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Ontario

ENGINEERING DIMENSIONS

MARCH/APRIL 2015

Government liaison
efforts elevate
profession's profile





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CREDENTIAL ASSESSMENT FOR INTERNATIONALLY EDUCATED ENGINEERS



J. David Adams, P.Eng., FEC
President

ENGINEERS CANADA is seeking to be designated by the department of citizenship and immigration's Express Entry Program as the agent to perform preliminary credential assessments of applicants for engineering work in all Canadian provinces and territories, although PEO will perform the final evaluation of who will be licensed to practise engineering in Ontario.

Council is divided in their opinions concerning this new initiative,

which commenced operation in January of this year.

Engineers Canada is seeking to be designated by the federal government to provide preliminary education credential assessments. Engineers Canada's CEO Kim Allen, P.Eng., FEC, PEO's five Engineers Canada directors, plus our own councillors, have been present for three full council discussions on the subject. Paul Amyotte, P.Eng., FEC, Engineers Canada president, was present for one of these council meetings and a luncheon discussion.

All nine of the other provinces and territories in Canada have tentatively endorsed the Express Entry Program, in which Engineers Canada is seeking designation as the initial preliminary credential assessment agency for engineering applicants, just as the Medical Council of Canada has been appointed for doctors.

Personally, I have asked for and received assurance in writing from Engineers Canada that the following issues listed below are correct and protect PEO's position as having the final say on who is granted a licence to practise engineering in Ontario. A copy of this letter answering my 12 questions defining the program, can be found at: www.engineerscanada.ca/sites/default/files/adams_eca_-_20150112.pdf.

I am detailing nine of the controversial issues below so that our members will be knowledgeable and aware of these issues as we progress to implement this ongoing government initiative.

These issues include:

1. There is debate on the need for more engineers in Ontario from abroad at this time.

While there is substantial confusion as to the effect of the current low price of oil on the market for engineers across Canada, Engineers Canada plans to address this situation with a new, more comprehensive, labour/market review in the near future.

2. The fact that a similar immigration program established more than 15 years ago created the misconception for some applicants that Engineers Canada's preliminary approval of credentials meant that they had already received approval for licensure caused some consternation.

In this new program, it will be made clear that the provinces have the sole responsibility for licensure and the final say on who will be licensed, a provincial prerogative.

Under the new program, Engineers Canada will also provide extensive information about practising engineering in Canada and provide free tools to do self-assessment of the applicants' academics. Engineers Canada will also help to identify suitable applicants for engineering work under the national occupational classification codes used in the Federal Skilled Worker Program, providing the applicant early feedback on how their credentials compare to credentials obtained in Canada.

If an applicant chooses to proceed, he or she would be informed by Engineers Canada if they are eligible to apply for a licence. This may help the applicant in finding a job, or in deciding to come to Canada in the first place.

3. Being assessed does not guarantee that a newcomer will get a job in their field, or at a certain level, or their work experience and professional credentials would be automatically recognized in Canada, or they will be licensed to practise in a regulated profession in their province of choice.
4. The applicant must acknowledge their understanding of the requirement to obtain a provincial licence to practise engineering in the province of their choice before they are permitted to apply for Engineers Canada's initial educational credential assessment (ECA). They must also acknowledge that the preliminary assessment will determine only if they are eligible to apply for a licence. This will rectify the past misconception of not needing a provincial licence to practise, which was encountered 15 years ago in that particular immigration program.
5. Engineers Canada will also advise the applicants to apply to the provincial regulator (PEO), where, in addition to education and experience requirements, PEO will also assess knowledge of engineering law, ability to com-

PRESIDENT'S MESSAGE

municate, good character, and other factors. It would be emphasized that only the regulator can confirm that academics meet the requirement for licensure, noting that some regulators take engineering experience into consideration to waive some or all of any assigned exams.

6. Engineers Canada would also acknowledge that regulators can give an applicant specific information about the process for being licensed, including steps the applicant can take before leaving their home country.
7. Engineers Canada will inform the applicant that the documents used in their preliminary educational assessment that have been translated will be available to the engineering regulators for a period of 10 years.
8. Should the applicant want points for express entry, Engineers Canada will have available "fast track progress," at a reduced cost, to facilitate the assessment to be performed by a provincial engineering regulator, to gain points in the Express Entry system.
9. If the applicant does not likely meet the minimum to be successful, Engineers Canada will suggest that the individual apply as a technologist or technician, or pursue alternative careers that do not require a licence to practise engineering.

Newcomers are eager to contribute to the labour market in Canada. They want the opportunity to demonstrate their skills and experience. Hiring and integrating newcomers will have a positive impact on business and the Canadian economy.

The top two challenges to integrate newcomers into the labour market are difficulties in acquiring international credential recognition and obtaining Canadian work experience. Engineers Canada will try to ensure a newcomer makes an informed decision regarding coming to Canada and then help them on their path to full employment more quickly.

I struggle to understand why council is divided on this important, helpful issue.

This is my final president's message, in that council has prevented me from running again for at least two to three years by way of a change to Regulation 941/90. This, in my opinion, runs contrary to the democratic right of every member to choose and elect whomever they want to be their president.

I say goodbye and thank all PEO members for having elected me to serve you. We have accomplished a good deal but could have done more for our profession.

This is especially true in the area of preventing catastrophic failures, such as occurred at Elliot Lake. You should be made aware that some nine months before the roof collapsed in the mall, Michael Hogan, P.Eng., and I had proposed to council the establishment of an "engineer of record" for each discipline on the job and a "coordinating engineer" to ensure that the work of all disciplines worked satisfactorily together. Yet none of these approved motions were ever put into effect through practice standards.

We can do better.

Since graduating as a mechanical engineer in the McGill power and design option and being licensed as a practising engineer since 1957, later obtaining a master's degree in business administration at Western University under the Harvard case method of study, I have volunteered in the PEO chapter and committee systems for over 25 years, serving lately as president for three terms.

My experience in engineering and business was with international firms manufacturing and mining overseas in England, the US, Brazil, South Africa, the European countries of France, Italy, Spain and Turkey, as well as in Canada, before acquiring my own manufacturing firm of 140 employees.

Since this experience has been extensive and multi-faceted, it behooves me on leaving PEO as president to inform you that, in my opinion, PEO has a fundamental problem as a self-regulating authority with so large a council of 29 seats, with 15 of them, that is 52 per cent, appointed by the provincial government, plus an overly cautious committee system that seeks peer review on most subjects.

Where are our decision makers? I am sure they are out there because they stop me and speak of this problem. Ability to act should be a prime function of council members. Personally, I have struggled to change this environment of government involvement over my time on council and in the office of president, to no avail.

It is widely recognized in management studies in universities and in business that 12 to 15 members on a governing council or board make the most effective and timely decisions.

We fail as a progressive, self-regulatory body with 29 on council, about 800 committee volunteers, and a staff of over 100, choosing extensive peer review on most issues instead of timely, well-thought-out information from staff and committees, LEADING TO DECISIONS!

We have lost our focus on the fundamentals of self-regulation, being distracted and crushed by well meaning, but less than important subjects, long, drawn out reviews and a reticence to make decisions at all levels, while Rome burns.

Thank you and goodbye. Σ

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GAINING GROUND IN GOVERNMENT RELATIONS



Jennifer Coombes
Editor

PEO's Government Liaison Program (GLP) has become such a central fixture in the organization that it's difficult to remember a time when it didn't exist. But we pause this issue to remember what our government relations situation was like a decade ago—and how far it's come (p. 20, 38).

Little did then Attorney General Michael Bryant, LLB, know what he was starting when he told then PEO CEO/Registrar Kim Allen, P.Eng., FEC, in 2005 that it was up to engineers to educate government about what the profession does—and the value of its self-regulatory status. That lone remark, made in the context of the difficulties PEO was having at the time with government's failure to recognize PEO's regulatory mandate, became, in essence, a galvanizing message to engineers eager for an opportunity to put their so-called "silent profession" status firmly in the past.

Today, a well-oiled, province-wide machine with a small army of volunteer engineers at the ready, the GLP can be credited with cultivating in elected representatives a much greater awareness and understanding of PEO and the engineering profession than at perhaps any other time over the past 30 years or so. In its 10 years of operation, members involved in the GLP have organized town hall meetings, taken members of provincial parliament through a day in the life of an engineer with its innovative Take Your MPP to Work Days, made countless visits to MPPs, hosted PEO's annual Queen's Park reception, and offered expertise and advice to government on matters of policy that concern engineering. The GLP has even actively encouraged P.Eng.s to run for public office and has offered up campaign colleges

to advise engineers who want to throw their hats in the ring. But one of the GLP's greatest accomplishments has been in facilitating 66 amendments to the *Professional Engineers Act* through the provincial government's *Open for Business Act, 2010*.

Howard Brown of Brown & Cohen Communications & Public Affairs, PEO's government relations consultant from the GLP's inception, has always been confident the program would be a success. But there was an "aha" moment, he says: "We knew we were firmly on the government's radar when on a single day in 2010 two PEO chapters at two ends of the province held town hall meetings with two different senior ministers."

Although the GLP has been successful in getting government to sit up and take notice of the profession, it's not the only arrow in PEO's quiver. PEO's Ontario Centre for Engineering and Public Policy (OCEPP) also has much to be proud of in its efforts to forge government relations (p. 43). Launched in 2008, the centre's main mandate was, and is, to engage engineers more fully in public policy development. With seven years behind it, OCEPP is now poised to focus more on PEO-centric policy.

Between the GLP and OCEPP, it's clear that whenever MPPs turn to PEO for guidance on policy matters, they'll find nothing but co-operation and commitment from the province's professional engineers to work together in partnership with government. **Σ**

Engineering Dimensions (ISSN 0227-5147) is published bimonthly by the Association of Professional Engineers of Ontario and is distributed to all PEO licensed professional engineers.

Engineering Dimensions publishes articles on association business and professional topics of interest to the professional engineer. The magazine's content does not necessarily reflect the opinion or policy of the council of the association, nor does the association assume any responsibility for unsolicited manuscripts and art. Author's guidelines available on request. All material is copyright. Permission to reprint editorial copy or graphics should be requested from the editor.

Address all communications to The Editor, *Engineering Dimensions*, PEO, 40 Sheppard Avenue West, Suite 101, Toronto, ON M2N 6K9. Tel: 416-840-1062, 800-339-3716. Fax: 416-224-9525, 800-268-0496. US office of publication, Adrienne & Associates, 866 Humboldt Parkway, Buffalo, NY 14211.

Engineering Dimensions is audited by the Canadian Circulations Audit Board, and is a member of Canadian Business Press.

Indexed by the Canadian Business Index and available online in the Canadian Business and Current Affairs Database. US POSTMASTER: send address changes to *Engineering Dimensions*, P.O. Box 1042, Niagara Falls, NY, 14304.

CANADA POST: send address changes to 40 Sheppard Avenue West, Suite 101, Toronto, ON M2N 6K9. Canada Publications Mail Product Sales Agreement No. 40063309. Printed in Canada by Web Offset.

SUBSCRIPTIONS (Non-members)

Canada (6 issues) \$28.25 incl. HST
Other (6 issues) \$30.00
Students (6 issues) \$14.00 incl. HST
Single copy \$4.50 incl. HST

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Approximately \$5.00 from each membership fee is allocated to *Engineering Dimensions* and is non-deductible.



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Professional Engineers Ontario

THIS ISSUE: Few would have foreseen that PEO's disagreement with the provincial government on a building code issue would have opened the door to a new era of positive government relations. As PEO embarks on its second decade of government liaison work, it's interesting to review how the regulator went from a little-known player to a trusted partner to government.

ENFORCEMENT HOTLINE

Please report any person or company you suspect is practising engineering illegally or illegally using engineering titles. Call the PEO enforcement hotline at 416-224-9528, ext. 1444 or 800-339-3716, ext. 1444. Or email enforcement@peo.on.ca.

Through the *Professional Engineers Act*, Professional Engineers Ontario governs licence and certificate holders and regulates professional engineering in Ontario to serve and protect the public.

EFFORTS CONTINUE TO SEEK COMMON GROUND ON BUILDING CODE ACT

By Michael Mastromatteo



PEO and the Ontario housing ministry appear to be heading for an impasse over a misunderstanding related to recent amendments to the provincial *Building Code Act*.

The problem arose last May over a proposed amendment to the act contained in the Ontario government's Bill 14 (budget measures) legislation, which was passed by the legislature last July.

In particular, section 8(2) of the *Ontario Building Code Act, 1992* appears to give chief building officials authority to decide on certain matters statutorily left to engineers and architects (see *Engineering Dimensions*, November/December, 2014, p. 10).

Despite objections from PEO at the time, the housing ministry subsequently announced it would be making no further changes to the amendment.

The act amendment allows building officials to refuse to issue a building permit if the drawings supporting the application include professional designs of buildings that under the engineers' and architects' acts require either a P.Eng., an architect, or both.

PEO remains concerned as to how a building official will determine that a design submitted by either professional requires the involvement of the other.

PEO representatives, including Johnny Zucon, P.Eng., FEC, PEO's deputy registrar, tribunals and regulatory affairs, and Councillor Chris Roney, P.Eng., BDS, FEC, met with housing ministry staff in December to discuss ways to assist building officials to determine when to involve PEO and/or the Ontario Association of Architects (OAA) in dealing with certain building permit applications. Leaders of both the OAA and the Ontario Building Officials Association (OBOA) also attended the meeting.

At the meeting, housing ministry officials asked PEO to support putting a building design and general review table into the Ontario building code (OBC) as an appendix. The table, which building officials had been using to determine when permit applications required the stamp of engineers or architects (or both), was included in the previous version of the building code.

However, the table was removed after PEO's successful legal challenge of certain code reform initiatives in 2007. The court ruling made it clear that the matter of determining when an activity falls within the

practice of professional engineering is entirely within the purview of the *Professional Engineers Act*, and is administered and enforced by PEO.

"Clearly it is not the role, or within the authority, of building officials to make these determinations," says Chris Roney, one of three PEO officials asked to review the situation. "When the table was in the OBC—prior to the court ruling—it was common for building officials to use it, for example, to insist that an architect be retained on a project even if there were no architectural design activities associated with it, or in cases where such services were incidental and would not, therefore, require an architect."

In place of the table, PEO and the OAA in 2007 established a Joint Review Committee calling on building officials to "...review all documents submitted for permit and refer to the OAA and/or PEO any documents or information pertaining to permit submission or general review that [they] have reasonable ground to believe will contravene the [architects or engineers] acts."

In the eight years since its formation, however, the joint committee has not received a single case for review.

In late February, the PEO review team rejected the housing ministry's request to put joint review information back in an appendix to the building code.

"PEO has asked the OBOA repeatedly for any cases or examples where the removal of the table from the OBC has led to any problems, or cases where the public was potentially impacted," Roney says. "They have been unable to provide us with any examples, and so we have not been able to make any regulatory argument in favour of re-including the table in the OBC in any form. There is simply no evidence that there is a problem that requires resolution here."

PEO is also concerned that by agreeing to have the table added to the building code, there might be a temptation to return to the inappropriate practice of building officials attempting to enforce it. "Though we certainly appreciate the vigilance of well-meaning building officials, we would prefer that they refer any matters of concern to PEO for our action rather than attempting to interpret and enforce the engineering act provisions themselves," Roney says.

Despite this latest obstacle, PEO is committed to working with the housing ministry as a co-regulator in this area of professional engineering. PEO hopes to continue the dialogue and assist the ministry in addressing any shortcomings that may arise with the implementation of the latest *Building Code Act* amendments.

PEO's Order of Honour recognizes eight P.Engs

By Nicole Axworthy

This year, PEO will induct one Officer and seven Members into the Professional Engineers Ontario Order of Honour (OOH). The OOH is an honorary society of PEO. Its purpose is to recognize professional engineers and others who have rendered outstanding service to the engineering profession in Ontario, primarily through the association. The honorees will be recognized at a ceremony on Friday, April 24, held in conjunction with PEO's annual general meeting in Toronto.



Christopher Yuen Fun Kan, P.Eng., FEC, will be inducted into the Professional Engineers Ontario Order of Honour April 24.

Christopher Yuen Fun Kan, P.Eng., FEC, who will be inducted as an Officer of the order, served on the Porcupine/Temiskaming Chapter executive from 1993 to 1995 and from 2004 to 2008, including two terms as chair. Kan was successful in organizing chapter events and advancing the work of PEO's Government

Liaison Program in his chapter. He also helped the chapter form a lasting partnership with Science Timmins, a volunteer-run charity that promotes science and technology throughout northeastern Ontario. Upon moving to Barrie, Kan continued his service to the profession through the Simcoe-Muskoka Chapter executive before dedicating his time to serving on PEO's Repeal of the Industrial Exception Task Force and being an ambassador for the repeal. He has also served on the association's Advisory Committee on Volunteers since 2010.

Oscar R. Avila, P.Eng., MBA, who will be inducted as a Member, has made significant contributions to engineering education and government liaison outreach. During his time chairing the London Chapter's Education Outreach Committee, Avila implemented and consolidated activities that encourage students to consider careers in engineering, including Mathletics competitions, career fair participation, and presentations at local high schools. Avila also chaired the chapter's Government Liaison Program Committee, establishing strong relationships with current and past MPPs and, in 2011, successfully leading the committee's staging of the chapter's first all-candidates debate, which raised the profile of engineering locally and the issues affecting the profession.

Michael Kwok-Wai Chan, P.Eng., who will be inducted as a Member, championed the profession both as a volunteer and directly from association headquarters. As PEO chapter manager for eight years, he strongly supported the development of PEO's Government Liaison Program (GLP) and associated GLP committees. Upon his retirement from PEO, Chan joined the executive of the Willowdale/Thornhill Chapter, where his knowledge of chapter operations helped improve the chapter's business plans, activity reports and operations as a whole. He invigorated the chapter's government relations efforts while chairing its GLP Committee for two years. Chan also put to work his experience with PEO volunteers as a member of PEO's Advisory Committee on Volunteers, including three years as chair.

Tapan Das, PhD, P.Eng., who will be inducted as a Member, guided the Mississauga Chapter—one of PEO's largest chapters—through one of its most productive and active years in 2010. He led by example, organizing and participating in many activities and representing the chapter externally at PEO functions. Das is a passionate advocate and mentor for those who received their engineering educations outside Canada. He also helped establish a mentoring program for his home chapter and led a pilot project to incorporate the concept into several other chapters. Based on the success of this initiative, PEO council decided to expand the program province-wide into what is now called the Licensure Assistance Program.

Sucha Singh Mann, P.Eng., FEC, PMP, who will be inducted as a Member, tirelessly supports the profession through the Ottawa Chapter. A member of the chapter executive for the past decade, chairing it in 2007, Mann is recognized for organizing a wide range of events. Most notably, since 2006 he has led the staging of an annual sustainability seminar and panel discussion, which brings together industry experts, academics, policy-makers and chapter members. As a member and chair of the chapter's Education Outreach Committee, Mann has promoted the profession to students at such events as science fairs, presentations and engineering challenges. He also initiated an engineering scholarship program with sponsorship from PEO and generated funding from the chapter for additional scholarships. Mann also launched the chapter's awards program and has chaired its selection committee since 2011.

John Simmonds, P.Eng., FEC, who will be inducted as a Member, has been a key part of the North Bay Chapter executive for the past 14 years and has led several chapter organizing committees dedicated to promoting the profession to students and the public, such as

Engineer's Day, bridge-building competitions, science fairs and students' nights. Also, most recently, he was part of a chapter initiative that successfully advocated the establishment of an engineering degree program at Nipissing University. As a result of his efforts, the process to establish the program is now underway. It is hoped the program will attract local students wishing to study engineering and help companies in northern Ontario attract and retain engineers.

N. (Madu) Suthanan, P.Eng., FEC, who will be inducted as a Member, has shown a commitment to mentoring other international engineering graduates since immigrating to Canada in 1996, and has also been involved in creating programs for student outreach. They include PEO's Engineer-in-Residence Program and a Mathletics competition hosted by Scarborough Chapter, where he has been a member for the past 12 years. In 2005, he helped develop a souvenir magazine for the chapter's popsicle stick bridge-building competition that made enough in advertising and sponsorship sales for the chapter to award scholarships to first-year engineering students. In 2011, Suthanan created Mechatronics, a competition for high school students in which they must design, assemble and operate a car using parts provided by the chapter.

Vera Straka, P.Eng., who will be inducted as a Member, was an integral member of the Women in Engineering Advisory Committee (WEAC), chairing it during its transition from PEO to the Ontario Society of Professional Engineers. She also supported PEO's partnership with the Ontario Women's Directorate and NSERC's Ontario Women in Science and Engineering Chair to develop and roll out a training kit to support Ontario universities in removing barriers to the recruitment and retention of women in engineering faculties. A member of PEO's Equity and Diversity Committee since 2011, Straka has shared valuable insight from her work with WEAC and Ryerson's Women in Engineering Committee. She was also a positive role model as a volunteer in the Engineer-in-Residence program.

PEO ANNOUNCES RECIPIENT OF 2015 G. GORDON M. STERLING ENGINEERING INTERN AWARD

Emma Barlow, EIT, has been named the recipient of this year's G. Gordon M. Sterling Engineering Intern Award.

A civil engineering graduate of Queen's University, Barlow has worked as a junior structural engineer for more than two years with Engineering for Industry in Cornwall, Ontario. Working as part of a team responsible for meeting multi-disciplinary design needs and ensuring projects adhere to budget and schedule, she is involved with projects from proposal writing, concept and detailing of the design through to implementation, site inspection and handover.

Barlow is also an active member of PEO's Upper Canada Chapter and has served as an executive member since 2012. Her chapter involvement also includes service on the Education Outreach Committee and as bridge-building contest coordinator.

Her commitment to the engineering profession is further demonstrated by her volunteer work while at Queen's University. She was an active member of Women in Science and Engineering (WISE), participating in the outreach program to Winston Churchill Public School, teaching enrichment lessons in science and engineering to girls in Grade 4.

The G. Gordon M. Sterling Engineering Intern Award promotes leadership development and is available to engineering interns in good standing with PEO's EIT program. Those chosen for the award demonstrate a commitment to their chosen profession, an interest in assuming leadership responsibilities within it, and a readiness to benefit from a leadership development experience.





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First engineering company CONVICTED FOR BUILDING CODE BREACH

By Michael Mastromatteo

An Alberta-based engineering firm is the first engineering organization on record to be convicted for violating provincial building code laws.

In November 2014, the Alberta provincial court convicted Williams Engineering Canada Inc. for endangering public safety relating to a June 2011 project involving renovations to a downtown Calgary underground parking facility.

Williams Engineering was also found liable for failing to notify authorities of unsafe conditions.

Calgary city officials said work performed by the firm compromised the structural integrity of the parking lot floor and led to the evacuation of seven businesses located in the building. Sentencing in the case is expected by June of this year.

In a November 3 media release, the City of Calgary described the Williams decision as a “landmark ruling” because it appears to be the first time in Canada that an engineering firm has been convicted for breaching provincial building codes legislation.

“We’re pleased with the ruling as it demonstrates [Calgary’s] commitment to enforce Alberta’s building code and ensures that building construction does not endanger public safety,” Marco Civitarese, Calgary’s chief building official, said in a news release.

The same release also says Calgary appears to be the only jurisdiction in Canada actively prosecuting breaches of a provincial building code.

Ola Malik, LLM, legal counsel for the city of Calgary, told *Engineering Dimensions* January 14 that the conviction puts all engineers on notice that they are not immune from building code legislation.

“I think what Williams Engineering demonstrated is that an engineer, especially an engineering consultant, is as involved in the construction process as players we would more closely associate with construction, like contractors doing the actual work,” Malik said. “When you have engineer consultants retained to provide advice and guidance on technical matters within their expertise [and] when contractors are relying on that technical expertise, then as far as I’m concerned those engineer consultants ought to be held responsible under the *Building Code Act* when they act negligently.”

In a January 20 interview, Matt Brassard, P.Eng., president of Consulting Engineers of Alberta, said it’s important to alert association members and all consulting engineers as to what’s at stake with the Williams decision.

“I think, as engineers, we have an obligation to protect the health and safety of the public and, as professional consulting firms, I think that obligation extends up to the business unit and to the business

itself,” he said. “So [the Williams decision] is a bit of a wake-up call, because I think there are a lot of dynamics at play when businesses make decisions and they are not necessarily always in alignment with our calling as practitioners. It does start to cause some potential issues and conflicts.”

James Douglas, manager, building code operations and technical support for the Ontario Ministry of Municipal Affairs and Housing, told *Engineering Dimensions* February 19 that while there are similarities between the Ontario and Alberta building codes, it’s unlikely an Ontario-based engineer would be prosecuted for action akin to what occurred in Alberta.

“To the extent that problems relate to how an engineer performs their duties, it could very well be the case that there is not an offence under the [Ontario] *Building Code Act*, even in the worst-case scenarios,” Douglas said. “It’s certainly possible that engineers could be prosecuted under the building code act if, for example, they misrepresent information as part of a building permit application. That being said, the [building code] act has traditionally not been the regulatory tool to deal with unsafe conditions in existing buildings or regulating the conduct of builders.”

Aubrey LeBlanc, chief administrative officer with the Ontario Building Officials Association, noted February 17 that “although the Ontario Building Code is provincial, each municipality administers the code in its own jurisdiction. Each is free to make its own risk decisions about legal matters.”

However, an Ontario engineer’s breach of the Ontario Building Code—if the subject of a complaint to PEO and proven in a disciplinary hearing—would constitute professional misconduct under section 72(2)(d) of Regulation 941/90, even if the engineer had not been prosecuted by the municipality.

The Calgary conviction led to the resignation of the Association of Professional Engineers and Geoscientists of Alberta (APEGA) President Jim Gilliland, PhD, P.Eng., a regional director of

**CALGARY CITY OFFICIALS
SAID WORK PERFORMED BY
THE FIRM COMPROMISED THE
STRUCTURAL INTEGRITY OF THE
PARKING LOT FLOOR.**

Williams Engineering. Gilliland, whose firm could face disciplinary action from APEGA as a result of the incident, chose to resign to avoid any perception of a conflict of interest situation for the regulator.

“The overwhelming feedback that we received from members was positive in as much as they agreed that Dr. Gilliland’s resignation, while unfortunate, was the right thing

to do,” APEGA CEO Mark Flint, P.Eng., told *Engineering Dimensions* January 12.

“As Jim [Gilliland] himself has said, maintaining the integrity of APEGA as a self-regulating entity is critical. That integrity requires APEGA to be completely impartial. In stepping down, Jim ensured that APEGA’s integrity as the regulator of engineering and geoscience in Alberta remained uncompromised,” Flint added.

As APEGA deals with the Williams Engineering situation, it is also awaiting word on its appeal of an Alberta Human Rights Commission decision that the regulator discriminated against an internationally educated applicant for licensure based on the applicant’s place of birth (see *Engineering Dimensions*, March/April 2014, p. 14).

The Alberta Human Rights Commission in February 2014 ordered APEGA to pay \$10,000 in damages to the applicant and to make a series of special accommodations for internationally educated engineering applicants.

In its appeal, APEGA reiterated that its application process is working properly and does not discriminate against international applicants.

The appeal was heard in mid-December with a decision not expected until at least spring 2015.

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REGULATORY TUNE-UPS

ongoing coast to coast

By Michael Mastromatteo



Engineering regulators in three provinces are busy with initiatives ranging from continuing professional development to the creation of new classes of licence.

In the far west, the Association of Professional Engineers and Geoscientists of British Columbia (APEGBC) is preparing for a ratification vote of its continuing professional development program.

In fall 2015, APEGBC members will be asked to ratify a bylaw to establish a program requiring members to complete and report professional development activity. This will commit all practising members to undertake a minimum amount of professional development each year and to report annually that this requirement has been met.

In advance of the bylaw vote, APEGBC is asking its membership about the proposed content and format of the bylaw, and professional development in general. Member input will inform the final bylaw wording to be presented at the ratification vote and will aid APEGBC in providing the information members are seeking to better understand the topic.

An online survey about CPD asks APEGBC members whether they support the concept of mandatory professional development. The survey ran between December 12, 2014 and January 16 of this year.

“At this time, we are seeking member input on the proposed version of the bylaw,” says Megan Archibald, APEGBC director of communications and stakeholder engagement. “In the spring, council will review the feedback from members to determine if any changes are required before presenting the final bylaw to members for ratification in the fall.”

Archibald says more than 3700 APEGBC members participated in the online survey.

APEGBC has also announced its support for a report released January 31 by BC’s Ministry of Energy and Mines

concerning the Mount Polley mine tailings pond breach (www.mountpolleyreviewpanel.ca/final-report). The breach, which resulted in the contamination of several lakes and waterways with millions of cubic metres of slurry last August, is described as one of Canada’s worst environmental disasters.

The BC government is wasting no time in implementing new requirements for mine tailings pond operators, following the report’s conclusion that the major cause of the breach was the shear failure of the dam’s foundation materials and, specifically, that the design did not take into account the complexity of the sub-glacial and pre-glacial geological environment associated with the perimeter embankment foundation. The government is requiring all mines with tailings dams to confirm by June 30 whether materials similar to those at Mount Polley are present below their dams and, if so, whether testing shows that their dams’ designs account for the conditions.

Bill Bennett, BC’s minister of energy and mines, will also be launching a code review and establishing a requirement that all operating mines with tailings ponds have dam review boards.

The ministry report, among other recommendations, encourages APEGBC to develop guidelines “that would lead to improved site characteristics for tailings dams with respect to the geological, geomorphological, hydrogeological and possible seismotectonic characteristics.”

IN MANITOBA

The Association of Professional Engineers and Geoscientists of Manitoba (APEGM) is partway through proposed engineering act changes that include the creation of a new limited licence.

“[The] limited licence is the first part of the proposal [for the act change],” says Grant Koropatnick, P.Eng., FEC, APEGM CEO and registrar. “We are seeking amendments to enact a ‘licensee’ category similar to the Saskatchewan model. The licensee task group researched limited licences from all across Canada and made a proposal based on information collected from British Columbia, Alberta, Saskatchewan and Ontario.”

The Manitoba regulator noted that the lack of a limited licence has inhibited its ability to process membership registrations from other provinces. In a December 2014 letter to members, APEGM President Howard Procyshyn, P.Eng., FEC, said the lack of a limited licence category in Manitoba

“is inconsistent with the interprovincial Agreement on Trade (AIT) and the *Labour Mobility Act*.”

Canada’s engineering associations have been under pressure for the last 10 years to improve the mobility of licensed members from one jurisdiction to another.

Other proposed changes to Manitoba’s engineering act involve administration of the province’s CPD program and provisions for electronic voting on bylaw ratification.

“We’ve also asked for some administrative cleanups on fee deadlines,” Koropatnick says.

Earlier, APEGM had approached the province’s attorney general to consider the creation of a provincial engineer position, but the government indicated it has no interest in the plan.

IN NEWFOUNDLAND

Professional Engineers and Geoscientists of Newfoundland (PEGNL) is making changes to its Permit to Practice, which is issued to entities (sole proprietorships, partnerships or other associations of persons, or corporations) to offer professional services in their own names if it is satisfactorily demonstrated that the practice will be carried out by professional members who will be in responsible charge.

PEGNL Registrar Geoff Emberley, P.Eng., FEC, explains there are two new things with respect to the permit to practice.

“One is placing an additional data element in the online register,” Emberley says. “The PEGNL registers permits to practice by discipline, such as civil, mechanical, electrical, etc.

However, while the name of the permit holder, typically a firm, is currently online, the authorized discipline(s) is not currently available online. PEGNL will now be making discipline information available online.”

The second change relates to structural engineering, Emberley says. At present, when PEGNL receives a permit to practice application that includes a reference to structural engineering, it issues a permit that includes an authorization for civil engineering with the subdiscipline of structural, assuming the person in responsible charge associated with the civil/structural application is qualified to practise structural engineering. Whether the person is qualified is a decision of PEGNL’s Registration Committee. The change, which is currently approved in principle by PEGNL council and is subject to final approval at a future council meeting, would see “structural” approved as a separate discipline for permit to practice purposes, and not as a subdiscipline of civil.

Emberley explains that this change would result in a difference in what would be shown in the online register. Instead of a firm showing a permit discipline as civil/structural as currently is the case, it would show as “structural.” A permit with only civil without the structural endorsement would be shown as “civil.” It’s hoped the change will avoid potential public confusion as to what the permit holder is authorized to practise.

NEW SCHOLARSHIP A TRIBUTE TO VICTIMS OF ÉCOLE POLYTECHNIQUE SHOOTING

By Jennifer Coombes

École Polytechnique marked the 25th anniversary of its darkest day with the launch of the Order of the White Rose scholarship (www.orderwhiterose.org) this past December.

Offered in memory of the 14 young women who lost their lives and those who were wounded in an attack on the school on December 6, 1989, the \$30,000 scholarship will be awarded annually to a woman graduating from a Canadian engineering program who would like to pursue further studies in Canada or elsewhere in the world.

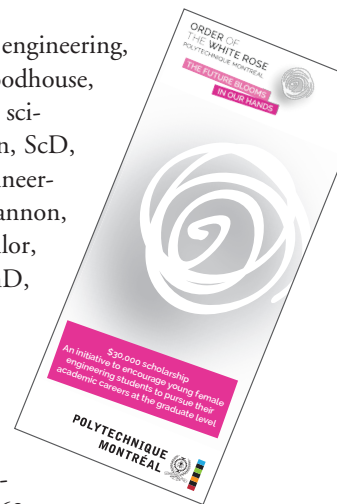
Each institute in Canada offering an undergraduate engineering program has been asked to select a finalist for the award and submit an application portfolio by September 1, keeping in mind three criteria: academic record, technical achievements and social commitments.

The ultimate selection will be made by the Order of the White Rose Scholarship Selection Committee, which comprises: Suzanne Fortier, principal and vice-chancellor, McGill

University; Patrik Doucet, ing., dean of engineering, Université de Sherbrooke; Kimberly Woodhouse, P.Eng., dean of engineering and applied science, Queen’s University; Cristina Amon, ScD, P.Eng., dean of applied science and engineering, University of Toronto; Elizabeth Cannon, PhD, P.Eng., president and vice-chancellor, University of Calgary; Pearl Sullivan, PhD, P.Eng., dean of engineering, University of Waterloo; and Joshua Leon, PhD, P.Eng., dean of engineering, Dalhousie University. The committee is chaired by Michèle Thibodeau-DeGuire, ing., the first woman to graduate in civil engineering from École Polytechnique in 1963.

Nathalie Provost, ing., who was injured during the 1989 shooting, has been given the honorary title of Godmother of the Order of the White Rose and will act as an ambassador for the scholarship program. She says of the program: “In addition to honouring their memory, the scholarship is a helping hand extended to the next generation and will enable a young woman to go a step further in fulfilling her dream of becoming an engineer.”

The first scholarship winner will be announced in December.



Society winning more adherents TO VALUE ENGINEERING

By Michael Mastromatteo



Michael Pearsall, P.Eng., president of the CSVA, suggested value engineering could become a subdiscipline within the wider engineering profession.

John McBride, chief executive officer of PPP Canada, discussed the relationship between value engineering and public-private partnerships at the November 17 Canadian Society of Value Analysis symposium in Toronto.

VALUE ANALYSIS DESERVES consideration as an emerging discipline within the wider profession, say members of the Canadian Society of Value Analysis (CSVA).

Sometimes referred to as value engineering, value analysis is a systematic and function-based approach to improving the value of products, projects or processes. It uses a combination of creative and analytical techniques to come up with alternative ways to reach corporate objectives.

The CSVA, which is nearing its 25th anniversary, held its annual symposium November 17 to 18 in Toronto. The theme of the 2014 symposium was “solving problems—improving value.”

Keynote speakers included Bruce McCuaig, president and CEO, Metrolinx; John McBride, CEO of PPP Canada; and Gerry Chaput, P.Eng., assistant deputy minister, provincial highways management division, Ontario Ministry of Transportation (MTO).

Others presenting workshops or attending the symposium include PEO Registrar Gerard McDonald, P.Eng.; Rob Kivi, P.Eng., MMM Group and a former chair of Consulting Engineers of Ontario; Roch Pilon, P.Eng., of MTO; and Brian Ruck, P.Eng., a vice president with AECOM Canada Ltd.

Value analysis, traditionally associated with transportation-related engineering, is rising in prominence for engineers, especially as members of the profession lend their expertise to infrastructure renewal, asset management and the best use of community resources.

The Ontario Ministry of Transportation, for example, is a major proponent of value analysis and has applied the system to a wide range of projects, services, processes, organizational designs and facilities.

Mike Pearsall, P.Eng., president of the CSVA, said value engineering is something PEO members should pay attention to and could be considered a separate discipline as it applies equally to all disciplines.

“It is just not widely used outside civil [engineering] in Ontario, but is used in a broad range of areas throughout the world,” Pearsall said.

The 2014 symposium was divided into three tracks: an introductory course for newcomers to value analysis/value engineering, solving problems in infrastructure, and combining problem-solving methodologies to improve value.

Chaput said the transportation ministry has been using value analysis since the mid-1990s.

“Since 1998 it has quietly helped us achieve over \$1 billion in cost savings and cost avoidance,” Chaput said. “I say quietly because it’s still something not everyone knows about.”

He added that MTO has performed more than 200 value engineering studies in the last 15 years: “We started out doing studies on highway standards and highway designs, but quickly realized the process helps identify need and solve problems in any area.”

The transportation ministry has been working to educate its own staff about value analysis and to share information with ministries, municipalities and organizations.

MOVING TOWARD EVIDENCE-BASED POLICY DEVELOPMENT

To comply with the provincial government’s new Preliminary Regulatory Impact Assessment requirements, PEO is reworking its policy process for developing regulations. What does the introduction of evidence-based policy-making mean for PEO, council and its committees?

By Jordan Max



REGULATORY POLICY development occurs widely across PEO. Issues arise on a regular basis relating to requirements and processes for admissions (academic, experience, good character, and so on), registration, practice standards, enforcement, complaints and discipline. These issues may originate from any of PEO’s committees, task forces, chapters, councillors, licence or Certificate of Authorization holders, government officials, media or the public.

To apply better decision-making to these issues, PEO is moving toward “evidence-based” policy development (EBP), a practice endorsed by the Canadian government and newly required by the Ontario government.

According to the Government of Canada’s Policy Horizons page (www.horizons.gc.ca/eng/content/case-evidence-based-policy):

“Evidence-based, evidence-informed or knowledge-based policy development refers to an approach that leverages the best available objective evidence from research to identify and understand issues so that policies can be crafted by decision makers that will deliver desired outcomes effectively, with a minimal margin of error and reduced risk of unintended consequences.

“Compared to subjective values, the factual interpretations of special interests and advocacy groups, and selective or ideologically-driven

viewpoints informing the policy development process, an evidence-based approach has as its great advantage neutrality and authoritativeness. This stems from sound, rigorous, comprehensive and unbiased policy research, which improves policy development in many ways, including by:

- reducing uncertainty;
- increasing logical clarity and consistency;
- providing new perspectives and understandings of policy issues;
- providing increased accountability to the public;
- providing reliable facts and knowledge; and
- improving the quality, inclusiveness and constructiveness of public policy debate.

“The major goal of evidence-based policy development is to ensure that the experience, expertise and judgment of decision makers are supported and resourced with the best available objective evidence and systematic research. Policy research is not expected to produce the solutions or decisions. It is meant to provide accurate, reliable and credible information, knowledge and analysis to inform public policy. The knowledge base it produces provides an important ingredient for the policy development process to reduce risk and improve outcomes, but it is not a substitute for the process.”

BRITISH IMPORT

Although evidence-based policy can be traced as far back as the 14th century, it was more recently popularized by the Blair government in the UK. A UK government white paper published in 1999 (*Modernising Government*) noted that government “must produce policies that really deal with problems, that are forward-looking and shaped by

[REGULATION]

evidence rather than a response to short-term pressures; that tackle causes not symptoms.”

EBP subsequently found its way across the pond into the US and Canada. In Canada, it has been applied to diverse fields, such as education, public health (medicine, nursing), environment, and public safety (crime prevention, criminal justice).

In 2010, the Ontario government introduced a regulatory policy, including the following general principles of good regulatory governance:

- (i) Regulations respond to a clearly identified need for regulation;
- (ii) Regulations are developed and implemented in a transparent manner;
- (iii) Regulations are designed to be least trade restrictive;
- (iv) Regulations are based on assessed risks, costs and benefits and minimize impacts on fair, competitive and innovative market economy;
- (v) Differences and duplication of regulation is minimized, where appropriate;
- (vi) Regulations must be results-based, where appropriate and to the extent practicable;
- (vii) Regulations are timely and reviewed on a routine basis and are not maintained if the need giving rise to their adoption no longer exists;
- (viii) Regulations are made easily accessible and written in language that can be easily understood by the public and business; and
- (ix) Regulations are introduced in a predictable manner (e.g. January 1 or July 1).

The regulatory policy was subsequently amended in 2014 to include the requirement for a regulation proposal to be accompanied by a mandatory regulatory impact assessment that addresses, at a minimum, the impact on the access of people, goods, services and investments from other jurisdictions, including jurisdictions within Canada. As well, all new regulations (as of January 1, 2014) are to be subject to a mandatory review within 10 years. Ministries are required to post final regulations that have an impact on businesses on the Regulatory Registry for public comment for 45 days (www.ontariocanada.com/registry/downloads/Ontario%20Regulatory%20Policy.pdf).

The Ontario Ministry of Economic Development and Trade also published the *Regulator's Code*

of Practice in 2011 and *Alternatives to Regulation: Developing Smarter Policy Approaches* in 2012. These documents owe their origins to concerns about the negative impacts of regulatory red tape on business competitiveness, as well as the need to consider alternative forms of regulatory compliance other than regulations.

PRELIMINARY REGULATORY IMPACT ASSESSMENT

While these documents are not binding on PEO (since PEO is not part of the government), they do indicate that the provincial government views business impact assessment as “public interest.” Since PEO’s principal objective under the *Professional Engineers Act* (PEA) is to “regulate the practice of professional engineering and govern its holders of licences...in order that the public interest may be served and protected,” these standards and expectations should not be viewed lightly.

PEO’S POLICY-MAKING PROCESS

So, how does PEO’s policy-making process work? In general, PEO implements policy regarding the governance of the engineering profession through the use of regulations. The process of developing and implementing these regulations is similar to the process in all democratic governments.

When a committee, task force, department, councillor or member identifies a policy problem or issue that requires a change to either Regulation 941/90 or 260/08, it must first be established that PEO has the specific authority under section 7(1) of the PEA to make such a regulation. The proponent must also define the policy intent of the solution. Since September 2013, these proposals are to be forwarded to PEO’s Legislation Committee (LEC) to review and to provide a recommendation to PEO council. If council subsequently approves the policy intent of the proposed regulation change, LEC provides that policy intent to the attorney general and works with her staff to finalize the wording of the regulation. Once the regulation has been finalized, it is presented to council for approval, after which the attorney general presents the final regulation to the cabinet through a cabinet submission. If the final regulation is approved by cabinet, it takes effect three weeks afterward (or later, if requested by PEO).

This does not mean that PEO has not used evidence-based policy development in the past. For example, council’s professional standards policy approved in January 2007 (see sidebar, p.19) includes evidence criteria to determine if a professional practice standard is required and, if so, how evidence is to be used in drafting the standard.

In January 2014, the attorney general’s policy staff informed PEO that policy development for all regulation submissions to government (including from ministries, agencies, boards, commissions, and delegated authorities such as PEO) must now include a Preliminary Regulatory Impact Assessment (PRIA). The purpose of this document is to further justify any regulation proposal, by providing:

- clear problem definition, policy intents and rationale;
- evidence and data to support the above;
- stakeholder impacts of health and safety, environment, social, trade, economy and other factors;
- compliance cost impacts on stakeholders (subject to a \$2 million threshold); and
- consideration of non-regulation alternatives (voluntary, education, persuasion, or market-based approaches) to achieve the desired outcome or policy intent.

While the first of these elements is more typical of cabinet submission documents, the remainder of the elements are new to most profession regulators, including PEO. These PRIA questions led us to re-examine our current policy development process for making regulations, and to see what capacity we have to be able to provide the answers.

PRIA challenges profession regulators to clearly articulate not only what the desired policy outcome or intent is, but to ensure that the goal is, in fact, serving the public interest, and not the private needs of practitioners or industry.

INCORPORATING EBP INTO PEO

In reviewing the new government requirements and our capacity to meet them, PEO staff reviewed our current policy-development process and determined that there is much room for improvement to introduce EBP development. Indeed, PEO's 2015-2017 strategic plan includes as a strategic objective that "Regulations, standards and guidelines are produced through an evidence-based, integrated and streamlined policy-making process."

Considerable research was conducted to gather best practices and tools from governments and regulators around the world, which was then assessed for relevance. Since PEO's policy-development process is diversified (issues arising from many points of entry), an extensive training program was created for our committee staff advisors, whose job is, in part, to assist committees and task forces with developing policy proposals. This training was delivered in two half-day sessions this past January.

Beyond the initial training for committee staff advisors, PEO's policy manager is available for coaching and assistance for committees and task forces. Future plans include bringing in external speakers and using e-learning modules to educate staff and committee volunteers, and an improved research initiative to identify and gather evidence and data to support regulatory policy development and management.

I would be happy to receive your thoughts and feedback on integrating evidence-based policy development into PEO. Σ

Jordan Max is PEO's manager, policy.

PEO PROFESSIONAL STANDARDS POLICY (APPROVED BY COUNCIL JANUARY 19, 2007)

PEO will create performance and practice standards and codify these in regulations;

- (a) Professional standards will be implemented only when there is a demonstrable public interest need or when their use is required to protect the integrity of the profession, as PEO recognized that regulated standards may impinge on the professional judgment of practitioners and can contribute to deprofessionalization through commodification and deskilling of professional engineering services;
- (b) PEO will ensure that standards deal only with the matters pertaining to the practice of professional engineering and the professional obligations associated with providing professional services to clients and employers;
- (c) PEO will create standards when necessary to clarify the practitioner's role in a particular activity by describing the obligatory outcome, either as a set of subtasks that must be accomplished or as the acceptable quality of the output of the engineering activity; and
- (d) PEO staff will determine the priority of developing potential professional standards based on the following criteria:
 - (i) evidence, provided by disciplinary hearings, public complaints or practice advisory inquiries, of a demonstrated need to have qualitative or quantitative criteria against which the activity of practitioners can be judged,
 - (ii) advisory inquiries, of a demonstrated need to have qualitative or quantitative criteria against which the activity of practitioners can be judged,
 - (iii) evidence of a lack of public confidence of practitioners' professional judgment in regard to given activity,
 - (iv) evidence of practitioners' lack of understanding concerning their proper role and responsibilities in regard to a given activity,
 - (v) evidence of a need to resolve conflicts between practitioners and the public and/or other professionals (including other professional engineers) regarding the duties and responsibilities of practitioners,
 - (vi) importance of the issue to the practice of professional engineering based on the extent of its applicability and on the impact to the public and practitioners caused by lack of standards, and
 - (vii) currency of present practice guidelines and standards.

10 YEARS OF PERSEVERANCE LEADS TO GLP SUCCESS

By *Howard Brown*

IN JANUARY, CBC radio ran one of its interviews from 1970 featuring former broadcasting icon Gordon Sinclair. It reminded me of an interview I had with him a few years later, while a young journalism student. In the 1970 program, Sinclair mentioned he seldom gave interviews, and I remember asking him why he'd agreed to my request. He said it was my perseverance.

Perseverance is an important part of politics. Former prime minister John Diefenbaker ran for office five times before winning in 1940. Premier Kathleen Wynne lost her first shot at public office. So did Toronto Mayor John Tory. So did hundreds of other candidates over the years.

Engineers have that same perseverance. This year marks the 10th anniversary of the remarkable success and perseverance of PEO's Government Liaison Program (GLP). PEO, through its 36 chapters, has never wavered in its message to government and the public—that PEO has a mandate to govern the practice of engineering in the public interest.

The GLP, initially established in 2005 as a six-month pilot program, has become a major success for the profession, facilitating increased communication and engagement between PEO and the provincial government. "Over the past 10 years, there have been many notable developments worth reviewing," says Jeannette Chau, P.Eng., PEO's manager of student and government liaison programs. "To me, the most significant has been the way PEO chapters have made it [GLP] a part of their annual activities to such a tremendous extent."

Following is a timeline of major milestones in the program's 10-year history:

2005—formalized GLP into a long-term platform aimed at shaping public policy and facilitating dialogue between members of provincial parliament (MPPs) and professional engineers;

2005—held the first of many Queen's Park receptions to which members from all parties are invited;

2006—held inaugural Candidate College to promote and train professional engineers running for public office;

2006—initiated a judicial review of changes by the Ministry of Municipal Affairs and Housing to the Ontario Building Code that infringed on PEO jurisdiction under the *Professional Engineers Act* (PEA);

2007—received news in May that the court ruled in favour of PEO (the province chose not to appeal the court's decision, which many felt avoided possible backlash from some 70,000 P.Engs just months prior to a provincial election);

2007—launched the online publication *GLP Weekly* to share success stories among PEO chapters, with distribution later extended to MPPs;

2007—hosted first all candidates' debate for the provincial election in September (Mississauga Chapter), which saw the active participation of all parties and many ridings;

2008—transitioned annual GLP conference into a policy conference under the newly launched Ontario Centre for Engineering and Public Policy, which also published technical papers and a policy journal;

2009—hosted a series of candidate colleges in Toronto, Windsor and Ottawa to encourage engineers to run for elected office and get involved with public policy development in their respective fields;

2010—facilitated the provincial government's passage of the *Open for Business Act* containing 66 amendments for the PEA—the most fundamental changes since 1984;

2011—invited Greg Sorbara, former finance minister, to speak in Hamilton at the first GLP Academy and Congress in lead-up to the provincial election. The launch of these events was an attempt to build into the GLP opportunities to dialogue with other chapters and MPPs;

2012—expanded the academies and congresses across the province to eastern and central regions;

2012—launched MPP Awards at PEO's annual Queen's Park reception;

2013—launched Take Your MPP to Work Day with Niagara Chapter, which was attended by Welland MPP Cindy Forster;

2013—hosted first Northern Region academy, by Lakehead Chapter in Thunder Bay; and

2014—expanded Take Your MPP to Work Day province-wide and began holding joint MPP meetings with the Ontario Society of Professional Engineers.

All in all, it's been an amazing decade. It looks like perseverance is paying off. Σ

Howard Brown is president of Brown & Cohen Communications & Public Affairs Inc. and PEO's government relations consultant.

DECISION AND REASONS

In the matter of a hearing under the *Professional Engineers Act*, R.S.O. 1990, c. P.28; and in the matter of a complaint regarding the conduct of JIRI KRUPKA, P.ENG., a member of the Association of Professional Engineers of Ontario, and CAELLIOTT INC., a holder of a Certificate of Authorization.

A panel of the Discipline Committee met at the Association of Professional Engineers of Ontario in Toronto on October 23 and 24, 2013 to hear this matter.

THE ALLEGATIONS

The allegations against Jiri Krupka, as stated in the Statement of Allegations filed on July 3, 2012, and referred to in the Notice of Hearing dated October 3, 2013, are that Jiri Krupka and CA Elliott are guilty of professional misconduct under section 28(2)(b) of the *Professional Engineers Act* (the act), and that Jiri Krupka is guilty of incompetence under section 28(3)(a), as defined in the act.

The allegations, as set out in the Statement of Allegations, are reproduced below:

1. Jiri Krupka, P.Eng. (the member), is a professional engineer licensed pursuant to the *Professional Engineers Act* (the act), and CA Elliott Inc. (CA Elliott) is a Certificate of Authorization holder under the act. The member was employed by CA Elliott from July 2008 to July 2010.
2. At all material times, the complainant, Ian Fuller, P.Eng. (Fuller), was a structural engineer employed by Halsall Associates Ltd. (Halsall).
3. Prior to November 2009, CA Elliott and the member were retained by RNC Anchors, a division of Roofers World, to design anchor facilities/assemblies for installation on a new building to be built at 424 Metcalfe Avenue in Ottawa, Ontario (the project). Fuller was the structural engineer for the project.
4. On November 10, 2009, the member stamped and signed a drawing for a cast-in-place “fall arrest” roof anchor system for maintenance and window cleaning operations at the project.
5. On November 19, 2009, the project architects, Hobin & Associates, requested various revisions to the member’s drawing to reflect certain roof details that the member had not considered.
6. On November 23, 2009, Fuller advised the project manager, ZW Group, and the project architects that the member should revisit the calculations and confirm in writing:
 - (a) that the single anchor is sufficient to resist the loads; and
 - (b) what the embedment depth must be to develop the force in the anchor.
7. Later that day, Fuller spoke directly with the member regarding his drawing. The member admitted he was not familiar with CSA A23.3-04, “Design of Concrete Structures,” the standard for connections to concrete. The member told Fuller he intended to rely solely on “pull tests” upon completion of the construction.
8. On November 24, 2009, the member stamped and signed a revised drawing of the roof anchor, incorporating the architects’ suggested revisions but omitting any design calculations.
9. On November 25, 2009, Fuller again advised the project manager and project architects that the member should

- provide stamped calculations to demonstrate the capacity of the anchor and the adequacy of the load transfer to the concrete slab.
10. On February 20, 2010, the member signed and sealed a revised drawing with the design calculations for the roof anchor. The member's calculations failed to consider the CSA standard, A23.3-04, referred to above.
 11. On February 24, 2010, Fuller advised the project architect and project manager that the member's calculations were inadequate and directed the member to the appropriate CSA standard.
 12. On March 30, 2010, the member stamped and signed an incomplete set of revised calculations and requested that Fuller provide values for two variables the member deemed necessary to complete his calculations. The values the member requested are, in fact, defined in the CSA standard and should have been known to the member.
 13. On April 1, 2010, Fuller wrote to the project manager and project architects regarding his concerns about the performance of the anchors.
 14. On June 2, 2010, the member performed a visual inspection and load test on a random sample of the installed roof anchors, and produced an inspection report declaring the anchors "sound." The member did not consider or comply with the appropriate standards in carrying out the load test.
 15. On June 3, 2010, Fuller filed a complaint with Professional Engineers Ontario (PEO).
 16. On June 29, 2010, PEO learned the member had been designing fall arrest roof anchors for 12 years and had never purchased the CSA-A23.3-04 standard. The member obtained the standard for the first time following Fuller's complaints about his drawing.
 17. On August 19, 2010, PEO learned the member did not carry out a periodic site review during the installation of the roof anchors, relying instead on Roofers World's contractor to install the anchors correctly.
 18. The member's design, drawings and calculations were examined by an independent engineer. He found the following issues and concerns, among other things:
 - (a) The original drawing sealed by the member on November 10, 2009 does not indicate the load that is to be applied to the safety anchor.
 - (b) This drawing was deficient in a number of other important ways, including:
 - (i) Weld symbols/sizes for the safety anchors were missing;
 - (ii) The shown dimensions did not define the line they are referencing;
 - (iii) The spacing of the anchors was not in accordance with CSA Standard Z91 "Safety Code for Window Cleaning Operations," as required;
 - (iv) There are an insufficient number of anchors shown;
 - (v) Details of important components, such as windows and parapets, are not shown;
 - (vi) The location of the anchors relative to the structural steel is not shown; and
 - (vii) Reinforcing of anchor location at the steel structure is most likely required but there is no indication this has been addressed.
 - (c) The calculations shown on the detail, "RA-1 Roof Anchor 424 Metcalfe," sealed February 20, 2010, are not in accordance with CSA Standard 23.3-04, Annex D, as required.
 - (d) Subsequent calculations provided by the member, "Fall Arrest Roof Anchors, Cast in Concrete, 424 Metcalfe Street Ottawa," and sealed March 30, 2010, incorrectly stated that Annex D of CSA Standard 23.3-04 does not apply to the anchors in question. Further, the calculations are incomplete.
 - (e) On August 23, 2010, the member provided calculations entitled "Fall Arrest Roof Anchor Resistance in Concrete," which utilized a number of incorrect values, including an incorrect load factor.
 - (f) For the correct applicable load factor, the member's anchor design is unacceptable. The concrete breakout resistance of the anchor in tension is not satisfied.
 - (g) Reliance on mere random testing of the anchors after installation was not a proper or adequate approach. If the anchor design could not be verified by proper engineering calculations, they should all have been tested under in-service conditions.
 19. Based on these facts, it is alleged that the member and CA Elliott are guilty of professional misconduct, as follows:
 - (a) designing or specifying a fall arrest roof anchor system without being aware of, or making reasonable provision for complying

with, the applicable standards, amounting to professional misconduct as defined by sections 72(2)(a), (b) and/or (d) of Regulation 941.

- (b) signing and sealing drawings not actually prepared or checked by the practitioner, amounting to professional misconduct as defined by section 72(2)(e) of Regulation 941.
 - (c) permitting the installation of fall arrest roof anchors without carrying out a periodic site review during their construction as required by the Ontario Building Code, amounting to professional misconduct as defined by sections 72(2)(a), (b) and/or (d) of Regulation 941.
 - (d) conducting load testing of fall arrest roof anchors without being aware of or making reasonable provision for complying with the applicable CSA standard or Ontario Building Code provisions, amounting to professional misconduct as defined by sections 72(2)(a), (b) and/or (d) of Regulation 941.
 - (e) undertaking work in the design, installation and testing of fall arrest roof anchors without being sufficiently trained and experienced in concrete design or the applicable codes and standards, amounting to professional misconduct as defined by section 72(2)(h) of Regulation 941.
 - (f) undertaking work in the design, installation and testing of a lifesaving device without the care and professionalism required of a professional engineer, amounting to professional misconduct as defined by section (72)(2)(j) of Regulation 941.
20. Based on these facts, it is further alleged that the member is guilty of incompetence, as follows:
- (a) undertaking work in the design, installation and testing of fall arrest roof anchors that displays a lack of knowledge, skill and judgment and a disregard for the welfare of the public, amounting to incompetence as defined by section 28(3)(a) of the act.

Clauses 1 through 11, as well as clauses 13, 15 and 16, were agreed upon or admitted to by the member.

THE LEGISLATIVE AND REGULATORY PROVISIONS

Section 28(2)(b) of the act is reproduced below:

Professional misconduct

- (2) A member of the association or a holder of a certificate of authorization, a temporary licence, a provisional licence or a limited licence may be found guilty of professional misconduct by the committee if,
- ...
- (b) the member or holder has been guilty in the opinion of the Discipline Committee of professional misconduct as defined in the regulations. R.S.O. 1990, c. P.28, s. 28(2); 2001, c. 9, Sched. B, s. 11(36); 2010, c. 16, Sched. 2, s. 5(62).

The sections of Regulation 941 made under the act that are relevant to the alleged misconduct are reproduced below:

Sections 72(2)(a), (b), (d), (e), (h) and (j) of Regulation 941:

- 72.(2) For the purposes of the Act and this Regulation, “professional misconduct” means,
- (a) negligence,
 - (b) failure to make reasonable provision for the safeguarding of life, health or property of a person who may be affected by the work for which the practitioner is responsible,
 - ...
 - (d) failure to make responsible provision for complying with applicable statutes, regulations, standards, codes, bylaws and rules in connection with work being undertaken by or under the responsibility of the practitioner,
 - (e) signing or sealing a final drawing, specification, plan, report or other document not actually prepared or checked by the practitioner,
 - ...
 - (h) undertaking work the practitioner is not competent to perform by virtue of the practitioner’s training and experience,
 - ...
 - (j) conduct or an act relevant to the practice of professional engineering that, having regard to all the circumstances, would reasonably be regarded by the engineering profession as disgraceful, dishonourable or unprofessional. R.R.O. 1990, Reg. 941, s. 72(2); O. Reg. 657/00, s. 1(2); O. Reg. 13/03, s. 19.

Section 28(3)(a) of the act is reproduced below:

Incompetence

- (3) The Discipline Committee may find a member of the association or a holder of a temporary licence, a provisional licence or a limited licence to be incompetent if in its opinion,
- (a) the member or holder has displayed in his or her professional responsibilities a lack of knowledge, skill or judgment or disregard for the welfare of the public of a nature or to an extent that demonstrates the member or holder is unfit to carry out the responsibilities of a professional engineer;

With respect to section 72(2)(j), the association clarified that it was alleging that the member's conduct was "unprofessional," and that it was not alleging the conduct was "disgraceful" or "dishonourable." At the end of the hearing, the association withdrew its allegation under section 72(2)(e).

The codes, standards and guidelines that were referred to in evidence and that are referred to throughout the decision are:

1. Ontario Regulation 350/06 Building Code
2. National Standard of Canada CAN/CSA-Z91-02 Health and Safety Code for Suspended Equipment Operations
3. National Standard of Canada CAN/CSA-Z71-98 Safety Code for Suspended Elevating Platforms
4. Ontario Window Cleaning Guidelines: Roof Anchorage for Fall Arrest Systems and Tiebacks for Suspended Equipment and Primary Support
5. *Ontario Occupational Health and Safety Act*, R.R.O. 1990, Regulation 859: Window Cleaning
6. National Standard of Canada CAN/CSA-A23.3-04 Design of Concrete Structures
7. National Standard of Canada CAN/CSA-A23.3-04 Design of Concrete Structures: Annex D—Anchorage

PLEA OF THE MEMBER

The member denied that he was guilty of professional misconduct or incompetence, as set out in the Statement of Allegations.

PLEA OF THE HOLDER

During the hearing, CA Elliott, the Certificate of Authorization holder, admitted to the allegations made against it and to professional mis-

conduct. The panel conducted a plea inquiry of CA Elliott. The panel was satisfied that the admission of CA Elliott was voluntary, informed and unequivocal. CA Elliott did not have legal representation.

THE EVIDENCE WITH RESPECT TO THE MEMBER

The association called two witnesses: 1. Ian Fuller, P.Eng., who was the structural engineer for Halsall, the general contractor in charge of the project; and 2. Josef Budziak, P.Eng., who testified as an expert witness. The member gave evidence on behalf of himself. CA Elliott did not call any witnesses and admitted to the facts and the allegations, as set out in the Statement of Allegations.

OVERVIEW

The member was employed by CA Elliott for the period between July 2008 and July 2010. He was the responsible engineer for CA Elliott and obtained the Certificate of Authorization for CA Elliott. The allegations relate to the design and installation of a roof anchor system on a new eight-storey building that was constructed in downtown Ottawa and, more specifically, to the installation of anchors in the reinforced concrete portion of the roof. Prior to November 2009, CA Elliott and the member were hired by RNC Anchors, a division of Roofers World, to design anchor facilities/assemblies for installation in the building. Halsall Associates Ltd. (Halsall) was the project manager for the project.

During the construction process, Ian Fuller, a structural engineer employed by Halsall, identified concerns with respect to the anchor system designed by the member. The anchors in question were a series of anchors that would be used by window washers and building maintenance people to attach equipment for the purpose of hanging from the building to wash windows and do maintenance to the outside of the building. The particular type of anchors were cast in place by first being attached to reinforced bars (rebar) and encased in the concrete, which would then be poured. The anchors are a threaded rod in the shape of an "L." The bottom of the "L" is attached to the rebar and then encased in concrete. The top of the "L" protrudes out of

the concrete. A cap is placed on top of the “L” and securely attached to the L-shaped rod and to the roof. The anchors are used by the window washers and maintenance people to attach to the roof.

Prior to the installation of the anchors, the member admitted he was not familiar with CSA A23.3-04, “Design of Concrete Structures.” The member submitted revised drawings on more than one occasion prior to the installation of the anchors in the roof. None of the drawings provided sufficient calculations to establish that the design of the anchors met with the standards set out in CSA A23.3-04. The member did not attend to inspect the anchors when they were fastened to the roof or when the concrete was poured. The member addressed the concerns raised about his drawings by stating he would be relying solely on pull tests to establish the safety of his anchors. The member did conduct random tests of the anchors following installation.

The association took the position that the anchors did not comply with applicable building codes and applicable CSA standards. They described the issue as having to do with the design and installation of anchors, with public safety and with the need for a design to show that certain minimum standards have been met to ensure public safety. Specifically, the association took the position that it was necessary for the member to establish that the minimum standards had been met using specific sets of calculations based on CSA A23.3-04. It was their position also that it was the member’s responsibility to design the anchors in a manner that satisfied all codes, regulations and standards and that doing so required he prove by both calculations and testing that the design met those standards, as well as ensure they were properly installed. The member took the position that he had sufficient information based on past experience and on his judgment as an engineer that his anchors were properly designed and met required safety standards. He argued that CSA A23.3-04 did not apply in the circumstances or that, if it did, his design was based on a design that was CSA approved. It was his position, in addition, that pull tests were sufficient to establish the safety of the anchors. He did not argue that he was not responsible for the design of the anchors but

did suggest the building engineer should have provided him with the figures he needed to use for his calculations. There was no evidence the roof anchors that were actually installed were deficient or substandard. The issue is one of whether the procedure used to ensure the safe installation of the anchors met the standard required of a professional engineer and whether the member met that standard. To answer that question, the panel considered three separate questions:

1. Was the member responsible for ensuring the safety of the anchors in terms of both the design of the anchors and attachment of the anchors to the concrete slab?
2. What was the correct standard to be applied, and was the member required to be aware of it?
3. Was the member required to prove the safety of his design by both calculations and testing, or was testing alone sufficient?

THE EVIDENCE

THE COMPLAINANT: IAN FULLER

The first witness called by the association was Ian Fuller. At the time he gave his evidence, he was a project manager for Halsall. He has been a member of the Association of Professional Engineers of Ontario since 2002 and has been practising since he became a member. He has been with Halsall since January 2006 in essentially the same position. In that role, he acts as supervising engineer for building design. There are people who report to him who include other professional engineers. He obtained a bachelor in civil engineering at Carleton University in 1997 and a master’s degree, also from Carleton University, in 1999. He specialized in structural engineering and testified he has designed anchor systems.

With respect to the building in question located at 424 Metcalfe Street in Ottawa, Ontario, Halsall was the structural engineer and was responsible for the base building. It was brand new construction. Halsall was engaged by the architect, Barry J. Hobin, in late November or December 2007. Fuller was the project manager. His role was supervising engineer for the base building design. The anchor system was excluded from Halsall’s scope of work. The roof design for the eight-storey building was in Halsall’s scope of work. It was a reinforced concrete roof supported on columns with a penthouse roof in metal. Window washing was to be done by swing stage platform, which goes up and down the sides of the building.

THE EXPERT: JOSEPH BUDZIAK

The association also called Joseph Budziak as an expert witness and asked that he be qualified as an expert in design, fabrication and installation of roof anchor systems. Budziak gave evidence that he had

designed approximately 50 anchor systems per year for the past 10 years, or approximately 500 anchor systems. The majority of the anchor systems he had installed were cast in concrete and installed on buildings of eight storeys or more. Budziak confirmed he was a member in good standing of Professional Engineers Ontario since June of 1996. He is the president, chief engineer and owner of Ankor Engineering Systems Ltd., which changed its name to Ankor Engineering Systems Inc., effective January 1, 2012. He was also a co-owner of AnkorEng Inc. from May 2001 to the present. Both companies are holders of Certificates of Authorization, and have been since their inception. Budziak's qualifications as an expert were admitted by the member.

The panel qualified Budziak as an expert in design, fabrication and installation of roof anchor systems.

JIRI KRUPKA: THE MEMBER

The member cross-examined the witness and gave evidence on behalf of himself. He had designed anchors since 1988 or 1989, and that hundreds of anchors designed by him had been used and never failed.

Was the member responsible for ensuring the safety of the anchors in terms of both the design of the anchors and attachment of the anchors to the concrete slab?

Fuller gave evidence regarding the scope of work and that the responsibility for the roof anchors and safety restraints was with the component engineer, and that both calculations and test results were expected to be provided prior to installation of the anchors. He also referred to section 1.7 of the scope of work and testified that it was his expectation the requirements would be complied with, and that it was the responsibility of the component engineer to submit test results, calculations and conduct inspections of the installation of the anchors.

Fuller gave evidence that was confirmed by the member that the anchorage into the concrete was the member's responsibility, not Fuller's or Halsall's, as it was in the member's scope of work. Fuller further testified that, in that conversation, the member openly expressed he was not familiar with CSA A23.3-4, "Design of Concrete Structures." This fact was not disputed or challenged by the member and

no contradictory evidence in that regard was given by the member.

Budziak expressed that, in his opinion, the base building engineer is responsible for the building and for the concrete slab. The component engineer is responsible for the design and installation of the anchors to the slab. He explained that if an engineer is designing an anchor, the engineer would have to provide a method of fastening the anchors such that the base building does not have to be altered. In the case of a reinforced concrete roof, the anchor gets embedded in the concrete. The component engineer is responsible for embedding the anchor into the concrete so that it will withstand the required maximum loading without causing the concrete to crack.

What was the correct standard to be applied, and was the member required to be aware of it?

The member gave evidence that he chose a design based on a manufacturer's catalogues. He based his design on a CSA-approved anchor designed by Thaler, although he did not use their actual design. Rather, his design was a modification of the Thaler design. He stated he was not negligent because he chose a standard that was used by other engineers for many years. He stated that he studied all of the regulations.

According to Fuller, the structure was designed under Part 4 of the *Building Code Act*, 1992, O. Reg. 350/06 (building code). Specifications for the anchors were issued by the architect. Fuller pointed out that, according to the scope of work, 1.2.5, the roof anchors and safety restraints were to be "cast-in-place" concrete: restraint anchors and posts anchored to concrete deck. He further pointed out that, at 1.3.5, "All anchors must conform to the requirements of CSA/CAN Z91-02 Health and Safety Code for Suspended Operations (CSA/CAN Z91-02) and the Ontario Ministry of Labour regulations 527/88, revised September 26, 1991.

Fuller testified that CAN/CSA A23.3-4 Design of Concrete Structures (CSA A23.3-4) is, and was, at the relevant time the common standard for concrete design. According to Fuller, this standard applied to these roof anchors because it is the standard that applies to roof anchors connected to reinforced concrete, and the anchors being designed by the member were being installed into reinforced concrete. He explained that this standard applied a

material resistance factor that allows for statistical variation in the concrete, which is not of uniform strength throughout the roof slab. There was no dispute that the anchors in question were being installed into reinforced concrete.

The member gave evidence that the anchors conformed to and exceeded the requirements of Ontario Ministry of Labour regulations and CSA Z91-02. Fuller pointed out that clause 1.1 of CSA Z91-02 refers to CAN/CSA-Z271 Safety Code for Suspended Elevating Platforms (CSA Z271) and that clause 5.4.1 of that same standard states that “tie-back and lifeline anchors shall be in accordance with CAN/CSA-Z271.”

Budziak reiterated Fuller’s evidence with respect to the relevant standards being CSA Z91-02 and CSA-Z271 which, at clause 6.3.2, provides the factor load that is to be used in the calculations. He also pointed out that, in his opinion, the remaining requirements for the design of cast-in-concrete anchors are found in Annex D to CSA A.23.3-04. He explained that Annex D of that standard provides the rules to design an anchor to sit in concrete. He further explained that, in his opinion, the standard applies to anchor systems generally. It is the one he uses as a minimum standard in all of his designs.

The member confirmed that, in November, shortly before the anchors were installed, he still had not looked at the standards. Fuller did draw his attention to the standard in February 2010 but, according to the member, that was three months too late.

Notwithstanding the lack of calculations, the member explained he had a good feeling about his design. He explained this was because he had been load testing since 1985. He had load tested hundreds of anchors and never measured permanent deformation. The member also testified that his design had been tested by an independent consultant and was found to be safe. This evidence was not challenged by the association.

The member’s drawings of the roof anchor system were identified and there was no dispute that the drawings were stamped by the member.

Was the member required to prove the safety of his design by both calculations and testing, or was testing alone sufficient?

Fuller gave evidence that the member had stated he intended to rely on the “pull test,” a fact not disputed by the member. What was disputed was whether this test was sufficient. Fuller testified that the “pull test” was inadequate to demonstrate that the anchors were properly designed for the intended use.

The member testified to his concern for human life. He said he had a good understanding of mechanical testing and of the materials. He felt comfortable with his design. He explained he was aware the ropes used to attach to the anchors were nylon ropes with shock absorbers, which act as load limiters, meaning he understood how the anchors would be used in practice. He also spoke with other engineers. He had used the anchors many times. Fuller was the first to question them. He had the anchors tested to 2500lb. There was no deformation. The member gave evidence that he appreciated concrete is not good in tension, which is the reason for putting rebar in the top and bottom layer of the concrete.

The member stated that a person’s safety was never an issue and the problem was blown out of proportion. With respect to his drawings, he gave evidence that he always checks his drawings and that he always looks at them. He confirmed he either checked or prepared all of the drawings he stamped.

The member confirmed his design came from a book; that he used it without first doing calculations; that he tested it up to 3500lb, but never tested it up to 5000lb. The member explained he never tested up to 5000lb because this was the maximum load and testing was not done to the maximum load because after that, as was also stated by Budziak, the anchor would no longer be usable. He was asked if he had ever tested his anchor using a prototype and confirmed he had not. He confirmed he did not do the calculations referred to in the regulations. He also confirmed he did not inspect the anchors when they were being installed to ensure they were embedded deeply enough. He confirmed he did not test all of the anchors to 2500lb.

Fuller pointed to CSA Z271-98 at 6.3.2, which states:

“Anchoring systems shall be designed to resist a force, applied in any direction, of

- (a) 22.2 kN (5000 lbf) fracture load without fracture and/or pullout, or a 15.6 kN (3500 lbf) factored load; and
- (b) 11.1 kN (2500 lbf) without permanent deformation of any component of the anchor system, if subjected to test loading after installation.

Note: Consideration should be given in the design to the effects of deflections in the roofing material.”

According to Fuller, the CSA Z271-98 standard set out above involved a two-stage approach. Testing alone was not sufficient. In order to meet the standard, the design engineer had to be able to prove, using calculations that applied the factors set out in CSA Z271-98 above, that the design was adequate and also had to be able to satisfy the load test. In his evidence, the member disputed Fuller’s evidence that the requirement was a dual requirement and that the factors he was required to use to prove his design were those set out at 6.3.2 of CSA Z791-98.

According to Budziak, the member should have been aware of CSA A23.3-04. He should have been aware of it because it is the law and it is the relevant standard that applied to the anchors he was responsible for designing. He disagreed with the member’s position that random testing after the anchors were embedded was sufficient and can satisfy the requirements of the regulations. According to Budziak, if engineering calculations could not be provided to confirm compliance, then all of the anchors should be tested. It is the worst case scenario that is to be considered in the design calculations, not the smallest load, but ultimately agreed with Fuller that the law required that the anchors be proven by both calculations and testing.

Could the member’s design be proven by calculations?

Fuller testified that the member provided drawings dated November 10, 2009 that did not include any calculations. He requested revised drawings, which were submitted on November 25, 2009, and he had expected those drawings to include calculations, but the calculations were not included.

According to Fuller’s evidence, the anchors were cast into the concrete in November 2009. It was not until February 22, 2010 that Fuller received resubmitted shop drawings, which were stamped February 20, 2010 by the member. Fuller stated the drawing of RA-1, in particular, the cast-in-concrete anchor, did not satisfy his concerns. He also gave evidence that the calculations that were provided with the drawing were, in his view, inadequate because they did not illustrate the transfer of the load to the concrete. Fuller testified he directed the member to CSA A23.3-04, Appendix D, for guidance on the calculations that, in his opinion, were required to demonstrate adequate anchorage to con-

crete, but the member maintained he did not have enough concrete information for the two variables. Fuller gave evidence these two variables were the factors referred to in CSA Z291-98 Safety Code for Suspended Elevating Platforms at 6.3.2, that these were not unknown factors. The member repeated, on his calculations dated March 30, 2010, that the concrete resistance factor and the resistance modification factors were unknown and, again, asked for Fuller to specify them. Fuller gave evidence the concrete resistance factors were available in CSA A23.3-04 at clause 8.4.2, and the resistance modification factors were available in Annex D to CSA A.23.3-04 at clause 5.4. He explained that, in his view, the values set out in clauses 8.4.2. and 5.4 are available and should have been known by the member before designing the anchor. He expressed that these values are basic to concrete design. They were not unusual standards. Fuller’s evidence was largely unchallenged by the member.

Budziak was asked about the drawing by RNC Anchors that was sealed by the member on November 10, 2009 and whether, in his view, it complied with the standard. In Budziak’s opinion, it did not for a couple of reasons:

1. It did not give the breakdowns required by the standard; and
2. The calculations provided were insufficient to demonstrate the safety of the anchors.

Budziak was asked to comment on calculations provided by the member to the project manager that were stamped March 30, 2010. In particular, he was asked to comment on the member’s statement that CSA A.23.3-04, Annex D, was non-mandatory because, according to the member, the specified safety levels set out in Annex D:

“are intended for in-service conditions rather than short-term conditions. Hence, the ultimate fracture/pull out load of 5000lb, specified by CSA Z91-02, is not the load to be used in these calculations. Sentence D.1.4 stipulates that load applications that are predominantly high cycle, fatigue, or impact are not covered in Appendix D. The 5000lb load is dynamic-shock/impact load. Hence Appendix D calculations do not apply.

A 2500lb load for a period of 5 minutes is the load the anchors must withstand without permanent deformation and shall be load tested on site. This, however, is still only a short-term load so again, the following calculations are not applicable for the 2500lb load test. Working load is usually limited to 1000lb for suspended equipment and 300lb for lifelines with corresponding safety factors. So the 1000lb load is the load that suits the requirements for Appendix E calculations.”

Budziak disagreed with the member’s position that Appendix D did not apply, and with the member’s position with respect to the loads to be used for testing purposes, and for use in the calculations. Budziak explained the shock load is double the service load. He also disagreed that the anchors were being used for a short-term service load, which he explained would be something like a short-term handling or construction condition. In his opinion, things like window washing and building maintenance were not short-term service loads. The anchors were on the building and would be used at least once a year. For that purpose, 1000lb was way too small. In his opinion, Annex D did apply.

With respect to his March 30, 2010 calculations, the member stated the factors he required to complete his calculations were “unknown.” Budziak was asked about that statement. Budziak gave detailed evidence as to how the factors could be found. Budziak disagreed with the member’s position that, based on Annex D D.1.4., these anchors were not covered in the standard. According to D.1.4, “Load applications that are predominantly high cycle, fatigue, or impact are not covered by this Annex.” Budziak explained that this refers to things like light standards or antennae that are under constant winds, for example. These anchors, in his opinion, did not fall under that exception. Even if the member were correct with respect to these anchors being exempted from Annex D, he did not agree that it was sufficient to use 1000lb in the calculations used to determine the safety of the anchor. Budziak referred to section 4.1.3.1 of the building code, paragraph 1i), which provides:

“factored load” means the product of a specified load and its principal load factor or companion load factor.

The member provided a set of calculations on August 24, 2010 for the purpose of demonstrating the fall arrest roof anchor resistance in concrete. Budziak was also asked to comment on these calculations. As to the member’s calculations, he stated they were unreliable. He further commented that some of the values were not correct and that, even using the member’s numbers, you could not make the anchors work. What he meant by that was even using all of the member’s numbers, if you were to do calculations for all of the types of stresses the anchors were required by the building code to withstand without pulling out of the concrete (pull-out) or without the anchors bending or breaking (fracture) the anchors would still fail.

The member provided a modified design on November 25, 2009 in response to some of the concerns he had been asked to address. The modified design included the addition of a metal plate that was 4" x 4" x ¼" thick. Budziak was asked to comment on this and, again, found that the modified design was insufficient and could not be proven with calculations. According to Budziak’s evidence, using the correct values, the member’s design for the anchors still failed four of the six tests.

The member stated that he had acquired calculations by Thaler. They sent the calculations unsealed. He stated, in his evidence, there were contradictory requirements in the CSA standards and in the building code but, when pointed to the standards and the building code on cross-examination, he agreed they were the same.

DECISION

The decision was rendered orally at the hearing. The parties requested and the panel agreed to provide reasons for the purpose of allowing the parties to make submissions on penalty. The decision that was rendered orally is set out below. The reasons for the decision follow.

The association bears the onus of proving the allegations in accordance with the standard of proof. The standard of proof applied by the panel was a balance of probabilities, and the panel required that the proof be clear and convincing and based upon cogent evidence accepted by the panel.

WITH RESPECT TO THE MEMBER, JIRI KRUPKA

Having heard the witnesses and considering the evidence, the panel determined that the member, Jiri Krupka, P.Eng., is guilty of professional misconduct pursuant to sections 72(2)(a)(b)(d)(h), and was unprofessional as provided under section 72(2)(j) of Regulation 941 of the act.

The panel accepts the association's proposal that the allegation the member had signed and sealed drawings he had not actually checked be withdrawn and finds the member not guilty of contravening section 72(2)(e).

The panel was not satisfied the burden of proof to support incompetence under section 28(3)(a) of the act was satisfied and, thus, finds the member not guilty of this allegation. The matter related to the member's employment with CA Elliott from July 2008 to July 2010. There was no evidence presented with respect to the member's previous designs to satisfy the onus of proof.

WITH RESPECT TO THE CERTIFICATE OF AUTHORIZATION HOLDER, CAELLIOTT INC.

CA Elliott employed the member and relied on him solely. CA Elliott gave no evidence of its own, having pled guilty. Having found the member guilty, the panel also finds CA Elliott guilty of professional misconduct pursuant to sections 72(2)(a)(b)(d)(h), and of having been unprofessional as provided under section 72(2)(j) of Regulation 941 of the act. The panel bases its decision on the evidence presented by the parties.

ISSUES

1. Was the member responsible for ensuring the safety of the anchors in terms of both the design of the anchors and attachment of the anchors to the concrete slab?
2. What was the appropriate standard, and was the member required to be aware of it?
3. Was the member required to prove the safety of his design by both calculations and testing, or was testing alone sufficient?

ANALYSIS: REASONS FOR DECISION WHO WAS RESPONSIBLE FOR THE DESIGN OF THE ANCHORS?

The panel heard evidence from Fuller, who was the project manager for Halsall, the company responsible for the base building design. Fuller reviewed the scope of work and pointed out that it was within the scope of work of the component engineer to ensure the safe design and installation of the roof anchors. Fuller's evidence was unchallenged by the member and supported by Budziak, the expert witness. The panel found Fuller to be a credible witness. The panel accepts that it was the member's responsibility to ensure the safe design of the anchors.

WHAT WAS THE APPROPRIATE STANDARD, AND WAS THE MEMBER REQUIRED TO BE AWARE OF IT?

The member argued that, because he had prepared his design based on a design that met CSA standards, he was not negligent. He also pointed out that he had used the same design for anchors before and they had not failed and that, once all the anchors were tested, they did not fail. The member implied that the figures he needed for his calculations could not be found. He implied Fuller should have provided him with the figures required for his calculations. The association's witnesses provided evidence of the appropriate codes and standards. To meet the requirements of the building code, it is necessary to satisfy the relevant provisions of the building code, one related to design and the other related to use of the design. The member should have gone to the relevant section of the building code and should have known which standard applied.

The code at paragraph 4.4.4.1(2), subject to certain conditions, provides that the type of anchor systems at issue in this case be designed, installed and tested in conformance with CSA Z91-02. CSA Z91-02 sets out the design, use and maintenance standards for lifeline and tie back anchors, including requirements for the spacing of the anchors. It incorporates CSA Z271 by reference. CSA Z271 sets out the structure design requirements for lifeline and tie back anchors, including the strength requirement at 6.3.2. Neither CSA Z91 nor CSA Z271 refer to CSA A23.3-04; however, both witnesses for the association gave compelling evidence as to its

importance and its relevance to the design, installation and testing of the anchor systems that were the member's responsibility in this case. The panel agrees it was among the applicable guidelines, standards and codes that a professional engineer in the member's position was responsible for knowing and complying with.

It is undisputed that the member was not familiar with applicable guidelines, standards and codes that applied to the anchor system he was designing, specifically CSA A23.3-04. Even after having the proper standards pointed out to him, the member failed to familiarize himself with those standards in a way sufficient to permit him to identify the proper factors to use in his calculations. It was the member's responsibility as the component engineer to be familiar with the proper guidelines, standards and codes. The panel agrees that the correct standard was CSA A23.3-04 and that the member, as the professional engineer responsible for designing the cast-in-concrete anchors (the component engineer), should have been aware of CSA A23.3-04.

The panel finds that, even after being made aware that he was not following the proper standards, guidelines and codes, he failed to make himself aware of them until well after his anchors had been installed on the roof where they were to be used.

WAS TESTING ALONE SUFFICIENT IN THE CIRCUMSTANCES?

The member's design, even using the lower standard set out by him, failed to meet the standard required using calculations and, as such, his design could not be proven by calculations. The member suggested he should be able to rely on a proven design, which was a CSA approved design but, on careful examination of his design, it is clear the member had modified that design. The panel agrees the design requirements set out at clause 6.3.2 of CSA A271 can only be satisfied by doing both calculations and testing and, further, that a design engineer is responsible for being familiar with the relevant guidelines, standards and codes.

The fact that there is no evidence of the anchors having failed is insufficient. While the member argued that an engineer should be able to rely on his own judgment, the panel does not agree this is sufficient. The panel agrees with the witnesses for the association that the standards are put in place

for a reason and that, to meet the standard of care required of a professional engineer, the responsible engineer must be both aware of them and must apply them. The panel finds the member was not aware, at the relevant time, of what the appropriate standards for his design were, had reason to know he was not aware, proceeded nonetheless to install the anchors, and did so without ever having applied the required calculations to ensure the safety of his design.

The member gave evidence that his anchors were safety tested after installation and did not fail. The panel agrees the building code puts in place a set of standards that are required by law to be followed. The fact that a professional engineer, in this case, does not follow them is serious. The risk to public safety in failing to know and apply both components of the testing required in the circumstances constitutes a failure to maintain the standards that a reasonable and prudent practitioner would maintain in the circumstances; is not sufficient to ensure public safety; and does constitute a failure to comply with applicable statutes, regulations, standards and codes contrary to Regulation 941.

With respect to his competence, there was no evidence led with respect to the member not having followed the appropriate standards in any previous work. The member gave evidence this was the first time anyone had suggested there might be a problem with his design. The member did base his design on a proven design. In his judgment, the design was sound. When the anchors were load tested, they did not fail. The member testified as to his concern for human life. In addition, looking at the evidence on the whole, the panel did not find there to be sufficient evidence to support, on a balance of probabilities, that the member displayed a lack of knowledge, skill and judgment, and a disregard for the welfare of the public sufficient to justify a finding of incompetence. For these reasons, the panel found the member not guilty of incompetence.

PENALTY

The decision on penalty is reserved. The panel agreed to receive written submissions on penalty. A time-frame for submissions was determined, and the panel chair was to set the deadlines based on the timelines once this Decision and Reasons is issued.

David Robinson, P.Eng., signed this Decision and Reasons for the decision as chair of this discipline panel, and on behalf of the members of the discipline panel: Ishwar Bhatia, P.Eng., Aubrey Friedman, P.Eng., Kathleen Robichaud, LLB, and Robert Willson, P.Eng.

PENALTY DECISION AND REASONS

In the matter of a hearing under the *Professional Engineers Act*, R.S.O. 1990, c. P.28; and in the matter of a complaint regarding the conduct of JIRI KRUPKA, P.ENG., a member of the Association of Professional Engineers of Ontario, and CAELLIOTT INC., a holder of a Certificate of Authorization.

A panel of the Discipline Committee met at the Association of Professional Engineers of Ontario in Toronto on October 23 and 24, 2013, to hear this matter. The decision on penalty was reserved and the panel agreed to receive written submissions on penalty. Written submissions were received from the association on June 5, 2014, with respect to the member and with respect to the certificate holder. Written submissions were received from the member on June 24, 2014. Further submissions were received from the association on July 11, 2014, with respect to the submissions of the member.

OVERVIEW

The allegations relate to the design and installation of a roof anchor system on a new eight-storey building that was constructed in downtown Ottawa and, more specifically, to the installation of anchors in the reinforced concrete portion of the roof. Jiri Krupka, P.Eng. (the member), was employed by CA Elliott Inc. (the certificate holder) for the period between July 2008 and July 2010. He was the responsible engineer for the certificate holder and obtained the Certificate of Authorization for the certificate holder. The certificate holder and the member were hired to design and supervise the installation of the roof anchor system in question.

The decision was rendered orally at the hearing. The parties requested, and the panel agreed, to provide reasons for the purpose of allowing the parties to make submissions on penalty.

WITH RESPECT TO THE MEMBER

The panel determined that the member was guilty of professional misconduct pursuant to paragraphs 72(2)(a)(b)(d)(h) and was unprofessional as provided under paragraph 72(2)(j) of Regulation 941 of the *Professional Engineers Act* (the act).

WITH RESPECT TO THE CERTIFICATE HOLDER

The panel also found the certificate holder guilty of professional misconduct pursuant to paragraphs 72(2)(a)(b)(d)(h) and of having been unprofessional as provided under paragraph 72(2)(j) of Regulation 941 of the act.

SUBMISSIONS AS TO PENALTY

The association filed its own Submissions on Penalty on June 5, 2014 and July 11, 2014. The member filed his own Submissions on Penalty on June 24, 2014. No submissions were made by CA Elliott Inc.

(A) SUBMISSIONS OF THE ASSOCIATION WITH RESPECT TO THE MEMBER

Jiri Krupka, P.Eng., has been a licensed professional engineer under the *Professional Engineers Act* since December 8, 1995. He was employed by CA Elliott Inc. at all material times.

The association identified the objectives for penalty, pointing out that the five objectives of penalty are:

- (a) the protection of the public;
- (b) the maintenance of the reputation of the profession in the eyes of the public;
- (c) general deterrence;
- (d) specific deterrence; and
- (e) rehabilitation.

Of these objectives, the association submitted that the most important is protection of the public interest. The association expressed particular concern with the member's admission that he was not familiar with the applicable CSA standards, seeing this as evidence of an element of carelessness in connection with his design work. The association further submitted that the member was willing to design and oversee the installation of a life safety system without doing either proper calculations or testing to maximum capacity, relying instead on what the association described as the (lucky) fact that his systems had not actually failed in the past. According to the association, there was, therefore, an ongoing concern for public safety, which must be addressed in the penalty order.

Another concern addressed in the submissions of the association was the issue of specific deterrence. In that regard, the association submitted that the member was not sufficiently appreciative of his error and had not indicated he had taken any further training. As such, the association submitted that there is, therefore, a possibility of re-offence, which the association submitted should be addressed by way of penalty.

The appropriate penalty in this case according to the association:

With respect to the member, the association submitted that the panel should make the following orders by way of penalty:

- (a) Pursuant to paragraph 28(4)(f) of the act, the member shall be reprimanded and the fact of the reprimand shall be recorded on the register for a period of two (2) years.
- (b) Pursuant to paragraph 28(4)(b) of the act, the member's licence shall be suspended for a period of twenty four (24) months, commencing one week after the date of release of the panel's decision on penalty.
- (c) Pursuant to paragraph 28(4)(k) of the act, nineteen (19) months of the 24-month suspension referred to above shall be suspended, provided that:
 - unless and until the member successfully passes the following examinations administered by PEO: 98-Civ-B I (Advanced Structural Analysis), and 98-Civ-82 (Advanced Structural Design), the member shall not undertake or provide structural engineering services and, in particular, he shall not design or supervise the installation of roof anchor systems, except under the direct supervision of another professional engineer who takes responsibility for the work.
 - In the event that the member breaches the proviso referred to above, the registrar shall provide him with three weeks' notice thereof, upon the expiry of which the remaining nineteen (19) months of the suspension shall be imposed.

- (d) Pursuant to paragraph 28(4)(e) of the act, it shall be a restriction on the licence of the member that he shall not undertake or provide structural engineering services and, in particular, he shall not design or supervise the installation of roof anchor systems, except under the supervision of another professional engineer, unless and until he successfully completes the examinations specified in subparagraph (c)(i) above.
- (e) Pursuant to subsection 28(5) of the act, the order of the panel shall be published, with the reasons therefore, together with the member's name, in the official publication of PEO.

Additional submissions of the association on key elements of the proposed penalty:

- (i) Suspension
The association submitted that, if the member were to comply with the requirements of paragraph (c) of the penalty proposed above, his licence would be suspended for a total of five (5) months. It was the view of the association that this is a relatively long suspension, which it felt reflects the seriousness of the conduct in issue and the gravity of the risk to the public. It relied on two Discipline Committee decisions (Braunshstein and Cook) in which suspensions had been ordered.
- (ii) Restriction on practice
It was submitted by the association that the objectives of rehabilitation and specific deterrence would best be met if the member were required to prove that he understands the principles of structural analysis and design by passing the examinations referred to above. The practice restriction would provide protection to the public until he does so.

In addition to Braunshstein (referred to above), the association referred to the following cases, which involved practice restrictions similar to those proposed in this case: PEO v. an Engineer et al. (Gazette, January/February 2012); PEO v. David W. Seberras et al. (Gazette, July/August 2006); and PEO v. a Member (Gazette, May/June 1997).

Conclusion of the association

The association submitted that, for all the above reasons, the penalty proposed by it is fair and reasonable, and that it meets the five objectives of penalty, set out above.

(B) SUBMISSIONS OF THE MEMBER ON PENALTY

The member also made submissions in which he accepted the panel’s analysis and conclusions. He expressed regret at what he described as his “unprofessional approach in relying on the connection detail published by the anchor manufacturer (Thaler) neglecting to carry out the pertinent calculations as required.” He agreed that, as he was responsible for the design of the anchors, he should have been aware of what calculations were applicable, and further acknowledged in his submissions that load testing alone was not sufficient.

The member stated, in his submissions, that he took full responsibility for his wrongdoing and expressed that he was eager to upgrade and improve his skills. He provided evidence of his enrolment in the 98-Civ-B2 (Advanced Structural Design) course with Global Innovative Campus, with the intention of writing the next test administered by the Association of Professional Engineers of Ontario in December 2014. He described the process of dealing with this complaint as a learning experience for him, explaining that this was the first time such a complaint was made regarding his work.

The member argued for a shorter suspension, of one month only. He supported his position on penalty by pointing out that he uses his professional stamp in his employment and that, if he were to lose the ability to use his stamp for the five months proposed by the association, that he would very likely lose his job. He explained that he is the primary income earner for his family and that losing his job would result in financial hardship for his wife and children. He accepted that his actions should be penalized, but asked for consideration of a reduction in the amount of time that his professional licence was to be suspended. He further pointed out that this was his first complaint, and that he was co-operative and acted in good faith during the investigation process. He expressed profound regret

and a commitment to take steps to correct and improve his skills as a professional engineer.

(C) SUBMISSIONS OF THE ASSOCIATION WITH RESPECT TO THE CERTIFICATE HOLDER

CAElliott Inc. (the certificate holder) no longer holds a Certificate of Authorization.

With regard to the certificate holder, it should be noted that it pled guilty and did not contest the charges. It appears that it ended its relationship with the member shortly after the complainant made his complaint in this matter. It has not renewed its Certificate of Authorization. It does not appear that there is any need to protect the public from the certificate holder’s activities in the future, nor does there appear to be any real risk of re-offence.

The appropriate penalty in this case according to the association:

With respect to the certificate holder:

As the certificate holder does not currently hold a Certificate of Authorization, PEO respectfully submits that a fine of \$5,000 should be imposed if and when the certificate holder seeks a new or renewed Certificate of Authorization. The authority for the imposition of this penalty is subsections 28(4)(h) and 28(4)(k) of the *Professional Engineers Act*.

In support of its position, the association relied on the decision of the Discipline Committee dated November 2, 2012, in the matter of Peter Famiglietti.

No submissions were made by or on behalf of the certificate holder.

PENALTY DECISION

The panel deliberated on the penalty submissions and, pursuant to the *Professional Engineers Act*, orders the following as to penalty:

- (a) Pursuant to paragraph 28(4)(f) of the *Professional Engineers Act*, the member shall be reprimanded, and the fact of the reprimand shall be recorded on the register for a period of two (2) years;
- (b) Pursuant to paragraph 28(4)(b) of the *Professional Engineers Act*, the member’s licence be suspended for a period of two (2) months commencing one week after the release of the panel’s decision on penalty;
- (c) Pursuant to paragraph 28(4)(d) of the *Professional Engineers Act*, the member’s licence be limited for a period of up to twenty-two (22) months following the end of the suspension such that the member not undertake or provide structural engineering services except under the direct supervision of another professional engineer who takes responsibility for that work;

- (d) Pursuant to paragraph 28(4)(k)(i) of the *Professional Engineers Act*, the limitation stipulated in paragraph c) above be suspended if and at such time as the member successfully passes the tests administered by PEO for both of 98-CIV-B1 (Advanced Structural Analysis) and 98-CIV-B2 (Advanced Structural Design);
- (e) Pursuant to paragraphs 28(4)(h) and 28(4)(k)(i) of the *Professional Engineers Act*, CA Elliott Inc. shall pay a fine in the amount of five thousand dollars (\$5,000) to the minister of finance for payment into the Consolidated Revenue Fund if and when CA Elliott Inc. seeks a new or renewed Certificate of Authorization to be paid prior to the issuance or renewal of the certificate;
- (f) Pursuant to paragraphs 28(4)(i) and 28(5) of the *Professional Engineers Act*, the Decision and Reasons for the findings and penalty shall be published in *Engineering Dimensions*, with reference to names; and
- (g) There shall be no order with respect to costs.

REASONS FOR DECISION ON PENALTY

The decisions referred to by the association are not binding on the panel. The panel also felt that they dealt with somewhat different circumstances than the present case.

DURATION OF SUSPENSION

Taking into consideration the submissions of both parties, the panel concluded that the penalty proposed by the association, especially in terms of the length of the proposed suspension being for five months, was more stringent than the circumstances required and did not adequately account for the personal circumstances of the member. The panel considered also that, following the hearing, the member expressed remorse and an understanding of the mistakes he had made. Nonetheless, while the penalty proposed by the association was more stringent than necessary, the penalty proposed by the member was, however, felt to be insufficient.

The member did not appear to fully understand the nature and consequences of his actions until after the hearing. The member was not familiar with the applicable codes for the roof anchor systems he was designing. The panel felt that a two-month suspension was adequate to serve the goals of specific and general deterrence in that it would have a significant enough impact on the member while, at the same time, serving as a warning to licensed professional engineers of ensuring they are competent in the area they are working.

LIMITATIONS ON LICENCE

The panel considered the expressions of remorse and the demonstration of willingness and interest by the member to improve his skills by enrolling in courses. Mindful of the goal of rehabilitation, the panel determined this goal would be better met by a shorter suspension and a clearer and longer period of supervision until the member demonstrates an understanding through testing by the association in structural engineering, the aspect of the discipline of professional engineering that he was lacking when he designed the roof anchors. Protection of the public is served by the member having a limitation on his licence such that his work in the area of structural engineering must be supervised by another professional engineer until he demonstrates competence in that area. The requirement to successfully pass the structural engineering tests, and until then have limits on the licence, serves both the goal of protecting the public as well as the goal of rehabilitation.

PUBLICATION

Publication of the Reasons for the Decision and Penalty were considered important as part of the overall penalty and will help to deter members from similar acts of misconduct.

The panel finds that, given the overall circumstances of this case, the publication of the Decision and Reasons with names and the imposition of the two-month suspension and restrictions on the licence of the member for up to 22 months will serve that purpose.

FINE IMPOSED ON THE CERTIFICATE HOLDER

As for the certificate holder, the panel accepted the penalty proposed by the association, seeing no reason to vary from it. The panel accepts that the certificate holder is no longer providing service to the public and that should it attempt to do so by seeking a new or to renew a Certificate of Authorization, a fine of \$5,000 is an appropriate deterrent should CA Elliott Inc. choose to provide engineering services to the public in the future.

As for costs, no costs were sought by the association and, as such, the panel finds that an award for costs was not warranted.

All components of the penalty serve to protect the public and help to maintain public confidence in the ability of the profession to act as a regulator.

David Robinson, P.Eng., signed this Decision and Reasons for the penalty as chair of this discipline panel and on behalf of the members of the discipline panel: Ishwar Bhatia, P.Eng., Aubrey Friedman, P.Eng., Kathleen Robichaud, LLB, and Robert Willson, P.Eng.

NOTICE OF LICENCE REVOCATION—FALCON GROUP INTERNATIONAL INC.

On December 17, 2014, the Certificate of Authorization of Falcon Group International Inc. was revoked pursuant to an October 29, 2014 Registrar’s Notice of Proposal to Revoke a Certificate of Authorization. As a hearing was not requested within 30 days after the Notice of Proposal was served upon the holder, the registrar carried out the proposal and revoked the Certificate of Authorization.

COURT ORDERS TILLSONBURG’S ERIE STRUCTURES TO CEASE HOLDING OUT AS ENGINEERING FIRM

The Ontario Superior Court of Justice has upheld that companies and individuals who suggest they offer professional engineering services must be authorized by Professional Engineers Ontario and hold a Certificate of Authorization (C of A).

On February 13 the Hon. Mr. Justice Stinson ordered 2322650 Ontario Limited (operating as Erie Structures) to cease holding itself out as an engineering firm, and its principals, William David Dendekker, Jonathon Joel Dendekker and Bernard Fehr, to stop representing that they can perform “engineering” or that the company has “engineers.” The court awarded PEO \$5,586.36 for its application costs.

PEO received reports of two greenhouse projects with structural problems. A project in Mount Albert undertaken by Erie Greenhouse Systems Inc. was the subject of a lawsuit over the quality of its construction, and a false engineering seal had been used on permit application drawings. A project in Kingsville undertaken by Erie Greenhouse Services Inc. was reported to show signs of a twisted and distorted structure.

A PEO investigation found that Erie Greenhouse Systems Inc. and Erie Greenhouse Structures Inc. are predecessors of Erie Structures and are currently

bankrupt. They operated from the same address in Tillsonburg and had shared management as Erie Structures. The Erie companies carried out the structural design, preparation of engineering drawings, permit applications and construction for both the Mount Albert and Kingsville projects. On their websites and in their printed materials, Erie Greenhouse Structures Inc. and Erie Structures were also holding out that they performed “engineering.” At no time did any of the Erie companies hold a C of A to provide professional engineering services, nor did any of them employ a professional engineer.

In the court proceedings, Mr. Justice Stinson found: “The material filed demonstrates the unauthorized use of the terms ‘engineer’ and ‘engineering’ in breach of the *Professional Engineers Act*,” and further went on in his endorsement to say: “Given the potential serious consequences of the unauthorized practice of engineering that may result from such unauthorized use, an order restraining such conduct is appropriate.” He ordered that Erie Structures cease using the words “engineer,” or “engineering” or any other term, title or description that will lead to the belief that it may provide to the public services that are within the practice of professional engineering. Erie Structures may no longer represent on its website or in its printed materials that it employs engineers or that it performs engineering services. He also ordered William David Dendekker, Jonathon Joel Dendekker and Bernard Fehr to ensure that, now and in the future, any company for which they are an officer or director refrain from holding out as an engineering firm, unless the company holds a C of A.

COUNCIL APPROVES REVISED ELLIOT LAKE RECOMMENDATIONS IMPLEMENTATION PLAN

498TH MEETING, FEBRUARY 5, 6, 2015

By Jennifer Coombes

A PLAN FOR implementing the Elliot Lake Commission of Inquiry recommendations requiring PEO action, which was received at the November 2014 council meeting, has now been reviewed by several PEO committees and task forces, including the Legislation and Professional Standards (PSC) committees, the PSC's Structural Assessment Guideline Subcommittee, and the Continuing Professional Development, Competence and Quality Assurance Task Force.

Feedback from these groups has been used to prepare a new implementation plan that was presented to council at the February meeting. Council has given the go-ahead for the appropriate committees and staff to begin work on the following of the plan's recommendations:

- PSC and its Structural Assessment Guideline Subcommittee will develop a structural inspection performance standard, prepare an appropriate amendment to Regulation 260/08, and assist the government in determining which buildings the standard applies to;
- PSC and its subcommittee will develop a performance standard for engineers preparing structural adequacy reports following a structural inspection to determine whether a building meets the Minimum Structural Maintenance Standard, once this standard has been created by the ministry;
- PSC will determine the best way to inform members that they should not alter the contents of their engineering reports at the request of clients, and that changes should be made based only on engineering principles or changed facts;
- The registrar will implement a searchable website database of information that includes the names of every licensee and Certificate of Authorization (C of A) holder; the terms, conditions and limitations attached to each licence or C of A; a note of every revocation, suspension, cancellation or termination of a licence or C of A; information about upcoming Discipline Committee hearings; and findings of professional misconduct or incompetence; and
- The registrar and PSC will work with the Ontario Association of Architects and the Ministry of Municipal Affairs and Housing to prepare a definition of "prime consultant," which would be either a P.Eng. or an architect designated by the owner of a building that requires the services of more

than one professional consultant. In addition, PSC will develop a guideline for engineers acting as prime consultants and the registrar will work with the ministry to amend the Ontario Building Code to require owners to engage P.Engs or architects as prime consultants for buildings that, according to the engineers' and architects' acts, must be designed by a professional engineer, an architect, or both.

Council agreed that certain of the recommendations require more in-depth policy analysis before they can be implemented. These are:

- developing a structural engineering specialist designation. Council has directed the registrar to investigate whether creating exclusive areas of practice would have a negative impact on the practice of engineering by members or on the public perception of the profession, and to study whether introducing a structural engineering specialist designation would set a precedent in which other ministries or the public would demand the creation of similar specialists in other areas of engineering practice. The registrar is to report to council at its June meeting;
- requiring P.Engs to make available all records in their possession related to the structural integrity of a building. The registrar will seek a legal opinion on PEO's authority to implement this requirement and its implications on the practices of the engineers in possession of these records and on those performing structural inspections who would be required to obtain the records. The registrar will deliver a legal opinion to PSC, which will provide a report to council on the recommendation's viability and possible alternatives by October 15; and
- requiring P.Engs to disclose to clients any licence suspensions or revocations and the reasons for them. The registrar will obtain a legal opinion on whether PEO has authority under the *Professional Engineers Act* to require this of engineers and the implications of doing so, and provide the opinion and a recommendation to council in June.

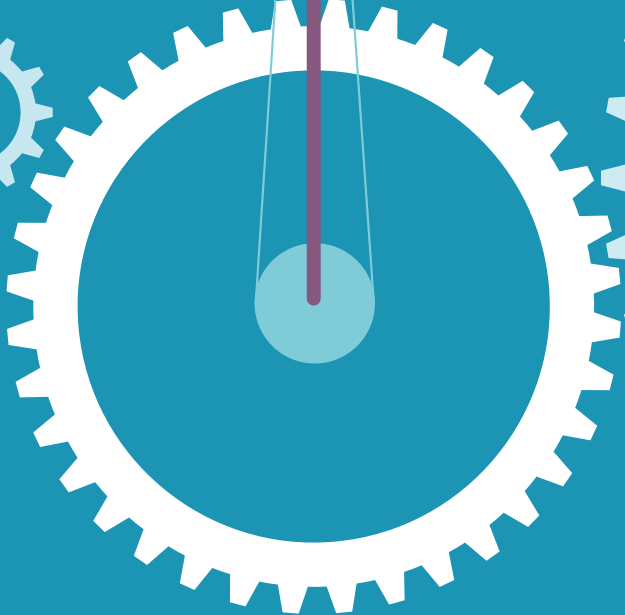
40 SHEPPARD 8TH FLOOR

An in-camera discussion at the February meeting concerned what to do with the space on the eighth floor of PEO headquarters once the current tenant's lease ends this year. PEO's council chamber and associated dining rooms currently occupy part of the floor, with the remainder of the floor, about 7500 square feet, leased to the federal government since before PEO's purchase of the building.

Council brought the discussion into open session for councillors to consider three options: re-lease the suite, occupy the suite, or leave it vacant until PEO decides on a use for the space.

After much discussion, council defeated a motion that would have seen the registrar create concept layouts and associated budgets for PEO occupying the space for council's review. Instead, councillors approved leasing the suite to a new tenant when it becomes vacant. Σ

PEO looking forward to second decade of government liaison work



By Michael Mastromatteo

PEO's Government Liaison Program
has hit the 10-year milestone.
What began as an effort to counter
government incursion into PEO's
regulatory domain has evolved into
a vehicle to assist policy-makers and
to celebrate professional
engineering in the
public interest.



It is commonly understood in Ontario engineering circles that PEO's successful court challenge in 2006 of the Ontario housing ministry's effort to impose its qualification system on an element of engineering practice ushered in a whole new era of active government relations efforts for the association.

Often described as the BRRAG or Bill 124 battle, PEO's request for a judicial review of the application of the ministry's qualification regime to an already regulated profession made clear that the engineering regulator would not tolerate conflicts with its jurisdiction under the *Professional Engineers Act* to regulate the practice of professional engineering in the public interest.

Prior to seeking the judicial review, then PEO CEO/Registrar Kim Allen, P.Eng., FEC, sought an audience with then Ontario Attorney General Michael Bryant to argue PEO's case.

"I voiced frustration at what we viewed as a rash of incursions into PEO's regulatory jurisdiction," Allen recalls. "Minister Bryant's message to us was simple—it was up to us to educate legislators about the value of our self-regulation."

Now CEO of Engineers Canada, Allen took the attorney general's message to heart. After a chance meeting with government relations specialist Howard Brown, Allen decided a more active government relations program would bring great benefit to the regulator.

"PEO needed new tools to make it happen," Allen told *Engineering Dimensions* in February. "Thus, the Government Liaison Program [GLP] was officially launched in January 2005. The [initial] vote at council was very close, as there was concern about lobbying for the public interest versus advancing our self-interest. That concern by council drove home that the program as it started out, and as it remains today, must only be a means for PEO to get on the same side of the table with government to address public interest challenges related to engineering. It is not there to advance the self-interest of engineers."

What began as a pilot project in 2005 within two years was an established part of PEO operations.

FORCE TO BE RECKONED WITH

As former PEO president George Comrie, P.Eng., FEC, noted in 2012: "With the inauguration of its current Government Liaison Program, PEO council asserted the Ontario regulator's role as a stakeholder in government and public policy. Thus far, its largest action to raise our respect with government has been the successful fight over an ill-advised amendment to the Ontario Building Code and regulations in 2004. Overnight, professional engineers became a force to be reckoned with in Ontario politics."

The GLP began modestly with Brown being retained to spread PEO messages among MPPs at Queen's Park. The program also became operational along chapter lines with each chapter establishing a GLP subcommittee to meet local elected officials and to organize such events as chapter-based town hall meetings—usually in conjunction with federal or provincial elections. Another early initiative was the Cam-



Take Your MPP to Work Day has become a popular way for PEO chapters to participate directly in the Government Liaison Program. On January 21, the London Chapter hosted London-Fanshawe MPP Teresa Armstrong (second from right) for a tour of the Upper Thames Valley Conservation Authority. With Armstrong are (left to right) London Chapter Vice Chair Imtiaz Shah, P.Eng., PEO Government Liaison Committee Chair Darla Campbell, P.Eng., and London Chapter GLP Chair Tomiwa Olukiyesi, P.Eng.



A Take Your MPP to Work Day event in August 2013 attracted a crowd of engineers and Oakville Chapter members. Oakville MPP and Minister of Labour Kevin Flynn (fourth from left) was joined for a tour of Siemens Canada by (left to right) then Chapter Chair Warren Turnbull, P.Eng., then Chapter GLP Chair Ankesh Siddhantakar, EIT, Siemens Canada CEO Robert Hardt, Siemens VP Lucy Casacia, Darla Campbell, P.Eng., PEO Councillor Rob Willson, P.Eng., and then chapter executive member Fred Dattoo, P.Eng.



paign Colleges, which are dedicated to offering insights to PEO members interested in standing for election to municipal or provincial posts.

One of the most prominent GLP activities is the now annual engineering reception at Queen's Park. Initiated in 2005, the receptions bring engineers and legislators together to celebrate the profession and to remind government leaders of PEO's core objectives. At the 2014 engineering reception, Ontario Attorney General Madeleine Meilleur paid tribute to PEO for its government relations work and, in particular, for "advancing the profession."

"During the early years working with Howard Brown, we experimented with many practices to find what would best work within the PEO context," Allen says. "Howard's dedication, contacts and willingness to work all out helped shape the GLP into an effective program."

As the program matured, PEO added new elements. For example, the Government Liaison Committee (GLC) was established in 2011 with Barry Steinberg, P.Eng., CEO of Consulting Engineers of Ontario, its first chair. With the launch of the committee, staff support to the program was transferred to Jeannette Chau, P.Eng., who became manager, student and government liaison programs. As the coordinating body for the GLP, the GLC was structured to include representation from PEO, the Ontario Society of Professional Engineers (OSPE), Engineers Canada, and the Engineering Student Societies' Council of Ontario, making it representative of the wider engineering community.

More recently, the GLP introduced "Take Your MPP to Work Day," which sees a local MPP tour an engineering facility as a guest of a PEO member. The most recent such day took place January 21 with PEO's London Chapter hosting MPP Teresa Armstrong.

The GLP today continues to operate to ensure that government, PEO members and the public all recognize PEO's regulatory mandate and, in particular, its contributions to maintaining the highest levels of professionalism among engineers working in the public interest. The program also positions PEO as having unique knowledge and expertise, which would be of benefit to government when it is considering new policy directions that may have an impact on the regulation of the practice of professional engineering and the safety of the people of Ontario.

PEO AS A PARTNER

The ultimate aim of the GLP is to have the provincial government regard PEO as a partner that ought to have influence and an impact on the direction of policies applicable to the engineering profession.

A second milestone for PEO's government liaison work occurred over the *Fair Access to Regulated Professions Act*. The provincial government made access to regulated occupations, particularly for internationally educated professionals, a priority issue, forcing some regulators to take stock of their registration practices.

“PEO was engaged from the start in late 2004,” Allen says. “We worked effectively with the responsible ministers and with Judge George Thompson, who was charged with reviewing appeal processes in Ontario’s regulated professions. PEO was the only regulator to support government from start to finish.”

Allen is especially gratified with the GLP’s role in guiding the provincial government’s *Open for Business Act, 2010*, which, among other things, included a new definition of professional engineering. It also allowed PEO to make a number of administrative and governance enhancements.

“Through the efforts of GLP, PEO was able to achieve 66 amendments to its *Professional Engineers Act* (PEA) through the government’s open for business legislation,” Allen says. “The PEO changes took up more than 10 per cent of the bill. These were the first major amendments to the PEA in more than 25 years. It reflected the provincial government’s commitment to a strong engineering profession that can best serve the public and respond to the needs of Ontario businesses and individuals seeking to be licensed to practise professional engineering.”

THE CHAPTER FACTOR

The involvement of PEO’s 36 chapters through the GLP has proven to be a valuable addition to PEO’s government relations work.

Gerry Meade, P.Eng., the first chair of York Chapter’s GLP Committee, cites meetings with local Liberal party MPPs, including Helena Jaczek of Oak Ridges-Markham, as one of the highlights of the chapter’s early government relations work.

“Dr. Jaczek noted that we were the first group she had met who asked what we could do to help her and the community rather than asking for help,” Meade says. One outgrowth of the MPP meeting was the formation of a York Chapter committee to review electricity supply issues in York Region. It was one of the earliest examples of engineers recommending policy ideas in the key energy sector.

“It’s crucial for professional engineers to be engaged at all levels of the political process,” Meade says, regarding PEO’s government relations work. “[The government’s] policy decisions have a great impact on our profession and we are often the ones who have to implement those decisions. In addition, they are making decisions related to important technical matters. We have to ensure that they have the necessary information to make those decisions.”

GIANT LEAP FORWARD

In the Windsor area, government relations work has also paid rich dividends. Andrew Dowie, P.Eng., chair of the Windsor Chapter GLP Committee, and a new member of Tecumseh municipal council, says Windsor-area MPPs have been highly receptive to political outreach work.

“[Local MPPs] have participated in a number of initiatives and were incredibly responsive with respect to recent legislative matters involving PEO,” Dowie told *Engineering Dimensions*. “Former MPP Teresa Piruzza even provided each



Whitby MPP and current Progressive Conservative party leadership candidate Christine Elliott (left) and Willowdale MPP and current Aboriginal Affairs Minister David Zimmer, LLB, were among the high-profile speakers at PEO’s Candidate College October 14, 2009. Then PEO President Catherine Karakatsanis, P.Eng., FEC, is at the podium. The event brought together a diverse group of legislators who shared their thoughts on how engineers can engage with government and bring their message to the widest possible audience.

Current Ontario Deputy Premier and Treasury Board President Deb Matthews traded anecdotes with political rival Blair McCreadie, past president of the Progressive Conservative Party of Ontario, at PEO’s first-ever Campaign College in September 2006. The event, which included engineers and legislators from all levels of government, was one of the regulator’s early government liaison efforts.

Ontario Premier Kathleen Wynne (centre) hosts her annual summer reception, which in 2014 became the setting for an engineering-related conversation among (left to right) Sandro Perruzza, CEO, Ontario Society of Professional Engineers; PEO President David Adams, P.Eng., FEC; Ping Wu, P.Eng., president, Professional Engineers Government of Ontario; and Harmail Basi, P.Eng., of the Grand River Chapter.



PEO's government liaison work has afforded new opportunities for engineers to meet representatives at all levels of government. In May 2010, then PEO President Diane Freeman, P.Eng., FEC (left), met former governor general Michaëlle Jean (far right) at a Canadian Club of Toronto event to discuss engineers' role in humanitarian work. Second from left is Howard Brown of Brown & Cohen Communications & Public Affairs Inc. Next to him is John Capobianco, then president of the Canadian Club of Toronto.

The 2013 Queen's Park reception was the scene for this meeting with (left to right) Mark Haynes, P.Eng., of the Simcoe-Muskoka Chapter, Darla Campbell, P.Eng., current chair of the Government Liaison Committee, Richmond Hill MPP and Minister of Research and Innovation and now also Colleges, Training and Universities Reza Moridi, and Mike Kovacs, EIT, past president of the Engineering Student Societies' Council of Ontario. PEO's Government Liaison Program has long made efforts to include engineering students and EITs in its work.



Then Ontario Attorney General Chris Bentley, LLB, praised PEO's government relations work at the 2008 Queen's Park reception. He also cited the regulator for the profession's commitment to help in developing technically sound public policy. The annual receptions are a high point of the regulator's ongoing efforts to forge positive relations between engineers and provincial legislators.

of our new licensees with scrolls to celebrate their achievement. When the program was in its infancy, we wouldn't get our calls returned from local MPPs, so where we are at now represents a giant leap forward."

Dowie says the GLP has encouraged more engineers to engage in local politics. "There has been an uptick in recent years regarding professional engineers stepping forward for civic engagement roles, where we did not often see this in the past. We have a credible message to convey and having more engineers step up and engage with government can serve to enhance the awareness of engineering, and the considerations that go into it, into our community's consciousness."

MEASURING SUCCESS

Now 10 years into the program, PEO's GLP can measure success in a number of ways. The Queen's Park receptions continue to attract dozens of MPPs from all parties each fall. PEO town hall meetings have been used as a venue for Ontario cabinet members to make major announcements and, as government relations consultant Brown has noted, every sitting MPP at Queen's Park has had at least one interaction with an engineering group.

"Over the 10 years, what continues to really impress me is the true dedication of engineers, PEO presidents, council and PEO staff to engage with politicians to protect and serve the public interest, to build a better province and country, and that most politicians are interested in exactly the same thing," says Kim Allen. "When we respect each other and work together, we achieve our mutual goal of protecting and serving the public interest."

It's a far cry from the days of engineering as the silent profession and from the time an attorney general would admonish the regulator to go about educating legislators as to what it is all about.

Despite its record of achievement, however, PEO's government relations program is still a work in progress. "There's definitely still room to grow," says program manager Chau. "It's still about relationship building and letting government officials know that engineers are the ones they should look to for help and advice on certain policy matters."

It's a view echoed by Darla Campbell, P.Eng., who recently succeeded Steinberg as chair of the GLC.

"Let's seek to improve in areas where we can be more effective and efficient," Campbell says. "Engineers know the value of innovation and sometimes we need to focus on not reinventing the wheel. Chapters can learn from each other, from the successes—and lessons learned—in GLP activities. We will continue to work closely with OSPE to ensure that we support each other's government liaison initiatives."

As for indicators of GLP success, Campbell referred to a meeting with MPP Bob Delaney (Mississauga-Streetsville) at the November 5, 2014 Queen's Park reception. "We asked him how PEO could build better relationships with MPPs. We were told that the efforts of PEO in the past few years have been exemplary and a model that other associations should follow." Σ



POLICY CENTRE REFLECTS NEW CONFIDENCE IN ENGINEERS' CIVIC POTENTIAL

Created in response to PEO's efforts to forge more positive government relations, the Ontario Centre for Engineering and Public Policy looks to extend P.Eng. engagement to new levels.

BY MICHAEL MASTROMATTEO

The Hon. Glen Murray, MPP, now minister of the environment and climate change, spoke at the 2011 Public Policy Conference as then minister of research and innovation.

The Ontario Centre for Engineering and Public Policy (OCEPP) was devised in 2007 as an offshoot of PEO's stepped-up government relations.

Fresh off a successful legal challenge of the Ontario housing ministry's jurisdiction to impose an examination regime on licensed practitioners through the building code, PEO felt it only appropriate to attempt to harness the technical expertise of its members on the provincial government's behalf in guiding new policy initiatives that would benefit from this expertise. It was expected that by creating a policy centre, the government would look to PEO and engineers as a trusted partner in helping develop public policy, especially as it involves such issues as energy, infrastructure renewal, environmental sustainability, transportation and risk management.

OCEPP was also abetted in its birth with lingering concerns that input from engineers was largely absent in the policy development realm.

As early as 2004, for example, Tom Brzustowski, P.Eng., former president, Natural Sciences and Engineering Research Council of Canada, told PEO members gathering for their annual general meeting that professional engineers are rarely seen or heard from in developing policy or creating innovation strategies.

Officially launched in 2008, OCEPP's mandate was to develop policy papers and position statements, act as a think tank research centre and provide information and encouragement for engineers with political ambitions. It was also charged with making viable connections with universities, engineering organizations, professional associations and government.

To publicize its work, OCEPP introduced *The Journal of Policy Engagement* as an insert in *Engineering Dimensions* magazine. Later, the journal became an annual compilation of the articles published in the magazine's Policy Engagement section.

At the time of its creation, it was thought OCEPP would eventually become independent of PEO, with the regulator being just one of many participating organizations with an interest in this area. When success in this goal proved difficult to achieve within a reasonable timeframe, PEO council re-evaluated the association's

commitment to OCEPP and, at its September 2010 meeting, decided OCEPP should remain a PEO department, focusing on regulatory issues, and subject to review by council each November. By early 2011, OCEPP was integrated into the policy and professional affairs unit of PEO's tribunals and regulatory affairs division, its emphasis shifting gradually to PEO regulatory policy development rather than public policy issues or government relations.

Shortly after its creation, OCEPP began delivering on its initial aim of providing policy recommendations and engineering solutions to government. In addition to annual policy conferences attracting high-profile speakers, the centre instituted its policy engagement series of presentations on issues ranging from urban infrastructure to cyber security.

EXCHANGE OF IDEAS

Catherine Shearer-Kudel, former program manager of OCEPP, says the policy engagement events gave engineers an opportunity to mingle with policy development experts from government, academe and industry.

"Their biggest impact, I would say, is getting engineers in the same room and talking with Ontario government policy people, as well as association heads, business leaders and others, to discuss important issues, such as energy, climate change, health, infrastructure and transportation," Shearer-Kudel says.

It wasn't long before government leaders and the academic community took notice of OCEPP's work. At the 2010 engineering reception at Queen's Park, former attorney general Chris Bentley described OCEPP as "a remarkable centre for delivering practical ideas for some of the solutions the government needs."

One of the most interesting developments arising from the centre's early policy engagement talks was the creation of a study group to review the viability of using partially spent nuclear reaction fuel as a source of new energy generation. Inspired by the work of Professor Peter Ottensmeyer, PhD, of the University of Toronto, the study group produced a paper on the use of fast-neutron reactors and fuel reprocessing as an input to public policy development for the energy sector.

GOING FORWARD

Today, OCEPP is guided by an advisory board led by Professor Brian Surgenor, PhD, P.Eng., of Queen's University. The 10-member board includes representation from universities, professional associations, the Ontario Society of Professional Engineers, government, industry and even graduate students.

Although OCEPP has but a seven-year history, its influence is spreading throughout Ontario's engineering community. "The impact of policy work can easily take 10, 15 or more years to be felt, and the centre has only been operating since late 2008," Shearer-Kudel says. "It can be difficult to ascertain what influenced a decision, at what stage of policy development the decision was impacted, and to what degree."

She adds that many engineers now practising have had little, if any, training in policy, and it can be difficult for them to appreciate the complex nature of today's policy development.



Clockwise from top left: Bernard Ennis, P.Eng., OCEPP director (standing), moderates a panel discussion on the future of high-rise buildings at the 2012 Public Policy Conference. Panel participants included, left to right, John Straube, PhD, P.Eng., Tim Gorley and Mark Brook, P.Eng.

Tim Hudak, MPP, former leader of the Ontario PC party, with former PEO president Diane Freeman, P.Eng., FEC, at the 2010 Public Policy Conference.

Former PEO CEO/registrar Kim Allen, P.Eng., FEC (left), with Franklin Holtforster, P.Eng., PMP, president and CEO, MHPM Project Managers Inc., at the 2010 Public Policy Conference.

“I think it’s important to recognize that many people and groups influence policy-making, including policy advisors working in government offices, municipalities or other governments,” Shearer-Kudel says. “It’s not just those at the senior levels who exert influence. Individual citizens and interest groups can make or break policy decisions.”

SPECIAL ROLE

Bernard Ennis, P.Eng., PEO’s director, policy and professional affairs, in 2011 was given the additional role of director of OCEPP. In that latter role, Ennis has had several occasions to outline the special role the centre can play. At the most recent OCEPP policy conference, for example, Ennis speculated on how engineers might become even more engaged in public policy development.

“Policy-makers do rely on engineers to provide the data and information needed to support [policy] options,” Ennis said. “Yet those options are typically formulated well in advance of any engagement on

the issue by engineers, even though an engineering perspective could often radically alter the understanding of the problem.”

Ennis has repeatedly urged engineers interested in policy work to “incorporate the mechanisms used by other policy-makers into their own way of thinking.” One of OCEPP’s ongoing challenges will be to seek new ways to combine engineering with public policy engagement. A second challenge is to avoid the scenario in which technically superior ideas are ignored simply because of engineers’ failure to recognize that pertinent non-technical issues play an important role in the public policy process.

But with a seven-year track record to draw on, OCEPP’s advisory board is keen to maintain the engineering-public policy momentum. This burden may be lightened with the rise of new university programs dedicated to linking engineering and public policy and governments’ heightened awareness, through PEO’s government liaison efforts, that including a technical perspective early in the development of relevant public policy can yield a better final result. Σ

SIGNIFICANT CHALLENGES TO THE ENGINEERING PROFESSION

By Peter DeVita, MBA, P.Eng., FEC

THE ACCELERATING PACE of technological change continues to push the engineering profession into major issues. These must be addressed to allow PEO to function effectively (“doing the right things”) and be relevant to members, the provincial government and the people of Ontario.

Two large issues face PEO that, if ignored, will become more severe as time passes, even threatening PEO’s existence. They are:

1. The need to increase the entrance qualifications to obtain a P.Eng.; and
2. The need to restructure our governance so it’s able to embrace new areas of practice in response to the accelerating pace of growth in science and technology.

ENTRANCE QUALIFICATIONS

Engineering in Canada is the only remaining senior profession that can be entered directly from high school. All others require a bachelor’s degree before the profession’s specific training can be started. Former PEO president Walter Bilanski, P.Eng., FEC, convened a conference on this point in June 2007 with much controversial discussion.

The facts that we face now are summarized as follows:

- (a) About 30 US states have already implemented a four-year degree for their technologist level. In short, this suggests that a US technologist is equivalent to a Canadian engineer. That is not a comparison we want made vis-à-vis Canadian engineers (Musselman 3, 4);
- (b) At the National Council of Examiners for Engineering and Surveying (NCEES) annual general meeting in August 2014, NCEES stepped back from its year 2000 Model Law additions. These had proposed that starting in 2020, a master’s degree would be required for the PE designation, or a bachelor’s degree plus 30 continuing education units (Musselman 5). This would have meant that students of engineering beginning in 2015 would need to meet the new standards. NCEES recognized that since no states had followed its lead, it had created a confusing situation for new students of engineering. It has opted to remove clauses from its Model Law and is creating a position statement on what it believes should occur. The problem of under-qualification remains, but how US engineers will address it remains unclear. The implications for Canada are clear. US engineers are 15 years ahead of Canada in attempting to address the licensing

- qualification issue. Canadian engineers are still waking up to understanding what it’s about; and
- (c) Irrespective of the above external forces, growth in technology and social requirements find our new graduating engineers lacking. There is a desperate need for higher-level degrees to add both design abilities and soft skills (Musselman 5). University of Toronto professor Gordon Slemmon, PhD, would often remind us that “design is the essence of engineering.” Yet, our engineering schools are hard pressed to teach design. Our engineering programs at the bachelor’s level are focused on the mathematics and science needed to give us solid analytical skills. Design increasingly requires specialization, synthesis and creativity in looking at the world. These can be enhanced via the proper academics at a master’s and doctorate level. In addition, engineers must develop better communication skills (Musselman 5). A great idea will not succeed if no one can be convinced it’s great. Several engineering schools have already picked up on these gaps by offering a dual degree program (engineering bachelor’s and MBA), providing many of the enhanced skills.

We are falling behind in our engineering academic requirements. It will take a few years to mobilize Canada’s engineering community into action on this point. The universities (and now the colleges offering engineering degrees) will need to be part of the discussions. University faculties could elect to offer pre-engineering schools whose graduates can continue on at the same faculty for their master’s, or simply offer the master’s programs. It should be noted that whereas in undergraduate work one professor may have 100 or more students in each class, a master’s level supervisor will have perhaps 10 per cent of such numbers. In any event, PEO has the ultimate authority in law to demand what it believes is in the best public interest for the minimum qualification of a P.Eng. It will be up to the engineering faculties to determine the best routes to meet the standards.

Some believe that events are conspiring to push the Canadian engineering profession into adopting a master’s degree (or its equivalent) as the minimum academic requirement for the P.Eng. Of course, a doctorate degree would put Canada at the forefront if we should be bold enough to make such a move.

NEW AREAS OF PRACTICE

Accelerating expansion of profession

Since 1922, the engineering profession has gone from five distinct disciplines to over 30. Originally, PEO council was set up to have all engineering disciplines represented on council. Three councillors (two elected and one appointed) represented each of the five disciplines of the day. There is merit in the concept that specific practice issues in a given area require members in that practice to voice them at PEO council so that the public interest can be better served.

Today’s “engineering LGA” (lieutenant governor appointee) is a carryover from this concept. In the early 1990s, when the idea of appointing by engineering discipline was still

a tradition, the notion was to appoint one P.Eng. LGA of each recognized discipline. There are no longer enough seats on council to give every discipline one councillor, whether elected or appointed (DeVita, part 1, p. 97). (When I was appointed as an LGA in this period, for example, the registrar had pretty much given up on the idea of explaining to the attorney general the differences between types of engineers. It was good enough for a minister simply to find engineers to appoint, let alone specific types of engineers.)

The problem is compounded by the fact that new engineering disciplines (and specialties) are appearing more quickly as time goes by. This is related to the growth in new scientific knowledge leading eventually to new engineering practices, and there will be no slowing down in our lifetimes (DeVita, part 2, chapter 7). Only when humans learn all there is to know about the universe will the appearance of new engineering practices slow down. We do not foresee any such event! PEO must address this trend by ensuring engineering disciplines track the inevitable application of advances in science.

Natural science practices

The industrial exception (repealed but not fully promulgated) has given science school graduates the wrong impression. They have been led to believe that they can apply their work as they please because they are applying science. Clearly, under the *Professional Engineers Act*, this is not so even with the exception in the act. Applying science to work useful to humans is, by definition, engineering. Most engineering schools today award a bachelor of applied science degree as the main engineering degree in Ontario. When applying science to works that safeguard the public interest, the relevant practices *must* be done by licensed practitioners of engineering. At the moment, PEO is the only game in town to ensure this.

This same reasoning applies to graduates of engineering schools, working perhaps as employees, but doing engineering for their employer. When the public interest is at stake, the practitioner *must* be licensed, regardless of who is paying them.

Governance

In total, we now have some 50 disciplines (adding up all engineering and applied science disciplines) that PEO should/could be regulating. Unfortunately, we do not do a very good job at even the original five areas of practice. In short, how we govern now and into the future needs a radical overhaul. Here are some things to think about along these lines:

- A PEO council of over 50 members is impractical. Our current council, at 29, is already unwieldy to the point of being ineffectual. Hence, having every engineering discipline represented on council cannot be done. But, effective governance must have a way of responding to the street-level issues of the day in every discipline practised;
- The key in bridging this governance gap can be seen in the way PEO has evolved already. In the early days, council did admissions by discipline via the three councillors for that discipline (DeVita, part 1, chapter 6). In

short, council did everything to effect licensure. Over time, the simple volume of applicants made this impractical for part-time volunteer councillors. So the Academic Requirements Committee (ARC) and the Experience Requirements Committee (ERC) and the other peer review committees formed, basically relieving council of administrative tasks. In terms of organizational culture, this has moved council from a hierarchical mode of thinking and acting to an egalitarian mode; and

- Critical issues to any new discipline are:
 - o How new members are admitted (ARC/ERC/registration),
 - o How current members are ejected (complaints and discipline),
 - o How practices are protected so only licensed practitioners do them (enforcement), and
 - o How current practitioners are helped with new guidelines and standards for each discipline (via PEO's Professional Standards Committee).

Using such peer review committees rather than council provides us the tools we need to effectively govern an ever-expanding profession.

Discipline specific

In all these cases, we now have committees for these tasks. We must become a proactively, *discipline-specific* organization to regulate effectively. Our regulatory committees have always operated like this out of necessity, in spite of council's insistence that the P.Eng. is a universal designation.

It is here at the regulatory committee level that new areas of practice can have explicit representation and recognition via a formal appointment process approved by council. Under this model, council's role moves to a pure policy body. Its role is to deliberate on new areas of emerging practice and how to integrate them for full proper licensure.

It is also council's role to ensure that all its regulatory committees are adequately funded and staffed, both volunteers and staff support. Key performance indices (KPIs) are a great way to keep tabs so council can look into areas that are having problems. Discipline-specific versions of two KPIs already in PEO's new strategic plan (www.peo.on.ca/index.php/ci_id/28289/la_id/1.htm) are particularly useful here—the uptake (or capture) rate and what I refer to as the “licence coverage rate.”

Uptake (capture) rate measures the percentage of graduates who obtain their P.Eng. The licence coverage rate measures the percentage of members who have definable rights to practise in the engineering work they do (current Engineers Canada statistics tell us this amounts to fewer than 30 per cent of Canadian P.Engs).

The *Ontario Health Disciplines Act*, the College of Trades (2009) and the Quebec Office of the Professions are existing examples of overview boards governing a diversity of disci-

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plines. PEO needs to examine these formally so it can develop its own plan on how to proceed.

Activity in new credentialing organizations

In the last decade, Ontario has been moving towards licensing or certifying pretty much all skilled occupations. The 2009 creation of the Ontario College of Trades is a watershed event, which is likely unknown to most PEO members.

It's clear there is significant activity in Ontario towards the credentialing of skilled occupations, whether licensed or certified. There are more acts in the works with lobby groups organized to push for official recognition.

There are also several science organizations, like the Association of the Chemical Profession of Ontario, that already certify members (Obal). They need only a major incident/example to show how the public interest is at stake in what they do (Thalidomide is one they could use already). Impact on the public interest is a necessary condition to justify licensure. These organizations could potentially be in conflict with PEO over jurisdictions and scopes of practice. The well-being of Ontario and Canada is served better in avoiding conflicts like those we have had in the past over software engineering and the Ontario geoscientists.

CONCLUSION

The basic point here is that Ontario society is moving on and PEO must adapt, preferably *lead*. If engineering does not keep up or help in leading the way, we will be bypassed. The issues raised are too big for impromptu answers, or to be ignored.

The Professional Organizations Committee (Spence, Swinton) and McRuer reports (McRuer) established the body of law behind Canada's self-regulation approach to licensing professional practice. They recommend commissions of public inquiry to examine new forms of licensure. This was done about 10 years ago to examine the trades. We, PEO (the members), missed it. Our inattention to Ontario legislative activity with respect to new licensing will be a big thorn in our side when we finally decide to do something. We must avoid being forced into late action again, as in the software engineering dispute. If we organize and project the obvious into the future, we can take action now to benefit all stakeholders.

Planned, co-operative and harmonious action now will help Ontario move into the future on the hoped-for positive economic wave. The alternative is continued internal dysfunction and self-destruction of the province.

It behooves us, at the very least, to set up a task force for each of the two major issues described herein. Council needs good field data to make considered decisions on how regulation and governance of the profession should proceed. Σ

THE NCEES MODEL LAW STRUCTURAL ENGINEER (MLSE)

The United States is taking steps to formally recognize specific disciplines (NCEES, Musselman 3). California did this in 1925 when it started off licensing civil engineers, not professional engineers like the rest of the US. The NCEES' new Model Law Structural Engineer (MLSE) standard applies for structural engineers, while others must meet the Model Law Engineer (MLE) standard. Like Canada, the US licensing boards were established about a century ago. At the time, civil engineering work was the focus of licensing attention. The state boards were set up with this in mind, accounting for the licensing of engineers, surveyors and architects by the same board in each state.

While the US has the hurdle of changing a state law to expand the scope of modern-day engineering practice, Canada does not. Canadians have recognized many new disciplines, but, unfortunately, similar to the US, have not been very good at establishing proper exclusive rights to practise for those new areas. Our forefathers in the early 1900s seemed to have grasped the concepts of licensure far better than we do today. We must do better for both the profession and the public interest.

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Peter DeVita, MBA, P.Eng., FEC, is a former PEO president.

Acknowledgement: The author wishes to acknowledge the assistance of PEO Councillor Roger Jones, P.Eng., MBA, in reviewing this paper and offering helpful improvements.

MARCH 2015

MARCH 26

6th Ontario FIT & Renewable Energy Forum, Toronto, ON
www.ofit2015.com



MARCH 26

Engineering Innovations Forum: Engineering Pan Am Games, Toronto, ON
www.EIForum.ca

MARCH 31-APRIL 1

SPE Progressing Cavity Pumps Conference, Calgary, AB
www.spe.org/events/pcp/2015

APRIL 2015

APRIL 8-10

Mach 2015 Conference, Annapolis, MD
machconference.org

APRIL 8-10

Mari-Tech Conference & Exhibition, Vancouver, BC
www.mari-tech.org

APRIL 12-14

Sustainable Design & Manufacturing 2015, Seville, Spain
sdm-15.kesinternational.org

APRIL 12-15

Novel Technologies in Microscopy, Vancouver, BC
www.osa.org

APRIL 12-16

20th International Conference on Wear of Materials, Toronto, ON
wearofmaterialsconference.com

APRIL 13-14

Practical Machine Foundation Design Workshop, Calgary, AB
www.gic-edu.com

APRIL 13-16

IEEE International Systems Conference, Vancouver, BC
ieeesyscon.org



APRIL 14-15

Arctic Oil & Gas North America Conference, St. John's, NL
www.ibcenergy.com/event/arcticnorthamerica

APRIL 17-18

International Oil & Gas Pipeline Conference, Delhi, India
www.asmeconferences.org/ioGPC2015

APRIL 24

PEO Order of Honour Gala, Toronto, ON
www.peo.on.ca

APRIL 25

PEO Annual General Meeting, Toronto, ON
www.peo.on.ca

APRIL 26-29

11th Global Congress on Process Safety, Austin, TX
www.aiche.org

APRIL 28-29

Partners in Prevention 2015, Mississauga, ON
www.wsps.ca/Partners-In-Prevention/Conference

MAY 2015

MAY 3-6

28th Canadian Conference on Electrical & Computer Engineering, Halifax, NS
ewh.ieee.org/reg/ccece15

MAY 4-7

Offshore Technology Conference, Houston, TX
2015.otcnet.org

MAY 13-15

Renewable Cities Global Learning Forum, Vancouver, BC
www.renewablecities.ca



MAY 14-15

Canadian Hydropower Association 2015 Forum on Hydropower, Ottawa, ON
www.hydroforum.ca/node/4

MAY 27-30

CSCE Annual Conference, Regina, SK
www.csce2015.ca

MAY 31-JUNE 3

Canadian Engineering Education Association Annual Conference: Experiential Engineering Education, Hamilton, ON
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NOTICE OF ANNUAL GENERAL MEETING

In accordance with section 20 of By-Law No. 1, which relates to the administrative affairs of PEO, the 2015 Annual General Meeting (AGM) of the Association of Professional Engineers of Ontario will be held on Saturday, April 25, 2015, commencing at 8:30 a.m. at the Westin Harbour Castle, 1 Harbour Square, Toronto. No registration is required.

As noted in section 17 of By-Law No. 1, the AGM of PEO is held for the following purposes: to lay before members the reports of the council and committees of the association; to inform members of matters relating to the affairs of the association; and to ascertain the views of the members present at the meeting on matters relating to the affairs of the association. Officers of PEO and other members of both the outgoing and incoming councils will be in attendance to hear such views and to answer questions. PEO President David Adams, P.Eng., FEC, will preside and present his annual report to the AGM. The president-elect, officers and councillors for the 2015-2016 term will take office at the meeting.

Process for making submissions to the 2015 AGM

Submissions by members at PEO's AGM are a vehicle for members in attendance to express their views on matters relating to the affairs of the association, but are not binding on council. A member submission should clearly describe the

issue being addressed and indicate how it advances the objects of the *Professional Engineers Act*, which define the mandate and responsibilities of PEO. To ensure member submissions receive proper consideration at the AGM, members must submit typed submissions to Registrar Gerard McDonald, P.Eng., MBA, by no later than 4:00 p.m., Friday, April 10, 2015. Submissions must be signed by the mover and seconder, either of whom must be present at the meeting. Submissions may be sent by fax to 416-224-9527 or 800-268-0496, or by letter. A guidance document on the content and format of submissions is available from the AGM page of the PEO website at www.peo.on.ca. Submissions received by the April 10, 2015 deadline will be published on the AGM page of the PEO website and included as part of the registration package.

Member submissions will be referred to the Executive Committee or council for consideration after the AGM. The mover and seconder of a member submission will be invited to address the submission at the meeting at which the submission is to be considered.

Gerard McDonald, P.Eng., MBA, Registrar

PROCEDURES FOR ADDRESSING SUBMISSIONS AT 2015 AGM

During the meeting

PEO's 2015 AGM will be conducted on Saturday, April 25 from 8:30 a.m. to 12:30 p.m. and continue, if necessary, from 2:30 p.m. to 3:00 p.m. Consideration of member submissions will begin at approximately 9:30 a.m. Submissions will be published to PEO's website before the meeting and included in members' registration packages.

The president will chair the portion of the meeting dealing with member submissions and manage the discussion. His direction must be respected.

The mover and/or seconder of a submission will be given up to 10 minutes to present their submission to the AGM. When time permits, members at the AGM may make comments of up to two minutes on the submission. The mover and/or seconder of a submission will be allowed two minutes for a closing statement. Members will then vote on the submission as an expression of the views of those present at the meeting.

In circumstances where the overall time allocation will not permit the above timing, the total amount of available time for submissions will be divided evenly among the number of submissions, and movers and seconders of submissions will be informed.

Following the meeting

Member submissions will be referred to the 2015-2016 Executive Committee or council to consider whether to initiate any action on them. The mover or seconder will be invited to address the submission in detail at the meeting at which the submission is to be considered.

All submissions to the 2015 AGM will be considered during the 2015-2016 year, and their disposition reported to council and at the 2016 AGM.

Disposition of submissions to the 2015 AGM will be published on the PEO website and updated periodically, if necessary. Progress on 2015 submissions will also be published in *Engineering Dimensions* following the 2016 AGM.

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RENEWED HOPE FOR CANADA?

Re: "Made in Canada" (*Engineering Dimensions*, Letters, November/December 2014, p. 71)

The corrosion resistance afforded by stainless steel has been well documented, and the author of this letter, Frank N. Smith, P.Eng., has been a tireless advocate of its advantages. However, I would like to point out that while there are currently no fully integrated stainless steel production facilities in Canada, Ontario does have a producer of stainless steel primary products. ASW Steel Inc. of Welland, Ontario, is manufacturing a wide variety of stainless steel grades in ingot and billet form using advanced melting and refining practices. Perhaps the combination of Ontario's chromite ore deposits and ASW's melting technology may lead to investment in rolling and finishing facilities, resulting in Canada once again having a dynamic and vibrant stainless steel industry. We can only hope.

David G. Pastirik, P.Eng., Welland, ON



Photo: ASW Steel Inc.

A SIMPLE SOLUTION?

If the concern about the *Ontario Building Code Act* amendments described in the November/December 2014 news section is still unresolved, the situation is quite pathetic ("PEO still concerned about *Building Code Act* amendment's unintended consequences," p. 10). The role of a chief building official is



to approve or refuse the issue of building permits. That clearly requires a range of authority or the position is meaningless. Surely, one of the exceptions to the requirement to issue a permit must be if the building construction or design, in the opinion of the chief building official, does not meet one or more statutory or regulatory requirement(s) of the Province of Ontario.

If so, the solution to the apparent dilemma is quite simple. Do not specifically identify the acts for either of the professional associations in the text of the legislation, but rely on the fact that there are statutory and regulatory requirements that arise from them:

- 8.(2) The chief building official shall issue a permit referred to in subsection 1 unless:
 - 8.(2)(b1) In the opinion of the chief building official the design and construction of the proposed building may not comply with a statutory or regulatory requirement of the Province of Ontario.
 - 8.(2.3)(a) If the chief building official refuses to issue a permit he or she shall inform the applicant of all of the reasons for the refusal of the permit and shall do so within the period prescribed by regulation. 2002, c.9, s.14(2); and
 - 8.(2.3)(b) If the refusal of the chief building official to issue a permit, is pursuant to 8.(2)(b1), he or she shall also inform the designated representative of the entity or entities whose statutory or regulatory authority has, in his or her opinion, not been recognized in the application and shall do so within the period prescribed by regulation. 2002, c.9, s.14(2); and
 - 8.(2.3)(c) The entity or entities, which the chief building official has informed of his or her refusal and all the reasons for it, shall respond within the period prescribed by regulation. 2002, c.9, s.14(2) (or whatever is appropriate).

I sincerely hope we are not, as a responsible professional institution, involved here in childish gamesmanship, but are only solving a problem for chief building officials.

Robert M. Bennett, P.Eng., Ottawa, ON

ANOTHER VIEW

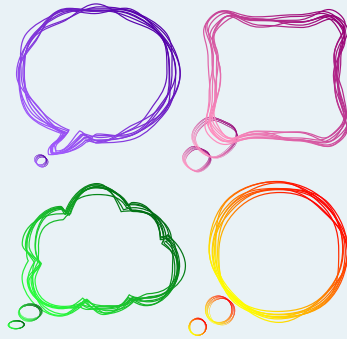
Reading Pat Quinn's Viewpoint column in the November/December 2014 edition of *Engineering Dimensions* ("We have to start somewhere," p. 46) reminded me of one of my father's many little wisdom quotes: "If you have nothing good to say about someone, say nothing at all."

I am referring in particular to the paragraph with the words: "I still wonder today about...." I was extremely embarrassed even to the point of being incensed that a fellow engineer and acquaintance of many years, of whom I have had such great respect, would write a seemingly uncharitable and highly judgmental thought about the men who had been driven from the killing room at the ready gunpoint of a madman fully intent on killing.

One might think the same of the terrified captive passengers in the three planes used for such murderous effect on 9/11, but we would never say it! Some of us have been direct victims of the actions of anonymous and brutal terrorists and know how absolutely devastating it is to feel so utterly helpless in that situation.

Shame is not a word that fits in these circumstances.

Hindsight and a 25-year distance would perhaps beg the question illustrated by the cool cats pulling the fire alarm on Hollywood sets in hopes of distracting the gunman with noise and drenching sprinkler water. The costs of experience are immeasurable and it's similar to the city installing traffic lights in a busy residential neighbourhood after a young mother is maimed



and her infant killed in a tragic pedestrian motorist accident.

I think Pat should have omitted that entire paragraph from an otherwise thoughtful and well-meaning article. I have spoken with Pat regarding the Montreal incident (then and now), women's role in the professions and I am nevertheless grateful for writers like him who provoke us into better thinking, actions and change. I have two dear and smart daughters and one equally brilliant granddaughter, and I love and cherish them with the same value and love I have for my three dear sons and six grandsons. Would I die for my daughters first, and sons second? Now, there's the rub!

First responders (my son is one) and campus risk managers are much better equipped and trained today in this world of increasing terrorism. I am a proud Canadian citizen glad to live in a country of equal opportunity for all and where post trauma stress is now better dealt with like any other wound.

I trust that Pat Quinn and other thinkers and writers will continue to prod us to "start somewhere!"

Noel V. Dickie, P.Eng., Toronto, ON



KEEPING AVRO HISTORY ALIVE

I was very pleased to read the piece on the Avro Arrow and Jim Floyd in our January/February 2015 issue of *Engineering Dimensions* ("Avro remembered," p. 38).

The Arrow history must never be forgotten. A colossal mistake was made by its cancellation—not just the loss of the aircraft, tragic enough, but for the loss of skilled airframe and power-plant engineers and technicians to Canada. Additionally, the single-minded destruction of the prototypes is unforgivable, malicious in the extreme.

On the positive side, the story of Jim Floyd was most instructive in that his Avro apprenticeship gave him hands-on ability and experience in several areas of the industry, something most engineering graduates today don't get in the various disciplines they enter. Some of us in the "Take Back Manufacturing" forum are trying to address this via the notion of an "integrated industrial learning system" from Grade 12 to P.Eng. licensure, with options, as desired, to pause or remain at the trade, technician and technologist levels.

As you said, a static model of the CF-105 Arrow used to be at the Canadian Air and Space Museum (CASM), Downsview, until we were thrown out a while back! Museum material, including the partially restored WWII Lancaster bomber (Mark X, number FM-104), is now stored near Pearson airport pending a new museum site. Actually, I used to volunteer at the CASM Downsview site, restoring

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Letters to the editor are welcomed, but must be kept to no more than 500 words, and are subject to editing for length, clarity and style. Publication is at the editor's discretion; unsigned letters will not be published. The ideas expressed do not necessarily reflect the opinions and policies of the association, nor does the association assume responsibility for the opinions expressed. Emailed letters should be sent with "Letter to the editor" in the subject line. All letters pertaining to a current PEO issue are also forwarded to the appropriate committee for information.

Address letters to jcoombes@peo.on.ca.

[LETTERS]

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original Lancaster avionics (Bendix, in Canada, different from in the UK). I got the communications receiver and crew inter-phone working and was about to tackle the more complicated radio direction finding (RDF) receiver when the museum closed. Pearson airport is now a bit too far for me to go regularly for volunteer work!

Roger Jones, P.Eng., Thornhill, ON

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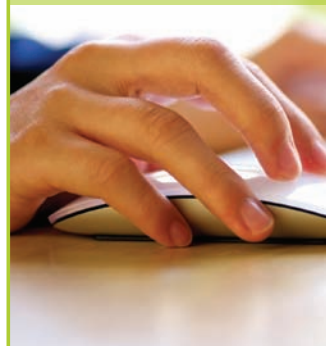
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