

THE KEYSTONE PROFESSIONAL



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

FEBRUARY 2002
www.apegm.mb.ca

Presidents Honoured by Former APEGM Staff Member

By: S. M. Matile, P. Eng.

December 20, 2001, was the date and the Association office boardroom was the place for the unveiling of an extraordinary monument to and for the APEGM from an extraordinary former Association employee.

The names of all 75 Presidents of the Association, covering the 83 presidential terms from its inception in 1920 to date, have been cast in bronze, mounted on a walnut plaque, and hung permanently in the APEGM Boardroom – all thanks to the generosity of Mrs. Loreen Dunklee.

Loreen Dunklee was an employee of this Association from 1956 until 1985. She started as a general “dogsbody” to then registrar Charlie Langdon, moving up through the ranks to the successively more responsible (and, according to Clyde McBain, less canine!) positions of Executive Secretary and

Assistant General Manager, the position from which she retired to Victoria, B.C., in 1985.

Having long held a place in her heart for this Association, and having worked with 28 different Presidents, Loreen recently decided that she would like to honour them, and all of the other Presidents who have given so much to the Association over the years. She discussed her wishes with Abe Anhang, former general counsel to the Association. Abe discussed the matter with Executive Director Dave Ennis, and so it was that the concept of the Presidents’ plaque was born. Abe took the proverbial bull by the horns, and within weeks, the plaque was designed, constructed, and mounted on the wall in the APEGM boardroom.

The halls were decked with beautiful, seasonal sprigs of fresh holly, also magnanimously donated



by Mrs. Dunklee. The plaque was appropriately concealed. The Boardroom was filled with Past Presidents (18 of them, to be precise, from Len Bateman (1958) to

current Past-President Alan Pollard), invited guests, Council members, staff members, and photographic equipment. Everyone was ready for

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The Communications Committee would like to hear from you. Comments on your newsletter can be forwarded to us through the Association office. 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 the APEGM or the APEGM Council.

New Members Registered November 2001

J.A. Abel	R. Kapila (ON)	J.S. Pacak	K.R. Snelgrove
B. A. Beyak	K.W. Louie	M.D. Rheault	G.B. Wright
S. Janjic	P.A.R. Lowe (BC)	W.D. Sigfusson	
G.L. House	P.S. NeVile (ON)	B.C. Smith	

Licences Issued November & December 2001

S.H. Gebler (IL)	R.L. San Giacomo (NY)	T. Vardy (NF)
R.D Rempel (CO)	W.P. Sekella (AB)	

Members-In-Training Enrolled November 2001

M.D. Alexiuk	R.T. Johnson	T.J. Ramnath	K.K.T. Sim
M.N.N. Habok	E. Muhurdarevic	R. Roller	N.S. Visen

EIT/GIT Resignations at December 31, 2001

B.T. Calley	M.E. Kosciuszcyk	T. Pietrafesa	B. Wanas
M.J. Coss	I.J. Maharaj	W. Pietrafesa	P.C.H. Wong
C.J. Eklund	J.K. Mannix	K.D. Scherbatuik	
S. Inthalansy	P.D. Neal	K.Y. Sze	

Resignations at December 31, 2001

D.R. Baert	S. Dolhun	L.P. Jonassen	J.J. Ran
J.O. Bagh	S.C. Driedger	L.F. Jury	R.G. Ratcliffe
K.R. Bailey	D. Duncan	P.E. Kelly	J.M. Reutcky
J.C. Beattie	S.R. Elgert	D.W. Kennard	D.A. Ross
S. Bergeron	A.H. Erlund	J. Langelaar	W.L. Saunders
W.J. Bergman	F. Fawal	D.B.C. Lee	R.D. Schapf
A.B. Boychuk	P.J. Ferguson	R.V. Liew	D.J. Schmidt
R.O. Boyko	T.R. Fox	W.R. Livingstone	D.H. Shields
B.A. Brandt	D.C. Gairns	K.A. MacDonald	T. Shkordoff
J.S. Bubber	B.F. Gerlinsky	D.C. MacFarlane	M. Singh
R.D. Cain	B.W. Gilder	I.F. McIntosh	A. Singhal
K.W. Campbell	W.C. Gilraine	M.G. McKay	Douglas Smith
M.M. Chang	G.D. Gordon	P.G. McLaren	M.R. Strizic
A.B.K. Chik	M.E. Gubbels	W.W. Morton	C.D. Struth
M.L. Choi	G.D. Guest	C.H. Ng	P. Sundararaj
R. Cibola	B.N. Hanna	T. Nitheanandan	M. Toderian
W.P. Clement	M.E. Haukeness	A. Priestley	C.H. Tottle
M.H. Cooper	C.E. Hayward	G.J. Prior	R.B. Welch
B.W.J. Corkal	C.D.D. Howard	C.M. Quinn	J.R. Wright
J.M.A. Deschiever	J.S. Jamrozek	D. Rajamani	D.W. Zilinski

Retirements at January 1, 2002

D.W. Anderson	J.H. Ellis	H.T. Hung	R.G. Strachan
S.G. Barnett	R.R. Fielding	K.T. Kotyk	W.N. Sullivan
W.J. Boyaniwsky	J.M. Fulton	K.S. Kozakewich	J.E.B. Thorsteinsson
J.B. Corkal	B.E. Hadfield	T.K. Mak	G.T. Turncock
D.E. Cross	N.K. Hain	R.M. Martin	J.E. Wiens
M.F. Dyrkacz	H.M. Holroyde	P.G. Ruck	

Certificates of Authorization issued after October 31, 2001

Agricultural Management (AGMGT) Ltd.
Anderson Consulting Group Inc.
Kemp Engineering Inc.
Martin Martin Consulting Engineers Inc.
Morrison Hershfield Ltd.
TD Engineering Inc. (formerly Timbr Systems Engineering Inc.)

Discontinued Certificates of Authorization

Gairns Santos Engineering Inc.
Industrial Technology Centre (ITC) (exempted)





Executive Director's Message

D.A. Ennis, P.Eng.

As suggested by the President in the December issue of this publication, the issues before the Association are typically related to the activities of staff.

Accordingly, I use this opportunity to comment on some of the matters that are before the Association and the professions.

By-law Proposals 2001

As noted elsewhere, the By-law changes that were approved at the Annual General Meeting on October 13, 2001, have been ratified in the letter ballot and are now adopted. There are two issues arising out of their adoption on which I will comment.

1. Life Membership – members who have reached the age of 70 may wish to apply for life membership. In addition to having reached the age of 70, the qualifications are:

- one must have been a member of the association, or one of the constituent associations of the Canadian Council of Professional Engineers, for 30 years, or in the case of a professional geoscientist, have practised or been a member of the Association for a combined total of 30 years; and
- one must be retired from all gainful employment.

2. National Secondary Professional Liability Insurance – the adoption of By-law 9.2.10 allows the Association to participate in a national program of professional liability insurance that is being facilitated by the Canadian Council of Professional Engineers (CCPE). As noted in the information distributed with the by-law proposal in September, participation by APEGM members in the program will not be optional. The final details of the policy are still being settled. It is scheduled to come into effect in April of 2002 with an annual premium expected to be \$10.00. Of note, however, is the fact that the CCPE will be generously paying the bulk of that premium for the first year. Each member and member-in-training will receive a copy of the policy. Professional liability insurance is normally quite costly, and the \$10.00 premium is low. Not unexpectedly with the low premium, there are a number of conditions and exclusions in the policy. You are strongly encouraged to read the policy and ensure that you are aware of those conditions and exclusions.

Certificate of Authorization – Insurance

The Association has concluded that the professional liability insurance

requirements of the Certificate of Authorization requirement, as set out in the Act, are unnecessarily restrictive for some entities operating in the manufacturing and exploration geoscience sectors. The Provincial Government has been asked to modify the requirement so that the Association can exercise some discretion in the requirements. It is expected that the changes will come into effect in the second half of 2002.

Guideline on Commissioning Buildings

Building systems are becoming increasingly sophisticated, complex, and inter-related. Recognizing a need to clearly define the process of building commissioning and develop it as a managed, co-ordinated activity that ensures that completed facilities meet the design intent and operational needs of owners, the Practice Standards Committee has prepared a guideline.

It is now available for comment prior to publication. Members who wish to comment should contact the Association office (preferably by e-mail) and a copy will be provided. Comments will be received until March 15, 2002.

Specialization and Certification

An issue that has come before the Associations in some other Provinces is that of an externally imposed requirement for a specialist designation or certification beyond professional registration to undertake certain activities. Examples are the additional qualifications for the Structural Engineer of Record in British Columbia and the proposed requirement in Ontario for additional certification to practise as a consultant on Brownfields assessment remediation.

Two of the reasons for this trend seem to be an erosion of confidence resulting from poor work being carried out by engineers working outside of the limits of their expertise, and government down-sizing. The latter has resulted in the need for governments to identify individuals and firms in the private sector quali-

fied to carry out tasks that were previously carried out by government staff, and to simplify the review process.

CCPE and the Associations have been considering these matters and have recognized that there is a growing public desire for the identification of certain specialized areas of engineering. However, the trend of the thinking is not to register or license by specialized areas of engineering but, when necessary, to meet the demand through certification. In this context certification would be attesting that the person has successfully demonstrated defined skills, knowledge and abilities at a given time through a process of assessment or verification.

Members with a point of view on this topic are encouraged to make it known, preferably by e-mail.

2002 National Survey

In 1997 CCPE conducted a national survey on the engineering profession in Canada. The participation rate among Manitoba members at 42% was well above the national average, and it provided useful information to help both CCPE and your Association in responding to questions about the profile of the profession.

In 2002 five years will have elapsed, and it is time for another survey.

Information on the next survey is provided in a separate article in this publication. To the extent feasible, it will be conducted on-line. We ask that when you are approached you take the time to make your contribution to help in updating the profile of your profession.

Agreement on Discipline and Enforcement

The Associations in Canada that are constituent members of the CCPE are in the final stages of signing an agreement to co-operate, to the extent possible, in the disciplining of practitioners and in the enforcement of the practice and title provisions of their individual Acts. Members should note that if and when the agreement comes into effect, unauthorized practice or use of title in another jurisdiction could then render one subject to the disciplinary process of APEGM.

Assessment Reports Filed Under The Mines and Minerals Act

There have been a number of

Continued on page 7

Pay Your Dues!

Dues invoices have been mailed to all members, EITs and GITs. If you have not received yours, please contact the APEGM office.

All payments received in the Association office after February 28, 2002 are subject to the late payment fee of \$54.00.

FINAL PAYMENT DATE – MARCH 31, 2002.

ALL MEMBERS, EITs OR GITs WHOSE DUES PAYMENTS ARRIVE IN THE APEGM OFFICE AFTER MARCH 31, 2002 WILL BE DE-REGISTERED OR REMOVED FROM EIT/GIT ENROLLMENT. ■

In Memoriam

The Association has received with deep regret, notification of the deaths of the following members.

Sunil Joshi Allan Gray Moffatt Thomas Clarke Morgan

Meet your New President – Dr. Moe Barakat, P.Eng.

By: A.A. Poulin, P.Eng.

I spent a pleasant half-hour talking with our new president, Moe Barakat – a very busy, ambitious and dedicated man.

Dr. Barakat, a professional engineer, has 35 years of experience in the area of communications and information systems. He is currently the President and CEO of Novra Technologies Inc., a Winnipeg-based telecommunications firm that specializes in broadband wireless Internet applications, and Chair of InfoMagnetics Technologies Corporation (“IMT”), started in 1992. He was the President and CEO of SpectraWorks Inc., created in 1998, and Chair of IMT Communications Systems Inc., created in 1996.

Dr. Barakat received his Bachelor's Degree from the University of Alexandria, Egypt, in 1966, his M.Sc. in Electrical Engineering from the University of Manitoba in 1974, and his Ph.D. in Electrical Engineering, also from

the University of Manitoba, in 1982. He has been an Adjunct Professor of Electrical and Computer Engineering at the U of M since 1983. He has also been active in several organizations and committees over the years. Last year he was a councillor for APEGM, and this year he accepted the role of President.

Dr. Barakat's main goals for his term as President are to ensure that the governance process meets its objectives this year, to develop a method for increasing awareness of the Association and the Act, and to encourage registration.

One issue he is motivated to dig into is the one surrounding professional development. He indicated that he wanted to understand a little better the “issues from the inside”. He believes Professional Development is important and knows that it is a part of our pledge to abide by the Code of Ethics. He believes we should be able to trust our profes-

sionals to continue to develop themselves as they've pledged. One thing Dr. Barakat indicated is that perhaps sometimes the Association has “concentrated too much on the process and not on the objective”. But he was reluctant to make any formal stand on the issue until he is fully informed and has become more involved.

Some of the ideas the Association is pursuing include making presentations and providing information packages to first year engineering/geoscience students, including the APEGM registration requirement right in the University calendar, and approaching existing engineering/geoscience grads through their employers. The Association is finding many are not registering with APEGM, and that computer and electrical engineering grads especially, do not seem to realize that they are required to register with APEGM or understand why they should.



New President Dr. Moe Barakat, P.Eng.

Dr. Barakat feels that being a professional engineer is something to be proud of and that we need to encourage recognition for the profession. The issue surrounding ‘software’ engineers is close to Moe's heart.

I believe that Dr. Barakat will accomplish his goals during his term as President and I look forward to hearing from him again in the coming months. ■



WE ARE LOOKING FOR YOU

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EPIC Educational Program Innovations Center is a leading provider of continuing education for engineers in Canada. It is seeking for its Cross-North America program experienced engineering professionals to serve as Program Directors and Instructors.

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Science Fair Judges Needed



The Manitoba Schools' Science Symposium needs judges. The MSSS is one of the largest fairs in Canada, attracting over 500 participants annually. This year, the judging will take place on Saturday, April 27, at the University of Winnipeg, with previewing of the projects occurring on Friday, April 26. Dinner is provided on Friday and lunch is provided on Saturday. If you are interested in judging at MSSS and, more importantly, offering encouragement to these future engineers and scientists, please contact Jo-Anne Doerksen:

Phone: 786-9258 or e-mail: j.doerksen@uwinnipeg.ca ■

Would a More Efficient Building Design Have Saved the World Trade Center?

By: P.H. Boge, P.Eng.

In retrospect, could a more efficient building design have saved those who died in the terrorist attacks?

The September 11 disaster raises many questions on a number of levels. With the incredible loss of life we, as a society, are pressed on many sides to evaluate what went wrong and how we can prevent this from happening again. The intelligence community has to examine the breakdown in communications and the apparent lack of information. Airport security has to evaluate and redesign their safety standards. As engineers reflect on the disaster we need to ask ourselves "Could we have done more to save them?"

While the World Trade Center was an engineering collapse, it is doubtful that it will be remembered as an engineering failure. The difference lies in negligence. In most disasters involving engineered structures, we can investigate the aftermath and discover errors in design (spaceshuttle Challenger), faulty procedures (Chernobyl), faulty material or insufficient knowledge. But the WTC disaster is different. The towers were structurally sound.

Construction of the WTC was completed in 1973. The towers were

designed by engineers John Skilling and Leslie Robertson to unprecedented heights of 1368 and 1362 feet. Each structure was a rigid "hollow tube" of perimeter steel columns set at 39 inch centres. A separate internal lift-core was designed specifically for the elevators to serve the 110-storey facility. Lightweight horizontal steel trusses on each floor spanned 60 feet from the perimeter columns to the elevator core preventing the columns from buckling outwards. The floor material was concrete on metal deck. The design provided approximately 40,000 square feet of office space per floor without the requirement of interior columns.

When the planes hit the towers they cut through a number of the perimeter columns. As forceful as those impacts were, they were not enough to cause the towers to collapse. The most common conclusion as to why the towers collapsed is related to the intense heat caused by the burning jet fuel. Structural steel is rated for approximately 1500 degrees Fahrenheit. As the temperature of the fire reached or exceeded that temperature the steel began to warp and lost its ability to support the design-load requirements. The elastic modulus of the steel was sig-

nificantly reduced, thereby increasing the deflections of the affected members. The fire-protection-systems could not be expected to resist fires created by massive amounts of burning jet-fuel.

At some point, one or more of the floors in each tower experienced a floor-truss failure, a perimeter-column failure, an inner-core failure or, possibly, a combination of all three. This would produce a collapse of a complete floor or floors. One or more floors would fall creating an impact load on the floor beneath, which would have already been weakened by fire damage. This would cause that floor to fall on the floor below, causing a chain reaction.

Some pictures of the disaster show clouds of debris exploding from the tower below the point of initial collapse. It is thought that the impact of the initial floor-failure may have sent an incredible shock-wave through the building at a rate faster than the floors were falling, resulting in the explosion of various members. The overall combination of heat, impact and potential shock-wave would have been impossible for the floors or columns to support.

Engineers have successfully designed structures to withstand

some of the cruelest forces of nature, yet we cannot design to defend against the evil of human nature. We can safely protect people on bridges and in buildings from the effects of wind and water but we are unable to defend skyscraper occupants from determined terrorist acts.

In an ideal world engineers would have all the necessary resources to build incredible structures that could defend against terrorism. However, the cost associated with these structures would be an unbearable and impractical burden on tenants – and ours, of course, is not an ideal world. ■

Sources:

www.greatbuildings.com

www.skyscraper.org

University of Sydney

American Society of Civil Engineers

Magic of Flight

From the first attempts to modern-day manoeuvres performed by the U.S. Navy Blue Angels, *The Magic of Flight* invites you to soar through history, science, and the technique of flying. This visually stunning film focuses on flight as it exhibits the human potential and importance of training and performance – vital elements to a pilot's quest to fly. ■



The Magic of Flight
Blue Angels

IMAX
THEATRE
at Portage Place

National Engineering Week
APEGM Special Presentation of
The Magic of Flight
Sunday, March 10th, 2002
5:00 p.m.
Tickets: \$4.00
Available at the APEGM office.

APEGM



Avoiding a turf war – A case analysis of Pestrak v. Denoon

By: Glen R. Peters and Dean Giles, Fillmore Riley (Reprinted with permission from *The Municipal Leader*)

In recent months, a number of municipalities have expressed concern about whether they are required to retain the services of an architect in connection with the planning and supervision of certain building projects. The concern arises out of a relatively recent prosecution of a professional engineer for unlawful practice in the case of *Pestrak v. Denoon*.

In the *Denoon* case, a professional engineer provided services with respect to the construction of two buildings in the City of Winnipeg. In the course of performing his duties on the first building he wrote to the City to confirm that he had been retained to provide supervision over “structural and architectural aspects to ensure confirmation to Parts 3 and 4 of the Manitoba Building Code”. He also provided the City with the certification required under those Parts to allow the building to be occupied, and affixed his professional engineering seal to the plans and drawing submitted to the City. For the second building, the engineer was retained to provide supervision over construction to ensure confirmation to Parts 3 and 4. He again affixed his professional engineering seal to certain plans and other drawings, submitted them to the City and certified

that construction was completed in accordance with plans and specifications and all applicable by-laws. For each project, no architect was involved.

The Manitoba Association of Architects, through its executive director, brought an information charging *Denoon* with unauthorized practice as an architect contrary to section 15(1) of *The Architects Act*. That section prohibits anyone from practicing as an architect unless the individual is a member of the Architects Association in good standing and registered as such.

Denoon was acquitted at a trial in Provincial Court on the basis that *The Architects Act*, *The Engineering Profession Act*, *The Buildings and Mobile Homes Act*, *the Manitoba Building Code* and *The City of Winnipeg Act* together established a legislative framework to regulate the construction of buildings in the City of Winnipeg. The trial judge concluded that Parts 3 and 4 of the Building Code, which are incorporated into *The Winnipeg Building By-Law*, entitle professional engineers to certify compliance with the Code notwithstanding any conflict with the scope of practice provided to an architect under *The Architects Act*. It was held that *Denoon* had merely certified com-

pliance with Part 3 of the Code and as such was practicing within the scope of his entitled area of expertise.

An appeal from the decision was brought in the Court of Queen’s Bench before Mr. Justice Monnin, who described the dispute as a “turf war” between the architectural and engineering professions. He concluded that *Denoon* had been involved in the planning and supervision of the construction of the buildings, something which engineers are not entitled to do. The trial judge’s verdict was overturned and convictions entered.

In reaching his decision, Monnin J. pointed out that it is necessary in each province to read the applicable legislation governing the scope of the two professions to determine how the inevitable areas of overlap are to be treated. In this regard, *The Architects Act* in Manitoba defines the word “architect” as “any person who is engaged for hire, gain, or hope of reward in the planning or supervision for others of the erection, enlargement, or alteration of buildings by persons other than himself”. Unlike British Columbia and certain other jurisdictions, the Manitoba Architects Act contains no exemptions or exclusions for other professionals carrying on this

practice. There is no legislative recognition of the ability of engineers to perform architectural functions, save for sections 25(1) which provides an exemption to non-members in respect of buildings or a certain size, type or location.

Justice Monnin found that the purpose of and scope of Parts 3 and 4 of the Code is to ensure that buildings are constructed to appropriate standards. This is achieved where documents and certifications are provided by persons with appropriate qualifications. These qualifications will in some cases include architects and in other cases engineers. It does not follow that this provision operates to enlarge the provisions dealing with scope of practice in the professional regulatory statutes. It is simply a regulatory enactment that requires a certain level of expertise in the individual submitting plans and certifying that certain standards have been met. Put another way, the references in the Code cannot form the basis to enlarge the scope of practice in the professional regulatory statutes.

“...Municipalities should seek to avoid any involvement in the ‘turf war’ between engineers, architects and their respective professional associations.”

Justice Monnin further held that *The Architects Act* and *The Engineering Profession Act* are not part of a single legislative scheme together with *The Buildings and Mobile Homes Act*, *The City of Winnipeg Act* and by-laws relating to standards of construction. While the purpose and scope of the former are to regulate the professions, the provisions in the other statutes serve as standards for the construction and erection of buildings.

On the evidence before the court, *Denoon*’s conduct was found to be part of an intended pattern of designing, planning and constructing buildings. Such conduct, according to Justice Monnin, clearly fell within the definition of “architect” in *The Architects Act* whether or not it was undertaken in an engineering capacity in order to ensure compliance with Parts 3 and 4 of the Code. Having reached this conclusion, Monnin J. turned to the issue of whether *Denoon*’s conduct nevertheless fell within the practices of an engineer. Having regard to the definition of “practice of professional engineering” in *The Engineering Profession Act*, it was held that it did not.



Executive Director's Message

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questions from professional geoscientists regarding the requirements for sealing Assessment Reports (i.e. Required Work and Reports of Required Work called for in the Regulations under The Mines and Minerals Act). The question was also discussed on November 16, 2001, during the APEGM session at the Manitoba Mining and Minerals Convention.

There are two aspects to this issue. The first is that, if the action of authoring such a report constitutes the practice of professional geoscience (i.e. "requires the application of the principles of geology, geophysics or geochemistry"), and subject to the exceptions in the Professions Act for prospecting, only a professional geoscientist registered with APEGM is authorized to author such a report.

The second is that, regardless of whether the authoring of the report requires the application of the principles of geology, geophysics or geochemistry, if an APEGM member issues a document of a geoscientific nature (and Assessment Reports are typically so), The Engineering and Geoscientific Professions Act requires that it must be sealed.

Additionally, as maps that form part of an assessment report may subsequently be removed from the document and be relied upon for other purposes, it is strongly suggested that they also be sealed.

Asia Pacific Economic Cooperation (APEC) Engineer Register

There have been pressures from within the engineering profession and from outside for mechanisms to enable full international recognition of professional engineers. This has led to discussions that have developed a proposal whereby countries would maintain a system of registers of engineers who meet certain qualifications and who could (not would) be accepted as qualified in other jurisdictions. The question of acceptance would then be determined through bi-lateral agreements between the countries. The APEC Engineer Register project is one such initiative. Its details are currently under negotiation by the Asia Pacific economies and will be the first such register. CCPE through its Canadian Engineering International Board (CEIB) has been participat-

ing on behalf of Canada and is the secretariat for the co-ordinating organization. It is also developing a model bi-lateral agreement for consideration by the other countries.

The general requirements for becoming an APEC engineer are to have:

- completed an accredited or recognized engineering program;
- been assessed by the home country as being eligible for independent practice;
- gained a minimum of seven years practical experience since graduation;
- spent at least two years in responsible charge of significant engineering work;
- maintained one's continuing professional development at a satisfactory level;
- agreed to be bound by the codes of professional conduct of both one's home and host jurisdictions.

APEGM members who have an interest in obtaining recognition in one of the Asia Pacific economies (Australia, Hong Kong, Japan, Korea, Malaysia, New Zealand, Indonesia and the Philippines) should monitor the developments in this area. If so, I note the requirement to have maintained one's continuing professional development at a satisfactory level. To that end I refer you to the APEGM Guideline and the activity recording form which are available on the Association's web site at www.apegm.mb.ca/pdnet/index.html.

The City of Winnipeg Development Fees By-law

Some members will be interested to know that the Planning, Property and Development Department of The City of Winnipeg has developed a revised by-law dealing with the fees it charges for development permits and building permits. These include changes to the plan examination process and, in some cases, additional charges for plan examination. The draft is being circulated for comment and the Association has been advised that it incorporates other substantial changes. In particular there is a new method of calculating the building permit fee and an entirely new fee for mechanical and fire suppression systems.

Members wishing to review the draft or provide comment should contact Doug Sywake of the Planning, Property and Development Department at (204) 986-5180. ■

Meet Your New Councillor – Marianne Goldsborough

By: V.L. Dutton, P.Eng. (Ret.)

What a delight it was to find that I was interviewing a country girl and a Ukrainian lassie at that. Yes, Marianne Marynowski was raised in Vita.

Once a country girl, always a country girl it would seem. Marianne's husband, Greg, is a farmer. The Goldsboroughs live in Starbuck.

Marianne and Greg have two boys, Justin (10) and Ryan (8), who attend St. Emile's School on St. Anne's Road.

One doesn't meet a player of the hammer-dulcimer every day of the week. Marianne also plays the acoustic guitar and, as she said, does most of her singing in the kitchen.

In 1989, Marianne graduated from the University of Manitoba with a degree in Electrical Engineering. Her first job was with

Procter and Gamble in the pulp mill at Grande Prairie, AB. She then returned to Manitoba. Last December 10th was the tenth anniversary of her employment with Manitoba Hydro. ■



New Councillor Marianne Goldsborough

Notice

2001 By-Law Changes

This is notice that the by-law proposal dated October 24, 2001 has been ratified by letter ballot. The results of the letter ballot are as follows:

Ballots Mailed	3802		
Ballots Returned	579		
By-Law	For	Against	No Vote
7.1.2.1 Life Membership	548	26	5
9.2.1 Pro-Rating of Dues	565	12	2
9.2.2 Pro-Rating of Dues	562	15	2
9.2.10 Professional Liability Insurance	520	57	2
15.3.1 Mediation of Complaints	558	20	1
15.3.2 Mediation of Complaints	558	21	0
15.4.6 Appeal Process on Dismissal of Complaints	547	26	6

The new by-laws came into effect on December 3, 2001.

D.A. Ennis, P.Eng., Registrar

Mark Your Calendar

The 2002 Spring Iron Ring Ceremony will be held at 8:00 p.m., Tuesday, March 26, 2002, at the Multi-purpose room, University Centre. Potential candidates, other than graduating students, (i.e. registered engineers, or EITs) who want to receive rings should contact Bryan Weber at bweber@umagroup.com, phone 284-0580, before March 1, 2002.

Council Report

Wednesday, November 14, 2001

By: A.N. Kempas, P.Eng. (Ret.)

NEW ADMISSIONS POLICY REPORT RECEIVED BY COUNCIL

The November meeting is always interesting because we can see for the first time the management style of the new President and Council. It was President Barakat's turn to show how he will conduct the affairs of APEGM for the next year. By all indications, Dr. Barakat will bring a new degree of user-friendliness and efficiency to Council proceedings. The meeting was prefaced by a joint luncheon for APEGM staff and Council where everyone could mingle and become acquainted. This was Dr. Barakat's way of recognizing the important role that APEGM staff plays in this era of Policy Governance.

One of the tenets of Policy Governance is to provide education to the governing body. To fulfill this requirement, former Councillor Ralph Eschenwecker gave an illustrated lecture on the principles of Policy Governance before the formal part of the meeting began. With the preliminaries out of the way, Council adopted an agenda and approved the minutes of the October meeting.

The next item, presented by Executive Director Dave Ennis, contained a revolutionary concept. At the request of the President, Mr. Ennis had drawn up a list of proposed Council meetings for the next year. Instead of the monthly meetings we're accustomed to, Council would meet roughly every second month for a total of seven meetings in a year. President Barakat felt a reduction was possible since Policy Governance was shifting routine items to staff. Councillor Permut said having fewer meetings was a good idea, forcing Council to focus on important items. It was no surprise when this item passed.

Just when Council thought the elections were over, they received Councillor Jerry Bogan's resignation letter. Mr. Bogan was elected to a two-year term on Council in October, but an employment opportunity in Chicago, and the NFL, was drawing him away. His last day of employment in Manitoba was on a Friday and his new job in the U.S. began the following Monday. This led some Councillors to suggest he was a slacker – all in good humour, of course. Mr. Bogan's resignation did pose a problem for Council; how to deal with the resulting vacancy. Council had a number of options to choose from, including leaving the position vacant. Mr. Ennis suggested that the next person in line to be elected in the October vote could be asked to take the seat. Councillor Washchyshyn said he knew that it took a lot of convincing to get people to run, so going with the next-to-be-

elected was a good idea. Mr. Bogan's resignation also left the liaison posts with the technologists and architects vacant. Councillor Silk volunteered to liaise with the technologists while Councillor Poetker took the architects. Everyone was pleased to learn that Mr. Bogan will keep his APEGM membership. (Councillor Bogan was also a long-standing member of the Publications committee and we will miss his contributions there, too. Good luck Jerry!)

Past President Hosang fought off a bad cold to speak to Council about the next item – a review of APEGM's admissions policy.

Back in 1994 APEGM adopted an Admissions manual which was used until March of 2001. That was when the Admissions Board approved an updated Admissions manual. Part of the motivation for the update was the admission of geoscientists to the Association.

The review introduced at this meeting was initiated by Council at the October, 2000, meeting. The review committee consisted of Past President Hosang, President Barakat, and Councillor Syme. This review was undertaken because recent appeals led Council to believe that our registration processes needed re-thinking. One concern was that engineering graduates and mature students were not receiving adequate recognition for their work experience. Councillor Permut summed it up nicely when he said our job was to get people in, not to keep them out. Councillor Poetker said it was a case of "haves" and "have-nots," that people with varied work experience had a harder time qualifying. Councillor Washchyshyn said some associations were reverting to a three-year program. Councillor Silk felt it was most important to work on students and that any qualifying experience must be verifiable. Councillor Gaudry went so far as to say that the previous admissions policies created blatant injustices. Executive Director Ennis said there were many more cases worthy of appeal that never reached Council.

Council voted to accept the APEGM Admission Policy Review report and to disband the review committee. It was evident that the report had created some tensions between Director of Admissions Shirley Matile, who had not attended the Council meeting, and the review committee.

Near the end of the meeting Council was advised that the Manitoba Association of Architects was proposing a change to the building code which would make it a necessity to use an architect on every job.

The meeting ended with an in-camera session. This was another example of President Barakat's user-friendly approach...by placing the in-camera session at the end, reporters could leave the meeting earlier. That, coupled with his use of short and frequent breaks made this meeting easy to cover. No more 2½ hour marathon sessions. We'll all be the better for it. ■

Presidents Honoured...

Continued from page 1

the big unveiling. The only thing missing (and very much missed!) was Loreen Dunklee, who was not well enough to attend (although the telephone provided her with an aural insight into the proceedings).

Clyde McBain (President in 1973) emceed the event. Abe Anhang, George DePauw (1974), Walter Saltzberg (1980), Ted Speers (1987), and Dave Ennis all reminisced and paid tribute to Loreen, and to the Association's many Presidents. Dave described Loreen's gesture as one of jerking the seniors' version of the umbilical cord and re-connecting past Presidents with the

profession. Clyde, Dave, and current Past-President Alan Pollard unveiled the memorial – a true work of art by anyone's standards. And all of the proceedings were expertly videotaped by Roger Rempel, P. Eng., both for posterity and, far more importantly, as a keepsake for Loreen.

Following the ceremony, everyone who wished to was invited to deliver a personal taped message to Loreen. The length of the queue to deliver personal remarks was, in itself, testimony to the esteem in which Loreen is held.

Anyone who has ever had the privilege of knowing and working with Loreen knows of her extraordinary devotion to the Association and

to the engineering profession. Many of us experienced her persuasiveness. We had only just met her, and before we knew it we were on the Bulletin Committee, serving as "roving reporters" for the Council meetings. She was training us for bigger and better things, but she did it with such subtlety that most of us didn't realize it!

Our most heartfelt thanks to you, Loreen, for your extraordinary generosity, and for your continued dedication to the Association. What an excellent tribute to the engineering and geoscientific professions in Manitoba and their leaders! You have left a legacy that will be with the Association for many, many years to come; and the Association is truly grateful. ■



Loreen Dunklee



Engineering – Anything’s Possible

By: B. Stimpson, P.Eng., Chair, NEW 2002 Committee, APEGM

In Winnipeg, an energetic committee of 25 people has been planning for **National Engineering Week 2002** since last October. This year the events surrounding this annual celebration of engineering across Canada will take place primarily at St. Vital Centre from March 1st to March 3rd.

The national campaign under the theme, “Engineering – Anything’s Possible”, is targeted at Canadian youth and their families, as well as Canadian engineers. Major components of the campaign are the NEW Web site (www.new-sng.com), which features information on engineering achievements that have improved the quality of life for Canadians, and a promotional giveaway of a clear plastic ruler imprinted with the NEW logo and

Web site address. In addition, advertisements aimed at parents will appear in Reader’s Digest, Macleans, Canadian Geographic, l’Actualité, and Sélections du Reader’s Digest.

Details of the activities at St. Vital Centre may be found on APEGM’s Web site (www.apegm.mb.ca). Kick-off on Friday morning, March 1st, will feature a Celebrity Competition in which invited celebrities will compete in a uniquely Red River Valley activity – dyke building. Throughout Friday, Saturday and Sunday afternoon, local engineering companies, government agencies, and the University of Manitoba will be at the mall to convey some of the excitement of engineering through their displays. For the first time, the Faculty of Engineering will be

showing new hands-on displays in communications, an automated car-wash (reduced scale, of course), robotics, a “sniffer”, and liquefying soils. This year, also for the first time, there will be some displays from the geosciences, since geoscientists are now professional partners in APEGM and in most of our Associations across Canada.

What would National Engineering Week be like without the Spaghetti-Bridge-Building Contest? Elementary- and high-school students will be taking their bridges to the mall for the ultimate test of design and construction – the spaghetti-bridge compression-testing machine and the determination of the ultimate breaking load of the bridge. This event is looked forward to with great anticipation by the stu-

dents – and, let’s not be shy, by adults too.

This year, the IMAX special showing will take place a little later than the activities at St. Vital Centre. “The Magic of Flight” will be screened on Sunday, March 10, at 5.00 p.m. This enthralling IMAX production is a must for everyone to see, regardless of age. Tickets are \$4.00 and may be obtained by calling the APEGM office at 474-2736.

A short while ago I had the happy accident of stumbling across a copy of a book published in 1946 by the University of Toronto Press called “Engineering and Society with Special Reference to Canada” (authors: C.R. Young, H.A. Innis, and J.H. Dales). A section dealing with the personal qualifications for success in engineering listed the following attributes: aptitude, persistence and tenacity, intellectual keenness, idealism, originality, imagination, initiative, self-reliance, integrity, courage, co-operative spirit, loyalty, and leadership. Generation after generation has found these qualities among its youth. Ultimately, National Engineering Week is about sharing our excitement about engineering and geoscience and, we hope, thereby lighting the fire of interest in those whose personal qualifications would make them great engineers and geoscientists. ■

Avoiding a Turf War...

Continued from page 6

It is important to note that Justice Monnin reached this conclusion on the basis of the definition of “practice of professional engineering” in The Engineering Profession Act. While this was the Act in force at the time Denoon provided his services, it has subsequently been repealed and replaced by The Engineering and Geoscientific Professions Act. That legislation features a broader definition of the term “practice of professional engineering”. In a footnote, Monnin J. stated that whether the new legislation allows engineers to operate in areas that previously had been the exclusive domain of architects was not a question before him. He added that the position advanced by the Engineers Association would have been enhanced had the new definition been the one before the court.

Denoon brought an application for leave to appeal his convictions to the Manitoba Court of Appeal. After reviewing the factors to be considered before leave to appeal is granted, Mr. Justice Philp decided

that the Court of Appeal would not hear the case, even though there still existed an adversarial relationship between Denoon and his accuser.

In dismissing the leave application, Philp J.A. noted that the definition of “practice of professional engineering” at the heart of the dispute between the parties and the “turf war” between the respective associations had been substantially altered in 1998 with the enactment of The Engineering and Geoscientific Professions Act. Because the provision of The Engineering Profession Act that Denoon was asking the court to rule upon was spent, there was no point of law before the court that would be of importance or significance in deciding future prosecutions against engineers under section 15(1) of The Architects Act. At the same time, Mr. Justice Philp acknowledged the possibility that the court might be called upon in the future to interpret the applicable statutory provisions.

The question raised by the Denoon case is whether municipalities are required to retain the services of an architect for buildings of a certain size because the involve-

ment of an engineer is no longer sufficient. Based on Justice Monnin’s interpretation of the legislation, this may be the case. It is crucial to remember, though, that this decision was rendered on the basis of statutory provisions that are no longer in force. The issue has been further clouded by the introduction of new legislation and, in particular, the broader definition of the term “practice of professional engineering” found in The Engineering and Geoscientific Professions Act. By virtue of this new definition, the position of an engineer faced with this sort of prosecution has been considerably strengthened.

It is the view of the writers that municipalities should seek to avoid any involvement in the “turf war” between engineers, architects and their respective professional associations. As in the past, municipalities should simply look to hire the individual or firm capable of performing the job in question. It should be left to those individuals to determine what services they are permitted to provide and what restrictions, if any, the present legislation imposes on their activities. ■

APEGM VISION

APEGM is the leader and a facilitator of the process that ensures excellence in engineering, geoscience, and applied technology for the public of Manitoba.

THOUGHTS ON

Design

...an engineering process shaped by the tools we employ.

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

Anthropologists characterize human beings as tool users. The engineering component of the species creates and utilizes "tools". We must be conscious of the impact these "tools" have on us and the things we do.

Most engineers seem to accept that design relates to finding real solutions to real problems. It involves innovation and a significant level of uncertainty. It requires technical expertise and practical understanding. It also involves that almost magical "design feel" that suggests you are "on the right track" as you move from problem to solution. I clearly recall wondering how my supervisor was able to look at one of the first designs I ever produced and, in a matter of minutes, without looking at my calculations, tell me that my snow load estimates were too high. Maybe that is what led me to where I am today.

But notwithstanding the mystery of "knowing" when you are right, design can be reduced to process. That early design from long ago was created using the "tools" that were

available at that time. Within those limits, I estimated the snow load on the roof of a building. I made assumptions with respect to the surroundings, and how they might affect snow patterns. I accepted the accuracy of inputs relating to the properties and the physical parameters of the materials available to me. I assumed spans, spacings, fixity conditions and theories of stress distribution and deflection. Once this collection of "facts" had been assembled, I used my slide rule and generated the numbers I needed to select the beams that I would ultimately specify, or, as it turned out, over-specify.

There is nothing notable about the design process I followed. I collected what I knew, assumed what I needed to and used the latest "tools" to assure that what I did was "correct". And while my handling of the process may have been rather amateur, I was conscious of all the decisions that had to be made. For me, the design process was very personal and the responsibility for each and every decision was very clear.

That clarity increased after that memorable critique.

In retrospect, the design was created within the limitations of the "tools" I had available. The data were limited, but understandable. The theories were constraining, but reasonably representative. The calculating power was adequate. The depth of understanding was clearly limited, but once that was rectified by additional input, the system worked. The roof was built in an affordable manner and it survived many a Canadian snow storm. The "tools" had their limits, but the design process worked.

If you fast forward almost 40 years, how would that same situation play out today? The "fresh new" engineering graduate today has a stunning array of "tools" that were not a part of my kit. Even for this simple task of recommending roof beams for a small building he/she would probably start with an expert system program that searches out and recommends snow loads. That would be followed up with a member-selection program that con-

ducts the stress/strain analysis using extremely thorough techniques and then recommends a number of potential configurations based not only on the behaviour of a simply supported beam, but also on construction configurations and local availability of materials. And finally a CAD program would be used to create the drawing that incorporates all of the limitations imposed by the various "tools". In all probability, the different "tools" would be linked electronically. The experience would be much less personal and the responsibilities much less apparent. The "tools" hide most of the decisions that I was forced to make in computer code. The "tools" and the analysis power they unleash have become the focus of attention rather than the inputs and their relationships.

Is this just another story of the "good old days"? I hope not. As engineers we still move from problem to solution using the "tools" we have available. We still must accept responsibility for the results our "tools" produce. The "tools" we have today are infinitely more powerful than they once were, but they also bury many of the fundamental assumptions and approximations that dictate the eventual result. Our approach to problem solution has shifted because of these "tools". Our responsibility for the problem solution has not changed, however. But it is more difficult to be certain of the details.

Remember, when the only tool you have is a hammer, everything begins to look like a nail. ■

First Online Survey of Canadian Engineers and Geoscientists Planned

The Canadian Council of Professional Engineers (CCPE), in partnership with Human Resources Development Canada (HRDC), will conduct a National Survey of the Engineering Profession in Canada in March 2002.

The survey will gather data on the demographics, employment and career paths of Canadian engineers, geoscientists and engineers-in-training to support the engineering profession's future planning and facilitate trends analysis.

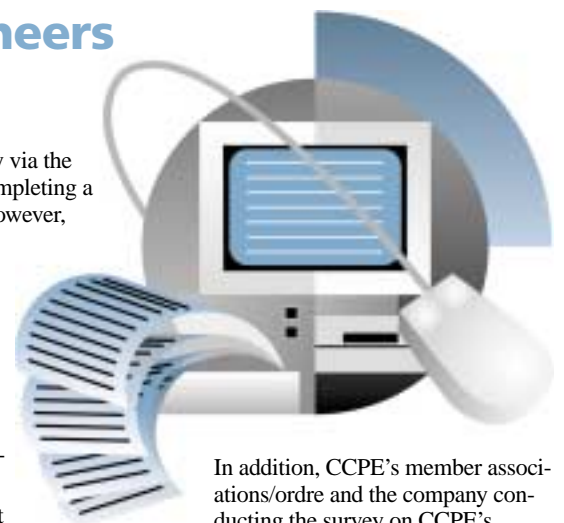
"CCPE conducted its first full survey of Canada's engineering profession in 1997," said CEO Marie

Lemay, P.Eng. "This new survey will help the profession to identify trends that may influence engineering education, training or licensure, and even how engineers will work in the future. It will also help our member associations/ordre to plan effectively for the future, so that our regulatory system continues to protect the public and their quality of life."

To make it as easy and efficient as possible for EITs, engineers and geoscientists to complete the survey, it will be conducted online for the first time. All active members of the engineering profession and licensed geoscientists will be able to partici-

pate in the survey via the Internet or by completing a paper version. However, the costs of conducting the survey and the time required for data analysis will be significantly reduced if the majority of respondents complete it online.

To ensure that the confidentiality of online survey participants is protected, individual personal identification (PIN) numbers will be used.



In addition, CCPE's member associations/ordre and the company conducting the survey on CCPE's behalf will sign confidentiality agreements prior to the launch of the survey.

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Achieving a healthy balance lets you live life

Maggie Easton and Joe Tibensky, P.Eng. enjoy a pretty hectic lifestyle balancing two careers, home and kids. It's a good feeling to be saving money for a time when life won't be quite this busy. With the CCPE-sponsored Financial Security Program with Canada Life, helping you achieve a healthy 'balance' through effective financial planning is the goal.



The Financial Security Program provides a valuable investment opportunity to engineering professionals across Canada. Flexible RRSP and non-registered savings programs offer you and your spouse a wide variety of investment funds from 22 top companies – with low management fees, no loads, no investment minimums and no switching costs. Participants also benefit from excellent rates on guaranteed accounts, industry-leading customer service and complementary financial advisory services.

For more information on the CCPE-sponsored Financial Security Program with Canada Life, please visit our dedicated web site at www.canadalife.com/canadian/en/ccpe or call us at 1.800.387.2679. You can now enroll online at <https://enrollonline.canadalife.ca>.



SPONSORED BY:



Environment Prime Concern for Engineering Scholars

Six talented professional engineers returned to university this fall with the goal of making Canada better – and with financial support from the Canadian Council of Professional Engineers (CCPE).

The engineers are the 2001 recipients of CCPE's six national scholarships. Each hopes to enhance Canadians' quality of life and protect the environment by resolving some of the complex problems challenging Canadian industry and society. Although their areas of research differ, they all agree that environmental sustainability and public safety are their first priority.

Nicolas Lauzon, ing., Denis O'Carroll, P.Eng., Jeffrey Markle, P.Eng., Shari Imada, P.Eng., Jean-François Lessard, ing., and Yasemin Bolkan, P.Eng. will share a total of \$52,500 in scholarship funding from CCPE.

Mr. Lauzon, Mr. O'Carroll and Mr. Markle are working on projects to protect groundwater and improve the management of Canada's water resources; Ms. Imada is studying environmentally friendly building techniques; Mr. Lessard is working on mine safety; and Ms. Bolkan hopes to develop cleaner-burning gasoline.

"I am proud of the leadership shown by each of this year's CCPE scholarship recipients," said Marie Lemay, P.Eng., CCPE's Chief Executive Officer. "While their fields of research vary widely in scope, each of them is working toward economically viable products and solutions that improve and protect our society and the environment."

As the recipients of the CCPE-Manulife Financial Scholarship, Ms. Bolkan, Mr. Lauzon and Mr. O'Carroll will receive \$10,000 each

to pursue postgraduate study in engineering. Mr. Markle and Ms. Imada, the winners of the CCPE-Meloche Monnex Scholarship, will each receive \$7,500 to pursue postgraduate study in a non-engineering field, while Mr. Lessard will receive the \$7,500 CCPE-Encon Endowment to undertake postgraduate study in failure investigation, risk management, and/or materials testing related to engineering.

Ms. Bolkan is pursuing a PhD in chemical and petroleum engineering at the University of Calgary, where she is using computer models to improve the design and efficiency of reactors used to process crude oil. Her work may eventually result in less expensive, cleaner-burning gasoline. She is a member of the Association of Professional Engineers, Geologists and Geophysicists of Alberta (APEGGA).

Mr. Lauzon is using computer techniques such as fuzzy logic and neural networks to give a better assessment of environmental data in order to advance sustainable water resources management techniques. A member of l'Ordre des ingénieurs du Québec (IOQ), he is pursuing a PhD in civil engineering at the



University of British Columbia, specializing in hydraulics, hydrology and water resources. His work focuses on the effects of human intervention and climate change on water resource systems.

Also interested in water resource management, Mr. O'Carroll is investigating the complexities of groundwater contamination and cleanup. His work focuses on developing computer models to assess how pollutants

leach into groundwater. He is creating computer simulations to understand better how the layers of soil and rock at any given location affect groundwater contamination.

Mr. O'Carroll's work should result in reduced costs and cleanup times at contaminated groundwater sites. He is a member of Professional Engineers Ontario (PEO), and is pursuing a PhD in environmental engineering at the University of Michigan.

Also a member of PEO, Mr. Markle's focus is on groundwater management at aggregate mines, currently a \$15 billion industry in North America. He plans to undertake a rigorous assessment of how

extremes in water temperature in man-made pits formed during mining operations affect surrounding ecological systems. He wants to improve data collection methods to advance environmentally sound resource management.

Increasing energy costs, the implications of environmental change due to global warming, rising populations, and illnesses associated with poor indoor air quality led Ms. Imada to pursue advanced studies in environmentally sound and efficient building construction. A member of APEGGA, she is pursuing a master's degree in environmental design and construction management of buildings at the University of Calgary.

Mr. Lessard hopes his work will ultimately save miners' lives. He is researching the problems inherent in the use of orepasses while pursuing a PhD at Laval University. His goal is to develop techniques to increase the operational life of orepasses – the passages used to transport ore from one level to another in mines – by studying wall degradation and incidents of blockage. Fewer incidents of blockage should reduce the numbers of injuries and deaths that result when miners have to clear obstructed passes. Mr. Lessard is a member of IOQ.

Manulife Financial, Meloche Monnex and Encon Insurance Managers provide annual financial support for CCPE's National Scholarships and Endowment Program. The three companies offer CCPE-sponsored insurance products to licensed professional engineers in Canada.

The recipients of CCPE's National Scholarships and Endowment are selected by the CCPE Awards Committee. Judging is based on the applicants' engineering experience, career goals, research interests, as well as the potential for their work to benefit Canadian society. ■

First Online Survey of Canadian Engineers and Geoscientists Planned

Continued from page 10

The actual polling will be conducted by EKOS Research Associates, one of Canada's preeminent public opinion research firms.

Participants who complete the survey online will be eligible to win one of several prizes.

As well as providing follow-up data to the profession's 1997 survey, the 2002 survey will seek information in new areas, such as the skills-related issues associated with the increasing use of engineering teams that include technologists and technicians. It will also identify trends in growth areas of the profession and emerging technologies.

To allow the survey to be conducted online, the associations/ordre

will be seeking the current e-mail addresses of their members. The addresses will be used by the polling firm to provide each member with his or her survey PIN and the survey URL. Engineers, EITs, GITs, and licensed geoscientists who have not already done so are asked to send their e-mail address to their home association/ordre as soon as possible. ■

REMINDER



Please notify APEGM (apegm@apegm.mb.ca) of any change to your e-mail address.