Mirrors | • Steering Column Rearward Displacement | • Windshield Zone Intrusion |
| • Hood Latch System | • Electrolyte Spillage and Electrical Shock Protection | • Fuel System Integrity |
| • Theft Protection and Rollaway Prevention | • Door Locks and Door Retention Components | • Flammability of Interior Materials |
| • Noise Emissions | • Bumpers | • Glazing Materials |

While the nature of these inspections is fairly standard, there is variation between districts. The inspections will cover many important components and systems of the vehicle such as brakes,

tires, lights and seat belts. Exhaust systems are also typically reviewed. However, with the continued discussion over Kyoto requirements, and some studies that indicate that transportation

Vehicle Inspection Frequency by Province/Territory

| Province | Inspection Required | When |
|----------------------|---------------------|-------------------------------------|
| British Columbia | Yes | First registration in the province |
| Alberta | No | - |
| Saskatchewan | Yes | First registration in the province |
| Manitoba | Yes | First registration; Change of title |
| Ontario | Yes | First registration; Change of title |
| Quebec | No | - |
| Newfoundland | Yes | First registration; Change of title |
| Nova Scotia | Yes | Annually |
| New Brunswick | Yes | Annually |
| Prince Edward Island | Yes | Annually |
| Nunavut | No | - |
| Yukon | No | - |

vehicles account for more than one third of carbon dioxide emission from the burning of fossil fuels, some districts have decided that more is required. In Ontario and British Columbia, while the vehicles themselves aren't required to have routine inspections, they are subject to regular government mandated emissions testing.

In the British Columbia Lower Mainland and the Fraser Valley area, drivers are required to provide proof that their vehicle has passed an Air Care emissions test prior to renewing their auto insurance. The frequency of these tests is based upon the age of the vehicle.

While there is some debate as to how effective the initiative has been, according to the Air Care website, vehicle emissions have been reduced by 31%, having performed over 14 million inspections since its inception in 1992.

Currently, vehicles manufactured in 2003 and beyond are exempt from testing. In Ontario, the Drive Clean program requires vehicles to be tested every two years, with

vehicles manufactured in 2005 and beyond currently exempt from testing. To date, more than 27 million inspections have been performed, with over 225,000 vehicles identified as excessive polluters each year.

Despite major improvements in vehicle safety features, automobile accidents continue to be a major cause of death in younger Canadians. While the MVSA itself only address safety issues at the initial manufacturing or importation stage, the federal government continues to address other driving concerns through their Road Safety 2010 initiative. While some provinces have taken steps forward to ensure a safer driving environment through the implementation of government licensed inspections, unfortunately several still lag behind. ■

MOVE FORWARD with YOUR CAREER!



GENIVAR is a leading Canadian firm offering a full range of engineering and environmental services. We have over 3,500 employees in some 80 offices across Canada and internationally. We are experiencing extraordinary growth, creating a wide range of career opportunities for qualified candidates. Currently our Winnipeg office is seeking to fill the positions of:

- Water Resources – Hydraulics Engineer (27-0010)
- Wastewater Process – Environmental Engineer (27-0012)
- Structural Engineer (27-0015)
- Electrical Engineer (27-0018)
- Senior Project Engineer – Water Treatment (27-0011)
- Mechanical Engineer – Buildings Systems (27-0009)
- Bridge Engineers (27-0014)

Many career opportunities are presently available. For further information, we invite you to visit the career section of our website. If you are interested in any of the positions, please apply online or send your application by e-mail at: bill.brant@genivar.com

GENIVAR thanks all candidates. However, only those selected for further consideration will be contacted. GENIVAR is committed to equity in employment.



continued from page 19, Automobile Improvements

standard. The rest of the world does not even have a standard. The Insurance Institute for Highway Safety (IIHS) are the folks who crash new cars at 5 mph into barriers, sometimes with thousands of dollars in damage. They also do the 35 mph offset crashes that simulate real head-on collisions. Their new 20-page study shows that being in a vehicle designed with a stronger roof increases the likelihood that you will survive a rollover. They studied 22,817 rollovers in 12 states. They found that a "strong" SUV has a 50% lower risk of injury than a weaker one. The worst combination is obviously a vehicle which is easier to tip, and which barely meets the 1.5 times and 5" standard. Most SUV deaths are from rollovers.

In 2005, the US Congress told the NHTSA to bring in a 2.5 times rule by July 2008. They could have done so. Even though many victims sue their automaker based on weak roof structures, and even though many models far exceed this standard, there is resistance to change. For comparison, the roll structure of a race car has to take several times as much force with virtually no "crush" distance. Even the single roll hoop of a 'production racer' from the 70s and 80s had to take more than 7.5 times the vehicle weight 'downwards'. If the new vehicle standard were like the race one, and the crush were an inch or two, all of us would be safer. If a NHTSA rollover structure were as strong as an FIA roll bar, consumer cars could enter the more gentle forms of motorsport without having to bolt/ weld in an accessory steel structure.

In Manitoba we have a unique situation. The insurance company, MPIC, that pays for our injuries, and advocates for our safety (e.g., the 1 Minute Driver ads on TV) is also the authority on what we get to register for use on the road. If MPIC does not like a vehicle, you cannot register it. Ever thought of registering an all-electric vehicle? Not here! MPIC could forbid Registration of a vehicle with bad rollover data. Instead, MPI leaves it to Ottawa bureaucrats to say a vehicle is good enough. About once a decade, Ottawa has a higher standard than the US, and usually in a trivial way. Our Daytime Running Lights always-on Miata front signal lights are an example.

By late 2008, US Transportation Secretary Mary Peters had announced that NHTSA will not issue its over-due vehicle roof crush-strength improvements as required by Congress, which is the body that oversees the NHTSA. Peters said bureaucrats would need until the end of 2008 to finish the revision, to "ensure that any final rules are as successful as possible." The update also would cover vehicles up to 10,000 pounds; the current rule covers vehicles up to 6,000-pound Gross Vehicle Weight. ■

Effective December 4, 2008, the APEGM Council voted unanimously in favour of appointing Mr. Timothy Corkery, P.Geo. to the 2 year term as Manitoba Director to the Board of CCPG.

We thank outgoing director Mr. Gary Ostry, P.Geo. for his service to APEGM and CCPG.



EPIC Educational Program Innovations Center

2009 - Upcoming Course Schedule

Civil

- Evaluation and Rehabilitation of Pavements
March 9-10, 2009 - **Regina**
- Structural Engineering for Non-Structural Engineers
May 19-22, 2009 - **Winnipeg**

Electrical

- Testing, Commissioning and Start-Up of Electrical Systems
March 26-27, 2009 - **Saskatoon**

Environmental

- Contaminated Soil and Groundwater Chemistry, Assessment and Remediation
May 27-29, 2009 - **Regina**

Mechanical

- Effective Equipment Maintenance - Striving to Achieve the Required Reliability at Low Cost
March 26-27, 2009 - **Saskatoon**

EPIC On-site Programs

EPIC courses are available on-site at your location and they can be customized to suit your specific requirements.

For more information on these programs, please visit our website at www.epic-edu.com or call Tim Chugh at 1-888-374-2338 ext 242 or email him at tchugh@epic-edu.com.

Successful completion of EPIC courses entitles you to CEUs.

Successful completion of EPIC courses entitles you to CEUs. For information regarding these courses and our recently added courses, please visit our Website at www.epic-edu.com or Call 1-888-374-2338 • Fax 1-800-866-6343




www.epic-edu.com



Don Spangelo, P.Eng.

Don Spangelo has been an active member of APEGM since 1982. He started with the Publication Committee where other doors soon opened for him to contribute more to the profession. He later served in the Legislative and Disciplinary Committees before being elected as Councillor in 1996. This is his second stint.

While growing up on a farm, Don's curiosity with how things worked – buildings, bridges, farm equipment – marked the beginning of his successful career as an engineer. There must be

Meet Your New Councillor

R. Garcia, EIT.

a better way to design them – a way of thinking that characterizes people who stand out from all the rest. Encouraged by an engineer from Wardrop Engineering where he worked as a Technologist graduate from Red River College, he moved on to pursue his engineering degree at the University of Manitoba.

As Section Head for the Structural Engineering group responsible for Hydro and Thermal Generating Stations, a most interesting event in his career was when numerous transmission towers collapsed during a severe wind storm. In his own words, "the mode of failure was very intriguing to try and understand and the knowledge learned of this weather phenomenon provided me a greater appreciation of nature".

Being an active member of APEGM affords him great opportunities to make a difference to the profession. He promotes engineering and science in schools using Spaghetti Bridge building as an introduction. This puts him in touch annually with over 200 kids, which gives him great satisfaction.

A favourite hobby is radio-controlled planes and helicopters. While he finds it more fun to develop a stronger grasp of aerodynamics while building and solving mechanical/electronic problems, he admits that it is the flying that validates his findings and this, to him, is critical to creating something.

As an engineering professional serving with APEGM and Manitoba Hydro, Don is vigorously supporting the electronic sealing of legal engineering/geotechnical documents. It shouldn't be a surprise if this becomes standard procedure in the near future. The professional pushing this objective has the natural drive to do things better.

Don highly encourages members to contact him at 474-4395 regarding any concerns about the profession. ■



Sheila Dresen

Dr. Sheila Dresen is a registered nurse who has retired from professional practice. She holds a PhD in Nursing from the University of Illinois, a Master's degree in Education and a Master's degree in Psychiatric Mental Health Nursing from the University of Wisconsin, and a Bachelor's degree in Nursing from the University of Toronto. She obtained her basic nursing education at St. Boniface General Hospital in Winnipeg.

She has diverse experiences in many countries. She started with practicing as a registered nurse in Canada, Rome, and Germany. In the United States, she began her career in academia by

Meet Your New Councillor

S. Mayadewi, EIT.

becoming an assistant professor at the University of Wisconsin. Upon completion of her doctoral program, she obtained five years of experience in nursing service administration at a psychiatric hospital in Madison. After moving back to Canada, she directed nursing schools in Calgary and Winnipeg and became the Dean of Nursing at the University of PEI.

Dr. Dresen has extensive experience in nursing program management and planning in the United States and Canada, which also includes five years directing mental health services for the Division of Correction for the state of Wisconsin, three years serving as the Dean of the Faculty of Nursing for the University of Windsor, and two years each serving as President-elect and President of College of Registered Nurses of Manitoba (CRNM).

Dr. Dresen enjoys traveling. After her retirement, she has made eleven major

trips out of North America. Within North America, if you cannot find her in Winnipeg, she would be in either Michigan or Madison to be with her two sons, grandson, and granddaughter. One of her most proud moments is the trip that she made with her sons on Harley Davidson motorcycles back and forth to Milwaukee from a city sixty miles away for four days in 2003.

Since her retirement, aside from working on projects for universities in the nursing field, she has been actively developing her interest in other professional areas that she finds interesting and stimulating. She is pleased to be appointed as an APEGM councillor. She stated that although she is still learning about the engineering practice itself, she is clear about APEGM's purpose and objectives. Dr. Dresen's experience with CRNM gave her first-hand knowledge about the importance of making sure that the public is getting safe care. "One of the things I learned with the College of Registered Nurses is that it comes right down to the college's responsibility to protect the public, not an act to protect an individual member". Welcome to the APEGM Council Dr. Dresen! ■

Detach page for posting

The Brown Sheet

Why Get Your P.Eng., P.Geo. or C.E.T?

Come find out why it is important for you to obtain your professional certification. This event will feature presentations by:

- Grant Koropatnick, P.Eng., Executive Director and Registrar of APEGM
- Terry Gifford, CAE and Executive Director of CTTAM.

For more information, visit www.ieee.ca/winnipeg/news.htm#Why_Get_Your_Certification or the APEGM website.

Date: March 18, 2009

Time: 6:00 p.m. - 9:00 p.m.

Cost:
\$5.00 Registration
Free for Students

Location: Holiday Inn South, 1330 Pembina Highway, Winnipeg, MB

Snow Loading

Let it snow, let it snow, let it snow...

While this popular Christmas Carol brings warm feelings to many, it brings shivers to many building contractors and engineers who are involved in the design of single story buildings, especially after the fatal collapse of the roof in Portage La Prairie on February 10. This presentation will focus on:

1. Drift load calculations;
2. Examples using the 2005 NBCC;
3. How to mitigate drift loading on neighbouring buildings; and,
4. Sliding snow loads

For more information or for registration: call the APEGM office at (204) 474-2736 ext. 223 or email Jenna Tenzsen at jtenszen@apegm.mb.ca.

Date: March 25, 2009

Time: 7:30 a.m. - 9:00 a.m.

Cost:
\$5.00 Registration

Location: APEGM Office, 870 Pembina Highway, Winnipeg, MB

Panel Discussion: Growth and Development in One's Career - Reaching Your Dream Job

All are welcome to attend! Panelists to be announced. Facilitated by Dr. Sandra Ingram, Assistant Professor, Design Engineering, Faculty of Engineering, University of Manitoba.

Light refreshments included.

For more information or for registration: call the APEGM office at (204) 474-2736 ext. 223 or email Jenna Tenzsen at jtenszen@apegm.mb.ca.

Date: April 2, 2009

Time: 7:00 p.m.

Cost:
\$5.00 Pre-registration
\$10.00 at the door

Location: APEGM Office, 870 Pembina Highway, Winnipeg, MB

Better Buildings Conference & Exhibition 2009

Mark the date to find out about:

- The newest and most up-to-date information on Sustainable/ Green Buildings with a focus on Manitoba
- How to incorporate innovative design, technology & operational best practices in your building project
- Enhanced Building Performance

For more information, visit www.betterbuildingsconference.com/default.aspx

Date: April 7 & 8, 2009

Cost:
\$250.00 Member
\$300.00 Non-Member

Location: Convention Centre, 375 York Avenue, Winnipeg, MB

□ Investigation of May 2008 Sichuan Earthquake on Bridges in China

The 2008 Sichuan Earthquake shook China at 14:28:01.42 CST (06:28:01.42 UTC) on May 12, 2008. This earthquake was measured at 8.0 Ms according to Chinese Earthquake Administration (CEA) and 7.9 Mw according to United States Geological Survey (USGS). Epicentre of this great Sichuan earthquake was in Sichuan province, with the focus depth of 14 km. The earthquake affected areas included all the counties within 50 km from the epicentre, and also all the medium, large cities within 200 km from the epicentre.

This earthquake is thought to be most destructive earthquake since People's Republic of China was founded. Official figures state that 69,197 are confirmed dead, including 68,636 in Sichuan province and 374,176 injured, with 18,238 listed as missing and numerous structures were damaged or destroyed.

For more information or for registration: call the APEGM office at (204) 474-2736 ext. 223 or email Jenna Tenszen at jtenszen@apegm.mb.ca.

Date: April 9, 2009

Time:

11:45 a.m. Registration
12:00 p.m. Lunch
12:35 p.m. Presentation

Cost:

\$20.00 Registration
\$25.00 At the Door
\$15.00 Student Members

Location: Holiday Inn South, 1330 Pembina Highway, Winnipeg, MB

□ Strategic Planning: Are You Ready For What Tomorrow Will Bring

This workshop will focus on providing guidance in strategic planning to senior supervisors, managers and executives. Leaders in business, government and industry must plan for the future to ensure the strength and success of their operations. Today, with the addition of the uncertain economic situation in Canada and around the world, strategic planning will play an even more important role in the administration and success of many organizations.

For more information or for registration: call the APEGM office at (204) 474-2736 ext. 223 or email Jenna Tenszen at jtenszen@apegm.mb.ca.

Date: April 14, 2009

Time: 8:30 a.m. - 4:30 p.m.

Cost:

\$150.00 Early Bird
\$200.00 Registration

Location: Norwood Hotel, 112 Marion Street, Winnipeg, MB

□ Westman Communications Group PD Luncheon

Over the past few years, the communications industry has undergone significant change with the transition of services from analog to digital. Digital technologies have enabled service providers to offer not only their core services to consumers, but the ability to offer additional services that would not have even been considered previously.

The speed of advancements in technology has resulted in increased competition and created a demand for advanced services by consumers. As consumer devices become more versatile and advanced, tomorrow's consumer will be able to access any content, on any device, anywhere.

For more information, please contact Dave Ford, phone (204) 728-9732 or Email: superdave@wcgwave.ca.

Date: April 15, 2009

Time:

11:45 a.m. Registration

Location: Victoria Inn Brandon, 3550 Victoria Avenue West, Brandon, MB

New Members Registered November 2008, December 2008, & January 2009

| | | | | | |
|------------------|------------------|----------------|----------------|------------------|-----------------|
| S. Bagheri-Zadeh | G.R. Connaughton | L. Guo | R.A. Lawrence | Z. Peric | W. Rypstra |
| J.E. Bashucky | C.D. Dare | R.C. Hannah | M. Lobe | B.A.F. Phillips | G.R. Schnackel |
| E.C. Bennett | M.W. Dobbs | J.D. Henkelman | S.M. Martin | S.D. Philopoulos | B.A. Shistowski |
| C.F. Berthelot | J.A. Epp | B.L. Heppner | D.R.A. Mattila | C.P.J. Plante | B.J. Sinclair |
| I.W. Bertram | V.K.W. Fisher | L.C. Hoehn | B.C. Maynard | J.M. Pomerleau | K. Singh |
| E. Beshada | L. Fortier | R.G. Horne | K.M. Mok | D.R. Porter | G.P.G. Sissons |
| J.J. Bohemier | H.T. Freihammer | C.S. Ima | J.C. Morera | R.E. Pressacco | R. Song |
| N. Bradoo | T.G. Froehlich | T.H. Kamm | B.L. Muio | B.M. Puchajda | M.K. Stocki |
| C.L. Capner | S. Ghelichkhani | M. Kashem | E. Murison | W. Quan | R.J. van Groll |
| J.C.S. Chin | G.R. Gill | T.E. Kassis | J.P. Nose | A.R. Raichura | M.D. Wazny |
| B.A. Christensen | S.K. Groen | R. Khan | D.M. Orchard | N. Raymond | M.W. White |
| T.M. Church | R.G. Guenther | R.J. Kolada | M.A. Pandya | C.M. Rennie | R.G. Winkler |
| R. Colinares | C. Guillaud | J.W. Kooymans | B. Parihar | R.F. Riffell | |

Licenses Enrolled November 2008, December 2008, & January 2009

| | | | | |
|----------------|-----------------|-------|--------------|-----------|
| S.M. Ellickson | W.L. Gerszewski | J. He | K.W. Leonard | R.L. Pund |
|----------------|-----------------|-------|--------------|-----------|

Members-In-Training Enrolled November 2008, December 2008, & January 2009

| | | | | | |
|----------------|----------------|------------------|----------------|--------------|----------------|
| I. Aftab | G.H. Chan | C.C.W. Hope | K.R. Marsden | S. Saeed | M. T. J. |
| G.V. Agustin | C.A. Churchman | M.A.E. Huminicki | A. Palanichamy | S. Sarband | Ward |
| R. Almojuela | D.P. de Leon | S.D. Johnston | M.T. Peerbocus | J.T. Shumka | R.T.W. Wareing |
| C.W. Ambrose | K.D. Egilson | K. Kabiri | E. Pianim | N.V. Sidenko | N.R. Wittmeier |
| B.P. Arpin | C.P. Franz | A.A. Karagiannis | A. Radyastuti | V. Suhbaatar | Q.K.Y. Yip |
| A.L. Bernstein | P. Gagnon-Adam | M. Koupriyanov | S. Rak | K.A. Tee | N. Zakerzadeh |
| M.C.S. Booy | S. Goel | B.J. Machado | S.S. Rana | A.J. Toews | J.C. Zheng |
| J. Cai | D.W. Haines | R.A. Mackie | S.J. Riley | A.R. Tomich | |
| L.M.C. Card | J.F. Hibbert | T.J. Manson | L.A. Robson | J.L. Tonge | |

Certificates of Authorization November 2008, December 2008, & January 2009

| | | |
|------------------------------------------|--------------------------------------------|----------------------------------|
| Achieve Engineering Inc. | CIMA CANADA INC. | Prairie Steel Manufacturing Ltd. |
| AECOM Canada Ltd. | First Canadian Water & Infrastructure Inc. | R4B Consulting |
| Alexey Gamaley Structural Engineers Ltd. | GS Structural Engineering Inc. | Roehampton Communications Ltd. |
| BK Consulting Inc. | Pier Structural Engineering Corp. | Schnackel Engineers, Inc. |
| | | Shoemaker Consulting Engineers |

DATE: THURSDAY, JUNE 18, 2009 @ 12:00 P.M. BBQ LUNCH WILL BE SERVED AT THE CLUBHOUSE STARTING @ 11:00 A.M.

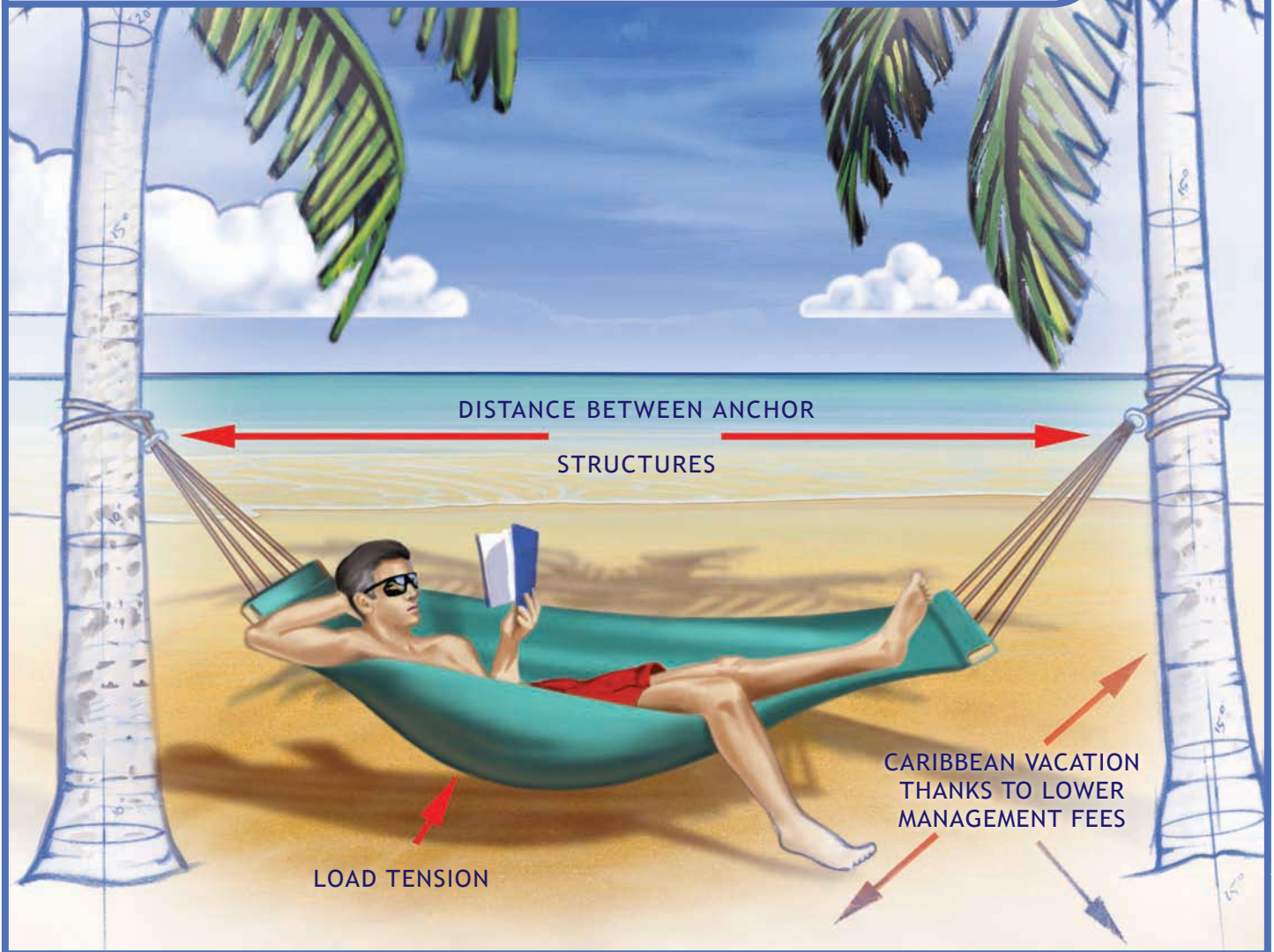
PLACE: THE LINKS AT QUARRY OAKS, STEINBACH, MB PH: (204) 326-4635 **FORMAT:** TEXAS SCRAMBLE, SHOTGUN START

COST: \$195.00 PER PERSON (INCLUDES BBQ LUNCH, 18 HOLES OF GOLF, CART, DINNER, AND PRIZES) OR \$750.00 PER TEAM OF 4

THE FIRST 220 REGISTERED GOLFERS WITH ACCOMPANYING PAYMENT WILL PLAY. ENTRIES AND PAYMENTS ARE TO BE SUBMITTED TO THE APEGM OFFICE BY 4:00 P.M. FRIDAY MAY 22, 2009.

CONTACT THE APEGM OFFICE AT 478-3727 FOR MORE INFORMATION AND REGISTRATION

ENGINEERS SEE THE WORLD DIFFERENTLY.
INCLUDING THEIR RETIREMENT PLANS.



At Great-West Life, we know your standards extend well beyond your engineering career. And when it comes to your retirement, while you may be relaxing, you won't be relaxing those standards. That's why you should consider the only retirement plan officially sponsored by Engineers Canada. Our group retirement plan offers an impressive array of investment options combined with lower-than-typical retail management fees and personalized assistance with investment selection. We understand that as an engineer you expect more and Great-West Life has the strength and stability to deliver.

For details, go to
www.engineerscanada.ca/e/prog_services_4.cfm
or call 1-800-724-3402.

Sponsored by



THE
Great-West Life
ASSURANCE  COMPANY

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

Great-West Life and the key design are trademarks of The Great-West Life Assurance Company (Great-West), used under licence by its subsidiaries, London Life Insurance Company (London Life) and The Canada Life Assurance Company (Canada Life). Group retirement, savings and payout annuity products are underwritten by London Life and Canada Life respectively, and marketed and serviced by Great-West.