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Ontario

# ENGINEERING DIMENSIONS

JANUARY/FEBRUARY 2015



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## SOURCES OF NEW JOBS AND SURVIVING THE "FREELANCE ECONOMY"



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

AS YOU KNOW from my previous messages, I have already taken two steps in the pursuit of replacement or additional jobs for Ontario's manufacturing economy.

The first is an emphasis on incorporating new technologies into our present companies in Ontario, with the objective of augmenting product lines and numbers of employees. This proposal has been given to Premier Kathleen Wynne and will soon be given practical dimensions when it is coupled with the names of potential companies that could profit from such alliances. The names of these enterprises have been solicited from members of each of PEO's 36 chapters in Ontario, at our recent Chapter Leaders Conference in Toronto. When received, Dunn & Bradstreet reports will be ordered for each of these enterprises. With their agreement, they will be presented to the premier as real, live candidates, with expansion possibilities using new technologies.

The second is the development of infrastructure renewal projects in India sought by their consul general in Toronto, Akhilesh Mishra, who, by the way, is also an engineering graduate. He has given me a list of potential projects for development, in which he hopes Canadian engineers will participate. In an attempt to begin the process, independently of PEO, I am personally proposing an energy facility in the south of India, to supplement the country's electrical grid capacity. Hopefully, others will take up the challenge in the many areas he has outlined. Would those members who are interested please contact me with potential alliances with our members?

Certainly, economic conditions in India are ripe for expansion in both manufacturing and infrastructure. To begin with, India is blessed with many well-educated engineers on site, poised to effect Prime Minister Narendra Modi's expansion plans.

Based upon an average hourly labour cost of \$0.92, compared to \$3.52 in China, according to the Boston Consulting Group, the economics for construction are certainly viable. The prime minister's plan is to build a giant industrial corridor between Delhi and Mumbai featuring high-speed trains and superhighways to turn the area into the equivalent of southern China's Guangdong province.

While both the adoption of our new technologies strategy and the Indian infrastructure initiatives have the potential to create work in design, consulting and manufacturing in Ontario, we have another approaching domestic situation we must also prepare to tackle. This is the ever-increasing "freelance economy" in Canada, as is taking place in the US, where the number of temporary workers is skyrocketing, while full-time employment is decreasing.

In a recent article in *Bloomberg Business Week*, it is noted that businesses must learn how to integrate employees that are happy "to trade

stability for flexibility"—a rather draconian relationship for many of us to contemplate. "Apparently many workers and companies are pursuing a model of work on an as-needed basis, producing a population of freelancers that can help a business scale up or down in a snap." According to Bloomberg, "by 2020, these guns for hire will comprise 40% of the US workforce, or about 60 million people, a number that was just 42.6 million in 2006."

Within the next decade, Bloomberg states, "two out of five Americans will have only loose ties with their employers." Apparently the "millennials" will be more comfortable than their predecessors in earning a living through less-stable, contract work. As reported by some, this group actually prefers this employment arrangement because they feel their time is more like their own.

If this is to be so, it is not beyond the realm of reason that when this trend takes hold, the engineering curriculum should be tailored specifically to accommodate competitive contract work of short duration, in specific fields, where, basically, our members must know more and more about less and less to be gainfully employed. This would require a realignment of the approved academic requirements (CEAB) and the approved experience qualifications (CEQB) to enable graduation as an engineer, while coping with fast-changing, short-term project work.

With this prediction of the pattern of work to come over the next five to 10 years, what can we expect will matter to surviving engineers, products, innovation, company lifetimes and, consequently, the economy in the near- and medium-term future?

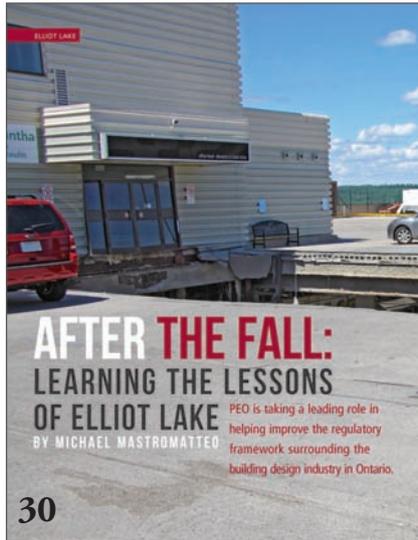
I am confident we can cope with these new world conditions, but strongly recommend we undertake measures to design our education and experience requirements to cope with changes like these within the next five years. Thank you for your consideration of these concepts and happy new year to you and yours. Σ

# ENGINEERING DIMENSIONS

January/February 2015  
Volume 36, No. 1

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**AFTER THE FALL:**  
LEARNING THE LESSONS  
OF ELLIOT LAKE  
PEO is taking a leading role in helping improve the regulatory framework surrounding the building design industry in Ontario.

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**WHAT'S IN A VOTE?**  
WHEN IT COMES TO DETERMINING PEO COUNCIL, HAVING A SAY MEANS MORE THAN YOU MIGHT REALIZE.

BY SHARON ASCHAK

Through history, democracy has been called many things: voter flouting, and more so in the 1990s. "Democracy is when the subject, and not the vote of property, are the voters," said the Greek philosopher Aristotle. "Democracy is a device that ensures we shall be governed no better than we deserve," was the perspective of playwright George Bernard Shaw. And, of course, there is the famous statement from James M. Smith prior to the 1992 election: "Democracy is the worst form of government except for all the others that have been tried."

Whatever your views on the 2100-year-old political system, and despite its flaws in theory or in practice, it's still one of the most effective ways to ensure that the government that is run for the people, by the people, is run in the best interests of the people. On top of that, it's a lot of fun to watch it work.

The same arguments can be made for the role of democracy in governing the practice of engineering in Ontario. As engineering is a self-regulated profession, it depends on its elected representatives within PEO to set the rules and address its members' needs. For example, he says, if there is a professional issue that affects only electrical engineers, other types of engineers may not see the point of voting.

But he says this complexity makes it more difficult to elect council members who can represent across the needs and interests of all members.



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**AVRO REMEMBERED**

BY NICOLE AXWORTHY

I was about 17 years ago that the infamous Avro Arrow made its first test flight. Ontario boasts to be the first of its kind, the supersonic, non-manned, all-weather jet aircraft was the crown jewel of Canadian aircraft manufacturing. In that Canada, better known as Avro, than the third largest company in Canada. The plane was on the cutting edge of aerospace technology of the time, faster and more advanced than any other comparable aircraft. The Arrow was designed to carry air-to-air, nuclear-tipped missiles to destroy Soviet bombers.

The first flight on March 23, 1958 was a proud moment for the Canadian aerospace industry. Yet on February 20, 1959, the Canadian government ordered all work on the Arrow ceased. The cancellation meant huge employment losses and, within two months, the plane and a whole nation's pride of achievement and a more powerful engine exposed to the world.

It's a story that's revisited by Sharon Young, P.Eng., president and chair of the Ontario Society of Professional Engineers, acknowledges that your participation in council elections is done for many reasons. For one thing, he says, in his view, the profession is very well run in Ontario, so there aren't any serious issues compelling members to vote.

Also, he says, while it's important to better reflect PEO's mix of practitioners from different engineering disciplines, this organization itself makes it difficult to ensure that collective participation in the election. For example, he says, if there is a professional issue that affects only electrical engineers, other types of engineers may not see the point of voting.

But he says this complexity makes it more difficult to elect council members who can represent across the needs and interests of all members.

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## Professional Engineers Ontario

THIS ISSUE: The Algo Centre Mall collapse in Elliot Lake has riveted PEO's attention for almost three years. The response to that incident, especially from professions touching on public safety and protection, will also command public attention for years to come. What lessons have PEO and other organizations learned in the wake of that preventable disaster?

ON THE COVER: Photo by Paul Kazulak

### 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.

# NOT FOR NAUGHT



Jennifer Coombes  
Editor

**ALTHOUGH NOTHING** can bring back Lucie Aylwin and Doloris Perizzolo, both killed in the Algo Centre Mall collapse in 2012, their families may find a small measure of comfort in knowing that the loss of their loved ones will help improve safety for all.

The Elliot Lake Commission of Inquiry report was released shortly before we went to print with our last issue ([www.elliottlakeinquiry.ca](http://www.elliottlakeinquiry.ca)), so we were not able to cover it or its recommendations in detail. But in that report is a way forward that will surely lead to safer buildings in Ontario.

While PEO had already published the *Structural Engineering Assessments of Existing Buildings* professional practice bulletin in November 2012, well in advance of the report's release on October 15, 2014, this is just the first of many measures to be implemented that will ultimately improve building safety. And, in November, council approved a review of the registrar's plan for implementing the commission's recommendations (p. 46).

In "After the fall: Learning the lessons of Elliot Lake" (p. 30), Michael Mastromatteo explores not only the recommendations directed toward engineers, but also checks in with other organizations named in the commission's report. As PEO Councillor Chris Roney, P.Eng., BDS, FEC, notes on page 33, "The lessons learned from the events at Elliot Lake touch on many more callings and professions than just engineering."

Switching gears to PEO council elections, it's no secret voter turnout has been flagging in recent years. But members have a chance to turn that around with the 2015 elections when voting starts January 23. In "What's in a vote?" (p. 36), Sharon Aschaiek rounds up some engineers

and an engineer-to-be for their take on why it's important for P.Engs to cast a vote.

And, if our intellectual arguments for voting in PEO's elections fall flat, we're happy to appeal to engineers' innate love of gadgets. This year, everyone who votes in PEO's 2015 council elections will be automatically entered into a draw to win one of 10 Apple iPads.

On November 5, PEO once again hosted a Queen's Park reception to inform the members of provincial parliament (MPPs) of PEO's issues and to further strengthen the regulator's relationship with them (p. 8). This time out, over 50 MPPs and several ministers attended the event, including Attorney General Madeleine Meilleur, whose ministry oversees the engineering profession. A photo spread of the event begins on page 8. If you are a digital subscriber, click on the camera symbols wherever you see them to unlock additional photo galleries.

PEO's strategic plan for 2015 through 2017 was approved at the November council meeting and is now officially underway (p. 46). The far-reaching corporate plan will focus the work of PEO for the near future. Five goal areas have been identified—practitioners, regulatory framework, stakeholders, operations, and council, staff and volunteers—and strategic objectives in support of those goal areas have been put in place.

There is much to do in 2015! 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.

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*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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# 4 questions to ask about critical illness



The financial impact can be as devastating as the disease itself.

Because of medical advances, Canadians are more confident about physically surviving cancer or other critical illnesses than surviving the impact on their net worth. Find out if you're financially prepared for a critical illness.

## 1 Are you at risk for a critical illness?

About **2 in 5 Canadians** will develop cancer in their lifetimes. In 2013, it was estimated that:<sup>1</sup>

- **96,200 Canadian men** will be diagnosed with cancer
- **91,400 Canadian women** will be diagnosed with cancer
- **Over 500 Canadians** will be diagnosed with cancer every day

About **9 in 10 Canadians** already have at least one risk factor for heart disease and stroke. In Canada, there is:<sup>2</sup>

- 1 stroke every **10 minutes**
- 1 heart attack every **7 minutes**

## 3 Can you afford the financial impact?

- Cancer drugs taken outside the hospital – and not automatically covered by the government – cost about **\$20,000** for a course of treatment. Newer drugs cost **over \$65,000**.<sup>1</sup>
- Recovery from heart disease and stroke can **continue for years**, resulting in more medical bills and lost income and productivity<sup>2</sup>
- Family caregivers also have to deal with **wage loss** and the real potential of a **decreased standard of living**<sup>3</sup>

## 2 What are your chances of surviving it?

- **63% of Canadians** diagnosed with cancer are expected to survive for **5 years or more** after diagnosis<sup>1</sup>
- The cardiovascular death rate in Canada has **declined by nearly 40%** in the last decade<sup>2</sup>
- **1.3 million Canadians** are living with the effects of heart disease, and **315,000** are living with the effects of stroke<sup>2</sup>

## 4 How can critical illness insurance help?

The **Engineers Canada-sponsored Critical Illness Plan** pays a lump sum upon diagnosis of a covered condition. You and your spouse may apply for benefit amounts **between \$25,000 and \$1 million** to help meet the costs associated with surviving a serious illness, including cancer, heart attack and stroke.

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Sources: <sup>1</sup>Canadian Cancer Statistics, 2013. <sup>2</sup>Heart & Stroke Foundation Statistics, 2013.  
<sup>3</sup>Colleen Nelson B.Ed, PBCE, "The Financial Hardship of Cancer in Canada: A Literature Review," Canadian Cancer Society, 2010.  
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## P.ENGs ENTERING NEW ERA IN POSITIVE GOVERNMENT RELATIONS WORK

*By Michael Mastromatteo*



Attorney General Madeleine Meilleur praised PEO for advancing the profession at the eighth annual engineering reception at Queen's Park November 5.

PEO President David Adams, P.Eng., FEC, described the strengthening bond between engineers and policy-makers.

PEO Registrar Gerard McDonald, P.Eng. (right), caught up with MPP Marie-France Lalonde of Ottawa-Orléans (centre) and Tracy McColl, P.Eng., of PEO's Algoma Chapter.

PEO'S GOVERNMENT relations work hit new heights November 5 with the eighth annual engineering reception at Queen's Park.

More than 50 members of provincial parliament, and several cabinet ministers, including Ontario's attorney general (AG), Madeleine Meilleur, attended the annual showcase of the engineering regulator's strong ties with the provincial government. The theme for this year's reception was protecting public safety.

Meilleur, whose ministry oversees several of the self-regulating professions in Ontario, said the annual Queen's Park receptions further an already strong PEO-provincial government link. "This event provides an opportunity for members of provincial parliament to come together and focus on the valuable work that our province's engineers do each and every day," Meilleur said.

The AG also cited PEO for its quick response to the June 2012 Algo Centre Mall collapse and for the regulator's full participation in the Commission of Inquiry.

"You took early steps to address issues that were raised by the mall collapse," Meilleur said. "For example, you sent information to members about best practices regarding structural assessments of existing buildings, and proactively posted licence suspension and termination information on your website. I was very proud of you."

Meilleur later praised the engineering regulator for its work to "advance the profession over the last two years."

Earlier in the day, the AG spent an hour with PEO President David Adams, P.Eng., FEC, and Registrar Gerard McDonald, P.Eng., to discuss PEO's most pressing concerns. It was McDonald's first Queen's Park reception since coming to PEO in January 2014.

Other invited guests to the reception represented the engineering community: Engineers Canada President Paul Amyotte, P.Eng., FEC, and Chief Executive Officer Kim Allen, P.Eng., FEC; Ontario Society of Professional Engineers President Danny Young, P.Eng., and Chief Executive Officer Sandro Perruzza; Barry Steinberg, P.Eng., CEO of Consulting Engineers of Ontario, and Liam Morrow, president of the Engineering Student Societies' Council of Ontario.

Representatives of Ontario's two opposition parties also spoke at the event. Sylvia Jones, the Progressive Conservative Party's AG critic, encouraged engineers to continue their active government liaison work. "I don't need to tell you how important you are to Ontario's infrastructure, and our economy," Jones said. "So, thank you for what you do and keep talking to us because we all need to do a better job—and that includes the house and the opposition."

Jagmeet Singh, the government and consumer services and AG critic for the New Democratic Party, praised the organizational efforts of PEO and its government liaison program volunteers in staging the 2014 reception. "The fact that you're able to deal with so many MPPs, you're able to work with us and show us such great skills, speaks to the growth of your profession, and I want to salute you all for the great work you do," Singh said.

The reception included presentation of annual awards to PEO chapters especially active in government relations work, and to an MPP from each party who has been especially supportive of engineers. Darla Campbell,

P.Eng., chair of the Queen's Park reception organizing committee, hosted the award presentation part of the program.

The Chapter Government Liaison Program (GLP) award for 2014 went to PEO's Upper Canada Chapter. Picking up MPP awards were Helena Jaczek (Oak Ridges-Markham) for the governing Liberals, Julia Munro (York-Simcoe) for the Progressive Conservatives and Catherine Fife (Kitchener-Waterloo) for the NDP.

In opening the evening's program, PEO President David Adams, P.Eng., FEC, reiterated the reception's symbolic role in supporting the regulator's GLP, which encourages greater dialogue between professional engineers and elected officials. "In this, PEO's 92nd year regulating professional engineering practice in our province, we continue to seek ways to improve how we fulfill our legislated mandate," Adams said, adding that the regulator is keen to work with the province to improve public and workplace safety and to ensure that tragedies like the collapse in Elliot Lake never happen again.



Barry Steinberg, P.Eng. (left), CEO of Consulting Engineers of Ontario, and chair of PEO's Government Liaison Committee, has a word with Saad Baig of the infrastructure ministry at the Queen's Park reception.



MPP David Zimmer of Willowdale chats with a Queen's Park reception attendee.



NDP colleagues MPP Peggy Sattler of London West (left), and MPP Catherine Fife of Kitchener-Waterloo. Sattler was attending her first-ever engineering reception at Queen's Park.

MPP Granville Anderson of Durham (right) shares a word with Tim Kirkby, P.Eng., of PEO's Upper Canada Chapter.

MPP Arthur Potts of the Beaches-East York riding (centre) mingled with OSPE Vice Chair Karen Chan, P.Eng., and Hugh Maureira, P.Eng., chair of PEO's East Toronto Chapter.



OSPE President Danny Young, P.Eng. (centre), with York Chapter members Dennis Woo, P.Eng. (left), and Ed Fung, P.Eng.



Joe Cimino (second from right), who recently resigned as MPP for Sudbury, discussed engineering education with Engineering Student Societies' Council of Ontario officials (left to right) Greg Burns, Liam Morrow (president) and Ola Suchon.



PEO council members Rakesh Shreewastav, P.Eng., FEC (left), Ishwar Bhatia, P.Eng., FEC, and Michael Wesa, P.Eng., FEC (far right), compared notes with Scarborough-Rouge River MPP Bas Balkissoon (second from left).

## MPPs AT 2014 Queen's Park reception

- Granville Anderson, MPP (Durham)
- Teresa Armstrong, MPP (London-Fanshawe)
- Robert Bailey, MPP (Sarnia-Lambton)
- Yvan Baker, MPP (Etobicoke Centre)
- Bas Balkissoon, MPP (Scarborough-Rouge River)
- Toby Barrett, MPP (Haldimand-Norfolk)
- Hon. James Bradley, MPP (St. Catharines), deputy government house leader
- Joe Cimino, MPP (Sudbury)
- Steve Clark, MPP (Leeds Grenville)
- Mike Colle, MPP (Eglinton-Lawrence)
- Grant Crack, MPP (Glengarry-Prescott-Russell)
- Cheri DiNovo, MPP (Parkdale-High Park)
- Han Dong, MPP (Trinity-Spadina)
- Catherine Fife, MPP (Kitchener-Waterloo)
- Hon. Kevin Flynn, MPP (Oakville), minister of labour
- Cindy Forster, MPP (Welland)
- John Fraser, MPP (Ottawa South)
- Wayne Gates, MPP (Niagara Falls)
- Percy Hatfield, MPP (Windsor-Tecumseh)
- Hon. Helena Jaczek, MPP (Oak Ridges Markham), minister of community and social services
- Sylvia Jones, MPP (Dufferin-Caledon)
- Marie-France Lalonde, MPP (Ottawa-Orléans)
- Hon. Jeff Leal, MPP (Peterborough), minister of agriculture, food and rural affairs
- Hon. Dave Levac, MPP (Brant), speaker
- Jack MacLaren, MPP (Carleton-Mississippi Mills)
- Harinder Malhi, MPP (Brampton-Springdale)
- Michael Mantha, MPP (Algoma-Manitoulin)
- Cristina Martins, MPP (Davenport)
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- Bill Walker, MPP (Bruce-Grey-Owen Sound)
- Hon. David Zimmer, MPP (Willowdale), minister of Aboriginal affairs

# PEO wooing NDP support FOR REPEAL OF INDUSTRIAL EXCEPTION

By Michael Mastromatteo

**P**EO is finding new allies in its three-year-long campaign to win repeal of the industrial exception.

At PEO's November 5 Queen's Park Day, NDP MPP Jagmeet Singh pledged his party's support in helping PEO repeal the exception, which allows certain acts of engineering in an industrial setting to be carried out by non-licensed personnel. Singh is the attorney general critic in the Ontario NDP caucus.

"We [the NDP] are committed to working with you," Singh said. "We know there is the industrial exemption that never seems to be dealt with. So we're committed to supporting you on that and you can have no fear that the NDP isn't totally with you."

The industrial exception, section 12(3)(a) of the *Professional Engineers Act*, was scheduled for repeal twice in 2013. The repeal was approved by the Ontario legislature in October 2010 as part of government's enactment of the *Open for Business Act*, 2010. Since then, however, the provincial government has backed away from a repeal date and has yet to announce a new one.

Marisa Sterling, P.Eng., PEO manager of enforcement and project leader for the repeal of the industrial exception, believes Singh's comments at the Queen's Park reception are especially significant.

"After three years of individual NDP MPPs reviewing the data, and following the worker incidents that have happened in Ontario, the entire NDP caucus has come together in agreement that the current environment is not good enough to protect Ontarians working around production equipment and machinery," Sterling says, "and repealing the industrial exception in the *Professional Engineers Act* is one step forward to helping."

PEO has argued that allowing the repeal to remain in force puts some

workers in industrial settings at risk. As part of its campaign, the regulator has been working with the Ontario labour ministry and its chief prevention officer, and with safety organizations, to gather data on the rates and causes of workplace accidents, injuries and fatalities.

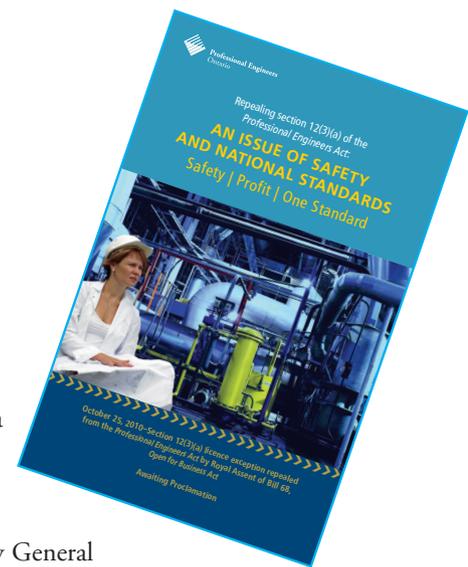
At the November 5 reception, PEO President David Adams P.Eng., FEC, told Ontario Attorney General Madeleine Meilleur and other guests that the regulator is pressing forward with its repeal effort.

"We believe proclamation of the repeal would not only improve workplace health and safety in Ontario, but is also crucial to our ability to regulate the entire practice of engineering in the province," Adams said, adding that more than 60 Ontario companies have voluntarily complied with the repeal, and over 200 companies have confirmed that repealing the industrial exception will have no negative impact on their business.

In opposing PEO's efforts, some manufacturing organizations have argued that the repeal would only increase labour costs for their companies by requiring some employees to become licensed by PEO.

In response to that charge, PEO's repeal campaign includes help for organizations in identifying which of their employees would require licensing. PEO has also offered financial incentives for some of these employees to begin the licensing process.

The repeal issue was a key agenda item at the November 21 meeting of PEO council. At the meeting, council decided to continue working with government, manufacturing associations and other stakeholders in making the case for repeal.



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# A NIGHT TO REMEMBER FOR OPEA RECIPIENTS

*By Jennifer Coombes*



The 2014 Ontario Professional Engineers Award winners are, back row, left to right: Gerald Chaput, P.Eng., Todd Arthur J. Young, P.Eng., David Hunter Purvis, P.Eng., Bin Wu, PhD, P.Eng., Brian Garrod, P.Eng., and Raafat Mansour, PhD, P.Eng. Front row, left to right: Sigmund Soudack, P.Eng., Frank Vecchio, P.Eng., Márta Ecsedi, P.Eng., FEC, Natalie Enright Jerger, PhD, P.Eng., and David Naylor, PhD, P.Eng.

**NOVEMBER 22 WAS** a special evening as 11 of the engineering profession's world-class researchers, teachers, entrepreneurs, innovators and mentors received honours at the 67th annual Ontario Professional Engineers Awards gala. Hosted jointly by the Ontario Society of Professional Engineers (OSPE) and PEO, the awards celebrated the honourees and also the creative engineering minds behind Ontario's infrastructure marvels.

The emcee for the evening was Nancy Hill, P.Eng., LLB, FEC, chair of PEO's Awards Committee, who said: "All of tonight's honoured P.Engs practise in Ontario, but their inspiration, dedication and accomplishments are recognized around the world."

OSPE President Danny Young, P.Eng., echoed Hill's sentiments and said, on behalf of his organization: "I am inspired by the wide-ranging impact our profession has, not only in Ontario, but in the world around us. Yet all too often the vital work of engineers simply goes unnoticed. At OSPE we're dedicated to turning this around and raising public awareness of our profession's valuable contributions to the greater public interest."

PEO President David Adams, P.Eng., FEC, said: "On the 67th anniversary of our awards gala, we honour professional engineers who, in both their careers and their day-to-day lives, illustrate the highest standards and ideals of our profession. I'd like to congratulate the 11 award winners, each of whom has demonstrated unwavering commitment in the practice of the profession."

Before the awards presentation, Hill welcomed to the podium the Hon. Reza Moridi, minister of research and innovation and minister of training, colleges and universities, who attended on behalf of Premier Kathleen Wynne and the government of Ontario. He said: "Despite the range of disciplines, engineers share many traits. They are great leaders, thrive on complex problem solving and are true innovators at heart. Tonight is a wonderful opportunity to celebrate just some of the many ways engineers help build Ontario up every single day."

He also introduced a video message by Premier Wynne, who congratulated the honourees and said of engineers: "You drive innovation, strengthen our economy and safeguard our society. You work behind the scenes to bring Ontario's vital infrastructure to life and I'm always so impressed by your ability to combine beauty, innovation and, of course, practicality. Ontario's history is rich with ground-breaking engineering achievements that have changed our lives and I'm glad that you're recognizing that tonight."

Attendees of this special evening were also treated to a keynote delivered by C. Michael Allen, P.Eng., president, Adjeleian Allen Rubeli Limited, who discussed the many challenges and risks associated with building one of the greatest feats of engineering in Ontario—Rogers Centre (better known to many as SkyDome)—with partners

EllisDon and NORR. Rogers Centre celebrated its 25th anniversary in 2014.

Special guests attending the evening included: Paul Amyotte, P.Eng., FEC, president, and Kim Allen, P.Eng., FEC, CEO, Engineers Canada; Barry Steinberg, P.Eng., CEO, Consulting Engineers of Ontario; Kim Pickett, C.E.T., vice president, The Ontario Association of Certified Engineering Technicians and Technologies; Boris Martin, CEO, Engineers Without Borders; Paul Knowles, chair, Municipal Engineers Association; Marisa Sterling, P.Eng., president, Ontario Professional Engineers Foundation for Education; Clive Thurston, president, Ontario General Contractors Association; Akhilesh Mishra, consul general of India; and Liam Morrow, president, Engineering Student Societies' Council of Ontario, who also delivered the evening's invocation.

For the first time, gala attendees were treated to video interviews with the awardees, which provided greater insight into each engineer's background, work and personal thoughts about receiving their awards.

Following are short excerpts of the award recipients' acceptance speeches.

#### **ENGINEERING MEDAL—ENGINEERING EXCELLENCE**

**Brian L. Garrod, P.Eng.**, executive vice president, Hatch Mott MacDonald Ltd.

"I have to say thank you to my father [a farmer]. He told me you can have any career you like as long as it's not farming! I'd like to thank the gentleman that worked in the Hamilton office of Hatch 40 years ago who hired me. Thank you to all the people I've worked with in my career to make going to work so enjoyable."

**Sigmund Soudack, P.Eng.**, president, Sigmund Soudack and Associates Inc.

"Sixty-six years ago, my sister, brother and I arrived in Halifax from Europe as part of 1200 orphans that the Canadian Jewish community brought to Canada. It was my good luck to be taken by the Soudacks in Winnipeg. My engineering practice began with a lot of ups and downs and a lot of perseverance. I feel humbled by this honour and I intend to continue on. Hopefully I'm still relevant."

**Bin Wu, PhD, P.Eng.**, senior NSERC/Rockwell industrial research chair and professor, electrical and computer engineering, Ryerson University

"It is a great honour for me to receive this award. I would like to thank my nominators for nominating me, and their long-term research collaboration. I have deep gratitude for my supervisors and mentors for their valuable guidance during my PhD studies at the University of Toronto. I would like to thank Rockwell Automation and Ryerson University for providing me with excellent research infrastructure and support."



The Hon. Reza Moridi attended the OPEA gala on behalf of Premier Kathleen Wynne and the government of Ontario.

#### **ENGINEERING MEDAL—ENTREPRENEURSHIP**

**David Hunter Purvis, P.Eng.**, consultant, WorleyParsons Canada

"My career has been absolutely fulfilling and interesting. I cannot express how much satisfaction I've had out of this career. I've seen the world and we built these Canadian technologies in places like Uzbekistan, Nigeria, Venezuela and Brazil. So, taking Canadian technology to the marketplace and letting the world know how good we are has been part of that fulfillment. And the icing on the cake is this award."

#### **ENGINEERING MEDAL—MANAGEMENT**

**Gerald Chaput, P.Eng.**, assistant deputy minister, provincial highways management division, Ministry of Transportation Ontario

"I'm honoured to be here with such distinguished colleagues of our profession. As we get wrapped up in our hectic lives, it's nice to know that we have time to stop and recognize the contributions of our engineers in society. I have been honoured to work for some exceptional managers, and to manage some exceptional people, at the Ministry of Transportation."

**Todd Arthur J. Young, P.Eng.**, vice president, customer services and support, Bombardier Commercial Aircraft

"Bombardier is a flagship company in Canada, I'm very proud to work there, and it's a great business. Engineering is also a fantastic field to be in and I'm quite honoured being part of the recipients tonight when you see the calibre of individuals who are being acknowledged. And, to be honest, I'm not sure that I should be here. But I'm very proud."

#### **ENGINEERING MEDAL—RESEARCH AND DEVELOPMENT**

**Raafat R. Mansour, PhD, P.Eng.**, professor, electrical and computer engineering, University of Waterloo

"Some things have allowed me to get to where I am today: The first thing is true love for the engineering profession. I



C. Michael Allen, P.Eng., president, Adjeleian Allen Rubeli, gave attendees an overview of the challenges and risks involved in building the Rogers Centre 25 years ago, including its famous retractable roof.

do feel blessed that I love going to work every day and, for that, I'm grateful to the engineering profession. In 2000, I was fortunate to join the ECE department of the University of Waterloo—an amazing, dynamic environment that gave me the opportunity to go further.”

David Naylor, PhD, P.Eng., professor, department of mechanical and industrial engineering, Ryerson University

“I'd like to thank my nominators. They put a lot of effort into my nomination package. I'm very, very lucky to have such a great group of supporters, research collaborators and friends. I must also express my gratitude to Ryerson University and, in particular, the faculty of engineering, architecture and science. There is a long list of deans and department chairs that I could thank.”

Frank J. Vecchio, PhD, P.Eng., professor, civil engineering, University of Toronto

“This award suggests to me that I've spent my time somewhat productively, and that's important. Over the years, I've been privileged to work with many phenomenal scholars but I learned the most from my dad. He taught me more through example than words to take pride in my work and do it to the best of my ability, no matter how small the job.”

### ENGINEERING MEDAL—YOUNG ENGINEER

Natalie Enright Jerger, PhD, P.Eng., associate professor, electrical and computer engineering, University of Toronto

“I'd like to thank my dean and my department chair for supporting me, especially during those junior faculty years. They've been tremendously supportive of all the faculty and of encouraging me along this path. Also, my PhD supervisors were incredible technical mentors and continue to provide me tremendous advice, support and friendship. I have a career that I'm incredibly passionate about.”

### CITIZENSHIP AWARD

Márta Ecsedi, P.Eng., FEC, retired principal, AURA Management Consultants

“Thank you for giving me this amazing honour. I've known other people who have received them and so to be among them is outstanding. I want to thank people who served on various committees and boards with me in order for me to be able to accomplish what I did. Without them I wouldn't be receiving this award.”

OSPE and PEO would like to thank the generous sponsors and corporate table hosts of the 2014 OPEA gala.

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## CHAPTER MEMBERS CALLED to leadership, change and engagement

By Michael Mastromatteo

**F**inding new ways to show leadership animated participants at PEO's 2014 Chapter Leaders Conference (CLC) in Toronto.

Held November 22 in conjunction with the evening's Ontario Professional Engineers Awards gala, the conference drew delegates from all 36 of PEO's chapters for a day of networking and sharing ideas.

The theme of this year's chapter conference—Who are we?—was chosen to encourage volunteers to reflect on ways engineers can become leaders in the local community.

Guest speaker David Meslin—described in Toronto's alternative media as one of the city's top 10 activists—encouraged the volunteers to rethink notions of apathy and estrangement from their communities or associations.

Meslin's presentation on building a culture of engagement was aimed in part at encouraging more PEO members to become involved in the governance of their association. Mes-



lin used the theatre term “breaking the fourth wall” to suggest that policy development and decision making not be left to stage performers, elitists and insiders, but should be open to a more engaged citizenry.

“People often feel they don't have the skills or ability to participate in decision making, whether it's in the local community or their own associations,” Meslin said. “And apathy is a natural response to that sense of being shut out. But if we can transform that apathy into action, we can begin to take collective ownership of issues that are important to us.”

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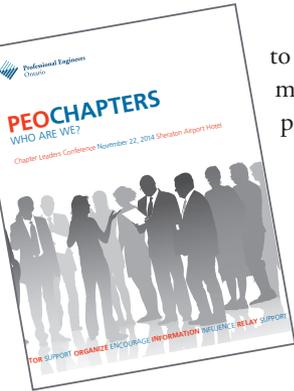


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# [ NEWS ]



The speaker later facilitated an interactive workshop to generate ideas on how chapters might improve communications and opportunities for licence holders to participate more meaningfully in PEO affairs.

The 2014 conference included an update on PEO's progress with its latest strategic plan, the main elements of which had just been approved by PEO council the day before. PEO Registrar Gerard McDonald, P.Eng., said the current plan contains 96 different strategic objectives to be implemented over a three-year timeframe. He encouraged chapter members to review the strategic plan to offer their

input on how it can be fine-tuned.

In keeping with the leadership focus, the conference included an afternoon session on PEO chapters as leaders in the local community. Facilitated by Orijit Pandit, P.Eng., Robert Vos, P.Eng., Kaoru Yajima, P.Eng., and Arash Yazdani, EIT, the session featured individual success stories of partnerships between chapters and local organizations.

As with previous chapter conferences, this year's event featured opportunities for volunteers to learn from each other. The third annual Chapter Story Contest had chairs and executives from 10 different chapters competing in a description of local success stories. Contestants were scored on the basis of creativity, originality and clarity in presenting their local chapter's particular event.

Winner of this year's contest, as voted on by participants themselves, was Elise Idnani, P.Eng., chair of the Sudbury Chapter, who outlined the chapter's experience with a bridge-busting competition as part of National Engineering Month.

In outlining the objectives for the day, Michael Wesa, P.Eng., FEC, chair of the CLC organizing committee, said chapter conferences are an excellent opportunity for PEO council members to benefit from the experience and ideas of the grassroots. "This is really our chance to listen and learn from the troops on the front lines," Wesa said.

Others to address the gathering were Len King, P.Eng., FEC, chair, Regional Councillors Committee, PEO President David Adams, P.Eng., FEC, and Karen Chan, P.Eng., vice chair, Ontario Society of Professional Engineers and an active volunteer with PEO's Lake Ontario Chapter.

Paul Amyotte, P.Eng., FEC, president, Engineers Canada, also brought greetings from the national engineering association.

Before dissolution, PEO President-elect Thomas Chong, P.Eng., FEC, thanked the 14-person conference organizing committee for their efforts and reminded chapter members of their role as "change agents" for the profession.

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# Are high-performing, high-potential engineers SLIPPING UNDER YOUR RADAR?



By *Tim Haggstrom*

Every year, thousands graduate from university with an engineering degree and enter the workforce on their way to becoming licensed. Within each graduating class are those few who stand out above the rest, and are soon identified by employers as key contributors. These employees, often flagged as critical talent, whether by the nature of their role and experience, or because they are high performers, tend to see faster promotions and greater salary increases year over year. However, are employees more likely to be identified as critical talent if they are males trained in Canada?

Approximately 18 per cent of the engineering workforce in Ontario is female, and approximately 15 per cent (males and females) received their training in a country other than Canada. Everyone appears to start out with a similar salary. However, when compared to Canadian-trained male employees who

graduated in the same year, females and internationally trained engineers tend to be paid less, especially as the number of years since graduation increases.

These observations are from a recent survey conducted by Mercer (Canada) Limited for the Ontario Society of Professional Engineers (OSPE). Compensation and workforce metrics data for more than 14,000 engineers across six engineering responsibility levels and 14 job types were collected from 214 organizations in both the private and public sectors. The 2014 survey reflects data for engineers working in organizations of all sizes, across a broad array of industries, located in 17 metropolitan areas in Ontario.

continued on p. 18

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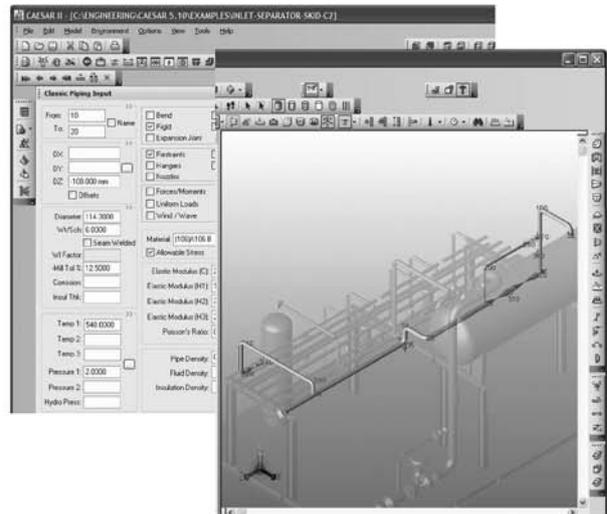
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continued from p. 17

**FEMALE ENGINEERS FIGHTING FOR ADVANCEMENT**

As they progress in their careers, women tend to earn less than male engineers, as shown in Figure 1.

This data does not suggest that employers discriminate by gender when setting pay levels. In fact, Mercer’s survey found that for the same levels and jobs, men and women earn similar compensation. The growing disparity in pay when comparing employees at the same point in time since graduation may be related to slower career progression for female engineers.

Female engineers tend not to advance into managerial or supervisory roles, perhaps because these promotions require an enormous devotion to the workplace, and proportionate sacrifices at home. Without a shift in organizational culture to accommodate engineers who place high value on work-life balance, these employees may be left behind or seek other career opportunities.

Many employers of engineers have struggled to implement a solution that improves the advancement of women. One such solution is a dual-ladder career framework, which allows non-managers to advance beyond level C as individual contributors. On aggregate, however, there has been very little change in the proportion of women at any given level of engineering over the past five years, as shown in Figure 2.

**INTERNATIONALLY TRAINED TWO STEPS BEHIND**

Again, using years since graduation as a basis, internationally trained engineers see an even larger disparity in earnings than female engineers when compared to the rest of the sample, as shown in Figure 3.

Internationally trained engineers tend to have begun their careers earlier than their peers in the same job level. As shown in Figure 4, there is a significant difference in the number of years elapsed since graduation at every level. The dif-

Figure 1: Average pay of female and male engineers by years since graduation

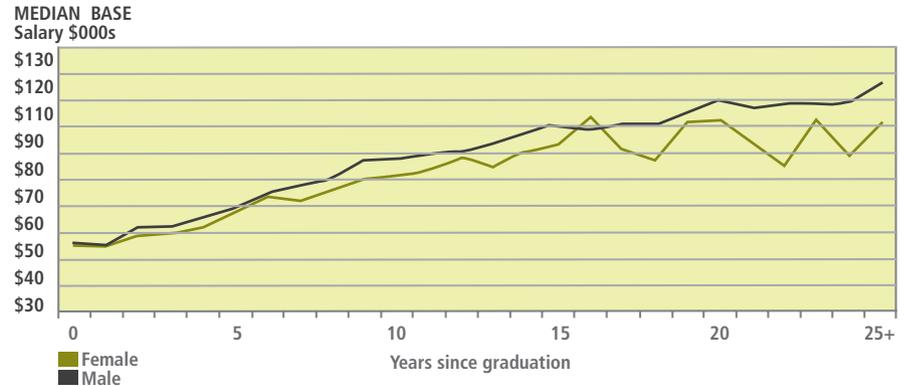


Figure 2: Proportion of female engineers by level in 2010 versus 2014

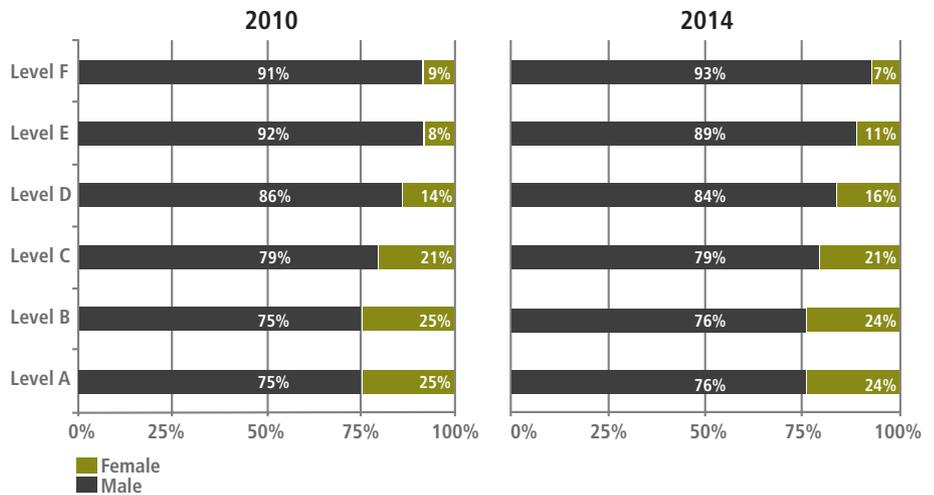
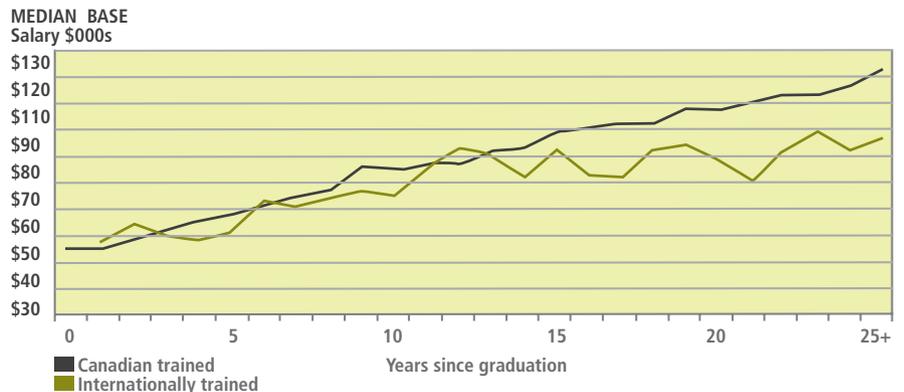


Figure 3: Average pay of internationally trained versus Canadian-trained engineers by years since graduation



ference is most pronounced at level C, where internationally trained employees earned their degree almost a decade earlier, on average, than their Canadian-trained colleagues. This may result from internationally trained engineers being required to take a step back in their careers after immigrating to earn Canadian experience before being promoted. Also, many of these individuals may have spent several years not employed as an engineer, waiting to secure a role as an engineer in Canada.

### FEMALE INTERNATIONALLY TRAINED: THE WORST OF BOTH WORLDS

As shown in Table 1, internationally trained female engineers tend to earn only about two-thirds as much as the average for their graduating class. They also make up a small minority of the workforce; in fact, only one in 70 engineers who graduated in the 1970s is female and internationally trained. These statistics may signify very difficult career progression, rather than pay inequity, for this minority group.

### OPPORTUNITY FOR EMPLOYERS

Employers that can effectively recruit, retain and develop engineers in these minority groups engage a larger talent pool. Better identification of critical talent and recruitment practices that break down gender-based and cultural barriers are potential areas of opportunity for employers. Dual-ladder career progression supports the advancement of employees who are highly skilled but do not have the desire to manage people or projects. Implementing these initiatives can lead to more equitable total reward packages for female and internationally trained engineers. By alleviating the sources of frustration that cause these individuals to seek another employer, or even another profession, organizations may be able to mitigate the loss of key talent.

Figure 4: Average years since graduation by engineering level

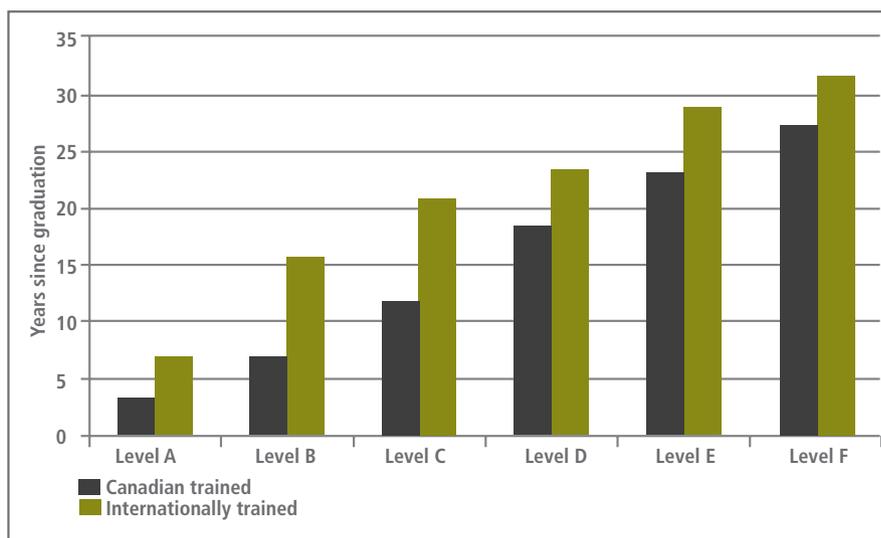


Table 1: Pay levels for internationally trained female engineers compared to provincial average pay levels by decade of graduation

Decade of graduation	Base pay of female internationally trained engineers as a percentage of provincial average	Percentage of workforce that is female and internationally trained
1970s	68%	1.4%
1980s	73%	5.9%
1990s	65%	5.7%
2000s	63%	2.3%

### ABOUT THE SURVEY

Now in its 61st year, the OSPE employer compensation survey helps establish meaningful criteria for engineering pay levels for the benefit of both engineers and employers of engineers. The survey results are available in PDF and in an online format through Mercer WIN, allowing employers to assess their organization’s competitive position and analyze market data.

As in previous years, the design and implementation of the survey was overseen by an OSPE advisory committee comprising representatives from industry, as well as the engineering and human resources communities. The committee ensures that the survey remains a current and reliable resource on compensation for engineers.

Employers and OSPE members can order the 2014 OSPE Employer Compensation Survey by contacting Mercer at [www.imercer.ca/ospe](http://www.imercer.ca/ospe), 800-333-3070, or [info.services@mercer.com](mailto:info.services@mercer.com). OSPE members can access a complimentary copy of the member market compensation summary online at [www.ospe.on.ca](http://www.ospe.on.ca).

Tim Haggstrom is with Mercer (Canada) Limited.

## [ NEWS ]

# Regulators WARNED against taking PROFESSIONALISM for GRANTED

By Michael Mastromatteo

SELF-REGULATED PROFESSIONALS face increased pressure to demonstrate professionalism and competence assurance if they hope to retain the public's confidence, say presenters at the annual conference of the Canadian Network of National Associations of Regulators (CNNAR).

The theme of the 2014 conference, held October 29 to 30 in Montreal, was "the proof is in the progress." The conference included presentations on topics of special relevance to regulatory organizations, including credentials assessment, good character as a requirement of registration, interprovincial mobility for practitioners, and updated understanding of professionalism.

The conference also featured two presentations from Toronto lawyer Richard Steinecke, LLB, a specialist in statutory oversight of self-regulating professions. Steinecke, who represented PEO in its legal challenge of government incursion into its regulatory realm, believes governments and the public are now demanding greater accountability from the self-regulated professions.

In a session on risk management for regulators, Steinecke cited the crucial role professional engineers brought to the discipline of risk management over the past century. He

**MATTHEWS AGREES WITH STEINECKE AND OTHERS WHO SUGGEST THAT REGULATED PROFESSIONS ARE UNDER INCREASED SCRUTINY FROM GOVERNMENT OVERSEERS.**

advocated bringing the essential cycle of risk identification, risk assessment, risk treatment and risk monitoring to overall regulatory organization operations, as well as to individual decisions. To assess risk, he said, it's important to assign value to both the severity and the frequency of a risk in order to properly evaluate it. To treat risks, he said, one should look at all options, including avoidance, modification, transference, retention and exploitation of the risk.

The CNNAR conference also featured an address on professionalism by Bruce Matthews, former PEO deputy registrar, complaints and discipline, and now deputy registrar, regulatory compliance, Real Estate Council of Ontario.

Matthews' presentation focused on the "regulator's dilemma"—demanding professionalism among practitioners versus enforcing it.

Matthews raised the question of whether professionalism means more than simply meeting minimal standards or expectations. "Is there a difference between the professionalism you choose to espouse and the professionalism you can enforce?" Matthews asked at the conference.

In a November 6 interview with *Engineering Dimensions*, Matthews elaborated on the notion of professionalism and said all self-regulated professions can benefit by sharing ideas and discussing common experience.

Matthews agrees with Steinecke and others who suggest that regulated professions are under increased scrutiny from government overseers.

"Governments and the public are becoming increasingly concerned about the appearance of having professionals regulate themselves in an effective manner," he says. "I don't see that changing anytime soon. Self-regulatory organizations need to do more to be seen to be acting in the public interest."

Kathryn Sutherland, P.Eng., FEC, vice president, regulatory affairs, Engineers Canada, attended the CNNAR conference on behalf of the national engineering association. She says it's important for engineering associations to keep tabs on matters relating to self-regulation, access to the profession for new Canadians, character assessment and interprovincial mobility.

Now in its 11th year, CNNAR works with member agencies, government and professional associations to support self-regulation and to promote its value to the public. Engineers Canada remains a member as of 2015.

## DIRECT DEPOSIT = A GREENER PLANET



The Canadian government is phasing out cheques by 2016. While we won't eliminate cheques entirely, we encourage all **PEO volunteers and vendors** to join our **electronic funds transfer** program.

Having expense reimbursements and invoice payments directly deposited is a fast, convenient, secure—and green—way to receive funds from PEO.

Signup is easy. All we require is a void cheque.

For more information, email [apfinancialservices@peo.on.ca](mailto:apfinancialservices@peo.on.ca).

## P.ENGs MAKING NEW INROADS IN MUNICIPAL POLITICS

By Howard Brown and Michael Mastromatteo



Steven Black, P.Eng., was elected mayor of Timmins.



Ron Starr, P.Eng., returned to his seat on Mississauga city council.



Harold Usher, P.Eng., was re-elected to London city council.



Andrew Dowie, P.Eng., is a new councillor for Tecumseh.



Steven Ireland, P.Eng., is a first-time councillor for Merrickville-Wolford Township.



Diane Freeman, P.Eng., FEC, was re-elected to Waterloo city council.

ONTARIO ENGINEERS have come a long way over the last few years, when it comes to running for elected office. Typically, engineers have been more comfortable behind the scenes than making policy decisions in the public eye, but Ontario's most recent municipal election shows this is changing.

The province's voters chose seven professional engineers (of 14 who ran) for city and town council positions at the October 27 province-wide municipal elections.

One of the seven, engineer Steven Black, P.Eng., was elected mayor of the northern Ontario city of Timmins. Black is the youngest mayor in the city's history.

Engineers returning to city council positions include former PEO president Diane Freeman, P.Eng., FEC, who was re-elected to Waterloo city council, Ron Starr, P.Eng., who was returned to a council seat in Mississauga, and Harold Usher, P.Eng., re-elected to London city council.

A trio of PEO licence holders will be serving in municipal politics for the first time. Andrew Dowie, P.Eng., chair of PEO's Windsor-Essex Chapter, was elected councillor in Tecumseh, near Windsor, and another former PEO president, George Comrie, P.Eng., FEC, got the nod from voters in the township of Whitestone, about halfway between Parry Sound and Sudbury.

The third newcomer to municipal politics is Steve Ireland, P.Eng., a member of the PEO Thousand Islands Chapter executive, who was elected as a councillor for the Township of Merrickville-Wolford.

"I'm a professional engineer and, for those of you who may not know, that comes with an obligation," Ireland told an Ottawa Valley newspaper in early October. "[It's] an obligation to public welfare and the Code of Ethics that must be upheld in all facets of business life."

Black will be taking a leave from his position at Glencore Kidd Operations to take on his new role as mayor of Timmins. Originally from Oshawa, Black has a degree in mining engineering from Queen's University.

"I believe professional engineers seeking political office offer a different perspective to the role," Black told *Engineering Dimensions* November 10. "We tend to be very detail-oriented people who really want the facts and details to back up our decisions. It is a careful juggling act to ensure we carry the same due diligence we are used to in our engineering roles into the political arena, while at the same time watching we don't become micro-managers in the political world. This will be one of my tougher adjustments to make because I like to have a full understanding of what is going on and be part of the decisions. At the same time, I think it is those charac-

teristics that drove the people of Timmins to support me, and both staff and I will have to make some adjustments to my style of leadership.”

For Dowie of Tecumseh, an engineering background was an important part of his campaign. “I believe I could bring forward thoughtful perspectives to municipal issues, grounded in engineering principles,” Dowie told *Engineering Dimensions*. “Being an engineer carries a fair amount of weight in the eyes of the public, as I discovered on my campaign trail. There is undoubtedly room for more engineers to participate in the public realm. In my community, specifically, I discovered a willingness to support professional engineers and an inherent knowledge by residents that an engineering discipline is relevant to at least one major aspect of local government operations.”

Because councillors in the Windsor and Tecumseh area serve on a part-time basis, Dowie will not be required to give up his full-time position in the office of the city engineer for the City of Windsor.

Meanwhile, the engineering profession’s profile in municipal politics might get another boost with the election of John Tory as mayor of Toronto, Canada’s largest city.

In addition to taking a special interest in urban transit solutions, Tory is an exponent of evidence-based public policy, which has long been a priority for the engineering profession.

Tory has also appeared at a number of PEO functions since becoming active in politics. At a November 2006 town hall meeting organized by PEO’s Oakville and Mississauga chapters, Tory (then leader of Ontario’s Progressive Conservative party) spoke to PEO members on the relationship between engineering and government.

In November 2011, Tory was keynote speaker at the PEO Chapter Leaders Conference. On that occasion, he said engineers should strive to raise their professional profile, especially as they seek to play an increasingly important role in Canada’s economic future.

Carl Bodimeade, a founding member of the Ontario Coalition for Sustainable Infrastructure, and senior vice president with Hatch Mott MacDonald, says the election of Tory as Toronto mayor is good news for engineers.

“John Tory’s support of evidence-based planning is good for engineers as they, in co-operation with other professionals, can recommend what is the best solution to meet a project’s objectives and enhance

**“IN MY COMMUNITY, SPECIFICALLY,  
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GOVERNMENT OPERATIONS.”**

Andrew Dowie, P.Eng.

the long-term benefits to the community,” Bodimeade says. “Although there must be a degree of political oversight, evidence-based planning mitigates the possibility of sound, long-term planning being changed for short-term political gain.”

There has been no better time to have more engineers at the municipal decision-making tables. Issues like transit, infrastructure and electricity distribution are at the top of municipal agendas across Ontario. Over the next four years, PEO will be watching P.Engs who were elected to see how they are shaping municipal priorities in Ontario. As a profession committed to the public interest and public safety in matters involving engineering, having engineers involved in decisions from the early stages is a crucial part of ensuring that Ontarians have the best public service in the world. Σ

## WHO WILL YOU NOMINATE?

The Ontario Professional Engineers Awards recognize professional engineering excellence in innovation, leadership and entrepreneurship, and honour contributions to society as well. For 2015, an exciting new award category has been added to recognize a project or achievement by a team of professional engineers that has had a significant impact on society, industry or engineering.

OPEA eligibility requirements and nomination forms are available at [www.peo.on.ca](http://www.peo.on.ca).

The nomination deadline is Wednesday, February 25, 2015.

# [ NATIONAL ENGINEERING MONTH ]



## 2015 ONTARIO EVENT HIGHLIGHTS

National Engineering Month (NEM) is a Canada-wide, month-long celebration designed to raise awareness of engineering and engineering technology and its contributions to our everyday lives. This March, Ontario will celebrate by hosting nearly 200 events staged by volunteers from our engineering student and professional communities. Members of Professional Engineers Ontario (PEO), the Ontario Association of Certified Engineering Technicians and Technologists (OACETT), Engineers Without Borders Canada (EWB) and the Ontario Society of Professional Engineers (OSPE) will team up to offer great opportunities to have fun, learn and give something back to the community. Come join in! You can sign up to volunteer, take your family to an event, log onto [nemontario.ca](http://nemontario.ca) to follow the action throughout March, or follow us on social media at [facebook.com/nemontario](https://www.facebook.com/nemontario), and Twitter and Instagram @nemontario.

Here is a partial list of the events planned and hosted by PEO chapters for National Engineering Month 2015. All information is complete as of the day of publication. Please refer to [nemontario.ca/events](http://nemontario.ca/events) for a comprehensive list of events.

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### BARRIE

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#### ENGINEERING & TECHNOLOGY PROJECTS DAY

**March 7, Innisdale Secondary School**

This event will focus on such STEM-oriented projects and activities as bridge building and strength testing, catapult, robotic arm (new), walking robot competitions (new), engineering quiz, RaspberryPi demonstration and AM radio construction. Contact Michael Simpson, P.Eng., at [michael.simpson@ieee.org](mailto:michael.simpson@ieee.org) or 705-735-0143.

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### CHATHAM

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#### LOCAL STUDENT ENGINEERING CHALLENGE

**March 7, John McGregor Secondary**

Two concurrent impromptu design competitions are planned for the Lambton-Kent area schools: Junior Division (grades 7 and 8) and Senior Division (high school). Both events will have teams build an apparatus to complete a specific task using provided materials. Contact Ellen Sinclair, EIT, at [ersinclair@uniongas.com](mailto:ersinclair@uniongas.com) or 519-352-3100, ext. 5002064.

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### ETOBICOKE

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**ENGINEERING IDOL March 7, Ryerson**

**University** Our eighth annual "Engineering idol" competition will see teams from 10 high schools participate in the challenging engineering task of designing a Mars Lander for human transport. Each team of four to six students will have a teacher or supervisor for moral support. This will be a design and build competition giving students the opportunity to create a landing device that will cradle passengers safely to the surface, keeping in mind Mars' thin atmosphere. Students will brainstorm creative ways of slowing and guiding

the lander with minimal deceleration upon touchdown in a low-friction environment. Contact Andrew Demeter, P.Eng., at [ar.demeter@gmail.com](mailto:ar.demeter@gmail.com) or 416-505-8433.

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### MISSISSAUGA

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#### BRIDGE-BUILDING CHALLENGE

**February 28, Tomken Road Middle**

**School** The annual Bridge-Building Challenge for grades 6, 7 and 8 students is back! See [www.peo-mc.ca](http://www.peo-mc.ca) for more details. Contact Brett Chmiel, P.Eng., at [brett.chmiel@peo-mc.ca](mailto:brett.chmiel@peo-mc.ca) or 647-648-1461.

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### PETERBOROUGH

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#### 2015 NATIONAL ENGINEERING MONTH DESIGN CHALLENGE March 4,

**Evinrude Centre** This year's event will be a "Mars lander" competition in the form of a classic egg drop. The students will be provided a variety of materials to construct a device to safely land an egg (the payload) dropped from various heights. We'll discuss the challenges of landing a craft on Mars due to its unique combination of gravity and atmosphere, how the challenge has been met in the real world in the past, and how that relates to the devices they will be building. Contact Daniel Manns, P.Eng., at [daniel.manns@ge.com](mailto:daniel.manns@ge.com) or 705-939-6278.

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### SAULT STE. MARIE

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#### SAULT STE. MARIE ENGINEERING MONTH EVENT March 1 to 8, Sault

**Ste. Marie Station Mall** We are running a series of engineering outreach activities in various local schools throughout the week leading up to the March 7 mall event. On Saturday (March 7), we will be hosting our annual engineering day at the mall. This includes engineering displays from local businesses, a team math

# [ NATIONAL ENGINEERING MONTH ]

challenge, colouring contests, robotics displays and other exciting interactive displays. Contact Michael Paciocco, EIT, at 705-949-1033, ext. 205.

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## SUDBURY

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### **NATIONAL ENGINEERING MONTH 2015 March 14, New Sudbury Centre**

An engineering showcase featuring information for students, engineering professionals and the general public. There will be displays of engineering products and work, prizes and 3D models. Contact John Le, at [jle@tracksandwheels.com](mailto:jle@tracksandwheels.com) or 705-690-1942.

### **PEO SUDBURY'S BRIDGE BUILDING 2015 March 12, Dynamic Earth**

This competition for students in grades 1 to 12 introduces practical skills, critical thinking and passion for engineering in a fun and friendly way. It will introduce different facets of physics, carpentry and construction while providing hands-on experience in engineering problem solving. Contact Jeff Shaw, EIT, at [jeffkshaw@gmail.com](mailto:jeffkshaw@gmail.com) or 705-885-8419.

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## THOUSAND ISLANDS

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### **BRIDGE-BUILDING COMPETITION Various weekdays in March, schools within the Upper Canada District School Board**

Annual in-school bridge-building competitions featuring our bridge buster. Contact John Ireland, P.Eng., at [john@ireland.ca](mailto:john@ireland.ca) or 613-283-1788.

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## TORONTO

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**2014 RED PLANET GAMES—THE "WINDRACER" CHALLENGE March 7, Thistletown Collegiate Institute, 20 Fordwich Crescent** Grades 11 and 12 "WindRacer" Challenge: design and build a scale model and compete to

win prizes. Judging will address creativity, imagination, presentation and simulation testing of the scale models. Contact Shiva Bissoon, P.Eng., at [sbissoo2@hotmail.com](mailto:sbissoo2@hotmail.com) or 416-704-9214.

### **DON'T WAKE MOM! AND MISSION TO MARS INTERACTIVE YOUTH WORKSHOPS FOR GIRL GUIDES**

**Various dates throughout March, Girl Guide units (Sparks, Brownies, Guides, Pathfinders and Rangers) across Ontario** Are you an engineer looking for a great way to engage with your community? Could you help spark a life-long interest in engineering by facilitating a workshop for youth aged 5 to 18 in Ontario? Sign up to visit a local Girl Guide unit in your community. The two themes "Mission to Mars" and "Don't Wake Mom!" are fantastic programs that look at real engineering challenges affecting the world around us. We provide all the training and supplies you will need. Sign up to volunteer at [www.eventbrite.ca/e/nem-2015-volunteer-sign-up-tickets-13659751685](http://www.eventbrite.ca/e/nem-2015-volunteer-sign-up-tickets-13659751685). Contact Rose-Marie Almond, EIT, at [rosealmond@ewb.ca](mailto:rosealmond@ewb.ca).

### **NOTHING BUT NEM: KICKOFF**

**February 27** The Toronto Raptors and Golden State Warriors will face off on February 27 at the Air Canada Centre for Engineering Night! OSPE and National Engineering Month Ontario are thrilled to present this incredible evening for engineers to celebrate the engineering profession and National Engineering Month. Enjoy dinner and engineering camaraderie at the pre-game tip-off party at Real Sports Bar and Grill, followed by an evening with the Toronto Raptors and exciting engineering-themed surprises on the court! Contact Ruth Gorriz at [rgorriz@ospe.on.ca](mailto:rgorriz@ospe.on.ca) for tickets and more information.

### **PURPLE POWER: WRAP-UP AND SPONSOR APPRECIATION EVENT**

**March 26** Often cobbled together from found objects, a Rube Goldberg

Machine utilizes a deliberately complicated sequence of actions to perform a simple task. Each year during National Engineering Month, Ontario engineering students take the Rube Goldberg concept to a whole new level by connecting, via the Internet, machine components located at campuses across the province. The ultimate action? Lighting a high-profile provincial landmark purple—the colour traditionally associated with engineering. This NEM Ontario wrap-up event welcomes local professionals, students and members of the public to gather at one of Canada's most iconic locations. NEM Ontario sponsors are also invited to an exclusive networking reception following the public event. Contact Ruth Gorriz at [rgorriz@ospe.on.ca](mailto:rgorriz@ospe.on.ca).

### **SPRING FORWARD TO ENGINEERING March 26, Palmerston Junior Public School Gymnasium, 734 Palmerston Avenue**

We're raising the awareness of engineering as a profession with youth through hands-on demonstrations of engineering concepts. We link them to real-world applications and thereby pass on the message that engineering shapes the world around us and engineers make a difference. Contact Meggen Janes, P.Eng., at [Meggen.Janes@ch2m.com](mailto:Meggen.Janes@ch2m.com).

**WATER FOR THE WORLD March 2 to 6, libraries throughout the greater Toronto area** Enjoy engaging with the movers and shakers of the future? Put your passion to work by taking part in Water for the World workshops held at public libraries across the greater Toronto area. Join Engineers Without Borders during National Engineering Month to deliver Water for the World Workshops (W4TW) to students in grades 5 to 9. By sharing your time, you can introduce students to the issues surrounding global access to clean water. Take a day off from the regular grind and help inspire young minds! Training is provided in February. For more information, or to sign up, contact [waterfortheworldworkshops@toronto.ewb.ca](mailto:waterfortheworldworkshops@toronto.ewb.ca).

## SUMMARY OF DECISION AND REASONS

In the matter of a hearing under the *Professional Engineers Act* and in the matter of a complaint regarding the conduct of PAUL Y. W. HO, P.ENG., a member of the Association of Professional Engineers of Ontario.

This matter came to a hearing before a panel of the Discipline Committee on July 28, 2014, at the Association of Professional Engineers of Ontario (association) in Toronto. All parties were present. The association was represented by Leah Price. The member was not represented by counsel. Steven Bosnick acted as independent legal counsel.

The Notice of Hearing issued on July 8, 2014, was filed with the panel. There was no issue as to the panel's jurisdiction to determine this matter, which had been referred to the Discipline Committee for disposition. The parties filed an Agreed Statement of Facts signed by the member and counsel for the Association of Professional Engineers of Ontario.

The member admitted the conduct alleged as set out in the Agreed Statement of Facts. The panel then conducted a plea inquiry and was satisfied that the member's admissions were voluntary, informed and unequivocal. The parties submitted that the agreed-upon facts as presented supported the allegations.

### SUMMARY OF THE MATTER

The member, Paul Y. W. Ho, had requested and been granted remission status of his professional engineer licence by reason of retirement in 2005 and at that time he declared he would not practise while designated by the registrar as a fee-remission member. He had not practised structural engineering during his career, nor did he hold a Certificate of Authorization at relevant times.

In 2013, Ho prepared, signed and sealed documents in support of a building permit application as a service for a relative. He signed a Commitment to General Review by Architects and Engineers form as an engineer consultant. He also signed and sealed a Building Footing Assessment. These documents were submitted to the Town of Ajax building department. To address deficiencies in the application, Ho

signed and sealed various drawings regarding the proposed construction, which were also submitted to the Town of Ajax. The drawings were deficient in one or more ways, including not adequately demonstrating how the existing structure could support the load imposed by the proposed third floor, non-compliance with the Ontario Building Code requirements and providing insufficient detail to demonstrate compliance with the Ontario Building Code or to allow a builder to carry out the construction according to the drawings.

The plans examiner with the Town of Ajax filed a complaint to the association regarding both the member's non-practising status and that the "sealed documents do not demonstrate competency in structural design." During the investigation of the complaint, the association retained an independent expert to review Ho's work and reported it was grossly deficient in relation to what would be expected of a professional engineer experienced in this type of work. When presented the evidence by the association, Ho admitted creating drawings that failed to conform to the Ontario Building Code and/or the minimum standards of a professional engineer and that, by virtue of his training and experience, he was not competent to perform this work. He also admitted to engaging in the practice of professional engineering while licensed as a fee-remission member and to providing professional engineering services while not holding a Certificate of Authorization.

### DECISION

The panel considered the Agreed Statement of Facts and the guilty plea of the member. In its oral decision the panel found that Ho had committed acts of negligence as defined under paragraph 72(2)(a) of Regulation 941; failed to safeguard life, health or property as defined under paragraph 72(2)(b) of Regulation 941; failed to make reasonable provisions for

complying with applicable statutes, regulations, standards, codes, bylaws and rules in connection with work being undertaken by or under his responsibility, pursuant to section 72(2)(d) of Regulation 941; and had provided professional engineering services while in fee remission status contrary to subsection 41.1(2), amounting to professional misconduct under paragraphs 72(2)(g) regarding committing a breach of the *Professional Engineers Act* or regulations and 72(2)(k) regarding a failure to abide by the conditions of a practitioner's licence. The panel found the member's conduct was unprofessional, though not disgraceful or dishonourable, as defined under section 72(2)(j) of Regulation 941. All of the aforementioned constitute professional misconduct as defined in section 28(2)(a) of the act.

### PENALTY SUBMISSIONS

The parties filed a Joint Submission on Penalty, which read as follows:

- (a) Pursuant to paragraph 28(4)(f) of the *Professional Engineers Act*, Ho shall be reprimanded, and the fact of the reprimand shall be recorded on the register for a period of one (1) year;
- (b) The finding and order of the Discipline Committee shall be published in summary form under paragraph 28(4)(i) of the *Professional Engineers Act*, with reference to names; and
- (c) Pursuant to paragraph 28(4)(h) of the *Professional Engineers Act*, Ho shall pay a fine in the amount of \$1,000 (one thousand dollars) to the Minister of Finance (for payment to the consolidated revenue fund) within 30 days of the date of pronouncement of the penalty decision of the Discipline Committee; and
- (d) There shall be no order with respect to costs.

The submission stated that the member had the opportunity to obtain independent legal advice with respect to the penalty.

The panel was advised that the member was retired and that he had not provided professional engineering services since he signed his declaration in or about April of 2005, with the sole exception

of the work that forms the subject of this complaint. In other words, this was an isolated incident. The panel was advised the member did not understand he could not provide professional engineering services to an immediate family member and misunderstood the limitations of his licensing status and as such did not deliberately or intentionally contravene the act or regulations. The panel was advised that the member would remain fully retired from now on. The penalty was crafted in light of these facts.

The association submitted that the joint submission as to penalty was reasonable. Publication of a summary of the order, including publication of names, and the recording of a reprimand to remain on the register for a period of one year were proposed to serve as general deterrence for members of the profession and as specific deterrence to the member. Nonetheless, the association submitted that specific deterrence was less of a concern given the member was retired and intended to remain retired. For that reason, the association submitted that the usual penalties of suspension, restrictions on the member's licence and training requirements were not appropriate in the circumstances of this case. For specific deterrence and to signal to the membership that the conduct cannot be condoned, the association instead proposed a fine of \$1,000. The association did not seek an order for costs.

The member was invited to provide his comments on the penalty and he confirmed that he felt the penalty was fair. The member was retired and he had co-operated with the process and acknowledged his wrongdoing, avoiding the need for aggressive prosecution by the association. The proposed penalty, although unusual, was appropriate in all of the circumstances.

### PENALTY DECISION

The panel deliberated and concluded that the proposed penalty was reasonable and in the public interest. The member co-operated with the association and, by agreeing to the facts and a proposed penalty, has accepted responsibility for his actions and has avoided unnecessary expense to the association. As such, the panel finds an award for costs was not warranted. It is neither disproportionate nor does it bring the administration of justice into disrepute. Accordingly, the panel ordered the penalty in accordance with the Joint Submission on Penalty.

The panel rendered its decision on penalty orally at the conclusion of the hearing. The member waived his right to appeal. The association advised it would not appeal.

The oral reprimand was administered at the conclusion of the hearing on July 28, 2014.

The written summary of the Decision and Reasons was signed by John Vieth, P.Eng., as chair on behalf of the other members of the discipline panel: Thomas Chong, P.Eng., Santosh Gupta, P.Eng., Kathleen Robichaud, LLB, and Diane Freeman, P.Eng.

#### SUSPENSION NOTICE—JIRI KRUPKA, P.ENG.

Jiri Krupka, P.Eng., was found guilty of professional misconduct as a result of a Discipline Committee hearing held on October 23 and 24, 2013. The penalty ordered against Krupka included a suspension of his licence for two months commencing one week after release of the panel's decision on penalty. As such, Krupka's professional engineering licence is suspended from November 10, 2014 to January 9, 2015, inclusive.

#### NOTICE OF LICENCE REVOCATION— MICHAEL M. COOK

Michael M. Cook, P.Eng., was found guilty of professional misconduct as a result of a discipline hearing on September 10, 2012. As part of the penalty ordered, Cook was to write and pass two technical examinations within 24 months of the discipline hearing, failing which his licence was to be revoked. As Cook has not passed the two exams ordered to be written, his professional engineering licence is revoked.

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## INCOMPETENCE

### A very serious matter in PEO's regulation of the profession...

Incompetence is defined under section 28(3) of the *Professional Engineers Act* as follows:

- 28(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; or
  - (b) the member or holder is suffering from a physical or mental condition or disorder of a nature and extent making it desirable in the interests of the public or the member or holder that the member or holder no longer be permitted to engage in the practice of professional engineering or that his or her practice of professional engineering be restricted. R.S.O. 1990, c. P.28, s. 28(3); 2001, c. 9, Sched. B, s. 11(37).

Allegations of incompetence can be determined by the Discipline Committee only at the conclusion of a discipline hearing. PEO council,

the Executive Committee or the Complaints Committee can direct the Discipline Committee to hold a hearing into an allegation of incompetence. It becomes PEO's burden to prove the allegation during the discipline hearing.

Since the definitions of incompetence suggest that the individual is unfit to carry out the responsibilities of a professional engineer or should no longer be permitted to engage in the practice of professional engineering, PEO takes allegations of incompetence very seriously. An individual who has been found by the Discipline Committee to be incompetent should, as a minimum, have their licence suspended for a period of time to permit PEO to be satisfied they are qualified or able to practise as a professional engineer. In certain circumstances, revocation of the licence may be required to serve and protect the public interest.



**FEBRUARY 2015**



**FEBRUARY 2-3**  
Design & Analysis  
for Stormwater  
Management Ponds,  
Mississauga, ON  
[www.epic-edu.com](http://www.epic-edu.com)

**FEBRUARY 2-5**  
Paper Week Canada  
Annual Conference,  
Montreal, QC  
[paperweekcanada.ca](http://paperweekcanada.ca)

**FEBRUARY 4-5**  
Evaluation &  
Rehabilitation of  
Pavements,  
Ottawa, ON  
[www.epic-edu.com](http://www.epic-edu.com)

**FEBRUARY 7-11**  
IEEE 21st International  
Symposium on High  
Performance Computer  
Architecture,  
Burlingame, CA  
[darksilicon.org/hpca/](http://darksilicon.org/hpca/)

**FEBRUARY 7-12**  
SPIE Photonics West,  
San Francisco, CA  
[spie.org/photonics-west.xml](http://spie.org/photonics-west.xml)

**FEBRUARY 8-12**  
IS&T/SPIE Electronic  
Imaging Conference,  
San Francisco, CA  
[spie.org/x16218.xml](http://spie.org/x16218.xml)

**FEBRUARY 12-13**  
16th International  
Workshop on Mobile  
Computing Systems  
& Applications,  
Santa Fe, NM  
[www.hotmobile.org/2015/](http://www.hotmobile.org/2015/)

**FEBRUARY 17-20**  
The Utility Management  
Conference,  
Austin, TX  
[www.wef.org/  
UtilityManagement2015/](http://www.wef.org/UtilityManagement2015/)



**FEBRUARY 18-20**  
Modelling Air Emissions  
for Compliance—A  
Hands-on Workshop,  
Mississauga, ON  
[www.epic-edu.com](http://www.epic-edu.com)

**FEBRUARY 21-26**  
SPIE Medical Imaging  
Conference,  
Orlando, FL  
[spie.org/x12166.xml](http://spie.org/x12166.xml)

**FEBRUARY 25-26**  
International Conference  
on Water Management  
Modeling,  
Toronto, ON  
[www.chiwater.com/  
Training/Conferences/  
conferencetoronto.asp](http://www.chiwater.com/Training/Conferences/conferencetoronto.asp)

**FEBRUARY 25-27**  
Canadian Nuclear  
Association Conference  
& Trade Show,  
Ottawa, ON  
[https://cna.ca/2015-  
conference/](https://cna.ca/2015-conference/)

**MARCH 2015**

**MARCH 1-30**  
National Engineering  
Month events,  
across Ontario  
[www.nem-mng.ca](http://www.nem-mng.ca)

**MARCH 2-4**  
Electrical Power  
Equipment—Selection,  
Commissioning  
& Maintenance,  
Ottawa, ON  
[www.epic-edu.com](http://www.epic-edu.com)

**MARCH 2-4**  
International Congress  
on Advanced  
Railway Engineering,  
Istanbul, Turkey  
[ic-are.org](http://ic-are.org)

**MARCH 2-5**  
10th ACM/IEEE Interna-  
tional Conference on  
Human-Robot Interaction,  
Portland, OR  
[humanrobotinteraction.  
org/2015/](http://humanrobotinteraction.org/2015/)

**MARCH 8-12**  
SPIE Smart Structures  
Conference,  
San Diego, CA  
[spie.org/x12228.xml](http://spie.org/x12228.xml)

**MARCH 11-13**  
Design-Build for Water/  
Wastewater Conference,  
San Antonio, TX  
[www.dbia.org/conferences/  
water](http://www.dbia.org/conferences/water)

**MARCH 12-13**  
ACM International Work-  
shop on Timing Issues  
in the Specification &  
Synthesis of Digital Systems,  
Monterey, CA  
[www.tauworkshop.com](http://www.tauworkshop.com)



**MARCH 18-20**  
Global Engineering  
Education Conference,  
Tallinn, Estonia  
[www.educon-conference.  
org/educon2015/](http://www.educon-conference.org/educon2015/)

**MARCH 23-25**  
Arctic Technology  
Conference,  
Copenhagen, Denmark  
[www.arctictechnology  
conference.org](http://www.arctictechnologyconference.org)

**MARCH 23-26**  
ASME Joint Rail  
Conference,  
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# AFTER THE FALL: LEARNING THE LESSONS OF ELLIOT LAKE

BY MICHAEL MASTROMATTEO

PEO is taking a leading role in helping improve the regulatory framework surrounding the building design industry in Ontario.





Although only a small portion of the Algo Centre Mall rooftop parking lot collapsed and fell, it will have an enormous impact on future building safety in Ontario. PEO hopes that by partnering with architects, technicians, building inspectors, the Ontario government and other stakeholders, the regulatory framework around building inspection and safety can be greatly improved.

Shortly after the Commission of Inquiry was established on July 19, 2012, the regulator sought and obtained official standing. In addition, the regulatory compliance department opened investigations to determine if work by PEO licence holders related to the Algo Centre Mall was performed competently and in compliance with the regulations under the *Professional Engineers Act*, as well as other applicable statutes, regulations, standards, codes, bylaws and rules.

Chris Roney, P.Eng., BDS, FEC, a member of PEO council, headed up the regulator's Elliot Lake Advisory Committee (ELAC), which was struck to lead PEO's response to the disaster. As a third-generation structural engineer and building design specialist, Roney has been living and breathing the Elliot Lake experience for the last three years.

"Once the [Bélanger] inquiry began, PEO probed the events that led up to the collapse," Roney says. "Based on what we learned from the events surrounding Elliot Lake, we developed a series of recommendations that are intended to address those matters that relate to professional engineering."

### NO REGIME IN PLACE

As well, in November 2012, PEO issued the professional practice bulletin *Structural Engineering Assessments of Existing Buildings*, which was a first step in addressing one of the most glaring deficiencies brought to light by the Algo Centre Mall collapse—namely, that there was no common understanding of what a structural engineering assessment of an existing building should comprise. There was also no require-

**R**etired justice Paul Bélanger emphasized "human failings" as a major contributing factor in the June 23, 2012 partial collapse of the rooftop parking deck of the Algo Centre Mall in Elliot Lake.

In citing human failing as central to the combination of events leading to the preventable deaths of two Elliot Lake residents, in his report of the Commission of Inquiry Bélanger noted the roles played in the tragedy by a number of those charged with protecting public safety, professional engineers among them.

"Many of those whose calling or occupation touched the [Algo] mall displayed failings," Bélanger writes, "its designers and builders, its owners, some architects and engineers, as well as the municipal and provincial officials charged with the duty of protecting the public."

And, while less than ideal practices by some engineers were noted as contributing to the Elliot Lake disaster, all those involved in building design, construction and regulation—including property owners, architects, technologists, municipal building and elected officials, and even the ministries of labour and housing—have been called on during the course of the inquiry, and with the release of its final report, to examine their policies, procedures and ways of doing business in reconciling what occurred.

### PEO LOOKS TO TIGHTEN REGULATORY FRAMEWORK

Just weeks prior to the events of June 23, a Sault Ste. Marie-based engineer, whose licence had been suspended as the result of an earlier, unrelated matter, had inspected the mall and declared it "structurally sound." That now-former engineer has since been charged by the Ontario Provincial Police on counts of criminal negligence causing death and negligence causing injury.

But rather than hand wringing and attempting to distance itself from the disaster, PEO has looked at it as an avenue for suggesting ways to tighten up the regulatory framework in the building design and construction area.

In the days immediately following the collapse, PEO's regulatory compliance department, anticipating a commission of inquiry, began reviewing documents and prepared an initial overview report on the regulation of engineering in Ontario.

ment that such assessments be done routinely on any buildings, a situation outside PEO's ability to correct, but one on which it made recommendations for change in its written submission to the commission.

In fact, PEO's submission offered 11 recommendations, almost all of which made their way into the commissioner's recommendations in his final report. Among the PEO recommendations endorsed by the commissioner are that:

- PEO develop a new performance standard for structural inspections of existing buildings, based on its existing practice bulletin;
- structural inspection of certain existing buildings be required periodically and the resulting structural adequacy report be prepared and sealed by professional engineers who are certified by PEO as structural engineering specialists; and
- PEO release additional information about practitioners disciplined for professional misconduct.

Based on its submission, PEO was also invited to participate in an expert roundtable on November 20, 2013 on the role of professionals and other building consultants. Roney represented PEO at the roundtable, at which commission counsel probed aspects of participants' submissions and for which PEO provided answers in writing to questions related to practitioners' scope of expertise and continuing professional development; structural review of existing buildings; practitioners' supervision of the work of others; transparency of licence suspensions and revocations; practitioners' duty to report; and the possible roles and definitions of a prime consultant and provincial engineer.

Another problem identified from inquiry witness testimony was a failure to synthesize information contained in the scores of building reports made on the Algo Centre Mall over the years. Roney points out that the mall had been inspected numerous times between 1989 and 2012, but the information about identified conditions and remedial actions was seldom passed along to the

city's building department, subsequent owners, or other professionals undertaking work at the mall.

Accordingly, the commissioner's final report calls for mandatory filing of every structural adequacy report in a publicly accessible registry. Where a report shows a building does not meet an also recommended provincial minimum structural maintenance standard, the commissioner recommends the report be required to set out the needed repairs and be provided by the structural engineer to the municipality's chief building official.

Since the release of Commissioner Bélanger's final report, PEO has already approached the Ontario attorney general about the need for regulatory changes to support implementation of the inquiry recommendations aimed at PEO.

### **WORKING COLLECTIVELY TOWARD CHANGE**

"Most of the proposed changes require creating standards that need legislative authority to be enforced," Roney says. "We [PEO] can't do it without the concurrence of government. We're optimistic that through this tragedy, there will be motivation on the government's part to put through some changes to improve engineering regulation in the interest of the public."

At PEO's November 5 Queen's Park reception (see p. 8), Ontario Attorney General Madeleine Meilleur said the province is committed to working with PEO to implement recommendations contained in the Bélanger report.

"While I recognize that both the province and PEO will need to take time to carefully consider this report, I am eager to begin working with your organization as well as our municipal and agency partners to plan our next steps," Meilleur said. "As quickly as possible, I want to see the lessons learned from this report applied in professional practices so that all building structures are safe."

Echoing these sentiments, Roney notes: "The lessons learned from the events at Elliot Lake touch on many more callings and professions than just engineering. PEO is acting responsibly in the public interest, but there are other organizations involved here."

In fact, PEO has already taken preliminary steps toward working collaboratively with some of these other bodies.

On November 19, for example, members of PEO's Professional Standards Committee subcommittees on structural design and structural assessment and PEO staff from the policy and professional affairs unit held a working session with staff of the Ministry of Municipal Affairs and Housing (MMAH), which administers the Ontario Building Code, to share insights on some of the areas that would need to be considered in trying to meet the spirit and intent of the inquiry recommendations. The MMAH and PEO representatives agreed to update each other on their respective plans to work through implementation of the recommendations and, where possible, work together and cross appoint members to panels and committees to harmonize outcomes.

It was also recognized that once the government appoints the recommended advisory panel to make recommendations on classes of buildings and timeframes for periodic inspections to the new minimum structural maintenance standard, the input of professional engineers with expertise in this area will be required. PEO will also likely be invited to participate, subject to its review of the government's mandate for the panel to ensure there are no regulatory conflicts.

### OAA SUPPORTS PRIME CONSULTANT

As for how others involved in building design, construction and regulation are addressing the inquiry recommendations, Bill Birdsell, B.Arch. president, Ontario Association of Architects (OAA), says the recommendation relating to a prime consultant is most relevant to practising architecture. That recommendation would see owners of buildings requiring the design services of more than one professional consultant designate either a professional engineer or an architect "as the prime consultant to perform the roles and responsibilities of that position, as designed by one or the other or both" of PEO and OAA.

In testimony before the inquiry, it came to light that during the initial construction of the Algo Centre Mall, there was confusion among the architect, the lead engineer, the project manager and the building's owner as to who would take responsibility for some of the final design elements, in particular the building's waterproofing system.

In a forensic investigation of the causes of the collapse, Toronto-based Norr Group found that severe rusting of a connection between a beam and column supporting the mall's rooftop parking lot was the main reason for the collapse. Despite some half-hearted waterproofing efforts over the years, the mall rooftop parking lot leaked extensively throughout its 33-year existence.

"OAA is looking forward to working with our industry partners to define the prime consultant, as outlined in the recommendations," Birdsell told *Engineering Dimensions*. "The emphasis on the importance of that role is particularly meaningful to our practitioners."

Although OAA did not seek standing at the inquiry, Birdsell participated in the expert roundtables that set the stage for a number of the report's final recommendations. "We appreciated the invitation from Justice Bélanger to participate in the stakeholder roundtables," Birdsell says. "We submitted 74 pages of recommendations and we were pleased to see some of those were strongly considered by Justice Bélanger and his team."



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### OFFICIALS IN THE SPOTLIGHT

In addition to engineers and architects, the Elliot Lake building department was also in the spotlight during the Bélanger inquiry. The report criticizes both municipal and elected officials for being uncertain of their roles and responsibilities, and for being too closely allied with the mall's owners. "Municipal authorities did not enforce, or improperly enforced, their own property standards bylaws," Justice Bélanger observed in the report. "Some public officials were apparently unaware of the contents of their own bylaws. The municipality's predominant focus was non-interference with the mall, because it was regarded as the social hub of the community and as a major source of tax revenue and employment."

For the Ontario Building Officials Association (OBOA), the Elliot Lake review was an eye-opening experience. OBOA is the association supporting Ontario building officials by delivering training and certification, and promoting uniform code application to its membership.

"As a profession we often go unnoticed until such issues arise, which underline the importance of what we do," observed OBOA Vice President Alan Shaw, Sarnia's chief building official. "Throughout the inquiry it was clear that our role, responsibility and legal duty are largely unknown to those within our industry, places of employment and the public, in general. Often seen as unnecessary hurdles in the way of business or development, it continues to be debated whether individuals providing independent, unbiased reviews and approvals of professionals' work need to be certified by a provincial body. Our association needs to do a better job promoting our members and what we do."

Overall, Shaw says, OBOA is "pleased with the far-ranging review of issues carried out by the commission, and the balanced and innovative recommendations made in the report to strengthen the existing system of public safety in buildings." In particular, he notes with approval "the commission's overall conclusion that municipal building officials

should be appropriately trained and certified. We support the commission's recommendation that the *Building Code Act* be amended to require mandatory continuing education for such officials, and that they be recognized as fully independent in carrying out their responsibilities."

### TECHNICIANS AND TECHNOLOGISTS

The Ontario Association of Certified Engineering Technicians and Technologists (OACETT) is also keen on tightening up the regulatory framework when it comes to building safety.

OACETT is Ontario's independent certifying body for engineering and applied science technicians and technologists. OACETT does not issue licences but certifies its members in several disciplines, including the building sector.

"The tragedy of the collapse of the mall in Elliot Lake and the subsequent inquiry and recommendations reinforce the importance of those involved in the building industry to maintain vigilance in their conduct, and the need for professionals, including engineers, technicians and technologists, to work collaboratively for the protection of the public," says OACETT CEO David Thomson.

"Moreover, the lessons learned reinforce the need for increased vigilance in the performance of duties to protect the public for all professionals, regardless of discipline."

OACETT, which had standing at the Elliot Lake inquiry and participated in the roundtables, supports the final report's recommendations for mandated structural adequacy reports for certain existing buildings and the establishment of a PEO performance standard for structural inspections.

While Thomson believes the public remains reasonably well disposed to the conduct of Ontario's building/design professional community, he is concerned that the "serious weaknesses" identified by the inquiry must be addressed fairly quickly to maintain the public's confidence.

"The Bélanger inquiry was blunt in its assessment of the weaknesses of the existing system," Thomson says. "Legislatures have been fit to delegate authorities to self-governing professions to protect the public. Such recommendations as the need for mandatory professional development need to be recognized as an example of a reasonable measure to ensure adequate protection of the public."

OACETT, he notes, is taking aggressive action in expanding professional development for its members, including mandatory continuing professional development.

### REPUTATIONS AT STAKE

At a time of increasing scrutiny of self-regulated professions, the Algo Centre Mall collapse and the subsequent inquiry could be a watershed moment for PEO.

Recommendation 1.24 of the Bélanger report calls on PEO to establish a mandatory continuing education system as soon as possible and no later than 18 months from the October 2014 release of the report. In fact, PEO council had already established its Continuing Professional Development, Competency and Quality Assurance Task Force to make recommendations to council by the end of 2015 on developing a continuing professional development program for PEO.

In addition, the "earnest" implementation of Elliot Lake Commission of Inquiry recommendations has been made a strategic objective of PEO's recently approved 2015-2017 Strategic Plan (see In Council, p. 46). At the same meeting, council approved the review of a draft implementation plan for the Elliot Lake recommendations requiring PEO actions, and directed the committees identified in the plan as playing a role in implementing it to give it the highest priority in their work plans. The draft implementation plan has been endorsed by PEO's ELAC as its last action as a committee. Its members will, however, remain available as a resource to those implementing the plan.

Yet as PEO and others involved in building design, construction and regulation learn the lessons and work to put in place the changes recommended by Commissioner Bélanger, they must also pay heed to public perception.

As Danny Young, P.Eng., president, Ontario Society of Professional Engineers, noted at PEO's Queen's Park reception: "The goal of all engineers is to rebuild the public's trust in our ability and responsibility to serve and protect the public interest. [OSPE] will continue our dialogue with PEO as they work to finalize the continuous education program that the [Bélanger] commission recommends."

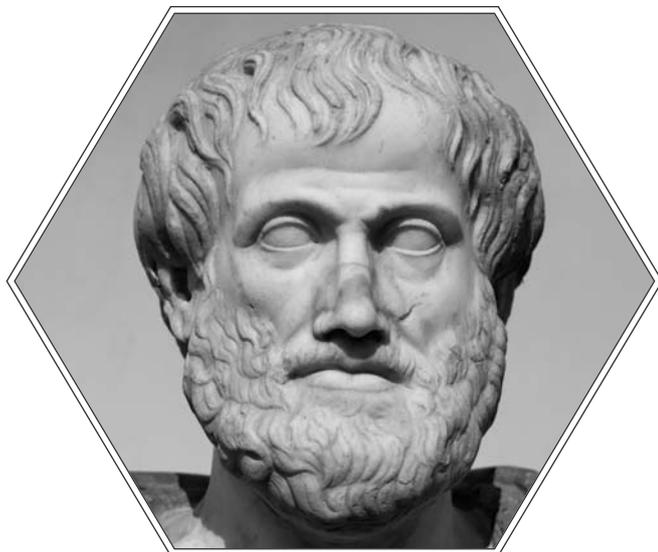
"In the end, a reputation is something that is earned by one's actions," Roney says. "Though the engineering profession's reputation was certainly tarnished by the events leading up to the collapse, I strongly believe that PEO's strong and swift actions in response to this tragedy are something to be proud of." Σ

The two-part report of the Elliot Lake inquiry was released on October 15, 2014, and is available in its entirety at [www.attorneygeneral.jus.gov.on.ca/inquiries/elliottlake/report/index.html](http://www.attorneygeneral.jus.gov.on.ca/inquiries/elliottlake/report/index.html). A copy of the report can be obtained through Service Ontario Publications by visiting [www.serviceontario.ca/publications](http://www.serviceontario.ca/publications) or by calling 800-668-9938.

# WHAT'S IN A VOTE?

WHEN IT COMES TO DETERMINING PEO COUNCIL, HAVING A SAY MEANS MORE THAN YOU MIGHT REALIZE.

BY SHARON ASCHAIK



Throughout history, democracy has been called many things—some flattering, and some not so flattering. “Democracy is when the indigent, and not the men of property, are the rulers,” said the Greek philosopher Aristotle. “Democracy is a device that ensures we shall be governed no better than we deserve,” was the perspective of playwright George Bernard Shaw. And, of course, there is this famous statement from former British prime minister Sir Winston Churchill: “Democracy is the worst form of government except for all the others that have been tried.”

Whatever your views on this 2500-year-old political system, and despite its flaws in theory or in practice, it's safe to say democracy still offers the best shot at governance that is for, by and of the people. Or, to put it more eloquently, here's a final quote from one of its most vocal champions, Burmese political reformer and Nobel Peace Prize winner Aung San Suu Kyi: “I've always tried to explain democracy is not perfect. But it gives you a chance to shape your own destiny.”

The same argument can be made for the role of democracy in guiding the practice of engineering in Ontario. As engineering is a self-regulated profession, it depends on its elected representatives within PEO to use their wisdom and abilities to establish policies that steer the profession in the right direction, in service and protection of the public. With PEO's annual council elections fast approaching, the responsibility to help choose the next leaders to advance the engineering profession falls to Ontario's almost 80,000 P.Engs.

“As in any democracy, your vote is your voice, so whenever a licence holder likes or dislikes a policy by PEO, the licence holder has power through their vote of their elected representative,” says Annette Bergeron, P.Eng., FEC, past president of PEO.

Currently serving on PEO's Central Election and Search Committee (CESC), Bergeron says voting in the PEO council elections is critical to ensure not only that members have a say in how the profession is run, but also that the diverse interests of PEO's licence holders are considered.

“There are many different disciplines, different cultural aspects to engineering, and gender diversity within the profession. We want to make sure that everybody's represented at the council table,” says Bergeron, a management consultant for Queen's School of Business and a board member of Engineers Canada.

Better reflecting the full range of members' perspectives and priorities in PEO's activities is a particularly high priority for PEO this year. For several years, voter turnout in council elections has been extremely low, which has raised concerns about how engaged engineers feel as members of PEO. The association is attempting to counter this apathy by more effectively engaging licence holders in the election.

It's a move that's endorsed by Danny Young, P.Eng., president and chair of the Ontario Society of Professional Engineers. He acknowledges that poor participation in council elections is driven by many factors. For one thing, he says, in his view, the profession is very well run in Ontario, so there aren't any serious issues compelling members to vote.

Also, he says, while it's important to better reflect PEO's mix of practitioners from different engineering disciplines, this segmentation itself makes it difficult to secure their collective participation in the election. For example, he says, if there is a professional issue that affects only electrical engineers, other types of engineers may not see the point of voting.

But he says this complacency makes it more difficult to elect council leaders who can optimally serve the needs and interests of all members.

“There’s no point in being apathetic about this whole thing and saying, ‘You know what? It is what it is. It will happen without my vote.’ Too often, that’s the case with a lot of people. They just don’t seem to think that their vote matters,” says Young, a consulting engineer at Spriet Associates. “But it’s important. It does matter. They need to carefully go over the platforms of the candidates and [decide] what’s best for the association to make sure the right candidates get elected.”

**“THE MEMBERSHIP SHOULDN'T HAVE ONLY THE ELECTION DOCUMENTS TO READ. THEY SHOULD BE ENCOURAGED TO READ MINUTES AND AGENDAS OF [COUNCIL] MEETINGS AS THEY HAPPEN.”** Denis Dixon, P.Eng., FEC, chair, Central Election and Search Committee

Young’s views are echoed by Liam Morrow, president of the Engineering Student Societies’ Council of Ontario, who says voting enables licence holders to understand better the objectives and intentions of those seeking to lead the profession. But he adds that voting should be one part of a bigger process by members to familiarize themselves more with the priorities and activities of PEO, which he says is important to ensure engineers are current on matters affecting their profession.

“Voting will help make a difference to...members of the profession understanding where their regulating body stands, what those limits are, and what new ideas can be implemented to improve the profession for everyone in Ontario. I believe it’s less of a question of voting, and more of a question of being informed,” says Morrow, who is completing a B.Eng. in electrical engineering at McMaster University.

CESC Chair Denis Dixon, P.Eng., FEC, admits it can be challenging for members to stay informed of PEO’s activities, and that’s partly to do with how council operates.

“The membership shouldn’t have only the election documents to read. They should be encouraged to read minutes and agendas of [council] meetings

as they happen,” Dixon says. “If they don’t know what council is doing, they don’t care who goes to council.” [Ed note: council meeting information, including agendas and minutes, may be found at [www.peo.on.ca/index.php/ci\\_id/2177/la\\_id/1.htm](http://www.peo.on.ca/index.php/ci_id/2177/la_id/1.htm)]

He says low voter turnout in council elections might indicate PEO is not adequately addressing the needs of all its members, but he maintains that “getting involved is the important thing.”

Howard Brown, president of Brown & Cohen Communications & Public Affairs Inc., which provides government relations services to PEO, says when members become more involved in choosing council leaders, it attracts higher-calibre engineers to run as candidates, and helps hold elected representatives more accountable. He adds that it also increases the sense of pride in the profession among engineers and among members of the general public, because council feels more empowered to advance the profession and promote its achievements.

“I think just the perception, both internally and in the public, is improved by someone having a truly significant mandate,” Brown says. “It’s about the profession showing its innovators and that they’re thinking out of the box. It’s about the profession showing leadership in regulating the profession, and in serving the public interest. And it’s about enhancing the public perception of the profession.”

For Diane Freeman, P.Eng., FEC, a past president of PEO and a current City of Waterloo councillor, voting in the council elections is like voting in government elections, asserting that in both cases, our institutions run more effectively and serve us better when voters are more engaged. But she says the responsibility goes both ways: as a publicly elected official, she makes the effort to knock on doors and connect with her constituents; similarly, she would like to see PEO become better able to interact with its members.

Ultimately, Freeman says, strengthening the tradition of democracy that shapes how the profession is governed will enhance the profession’s prospects and better reflect its contributions to society.

“Council is the face of the profession more broadly to organizations such as the provincial and federal government, so there needs to be leadership that best represents the profession,” Freeman says. “I perceive the profession as being forward-thinking, innovative, relevant and important in the lives of Canadians, so I think it’s important to vote in leadership that reflects those values.” Σ

# AVRO REMEMBERED



BY NICOLE AXWORTHY

It was almost 57 years ago that the infamous Avro Arrow made its first test flight. Otherwise known as the CF-105, the supersonic, twin-engined, all-weather jet aircraft was the crown jewel of Canadian aircraft manufacturer A.V. Roe Canada, better known as Avro, then the third-largest company in Canada. The plane was on the cutting edge of aerospace technology at the time: faster and more advanced than any other comparable aircraft, the Arrow was designed to carry air-to-air, nuclear-tipped missiles to destroy Soviet bombers.

The first flight on March 25, 1958 was a proud moment for the Canadian aerospace industry. Yet on February 20, 1959, the Canadian government ordered all work on the Arrow cancelled. The cancellation meant huge employment losses and, within two months, five planes and a sixth, within days of take-off and equipped with a more powerful engine expected to break all speed records, were ordered reduced to scrap. Thirty-one others in various stages of assembly, along with all parts, drawings, accessories, blueprints and photographs, were ordered destroyed.

But the Arrow became a Canadian legend anyway, not for just what it proved, but also for the promise it held. In honour of the 55th anniversary of the cancellation of this magnificent engineering achievement, we're looking back at the Arrow and those who were involved. From the *Engineering Dimensions* archives, we're pleased to republish portions of interviews with former professional engineer James Floyd, Avro's chief design engineer, who turned 100 in October 2014. You can read more

about Floyd and the Arrow in previous *Engineering Dimensions* articles: "An aviation chapter in Canadian history" (September/October 1988, p. 46), "Bringing down the Arrow: A 30-year retrospective" (January/February 1989, p. 33), and "Jim Floyd, P.Eng., one straight arrow" (March/April 2003, p. 39).

**Engineering Dimensions:** There was a plaque that hung behind your desk at Avro's plant that read: "If it's worthwhile but obviously impossible—do it anyway." Was there some event or reason that inspired you to become a professional engineer, especially in the aviation field?

**Floyd:** As a 14-year-old in England I was fascinated by the activities of aviation record-makers. Lindbergh's solo flight across the Atlantic and the long flights of Amelia Earhart and Kingsford Smith, all in the same year, raised my adrenaline level and I was anxious to one day become "part of the action."

My chance to turn the dream into a reality came in 1930 when I heard about a special apprentice scheme that was being introduced at the main Avro plant in North Manchester. The company was recruiting bright young schoolboys to be put through an intensive training program and at the same time continue their education to university standard.

I applied, was accepted, left school and joined as a "special apprentice." I was all set for the glamorous life of an aviator. Unfortunately it didn't turn out that way, at least for the first few months spent in the noisy machine shop covered in whale-oil lubricant, turning out thousands of small bolts for the equivalent of one dollar a week. But my next job was a little more exciting: I installed an electrical system in a new biplane from a layout handed to me by my foreman on a postcard!

Looking back, I'd have to say that Avro's special training program was the best that anyone could possibly receive. The time spent in every department of the company and the special education arrangement resulted in a better understanding of the essential interface between design and production than what would be received by graduates coming directly out of university.

In 2008, a full-size replica of the Avro Arrow was rolled out at the Canadian Air and Space Museum in Toronto.



**Engineering Dimensions:** After the C102 Jetliner (the world's first regional jet to fly), you took charge of the development of Avro's CF-100 (the only Canadian-designed fighter aircraft to see service) and finally you fathered the Arrow. This era is often referred to as Canada's "golden years" of aviation technology. What do you remember most?

**Floyd:** While that work amounted to not much more than a quarter of my professional life, it was certainly the most exciting, demanding, frustrating and formative time. There are two events that are indelibly etched in my mind. One is the first flight of the Jetliner on August 10, 1949, a hot, humid day when you could have fried an egg on the tarmac, and the other is the Arrow's first flight on the morning of March 25, 1958, a raw and overcast day, with a wintery wind hanging over the scene. Since I had been in charge of these projects from inception to takeoff, the responsibility for the results and the safety of the crews was firmly planted at my feet. That is a feeling that is almost impossible to describe, and the relief when the flights were over is equally difficult to put into words.

While the Jetliner was a particularly docile aircraft, the Arrow was incredibly complex. Despite the fact that we had "hedged our bets" with an enormous amount of ground and wind-tunnel testing, I was thinking about the 38,000 parts that had to behave as we expected them to. Luckily, they did.

**Engineering Dimensions:** There aren't many events in our history that have created a controversy like the Avro Arrow. Do you feel there is any lesson that can be learned?

**Floyd:** I was privileged to have the support of a team of incredibly talented and dedicated professional engineers and technicians at Avro Canada. After the Arrow's cancellation, many went on to groundbreaking activities all over the world. As a result, that integrated and highly trained team was lost to this country. I think that was the real tragedy of the Arrow story.

**Engineering Dimensions:** Why do you think (then Prime Minister) Diefenbaker cancelled the Arrow?

Jim Floyd, who headed the design and development of the Avro Jetliner, CF-100 and CF-105 Arrow, is one of the great figures in Canada's aviation history because he played a central role in the development of some of the greatest planes ever produced in Canada. After the cancellation of the Avro Arrow project, he established his own international aviation consulting company and made contributions to a number of state-of-the-art projects around the world, including the Concorde passenger jet. Floyd turned 100 in October 2014.

**Floyd:** Diefenbaker had the worst advice possible. His main advice came from General Pearkes, who was a brave old soldier, but he didn't know anything about airplanes at all. He'd been hoodwinked by a visit to the states where he was told that airplanes are out and missiles are in and there'll never be another manned airplane bought by any air force.

**Engineering Dimensions:** Did you suspect that the program was going to be cancelled?

**Floyd:** We suspected that there'd be some hiccup. In September 1958, we were told that the whole thing would be reviewed in March, so of course we were on tenterhooks. But the appraisal was done on February 20 and the cancellation came the same day. That was the biggest shock of the century. We were in a board meeting with John Plant (president of Avro Aircraft) trying to settle some very mundane union situation about seniority. Joe Morley (sales and service manager) came running down the corridor with a man from the DDP (Department of Defence Production) saying that he'd heard on the radio that Diefenbaker had cancelled the Arrow.

**Engineering Dimensions:** So you heard about it at the same time as the general public?

**Floyd:** Later than the general public—they heard it on the radio.

**Engineering Dimensions:** What message would you have for today's engineers?

**Floyd:** The best things I've learned have been about dealing with people to bring out the best in them. The old things I learned in England I rebelled against. I try to coax people rather than beat them over the head. Canadians are very flexible: treat them the right way and you can get anything out of them.

One of the things I'm trying to do with the Canadian Aerospace Heritage Foundation ([www.ahfc.org](http://www.ahfc.org)) is to help young people get the incentive to do some of the things we tried to do. Today there seems to be an apathy, a sense of too many things in the way. I'd like to give the kids some hope. Σ

# COMMUNITY ENERGY IN GUELPH: ENVIRONMENT AND ECONOMY IN PARTNERSHIP

By Alex Chapman



ONTARIO CENTRE  
FOR ENGINEERING  
AND PUBLIC POLICY

IN 2006, the city of Guelph, Ontario, received a wake-up call.

The province of Ontario's *Places to Grow Act* depicted a future in which the population of Guelph would grow by 50 per cent over the following 25 years (Prov-

ince of Ontario). At the time, Guelph was home to 118,000 people, with another 18,000 students living on campus at the University of Guelph during the academic year. This legislation would see the population grow to 180,000 by 2031.

Historically, growth in population has gone hand-in-hand with growth in consumption of energy and water. In a world dependent on dwindling reserves of fossil fuels, this sort of growth would pose problems common to any city—rising costs, diminishing supply security, economic drag and environmental degradation. Guelph faced additional challenges arising from the nature of its supply of electricity and water.

At present, the citizens, businesses and organizations in Guelph spend approximately \$500 million a year on energy. Virtually all of that energy is sourced from outside the city—electricity from the Bruce Power nuclear generating station or Niagara Falls, natural gas from shale deposits in Montana and gasoline from the Alberta oil sands. A small portion of the half-billion-dollar spend remains in the city to pay for wires, poles, pipes and filling stations, but the rest leaves and does not return.

Since electricity rates are rising faster than inflation, the electricity portion of every ratepayer's budget is growing over time, crowding out other demands on that money. The same goes for gasoline and diesel, the current spell of low prices notwithstanding. Natural gas prices have remained relatively



stable since 2008, but will face upward pressure from declining production, increased exports to Europe, and rising controversy over hydraulic fracturing ("fracking") techniques. This will drive Guelph's annual energy spend to over \$1 billion by 2031—an all-but-debilitating drag on the local economy.

Unique to Guelph is the fact that its electricity is delivered via an aging transmission line that runs from Centre Wellington to the north of the city. This line has reliability issues and is approaching its full capacity (Hydro One). If nothing is done either to improve the line or reduce the upward trend

in electricity demand in the city, there will not be enough electricity to go around.

Also Guelph-specific is the challenge of water supply. Guelph relies completely on groundwater, imposing natural limits on the amount of water that can be extracted sustainably from the local aquifer. Another limit is on alternatives, since regulations require each municipality to extract from, and discharge to, the same watershed. Guelph is part of the Grand River watershed, which has no room for additional extraction. This means for Guelph to obtain water from a source other than the ground beneath it, the only other option would be a pipeline running all the way to Lake Erie, which is a distance of about 100 kilometres.

Caught between a rock and hard place, Guelph needed a plan.

In 2006, the city decided to create a community energy plan to tackle the issue of ensuring adequate supply of energy and water to a burgeoning population. A task force was assembled, including members of the community, local businesses, local organizations, the local electric and natural gas utilities, and all affected departments in the municipal government. A consultancy was retained to quarterback the process, which included multiple gatherings of the task force, several public consultations, and meetings with such provincial bodies as the Ontario Power Authority and the Ministry of Energy.

The result, published in 2007, was Guelph's *Community Energy Plan* (Garforth). This 148-page plan detailed the challenges facing the city and how they would be met. It analyzed Guelph's current energy and water use, benchmarked the city against high-performing communities in Europe, and surveyed its potential for improved efficiency and local energy generation. It also established specific targets for reductions in per capita energy consumption (50 per cent) and per capita greenhouse gas emissions (60 per cent) over the period to 2031, and identified actions for how to meet these targets.

The ensuing few years saw the entrenchment of this plan in policy to ensure it did not merely sit on the shelf gathering dust, and to protect it from shifts in political direction. No plan can be executed without someone to execute it, so staff resources and a budget were assigned. The mayor's task force on community energy became an ongoing fixture to oversee the implementation. The plan was embedded in the *City of Guelph Official Plan*, a document that describes how development will take place, including housing, industry, commercial enterprises and institutions. The Community Energy Plan became the Community Energy Initiative (CEI).

One notable aspect of the CEI was its positioning in the city organization. Often the issue of energy is addressed by a maintenance department, but this is done with an internal focus on city facilities and does not scale well to address the entire community. Sometimes, the planning department will handle the issue, but this can produce a long-term focus without immediate measures or results. A sustainability professional may take the lead, but may have difficulty mobilizing resources toward specific policy objectives as environmental considerations may not be balanced with economic concerns.

Guelph chose to place the community energy department within its enterprise group, alongside downtown renewal and economic development. This has positioned energy as an opportunity for the community, rather than a risk to be managed. As a result, each program arising from the CEI has been developed with an eye to how it might improve the economy of the city, reducing costs for citizens and businesses while attracting employers to the community. The CEI has grown a valuable and mutually beneficial partnership with the Guelph Chamber of Commerce, and the chamber now has an energy transition committee focused on the business end of the CEI, which is chaired by Guelph's corporate manager of community energy.

Another valuable business partnership has been one between the city and its electric utility, Guelph Hydro. An unregulated sister company, Envida, was set up to implement specific projects to meet the objectives of the CEI. Among these projects are eight rooftop solar photovoltaic arrays on city buildings. Each of these has a contract with the Ontario Power Authority to supply electricity to the grid under the MicroFIT program of the *Green Energy and Green Economy Act*. Capital is supplied from Envida, so there is no impact on the city budget.

A third important partnership has developed between the city and local environmental non-governmental organization eMerge Guelph. eMerge has three programming channels or pathways, focusing on the home, street and neighbourhood. An example is the recent implementation of Project Neutral, an initiative started in Toronto to bring a measure of friendly competition between neighbourhoods to the realm of personal energy conservation and carbon emissions reduction. eMerge has pursued a social enterprise model to ensure it will not be

dependent on grants and donations to continue delivering on its goals.

The economic connection is also evident in the way two CEI programming areas, district energy (DE) and energy efficiency, are being pursued. Both will be entirely self-sustaining without the need for funding from the Guelph municipal tax base. Both will contribute substantially to local economic competitiveness and will make the city an attractive destination for investment. Both will involve a strategic implementation network of the top industry players, emphasizing long-term relationships leading to lower costs and other mutual benefits.

DE, which uses shared infrastructure to deliver heating and cooling to multiple buildings, has a mature market in Europe. Its North American counterpart is still in its relative infancy, with Guelph being the only municipality that has a stated goal to create a city-wide network. The city's target is to serve half of its heating needs with DE by 2041 (Envida). With DE nodes in production in the downtown core and in the greenfield Hanlon Creek Business Park in the south end of the city, the program has a healthy start.

Energy efficiency is another major programming emphasis of the CEI. Canadian buildings are, on average, half as efficient as European comparators. Although the current Ontario Building Code has made significant strides in mandating higher energy efficiency for new construction, most of the existing building stock will still be in use in 2031. To make a significant impact on city-wide energy efficiency, a program to improve efficiency of existing buildings is necessary.

A recent legislative change allows a financing mechanism called Local Improvement Charges to be used to finance energy and water conservation projects (Aird & Berlis). This innovation promises to open the door to retrofit projects that would otherwise not be economical. Coupled with a program design aimed to simplify the end-user experience compared to prior programs (such as ecoENERGY for Homes), Guelph's energy efficiency retrofit program promises to deliver CEI efficiency targets. City staff hope to launch the program in late spring 2015.

What does the future hold for Guelph?

continued on p. 42

## [ POLICY ENGAGEMENT ]

continued from p. 41

First, the CEI is in need of an update. The document was written before the *Green Energy and Green Economy Act* of 2009. Since then, costs for renewable energy sources, most notably solar photovoltaics, have dropped considerably. The targets for local renewable generation may need to be revised upwards. The quality of available data on energy use has risen; better data means better insights, which may lead to different targets. Fortunately, due in part to Guelph's innovation on energy matters, the Ontario Ministry of Energy now offers funding for municipalities seeking to create a municipal energy plan, or to enhance an existing one (Ontario Ministry of Energy).

Second, better tools are in the offing to measure the effect of various policy measures on the local economy and on other metrics, such as energy use and the environment. The Places and Spaces Program of Royal Roads University (Community Research Connections) aims to create such tools to assist municipalities with evaluating alternative policies. Guelph is participating in a pilot of this program.

Third, Guelph continues to look for success stories in other locales. Because the CEI had an outward-looking emphasis, comparing Guelph against high performers wherever they may be, the implementation of the CEI has not suffered from the "not invented here" syndrome. The latest example comes from next door in Kitchener-Waterloo. Sustainable Waterloo Region's Regional Carbon Initiative has chalked up significant achievements in reducing greenhouse gas emissions among participating businesses. The program has been packaged for implementation in other areas, under the name Sustainability CoLab ([sustainabilitycolab.org](http://sustainabilitycolab.org)). Guelph is looking at the possibility of applying this model.

Fourth, the evidence shows that technological measures can have a positive impact on energy efficiency, but behavioural change can have an even more significant impact. Guelph is evaluating options for educational programs at all levels. The elementary school students of today will be starting families when the CEI reaches

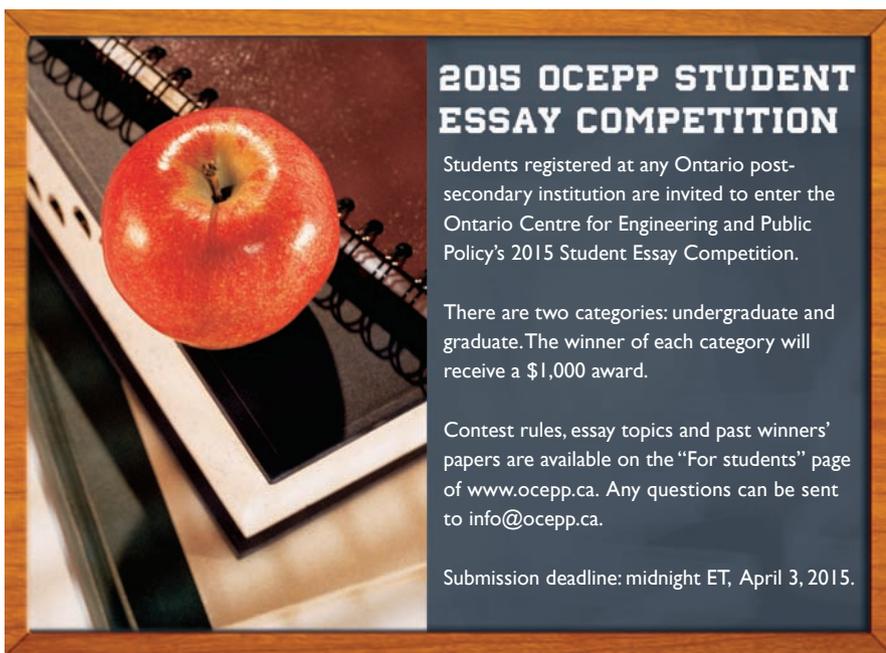
the end of its planning horizon. If they are equipped with knowledge of how to conserve energy, they could make a dramatic contribution to reaching the energy efficiency and greenhouse gas emissions targets of the CEI.

Guelph responded to the challenge of rising population and constraints on energy and water by creating its Community Energy Initiative. Environmental problems are also economic problems. Economic challenges can also represent economic opportunities. By recognizing this, Guelph has positioned itself to be a strong competitor in the post-carbon economy.  $\Sigma$

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**Alex Chapman, BAsC, MBA, CEM, is acting corporate manager of community energy for the City of Guelph and chairs the municipal working group of the QUEST Ontario Caucus and the energy transition committee of the Guelph Chamber of Commerce.**



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There are two categories: undergraduate and graduate. The winner of each category will receive a \$1,000 award.

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Submission deadline: midnight ET, April 3, 2015.

# SHINING A SPOTLIGHT ON ENGINEERS' REMARKABLE ACHIEVEMENTS

By Nicole Axworthy

Michael Sefton, PhD, P.Eng., chemical engineering professor, University of Toronto (U of T), was recently invited to join the United States Institute of Medicine, an honour bestowed upon just a few Canadian scientists and engineers. Sefton is a global leader in tissue engineering and regenerative medicine. He was among the first to demonstrate the significant synergy between chemical engineering principles and biomedical engineering. He hopes his team will soon be able to unravel the mystery of blood vessel growth, allowing them to develop tissues with strong vascular functions. If successful, his research will significantly advance the field of tissue engineering. The United States Institute of Medicine is an independent, non-profit organization that “works outside government to provide unbiased and authoritative advice to decision-makers and the public.” Sefton received the Ontario Professional Engineers Gold Medal in 2013.



Engineering Professor Michael Sefton, PhD, P.Eng., is one of only a few Canadians ever inducted into the United States Institute of Medicine. Photo: Calvin Thomas

Micah Stickel, LEL, was named to the American Society for Engineering Education's Top 20 Under 40. Photo: U of T Engineering

Micah Stickel, LEL, a senior lecturer in the U of T Edward S. Rogers Sr. department of electrical and computer engineering, was named to the American Society for Engineering Education's (ASEE) Top 20 Under 40. Stickel was cited for his experience-based teaching approach and pioneering of the inverted classroom style in U of T's faculty of applied science and engineering, where he is first-year chair. To motivate and help passive learners with conceptual material, he introduced clickers, online quizzes that target misconceptions and activities that provide instant feedback in large lectures. He was also one of the first in the faculty to teach entirely with a tablet PC, replacing the blackboard with annotations on the tablet. He has published three papers assessing the tablet's effectiveness as a teaching tool. ASEE is a non-profit organization developing policies and programs to enhance professional opportunities for engineering faculty members, and

promoting activities that support student enrolment in engineering schools.

The winners of the 2014 Canadian Consulting Engineering Awards have been announced. The Schreyer Award for technical excellence and innovation went to CH2M Hill for the structural engineering of the Canadian Museum of Human Rights in Winnipeg. The Ambassador Award for a project outside Canada that best demonstrates Canadian expertise went to MMM Group for the new Quito International Airport in Ecuador. The Engineering a Better Canada Award for a project that enhances the social, economic or cultural quality of life in Canada was given to BBA Inc. for the Detour Lake gold mining project in northern Ontario. The Outreach Award for a company's role in donating its time or services went to Dillon Consulting for its Environment and Community Investment Fund. Also presented were Awards of Excellence in a range of construction sectors. Ontario Certificate of Authorization holders receiving awards were: Blackwell for the Sisters of St. Joseph residence in Toronto and Pasquin St-Jean et associés for the Casino de Montreal renovations (buildings category); Fast + Epp for the Bow River pedestrian bridge and utility crossing in Banff, Alberta, Harbourside Engineering Consultants for the Strandherd Armstrong bridge erection in Ottawa, Hatch Mott MacDonald and MMM Group Ltd. for the Port Mann Highway 1 improvements, and Read Jones Christoffersen for the Glacier Skywalk in Jasper National Park, Alberta (transportation category); Hatch Ltd. for developing hydroelectric potential in northern Ontario, Hatch Mott MacDonald in association with Hatch Ltd. for the Niagara tunnel project in Niagara Falls, and WSP Canada for the Mount Pleasant substation in Vancouver, BC, (natural resources, mining industry and energy category); and Kerr Wood Leidal Associates for the heat-seeking sewer model in Vancouver, Morrison Hershfield for the North Channel bridge replacement in Cornwall,

## [ AWARDS ]



CH2M Hill's Canadian Museum for Human Rights project won the Schreyer Award, one of the 2014 Canadian Consulting Engineering Awards.



Bob Goodings, P.Eng., FEC (second from left), and Bill Goodings, P.Eng. (far right), were presented with Ontario Senior Achievement Awards from Mario Sergio, the Ontario minister responsible for seniors, and Elizabeth Dowdeswell, lieutenant governor of Ontario.

and SNC-Lavalin Inc. for the Ambatovy nickel project in Madagascar (special projects category). Now in its 46th year, the awards are the highest mark of recognition for completed projects by Canadian consulting engineers. The Canadian Consulting Engineering Awards program is a joint initiative of *Canadian Consulting Engineer* magazine and the Association of Consulting Engineering Companies-Canada.

Elizabeth Edwards, PhD, P.Eng., professor, department of chemical engineering and applied chemistry, and director, BioZone Centre for Applied Bioengineering Research, and Goldie Nejat, PhD, P.Eng., associate professor, mechanical engineering, and director, Institute for Robotics and Mechatronics, U of T, have recently been named new Canada research chairs. Edwards is the holder of a new Canada research chair in anaerobic biotechnology. Her research focuses on the use of micro-organisms to clean up chemical contaminants in ground water. Nejat is the holder of the new Canada research chair in robots for society. Her research is enabling robots to interact with humans in such areas as health, emergency response, security and elder care. Both new research chairs have received an Ontario Professional Engineers Awards' Engineering Medal: Edwards in 2011, Nejat in 2012. The Canada research chairs program was created in 2000 and has helped attract and retain some of the world's most accomplished and promising minds.

Catherine Karakatsanis, P.Eng., FEC, chief operating officer, Morrison Hershfield, former president of PEO and Engineers Canada, and

a recipient of an Ontario Professional Engineers Awards' Engineering Medal; Anne Poschmann, P.Eng., FEC, principal, Golder Associates; and Anne Sado, P.Eng., president, George Brown College, and an Ontario Professional Engineers Awards' Gold Medal recipient, have been named to the 2014 Canada's Most Powerful Women: Top 100 Awards by the Women's Executive Network (WXN). Featured in the Accenture corporate directors category, Karakatsanis says of her achievement: "I am very grateful that I chose a profession that I truly find rewarding and that makes a difference. I am proud that I have found acceptance and success in this male-dominated field, both within my firm as the first female partner, the first female executive and first female board member, and the profession at large, having been elected the chair of three regulatory and advocacy engineering organizations in Ontario and Canada." Featured in the Sun Life Financial trailblazers and trendsetters category, Poschmann says about overcoming barriers in the mining industry: "Back when I was a young geotechnical engineer there were very few of us females, and so the guys manning the drill rigs were not used to having a young gal giving them orders. I knew I had made it when, on a job site up near Algonquin Park, the two drillers I was working with joined me sitting on the side of the road drinking tea out of dainty tea cups and eating thin slices of cake, which had been provided by this wonderful woman who was living across the road from where we were working." Featured in the WXN Hall of Fame category, Sado says of her achievement: "Women still struggle to be heard and to be recognized for their contributions. I believe these barriers can be overcome by publicly celebrating women who are leading and ensuring their messages are heard. I also think it is important to build a critical mass of women in the boardrooms, key executive offices and throughout organizations." WXN is Canada's leading organization dedicated to the advancement and recognition of women in management, executive, professional and board roles. Since 2003, it has celebrated the accomplishments of female leaders through the Canada's Most Powerful Women: Top 100 Awards. Each year, WXN hosts four Top 100 celebrations across the country, in Toronto, Vancouver, Calgary and Montreal.

Bill Goodings, P.Eng., past member of the board of the Ontario Society of Professional Engineers



Catherine Karakatsanis, P.Eng., FEC, Anne Poschmann, P.Eng., FEC, and Anne Sado, P.Eng., were named to the 2014 Canada's Most Powerful Women: Top 100 Awards by the Women's Executive Network.

(OSPE) and past PEO president and OSPE Chair **Bob Goodings**, P.Eng., FEC, have been recognized with 2014 Ontario Senior Achievement Awards, presented each year by the lieutenant governor to Ontarians who have made outstanding contributions to their community through voluntary or professional activities after the age of 65.

Bill Goodings has shared his knowledge in solid-waste management on projects in the Philippines, Bolivia and Sri Lanka. Bob Goodings has taken his expertise in water and wastewater systems to Nigeria, Mexico, Puerto Rico, Peru, Bolivia, China and the Philippines. The Senior Achievement Awards are the highest provincial honour for seniors over 65.

U of T engineering alumni were recently celebrated at the 25th annual Arbor Awards. Created in 1989, the awards are presented to alumni and friends "whose loyalty, dedication and generosity have added substantially to the quality of the U of T experience." Donald Dowds, P.Eng., Paul Andersen, P.Eng., Mary Ruggiero, P.Eng., Larry Tricinci, P.Eng., and George Wildish, P.Eng., were all recipients of an award for their volunteerism at the school. Dowds has been a member of multiple awards committees, the host for many student recruitment events and an organizer of the Skule Lunch & Learn speaker series. Andersen has volunteered at U of T's Hart House Theatre since 2001, overseeing the theatre's transition to online ticket sales in the early 2000s. Ruggiero has inspired female engineering students through guest lectures and, with her husband, established a scholarship for engineering science students. Tricinci has participated in recruitment drives and career development sessions for students with the department of civil engineering. Wildish has been a member of the Skule Lunch & Learn executive committee and volunteered for its speaker series.

University of Toronto PhD candidate **Pirathayini Srikantha**, EIT, was recognized as a best poster award recipient (2nd place) at the recent Ontario Celebration of Women in Computing (ONCWIC) conference at the University of Guelph. The work proposed an approach to

power dispatch of distributed energy resources via bifurcation control. The ONCWIC invites students involved in computing on faculty, at all levels of study, as well as professionals, to discuss active research or computing projects, and share ideas, problems and results in an informal setting.

A team of undergraduate nanotechnology engineering students from the University of Waterloo was selected runner-up for the James Dyson Award, an international competition for student inventors. The team's invention, Suncayr, is a UV-sensitive marker that people can use to draw a pattern on their skin. When the ink changes colour, it lets the user know they need to reapply sunscreen. The team, comprising students **Rachel Pautler**, **Andrew Martinko**, **Chad Sweeting**, **Derek Jouppi** and **Hayden Soboleski**, will receive the runner-up prize of £5,000 (C\$9,000) to put toward product testing and development.  $\Sigma$

## COUNCIL APPROVES PEO STRATEGIC PLAN 2015-2017

497TH MEETING, NOVEMBER 20, 21, 2014

By Jennifer Coombes

THE PEO Strategic Plan, which sets out the organization's goal areas for the next three years, as well as the underlying strategic objectives, was approved by council at the November meeting.

Council authorized Registrar Gerard McDonald, P.Eng., to embark on a new strategic plan for PEO at its March 2014 meeting and, soon after, meetings were held with PEO senior management to develop the major elements and structure for the plan. Over the course of several months, all levels of PEO staff, volunteers and councillors have had input into the strategic objectives for the plan and the strategies required to implement each objective. Extensive peer review was also undertaken, including consultation with the Ontario Society of Professional Engineers (OSPE), Engineers Canada and the Ontario Association of Certified Engineering Technicians and Technologists.

The goal areas identified in the plan, and the strategic objectives for each, are:

### Practitioners

- Public interest is enhanced through ensuring qualified applicants are licensed to practise professional engineering and that practitioners are competent and ethical;
- Public recognition is increased through ensuring that titles, designations, certificates and marks are issued to qualified applicants and entities; and
- Members regard PEO as their trusted advisor and advocate in matters of professional practice.

### Regulatory framework

- Elliot Lake Commission of Inquiry recommendations are earnestly implemented (see below);
- Regulations, standards and guidelines are produced through an evidence-based, integrated and streamlined policy-making process;
- Licensing is based on levels of competence;
- The complaints process is optimized, balancing transparency, fairness and timeliness;
- The practice and title provisions of the *Professional Engineers Act* are judiciously enforced and continuously improved; and
- Tribunals employ accepted smart practices in all operations and are seen to be independent and fair.

### Stakeholders

- Engage key regulatory ministries and industry in engineering public policy development;
- Other engineering bodies (e.g. OSPE, Ontario Association of Certified Engineering Technicians and Technologists, Consulting Engineers of Ontario, and Ontario universities, among others) are supported within the limits of their respective mandates;
- Productive partnerships are developed with Engineers Canada and other constituent associations; and
- Public respect for the role of PEO is increased in accordance with the objects of the *Professional Engineers Act*.

### Operations

- Electronic communications are engaging, interactive, dynamic and appropriately targeted and integrated;
- Service delivery is improved by clarifying staff and volunteer responsibilities and managing performance;
- Cost management and service delivery are improved by actively managing service provider performance;
- PEO headquarters occupancy rates and building efficiency are optimized; and
- Risk is mitigated by assessing vulnerabilities and addressing service gaps.

### Council, staff and volunteers

- PEO has a sustainable, organization-wide, continuous-improvement culture;
- PEO's governance approach is robust, transparent and trusted;
- Chapters are engaged in the regulatory mandate of PEO;
- Equity and diversity values and principles are integrated into the general policy and business operations;
- Organizational renewal is ensured through succession plans and talent management strategies; and
- PEO is recognized as an employer of choice.

The registrar will provide updates on the plan's progress at the March, June and September council meetings for the duration of the plan period.

### ELLIOT LAKE IMPLEMENTATION PLAN

Council has approved a review of the registrar's implementation plan for the Elliot Lake Commission of Inquiry recommendations requiring PEO action, and directed that the committees identified in the plan give this work their highest priority.

The registrar's implementation plan was developed following the release of the inquiry's final report October 15. In the council discussion, several councillors said they could not support the implementation plan without a full investigation of the PEO policy implications of the inquiry's recommendations. Councillors agreed, however, that the registrar's plan accurately represents the policy intent of the commissioner's recommendations and that the recommendations should be acted upon in a timely but thoughtful manner.

Since the council meeting, the identified committees have been sent the implementation plan and council briefing note and been asked to review the plan, focusing on the expected deliverables from their committee, and to provide a work plan to achieve the deliverables. They have also been asked to indicate whether their committee is proposing any changes to the expected deliverables and how the changes would meet the stated policy direction. If the committees believe PEO should not proceed with implementing any of the recommendations, they are to indicate this, along with their rationale, so council can be advised and provide direction.

Council will be provided the committee feedback at its February 2015 meeting.

The Elliot Lake Commission of Inquiry recommendations that apply to engineers, include:

1. For buildings to which these recommendations apply, PEO should enunciate a performance standard for the prescribed structural inspection.
2. The prescribed structural inspection should be conducted in accordance with the performance standard by a structural engineering specialist who has met PEO's qualifications and requirements to be so certified.
3. After conducting a structural inspection in accordance with PEO's performance standard, the structural engineering specialist should complete a structural adequacy report to determine whether a building meets the minimum structural maintenance standard and, if it does not, to describe what repairs and maintenance are required for the building to meet that standard.
4. Professional engineers and architects should be required, on request, to make available any records in their possession or control related to the structural integrity of a building to:
  - (a) any professional engineer or architect conducting an inspection or assessment on behalf of an owner or with an owner's permission;
  - (b) a prospective purchaser of a building or a professional engineer or architect conducting an inspection or assessment of a building on a prospective purchaser's behalf;
  - (c) a chief building official or an inspector under the *Building Code Act*; and
  - (d) an inspector under the *Occupational Health and Safety Act* in respect of a building that is a place of work to which the act applies.
5. PEO should issue a clear direction to its members that the contents of an engineering report, or draft report, including a structural adequacy report, should not be altered simply because the client requests that it be changed. Rather, any alteration of an engineering report, or draft report, should be based on sound engineering principles or changed facts.
6. PEO should establish a system of mandatory continuing professional education for its members as soon as possible and, in any event, no later than 18 months from the release of the report.

7. Members of PEO should directly and promptly advise clients (past and present) of any suspensions or revocations of their licences, and the reasons therefore, that arise out of disciplinary actions resulting from: errors in design; errors in calculations; failure to properly inspect; failure to report an unsafe condition; failure to comply with the requirements of the structural adequacy report; and any and all matters that had a direct or indirect effect on the structural stability of a building or put the health, safety, and welfare of the public at risk.
8. PEO should provide, for the benefit of the public, the following information on its public website in a format readily and easily searchable by the name of the PEO member: the name of every licensee and holder of a Certificate of Authorization (C of A); the terms, conditions, and limitations attached to the licence or C of A; a note of every revocation, suspension, cancellation, or termination of a licence or C of A; information concerning upcoming Discipline Committee hearings, where a Notice of Hearing has been issued; information concerning any findings of professional misconduct or incompetence, for a period of 10 years from the date of the finding(s), so long as the Discipline Committee had ordered publication with names; and such other information as the Registration Committee or Discipline Committee directs.
9. For the construction of any buildings requiring the services of more than one professional consultant, either a professional engineer or an architect should be designated by the owner or the owner's agent as the prime consultant to perform the roles and responsibilities of that position, as defined by one or the other or both of PEO and the Ontario Association of Architects.

#### PRESIDENT'S RE-ELECTION PERIOD

Council passed an amended motion to clarify the policy intent of a motion passed in September 26, 2013 regarding the minimum period between when a former PEO president leaves council and can seek re-election as president-elect.

PEO's Legislation Committee noted the September motion, which read, "That PEO use its regulation-making powers to amend the regulation to prohibit a president from running again for the same office for four years from the time when his/her term as president expires," was technically incorrect, since a person runs for PEO president-elect, not president. It said that, as written, the motion could be interpreted variously, since the position of PEO president involves three years at the council table: one year as president-elect, one as president and one as past president. The new (clarified) motion prohibits a president from holding office as president-elect for three years from the time his or her term as president expires. In other words, a former PEO president would spend two years away from council, but would be permitted to run for president-elect again in the second year away from council. Σ

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## DESIGNING TO A HIGHER STANDARD

The Intergovernmental Panel on Climate Change has issued a series of reports outlining how global warming will impact society. This has led to much discussion regarding the need for both mitigation and adaptation measures. Converting discussion to action, however, requires leadership, a role that I believe the engineering profession is ethically bound to fill.

The engineering profession is responding to the need for adaptation measures with initiatives such as Engineers Canada's Public Infrastructure Engineering Vulnerability Committee and ICLEI Canada's Building Adaptive and Resilient Communities. From a practising engineer's perspective, designing projects that exceed current regulations is difficult and often meets with resistance from clients due to economic concerns.

The disconnect between current design standards and those required to address climate change is further magnified in the area of mitigation. In order to meet GHG emission targets being set by some governments and municipalities, designs must significantly exceed current standards, often bringing the engineer in conflict with the existing economic-based decision-making process.

Designing to existing standards and meeting current economic measures may meet legal obligations but does it meet our profession's ethical standard? PEO takes the position that "Through the Code of Ethics, professional engineers have a clearly defined duty to society, which is to regard the duty to public welfare as paramount, above their duties to clients or employers." Given the impact of climate change on society, are we not ethically required to ensure our designs address both mitigation and adaptation requirements regardless of the position of our clients and employers?

Rather than waiting for our institutions and regulatory bodies to update their design standards, the engineering profession should lead the way and design solutions to the higher standards we know to be necessary.

George Sweetman, P.Eng., Hamilton, ON

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## QUALITY vs EFFICIENCY

In "Sharpening the PEA" (*Engineering Dimensions*, November/December 2014, p. 71), Michael McCartney says consulting engineering firms shouldn't

be owned by non-engineers, implying this leads to cut-throat competition. I think he's ignoring the elephant in the room. For a firm that provides a design service, there is an intrinsic incompatibility between being a business person (i.e. maximizing profit) and looking after the interests of one's clients (i.e. giving them the best advice). We are, of course, as professional engineers, mandated to perform the latter function. Like Mr. McCartney, I, too, have seen firsthand the results of quality in design sacrificed for profit.

I understand the request for proposals process adopted by many clients has become a farce, because just about everyone now gets 100 per cent for the rather spurious "quality" aspects, bringing the competition down to that of the lowest price for design. It's also often the case that requests for proposals are responded to by over 10 firms, all vying for the same project. The amount of total effort involved in tendering must come





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