

Talks stall: Deadline for code exams stands

By KAREN HAWTHORNE

PEO and the Ministry of Municipal Affairs and Housing (MMAH) are making no progress in their discussions over the requirement that building designers, including engineers, pass examinations that demonstrate their knowledge of the *Ontario Building Code* (OBC).

"It is clear we are at an impasse," PEO President Bob Goodings, P.Eng., wrote to Minister John Gerretsen on August 12. "You and your ministry have stated your commitment to retain the qualification and registration requirements for licensed designers on the basis of public safety, despite our never having been provided any supporting rationale that licensed engineers, our processes, or the *Professional Engineers Act* (PEA) have been deficient in this regard."

Goodings was responding to the minister's June 23 letter, which followed a May 19 meeting with PEO (see *Engineering Dimensions*, July/August 2005, p. 10), as well as a July 26 letter from Assistant Deputy Minister Elizabeth McLaren, which followed a July 18 meeting between PEO and MMAH staff. In her letter, McLaren said the government "is not prepared to entertain a proposal that would see the complete exemption of professional engineers from requirements that they demonstrate knowledge of the building code in their area of practice, or that they carry minimum levels of insurance."

Meanwhile, in an August 11 letter to President Goodings, Minister Gerretsen reiterated the government's position that exemption is not an option, stating that the ministry remains open to proposals from PEO to establish a mutually acceptable qualification and registration system for professional engineers. "I am interested in a solution that will adhere to the government's objectives related to public

safety and accountability while, at the same time, recognizing the special status of the engineering profession," Gerretsen wrote.

As stated in the President's most recent letter, PEO maintains that the MMAH qualification and registration scheme imposes "additional requirements on licensed designers already regulated through legal instruments established in existing public statutes like the PEA," and introduces overlapping regulation on professional engineering practice "that is not only unwarranted but also bad public policy." Noting that those governed and regulated under the PEA are accountable for code knowledge through

government commitment to public safety are "tantamount to public denigration of the licences granted under the authority of the PEO, which was created in the public interest well over 80 years ago."

Saying the issue of MMAH's "jurisdictional encroachment" undermines the fundamental purpose of a self-regulating profession, Goodings called on Minister Gerretsen to meet directly once more with PEO and with Attorney General Michael Bryant, the custodian of the PEA, "to attempt to resolve it."

Barring any movement by MMAH, however, the qualification and registration requirements for designers under Regulation 305/03 of the *Building Code Statute Law Amendment Act* will come into effect on January 1, 2006.

Although the Ontario Association of Architects (OAA) has established a parallel qualification system to meet the requirements, like PEO it remains convinced that full exemption for licensed architects would better meet the needs of both the public and practitioners. In June, OAA Council launched a task force to have architects exempted from any OBC-related qualification and registration requirements. The task force is working with other stakeholders with similar interests, including PEO.

One area both regulators are monitoring is the MMAH announcement that it will form a Building Advisory Council (BAC) after January 1 to advise stakeholders on policy and technical matters related to the construction approvals and regulatory system. They are part of a large group of organizations with an interest in the building regulatory framework that is proposing to MMAH the terms of reference and agenda items for an initial BAC meeting.



Under Bill 124, the Ministry of Municipal Affairs and Housing is requiring building designers, including engineers, to pass examinations that demonstrate their knowledge of the *Ontario Building Code*.

their professional obligations for public safety, Goodings said "the arbitrary separation of building code knowledge from building code application in the practice of professional engineering is not in the public interest."

Goodings concluded by describing MMAH's refusal to exempt licence holders from its "redundant requirements" as "an intrusion into the self-regulation of the engineering profession." He said repeated statements that the exam requirements are necessary because of a

MOE changes site assessment regulation

By KAREN HAWTHORNE

The provincial government has set a proclamation date of October 1, 2005 for mandatory filing of records of site condition (RSCs) for specified changes in property use.

That's when two sections of the *Brownfields Statute Law Amendment Act* (formerly Bill 56/01) relating to the mandatory filing of RSCs are being proclaimed, making effective sections 168.3.1 and 168.6 of the *Environmental Protection Act* and related sections (parts 4 and 10) of Ontario Regulation 153/04, Records of Site Condition.

The mandatory filing provisions relate to when an RSC must be filed with the registry. In particular, RSCs must be filed when a property is being changed from an industrial, commercial or community use, to a more sensitive use, such as residential, institutional, parkland or agricultural. The provisions will also restrict construction of a building before filing an RSC, if the building will be used in connection with a specified change of property use, and will prohibit issuance of a building permit, if it's in relation to use of the property or construction of a building that is restricted by a certificate of property use.

The Ontario environment ministry (MOE) also anticipates amendments to building code regulations to make these provisions law under the *Ontario Building Code*.

Following some confusion over insurance requirements, MOE has further amended Ontario Regulation 153/04 for the October 1 proclamation date.

In particular, there are two clarifications to the regulation related to insurance for "qualified persons" (QPs)—those allowed to certify records of site condition. One is to make it clear that an employer can provide the insurance coverage; the other is to clarify that the insurance policies don't have to include a two-year tail in the policy, but that the policy simply has to be renewed for two years after taking actions as a QP.

In a related matter, the debate over which PEO licence holders should be qualified persons continues and PEO has met several times this summer with MOE officials.

As it stands, the legislation specifically excludes PEO limited licence holders as qualified persons for elements of Brownfields site assessment. PEO says the exclusion may be because MOE misunderstands that limited licence holders have the same regulatory obligations as professional engineers—they have already met all the qualifications for licensure for professional engineering practice within the limitation of their licence, and are regulated by PEO.

With MOE planning to set up its own certification program for qualified persons by October 2006, PEO maintains that, as the engineering regulator for the province, it should be the sole body responsible for the qualified persons who are also its licence holders; a separate regime is only

duplicating the process and regulations already in place.

"We are still looking to have input with MOE with regard to whatever system will replace the QP system in October 2006," said Bernie Ennis, P.Eng., PEO manager, practice and standards.

Also in the works, MOE plans to amend Ontario Regulation 681/94, Classification of Proposals for Instruments, to classify certificates of property use as a class II instrument under the *Environmental Bill of Rights* (EBR).

This classification would require a minimum level of public notification, including a posting on the EBR environmental registry of certificate of property use proposals that would provide third-party leave to appeal a decision on a certificate of property use.

Anne Poschmann elected CEO chair

By JENNIFER COOMBES

The Renaissance Fallsview Hotel in Niagara Falls was the backdrop for Consulting Engineers of Ontario's (CEO) AGM on

Friday, May 27. The three-day event included business meetings on the first two days and concluded with the AGM and the 2005 Ontario Consulting Engineering Awards (see pp. 30-31 for winners) on May 27.



The 2005-2006 CEO board. Back row (left to right): Norm Huggins, P.Eng. (ACEC Director), Garry Leveck, P.Eng., Anita Smith, P.Eng., Bruce Miller, P.Eng., Bob Fleeton, P.Eng., Brian Gray, P.Eng. (ACEC Director), Ron Mazza, P.Eng., Chris Redmond, P.Eng. Front row (left to right): Ron Wilson, P.Eng., John Gamble, P.Eng., Anne Poschmann, P.Eng., Geoff Pound, P.Eng., Joe Heyninck, P.Eng., Ian Williams, P.Eng. Absent: Geza Banfai, Mark Mitchell, P.Eng. (ACEC Director), Andy Robinson, P.Eng. (ACEC Director), Albert Sweetnam, P.Eng.

In his report, outgoing Chair Geoff Pound, P.Eng., outlined some of CEO's accomplishments and highlights during his year at the helm. In particular, he mentioned CEO's strategic direction of adding value to the title of consulting engineer. And he spoke about CEO's work in relation to Bill 124. Like PEO, CEO has been vocal over the past year in its opposition to Bill 124

and practices that take away from self-regulation. John Gamble, P.Eng., president of CEO, said in his address that Bill 124 had taken up a great deal of time over the past year but that the organization would remain vigilant on this and other threats to self-regulation. Gamble said also that another focus of CEO is to aggressively promote quality based selection (QBS). He reported that the organization is slowly making progress in this area.

At the AGM, Anne Poschmann, P.Eng., of Golder Associates Ltd., took over as chair for the coming year. Other elected officers include Ian Williams, P.Eng., vice chair; Ron Wilson, P.Eng., treasurer; and Joe Heynink, P.Eng., secretary. Geoff Pound will act as past chair. Newly elected directors on the board include Chris Redmond, P.Eng., and Anita Smith, P.Eng.

In her address, Poschmann said she is looking forward to another year of accomplishments and forward movement.

In her address, Poschmann said she is looking forward to another year of accomplishments and forward movement. Among her goals are to improve information transfer and communication in all directions. Another goal is to strengthen the relationships CEO has formed with organizations that have common issues, especially the Ontario Society of Professional Engineers. Poschmann also spoke about the desire to lessen confusion about the term “consulting engineer” by having CEO take on its designation. In the spring, CEO submitted a white paper to PEO outlining recommendations for changing the criteria and process for designated consulting engineers in order to enhance the value of the designation. PEO is considering the document as part of a project aimed at achieving the Strategic Plan goal of maximizing “the reach and effectiveness of PEO’s regulatory function within the current *Professional Engineers Act* to better serve and protect the public interest, thus elevating the value of the licence.”

Plans for NEW 2006 start now

By JULIE COHEN

Even though National Engineering Week (NEW) 2006 (February 25 to March 5) is months away, it’s not too early to start planning events and activities that promote the event’s goals. Those goals include raising public awareness of the importance of engineering and technology in our daily lives, and encouraging our young people to consider careers in engineering and technology. For Engineering Week, the emphasis is on hands-on activities for children and youth that demonstrate real-life applications of the math and science they study in school.

In Ontario, Engineering Week 2006 will continue with the theme “Engineering: A Caring Profession” for a second year. The focus will be on how engineers devote themselves to the well-being of people at home and around the world. This time there will be special emphasis on the role of engineering pro-

fessionals in protecting our environment.

“Engineering Week activities pay dividends to organizers and volunteers when they see how excited kids get discovering how what they learn in school applies in real life,” says National Engineering Week Ontario Steering Committee (NEWOSC) Chair David Tsang, A.Sc.T. “National Engineering Week not only provides an opportunity to raise the profile of the engineering and technology professions but also to contribute to the future of the next generation.”

NEWOSC offers funding assistance to encourage volunteers throughout Ontario to organize activities and events for the public. After mid-September, information on how to obtain NEWOSC funding assistance will be posted on the NEW Ontario website at www.engineering-week.on.ca. The deadline for funding applications is November 10, 2005, so there’s no time to lose.



Spectators watch as a bridge is tested at PEO Algonquin Chapter’s annual popsicle stick bridge-building competition, held at the West End Pembroke Mall during Engineering Week 2005.

Downtown Toronto selected for PEO headquarters

By KAREN HAWTHORNE

PEO will move its offices to downtown Toronto in 2009 for more visibility, square footage and proximity to public transit, government buildings, and amenities such as hotels and restaurants. PEO's Sheppard Avenue West lease expires in December 2009 and the landlord requires notice before the end of 2008.

Council approved a general downtown location at its June meeting, on the recommendation of its Accommodation Task Force (ATF) and realtor CB Richard Ellis, hired to consult on the move.

ATF Chair Nick Monsour, P.Eng., told *Engineering Dimensions*: "Council made a decision to locate PEO's offices in downtown Toronto because of the proximity to the provincial government

area, visibility to corporate businesses, plus transportation convenience."

"Downtown will be convenient to the majority of those who frequent the

public transit in a future of escalating fuel costs and extreme road congestion.

Downtown is the hub of all modes of public transportation, including the

"We have been limited in our opportunity to brand at 25 Sheppard. Ownership gives you the flexibility for signage and other even more significant endeavours towards recognition or identity."

ATF member Laurier Proulx, C.E.T.

office most routinely," adds ATF member Barry Hitchcock, P.Eng. "It will put us in the face of the Ontario government and provide high visibility of PEO. It also recognizes the importance of pub-

l Pearson Airport Link that will be in operation by 2009 when the move will take place."

The decision comes after surveys of key stakeholders, including Council,

committee members and staff, and a review of competing priorities.

Of top concern, office space at the current location does not meet the demand for meeting and interview rooms for the Experience Requirements Committee and other PEO business, says Daria Babaie, P.Eng., PEO's director of administrative services, who is the staff advisor to the task force.

"Space is currently an issue for us and there are limited options for expansion in this building," he says. "This move provides us with a chance to plan our future accommodation well, and we'll take it as an opportunity to establish visibility for our profession and the public in a location that offers convenience to our volunteers, applicants, staff, and members."

The landlord at 25 Sheppard has advised PEO that there is limited space available in the building and the building's principal tenant (which is not PEO) has a right of first offer on any space that does become available.

A current rent of \$1.2 million for offices and storage, projected to be \$1.45 million in 2009 and higher if the lease is renewed in 2010, is also a factor in PEO's decision to seek alternative accommodation.

Moving outside Toronto into Durham Region to the east or beyond Mississauga to the west would also require a change to the *Professional Engineers Act*, which stipulates that PEO be located within the city of Toronto.

While the 905 airport area was originally also considered as a potential location, downtown Toronto meets more of PEO's criteria.

Next steps for the task force include a detailed market analysis to determine availability of specific properties and whether to buy or rent.

"Ownership is advantageous to PEO in several respects," says ATF member Councillor Laurier Proulx, C.E.T. "We have been limited in our opportunity to brand at 25 Sheppard. Ownership gives you the flexibility for signage and other even more significant endeavours towards recognition or identity."

Awards applaud technical excellence, community service

BY NICOLE AXWORTHY

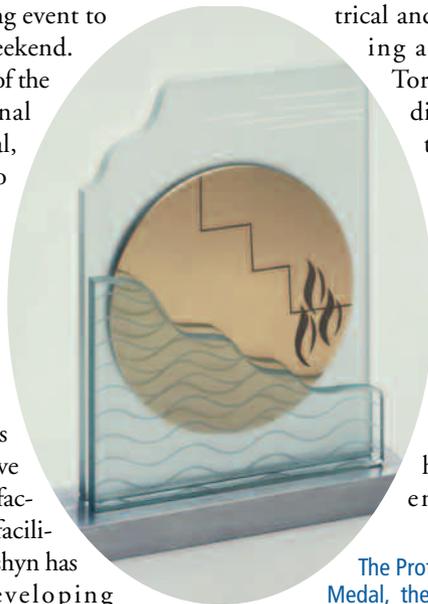
Fifty-eight years have passed since PEO awarded the first Gold Medal to C.D. Howe, P.Eng., to recognize outstanding leadership and contributions to the Canadian war effort during the Second World War. Since then, the awards program has continued to honour engineers who have made a difference to the profession, to industry and to society. This year's Ontario Professional Engineers Awards (OPEA), now co-presented by PEO and the Ontario Society of Professional Engineers, will honour 11 individuals in areas including engineering excellence, entrepreneurship, management, and research and development. The awards will be presented at a gala on Saturday, November 19, 2005, at the Hilton Markham Suites, just north of Toronto, as the capping event to the first Engineers' Weekend.

The premier award of the OPEA, the Professional Engineers Gold Medal, will be presented to Frank Ewasyshyn, MAsc, MBA, P.Eng. From his beginnings as a shop maintenance foreman at Daimler-Chrysler Corp. 29 years ago, he has worked his way up to his current role as executive vice president of manufacturing, overseeing 30 facilities world-wide. Ewasyshyn has spent his career developing advanced technologies in the highly competitive automotive industry, and was an integral part of the pioneering movement to develop the minivan. In doing so, he has earned a reputation as one of the foremost experts in the field of automotive manufacturing engineering. He is a strong supporter of diversity in the workplace and the advancement of women in engi-

neering. He is also a dedicated philanthropist involved in a number of community charities.

Receiving the Engineering Medal in the Engineering Excellence category will be John (Jack) de la Vergne, P.Eng., Gordon Slemon, PhD, P.Eng., and Bert Wasmund, PhD, P.Eng. A senior consultant at McIntosh Engineering, de la Vergne is a recognized expert in mine shafts, hoists and associated mine infrastructure, with more than 35 years experience working in more than 20 countries. Among his greatest contributions to the mining industry are the writing and publication of two comprehensive textbooks, *The Hard Rock Miner's Handbook* and *The Hard Rock Miner's Technical Spanish Dictionary*.

Slemon, professor emeritus of electrical and computer engineering at the University of Toronto, has a long and distinguished career in teaching, research and global development. He has authored over 175 technical reports and publications, and has served as an engineering consultant to approximately 70 Canadian organizations. Using his talents and experience as a professor,



The Professional Engineers Gold Medal, the premier award of the Ontario Professional Engineers Awards, will be presented to DaimlerChrysler Vice President Frank Ewasyshyn, P.Eng., on November 19.

Slemon spent a year as a technical advisor to the Canadian Columbo Plan, establishing a new engineering college. He has also been involved in setting up graduate

engineering programs in Cuba, Saudi Arabia and China.

Wasmund has been recognized for more than 35 years as an expert in metallurgical and chemical processes for smelting metals. He is currently executive director of Hatch Ltd. Since joining the company in 1966, he has been instrumental in building its strong reputation for innovative engineering for the metallurgical industries. He has also published numerous papers on fluidized bed technology and smelting furnace design and been granted several commercially important patents for his inventions.

The Engineering Medal in the Entrepreneurship category will go to Anthony Franceschini, P.Eng. As president and CEO of Stantec Inc., Canada, he has led the company to exceptional growth and success over the past seven years, including a 181 per cent increase in gross revenue, a 319 per cent increase in net income, the addition of more than 3500 employees and the acquisition of more than 40 companies. For his inspiring leadership, Franceschini was ranked among the top 25 CEOs in Canada by *National Post Business Magazine* in 2003 and 2004, and Design Industry CEO of the Year in 2004 by *Professional Services Management Journal*.

Thomas Closson, MBA, P.Eng., will be presented with the Engineering Medal in the Management category for his contributions to the management of Canadian health care. Through employment in health care agencies and government, and now retired from serving as president and CEO of the University Health Network, Closson focused his career on introducing and advancing industrial engineering concepts and methods within the industry. He has served on numerous voluntary boards and provided mentorship for young industrial engineers to develop their careers in health system improvement and management.

Ralph Haas, PhD, P.Eng., and Sher Mirza, PhD, P.Eng., will each be honoured with the Engineering Medal in the Research and Development category. Haas, who is the Norman W. McLeod engineering professor and distinguished professor emeritus at the University of

Waterloo, has made important contributions to pavement engineering and infrastructure management through his more than four decades of research and development. He has lectured and consulted worldwide, published over 400 papers and authored 12 books, which are widely used in the field.

Mirza, professor emeritus of civil engineering at Lakehead University, has had a significant impact on improving structural engineering practice in North America through his innovative research. Among other accomplishments, he co-invented the patented Confined Capping System for compressive strength testing of high-strength, high-performance concrete. Much of his research has been adopted by Canadian and American codes of practice.

The Engineering Medal in the Young Engineer category will be presented to Thomas Chau, PhD, P.Eng. As a scientist and innovation theme leader at Bloorview Research Institute, Bloorview MacMillan Children's Centre, Chau is an emerging leader in the field of rehabilitative engineering and has enhanced the quality of life of children with disabilities through his research. In addition to his work at Bloorview, he is also an assistant professor at the Institute of Biomaterials and Biomedical Engineering at the University of Toronto, where he trains and inspires the next generation of engineering researchers.

Stuart (Wes) Libbey, P.Eng., and Kevin Lockey, P.Eng., will each receive the Professional Engineers Citizenship Award. Libbey, now retired, is a long-time educator and mentor who used his skills to serve the community and society. He spent four decades at St. Lawrence College in management and teaching positions and, in the wider community, has consulted on technical education in many impoverished



Frank Ewasyshyn, M.A.Sc., M.B.A., P.Eng., will be honoured with the OPEA's premier award, the Gold Medal, on November 19 at a gala event taking place at the Hilton Markham Suites.

countries. He has volunteered for such organizations as the Winnipeg Flood Relief Project, the Community Care Access Centre and the Cornwall Community Hospital Foundation.

Lockey, a senior engineer in the mechanical and metallurgy department at Ontario Power Generation Inc., has spent many years as a volunteer committed to educational outreach. He is involved in organizing a number of science-related programs for youth, including the Timmins Regional Science Fair and Canada-Wide Science Fairs. Over the past 10 years, he has contributed his time and use of his aircraft to personally fly over 100 young people as part of the Young Eagles program, which provides youth an opportunity to learn about aviation.

The OPEA is pleased to acknowledge its 2005 corporate partners: Canadian Standards Association, Celestica, Group Retirement Services, Hatch Ltd., Ian Martin Ltd., Jordan Engineering, Manulife Financial, The Personal Insurance Company, University of Windsor and XL Insurance.

Professional development key to retaining top engineering talent, forum says

By MICHAEL MASTROMATTEO

The Canadian Council of Professional Engineers (CCPE) recently cooperated with the Ontario Society of Professional Engineers (OSPE), Ontario's engineering advocacy organization, to stage a forum offering insights into the recruitment, retention and professional development of engineers.

Held April 25 and 26, the industry forum was also organized to invite input from engineer-employer organizations in updating the CCPE's recently released *National Guideline on Continuing Professional Development and Continuing Competence for Professional Engineers*. CCPE is the federation of the 12 Canadian provincial/territorial engineering regulatory organizations like Professional Engineers Ontario.

Employer participants at the forum completed a survey asking such questions as, "Is continuing professional development of your engineers monitored and reported?" and "Does your organization measure its return on investment in the professional development of engineering employees?"

The CCPE guideline, which was developed in consultation with its constituent members, was released in December 2004. It is designed to assist regulators in considering continuing professional development (CPD) and continuing competence (CC) programs, and to encourage individual practitioners to assess and manage their personal competence efforts. The guideline is also intended to promote discussion of ways regulators can monitor the continuing competence of licensees.

Forum keynote speaker Ronald Nolan, P.Eng., chair of the Hatch Group, discussed the "strategic consequences" of firms hiring a large number of engineers. Nolan urged engineering managers and human resources practitioners to strive for a workplace culture in which knowledge sharing and professional development benefit the individual



Kim Vicente, P.Eng., professor of mechanical and industrial engineering at the University of Toronto, discusses "human engineering" at the industry forum.

employee and the entire corporation.

Other presenters included representatives from private industry, universities and municipal governments, who outlined trends in the education and hiring of engineering graduates.

The recruitment and retention of engineering talent is expected to become more of an issue in light of recent downturns in the number of students applying for admission to Ontario engineering schools. Organizations traditionally employing a large number of engineers are now being encouraged to provide working environments that promote professional development as a key means to retain their best people.

Accordingly, employer representatives outlined company-based professional development initiatives, while human resource experts described some of the attributes and expectations younger engineers are bringing to the workplace. For example, Catherine Karakatsanis, P.Eng., vice president of Morrison Hershfield, told conference participants that professional development is becoming more important to today's young engineers than salary and job security. Firms should therefore emphasize such initiatives as competence assurance, mentoring, cross-training and knowledge sharing in order to retain top engineering talent, she said.

Kim Vicente, P.Eng., professor of mechanical and industrial engineering at the University of Toronto and author of the award-winning book *The Human Factor*, shared his thoughts on the importance of adapting technology and innovation to real human needs, rather than having individuals conform to rigid technological practice.

Workshops available at the forum covered such topics as engineering salaries, trends in education, industry competence standards, knowledge transfer strategies, and partnerships among universities, industry and government.

PEO President Bob Goodings, P.Eng., and PEO Councillor Ravi Gupta, P.Eng., led a workshop on the engineering licence and its significance in advancing an engineer's employment prospects.

OSPE then-President Annette Bergeron, P.Eng., noted that a forum dedicated to engineers' employability would naturally aim the spotlight at regulators' initiatives in the area of continuing professional development and competency assurance. She said Ontario lags behind other engineering regulators in terms of required CPD programs, adding that it's vital for engineers to remain current in their complex and rapidly changing fields.

PEO and the Manitoba engineering regulator currently have no such programs in place, while the remaining 10 regulators have adopted mandatory or voluntary programs for their licensees.

David Lapp, P.Eng., CCPE manager of professional practice, led participants through CCPE's CPD guideline, suggesting the competence of individual practitioners is a key part of the engineering profession's contract with society to uphold public safety and protection.

He said the CCPE guideline, which was initiated by the Continuing Competence Committee of the Canadian Engineering Qualifications Board, is an attempt to capture the current CPD practices of its constituent members and suggest how the programs could develop.

"The guideline reflects the existing practices of the 12 associations/ordre with guidance on how the programs could evolve in the future," Lapp told *Engineering*

Dimensions. "It was designed to accommodate the varying levels of programs across the country, from no program at PEO, to a continuing competence assurance program in New Brunswick."

Lapp said that in addition to allowing for comparisons, the guideline can be seen as a discussion starter for regulators that have not yet started CPD programs. He said feedback to the guideline will help identify problem areas associated with a widespread implementation of CPD and CC initiatives.

"One of the issues that may come up in the years ahead concerns the impact of varying professional development and continuing competence programs on the mobility of engineers between provinces and territories," Lapp added. "We do not want to create such an imbalance in programs that one association may not recognize the qualifications of engineers in another by virtue of not having adequate continuing professional development. There is a danger of

this happening if a province has no program, and another has a very advanced one."

Although PEO has no required level of CPD or CC for licensees, its *Code of Ethics* recognizes that it is each practitioner's duty to act at all times with "knowledge of developments in the area of professional engineering relevant to any services that are undertaken" and "competence in the performance of any professional engineering services that are undertaken." The *Code of Ethics* also calls on practitioners to "... provide opportunities for professional development and advancement of the practitioner's associates and subordinates, and extend the effectiveness of the profession through the interchange of engineering information and experience." In addition, it is professional misconduct under section 72(2)(h) of Regulation 941/90 for a practitioner to undertake work "the practitioner is not competent to perform by virtue of the practitioner's training and experience."

Court rejects Microsoft appeal

BY NICOLE AXWORTHY

A recent decision by the Superior Court of Quebec marks a symbolic victory for professional engineers across Canada, who have been trying to curtail the use of the engineer title by software developers.

The Ordre des ingénieurs du Québec (OIQ) filed penal proceedings against Microsoft Canada Co. for knowingly causing a person who is not a member of OIQ to use the title of engineer, thereby committing an offense under section 188.1 of the *Professional Code*, R.S.Q., c. C-26.

In the June 22 decision, Justice Carol Cohen of the Superior Court of Quebec rejected Microsoft's appeal of an April 5, 2004 ruling, confirming that Justice Claude Millette did not err in the original ruling.

Various Canadian professional engineering associations, including OIQ and the Canadian Council of Professional Engineers, have been fighting the mis-

use of the engineer title by Microsoft since 2001. After much pressure, Microsoft Corporation announced in May 2001 its intention to stop using the term "engineer" in the title "Microsoft Certified System Engineer." However, in July 2002, Microsoft Canada reversed the position and notified the 35,000 certified individuals in Canada that they could continue to use the title.

"The OIQ is very satisfied with the Superior Court decision, which confirms that the title engineer, alone or with descriptors, is reserved by the *Engineers Act* exclusively for our members," says Gaetan Samson, Eng., president of the OIQ.

The OIQ is continuing to oppose the unlawful use of the engineer title by individuals who are not members of the association. Several people using the term "systems engineer" have been charged by OIQ and found guilty under section 22 of the Quebec *Engineers Act* and section 32 of the *Professional Code*.

Roundtable examines certification and practice standards for software developers

By MICHAEL MASTROMATTEO

The lack of a highly visible software-related disaster may be delaying adoption of practice standards for today's software developers, say delegates to a recent software standards roundtable hosted by PEO and the Canadian Information Processing Society (CIPS)-Ontario.

Participants at the May 4 roundtable agreed generally that the software development sector has yet to experience a "triggering event" that would impel governments to demand a certification regime for software developers.

Organized by PEO's External Groups Task Force (EGTF), the roundtable asked about 30 invited participants from the financial, medical science, and control systems sectors to discuss the advisability of

developing and enforcing practice standards for software developers.

Peter DeVita, P.Eng., EGTF chair, said a key objective of the session was to ascertain whether major industry players are ready to move forward with practice standards in software development.

"Going into this [roundtable], the EGTF felt there must be some recognition that all is not well with the way we develop software in our world," DeVita said.

"The question in our minds is how ready are various sectors to accept a more rigorous regime to fix these bigger problems?"

The issue is significant for PEO because some elements of software development overlap with the practice of professional engineering, and there are few meaningful standards in this area. As well, the rapid expansion of software invisibly into all sectors of society could impose risks to public safety and welfare

"The EGTF felt there must be some recognition that all is not well with the way we develop software in our world."

Peter DeVita, P.Eng., EGTF chair

in the event of software glitches or control systems failure.

Last June, the EGTF presented a briefing report to PEO Council that recommended that PEO monitor the development of practice standards in the software sector, and that all stakeholders continue working towards a clear definition of which elements of software development might require certification or licensing.

PEO and CIPS have been working together for the past three years to determine if software development should be subject to practice standards, licensing or certification to help protect society from software-related failures.

CIPS is a national organization aiming to establish a regulated information systems profession in Canada. Although CIPS is reluctant to allow licensing bodies, such as PEO, exclusive right to define where software development overlaps with engineering, the society is working to have software development recognized as a profession and to establish practice standards for practitioners.

PEO Past President George Comrie, P.Eng., expressed concern at the roundtable that software development remains largely unregulated, despite software's increasing sway in financial administration, control systems and health care delivery. Comrie described the software development industry as something out of "the wild west," due to the lack of enforceable standards for developers. He said increased societal concerns about accountability and public protection add new impetus for governments, regulators, public safety authorities and other professional bodies to revisit the software standards question.

"We need to be proactive in thinking about how these areas of practice should be regulated," he told *Engineering Dimensions*. "The demand for regulation can come upon us with little warning as a result of trigger events such as Bre-X

(financial) and Walkerton (tainted water); then we can end up in emergency response mode as we try to defend our interests—and the public's—against someone else's possibly ill-conceived regulatory solution."

Peter DeVita said there was some support among roundtable participants for the idea of certification and licensure of software developers in the health and con-



Peter DeVita, P.Eng., chair of PEO's External Groups Task Force, discusses practice standards for software developers at the Ontario Software Standards Roundtable hosted by PEO.

trol systems sectors, but less support for certifying those in the financial sector.

He agreed, however, that the lack of a large-scale software-related catastrophe may be obscuring any sense of urgency. "I think this is partly related to the lack of visibility of modern engineering," DeVita said. "In the roads, railways and electrical power eras, engineering feats were big and powerful. But where does one 'see' software? There are over 20 microprocessors in the automobile today, running everything from the engine to the brakes, but who knows about this? Software is invisible. Yet, we do have indirect evidence of its existence, particularly when bugs are found. The triggering events could be masked as something else, such as the Toronto Stock Exchange shut down, credit card fraud, the failure of certain bank machines, or

even the failure of landing gear in aircrafts."

DeVita said that because software-related problems are largely hidden from the public view, the incentive to move forward with standards for software developers is lessened. "This point was raised several times in that corporations are reluctant to expose their software problems," he added. "This would make them even more vulnerable, especially since the extent of a software problem is never really confined. What else might be wrong that we don't know about yet?"

Robert Fabian, president of the CIPS Ontario region, noted that the relationship between the software development sector and professional engineering also remains problematic.

"Some restricted engineering practice depends on the use of software," Fabian said. "Some artifacts covered by restricted engineering practice include software as one component. To the extent that the engineer assumes overall responsibility in these cases,

there must also be assumed responsibility for [aspects of] the software. There is [also] an open question about whether any general areas of software practice should be included within Ontario's restricted engineering practices. I did not hear any strong arguments for why this should be the case, at least not at the roundtable discussion. And absolutely no evidence has been put on the table that connects what is required of professional engineers in Ontario to any aspect of software quality, reliability, security, value, or auditability."

The External Groups Task Force is now preparing a summary of deliberations at the software standards roundtable, which will be included as an appendix to the group's final report to PEO Council. The EGTF is expected to make its final report in the fall of 2005.

New approaches to engineering education required, conference says

BY MICHAEL MASTROMATTEO

Producing engineers who can readily adapt to the changing realities of tomorrow's marketplace requires educators to consider a bold new approach to teaching, motivating and inculcating a self-learning mindset.

Participants at a May 13 engineering education forum at the University of Ontario Institute of Technology (UOIT) in Oshawa emphasized a subtle but persistent notion that the preparation of engineers is changing and that traditional teaching methods should be combined with new approaches to help produce the "Renaissance" practitioners demanded by employers.

The conference also emphasized "learning by doing," and that engineering students, in particular, can bring greater benefits to the community by relying on their innovation, entrepreneurial and problem-solving abilities.

Entitled "Empowering the Learner: Teaching and Learning in Engineering," the one-day conference drew some of the most innovative engineering educators from universities in Ontario, Quebec and the United States.

Marc Rosen, PhD, P.Eng., dean of the faculty of engineering and applied science at UOIT, said a key objective of the conference was to examine the current state of engineering education and to present ideas to improve and enhance student learning.

"The [conference] speakers suggested areas where advances are needed to address problems with current engineering education paradigms. For example, the ways that information and communication technologies can be used to enhance teaching and thereby facilitate learning were illustrated, and were shown to provide exciting possibilities for wider application in the future," Rosen said.

A second area of focus at the conference, Rosen said, involved some engineering faculties' use of problem-solving and discovery-based learning units, as a complement

department of electrical and computer engineering; Robert Warrington, PhD, dean of engineering at Michigan Technological University; David Rittenhouse, PhD, direc-

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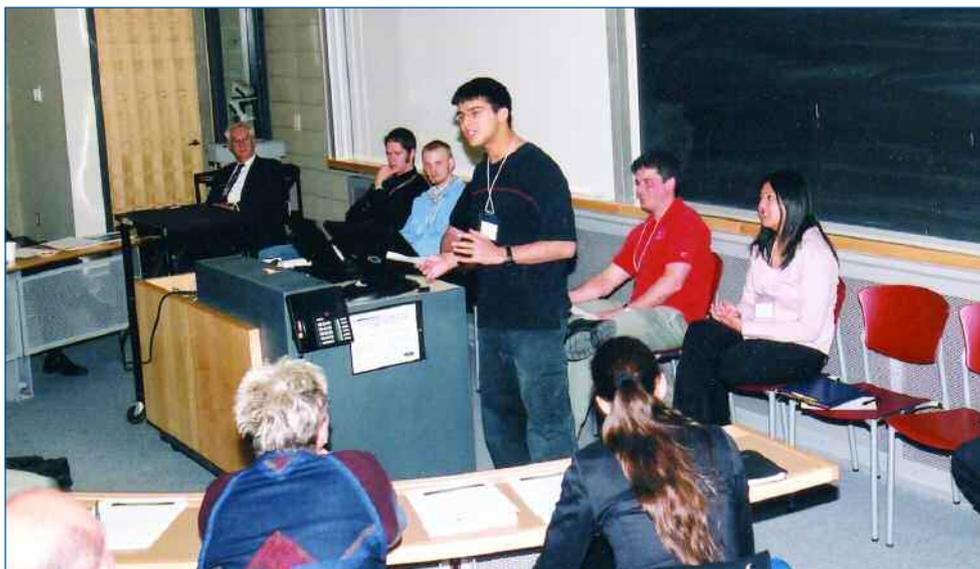
to more traditional teaching methods. "This has the goal of ensuring that engineers learn to do what engineers are expected to be able to do, and not just what professors think students should be taught," Rosen added.

Speakers included Kenneth Johns, PhD, P.Eng., professor of civil engineering at the University of Sherbrooke, Quebec; Gosha Zywno, PhD, P.Eng., of Ryerson University's

tor of the Dobson-Lagassé Centre for Entrepreneurship at Bishop's University, Lennoxville, Quebec; and Richard Marceau, PhD, provost of the University of Ontario Institute of Technology.

Adapting programs

In most cases, speakers outlined efforts to tailor their engineering faculty's cur-



University of Ontario Institute of Technology (UOIT) engineering student Samved Saxena offers a student's perspective on learning engineering at the Empowering the Learner Forum at UOIT.

riculum to better match the expectations of employers, while at the same time remaining committed to the applied science foundations.

The forum also included a panel of seven UOIT engineering students who shared their views on improving the education of tomorrow's engineers.

Engineers as entrepreneurs

Bishop's Rittenhouse emphasized the entrepreneurial aspect of engineering education, noting that engineering students are their own best educators. Rittenhouse described an entrepreneur as someone who finds innovation or opportunity that ultimately brings benefit or improvement to the entire community. Rather than being entirely profit motivated, entrepreneurs seek creative solutions to problems, which often involve research, planning, the use of

teams, and the confidence to delve into and learn from existing circumstances. "In many ways entrepreneurship is the heart of the matter for engineers," Rittenhouse said. "Much of what engi-

said, are proficient at imparting facts and knowledge, but are less so at teaching know-how. "Most of us are seeking to develop a student's minimal competence by projects, design exercises, simulations,

"Much of what engineers do, and are expected to do, is what true entrepreneurs are about."

David Rittenhouse, PhD, Bishop's University

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Sherbrooke's Johns elaborated on the changing nature of an engineering education from the perspective of 35 years of teaching. Engineering educators, he

case studies and with practical experience requirements," Johns said, "but most of this is knowledge that is obtained by listening, reading, observing and memorizing. To deliver know-how, we have to let students learn by doing, and

we learn by doing in open-ended situations with what might be called 'fuzzy' limits and definitions."

Ryerson's Zywno discussed innovative ways of using technology to enhance learning and problem-solving projects, particularly with large class sizes. She said state-of-the-art technology is changing the boundaries of classroom education, and that this, in turn, presents challenges to educators more familiar with the lecture delivery format. She said that by engaging engineering students through the use of technology in the classroom or lecture hall, students can develop greater confidence to identify problems and find solutions on their own.

Conference participants seemed optimistic that engineering faculties are becoming more sensitive to the need to adapt program content to meet the changing expectations of the workplace. Rosen said new teaching methods are welcome at UOIT. "I certainly encourage faculty when it comes to trying new approaches to teaching and learning engineering," he said. "When such approaches are shown

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to work, we want to disseminate ideas and exploit them as appropriate. But the aim is to produce a great engineer, and approaches that don't meet this objective are what we want to avoid."

Noreen Calderbank, P.Eng., PEO manager of prelicensing programs, attended the UOIT forum on behalf of PEO. She was impressed with some instructors' efforts to bring a real-world sense to an engineer's education. "I was very interested in Dr. Johns' concept of breaking the program of studies into two-week sessions revolving around a particular project," Calderbank told *Engineering Dimensions*. "I believe the idea of just-in-time learning with a practical application immediately following is likely the best way for persons truly capable of being practising engineers to learn." She suggested that the majority of today's engineering students prefer the concept of learning by way of more hands-on experience.

"I think also that this style of teaching will lead directly to more students becoming licensed since they will see up front the value of experience in the learning equation. I believe that many graduates fall away from engineering because the reality is so different from the university environment and they do not enjoy the real-world engineering work experience."