

Professional Engineers Awards RECIPIENTS ANNOUNCED

By Nicole Axworthy



Victor Milligan, P.Eng.

For the last 67 years, outstanding engineers have been honoured with Ontario Professional Engineers Awards (OPEA). The awards program, founded by PEO, recognizes professional achievement in a number of categories, including entrepreneurship; engineering excellence; management; research and development; and community service. Since 2005, the awards have been presented jointly by PEO and the Ontario Society of Professional Engineers. This year's awardees will be honoured at a special gala on Saturday, November 21 at the Toronto Congress Centre. For

ticket information, visit www.ospe.on.ca.

PROFESSIONAL ENGINEERS GOLD MEDAL

Victor Milligan, P.Eng., was an international expert in dam construction, founder of one of the world's most successful consulting engineering firms, a mentor to young engineers, and a world-class athlete. He was president and then chair of Golder Associates, formally retiring in 1994, but continuing with Golder as a retained consultant and, in his private practice, serving on international panels and boards. His pioneering work on ground improvement, dams, tunnels and fundamental soil behaviour improved the quality of life for millions of people, particularly those in developing countries. On March 4, 2009, Milligan died while vacationing in Mali, West Africa.

ENGINEERING MEDAL— ENGINEERING EXCELLENCE

R. Mohan Mathur, PhD, P.Eng., FCAE, is an educator and researcher in electrical machines and flexible power transmission systems. He spent seven years as head of the University of Manitoba's department of electrical and computer engineering before becoming dean, faculty of engineering, University of Western Ontario. In 1999, he retired from academe to become vice president,

nuclear training support and services, Ontario Power Generation. Mathur was also the founding president and CEO of the University Network of Excellence in Nuclear Engineering.

J. Moyra J. McDill, PhD, P.Eng., FCAE, is an educator, mentor and expert in thermal-mechanical numerical analysis. Her techniques have been used by international researchers and by such companies as Volvo and Bayer. For seven years, she has served as a governor-in-council appointed commissioner of the Canadian Nuclear Safety Commission. McDill was the first woman to complete a doctorate in mechanical engineering at Carleton University, the first female faculty member hired by the department and the first woman to be promoted to full professor in the faculty of engineering.

For more than 50 years, Thomas Szirtes, PhD, P.Eng., has made numerous contributions to the practice of mechanical and biomedical engineering. During 16 years with Spar Aerospace, he worked on the development, design, manufacture and installation of the CANADARM. He also worked on creating a remote-controlled system to replace the fuel channels of a CANDU nuclear reactor. Szirtes is the holder of five US and worldwide patents, author of an 850-page textbook and over 80 scientific and engineering papers, and was founding editor of the *Spar Journal of Engineering and Technology*.

ENGINEERING MEDAL—ENTREPRENEURSHIP

Since Peter Sorensen, P.Eng., co-founded EMS Associates 20 years ago in a shopping mall office, the business has grown into a world leader in the design and supply of ship-borne bulk handling systems. Today, EMS-TECH Inc. has more than 60 employees, annual revenues of \$30 million, and offices in four countries. A hands-on approach sees Sorensen serve as a mentor to the

company's engineering employees and summer students. As a result of the company's success, EMS-TECH received the Ontario Global Traders Gold Level Award in Innovation and the Silver Level Award in Market Expansion in 2006.

**ENGINEERING MEDAL—
MANAGEMENT**

Raymond Mantha, P.Eng., executive director, provincial highways management, Ontario Ministry of Transportation (MTO), leads a dedicated team organized to implement all transportation initiatives at the Windsor Gateway, involving all levels of government and a multitude of stakeholders on both sides of the international border. As manager of engineering at MTO, he was instrumental in the initial delivery of the expansion of Highways 11 and 69. He also served as the ministry's chief engineer, leading the development and management of provincial highway policies, standards and investment strategies.

Lloyd McCoomb, PhD, P.Eng., is recognized as Canada's leading practitioner in airport planning, functional design, finance, implementation and management. As president and CEO of the Greater Toronto Airports Authority (GTAA), he set a new strategic direction for the airport authority, focusing on competitiveness, gateway development and corporate sustainability. In 1997, as the GTAA's vice president of planning and development, he managed the planning, design and construction of the \$4.4-billion revitalization and major expansion of Toronto Pearson International Airport.

Over the past 30 years, **John D. Tofflemire, P.Eng.**, has led the development of significant municipal engineering projects for the City of Windsor and the Municipality of Leamington. As Windsor's commissioner of traffic engineering and subsequently city engineer and general manager of public works, he managed multi-million-dollar capital works budgets and supervised several hundred staff. In 2006, Tofflemire joined the Municipality of Leamington as director of community services and is responsible for engineering, operations, environmental services, and culture and recreation. He is a sought-after conference speaker and instructor of traffic engineering and transportation planning at the University of Windsor.

**ENGINEERING MEDAL—
RESEARCH AND DEVELOPMENT**

Greg Evans, PhD, P.Eng., professor, department of chemical engineering and applied science, University of Toronto (U of T), has developed sophisticated tools to analyze the composition of particles and advanced methods for data interpretation to identify the emission sources contributing to air pollution at different locations. He led the development of the Southern Ontario Centre for Atmospheric and Aerosol Research; this year, \$15 million in funding was awarded to expand the centre across Canada. He also co-founded the Leaders of Tomorrow program to promote leadership skills of engineering students at U of T.

Nazir Kherani, PhD, P.Eng., is leading the development of solar as a viable green energy technology in Canada. As a senior scientist with

Ontario Hydro research division, he developed world-class tools for the detection, safe handling and storage of tritium as used at CANDU stations and tritium laboratories. He joined U of T in 2002 as associate professor, where he has developed and contributed to university-industry affiliations in the renewable sector. Kherani and his team are focused on developing technologies that will significantly reduce the cost of solar energy.

A researcher in environmental engineering, risk assessment and interpretation of statistics, **Edward McBean, PhD, P.Eng.**, has used his knowledge to assess water supply systems with a view to making them safer. His ability to apply theoretical principles and research findings to improve engineering assessments was a significant factor in the growth of Conestoga-Rovers and Associates, where he was a partner, vice-president and president of CRA Engineering. McBean was a faculty member at the University of Waterloo for 20 years. For the last six years, he has been a Canada research chair in water supply security at the University of Guelph.

Ian Moore, PhD, P.Eng., professor of civil engineering and Canada research chair in infrastructure engineering, Queen's University, is an expert on buried infrastructure for municipal and highway applications in Canada and elsewhere. Through practical experimental research, he helps engineers in the field make better decisions on whether to repair or replace existing systems. He led development of the GeoEngineering Centre in Kingston and has been its director since the centre's inception in 2001.

Javad Mostaghimi, PhD, P.Eng., professor, department of mechanical and industrial engineering, U of T, is internationally recognized in the area of thermal spray coatings. His work has led to major developments in the aerospace, automotive, power generation and resource processing industries. Mostaghimi is director and co-founder of the Centre for Advanced Coating Technologies. He has published over 120 journal articles and has held an NSERC junior industrial research chair in nuclear engineering and a tier 1 Canada research chair in advanced coatings.

Chul B. Caleb Park, PhD, P.Eng., professor, department of mechanical and industrial engineering, U of T, is a world leader in developing innovative, cost-effective technologies to pro-



tion. He volunteers on PEO's Experience Requirements Committee and its subcommittee, and he is a mentor for newcomers to Canada through Skills for Change. Grover also donates his time to various causes, including the United Way, the White Ribbon Campaign, Habitat for Humanity and Employment Equity.

duce foamed plastics. Since 1993, he has directed the Microcellular Plastics Manufacturing Laboratory at U of T, and is a tier 1 Canada research chair in microcellular plastics. For over a decade, he has also led the Consortium for Cellular and Microcellular Plastics with industrial sponsors from Canada and around the world.

ENGINEERING MEDAL— YOUNG ENGINEER

Dwayne R. Shirley, PhD, P.Eng., semiconductor packaging R&D engineer, Texas Instruments Inc., has established expertise in the deformation of lead-free solder used in modern computers and microelectronics devices. This follows a student career at U of T where he maintained a 4.0 grade point average, served as a course instructor and graduate teaching assistant, authored four refereed journal articles and delivered numerous technical presentations. He has played leadership roles in professional organizations, including PEO's Equity and Diversity Committee, the National Society of Professional Engineers' Mentorship Task Force, and FIRST/VEX Robotics design competitions.

PROFESSIONAL ENGINEERS CITIZENSHIP AWARD

A recognized authority on reliability engineering and quality engineering, Mohinder Singh Grover, PhD, P.Eng., worked for nearly 30 years with Ontario Hydro/Ontario Power Genera-

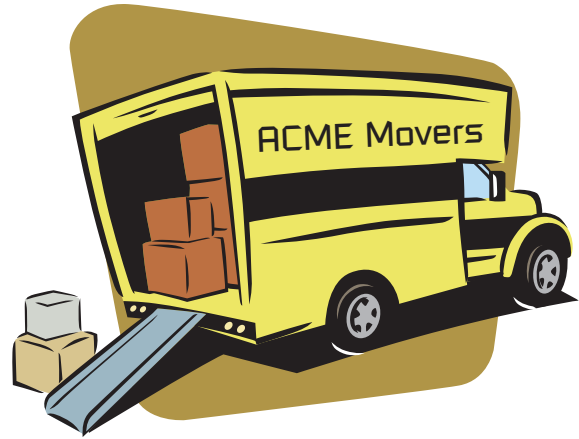
Plans for **NEW BUILDING** taking shape

By *Michael Mastromatteo*

PEO IS MAKING PROGRESS in its move to a new headquarters building at 40 Sheppard Avenue West, across the street from its current location.

PEO purchased the building in March and plans to occupy its space by the end of 2009, when its lease at 25 Sheppard Avenue West expires.

A newly established “40 Sheppard Task Force” has begun mapping out plans for the short-, medium- and long-term use of the new building. The task force is working with Sweeny Sterling Finlayson & Co Architects Inc., an architectural firm engaged to facilitate the redesign and gradual occupancy of 40 Sheppard’s offices. As part of the process, it’s expected PEO and the architects will organize “visioning sessions” with staff



and volunteers to establish optimal workspace scenarios. The task force will be seeking the widest possible input in the design of 40 Sheppard.

Occupancy of the new eight-storey building is the first step in PEO’s plan for the headquarters, which it envisions as a centre for the profession in Ontario.

PEO intends to occupy about half of the available space in the new building, leaving the remainder available for lease and other potential uses.





Regulators review professional development options *By Michael Mastromatteo*

Two regulators on opposite sides of the country are studying the use of professional development programs to keep members' skills fully attuned to practice realities.

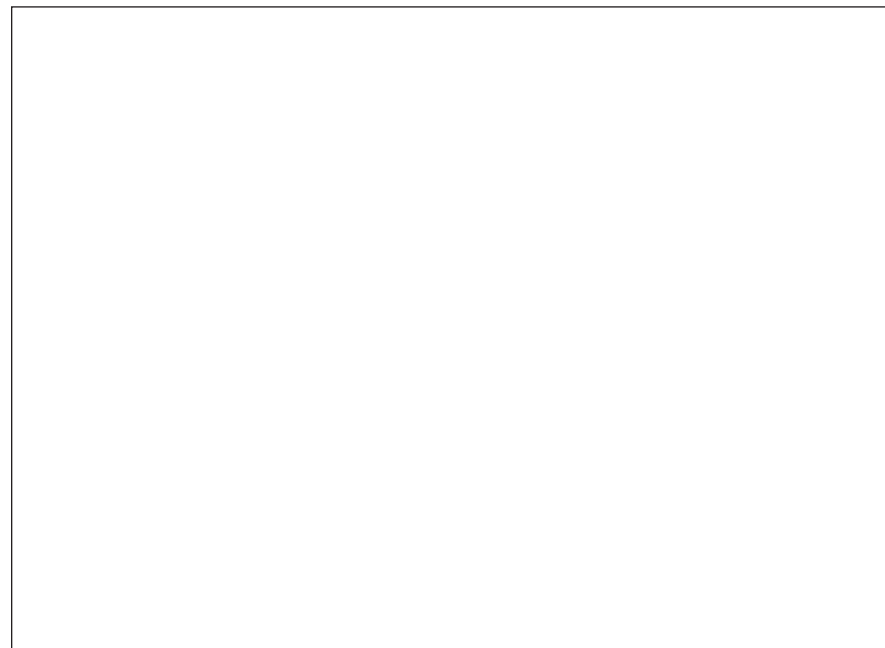
The Association of Professional Engineers and Geoscientists of British Columbia (APEGBC) is examining professional development for members as part of its larger professional renewal campaign.

The renewal effort is part of a wide-ranging plan to determine how APEGBC's programs contribute to more effective and responsible self-regulation in the public interest.

In a 2008 survey, more than 60 per cent of BC engineers responding agreed professional development should be mandatory, while 47 per cent of respondents called for mandatory reporting of voluntary professional development activity.

BC now has a voluntary continuing professional development (CPD) program with recommended minimal activity levels, which members are encouraged to report meeting.

The regulator's Professional Renewal Task Force has recommended that APEGBC council implement a CPD reporting guideline to ensure compliance with minimum levels of related activity.



Due to budgetary constraints, however, APEGBC council recently agreed to hold off on such a program until resources become available. It's expected that a current CPD guideline will be revised to make it more flexible and user-friendly. APEGBC staff have been directed by its council to draft a bylaw to implement a mandatory CPD program, for council approval and member ratification.

In Quebec, the Ordre des ingénieurs du Québec (OIQ) has been working on a similar professional development program for its 56,000 members.

In February, the OIQ published a new professional development guideline (*Guide de développement des compétences de l'ingénieur*), which provides members advice on a personal professional development approach.

The guideline supports objectives of the OIQ's most recent strategic plan, which calls on engineers to fine-tune their skills throughout their career.

OIQ officials say that although the development guide does not require engineers to enroll in professional development programs, it is designed to make engineers aware of the importance of developing their skills and to help them identify training needs, plan their development, and record their activities.

Such activities will be compulsory only after OIQ has adopted the relevant regulation approved by the Office des professions du Québec. OIQ submitted the draft regulation on compulsory continuing professional development to the Office des professions in June 2008. The draft regulation calls for 30 hours of training over a two-year period.

"At the OIQ, we invite our members to approach skills development in the same way that we work to resolve engineering problems," says OIQ's new president, Maud Cohen, ing. "This approach, applied with appropriate rigour, is necessary if we want to develop all the skills required for the practice of our profession today and thus satisfy society's high expectations for us."

GET READY for NEM 2010!

By Sonya Agnew

NATIONAL ENGINEERING MONTH (NEM) is a cross-country, month-long celebration of engineering where volunteers in each province and territory stage events and activities to increase public awareness of engineers and engineering technology, and encourage young people to consider careers in engineering. During the event, each region across Canada chooses a week in which to hold its celebrations.

Without question, NEM 2009 was a huge success. In Ontario, dedicated volunteers conducted over 100 events in dozens of communities. Over 30,000 children, teens and adults discovered their “inner engineer” and saw how engineering and technology contribute to society.

Communications and media coverage delivered many positive messages about engineering and technology to a broad cross-section of Ontarians.

In Ontario, NEM 2010 will take place from February 27 to March 7. Under a “Design the future” theme, the plan is to expand programming to broaden the scope and appeal of engineering to the public and to inspire young minds to seek creative engineering and technical solutions to solve pressing issues and enrich our everyday lives.

“National Engineering Month is a wonderful opportunity to get involved and have lots of fun at the same time,” says Holly Anderson, P.Eng., chair, National Engineering Week Ontario Steering Committee (NEWOSC). “We certainly appreciate all the time and effort our volunteers put into NEM, helping to enhance the image and impact of engineering and engineering technology, especially among our young people.”

Volunteers interested in organizing or taking part in a NEM activity in 2010 can visit the official NEM website at www.engineeringmonth.on.ca. Volunteers are needed for the informative Engineers Without Borders workshops, the fun and challenging K’NEX workshops, and to lend a hand as new activities are added.

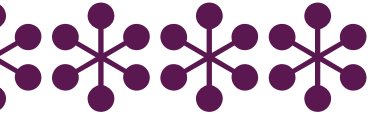
Sponsors looking to benefit from the brand exposure NEM provides are invited to help support NEM’s events. You can find more information on the website.

The five members of NEWOSC are the Ontario Society of Professional Engineers, Professional Engineers Ontario, Consulting Engineers of Ontario, the Ontario Association of Certified Engineering Technicians and Technologists, and the Ontario Science Centre.

Let’s all get involved. Help us spread the word about the great work engineers do every day and inspire the engineers of tomorrow.



Joshua Real proudly displays his National Engineering Month t-shirt at the K’NEX workshop held at the Ontario Science Centre on February 28.



THREATS TO SELF-REGULATION A FOCUS OF WORKSHOP

By Jennifer Coombes

Among the themes of a June 23 workshop organized by the Professional Associations Research Network (PARN) was self-regulation and, in particular, threats to the concept.

Guest speakers representing various self-regulated professions, including PEO CEO/Registrar Kim Allen, P.Eng., offered a range of perspectives on the question of the day: How can regulatory colleges preserve self-regulation?

Allen outlined PEO's strategy, which includes balancing the public's and licence holders' interests; ensuring registration practices are transparent,

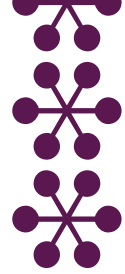
objective, impartial and fair; ensuring licensing requirements are relevant to today's practices; and working with government on its public policy initiatives.

"It's a major objective of ours to have government view PEO as a partner and understand and support our policy direction. This is imperative to ensure our elected officials continue to recognize PEO's regulatory mandate. PEO has made a commitment to improved government relations to ensure that our view is being heard and understood," Allen said.

Allen referred to "Self-regulation under siege," a recent article by Richard Steinecke, LLB, which outlines five strategies for defending self-regulation: 1. Articulate the benefits of self-regulation to the public; 2. Identify the costs of excessive accountability require-

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ments; 3. Do a good job; 4. Engage in public relations; and 5. Maintain good communications with one's ministry.

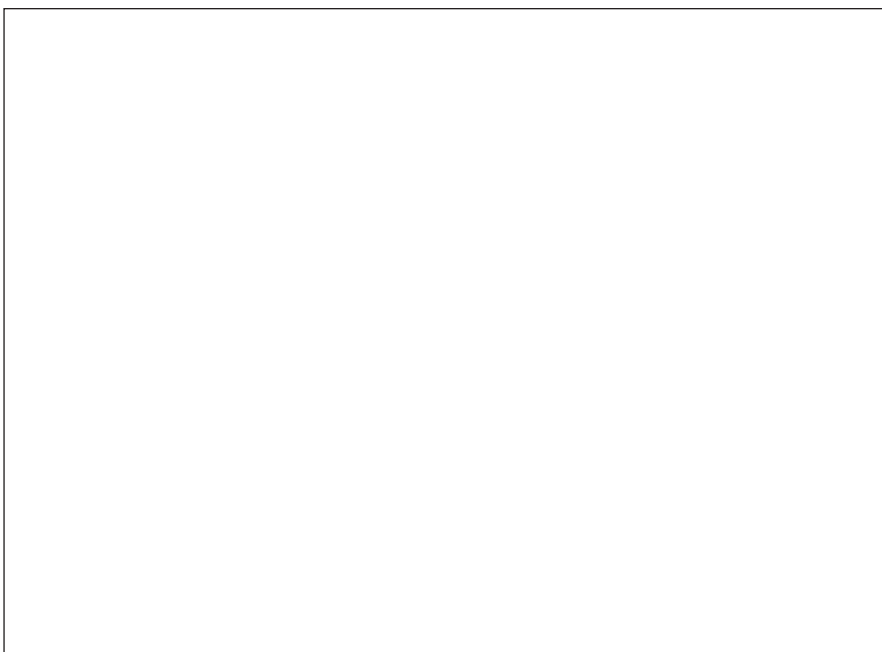
But if PEO is feeling somewhat secure in its self-regulatory status, Irwin Fefergrad, LLB, registrar/CEO, Royal College of Dental Surgeons of Ontario, said pure self-regulation is a myth and is eroding as far as health providers are concerned.

At issue currently is Bill 179 (the *Regulated Health Professions Statute Law Amendment Act, 2009*), which Fefergrad believes is a response to nothing more than political pressure. He said David Caplan, minister of health and long-term care, wants the power to fire a council/board and the registrar and take over as regulator. Government, he said, doesn't care about what health providers say is so great about their self-regulation; they're only there to get re-elected.

He said FARPA (the *Fair Access to Regulated Professions Act*) came about only because of government's need to respond to the complaints of the internationally trained. Although most regulators are good at what they do, he said, government came up with the notion that regulators are barriers.

As for his advice to protect self-regulation:

1. Stand proud; 2. Don't compromise—be true to your values to protect the public; and 3. Tell the government what you do.



“Regulators need to bellyache a lot about legislation that won't do what government thinks it will do,” said Fefergrad. However, he said, “At the end of the day, it's a bit of a losing battle.”

Katherine Corrick, LLB, director, policy and tribunals, and corporate secretary, Law Society of Upper Canada, also said she believes self-regulation is seriously endangered as a model here and around the world. She cited Enron, the recession, and terrorist attacks as contributing factors to the growing acceptance of government oversight. She described the increasing intrusion on self-regulators as “death by 1000 cuts.”

Self-regulation, she said, requires serious attention to remain in the public interest: “We need to get better at responding quickly to misconduct complaints, get tougher on penalties, and not duck issues. Every day we must say that we protect the public and we must do this out in the open, not behind closed doors. If we are seen to act on behalf of our members, public confidence will diminish.”

Corrick said regulators of professions need to get more strategic in communications, starting with front-line staff—the most important link to the public and who can be either ambassadors or saboteurs—and take advantage of media like blogs, Facebook and Twitter.

Corrick also advised visits to the politicians' constituency office staff, who are in the thick of everyday issues, making it worthwhile to spend some time there and to leave brochures.

For his part, Jaime Watt, chair, Navigator, a Toronto-based consulting firm specializing in public opinion, communications strategy and public policy development, said self-regulation issues aren't silos; they affect others. He said he believes some regulators are on the right track and some are going in the wrong direction.

Watt said: “Media coverage leads to public opinion, which leads to government action. You win when you make sure your voice is heard, no attack goes unanswered, no error goes uncorrected, and you can craft a compelling narrative.”

Andy Friedman, director of PARN and professor of management and economics, University of Bristol, UK, concluded the session on self-regulation with preliminary findings of the group's 2009 international benchmarking survey.

He said the survey results indicate the most challenging areas of regulation appear to be arbitration, member engagement, using contracts vs. informal agreements, public awareness, ensuring regulations are up to date, handling applications from internationally trained applicants, and the global nature of the organization.



Canadian engineering profession continues to grow: ENGINEERS CANADA SURVEY

By Jennifer Coombes

EACH YEAR, Engineers Canada surveys its constituent members to uncover trends in engineering in Canada. The result is a comprehensive, nationwide view of the profession's demographics.

Following are some selected results of the latest survey:

- Adjusting for those licensed or registered in more than one jurisdiction, the total number of “engineer members” across all of Engineers Canada’s constituent organizations was estimated to be 206,300, up 3.5 per cent from 199,128 in 2007. Engineers Canada defines “engineer members” as comprising all categories of member, including engineering interns, but not students;
- The number of practising “P.Engs-exclusive” in Canada, adjusted for membership in more than one jurisdiction, was 141,417, up 3.1 per cent from 2007. Engineers Canada defines “P.Eng.-exclusive” as excluding P.Engs accounted for in other categories, such as licence to practise holders, temporary and restricted licence holders, non-practising P.Engs, and life members;
- The number of engineering interns increased by 9.6 per cent in 2008, down from an 11.7 per cent increase in 2007.

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However, the increase in the number of trainees preparing for integration into the profession has not yet translated into substantial increases in the number of practising P.Engs;

- In 2008, the three largest constituent organizations—PEO, Ordre des ingénieurs du Québec (OIQ) and Association of Professional Engineers, Geologists and Geophysicists of Alberta (APEGGA)—comprised almost 79 per cent of all Canadian engineer members (PEO—34.2 per cent, APEGGA—19.2 per cent, OIQ—25 per cent);
- The lowest rates of growth in the number of engineer members were reported in Prince Edward Island (0.2 per cent), Nova Scotia (1.4 per cent) and Northwest Territories/Nunavut (-1.4 per cent);
- Sharp increases in the annual rate of growth in engineer members relative to 2006-2007 were reported in the Yukon (from 4.4 to 11.9 per cent), Newfoundland and Labrador (from 2.6 to 9.5 per cent), Saskatchewan (from 7.8 to 9.1 per cent), and Manitoba (from 4.2 to 6.6 per cent);
- Women comprised 9.5 per cent of all P.Engs-exclusive in Canada in 2008, representing a gradual but steady year-over-year increase since 2004. The proportion of women is highest in Quebec (11.1 per cent) and New Brunswick (11 per cent). Nationally, 19 per cent of engineering interns are female, with a higher proportion of women among engineering interns than among P.Engs in every constituent member, which may move the profession slowly toward gender balance; and
- Considering Canada as a whole, there were 4.8 practising professional engineers per thousand people in 2008, up slightly from 4.7 in 2007.



PET INSURANCE *AVAILABLE* TO P.ENGs

By Michael Mastromatteo

Ontario professional engineers can now take advantage of a new pet health insurance program, thanks to a new partnership between Engineers Canada and the Ontario Society of Professional Engineers.

Petsecure, available to all Ontario engineers, provides up to 80 per cent of the cost of veterinary bills for accidents and illness, and includes X-rays, hospitalization, surgery and prescriptions.

The program is limited to pet dogs and cats.

There are four levels of comprehensive coverage under Petsecure, allowing engineer pet owners to suit health-care coverage to their pet's specific needs.

There is no fee to enroll in Petsecure, and participants are now entitled to a 5 per cent discount on monthly premiums.

Pet health insurance is the latest affinity program offering available to engineers Canada-wide through their advocacy associations.

For more information, visit www.petsecure.com/engineerscanada.

Lawyer program highlights FOREIGN SKILLS

By Michael Mastromatteo

IN A MOVE SIMILAR to Ryerson University's bridging program for internationally educated engineering professionals, the University of Toronto is launching a new program allowing internationally trained lawyers to learn the intricacies of licensing and registration for the legal profession.

The Internationally Trained Lawyer Program, which begins operation in September 2010, will offer training to immigrant lawyers in such areas as academic training, language referral, networking, career services and employment counselling.

A key part of the new program involves directing internationally trained lawyers through the Law Society of Upper Canada's licensing and certification process.

It's an issue familiar to PEO and other engineering regulators, which have worked hard for some time to alert immigrants with engineering backgrounds of licensure requirements in Canada.

Ryerson University, through its school of continuing education, offers a similar program for internationally educated engineers hoping to become licensed as professional engineers in Ontario.

The Internationally-Educated Engineers Qualification Bridging Program (IEEQB) at Ryerson University is aimed specifically at internationally educated licence applicants who have been offered a confirmatory examination program by PEO. Although the IEEQB is primarily academic in nature, it also provides students opportunities for networking and career counselling, which are vitally important to professionals seeking to become certified in a new country.

Jane Kidner, assistant dean at the University of Toronto faculty of law, told *Engineering Dimensions* the international lawyer program comes in response to extensive demographic changes in Ontario.

"There's insufficient training right now for internationally trained professionals, so we're offering a program to bridge the gap between where international lawyers are now and where they need to be," Kidner says. "In some ways, it's a shame internationally trained professionals don't really know the situation, and we should be doing a better job clarifying what the requirements are before people make the decision to come here."

PEO chapter town hall meetings and other workshops aimed at international engineering graduates have uncovered a lack of awareness on the part of many new Canadians as to the need for licensing in self-regulated occupations, such as engineering, law, accounting and medicine. This finding is despite PEO being at the forefront among regulators in

informing potential new Canadians about licensing and registration prior to their arrival in Ontario, and enabling them to apply for licensure and begin the process of having their qualifications assessed from outside Canada—before they are locked into a decision to immigrate.

News of the University of Toronto international lawyer program comes in the wake of a recent announcement by the federal government that it is providing additional funding for international credential recognition efforts. The latest funding provides international graduates trained as practical nurses, medical radiation technologists, pharmacists and teachers with information on having their credentials recognized in Canada.