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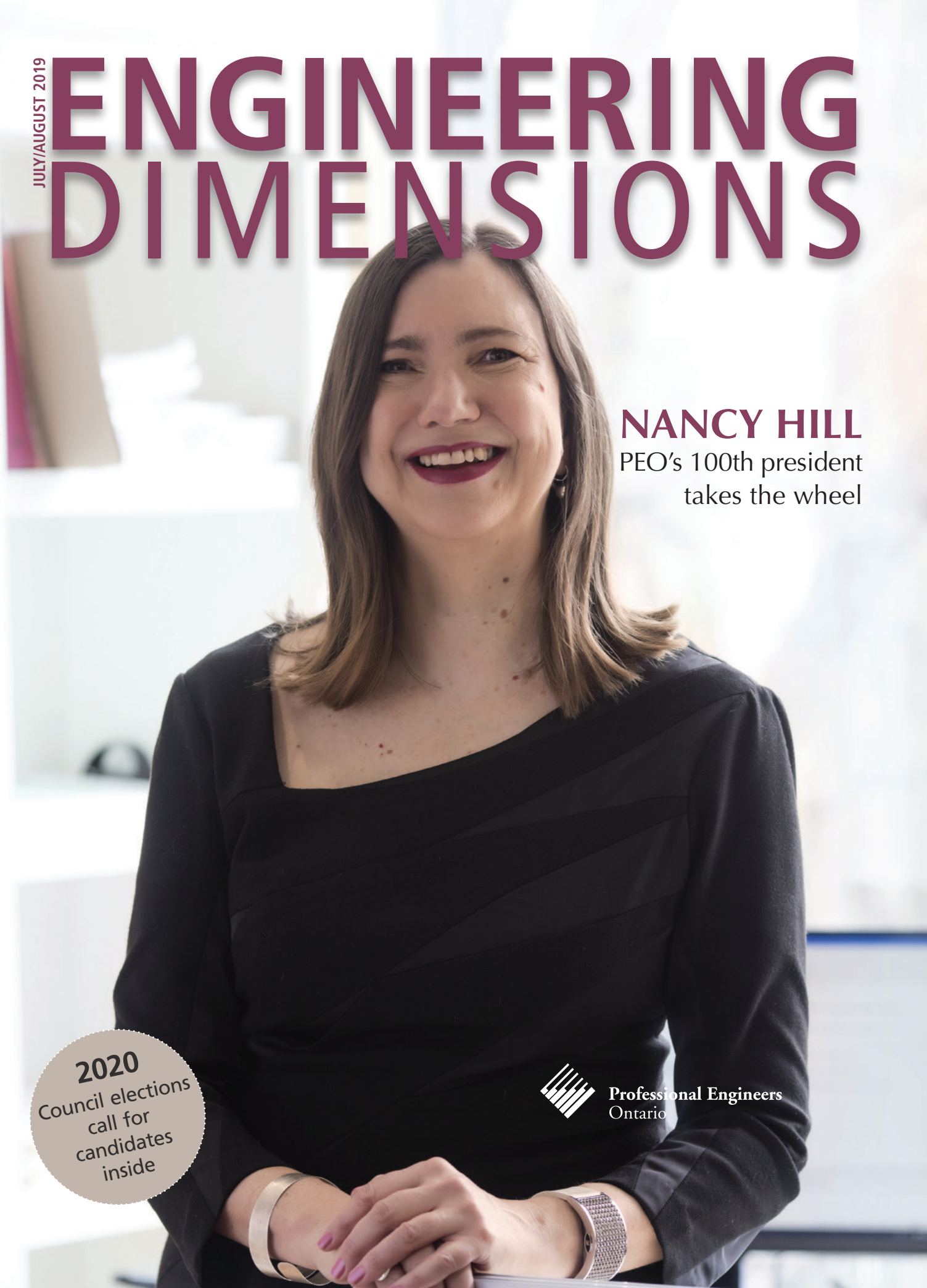

NANCY HILL

PEO's 100th president takes the wheel

2020
Council elections call for candidates inside

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ON THE COVER

Cover: Nancy Hill, P.Eng., LLB, FEC, is PEO's 2019–2020 president.

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GETTING THINGS DONE

By Nicole Axworthy

ENGINEERING DIMENSIONS

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It's clear new PEO President Nancy Hill, P.Eng., LLB, FEC, is not afraid of hard work. A PEO volunteer for more than 25 years, Hill is now putting all her energy and experience to work by leading the organization to which she has already shown tremendous commitment. As you'll read in "Nancy Hill's modernization mission" (p. 38), she's wasting no time in tackling the many projects slated for 2019–2020 while, remarkably, still managing to hold down her business as a patent and trademark agent at her award-winning firm, Hill & Schumacher, in Toronto, Ontario. As Hill mentioned in her first President's Message column ("Facing our biggest challenges," *Engineering Dimensions*, May/June 2019, p. 6), the areas she plans to focus on during her term include licensure—she wants to re-incentivize the benefits of licensure to engineering grads and employers and work to reduce potential barriers applicants may face during the licensing process—and the need for a governance review in light of external pressures and increasing government involvement in other provincial engineering regulators. Hill also stepped into the presidential shoes just as Council received the final report of an external review of PEO's regulatory functions by Harry Cayton, international consultant to United Kingdom–based Professional Standards Authority (see "PEO undergoes external review," *Engineering Dimensions*, January/February 2019, p. 8). In the coming months, it will be up to Hill and the other 24 members of Council to decide how PEO acts on the report's recommendations (p. 60).

Our second feature article in this issue focuses on the theme of illegal practice. Starting on page 43, you will learn how PEO's enforcement team actively investigates and prosecutes the illegal use of terms such as "engineer," "engineering" and "P.Eng.," and how the organization deals with infractions like these. PEO takes seriously the misuse of such terms, along with engineering work performed by unqualified members of the public. After all, part of PEO's job as a regulator of professional engineering is to ensure the people and businesses providing engineering services are accountable to the public. "I hesitate to call it turf protection," PEO Manager of Enforcement Cliff Knox, P.Eng., says (p. 44), but the reality is that if PEO hears of an individual practising without a licence, for example, the enforcement team members are the ones who step in to set things straight.

As we look ahead to PEO's 2020 Council elections in January 2020, everything you need to know to nominate members for next year's Council can be found starting on page 52. Be sure to make note of the important deadlines if you want to get involved.

Finally, I'd like to thank everyone who took the time to respond to our 2020 call for ideas, which was recently sent out via email. Your suggestions and feedback will help us shape *Engineering Dimensions* content in the coming year. **e**

THIS ISSUE We introduce PEO's new president, Nancy Hill, P.Eng., LLB, FEC, who is an engineer, lawyer and registered patent and trademark agent. She is a member of two (and soon to be three) self-regulating professions, and, given her extensive background, it is appropriate that she is PEO's 100th president. In this issue, we also focus on the efforts of PEO's enforcement team, who, with herculean strength, weed out people who attempt to practise engineering or call themselves an "engineer" without a licence.

OUR FIRST STEPS TO REGULATORY RENEWAL AND CHANGE

By Nancy Hill, P.Eng., LLB, FEC, FCAE

"You do not have to be great to start, but you have to start to be great."
—Zig Ziglar

In light of the recent release of PEO's external regulatory review report, I think this quote by the late American author and motivational speaker Zig Ziglar is apt throughout our organization. The review, which assessed PEO's current practices against those of the best regulators, makes 15 recommendations on improving PEO's regulatory performance (see p. 60) and clearly illustrates the need for renewal and change.

I believe undertaking this review was our first step to becoming a great regulator. Conducted by international regulatory expert Harry Cayton, an advisor to the United Kingdom–based Professional Standards Authority (PSA), the review assessed PEO's performance against the standards of good regulation across its core regulatory functions: licensing and registration; complaints, discipline, compliance and enforcement; and professional standards. The review pointed out several areas for improvement, but, in my mind, the most pressing area is licensure. However, we need to move forward with a plan.

LICENSURE

I believe the regulatory function that needs the most urgent attention is our licensing process, and I think many will agree. Although, in my opinion, everyone we are currently licensing is qualified, there are many applicants who have had issues on the path to licensure. I'm also very concerned about applicants we have not licensed and who have been stalled in their quest to become a professional engineer.

These concerns are reflected in the review, which makes the following recommendation around licensure: "The process for application for a professional engineering licence should be simplified and speeded up; the discriminatory aspects of written examinations, a Canadian year of experience and face-to-face interviews should be discarded. Appeals against refusal of licence should be made available on request of the applicant, who should be provided with legal support in the event of an appeal hearing."

Ultimately, in the interests of both the public and the profession, we need to consistently ensure that everyone who is qualified gets a licence and disqualify those who don't make the grade. Although this might seem simplistic, it is the essence of what we need to do as a regulator issuing licences.

And to effectively make course corrections, I believe we should adopt the PSA's principles of right-touch regulation, which means understanding the problem before creating solutions and ensuring the level of regulation is proportionate to the level of risk to the public. Its foundational principles include proportionality, consistency, targeted, transparency, accountability and agility. Right-touch regulation, coupled with good engineering principles, will help us create a licensure system that is flexible enough to encompass all engineering disciplines, including all the new fast-emerging disciplines, alongside new technologies. Indeed, this is the perfect time to renew our licensure processes, building on our past work to create a system that is not overly complex but robust enough to make sure we're protecting the public across all types of engineering, including new and emerging disciplines.

GOVERNANCE

I believe we also need to review PEO's governance. Although governance was not within the scope of the external review, how the regulator oversees itself and sets strategies and priorities also requires thoughtful renewal and change. Strong governance and leadership at the Council level will be key to renewal and fulfilling the recommendations laid out in the external review.

PEO's new Council started the process at its June retreat, where we spent most of our time exploring governance issues, including clarity about the role of PEO vis á vis the public interest; the role of regulators versus associations (protecting the public versus professional advocacy); and the roles of Council, the registrar and staff. And we discussed what kind of Council we want (and need) to be: one focused solely on oversight and advisory roles, setting goals for the organization and overseeing performance. We must avoid acting as an operational or working board and leave operations to the registrar and staff. Clarity is required regarding the role of volunteers, the role of staff and committees' scope; and there likely needs to be a shift in the culture to one more in keeping with the saying "trust, but verify."

To assist with this, at Council's June meeting we decided to engage a governance advisor to assist Council and myself with developing sound governance and leadership practices and ensuring we continue to act in the public interest. Beginning this fall, and continuing through the remainder of the 2019–2020 term, this expert will assist Council by acting as a parliamentarian during meetings in order to ensure rules of order are followed, offer guidance around best governance practices with respect to creation of agendas, help set priorities, ensure an appropriate public interest focus and provide ongoing training and development for councillors and myself. I hope the successful candidate will help guide Council and myself through a productive year full of positive change as we begin work on fulfilling the recommendations of the external review.

I wish everyone an enjoyable and prosperous summer.

2019 AGM FOCUSES ON THE ROLE OF THE REGULATOR

By Adam Sidsworth

Outgoing President David Brown, P.Eng., BDS, C.E.T., FEC, presided over PEO's 97th Annual General Meeting (AGM) on May 4 at the Toronto Hilton Hotel in Toronto, Ontario—his last official act while in office—as he prepared to hand over the presidency to Nancy Hill, P.Eng., LLB, FEC.

Reflecting on his time in office—when he focused on the exponential technological growth that is redefining the engineering profession and what it means to be an engineering regulator—Brown provided sage advice for the 2019–2020 Council: "We need to have the entire board focus on the role of regulation and not as a members' club, which I believe that, over many years, we've devolved to," Brown asserted. "Engineering, as it's defined under our act, is being carried on all around us and will continue to expand, and we are almost powerless to put a rope around it and regulate it. As time [goes on], our ability to control [the emerging spheres of engineering] will be limited, and the fence around our regulatory regime will shrink. If our boss, the attorney general, asks us today if we are regulating engineering, I would have to look her in the eye and tell her we are not. In fact, we are not even close."

During his time on Council, Brown has gained a reputation for his blunt, no-holds-barred speaking style. "To say that this year has been a personal challenge would be an understatement," Brown said. "More often than not, I feel like I have been banging my head against the wall, but to my end, I remain absolutely convinced that PEO must accept the necessary changes to bring the focus back to that of a regulator…I didn't run for this position to pad my resume; I ran for president because I truly believe that we can be a national leader in engineering regulation…we have the capacity to do this within our own ranks."

Despite his warnings, Brown took the opportunity to highlight PEO's biggest accomplishments over the past

Outgoing Past President Bob Dony, PhD, P.Eng., FEC (left), and incoming President Nancy Hill, P.Eng., LLB, FEC (middle), look on while outgoing President David Brown, P.Eng., BDS, C.E.T., FEC, addresses members at the 2019 Annual General Meeting.

year, including the external audit of PEO's performance as a regulator by international consultant Harry Cayton (see p. 60) and the appointment of Johnny Zuccon, P.Eng., FEC, as registrar.

Zuccon took the opportunity to address the AGM's delegates, reporting that in 2018:

- There was a 2.2 per cent growth in overall PEO licences, including an 8 per cent increase in engineering interns (EITs) and 3 per cent increase in consultant licences. However, limited licences did not increase significantly, despite the creation of the licensed engineering technologist class;
- Almost two-thirds of new licences were issued to applicants from Canadian Engineering Accreditation Board–accredited programs, and 18 per cent were issued to women (although overall licensed women remained at 11 per cent);
- The majority of licensed engineers are aged 40 to 65, with only a small number of engineers in their 20s and 30s;
- PEO made headway on its web redesign, Public Information Campaign and 30 by 30 Task Force;
- Council term limits were introduced; and
- PEO began its regulatory review program.

DIGNITARIES AT THE AGM

Delegates were joined at the AGM by dignitaries from PEO's sister engineering regulators in other provinces and related regulators and organizations from within Ontario, including:

- Grant Koropatnick, P.Eng. (Manitoba), FEC, CEO and registrar, Engineers and Geoscientists Manitoba;
- Ann English, P.Eng. (BC), CEO and registrar, Engineers and Geoscientists British Columbia;
- Marisa Sterling, P.Eng., FEC, president and chair, Ontario Professional Engineers Foundation for Education (and new PEO president-elect);
- Sandro Perruzza, CEO, Ontario Society of Professional Engineers (OSPE);
- Jonathan Hack, P.Eng., then-president and -chair, OSPE;
- Jane Welsh, president, Ontario Association of Landscape Architects (OALA);
- Aina Budrevics, executive director, OALA;
- Walter Derhak, senior vice president and treasurer, Ontario Association of Architects;
- Bruce Matthews, P.Eng., CEO, Consulting Engineers of Ontario;
- David Thomson, CEO, Ontario Association of Certified Engineering Technicians and Technologists (OACETT);
- Greg Miller, C.E.T., president, OACETT;
- Santiago Vera, vice president, finance and administration, Engineering Student Societies' Council of Ontario;
- Zen Keizars, P.Geo., president, Association of Professional Geoscientists of Ontario; and
- Annette Bergeron, P.Eng., FEC, then-president, Engineers Canada.

Addressing the delegates, Engineers Canada then-President Bergeron congratulated Brown for his insight and forward thinking during his time as president. "Through the leadership and dedication of your new registrar, Johnny Zuccon, and all of your staff and volunteers, Professional Engineers Ontario continues to play a central role in the well-being of our profession," Bergeron said. OSPE President and Chair Hack invited delegates to OSPE's AGM in Kingston on May 8 as they "introduce a new strategic plan that will engage a diverse engineering community and much younger cohort of engineers."

SUBMISSIONS

Members were afforded the opportunity to submit motions, which are non-binding actions that they would like Council to consider during the upcoming year. As such, Council is not obligated to act upon them. This year's AGM received seven motions. Among them:

- Peter Green, P.Eng., on behalf of Madeline Van der Paelt, EIT, and seconded by Eastern Region Councillor Guy Boone, P.Eng., FEC, submitted a motion asking Council to form a task force and report on barriers in emerging and non-traditional disciplines and develop a sustainable process for EITs and international engineering graduates who are not directly supervised by a licensed engineer to satisfy the one-year of Canadian work experience. Addressing the delegates, Green said that PEO's current solution—which allows an EIT to be supervised by an outside engineer for 30 hours a month—is impractical. "Who's coming in for 30 hours a month? That's a part-time job. Not only that, what company is opening their doors to volunteers?" The motion carried, with 88 per cent of delegates voting in favour;
- Peter DeVita, P.Eng., FEC, also seconded by Boone, submitted a motion asking Council to create a task force to "explore the implications of the accelerating pace of technological change and new scientific discoveries on the regulation, licensing and governing of engineers" and that Council convene a meeting of members to determine a course of action. The motion carried, with delegates voting 88 per cent in favour;
- Peter Cushman, P.Eng., seconded by Roger Jones, P.Eng., FEC, submitted a motion asking Council to consider numerous reforms of the Central Election and Search Committee (CESC), notably that no current member of Council may sit on the CESC. "Our election processes lack security," Cushman asserted. "The CESC needs a practice that allows a nomination process that is more fair." The motion failed to pass, with 61 per cent of delegates voting against it;
- Ray Linseman, P.Eng., seconded by Ahmad Khadra, P.Eng., brought forward a motion asking Council to allow PEO chapters to use and access PEO's webmail accounts. "This motion is to give every chapter an email," Linseman said, "so that we can talk to each other." The motion passed, with 62 per cent of delegates voting in favour;
- PEO Councillor-at-Large Gregory Wowchuk, P.Eng., and seconded by Cushman, introduced a motion to have Council elections revert to a paper-ballot mail-in electoral system. The motion was voted down by 87 per cent of the delegates.

The two motions that received the largest amount of debate were both submitted by Michael Martin, P.Eng., and seconded by Arthur

Sinclair, P.Eng., on behalf of Vanessa Raponi, EIT. Their first motion urged Council to have "EIT," which currently means "engineering intern," revert to its previous meaning, "engineer in training," with Raponi asserting, "I completed 28 months of co-op during my undergraduate degree at McMaster, and to graduate with that level of experience and be told that I would need to be referred to as an intern for three more years…is extremely frustrating and belittling of my credibility." Many delegates noted that neither term is satisfactory, and the motion was defeated, with 56 per cent of delegates rejecting the motion. However, the group's second motion, asking Council to explore allowing EITs to vote in Council elections, passed with 63 per cent voting in favour.

NANCY HILL SWORN IN AS NEW PRESIDENT

Brown's final act as president was to swear in President-elect Hill as PEO president for the 2019–2020 Council year. Addressing the delegation, Hill acknowledged the work of Brown, asserting, "The rate of change with technology is phenomenal, and we need to address that and respond to it. For years the regulators have flown under the radar, but that day is over." Hill vowed to continue Brown's focus on PEO's core mandates of licensing, professional standards and regulatory compliance, stating that with Council's new term limits—introduced with a motion by Hill herself—she has limited time to bring forward effective change. "Eighty-five per cent of the jobs in 2030 have not been created yet," Hill said. "How do we create regulation that can address engineering in 2030? How do we adapt to change, and, also, how do we lead the change?" Hill reiterated that PEO's 2017–2020 Strategic Plan attempts to address this with two objectives—the seamless transition from student member to EIT to member holder and augmenting the licence holder experience—which are steps in the right direction. Hill added that she and the 2019–2020 Council will bring effective leadership. "We're crazy enough to think that we can change our part of the world."

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CBC HOST ADDRESSES DATA BOOM AT AGM LUNCHEON

By Adam Sidsworth

Broadcaster, author and blogger Nora Young challenged engineers to define their moral and ethical responsibilities due to the data boom that engineers are, in part, fueling.

Young, host of CBC Radio's *Spark*, which follows the effects of technology, innovation and design on our rapidly changing world, was the keynote speaker at PEO's 97th Annual General Meeting (AGM) luncheon, held on May 4 in Toronto, Ontario.

Young told AGM delegates that she refers to data's exponential and all-encompassing presence as the sonic boom, a phenomenon beginning largely within our lifetimes. "In our environment, our data is bottom up, highly fluid, often not reliable but quickly refreshed," Young said. "And what goes on with this shift is not just a technical shift but how we find jobs, how we're educated, how we date and how we come together. It's a cultural change as well. And one way to think of this switch is to think of big data."

Young compared our access to data to the original class of the University of Naples, Europe's oldest university, where, because books were labour intensive and made from animal skin, lectures involved teachers reading a book aloud to an entire class. Today, with data so readily accessible to so many, it has become

impersonal. "Here's a real example of big data at work," Young said. "Walmart does 10 million transactions every single day, and they shift through the data to find patterns. It turns out that when there's a hurricane coming, people buy Pop-Tarts. They don't know why people buy Pop-Tarts, they don't need to know why people buy Pop-Tarts, they just move the Pop-Tarts to the front of the aisle. And that's a fair way of thinking about data. But when you abstract huge dimensions of data, you lose the human dimensions, which is to say that all that data is coming from us, from the space around us. We risk losing the human side."

Young noted six emerging trends, including:

- Mapping: "The first is mapping what is going on with your body," Young explained. "This is the democratization of tools that used to belong to elite athletes and people with medical conditions." With the proliferation of smartphones and apps, there is enormous leaking of data and selling and reselling of data, including our medical data.
- Mental health well-being: "We're starting to have ways to measure our health using our phones, giving us access to counselling just by virtue of the phone," Young asserted. "How often are you going out? How often are you texting? It's not what you're texting but that you're talking to other people…Your phone is gathering information to help it work as a phone, but its tracking is being used for another purpose."
- Tracking the visible world: This comes from what we post on social media, from photographs to trip reviews. "People are tagging that data and there is automatic tagging of metadata," Young added. "And as facial recognition takes off, there's going to be a bank of useable data used automatically."
- Mapmaking: "We're going from this top-down approach to where it is cheap or free," Young noted. "Open mapmaking allows people to put themselves on the map, to track where the first aid is, where the beauty store is."
- Opting out: According to Young, we are going from what we choose to share—"This is what I put on Instagram; this is what I'm putting on Facebook"—to "what we're opting out of," Young said. "Think of the narrative clip… It takes a picture every 30 seconds [and] you have to tell it not to take a picture."
- Out of context: "As data capture becomes automatic, we're taking data from one context and putting it into another," Young observed. "Consider the case of the Ohio man charged with insurance fraud [because] his heart pacer didn't match what he said he was doing."

Nora Young, host of CBC Radio's *Spark*, makes a presentation as the luncheon keynote speaker during PEO's annual general meeting.

As society is becoming more reliant on the Internet of Things, data and algorithms are only as good as their design. Consider security breaches, fake news on Facebook or the misinterpretation of data, Young said. "I often hear from *Spark* listeners who ask, 'What do I have to worry about if I'm not doing anything wrong?' But the point is that in this new algorithm world, which is making your decisions on what your credit rating should be, what your mortgage rate should be or if you get offered a job," Young warned, "you don't have to be doing something wrong in order to be singled out, because algorithms look for correlations."

Young concluded by challenging the engineering profession to create solutions to navigate these privacy and ethical concerns arising in the era of the data boom. "We need people who are both technically minded and civic minded," she said. "I'm talking about engineers…There are technical challengers, there are privacy issues to be sure, but I believe that if we get the technology right, we can do great things. We need engineers, we need policy people, we need ethicists to come together."

PEO PRESENTS S.E. WOLFE AND V.G. SMITH AWARDS

At the luncheon, President Nancy Hill, P.Eng., LLB, FEC, took the occasion to present annual awards to two PEO members who accomplished high examination and thesis results in 2018.

The S.E. Wolfe Thesis Award is given to a PEO member who has passed at least one examination and whose thesis earned the highest mark for all those presented for the year. This year, the award was given to Kamlesh Dave, P.Eng., for his 2018 engineering report, *Comparison of Experimental Test and Computational Modelling of High Density Polyrethelene to Set Reliable Input for Future Element Simulation*. He received a mark of 91 per cent. The S.E. Wolfe Award is named in honour of S.E. Wolfe, P.Eng., a past member of the Board of Examiners (now the Academic Requirements Committee).

The V.G. Smith Award is given to a professional engineer licensed during the year through PEO's technical examination program who attained the highest mark in any three technical papers, excluding the Professional Practice and Complementary Studies examinations. This year, the award was given to Li Ju Xue, P.Eng., who successfully completed technical examinations with an average mark of 80 per cent. Her three highest scores were 100 per cent, 94 per cent and 90 per cent. The award is named in honour of V.G. Smith, P.Eng., a past member of the Board of Examiners (now the Academic Requirements Committee).

PEO President Nancy Hill, P.Eng., LLB, FEC, presents this year's S.E. Wolfe Thesis Award to Kamlesh Dave, P.Eng. (top), and the V.G. Smith Award to Li Ju Xue, P.Eng. (bottom).

PEO VOLUNTEERS LEARN ABOUT THE CHANGING ROLE OF LEADERSHIP

By Adam Sidsworth

Left to right: Jeanette Chau, P.Eng., Jeffrey Lee, P.Eng., Paul Ballantyne, P.Eng., FEC, Damien Letendre, P.Eng., and Michael Chan, P.Eng., FEC, participate in a breakout session at the Volunteer Leadership Conference in May.

PEO volunteer leaders, including Council members, chapter leaders and committee chairs, convened on May 3 at the Toronto Hilton Hotel in Toronto, Ontario, for PEO's annual Volunteer Leadership Conference to develop their leadership skills and increase their understanding of ethics, diversity and inclusion in an ever-evolving engineering profession.

Guy Boone, P.Eng., FEC, vice chair of the Volunteer Leadership Conference Planning Committee, opened the conference by explaining the meaning of the event's "Evolving with the times" theme. "Technology is advancing and changing, and so must PEO," Boone said. "We have to evolve to be better leaders…We want PEO volunteer leaders to reach for their full potential, and we want to connect chapters and committees so we all know what's happening."

Then-President David Brown, P.Eng., BDS, C.E.T., FEC, told leaders: "Regardless of how you define leadership, there are a number of key elements that have kept me grounded over my career as I've continued to develop my leaderships skills. You need to be very good communicators, and as

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PEO's 2019 AGM

Darla Campbell, P.Eng. (left), and Jeffrey Lee, P.Eng., represent the Oakville Chapter at the 2019 AGM.

Annette Bergeron, P.Eng., FEC, then-president of Engineers Canada, and former PEO president, addresses members at the 2019 AGM.

PEO Director of Policy and Professional Affairs Bernard Ennis, P.Eng. (left), catches up with Hanan Jibry, P.Eng., assistant registrar, College of Optometrists of Ontario.

Larisse Nana Kouadjo, P.Eng. (left), of PEO's East Toronto Chapter with Gil Galang, P.Eng., of the Kingsway Chapter chat in between sessions at the 2019 AGM.

From left: Ammar Nawaz, P.Eng., West Toronto Chapter vice chair, PEO relations chair and GLP chair; Nadine Rush, C.E.T., PEO lieutenant governor–appointed councillor; Alourdes Sully, P.Eng.; Howard Brown, president of Brown & Cohen Communications & Public Affairs Inc. and PEO's government relations consultant; and Jeffrey Lee, P.Eng., of the Oakville Chapter at the 2019 AGM.

Outgoing President David Brown, P.Eng., BDS, C.E.T., FEC (right), presents outgoing Past President Bob Dony, PhD, P.Eng., FEC, with a gift to mark the end of his time on Council.

From left: PEO Lieutenant Governor–Appointed Councillor Vajahat Banday, P.Eng., FEC, Daryoush Mortazavi, PhD, P.Eng., Peter Cushman, P.Eng., and Denis Carlos, P.Eng., on a break during the 2019 AGM.

PEO East Central Region Councillor Keivan Torabi, PhD, P.Eng. (left), with Lui Tai, P.Eng., chair, PEO York Chapter, at the 2019 AGM.

Incoming President Nancy Hill, P.Eng., LLB, FEC, prepares to announce keynote speaker Nora Young at the AGM luncheon.

Ranjit Gill, P.Eng., of PEO Brampton Chapter (left) chats with Daryoush Mortazavi, PhD, P.Eng., at the 2019 AGM.

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engineers, this is not always our strong suit, and for me specifically, this has been a challenge."

The morning's facilitator was Mark Abbott, P.Eng., executive director of Engineering Change Lab, a collaborative platform that strives to help the engineering community to share perspectives and address challenges in the engineering profession. Addressing technological changes, Abbott acknowledged both pessimistic and optimistic outlooks. "Technology is dehumanizing," he said. "We created these tools that disassociated us from ourselves; it takes us back to Frankenstein's monster and creates something that we can't control…On the optimistic side, some people would bring up that although these changes are bringing up some risks, they're also bringing up solutions we didn't have before… technology is being used to enhance society."

Abbott acknowledged that fast-paced technological solutions are blurring the boundaries of self-regulation. He noted that when he was in California recently, he learned that people receive an engineering education coupled with six weeks of computer coding camp but no engineering licence. "You don't learn ethics; you don't get society values," Abbott observed. "Some of the people developing technology today aren't at the realm of engineering but should be so they can tap into ethics."

GETTING ENGAGED

In a series of breakout sessions, volunteer leaders engaged in discussions about the changing role of engineering leadership. Abbott challenged volunteer leaders to think of PEO's future role. "If you look at the mission value of PEO—to regulate engineering practice to protect the public interest—there's something obvious bubbling up in the conversations [that will] have a huge impact."

Then-President-elect Nancy Hill, P.Eng., LLB, FEC, reminded volunteer leaders that PEO is more than halfway through its 2017–2020 Strategic Plan. "This is a good opportunity to look at it and say, 'What are we doing?' It helps us to provide an opportunity to identify problems and look for solutions," she said. "People will say, 'You should do this.' And I say, 'Well, maybe I should.' But it's more about 'we.' It's we who should do this." Hill indicated that, for her, the three most important principles that form the strategic plan are advancing the licence holder's experience, enhancing the corporate culture and creating a seamless experience from engineering intern to licence holder. But importantly, Hill said, "We have to fix this problem of having a homogeneous group of people bringing their blind spots to the table."

Hill introduced Helen Wojcinski, P.Eng., FEC, chair of PEO's 30 by 30 Task Force, which is leading PEO toward meeting the Engineers Canada goal of having women compose 30 per cent of newly licensed engineers by 2030 (see "30 by 30 Task Force works toward gender parity in engineering," *Engineering Dimensions*, March/April 2019, p. 27). "If female students are not in Grade 11 physics today, they won't be licensed by 2030," Wojcinski said. "What can PEO do internally? Are women being encouraged to sit on committees and chapters? And the Canadian Engineering Accreditation Board I served on? Now we will have two women presidents in a row."

INCORPORATING EQUITY

The remainder of the day was facilitated by Emily Moore, PhD, P.Eng., director of the University of Toronto's Troost Institute for Leadership Education in Engineering. Continuing on Wojcinski's sentiments, Moore noted: "In your organization, if 50 per cent of your employees are women but all the managers are men, have you accomplished your goal? Inclusion is about making a welcoming culture in which people feel they belong, and that ties back to the idea of equity. Diversity is who's invited to the party; equity is who's asked to dance." To illustrate, Moore illustrated four key equity concepts:

- Dripping tap: "Most workplaces aren't horrible places of blatant sexism," Moore said. Instead little acts of exclusion add up;
- Invisibility paradox: Women are always "women engineers," never engineers. Likewise, men are always engineers but never dads;
- Invisible backpack: "I'm Canadian born and English is my first language," Moore said, listing tools she used to move ahead; and
- Hegemonic masculinity: Moore used the example of male undergraduate engineering culture that can promote heavy drinking.

Despite engineering's reputation for being an invisible profession, Moore's research discovered three leadership styles typical of engineers:

- Technological master—typical of engineers with deep technical knowledge;
- Collaborative optimization—typical of great project managers who pull people together; and
- Organization innovation—organizers with vision.

During the last portion of the day, volunteer leaders were able to practise their new knowledge in three workshops about tough conversations, accountability in volunteers and building high-performance teams.

2019 ORDER OF HONOUR RECIPIENTS CELEBRATED AT GALA

By Duff McCutcheon

Thirteen exceptional engineers and PEO licence holders were invested into PEO's Order of Honour on May 3 during the regulator's annual general meeting weekend in Toronto, Ontario. The inductees were recognized by PEO and their peers for their long-time volunteer efforts at both the chapter and provincial levels and their contributions to the engineering profession.

David Robinson, P.Eng., FEC, was inducted as a Companion of the Order. Peter John Broad, P.Eng., FEC, John Douglas Glover, P.Eng., FEC, Gordon Ip, P.Eng., FEC, William (Bill) Elliot Jackson, P.Eng., FEC, Roger Jones, P.Eng., FEC, and Donald (Don) Lewis Marston, P.Eng., JD, FEC, were invested as Officers. Another six recipients—Joseph Lawrence Adams, P.Eng., FEC, Narayana Pillai Asogan, P.Eng., FEC, Rabiz N. Foda, P.Eng., FEC, Wayne Peter Kershaw, P.Eng., FEC, Sardar Asif Khan, P.Eng., FEC, and Luc Roberge, P.Eng., FEC—were inducted as Members.

The evening was attended by several special guests, including Annette Bergeron, P.Eng., FEC, then-president, Engineers Canada; Sandro Perruzza, CEO, and Jonathan Hack, then-president and -chair, Ontario Society of Professional Engineers; Grant Koropatnick, P.Eng. (Manitoba), CEO and registrar, Engineers Geoscientists Manitoba; Ann English, P.Eng. (BC), CEO and registrar, Engineers and Geoscientists BC; Santiago Vera, vice president, Engineering Student Societies' Council of Ontario; Jane Welsh, president, and Aina Budrevics, executive director, Ontario Association of Landscape Architects; David Sin, vice president, Ontario Association of Architects; Marisa Sterling, P.Eng., FEC, president and chair, Ontario Professional Engineers Foundation for Education (and new PEO president-elect); Bruce Matthews, P.Eng., CEO, Consulting Engineers of Ontario; Dan Cozzi, executive director, and Steve Lund, president, Municipal Engineers Association; Al Jeraj, president, Association of Ontario Land Surveyors; Gregory Miller, C.E.T., president, Ontario Association of Certified Engineering Technicians and Technologists; and Colin Harker and Max Stiles of Order of Honour gala sponsor TD Insurance.

PEO honoured newly inducted Order of Honour recipients (top row, left to right) Rabiz N. Foda, P.Eng., FEC, Peter John Broad, P.Eng., FEC, Gordon Ip, P.Eng., FEC, Donald (Don) Lewis Marston, P.Eng., JD, FEC, Luc Roberge, P.Eng., FEC, David Robinson, P.Eng., FEC; and (bottom right, left to right) John Douglas Glover, P.Eng., FEC, Roger Jones, P.Eng., FEC, Wayne Peter Kershaw, P.Eng., FEC, Sardar Asif Khan, P.Eng., FEC, Joseph Lawrence Adams, P.Eng., FEC, and Narayana Pillai Asogan, P.Eng., FEC. Missing from photo is William (Bill) Elliot Jackson, P.Eng., FEC.

John Severino, P.Eng., chair of PEO's Awards Committee and himself a Member of the Order of Honour, was emcee for the awards presentations. "Tonight, we celebrate those who, through their voluntary service to Professional Engineers Ontario, have helped shape the association and the engineering profession," he said during his welcome speech. "As we pay tribute to this year's 13 honourees, we recognize those whose selfless work has helped to strengthen our self-regulated profession. Through their diligent efforts, tonight's inductees have made a significant impact on engineering in their own communities, throughout our province and across the country. It is this professional attitude and service to the profession that distinguishes each of those we invest into the Professional Engineers Ontario Order of Honour."

Following are selections from the award recipients' acceptance speeches.

"All awardees tonight deserve recognition for their contribution. I am humbled to be their Companion in the Order.

Discipline was severed from conventional licensing processes over 10 years ago. Staff support was instrumental. The new process allowed the [Discipline Committee] chair to

manage and call the shots, and members of the committee to adjudicate. Adjudication is a learned skill for all involved. Many committed members and learned judges will assist. Four of the five-member discipline panels are your peers. How many can recite the 14 principles that constitute misconduct?

This is 2019. You are aware there is a distinction between judiciary and governance responsibilities. Discipline may be the 'canary in the cage' when it comes to public confidence. Your 'complaints' and 'discipline' processes are the foundations for self-governance.

Thank you to the nominators and all who mentored and supported my journey."
David Robinson, P.Eng., FEC (Companion)

"I have a few words for those who nominated me, perhaps we can meet outside later? I'm still not sure I deserve to be here.

Seriously though, I do want to thank everyone, especially PEO staff, for their efforts behind the scenes; and to my wife, who cannot be here tonight, for allowing me the time to donate time to PEO.

The PEO forum has often been a lifeline for immigrants seeking advice on practising in Ontario, and I am pleased to know I have encouraged several through that facility. Abe Lincoln once said, 'Without enforcement even the best laws would only be good advice.' So it is especially gratifying to see so many recent members of the Enforcement Committee recognized here tonight, even though we are not a statutory committee—perhaps that might change."
Peter John Broad, P.Eng., FEC (Officer)

"I thank my spouse, Christel Glover, whose patient support over these many years has enabled my activity in the East Toronto Chapter. I thank my nominators, former chapter chair Nick Gurevich, P.Eng., current chapter Chair Arthur Sinclair, P.Eng., and current executive member Ron Clarkin, P.Eng., the three of whom kindly proposed my nomination as Officer of the Order of Honour. I thank Don Gratton, P.Eng., chapter chair about 30 years ago, who observed my attendance at several chapter events and took the initiative of inviting me to attend a board meeting and, if interested, to join the board. This invitation led to my involvement at various positions on the ETC board and to my role in supporting various PEO activities. My final thanks to Sharon Gillam, chapter coordinator, whose knowledge and patience have guided hundreds of chapter volunteers to grow into their roles over many years. Thank you, Sharon, for your hard work.

The PEO chapter system is one of the few organizations in our society where, for Ontario professional engineers and EITs, membership is compulsory, but participation is voluntary. Our challenges as chapter leaders are to undertake programs which will encourage our members to join in, and to prepare the next leaders to continue this task."
John Douglas Glover, P.Eng., FEC (Officer)

"I'm often asked why I volunteer and, secondly, why I'm still actively doing this despite being in my 22nd year of volunteering for PEO. Here are three reasons:

1. It is a win-win scenario for you as a volunteer and the engineering community around you. I can still remember my own certificate ceremony that I hosted at my first PEO event. Today, I continue to use those leadership and communications skills throughout my career.

2. It is an excellent opportunity to network and exchange ideas with your fellow engineers. It was actually at this first certificate ceremony that I met Matthew, my recipient table host here tonight. It essentially provided me the opportunity to be connected with Matthew—now my friend and colleague—and his network of engineers, and that eventually brought me to York Chapter.

3. It is an opportunity to put your ideas into advancing your area of practice. My experience of volunteering for PEO has given me the knowledge to help contribute via the Experience Requirements and Enforcement committees and to work with the excellent volunteers (some of whom are also recipients tonight) to evolving the regulatory practice specifically in my field of software engineering, which was just emerging 22 years ago, but transforming every industry today."
Gordon Ip, P.Eng., FEC (Officer)

[William (Bill) Elliot Jackson, P.Eng., FEC, did not attend the ceremony and therefore did not make an acceptance speech.]

"I'd like to say a few words about volunteering. To me, volunteering is quite important. For me, it's a way to give back to the profession that has served me well, provided a great career and provided tremendous interest to my technical interests. As a systems engineer, I've worked at the leading edge of a number of technologies. It was really satisfying to complete many decades in the profession. It's been extremely rewarding and being a volunteer has allowed me to give something back to the profession.

As you heard, I've been involved in emerging disciplines. The emerging technologies are growing exponentially in our society. And when we're talking about technology, we're invariably talking about engineering, so it behooves us as engineers through our organizations like PEO, Engineers Canada and others to find a way to embrace those technologies and regulate them in the public interest. Should that be invoked as a serious full-time continuing program at PEO, then I can state here categorically that I will be available to volunteer for that."
Roger Jones, P.Eng., FEC (Officer)

"In my 37 years as the examiner in law, I have worked very closely with PEO staff in setting and processing exams. I would be remiss in not mentioning how impressed I am by the commitment of Anna Carinci Lio, PEO's exams supervisor, and her staff, who do such a marvelous job. I'm always thankful Carson Morrison contacted me those 40 years ago and asked me to get involved in the law portion of the exam. I was so happy to

get involved with that because it has given me many decades of enjoyment and I continue to enjoy it.

I feel privileged that the various aspects of my participation over the years has given me an opportunity to glean special insights into the important work of PEO. In addition to the [Professional Practice Exam] program, I also served on the Ethics Committee with Roydon Fraser and it was a great pleasure working with him. My longest tenure has been with the Enforcement Committee, which has been ably chaired by my friend Roger Barker. I thank him for sponsoring me for this award."

Donald (Don) Lewis Marston, P.Eng., JD, FEC (Officer)

"I look at all the efforts that other people do, and I was very surprised that I was given this award. I want to thank the people who nominated me. I appreciate the effort they put in. I've been involved in other nominations and I know it's not easy and it takes time and effort. The other people I would like to thank are the engineers of the London Chapter, the head office and the other engineers I've work with throughout my career. It's always been a pleasure working in engineering. I've enjoyed it and I look forward to more years working with engineers and particularly young engineers, trying to mentor them as they move forward to advance their careers. I'd also like to thank my company and partners for the support they have given me all these years. When I haven't been there to finish something at the last minute, one of them would step forward to help me out. It's been very rewarding to know they support all my efforts. Finally, I'd like to thank my wife, Jackie, and my family for what they've done."

Joseph Lawrence Adams, P.Eng., FEC (Member)

"It is a great honour to stand here and receive this medallion for the volunteer service rendered to the engineering community. My heartfelt thanks to my nominators: Jega Jeganathan, Yogaranee Mahalingam, Changiz Sadr, Syed Raza, Lin (Victor) Lan and others who supported the nomination. Passion for engineering is something in my family, I would say. My brother, who also supported the nomination to honour me, is an engineer and volunteer with PEO, and he was my inspirational role model for my taking up engineering as a career and volunteering with PEO.

I chose to volunteer my time with PEO to promote engineering among young school children, and to be decision makers, as engineering is very essential for the human race for their well-being and advancement. Volunteering is an activity to be supported and expanded by inviting and attracting more to expand and educate our community as to what engineering means to the community."

Narayana Pillai Asogan, P.Eng., FEC (Member)

"I want to thank all the nominators who have brought me here today and Professional Engineers Ontario for this unique recognition. It has always been a great pleasure and a very rewarding experience all along for the close engage-

ment with PEO's activities. Furthermore, a very big thank you to PEO for creating the environment, providing encouragement and adding value in many ways to the small contributions of each one of the volunteer members.

I want to thank my family and my wife, Nermin, for her graceful presence here today, the strong support and often the 'leave of absence' that I took from family matters in fulfillment of professional interests.

I am reminded of the words of His Excellency, David Johnston, [former] Governor General of Canada, in his address to the alumni of the Indian Institutes of Technology at the PAN IIT conference here in Toronto in 2014, and I quote: "As stewards, it is your responsibility to improve your institution, and to give back. To make it better for the students who will follow you. Your community has supported you. Taxpayers have shown their confidence in you by making a major investment in your future."

And, this is all in my art of paying it forward and giving back to our community, our chosen profession and Canada, our home."
Rabiz N. Foda, P.Eng., FEC (Member)

"This really is a thrill to be receiving this great honour today. There are far too many people I would like to name and thank in a two-minute speech, but I'd like to thank Stan Matthew of Niagara Chapter; Matthew Ng, who has been a confidante and advisor over the years; and Howard Brown, for his encouragement and infectious enthusiasm, which has been an inspiration for me. I'd also like to thank the executive of the Hamilton-Burlington Chapter and Niagara Chapter, and the terrific staff of the chapter office, for none of the accomplishments that we've done over the years could have been done without your assistance. I'd also like to thank my family for their support and especially for their patience and understanding during my time away attending meetings, especially my wife, who first encouraged me to get involved.

My volunteering started out with the Halton Engineering Challenge. I remember one particular child who told me he was not good enough at school to become an engineer. I remember the look on his face when he realized that he could actually do it in a practical sense. It reminds me that although one person can't change the world, a generous act can change the world for one person."
Wayne Peter Kershaw, P.Eng., FEC (Member)

"The role of an engineer has been significantly important in transforming society, in ways both large and small. The profound statement, 'Engineers shape the world that everybody else lives in,' is not an exaggeration. We, as engineers, thoroughly enjoy the honor of affecting and improving so many lives around us. With such vast reach comes a great responsibility as well; a responsibility of leadership and to perform tasks to the absolute best of our capabilities. I'm sure we are all aware of the challenges lying ahead of us, and what we need to exhibit is the true traits of leadership; leadership that embodies honesty, dignity, integrity, respect for oneself and other's decency, forward looking, responsibility and service. In my opinion, the key is service. If one truly desires to be a great leader, they must desire to serve others in the first place as leaders lead by serving. Some of these traits were taught to me by my deceased father, who, being an educationist, was not only blessed to have the power to serve but was also blessed to be in a position to make decisions for the good of humanity. He touched the hearts of thousands in his life and left a large legacy for me to carry on from. I am very proud of him.

To conclude, I am truly humbled and honored to be invested into the Order of Honor this year. Thank you so much from the bottom of my heart for this fabulous privilege."
Sardar Asif Khan, P.Eng., FEC (Member)

"To be inducted into the Order of Honour is a very humbling experience. I would like to acknowledge my friends at the North Bay Chapter who nominated me for this award. Also, I would like to thank the Awards Committee for accepting me. I really appreciate the opportunity PEO gives member volunteers, a key part of governing and shaping our profession. It's a privilege, not a right, but it's something we are lucky to have in our profession. We must act in such a way to make the profession the way we want it to be, and to be proud to belong to it now and in the future. Volunteering at PEO inspired me to get involved to build my skills and make some great friends. Along the way it provided the opportunity to learn from others and to take on leadership opportunities, like being able to speak in English at the podium. I have faced many challenges but I was able to turn that into an opportunity to be who I am today. Thanks to my mom and dad, who taught us kids that there are more rewards in giving than receiving."
Luc Roberge, P.Eng., FEC (Member)

2019 STERLING AWARD RECIPIENT IS KAELA SHEA

Kaela Shea, EIT, the recipient of the 2019 G. Gordon M. Sterling Engineering Intern Award, gives an acceptance speech at the Order of Honour Awards gala in May.

This year's G. Gordon M. Sterling Engineering Intern Award recipient, Kaela Shea, EIT, was honoured for her leadership during PEO's Order of Honour Awards gala on May 3 as part of the association's annual general meeting weekend in Toronto, ON. Currently a PhD candidate at the University of Toronto's Institute of Biomaterials and Biomedical Engineering, Shea is researching rehabilitation solutions to help overcome communication and physical challenges faced by children with disabilities. Shea is known for her strong leadership and aptitude for assimilating knowledge across multiple disciplines—including engineering, kinesiology and neuroscience.

As an undergrad in the University of Guelph's engineering program, Shea co-founded the first Canadian chapter of Engineering World Health—an organization committed to inspiring the biomedical engineering community to improve healthcare in the developing world. And as a PEO volunteer, Shea is an engineer-in-residence at Toronto's Queen Victoria Public School where she engages with students about engineering.

Now in its 10th year, the award recognizes engineering interns participating in PEO's Engineering Intern Program and is designed to help develop the future leaders of our profession. Those chosen for the award have demonstrated a commitment to their chosen profession, an interest in assuming leadership responsibilities within it, and a readiness to benefit from a leadership development experience.

RADIOHEAD CORONER'S INQUEST ISSUES RECOMMENDATIONS

By Adam Sidsworth

An image of the temporary stage at Downsview Park in Toronto, Ontario, after it collapsed on June 16, 2012 Photo: Canadian Press

The coroner's inquest into the June 16, 2012, death of Radiohead drum technician Scott Johnson, who died as a result of a temporary stage collapse just hours before a scheduled concert at Downsview Park in Toronto, Ontario, concluded on April 10, after 12 days of testimony with 28 recommendations, many of which were aimed at PEO.

The coroner's inquest began 18 months after charges laid under the *Occupational Health and Safety Act* against then-engineer Domenic Cugliari, concert promoter Live Nation and contractor Optex Staging were stayed by the judge, who cited the defendants' right to a timely trial. PEO is continuing its investigation into Cugliari, who has resigned his PEO licence. The 28 recommendations can be found at www.mcscs.jus.gov.on.ca/english/Deathinvestigations/Inquests/VerdictsandrecommendationsOCCInquestJohnson2019.html.

Among those aimed at PEO are:

- Ensuring that PEO's guidelines make explicitly clear, among other things, that drawings should be clear and consistent, that they explain key elements in plain language, that they include a disclaimer that they cannot be relied upon unless they are signed and sealed, that they should include build details, that engineers should meet with those responsible for construction to ensure a thorough understanding of the drawings and that all critical components of the structure must be subjected to a "rational sampling" process;
- Requiring that all engineers annually declare the engineering areas in which they work;
- Mandatory continuing professional development;
- Developing specialized criteria for engineers working in demountable event structures; and
- Making clear that the engineer sealing the design of a demountable event structure is presumed to be responsible for the entire structure unless otherwise stated on the drawing.

Bernard Ennis, P.Eng., director, policy and professional affairs at PEO, is drafting a plan to implement the recommendations from the coroner's inquest, as it is anticipated that the Office of the Chief

Coroner will ask to see a plan in six months. Ennis submitted the report to Council at its June meeting.

As previously reported in *Engineering Dimensions* (see "PEO attends pre-inquest meeting for Radiohead coroner's inquest," March/April 2019, p. 11), PEO asked for standing at the inquest in its role as the provincial engineering regulator. Ennis gave testimony on the second and third days of the coroner's inquest to explain PEO's mandate, along with PEO guidelines, as opposed to legislated standards. He also discussed guidelines relating to the engineer's seal, professional practice and general review of construction. He later appeared on a panel that responded to the coroner's inquest's proposed recommendations. Also representing PEO at the coroner's inquest were Leah Price, counsel, regulatory compliance, and Nick Hambleton, associate counsel. On April 15, Linda Latham, P.Eng., deputy registrar, regulatory compliance, and Cliff Knox, P.Eng., manager, enforcement, met with senior Ministry of Labour engineers, with the ministry expressing its support for many of the recommendations, notably a recommendation to form a cross-industry and regulatory body working group.

The inquest heard from more than 17 witnesses. Among other things, the witnesses testified about the use of components of the stage over a period of years and what had not been done in connection with the review of the design and construction of the structures. For example,

- Cugliari stated that he had confidence in Optex's construction, as a result of years-long dealings;
- He also testified that Optex had been given electronic access to drawings containing his engineering title block;
- Cugliari agreed that some of his drawings lacked details;
- Experts testified that the origin of the collapse was at the pick-up truss that was used and that the pick-up truss that was used was not the one shown in the drawings;
- Dale Martin, the owner of Optex Staging, which constructed the stage, testified that Optex had never had the pick-up truss shown in the drawings;
- Optex Staging assembled, used and dismantled the stage for 19 consecutive years at Molson Park in Barrie, ON, and over 30 more times at venues across Ontario and Quebec; and
- No building permits were issued for the stage, as Downsview Park, which is owned by the federal government, is exempt from the Ontario Building Code.

One of the recommendations from the coroner's inquest urges the province to negotiate with the federal government to require building permits on all federally owned land. However, any recommendations from a coroner's inquest are non-binding and subject to voluntary implementation.

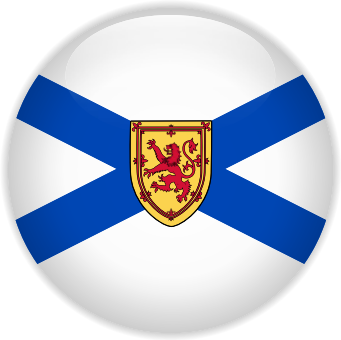
BITS & PIECES

The Oxford County Court House in Woodstock, ON, completed in 1892, is an example of Victorian architecture built in the Richardsonian Romanesque style. It was a court house and still functions as one, as well as housing the administrative offices for the County of Oxford. The building is made from red sandstone and features red marble pillars.

Old City Hall in Toronto, ON, is a civic building and court house. It was one of the largest buildings in the city—and the largest civic building in North America—upon its completion in 1899. The prominent city landmark, with its distinctive clock tower, was designated a National Historic Site in 1984. Credit: Wladyslaw Sojka

30 BY 30 TASK FORCE ENGAGES ENGINEERING EMPLOYERS

PEO President Nancy Hill, P.Eng., LLB, FEC, founding partner of patent and trademark firm Hill & Schumacher in Toronto, Ontario, speaks at an employer awareness session held recently by PEO's 30 by 30 Task Force. The task force was put in place to help realize the mission of Engineers Canada's 30 by 30 initiative, which seeks to raise the percentage of newly licensed engineers in Canada that are women to 30 per cent by 2030. The awareness session engaged prominent Ontario business leaders and encouraged them to share information and get on board with the initiative.



ENGINEERS NOVA SCOTIA AMENDS ONE-YEAR CANADIAN EXPERIENCE REQUIREMENT

By Adam Sidsworth

In a move to help internationally trained applicants obtain their Nova Scotia engineering licence, Engineers Nova Scotia (ENS) will waive its required 12 months of Canadian engineering experience for those who participate in Immigrant Services Association of Nova Scotia's 18-week Orientation and Communication Skills for Engineers (OCSE) program and have amassed engineering experience largely outside of Canada.

"Engineers Nova Scotia has been concerned for many years with the difficulties that some of our applicants have in meeting the Canadian experience requirement," ENS Chief Executive Officer and Registrar Len White, P.Eng. (Nova Scotia), FEC, told *Engineering Dimensions*. "However, there are a number of study programs that can assist engineering applicants who received most of their training and experience outside of Canada. Our association feels that some of these programs meet most or all of the goals of the Canadian experience requirement. Our recent announcement removes a significant barrier for many internationally educated applicants."

White notes that although those internationally trained applicants who have successfully completed the 180 hours of formal instruction in the OCSE program will be waived from completing the required 12 months of Canadian engineering experience, they still have to pass the Professional Practice Exam, accumulate 48 months of professional engineering experience either in Canada or abroad, and have their education and professional experience examined by ENS's Board of Examiners.

The OCSE program is a communications course for internationally trained applicants who aspire to work and become licensed to practice engineering in Nova Scotia. They participate in six three-week modules that increase their communication skills and guide them towards licensure. Completion of the program is applied in lieu of the 12 months of Canadian engineering experience required for licensure in Nova Scotia. Additionally, ENS also accepts the completion of the Working in Canada seminar offered by Engineers and Geoscientists BC in lieu of the Canadian experience requirement. White notes that other provincial regulators have their own bridging programs—including PEO's Internationally Educated Engineers Qualification Bridging Program offered at Ryerson University—and ENS's Board of Examiners would consider graduates of those programs on a case-by-case basis.

Most provincial engineering regulators require a minimum of 12 months of Canadian experience prior to licensure, and White notes that although Engineers Canada and the Canadian Engineering Qualifications Board issued guidelines justifying the 12-month Canadian experience, they are general. "They want people to learn our codes and culture," White says. "But we said, 'What if they're working for a Canadian company in Italy? You're probably learning a lot.' And codes don't change a lot [around the world]."

ENS's decision is timely for PEO, given that former Ontario Fairness Commissioner Grant Jameson questioned PEO's required 12 months of Canadian engineering experience (see "PEO responds to the fairness commissioner on mandatory Canadian experience," *Engineering Dimensions*, November/December 2018, p. 11). Jameson noted that PEO was not living up to its obligations to the *Fair Access to Regulated Professions and Compulsory Trades Act*. However, in an August 2, 2018, letter to Jameson, Registrar Johnny Zuccon, P.Eng., FEC, noted that all engineers, regardless of country of origin or education, must have a minimum 12 months of Canadian work experience in order to obtain their licence because, as Zuccon noted, "applicants must demonstrate their professionalism and competency under the supervision of an experienced licensed engineer, providing assurance that they meet PEO's high standards." Zuccon also added that PEO developed its provisional licence in 2003 specifically "to assist applicants who meet all licensing requirements except the Canadian experience to find engineering employment."

As previously noted in *Engineering Dimensions* (see "Institute for Canadian Citizenship releases report on barriers faced by international engineering graduates," November/December 2018, p. 7), internationally trained engineers face higher unemployment rates, persistent wage gaps and face systematic barriers, leading to a mere 15 per cent of them obtaining full licensure.

For White, the barriers are of no surprise: "In many jurisdictions, the 12-month Canadian experience requirement has been questioned, and in many ways, it has never been adequately explained," White says. "My impression is that other jurisdictions would like [to get rid of the Canadian experience requirement], but they have to get their acts changed. Or they may have councils who aren't supportive. My hope is that the recent changes in Nova Scotia will expand the conversation and hopefully lead to a broader change across Canada. We have not only an excellent relationship with the other provincial and territorial regulators but also full mobility within Canada. ENS is focused on ensuring that mobility is real. To achieve this, mobility needs to be easy, timely and relatively inexpensive."

ENGINEERS CANADA ISSUES PRINCIPLES REGARDING ENGINEERING TECHNOLOGY PRACTICE RIGHTS

By Adam Sidsworth

Engineers Canada released four principles earlier this year regarding the granting of independent practice rights for engineering technologists.

The principles, according to Engineers Canada, "represent a national consensus on a guiding framework by which practice rights could be granted to technologists. They are not specific to any one act but rather provide clarity on how to regulate in the public interest and represent the collective view of Canada's engineering regulators on how such a regulatory regime should be established."

The four principles entail:

- Any work that falls within the definition of engineering should be regulated by one government-designated regulator with a focus on protecting the public interest;
- Only people with the necessary academic and professional engineering experience and who meet the licensing requirements can practice engineering, either through a full or limited scope of practice;
- Defined scopes of practice, as defined by limited licences, must be prepared by engineering regulators, be understandable and be enforceable; and
- When a practitioner's engineering practice overlaps with another regulated practice (such as architecture or forestry), both respective regulators should work together to protect the public interest.

Engineers Canada also recognizes that:

- Engineers' academic and experience requirements are different and more extensive than those for engineering technologists;
- Engineers' training and education prepare engineers for work that engineering technologists may not necessarily be qualified to do; and
- The use of a minimum number of professional regulators to regulate professional activities reduces confusion.

Technology Professionals Canada (TPC), an umbrella organization representing engineering technicians and technologists regulators in British Columbia, Alberta, Saskatchewan and Ontario, released a response to Engineers Canada's principles. TPC urged provincial governments to pass legislation allowing engineering technologists to be exempt from the scopes of practice of professional engineering within a defined scope of practice for technologists. According Barry Cavanaugh, chief executive officer and general counsel for the Association of Science and Engineering Technology Professionals of Alberta (ASET), TPC has concerns regarding the joint recommendations sent by ASET and the Association of Professional Engineers and Geoscientists of Alberta (APEGA) to Alberta's then-Minister of Labour Christina Gray to update Alberta's *Engineering and Geoscience Professions Act* (see p. 24). Although both regulators agree on many of the recommendations, APEGA and ASET disagree on the proposed definition of the practice of certified engineering technologists (C.E.T.s) and increased practice rights for Alberta's C.E.T.s and professional technologists (P.Tech.s). The P.Tech. designation—unique to Alberta since 2009—allows P.Tech.s to practise engineering within the limited scope of practice, which is the application of certain codes and standards. ASET proposes sole administration of the P.Tech., which currently has half its board appointed by APEGA. However, ASET proposes that half the board be professional engineers. APEGA, on the other hand, asserts that it must be involved in the joint regulation of P.Tech.s., as they are licensed to practise either engineering or geoscience, both of which are regulated by APEGA.

Cavanaugh declined to make a statement to *Engineering Dimensions*, citing ongoing discussions between the association and the Alberta government. However, Dianne Johnstone, APEGA's director of legislative review and government relations, told *Engineering Dimensions* that Alberta's C.E.T.s and P.Tech.s "already have the ability to apply for an expanded scope" through APEGA's professional licence. To qualify for a professional licence, an applicant must have:

- at least two years of post-secondary education in engineering or geoscience;
- six years of work experience, of which two years must be related to the applicant's defined scope of practice and under the supervision of a Canadian P.Eng. or P.Geo; and
- a minimum one year of Canadian work experience.

APEGA's professional licence is similar to PEO's limited engineering technologist (LET), approved by the Government of Ontario in 2015 (see "Licensing, certificate of authorization changes strengthen regulation of professional engineering," *Engineering Dimensions*, January/February 2016, p. 34). The LET allows those with technical degrees and diplomas to apply for a limited licence, provided they have the appropriate depth of knowledge within their defined scope of practice. Developed following a decade of collaboration between PEO and the Ontario Association of Certified Engineering Technicians and Technologists (OACETT), applicants must:

- have a three-year degree or diploma in an engineering, technology or science program;
- hold a C.E.T. designation with OACETT; and
- have at least six years of professional experience related to their scope of practice, of which four of those years are under the supervision of a Canadian P.Eng. in a Canadian jurisdiction.

Under its recently enacted *Professional Governance Act*, BC is another province considering expanding practice rights to technologists.

UNIVERSITY OF SASKATCHEWAN LAUNCHES INDIGENOUS ACCESS TO ENGINEERING PROGRAM

By Adam Sidsworth

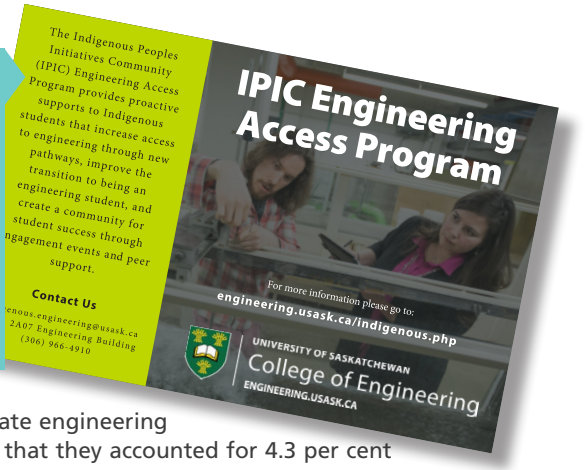
Earlier this year, the University of Saskatchewan's (U of S's) College of Engineering announced the launch of the country's third program to specifically recruit and help graduate indigenous Canadian engineering students.

The U of S launched the Indigenous Peoples Initiatives Community (IPIC) Engineering Access Program (EAP), with financial assistance from the International Minerals Innovation Institute. The IPIC has three distinct services:

- Pathways to Engineering—a year of academic upgrading for students who lack the necessary prerequisites to apply to the College of Engineering, offered through both Northlands College Pre-Engineering and Science Program and the U of S's College of Arts and Science Indigenous Student Achievement Program;
- Summer Bridging Program—offered in August, during which students are supported in their transition to life in Saskatoon while navigating the university campus, allowing university staff to provide academic support before classes start; and
- Student Success Program—which provides students with academic and financial assistance throughout their undergraduate degree.

U of S's Indigenous Peoples Initiatives Coordinator Matthew Dunn, P.Eng. (Saskatchewan), acknowledges the support and success of the University of Manitoba (U of M)'s Engineering Access Program (ENGAP) and Queen's University's Outreach and Aboriginal Access (OAA) program, both of which served as models for the EAP. "They're both well established and excellent at what they do, and we wanted to bring something similar to Saskatchewan," Dunn says.

According to Engineers Canada, indigenous Canadians account for only 1 per cent of undergraduate engineering students, despite the fact that they accounted for 4.3 per cent of the population across the country in the 2011 census. In Saskatchewan, where indigenous Canadians make up 16 per cent of the population, they represent only 1.2 per cent of the total number of students in the province's engineering programs. But U of M's Director of ENGAP Randy Herrmann, P.Eng. (Manitoba), reported to Engineers Canada that the university has graduated 125 indigenous engineering students as of June 2018, and Queen's Director of OAA Melanie Howard reported a 1000 per cent increase in indigenous students enrolled in Queen's undergraduate engineering program.



Brochure for the University of Saskatchewan's College of Engineering's IPIC, which encourages indigenous Canadians to enrol in engineering and helps them graduate

However, Dunn adapted the program for Saskatchewan's unique needs. "I can remember my first year on the job, presenting to some students," Dunn says, "and I would have students say, 'It says that the prerequisites to get into engineering is Physics 30 and Calculus 30, and we don't have that at my school.' I didn't have an answer for that. We had to [adapt]. It's a holistic approach, from the outreach and recruitment program to raise awareness in engineering and then to actively recruit students."

According to Dunn, it was important to develop partnerships that created new pathways into engineering for students from rural, remote and northern communities that do not have access to the high school prerequisites needed for engineering. "In Saskatchewan, we have the Northern Administration District—the northern half of the province, which has 35 schools, some public, some First Nations, but of those 35 schools, only 10 offered Physics 30, and only two offered Calculus 30," Dunn says. "This year is the first year we no longer require Calculus 30 to get into engineering, but previously, if you were a student in one of those 35 schools, there was a good chance you couldn't take the classes to get into engineering." Dunn, who is Dene and a member of the Athabasca Chipewyan First Nation, drew on his experience of growing up in Watrous, SK, with a population of 1800. "There were about 35 of us in Grade 12," he explains." There weren't enough of us to offer Calculus 30, so we went to the local college and took Calculus 30 through video conference. It wasn't the ideal learning environment, but not every community has that option."

Engineers Canada is acutely aware of the inability of many indigenous Canadians to access university engineering programs. In 2010, Engineers Canada signed an agreement with the Assembly of First Nations to encourage First Nations youth to pursue careers in engineering. Engineers Canada has been working with the advice of its Indigenous Peoples' Participation in Engineering Working Group, part of the Equitable Participation in Engineering Committee, of which Dunn is chair. The working group is made up of indigenous engineers and was integral in the formation of the Canadian Indigenous Advisory Council to the American Indian Science and Engineer-

ing Society, which supports indigenous students and professionals in Canada. Engineers Canada remains committed to implementing strategies to increase the number of indigenous peoples graduating from engineering programs as part of its 2019–2021 Strategic Plan. Dunn notes that Engineers Canada is developing its Indigenous Students Services in Engineering Working Group, allowing people from across the country to tap into the indigenous access programs at U of S, U of M and Queen's.

Although U of S officially launched its program just this year, there were three participants in the summer bridging program in August 2018 and 19 participants in the Student Success Program from September 2018 to April 2019. Throughout the year, they worked with three indigenous student ambassadors who, according to Dunn, "know best what the students need." Dunn is optimistic about the future of the program. "We're looking to recruit 10 students into the Summer Bridging Program for this August," he says. "It's still pretty early in the access program, but we're looking forward to growing and improving the program based on feedback from students and communities."

ALBERTA REGULATOR SEEKS TO MODERNIZE ITS ENGINEERING ACT

By Adam Sidsworth

In a bid to modernize Alberta's engineering statues and regulations, the Association of Professional Engineers and Geoscientists of Alberta (APEGA) and the Association of Science and Engineering Technology Professionals of Alberta (ASET) submitted a joint letter to then-Alberta Minister of Labour Christina Gray in March with over 160 recommendations to update the provincial *Engineering and Geoscience Professions Act*.

"The recommendations were developed by our associations in consultation with our members, Alberta Labour department officials and other regulated professions both inside and outside Alberta," the joint letter states. Specially, the development of the recommendations involved "the review of existing Alberta acts and regulations; the review of how engineering, geoscience and other professions are regulated both inside and outside Alberta for self-regulation of the engineering and geoscience team in Alberta; the review of the structure, authorities, duties and responsibilities, and statutory processes of our associations' regulatory statutory boards and committees to identify areas that require revision and an analysis of existing Alberta legislation to identify areas where the public interest may not be protected and to recommend changes that may fill those gaps."

Among the many recommendations endorsed by APEGA are:

- Increasing the maximum discipline-related fine to $100,000 for members and $500,000 for permit holders (equivalent to PEO's certificate of authorization), up from the current $10,000;
- Allowing for the appropriate use of creative sanctions when they would be more effective than monetary penalties;
- Permitting APEGA's registrar to start investigations without requiring a written complaint if they believe the public is at risk;
- Informing the public of ongoing investigations against a member or permit holder and of any resulting decisions; and
- Requiring members and permit holders to inform APEGA of any discipline orders from regulators outside of Alberta and to allow APEGA to share their discipline decisions with other regulators.

"We've gone through the entire legislation and made a whole series of changes to modernize the act and bring it into best regulatory practices," Matthew Oliver, P.Eng. (Alberta), APEGA's deputy registrar and chief regulatory officer, said in an interview with *Engineering Dimensions*, where he was joined by Dianne Johnstone, APEGA's director of legislative review and government relations. "[We] looked at all the changes in Alberta and other provinces where the best practices are. Things like the creative sanctions developed over the past decade or so is one of the things we've adopted. The act has been reworked from start to finish."

Johnstone reiterates that the work put into updating Alberta's engineering act, which saw its last major overhaul in 1981, "is a very complex situation, and we've just had a new government come into power." She notes that any changes to regulation "is a decision of the legislature. We're working within the legislative framework as it's set up."

Johnstone notes that APEGA and ASET began consultations in 2015, with ongoing meetings with various stakeholders and submissions from over 76,000 members and permit holders. APEGA held the consultations after the provincial government asked them in 2014 to review the legislation affecting the day-to-day practice of professional engineers and geoscientists. Alberta has a unique situation—APEGA and ASET have jointly regulated the province's professional technologists (P.Tech.) since 2009, requiring both organizations' input into the act's update (see p. 22).

But for Oliver, eliminating the ambiguous language and outdated aspects of the act is paramount: "There are a whole bunch of places that don't reflect better regulatory practices," he notes. "For example, section 51 [of the act] is a termination decision of the investigatory committee, allowing it to decide to terminate an investigation it deems frivolous. There's a right of appeal that is generated from that, and the section that precipitates that is two sentences long. In modern legislation, appeal language is much longer, so right now we have to infer on how it has to be done."

ENGINEERS EDUCATION FOUNDATION CELEBRATES 60TH YEAR

By Adam Sidsworth

The Ontario Professional Engineers Foundation for Education (FFE) held its 60th annual general meeting (AGM) on June 25 at PEO's head office in Toronto, Ontario, where it presented scholarships to some of the more than 100 engineering students who earned the coveted awards.

FFE President Marisa Sterling, P.Eng., FEC, welcomed the students, along with representatives of PEO, Ontario Society of Professional Engineers (OSPE), Consulting Engineers of Ontario (CEO) and Engineering Student Societies' Council of Ontario (ESSCO). "Our awards are $1500 each," Sterling said, "and if you're lucky enough to get a part-time job at $15 an hour, that means you wouldn't have to work for 100 hours if you had this scholarship. And my question to students is, 'What could you do with 100 hours?'"

Representing ESSCO at the AGM was its president, Ivan Zvonkov. "Engineering students pay a lot in tuition," Zvonkov told attendees. "[We] pay the most in tuition across Canada, by almost double [and although] tuition is being reduced by 10 per cent this year, there is a large cut in student aid…When you have a high tuition and heavy workload, awards like this make it a little easier."

PEO Vice President Christian Bellini, P.Eng., FEC, also addressed the audience, noting FFE's efforts to help the upcoming engineering generation obtain licensure. "For the past 60 years, the foundation has been helping Canada be more competitive and bridging the STEM (science, technology, engineering and math) gap in the Canadian industry," Bellini said. "In 2022, [PEO] will be marking our own milestone anniversary of 100 years of licensing and upholding the engineering profession."

OSPE President and Chair Tibor Turi, PhD, P.Eng., also spoke. "At OSPE, we're committed to creating a diverse and inclusive community and network across Ontario, where anybody, no matter where in their engineering journeys, can share," Turi said. "This is what OSPE has been a long-time supporter of: removing the financial barriers of students so that you can focus on your studies and goals."

Founded in 1959 by five PEO presidents, FFE is dedicated to encouraging Ontario engineering students to excel in their studies and develop leadership qualities through the awarding of entrance and undergraduate scholarships. To date, it has awarded more than $3.2 million in scholarships to over 3400 engineering students hailing from 15 engineering schools from across the province. It is a registered charity independent from both PEO and OSPE, although it receives support from both organizations.

Recipients of student awards from FFE include (back row, left to right) Antonio Juan Ding (University of Toronto), Huda Sarwar (Ontario Tech University), Lia Codrington (University of Toronto), Carly Robinson (Ryerson University), Ivan Zvonkov, president, ESSCO; and (front row, left to right) Katherine Chan (Ryerson University), Lauren McGregor (McMaster University), Mia Van Oirschot (Western University), Francis Picotte (Ryerson University), and Wilber Cheng (Ryerson University).

ADDITIONAL ITEMS ON FFE AGENDA

Among the other items on the AGM agenda, FFE members:

- Approved FFE's treasurer's report, which was presented by Sterling. Sterling noted that 2018 saw a significant dip in revenue due to poor investment performance and a significantly large bequest given to FFE in 2017;
- Endorsed three bylaw changes, including expanding the FFE board to allow the immediate past president to sit on the board in an advisory capacity; to allow an additional board member to be chosen from a student who has been awarded a Gold Medal scholarship from FFE and has an active engineering intern (EIT) or licence status from PEO; and to place a three-year term for directors on the FFE board; and
- The election of the 2019–2020 board of directors, which includes six members affiliated with PEO and four affiliated with OSPE.

Sterling presented a plaque to outgoing long-time FFE board member Bob Dony, PhD, P.Eng., FEC, to acknowledge his retirement from the FFE board of directors. Additionally, Sterling, who has served as FFE president since 2012, announced that she is stepping down as FFE president. Sterling noted that she is proud of FFE's growth, noting that FFE has recently hired its first permanent employee and had three summer students during the summer of 2018.

CALL FOR NOMINATIONS

2020 ORDER OF HONOUR

The Order of Honour is an honorary society of Professional Engineers Ontario. Its purpose is to recognize and honour those professional engineers and others who have rendered conspicuous service to the engineering profession in Ontario.

THE AWARDS COMMITTEE INVITES MEMBERS TO SUBMIT NOMINATIONS BY OCTOBER 11, 2019, AT 4 P.M.

For nomination forms and guidelines, visit PEO's website at **www.peo.on.ca/index.php/ci_id/2085/la_id/1.htm**.

New members of the Order will be invested at a special ceremony at PEO's annual general meeting in Ottawa next April.

Nominators should supply complete details on their nominee. Individual statements from each nominator must accompany the nomination.

Members and Officers of the Order who have continued serving and leading the engineering profession can be nominated for an upgrade to a more advanced category. A complete list of past recipients is available online at **www.peo.on.ca/index.php?ci_id=2085&la_id=1#Winners-by-year**.

CLIENT EXPECTATIONS WHEN ENGAGING AN ENGINEERING FIRM

By José Vera, P.Eng., MEPP

When engaging in engineering work, it's important for practitioners to explain to clients what they may expect when engaging an engineer to perform professional engineering services. Prospective clients may be either first-time or repeat customers with varying degrees of expectations and knowledge about engineering work. Consequently, in some situations, it might be beneficial for the practitioner to clarify that clients:

- have the right to expect engineering opinions will be independent;
- can obtain second opinions or request a technical review of their first expert's opinion;
- should be careful when seeking additional expert opinions;
- can expect practitioners to disclose conflicting secondary interests; and
- should expect a clear written scope of services.

Let's consider this example: Sofia is a retired engineer and a director on a community housing board. In a board meeting, the other board members inform Sofia of a dispute with a contractor involving some damage to the community housing's fire sprinkler system. On one hand, the contractor's position is that the damage was reported to her after the warranty period; therefore, they are not responsible for it. On the other hand, the board believes some key components were damaged during the contractor's installation. Consequently, in the view of the board, the contractor should be liable for repairing the fire sprinkler system.

Sofia recommends that the board engage a forensic engineering firm to evaluate the damage to the fire sprinkler system and provide a report highlighting potential causes of the damage.

Michael, another director, is strongly opposed to engaging an engineering firm and tells Sofia: "What is the point of us engaging an engineering firm, since the contractor is just going to hire their own engineering firm to provide a report that favours their position; it will be their engineer's opinion against our engineer's opinion." Sofia replies: "Engineers have an obligation to provide independent opinions regardless of who engages them. The board needs an independent assessment by a professional engineer to make a claim that is based on facts."

Who is right, Michael or Sofia?

CLIENTS CAN EXPECT ENGINEERING OPINIONS WILL BE INDEPENDENT

Sofia is right, since engineers have a duty to provide independent opinions, regardless of the client who engaged them. Therefore, clients have a reasonable expectation for engineering opinions to be independent, impartial and objective (see "An engineer's duty to provide independent opinions," *Engineering Dimensions*, November/December 2018, p. 17).

The board engages engineering firm ABC to investigate the damage to the sprinkler system. Kay, an engineer at ABC, performs the study and concludes that key sprinkler system components were damaged during the contractor's installation. The contractor acknowledges the independent nature of the engineering report and repairs the damage to the sprinkler system at no cost to the board.

The independence of engineering opinions is beneficial to clients and to the public, since clients and other parties rely on impartial engineering advice to guide them in their decision-making process.

CLIENTS CAN OBTAIN SECOND OPINIONS OR REQUEST A TECHNICAL REVIEW OF THEIR FIRST EXPERT'S OPINION

Let's look at a different scenario. What if Kay, the engineer at ABC, determined that the damage resulted from lack of maintenance of the fire sprinkler system, meaning the contractor would not be responsible for the damage? What could the board do in consequence of these findings? In this situation the board has three options:

1. Rely on the findings of ABC engineering and pay for the repairs of the fire sprinkler system; or
2. Obtain a second opinion from another engineering firm; or
3. Request that another engineering firm perform a technical review of the ABC report.

The board reviews ABC's engineering report at a meeting, and Jane states: "I know ABC is a reputable firm; however, the fire sprinkler system repairs are costly, and a second opinion is not. It would be prudent for us as board members to obtain a second engineering opinion before spending so much in repairs." Michael and the other board members agree to engage engineering firm XYZ for a second opinion on the causes of the damage to the sprinkler system.

A few weeks later, Lisa, an engineer at XYZ, performs an investigation and submits her report to the board. The conclusions are very similar to the ABC report. In brief, Lisa from XYZ notes that the damage was caused by the lack of maintenance. Consequently, the board meets to decide what steps to take next. Jane notes: "At this point, we have no choice but to pay for repairing the fire sprinkler system, since two engineering reports state it was not the contractor's fault." Michael ada-

mantly disagrees and states: "If we got two opinions, we can get three engineering opinions. Who knows, maybe a third time is the charm?"

Is Michael correct? Can clients obtain three engineering opinions on the same matter?

CLIENTS SHOULD BE CAREFUL WHEN SEEKING ADDITIONAL EXPERT OPINIONS

First, we must ask ourselves: What does the law say? In this case, the relevant law is the *Ontario Business Corporations Act* (www.ontario.ca/laws/statute/90b16), specifically the following section:

> Standards of care, etc., of directors, etc.
> 134 (1) Every director and officer of a corporation in exercising his or her powers and discharging his or her duties to the corporation shall,
> (a) act honestly and in good faith with a view to the best interests of the corporation; and
> (b) exercise the care, diligence and skill that a reasonably prudent person would exercise in comparable circumstances

Based on the above, it is sensible to conclude that for directors to act honestly when making decisions requiring specialized knowledge, they should place reasonable reliance on the independent opinion of experts, such as engineers. And furthermore, to act in good faith, boards cannot shop for expert opinions that merely suit their needs. Although it may be reasonable in the board's judgment to obtain a second engineering opinion out of prudence, obtaining a third engineering opinion when the second opinion supports the first may not be looked at favourably—particularly by the courts in the event of litigation against the board for having launched unreasonable litigation against the contractor. Consequently, Michael is likely incorrect: The board should probably not get three engineering opinions in this case.

CLIENTS CAN EXPECT PRACTITIONERS TO DISCLOSE CONFLICTING SECONDARY INTERESTS

On this point, PEO's Code of Ethics is clear: Practitioners must disclose to clients any interest that might be construed as prejudicial to their professional judgment. For example, let's imagine that engineering firm XYZ had previously done work for the fire sprinkler system installation contractor. The community housing board may perceive this relationship as creating a potential conflict of interest if firm XYZ were to perform a study of the fire sprinkler system damage. Consequently, XYZ would have to disclose to the board their previous relationship with the contractor. Naturally, the board has the right to reject XYZ, considering the past relationship they disclosed, and select another engineering firm. Or the board could still select XYZ's services knowing that engineers already have a duty to provide independent opinions.

CLIENTS AND PRACTITIONERS SHOULD EXPECT A CLEAR WRITTEN SCOPE OF SERVICES

Let's imagine yet another scenario where Lisa, the engineer at XYZ, leaves the firm after the board selects engineering firm XYZ to perform a new, completely independent assessment of the fire sprinkler system damage. However, in this scenario, unfortunately, there was no written scope of services. The board briefly meets with Lisa to start the project but a week after their meeting, Lisa resigns from XYZ to pursue a dream job helping a non-governmental organization in developing countries. Lisa is replaced by Charles, another engineer from XYZ, who mistakenly performs a technical review of ABC's engineering report instead of providing a second opinion. When Charles submits his technical review to the board, the members are dismayed to find out that they do not have the second opinion they requested. Instead, they have a technical review of the work of ABC, which basically is an opinion regarding the quality of the output of the work of ABC. What the board wanted was a second opinion, where another engineer takes a fresh look at the same situation provided to the first engineer, and without reference to the first engineer's work, proposes a solution, designs a concept or makes recommendations.

The moral of the story is that practitioners should always clarify whether the client is requesting a technical review of a practitioner's work or requesting a second opinion. Because mistakes in communication do happen, both clients and practitioners are advised to spend time and agree to a clearly written scope of services.

Clients who engage practitioners for professional engineering services should understand that engineers have duties to their clients. In this article, we covered some of these duties, such as independence and disclosure. Clients have rights, such as the right to second opinions, but they also have duties, such as the duty to act honestly and in good faith. Both clients and practitioners must collaborate and agree on a clearly written scope of engineering services. Practitioners can better manage expectations by clarifying the key concepts covered in this article to their clients.

Finally, PEO's practice advisory team is available by email at practice-standards@peo.on.ca and is glad to hear from practitioners or clients of engineering services looking for more information on the professional duties of practitioners to clients. However, practitioners or clients looking for assistance on resolving legal problems occurring in specific, concrete situations should always contact their lawyer. **e**

José Vera, P.Eng., MEPP, is PEO's manager of standards and practice.

Guideline Reminder
Did you know? PEO offers useful guidelines for practitioners, including *Professional Engineers Reviewing Work Prepared by Another Professional Engineer* (www.peo.on.ca/index.php/ci_id/22122/la_id/1.htm)

REVISED DECISION AND REASONS

In the matter of a hearing under the *Professional Engineers Act*, R.S.O. 1990, c. P.28; and in the matter of a complaint regarding the conduct of GEORGE S. VUJNOVIC, P.ENG., a member of the Association of Professional Engineers of Ontario; and 1429312 ONTARIO LIMITED O/A FIRST PRINCIPLES, a holder of a certificate of authorization.

This matter came before a panel of the Discipline Committee of the Association of Professional Engineers of Ontario (the association or PEO) for hearing on August 22, 2018, at the offices of the Association of Professional Engineers of Ontario, 40 Sheppard Avenue West, Toronto, Ontario. The Notice of Hearing was issued March 23, 2018.

THE ALLEGATIONS

The Agreed Statement of Facts was filed with the chair of the Discipline Committee on August 13, 2018, with the allegations.

AGREED STATEMENT OF FACTS

The Agreed Statement of Facts, which had been signed by the member and the certificate holder on August 9, 2018, and by the association on August 13, 2018, was filed at the hearing. The only witness called was the member, who gave evidence solely with respect to the issue of penalty. The association did not call any witnesses. The member was examined, cross-examined and re-examined on his evidence. Both parties made oral submissions on the penalty.

The Agreed Statement of Facts provided as follows (attachments omitted):

This Agreed Statement of Facts is made between the Association of Professional Engineers of Ontario (PEO), and the respondents, George S. Vujnovic, P.Eng., and 1429312 Ontario Limited o/a First Principles (collectively, the parties).

1. At all material times, George S. Vujnovic, P.Eng. (Vujnovic), was a professional engineer licensed pursuant to the *Professional Engineers Act* (the act). Vujnovic obtained a BASc degree in mechanical engineering in 1994. His work experience both before and after licensure has been in the area of mechanical engineering.

2. At all material times, 1429312 Ontario Limited o/a First Principles (First Principles) held a certificate of authorization (C of A), and Vujnovic was the designated individual taking responsibility for engineering services provided under the C of A. First Principles obtained its C of A in 2001. In his C of A application, Vujnovic described the business as: "drafting, CAD, design and engineering services, equipment design and engineering, automation design and engineering."

3. In or about February 2013, Vujnovic and First Principles were retained by Trade-Mark Industrial Inc. (Trade-Mark) to prepare shop drawings for splice connections for W 18x35 beams for a basement floor upgrade (the project) in a building owned by Frito Lay. The beams were intended to support the first floor of Frito Lay's plant because the floor above the basement had been determined not suitable for forklift traffic and required reinforcement in several areas. The nature and intended location of the beams required that they be spliced in the middle to allow them to be moved into the basement for installation.

4. On April 12, 2013, Vujnovic signed and sealed four drawings, utilizing First Principles' title block, showing floor plans and beam details. These drawings were submitted to the Corporation of the City of Cambridge as part of Frito Lay's permit application. Attached as Schedule "A" are copies of these drawings. Vujnovic also signed a Commitment to General Review, showing him as the structural engineer for the project. Attached as Schedule "B" is a copy of the Commitment to General Review.

5. On or about June 12, 2013, First Principles prepared shop drawings for the beams and beam connections for Trade-Mark, copies of which are attached as Schedule "C." The drawings were signed and sealed by Vujnovic. The shop drawings lacked the detail expected of, and otherwise fell below the standard expected of, a prudent and reasonable engineer.

6. Based on the First Principles June shop drawings, Trade-Mark manufactured and installed the beams in or about June 2013.

7. On or about September 25, 2013, Frito Lay engaged Stantec, a third-party engineering company, to review the floor slab capacity in the facility. Stantec requested the shop drawings, which were provided to it by Frito Lay on or about November 11, 2013. Stantec reviewed the shop drawings, inquired into what was built and requested calculations, which were provided by Vujnovic on or about January 28, 2014 (the January calculations). The January calculations erroneously showed a safety factor of over 2.2 for the specified loads. Stantec did their own calculations and concluded that the capacity of the splice connections that had been installed were inadequate for the load. Stantec accordingly required that the floor be shored. Mark Milner, P.Eng., was the engineer at Stantec responsible for overview of the review project. He filed a complaint with PEO on February 11, 2014, a copy of which is attached as Schedule "D."

8. Upon being advised in February 2014 of Stantec's concerns, by email dated February 24, 2014, Vujnovic advised Trade-Mark that he "re-evaluated the moment calculations" for the beam and "determined that the original design proposed does not meet the strength and serviceability required." He attached new calculations dated February 26, 2014, and a proposed remedial design. Vujnovic subsequently provided calculations dated March 10, 2014 (the remedial calculations). They were identical to the February 26th calculations, except that they included additional calculations for an alternative design detail. The remedial calculations, and the associated shop drawing, is attached as Schedule "E." The remedial design itself was accepted by Stantec, which had done its own calculations, and was installed.

9. The January calculations were deficient. Vujnovic had made a number of errors, including:
   a. incorrect calculation of the beams' live load shear value;
   b. incorrect units of measurement;
   c. incorrect calculation of a double shear connection instead of the required full moment splice connection;
   d. incorrect calculation of the safety factor; and
   e. failure to consider laterally bracing the top flange.

10. The remedial calculations retained most of Vujnovic's earlier errors and suffered from a number of additional errors, including the following:
    a. incorrect calculation of the maximum force at the centre of the beam;
    b. use of the incorrect force to splice the beam flanges;
    c. incorrect weld calculations; and
    d. other errors in engineering logic and judgment.

11. PEO retained Daria Khachi, P.Eng., as an independent expert. He prepared a written report dated May 29, 2017 (the expert report), a copy of which is attached as Schedule "F" hereto. The expert report concluded, among other things:
    i. Based on a thorough review of calculations for the initial design connection and also for the remedial work, I would respectfully conclude that the design of George S. Vujnovic, P.Eng., and First Principle Design and Engineering Services are inconsistent with generally accepted standards in the field of professional engineering and are not expected of a reasonable and prudent practitioner.
    ii. The deficiencies in the design and errors in design judgment as noted in my report are critical and a potential risk to public safety. The work of the respondent lacks sufficient understanding of basic principles pertaining to engineering beam connections and splices. Based on reviewing some of the calculations and reviewing the details submitted, the respondent lacks the appropriate level of knowledge, skills and abilities that are rudimentary in understanding steel connections.

12. In June 2017, PEO's investigator was advised by the municipality that Vujnovic and First Principles were involved in another project for Frito Lay. Attached as Schedule "G" are copies of the following: drawings signed and sealed by Vujnovic on February 8, 2016, and March 20, 2017; Commitment to General Review, Structural Engineer (platforms only) signed by Vujnovic; and a letter dated June 13, 2017, sealed by Vujnovic, advising of the outcome of his review of the installation of the platforms.

13. For the purposes of this proceeding, the respondents accept as correct the findings, opinions and conclusions contained in the expert report. The respondents admit that they have failed to meet the minimum acceptable standard for engineering work of this type, that they failed to maintain the standards that a reasonable and prudent practitioner would maintain in the circumstances and that

they undertook structural engineering work that they are not competent to perform by virtue of their training and experience.

14. By reason of the aforesaid, the parties agree that Vujnovic and First Principles are guilty of professional misconduct as follows:
    a. signing and sealing one or more shop drawings for the connections of structural support beams that failed to meet the standard of a reasonable and prudent engineer, amounting to professional misconduct as defined by s. 72(2)(a), (b), (d) and (g) of Regulation 941;
    b. producing calculations for the splice connection capacity of one or more structural support beams that failed to meet the standard of a reasonable and prudent engineer, amounting to professional misconduct as defined by s. 72(2)(a), (b), (d) and (g) of Regulation 941; and
    c. undertaking structural engineering work that the practitioner is not competent to perform by virtue of the practitioner's training and experience, contrary to s. 72(2)(h) and (g)of Regulation 941.

The respondents have had independent legal advice with respect to their agreement as to the facts, as set out above.

PLEA BY MEMBER AND BY THE HOLDER

George S. Vujnovic, P.Eng., a member of the Association of Professional Engineers of Ontario, and 1429312 Ontario Limited o/a First Principles, a holder of a certificate of authorization, both admitted to the allegations set out in the Statement of Allegations. The panel conducted a plea inquiry and was satisfied that both the member's and the holder's admission was voluntary, informed and unequivocal.

DECISION

The panel considered the Agreed Statement of Facts and finds that the facts support a finding of professional misconduct and, in particular, finds that George S. Vujnovic, P.Eng., a member of the Association of Professional Engineers of Ontario, committed an act of professional misconduct as alleged in paragraphs 14 a., b. and c. of the Agreed Statement of Facts.

The panel finds that the facts support a finding of professional misconduct and, in particular, finds that 1429312 Ontario Limited o/a First Principles, a holder of a certificate of authorization, committed an act of professional misconduct as alleged in paragraphs 14 a., b. and c. of the Agreed Statement of Facts as follows:

1. The member signed and sealed one or more shop drawings for the connections of structural support beams that failed to meet the standard of a reasonable and prudent engineer, amounting to professional misconduct as defined by s. 72(2)(a), (b), (d) and (g) of Regulation 941;

2. The member produced calculations for the splice connection capacity of one or more structural support beams that failed to meet the standard of a reasonable and prudent engineer, amounting to professional misconduct as defined by s. 72(2)(a), (b), (d) and (g) of Regulation 941; and

3. The member undertook structural engineering work that he was not competent to perform by virtue of his training and experience, contrary to s. 72(2)(h) and (g) of Regulation 941.

PENALTY

The member and the holder did not agree on what would be an appropriate penalty. Both parties made submissions on penalty. The member gave evidence in support of his position on penalty.

OVERVIEW

There were elements of penalty that were agreed upon. All parties agreed that both the member and the holder should be reprimanded pursuant to paragraph 28(4)(b) of the *Professional Engineers Act*, R.S.O. 1990 C. P.28 (PEA) and that the fact of the reprimand should be recorded on the register permanently. The parties also agreed that, pursuant to paragraphs 28(4)(d) and 28(4)(e) of the PEA, there should be a condition and restriction placed on the licence of the member restricting him from practising structural engineering. The member agreed with the association that "structural engineer" for purposes of the prohibition was to be defined as "designing or analyzing one or more elements that alone or together form a system that can resist a series of external load effects applied to it, which includes its own self weight, and can provide adequate rigidity." The parties agreed that the decision and order of the Discipline Committee be published in the official publication of the association pursuant to paragraph 28(4)(i) and subsection 28(5) of the PEA with reference to names. The parties all agreed that there be no order as to costs.

The parties disagreed on a suspension of the licence of both the member and of the certificate holder pursuant to paragraph 28(4)(b) of the PEA. It was the position of the association that the licences of both the member and of the holder should be suspended for a period of no less than one month. The member and the holder argued that there should be no suspension, or, if there was to be a suspension, it should be for no more than a few days. The parties also disagreed on the extent and necessity of a requirement for a practice inspection of the work of the member and of the holder pursuant to paragraph 28(4)(e)(iv) of the PEA. The association sought a restriction on the licence of the member and on the certificate of authorization of the holder requiring them to report to the deputy registrar, regulatory compliance such that, within three months of the date of the decision of the Discipline Committee, they provide copies of all drawings, analyses or reports signed or sealed by the member from April 2007 to April 2017 that were structural in nature for review by its independent expert.

EVIDENCE ON PENALTY

The member gave evidence in support of his position. He described his career path. He started in the automotive industry, and he worked on projects involving infrastructure and worked with piping and steel. From the beginning of his career until 2004, he was an employee in the automotive industry and worked within a corporate engineering group to build factories. He admitted that the work he did up until 2004 did not include structural engineering. In 2004, he started his own practice through 1429312 Ontario Limited o/a First Principles (First Principles, also referred to as the holder).

Working through First Principles, he worked mainly in the food service industry, doing work for bakeries, in the beverage industry, chemical and paper mills. His job involved work that included optimizing production lines and designing plant layouts. He would be asked to put a platform together for equipment used in production. His work led him to working with Trade-Mark. The timelines for his work were tight. If a production line was down, it had to be fixed immediately. Most of his projects had a turnaround time of about a month or less. He confirmed that his core competency was to optimize production.

With respect to the project that was the subject of the complaint, he explained that he became involved with it because of his working relationship with Trade-Mark. Trade-Mark was his client. It was site conditions that led to his engagement. The beams supplied by Vasko could not be brought into the basement where they were to be installed without being cut into shorter lengths. Once brought into the basement, the beams needed to be spliced back together. The member dealt with Vasko in connection with the splice connections. He designed the splice connections. When the splice connections were first designed, there was no external review of the member's design. The member admitted he had not done a splice connection before. The only other structural work he had done at that time was small platforms for machinery. He thought he was capable of doing the design work at the time. He admitted that he now knows he is not.

The member reported that he learned that there was a problem through Trade-Mark. As soon as he learned of the problem, he asked to be told what it was so that he could make it right. The member offered a remedial design, which was reviewed by another professional engineering firm. He gave evidence that, as far as he was aware, his remedial design was reviewed and approved. He paid all expenses: shoring, labour, materials, reapplying fireproofing. It cost just under $100,000.00 to fix the problem. A payment plan was established with Trade-Mark. The member paid for everything over a period of about a year. He felt it was his responsibility to fix the problem with his design. The member acknowledged that his design errors were serious.

The member gave evidence that, after the complaint was made regarding his work at Trade-Mark, his design work changed. He changed how he does business. He retained a third party to look after his structural work. He gave evidence that he started doing that in February or March of 2017.

On a personal level, he explained that the complaint had been hard on his health and on his family. The health issues were mainly related to the stress. He reported that the biggest lesson is that no one is infallible. People make mistakes. He recognizes the limits of his own abilities.

The member admitted that he still did design one or two small platforms. He gave evidence that his approach was to overdesign. When pressed as to how many, he was not certain as to the exact number of small platforms in total that he had designed. He gave evidence that he had not understood the work he was doing to be structural. He has since had the scope of what is considered to be structural clarified. He confirmed that there had not been any other concerns or complaints expressed regarding any of his other designs.

The member reported feeling a heavy responsibility, experiencing both a significant financial and personal burden. He explained that if a suspension of his licence was imposed, it could also have a significant impact on his business. He mentioned that an employee of a client of his had lost a hand in equipment that was not guarded as an example of the type of project that could not wait for a suspension to be over. He

would not have been able to respond if suspended. When asked if he would be willing to have someone else look over his structural engineer projects, the member said he would. He apologized for his actions that resulted in the complaint.

ARGUMENTS ON PENALTY

Summary of submissions of counsel for the association

Counsel for the association, Leah Price, pointed out that the design at issue was for beams that held up the floor of a factory. There was a significant public safety issue. Ms. Price pointed out that Stantec, the engineering firm that had reviewed the design of the member for the splice connections, had insisted on immediate shoring. She pointed out that even after receiving the details of the errors in his design for this project, the member still designed seven other platforms. Ms. Price also referred to the evidence of the member that none of his structures have fallen down. She said that the association's position that a structure had not fallen down was not good enough, and that to provide specific deterrence, to protect the reputation of PEO and to provide general deterrence, the licence of the member and the certificate of the holder needed to be suspended.

Counsel for the association, Ms. Price, took the position that a practice inspection was needed. She argued that the association does not know whether the platforms the member designed are safe, as the association is missing information, such as the size of the structures. She noted that the member was designing structures and opining that they are safe, but that he was not competent to do so. Counsel for the association argued that the association needed information to allow an expert to assess each project that the member had designed in the past. She said that the association believes that, on a go-forward basis, the public is protected, but argued for a review of all past projects that were structural in nature, meaning all platforms that were designed by the member should be reviewed. It was primarily because of the risk to public safety that counsel for the association took the position that a practice inspection was necessary.

Counsel for the association referred to the decision of the Discipline Committee in Bailey, Marc, P.Eng., Gazette (July/August 2004) (Bailey) in support of the need for both a practice review and a suspension of the licence of the member. In Bailey, each of five separate projects had major issues. All five projects were required to be inspected, as well as a selection of other projects that were to be reviewed in the discretion of the independent expert. The cost of the inspection was to be paid by the member. In addition, the licence of the member in Bailey was suspended until the practice inspection was completed, or for 24 months, whichever was sooner.

In support of the position of counsel for the association that a licence suspension was appropriate in this case, Ms. Price referred to the decisions of the Discipline Committee in Crozier, Bruce D., P.Eng., and Bruce D. Crozier Engineering Inc., Gazette (March/April 2004) (Crozier); in Krupka, Jiri, P.Eng., and Caelliot Inc., Gazette (March/April 2015); in Krupka, Jiri, P.Eng. and Caelliot Inc., Decision and Reasons, October 30, 2014 (Krupka); and in McCavour, Scot S., P.Eng., and McCavour Engineering Limited, Gazette (May/June 2004) (McCavour). She pointed out that, in each of these cases, the member was found negligent, and there was an element of danger to public safety as a result of the negligence of the member. She noted that it was not required that the design, in fact, fail or that a member of the public was, in fact, injured for a suspension to be imposed.

Counsel for the association also pointed out that the licence of the member in Crozier was suspended. In Krupka, the licence of the member was suspended for two months. In McCavour, the licence of the member was also suspended for two months. Counsel for the association submitted that there is a tendency to see a combination of penalty where there is a finding of incompetence, negligence and in a circumstance where the conduct of the member resulted in a potential danger to the public.

Counsel for the association also referred to the decisions of the Discipline Committee in Schor, Michael A., P.Eng., and M.A. Steelcon Engineering Limited, Decision and Reasons (August 15,

2018) (Schor); Valdez, Hector R., P.Eng., and H.R. Valdez Engineering Limited, Decision and Reasons (April 28, 2014) (Valdez); Widla, Waldemar M., P.Eng., and Fulton Engineering Specialities Inc., Decision and Reasons (July 5, 2018) (Widla); and Wood, Robert G., P.Eng., Saunders, Gregory J., P.Eng., and M.R. Wright & Associates Co. Ltd., Decision and Reasons (November 15, 2010) (Wood). Counsel for the association pointed out that, in Schor, the Discipline Committee ordered a six-week suspension of the licence of the member and imposed a supervision requirement in relation to the deficient design of a lifting device. In Valdez, a machine failed and a practice review was ordered. In Widla, a one-month suspension was ordered, and the member was required to write an exam. The member in Widla had been responsible for designing attachment plates for a solar panel array that failed. In Wood, the licence of the member was suspended for two months. In that case, the member had been afforded a number of opportunities to fix his deficient design but continued to fail to do so.

The association submitted that, in the case before the panel, that a one-month suspension was required and that a practice review is the only option because of the concern that there are other structures that might not be safe.

Summary of submissions of counsel for the member

Counsel for the member, James R. Lane, pointed out that there were mitigating factors in this case that lessened culpability and affected what was an appropriate penalty in this case. Mr. Lane pointed out that the project in question was of limited scope. It was a first offence. The member had no complaints before this one. He argued that it was an isolated error. Mr. Lane noted that, regarding the other designs of the member, his approach was to overdesign. He pointed out that, upon being alerted to the errors in his design, there was no denial, no defensiveness on the part of the member. The member accepted he had made a significant mistake and that the member was transparent in his dealings with his client and with PEO. Upon realizing that remediation was required, he wanted to make it right. The member insisted on the review of his remedial design and paid for the remediation. The member felt that the professional thing to do was to fix it, and he did. Mr. Lane added that there was no failure in the design, no injury occurred, and there was no damage to property. The member made a genuine expression of regret. He was co-operative.

Counsel for the member submitted that an important factor is whether a penalty is similar in similar cases. He argued that the goal is that members be dealt with in a consistent manner and that penalties be proportionate. He referred to a number of cases where competency to design was a key issue, including the decision of the Discipline Committee in Engio, Houston T., P.Eng., and Houston Engineering & Drafting Inc., Decision and Reasons (November 2016), and in Engio, Houston T., P.Eng., and Houston Engineering & Drafting Inc., Decision and Reasons on Penalty (November 2016) (Engio); Perera, Chitra K.G., P.Eng. (January 2013) (Perera); and in Braunshtein, Suli, P.Eng. (May 2010) (Braunshtein). He pointed out that in Engio, the design was catastrophic, the member did not appear, and that Engio proceeded without a permit. In that case, the penalty included revocation of the licence of the member. In Perera, the conduct of the member was found to be disgraceful and dishonourable. The member had been found to be deliberately doctoring the numbers for the results of testing of concrete samples, and a two-month suspension was imposed. In Braunshtein, a six-month suspension was imposed, even though the member was retired.

Counsel for the member submitted that cases with longer suspensions have serious aggravating factors, and that most of those cases have a public safety element such that the decisions comment on the public being at risk. Mr. Lane referred to a number of decisions where no suspension was imposed, or where the suspension was short. For example, in the decision of the Discipline Committee in Tawhidi, Ehsanullah, P.Eng., and Ehsan Tawhidi and Associates (September 2017) (Tawhidi), where the design of the member resulted in the collapse of a solar panel array without injury, a five-day suspension of the licence of the member was imposed. In the decision of the Discipline Committee in Soscia, Sandro P., P.Eng., and Soscia Engineering Ltd. (May 2017), no suspension was

ordered. There was a requirement to submit a Quality Assurance Plan and practice inspection imposed. That case involved structural drawings for a five-storey residential development that was found to have failed to comply with standards. Another case referred to by Mr. Lane included the decision of the Discipline Committee in Etches, Thomas A., P.Eng. (May 2010) (Etches). In Etches, the member did design work outside of the area of his competence. No suspension was ordered, and no practice review was ordered.

Counsel for the member reviewed several decisions with the panel. He submitted that practice inspections were not the norm. He noted that, in most of the cases he reviewed, the design of the member that resulted in the complaint was flawed and there was some element of public safety at issue. He submitted that, for there to be a requirement for a practice review, there was something more than that in the evidence before the panel that imposed a practice review requirement. If there was to be a practice inspection imposed in this case, counsel for the member submitted it should be limited. A practice inspection going back 10 years would be unfair to the member. He emphasized that the practice inspection should not be punitive, it should be to protect public safety. On the matter of a suspension, he argued that, in this case, it should be no more than five days, if one were to be ordered at all, and, if ordered, it should be delayed for two months. The member was working on his own and had already suffered a significant financial and emotional burden as a result of his error. He had already taken measures to ensure such an error would not happen again.

PENALTY DECISION

The panel makes the following order as to penalty:

1. Pursuant to paragraph 28(4)(f) of the PEA, the member and the holder shall be reprimanded, and the fact of the reprimand shall be recorded on the register permanently.

2. Pursuant to paragraph 28(4)(d) and 28(4)(e) of the PEA, there shall be a condition and restriction prohibiting the member from practising structural engineering, except that the member shall be permitted to design platforms, subject to design review by a structural engineer for platforms larger than 20 square metres.

3. Pursuant to paragraph 28(4)(e)(iv) of the PEA, there shall be a restriction placed on the certificate of authorization of the holder, and a further restriction placed on the licence of the member, requiring them to report to the deputy registrar, regulatory compliance, as follows:
   They shall, within six months of the date of the Discipline Committee decision, provide PEO, for review by its independent expert, copies of all drawings, analyses or reports related to the opinion given by the member regarding the Frito Lay Canada Platform Installation As-Built Review dated June 13, 2017, and, if there are any issues of concern discovered by the independent expert, then they shall submit up to two additional projects for review by the independent expert. The number and choice of the projects will be at the discretion of PEO. The cost of the design inspections is to be paid by PEO.

4. Pursuant to paragraph 28(4)(i) and subjection 28(5) of the PEA, the decision and order of the Discipline Committee shall be published in PEO's official publication, with reference to names; and

5. There shall be no order as to costs.

REASONS FOR PENALTY DECISION

The panel considered application of the following principles:

a) protection of the public;
b) maintenance of professional standards;
c) maintenance of public confidence in the ability of the profession to regulate itself;
d) general deterrence;
e) specific deterrence; and
f) rehabilitation.

No single principle should govern. The decision should balance aggravating and mitigating factors.

The panel was impressed with the response of the member when he learned that his design was deficient. The panel considered the personal out-of-

pocket expense of the member in determining an appropriate penalty, as well as the complete transparency and lack of defensiveness. The panel would hope that other members will follow the example of the member in the event that an error in their own work is found. The panel was impressed that the member had changed the way he works, including being aware and mindful of his own competencies and careful to work within them, and that he had hired a third party to look after the structural design needs of his clients.

The panel accepted the evidence of the member that he overdesigned the other platforms he had designed. The panel also accepted his evidence that they were few in number and that they were structurally sound. To address the issue of public safety, the panel decided that a limited practice review was warranted in this case. The panel also felt that a complete limit on all work that fell within the definition of structural engineering presented by the association was overly broad in this case. The panel was satisfied that the practice review ordered, together with the less broad restriction on the licence of the member, is sufficient to ensure the safety of the public.

The panel recognized the fact that the member expressed remorse for his conduct, now understands clearly the limitations on his competencies and has taken appropriate steps to avoid any similar issue in the future. The panel accepted that this was an isolated incident in an established career in which there was no record of discipline. In addition, the panel was especially impressed with the manner in which the member responded to this complaint and to remedying the deficiencies in his design, and to the work for which he was responsible.

The panel acknowledges that the association should act to deter members from similar acts of misconduct by imposing a meaningful but reasonable penalty. The panel decided, given the special circumstances of this case, that the publication of the Decision and Reasons, with names, the imposition of a restriction on the licence of the member, and the limited practice review is sufficient in all of the circumstances.

The panel did not find that, in all of the circumstances of this case, a suspension of the licence of the member or of the certificate of authorization of the holder was warranted.

The panel concluded that the penalty, as ordered, is reasonable and in the public interest. The member co-operated with the association. He agreed to the facts and has accepted responsibility for his actions and has avoided unnecessary expense to the association. It was not, in the panel's view, unreasonable for the member to contest the penalty requested, and the panel found his evidence on the issue of penalty helpful in making its decision. As such, the panel finds that an award for costs was not warranted.

In summary, the panel finds that the penalty imposed is reasonable and that public confidence in the ability of the association to be a self-regulator of the profession is satisfied by the penalty.

The member was asked if he wished to waive his right to appeal and have the reprimand administered without delay. The member confirmed that he wished to waive his right to appeal. The member received advice from his counsel with respect to the waiver of his right to appeal. The reprimand was administered by the panel immediately after the conclusion of this hearing.

Glenn Richardson, P.Eng., signed this Decision and Reasons for the decision as chair of this discipline panel and on behalf of the members: Michael Chan, P.Eng., Patrick Quinn, P.Eng., Kathleen Robichaud, LLB, and Warren Turnbull, P.Eng. **e**

REVVING UP THE MOMENTUM OF PUBLIC TRANSIT

Yuval Grinspun, P.Eng., is a lifelong transit buff who believes effective public transit is key to functional cities. And he's on a mission to make it more appealing to citizens by improving their experience.

By Sharon Aschaiek

Yuval Grinspun, P.Eng., founded consulting firm Left Turn Right Turn to help transit agencies modernize their services.

Public transportation is understood to be critical to the functioning of large cities and the quality of life of their citizens. It's been proven that when people can easily navigate an urban landscape by bus, streetcar or subway, it makes cities more livable, reduces carbon emissions and even supports economic productivity.

That's the "why" that drives compelling advocates of public transit, and among them are Yuval Grinspun, P.Eng. But the civil engineer and seasoned transportation industry professional is also working on the "how" of this complex matter. As principal of Toronto, Ontario–based consulting firm Left Turn Right Turn, he helps public transit agencies modernize their operations to better serve their customers and, by extension, improve the health and vitality of the cities in which they operate. "I have an underlying interest in sustainability and the role of transportation in lowering greenhouse gas emissions," Grinspun says. "Every municipality wants to drive the needle up on public transit use and drive it down on car use. The answer is to find ways to make public transit more attractive and interesting to people."

Public transportation has always fascinated Grinspun. At age 14, he read a *Toronto Star* article about federal and provincial gas taxes and wrote the newspaper a letter, which was published, arguing these revenues should be used to encourage Canadians to use transit more.

At the University of Toronto, where he completed his BASc and MASc in civil engineering, Grinspun applied his passion for transportation to his master's thesis by studying how to improve airport design. He also conducted research on the connections between land use and public transportation. It was his work as a teaching assistant in a course on tech-enabled intelligent transportation that most shaped his career path.

Grinspun's first job out of school was with professional services firm IBI Group, first as a transportation systems engineer and then as a senior associate. Over 12 years, he played a key role in establishing and significantly growing the company's intelligent transit systems practice. Wanting to better understand how public transit agencies work, Grinspun switched career gears in 2014 and began working as a contract-based senior business process analyst for the TTC. Two years in, he was tasked with transforming its Wheel-Trans service for customers with physical disabilities. The service had generally functioned in a silo, and Grinspun's job was to integrate it into the TTC family of services. Leading a multidisciplinary team of 20, he upgraded eligibility criteria, introduced new technologies and made it easier for customers to use Wheel-Trans seamlessly with other modes of TTC transportation. "We turned everything on its head and came up with an entirely new service delivery model to improve operations, reduce costs and allow customers to experience a greater freedom of travel," he says.

GEARING UP FOR BUSINESS

All along, Grinspun harboured a growing desire to be an entrepreneur. He was already doing some consulting work on the side and had incorporated Left Turn Right Turn in 2014. Last year he turned 40 and decided the time was right to fully commit to the business. Together with Janany Ragunathan, EIT, and Matt Lattavo, two engineering graduates, he offers public transit agencies services such as strategic planning, technology modernization, procurement support and business process reviews. To support client projects, he regularly draws on his engineering training, particularly when the work requires systematically analyzing complex problems, deriving useful insights from large data sets and using technology to optimize business processes.

Grinspun and his team have taken on a variety of projects, such as helping the London Transit Commission (in London, Ontario) boost ridership; advising Ann Arbor, Michigan's TheRide agency on how to better deliver and support technology in its operations; and assisting Strathcona County Transit in Alberta to modernize its services. The work is supported by a small team of affiliates who provide expertise in public transit as well as areas such as communications and law.

With the rate of urbanization on the rise worldwide, and climate change becoming an increasingly important public priority, Grinspun says the pressure on agencies and cities to optimize and make public transit more appealing will only continue to grow. "Right now, if it's a choice between an hour-and-a-half bus ride or a 20-minute drive, people will choose to drive," he says. "If transit can be designed to bring down travel time and be more engaging, more people—especially millennials, who tend to be more socially and environmentally conscious—will use these services." e

BY MARIKA BIGONGIARI

Nancy Hill's Modernization Mission

THE ENGINEER, LAWYER AND PATENT AND TRADEMARK AGENT SETS HER SIGHTS ON FUTURE-PROOFING PEO AS ITS 100TH PRESIDENT.

Nancy Hill, P.Eng., LLB, FEC, has a lot on her plate. She has a bustling patent and trademark firm and seemingly endless volunteer hours to juggle in tandem with her PEO presidency for the 2019–2020 Council year. But Hill—who was sworn in as PEO's 100th president at the regulator's annual general meeting in May—is practical, focused and dedicated to both her work and the engineering profession. She is also persistent—and it has paid off. She was elected on her third attempt to win the PEO presidency after reflecting on what she needed to do differently to get her message across. Change and self-reflection will be major themes in the coming year, Hill says. Specifically, she wants to lead the organization through a thorough evaluation of its licensing system—which, she says, PEO needs to do to stay relevant—and fix what isn't working.

A MODEL OF SELF-SUFFICIENCY

When Hill isn't at PEO acting in one of her many volunteer roles, at the theatre with partner Rodney Pryde or securing a patent for someone's invention at her Toronto firm, you may find her building furniture at the family cottage in Muskoka, Ontario—a place she holds dear and an apt symbol of self-sufficiency. "One thing that I would say really shaped me is being a cottager," Hill says. "I've been a cottager all my life." Hill considers her parents, both professionals, to be huge influences in her life who instilled a strong work ethic from a young age. They raised Hill to be engaged with whatever she was doing and with the belief that she could do anything and everything she set her mind to. "When my parents said we can do everything, at the cottage, we did do everything—there wasn't anybody else to do it," she laughs. And do everything she did, from bailing out a septic tank to learning to drive the tractor. In her father's workshop, Hill learned to build furniture, and, just recently, built a Mission-style bench she made from recycled dock boards. The adventurous side of Hill loves the outdoors and the activities it affords, including swimming, sailing, canoeing and hiking, but she also appreciates how it made her self-sufficient, and she feels fortunate to have that connection to her family history, to nature and to the land. Here, Hill learned the importance of persistence, and that if something needed to be fixed, you fixed it yourself.

Although Hill's family is no stranger to the profession—her uncle was an engineer—she found her own way to engineering. Like many who gravitate to the profession, Hill excelled at maths and sciences. And she also appreciated its demonstrative quality: "I liked the notion that you were going to be something, as opposed to you were going to have a degree when you finished," she explains. Hill studied civil engineering and is a fourth-generation University of Toronto alumna, but upon graduation her path remained unclear. At the time, then-Canadian Prime Minister Pierre Elliott Trudeau had just brought in the National Energy Program, and Hill recalls its impact and how what had been a plethora of engineering jobs seemingly evaporated. "Before, there were enough jobs to hire every graduate engineer in Canada in the oil patch, and after that, they stopped hiring," Hill explains. "It profoundly changed the engineering market overnight. So, I got a job in consulting engineering." But after a few years of consultancy, Hill, who was licensed as a professional engineer in 1984, noted something that troubled her: "There were people with 20 years of experience doing exactly the same thing I was," she says. "I didn't see a clear career path there." A keen student, Hill sought re-training and opted to pursue law.

AN ENGINEER IN LAW SCHOOL

Although Hill wasn't completely sure of which direction she would take things, she wanted to keep her options open, and because she was a professional engineer in law school, exploring intellectual property (IP) law made sense. So, she took the IP courses and ensured she would get at least one IP rotation when choosing her articling position. "I wanted to keep that door open, but I wanted to explore other areas as well," Hill says. "I didn't really have a master plan in terms of what I wanted to do." Hill received her LLB from the University of Ottawa, but she ultimately decided to pursue becoming a registered patent and trademark agent, and she did so at a time when there were only a handful in Canada. "It's a brutal set of exams," Hill concedes, adding that only 11 people in Canada qualified that year. As a patent and trademark agent, she practises in intellectual property law, but, "it's a further designation, beyond that of being a lawyer," Hill explains. "And, in due course, I will be regulated by three regulators—because there's a new intellectual property regulator being set up as we speak."

Hill manages the intellectual property rights of clients from around the world at Hill & Schumacher, the award-winning patent and trademark firm she founded with partner Lynn Schumacher, PhD, in Toronto, ON. Hill thinks of the work she does with intellectual property as an intersection of law and engineering, and although she works as a lawyer and patent and trademark agent by trade, she strongly identifies as a professional engineer.

Hill navigates an obstacle course with fellow PEO volunteers at a leadership training event at Canadian Forces Base Borden, northwest of Toronto, ON.

Many of Hill's clients are engineers who come up with novel inventions that need protection. She must be able to work with them and understand the essence of what they've designed and how those inventions work to protect their ideas, and that's something for which her engineering background is invaluable. Given the exceptional analytical skills required for patent work, Hill's engineering background has proved integral to her management of intellectual property, involving everything from robotics and medical devices to software and specialized tools. "You must have the ability to understand what they're talking about," Hill says. "I draw on my engineering knowledge every day. I'll get a new project, which may be just a bunch of drawings and maybe a parts list if I'm lucky, and then I have to figure out how it works—figure out what the essence of it is and try to define it as broadly as a possible—so my client gets broad protection."

When she looks at an idea a client is seeking protection for, she must figure out what its story is—what the often excruciatingly subtle differences are that make it unique and inventive—and note how even seemingly old ideas can possess something different and unique. Using drill bits as an example, Hill explains: "You might think, well, they're all old, and they're not—there's still invention that can come from them. What is the one essential feature that's different and important enough that it's worth putting a significant amount of money in to protect it? That's patent work."

A UNIQUE PERSPECTIVE

Hill brings a uniquely broad perspective of engineering to her role as PEO president. "I work in a whole bunch of different areas, and my firm works on an even broader range of areas than I do personally," she says. "So, I really have a very broad perspective of engineering and, I would say, a very inclusive perspective of engineering." And as a lawyer, she brings even more to the table. "At the end of the day, our job is to do what's set out in the act, and as a lawyer, I'm trained to read and understand these things." A Companion in PEO's Order of Honour, Hill also credits her many years as a PEO volunteer for contributing to shaping who she is today. She recently received her 25-year pin in recognition of her decades-long service as a volunteer, having participated on an exhaustive list of task forces and committees, as well as being a long-time member of Council. Among her

contributions at PEO is her participation on the Complaints Committee and the Complaints and Discipline Task Force. Hill believes these experiences gave her in-depth knowledge of PEO processes and the challenges associated with those areas. "I have a broader understanding of that whole side of our regulatory mandate that brings some depth of understanding to the role," Hill says. "It's had a profound impact on me, with regard to the people I've met who have been very supportive over the years and [who are] definitely role models."

More recently, Hill has worked with the University of Toronto's Troost Institute for Leadership Education in Engineering (I-LEAD), which works to promote engineers leading positive change. It's a program Hill strongly believes in: "What it highlights to me is the importance of being ready, willing and able to take on a leadership role and honing those skills; being an active participant on a committee; being prepared to be a leader," she explains. Hill wants to see more engineers step up to take leadership roles because she believes they can be a powerful force for good. With the proliferation of large infrastructure projects that are fundamentally engineering projects, she notes that engineering has a significant impact on quality of life. "I'd like more engineers to be part of the decision makers because when you see communities choosing not to maintain [infrastructure], it's not a good decision," she says. "I think if engineers were a part of the political process, they would be asking those questions and identifying where that's problematic." In a similar vein, Hill thinks the ethics module that professional engineers are encouraged to complete every year through PEO's Practice Evaluation and Knowledge (PEAK) program is a positive change and finds it encouraging. "I think a key difference between a licensed engineer and a graduate is the ethics piece," she says. "And I think we need to start stressing that more and stressing that differentiation and, I would say, maybe doing more about it."

THE SPHERE OF FEMALE INFLUENCE

Hill learned from the example of strong female professionals early on. Her mother was an optometrist who had her own practice and was heavily involved with her regulator, the College of Optometrists of Ontario, well before Hill was born. Reflecting on other influences who have made an impact on her professional development, Hill notes that seeing the late Claudette Mackay-Lassonde, P.Eng., become PEO's first female president in 1986 was momentous. "That was profound," Hill remarks. Other influences include Helen Wojcinski, P.Eng., FEC, whom Hill met when taking over as chair of PEO's Women in Engineering Advisory Committee (WEAC); former president of PEO and Engineers Canada Catherine Karakatsanis, P.Eng., FEC; former PEO president Diane Freeman, P.Eng., FEC; PEO volunteer Jeanette Southwood, P.Eng., FEC; and PEO Councillor Marilyn Spink, P.Eng. "Seeing how they navigated the challenges along the way was important," Hill says. "When you look at how many women engineers there are, there are not very many of us, really. But, they're formidable. And I've learned so much from them over the years."

For Hill, who at the time was a young female engineer, the École Polytechnique massacre in Montreal, Quebec, on December 6, 1989, in which 14 women—13 engineering students and one employee—were killed, was particularly shocking. "It was pretty impactful," Hill says. "It was a pivotal time." Consider also that MacKay-Lassonde, who earned her chemical engineering degree at that same school in 1971, had become PEO's first female president just three years earlier. Hill is quick to point out that Ontario was already a leader of women in engineering initiatives at that time but that historical event definitely had a galvanizing effect. "I wasn't there right from the beginning, but I was probably in the second wave, about three to five years later." Hill led that wave as the chair of WEAC, where she led PEO to amend the *Professional Engineers Act* to include harassment under the definition of professional misconduct.

> "WE NEED TO BE PREPARED TO LOOK AT WHAT WE'RE DOING AND LOOK AT IT OBJECTIVELY AND CRITICALLY AND ASK IF WE'RE DOING THE BEST WE CAN AND HOW WE CAN MAKE IT BETTER"

Nancy Hill at work at Hill & Schumacher in Toronto, ON.

In today's climate, and considering the necessity for initiatives like Engineers Canada's 30 by 30—which seeks to raise the percentage of newly licensed women engineers in Canada to 30 per cent by 2030—the significance of becoming PEO's next female president is not lost on Hill, who, although she is the association's 100th president, is only the seventh woman to do so in its history, preceded by Annette Bergeron, P.Eng., FEC (2013–2014); Diane Freeman (2010–2011); Catherine Karakatsanis (2009–2010); Christine Bell, P.Eng., FEC (1997–1998); Jane Phillips, PhD, P.Eng., FEC (1993–1994); and Claudette MacKay-Lassonde (1986–1987). PEO's 30 by 30 Task Force was put in place to help realize Engineers Canada's mission. "I think the task force is doing a great job," says Hill, who is also impressed by the outreach coming out of universities in terms of encouraging women to enter engineering. "But there are still problems. There's a big retention problem—and I think this is an issue that needs to be owned by the whole profession." She stresses the importance of getting men onboard with the initiative to make it a success and notes that, when she was chair of WEAC, male participation figured prominently. "It's great that the task force is 50/50 male and female right now, and I think the leadership [former PEO president] Bob Dony, PhD, P.Eng., FEC, took on is great because, if it's just the women engineers doing it, we're preaching to the converted," she says. "We know what the issues are; we've lived the issues." Hill maintains that the conversation has been the same for the past 20 years, and that, for this reason it's important that this be a much broader conversation with a broader group of people. But she's encouraged by Engineers Canada's mission and by the work the task force is doing. "I hope it will continue on after they finish their mandate," she says. Hill also sees progress and is extremely proud that both of her nieces have gone into engineering. "Seeing them navigate and doing phenomenally well and really enjoying their careers is delightful," Hill says.

Nancy Hill confers with Technical Assistant Kyongmi Yoo and Partner Lynn Schumacher, PhD, at the offices of Hill & Schumacher.

MOVING FORWARD

Forward momentum has been a hallmark of Hill's life and career and it will no doubt feature prominently in her presidency. Although recognizing that everyone has a unique and important perspective, Hill is determined to keep Council focused on PEO's regulatory mandate and ensure that, while everyone feels empowered to make a difference, they're all rowing in the same direction. "And having fun while doing it," Hill jokes. She wants to see the organization have a deep look at licensure. And as much as she would like to pursue other things during her term as president, such as PEO's Public Information Campaign—which aims to promote public awareness of the role of PEO—she doesn't think it should happen until licensing is, in her opinion, fixed. That's a project that will require everyone's full attention, she says. "There's a disconnect between what we define as engineering when we're accrediting engineering programs and what we define as the practice of engineering when we're evaluating if people meet the experience requirements," Hill explains. "And I think one is defined very broadly and the other is defined too narrowly. So, we need to revisit that. We have to be better at defining why it's important to get a licence, and we have to do that in a broader range of engineering disciplines or streams."

Hill maintains that the organization needs to go back to first principles, look at what it's trying to achieve and determine what the best tools are to get where it needs to go. She agrees with PEO's push to focus on employers to make the case for why it's important that the people they have working for them get their licence and why it can be a competitive advantage. But she's also concerned about what will happen if PEO convinces employers to get their staff licensed and those applicants experience barriers because PEO is viewing the practice of engineering too narrowly. "The whole licensing piece is critical to us moving forward as an organization," Hill says.

A comment made by an audience member at a recent I-LEAD event Hill spoke at gave her pause: "This one young student got up and said, 'Great leaders are reflective,' and I think that's what we need to be," Hill says. "It's about not being afraid to be reflective. We need to be prepared to look at what we're doing and look at it objectively and critically and ask if we're doing the best we can and how we can make it better, as opposed to saying we've always done it this way and therefore that's the way we're going to continue to do it. I don't think that's good enough. I think that speaks to our relevancy. I think that speaks to our ability to change with the times. I think if we don't do that, we'll be totally left behind. At the end of the day, it's about not being afraid to change." **e**

PROTECTING
the P.Eng.

From left to right: Enforcement and Advisory Officer Steven Haddock, Manager of Enforcement Cliff Knox, P.Eng., FEC, and Enforcement and Outreach Officer Ashley Gismondi

Ontario has over 89,000 professional engineers and certificate of authorization holders, the majority of whom practise engineering with a professionalism and accountability appropriate to their hard-earned licence. But how does PEO protect the public against unlicensed and unqualified people who attempt to practise engineering? *Engineering Dimensions* spoke with PEO's enforcement team to learn how they actively protect the public interest.

BY ADAM SIDSWORTH

Many engineers love reading *Engineering Dimensions*' Gazette section, informally known as the blue pages. The Gazette provides synopses of discipline hearings involving allegations of professional misconduct or incompetence on the part of engineers. An engineer who is found guilty may, depending on the decision of the Discipline Committee, have their licence revoked or suspended, have conditions imposed on their practice or be limited in their professional work. Due to these potential penalties, many engineers' biggest fear may be the day their names appear in the blue pages.

But that fear may be unfounded: Considering that PEO licenses over 89,000 engineers and companies, the number of engineers who are subject to a complaint or investigation, let alone come in contact with PEO's Discipline Committee, is amazingly low. In 2018, just 58 complaints against engineers were filed, and of those, only five advanced to the Discipline Committee and a mere 11 final decisions were issued.

PEO prides itself on licensing accomplished, polished professionals who take seriously their role in protecting the public interest. And PEO's professional engineers contribute to the economic viability and social good of the province. Many take pride in the P.Eng. designation they are permitted to use by PEO. For members, it is a privilege earned typically through appropriate academic training, professional experience and successful passing of PEO's Professional Practice Exam. Understandably, PEO takes seriously the misuse of the P.Eng., along with engineering work performed by unqualified members of the public—and that is where PEO's enforcement team comes to action.

WHAT ENFORCEMENT DOES

PEO's enforcement team investigates and prosecutes, among other things, the use of "engineer," "engineering" or any other variant of the word by unlicensed individuals or companies attempting to pose as professional engineers without authorization (see sidebar on page 47 for some exceptions); companies providing engineering services without a certificate of authorization (C of A) from PEO; and the use of forged engineering seals by unqualified individuals. They also allow companies to use a form of "engineer" or "engineering" in their names when they apply for a C of A.

"I would hesitate to call it turf protection," PEO Manager of Enforcement Cliff Knox, P.Eng., FEC, notes. "We have to ensure that the people operating engineering firms and providing engineering services are accountable to the public, whom we're supposed to be protecting. Our mandate is to regulate the practice of professional engineering. When we hear about an activity that falls within the practice of engineering, we need to determine if the company is authorized to provide services or if the practitioner is actually licensed to provide engineering."

The enforcement team began 548 investigations in 2018, of which two-thirds were initiated by PEO staff, with the remainder coming from public complaints or inquiries. Almost all—96 per cent—of the cases were related to title, meaning an individual calling him- or herself an engineer, despite not having a licence. Two per cent were related to practice—doing engineering without a licence—and the remaining 2 per cent were related to both practice and title. The enforcement team is quite effective. Consider that in 2018:

- Enforcement achieved a 98 per cent compliance rate;
- Only three charges were brought forward, although five additional charges were carried over from the previous year;
- Three charges were withdrawn;
- Two cases advanced to court prosecutions; and
- Three cases were carried over into 2019.

Despite their success, enforcement has a tough job, and it's not just because PEO doesn't have the manpower to identify every title misuse or practice performed by a non-engineer. Rather, it's the nature of engineering itself. "We have to rely on reported incidents," Knox explains. "A lot of times you won't know if there's deficient engineering until something breaks. With the medical profession, if you have a surgery that goes awry, a person either develops an infection or an illness from not getting proper care. With engineering, if the structure of a building is not properly designed, you may not find out until the building has been in use for several decades." Knox adds: "The engineer may be held accountable for the lifetime of those designs. If you're dealing with unlicensed designers, there's no way to hold them accountable for substandard engineering other than to take them to court. Under the *Professional Engineers Act* (PEA), we can prosecute them for

PEO published its *Guide to Enforcement Reporting*, which is aimed towards both Ontario's engineering community and the general public. The guide urges people to be vigilant in reporting unlicensed practitioners and helps people understand what they need to do when reporting unlicensed people.

not holding a licence not only because they can cause harm but because they broke the law in causing that harm."

PROTECTING THE PUBLIC

PEO Enforcement and Advisory Officer Steven Haddock is on the front line of enforcement. He and Enforcement and Outreach Officer Ashley Gismondi initiate and conduct investigations into engineering practised by unlicensed individuals. "There's an old case called 'Smith' sitting in my work area," Haddock explains. (All names of alleged perpetrators have been changed in this article.) "He finally pled guilty under the PEA to prevent being convicted of over 200 fraud charges. I spoke to the OPP (Ontario Provincial Police) about this guy. But his story is, 'Engineers don't do any work; I do all the real work.' And the OPP asked me if it's true, and I said, 'But it's the engineer who reviews all the work and takes legal responsibility, and if the building or structure isn't up to code, it's the engineer who takes the responsibility. It takes longer to come up with the plan than the calculations, but part of the engineering judgment is being able to do the calculations. That's what engineers get the big money for: to make sure it's fine. It could be disastrous, and that's what happens when you don't know what you're doing. You have to build things in a special way, such as building the strongest parts to have the most stress on them. You can't weld this; you have to bolt it. It's things like that that make sure a building stands for 100 years and not fall apart the day it's built."

Haddock divides the people he investigates into two groups: those who are ignorant that "engineer" is a protected title in Ontario and those who are purposely deceitful. "Most cases we deal with are people who genuinely didn't know they couldn't use the word 'engineer' or 'engineering' to describe their business," Haddocks says. "They know that 'professional engineer' is restricted, but somehow they think that 'engineer' and 'engineering' is okay, but that's not the law. You have to correct them." It gets messier when you outsource engineering to another firm. "I'm dealing with one case right now; they [are outsourcing] a professional engineer, and you have to make it clear that you're hiring a professional engineer to do that work," Haddock says, and that you can't call your firm an engineering firm. On the flip side, Haddock also deals with those unlicensed people who purposely deceive prospective clients about their lack of credentials for less-than-stellar reasons. "Mr. Johnson had 'engineer' on his business card, and that's why they trusted him, and they shouldn't have, because he was a gentle guy who would take your money and wouldn't do anything," Haddock says. "He's upset we prosecuted him. And he's already been suspended twice by the Ministry of Municipal Affairs and Housing because he [has] a BCIN (building code identification number), so he's allowed to do Part 9 design." (Part 9 of the Ontario Building Code allows for the construction of some smaller buildings without an architect or engineer.)

THE IMPORTANCE OF OUTREACH

Stephen Georgas, P.Eng., LLB, is the chair of PEO's Enforcement Committee, which advises both PEO Council and enforcement staff on enforcement-related policy and procedural issues. "Be our eyes and ears," Georgas urges members at the chapter level. "Let PEO know if anybody is practising or using a title without being licensed. By making an active effort to report on unauthorized title use, members can ensure that only duly licensed practitioners practise engineering and use the proper engineering titles."

Georgas is a strong supporter of outreach to Ontario's engineering community. The committee has recommended offering a module in the Practice Evaluation and Knowledge (PEAK) program on unauthorized practice and title use so that members of the professional engineering community will know what to look for, from an awareness and reporting standpoint.

Among enforcement staff, the responsibility for outreach falls to Gismondi. "If there's widespread misuse of the title 'engineer' at a company and perhaps 25 violations come to our attention through a routine search or informant," Gismondi says, "we don't write to all 25 employees. We want to write to the human resources representatives and educate from a top-down approach and let them know that it starts with them...Some companies have no clue, and my role is to educate. They don't read every single piece of legislation." Gismondi works with companies—even companies more experienced at working with engineers—that can be confused about title rights. "Can I call myself a software engineer? We recognize that now, so there are misconceptions about that," Gismondi says. "Engineering interns (EITs) think they can call themselves a junior engineer, and that's just not the case."

Gismondi also gives presentations, often in co-operation with PEO's outreach and engagement team, to university students about the importance of the P.Eng. She reiterates that it's a positive message, "engraving in their minds that once you graduate, you're not an engineer yet… planting these seeds helps reduce misuse of title and practising without a licence. Doing it early is more of a proactive approach."

Outreach—importantly—educates PEO members at the chapter level to become vigilant about enforcement. "In the fall we were at the Chapters Leaders Conference, and we were getting feedback on our *Guide to Enforcement Reporting* (www.peo.on.ca/index.php/ci_id/32666/la_id/1.htm). If somebody at a chapter invites us to speak to their members about enforcement, we try to accommodate their request," Gismondi says.

THE CHALLENGE OF ENFORCEMENT

Georgas, who has been involved with the Enforcement Committee for close to seven years, has observed that many PEO members don't know the difference between discipline, which targets malpractice and incompetence by members; and enforcement, which targets non-members. Georgas, who was, until recently, also licensed as a lawyer, is careful to note the jurisdictional distinction: In discipline proceedings, the onus is on PEO members to prove themselves competent, whereas in enforcement, the onus is on PEO to go to court and prove under the PEA that the non-member has broken the law.

Haddock is experienced dealing with the challenges of a PEO enforcement case. Although most cases are resolved easily, some do go all the way to prosecution. "We are allowed to lay charges ourselves," Haddock explains. "It's called a private prosecution. Anybody's allowed to prosecute anybody in this country. If you're a police officer or a provincial offences officer, it's a lot easier because they have a special procedure for doing it; they fill out their own charge sheet. If you're PEO, you go to a justice of the peace and convince him or her that you have probable grounds to lay charges against that person or corporation." It's usually routine, with Haddock bringing an affirmation and signing the information and filing it with the court. The defendant is served, and eventually the case proceeds to trial. Because the onus is on PEO to prove its case, there is always a risk that it can fall apart, particularly when additional information comes to light. "This happened once," Haddock admits. "It appeared there was just a misunderstanding between the engineer and the architectural technologist about who could use the seal, which he let the technologist have. Once that information comes out, and our engineer admits to it, our case falls apart because there's no way we can prove beyond a reasonable doubt that that's not what happened."

DEFINING ENGINEERING

Individuals and firms that practise engineering without the necessary licences face a maximum fine of $25,000 for a first offence and $50,000 for each subsequent offence. Additionally, the use of "professional engineer," or a variant of, or using an engineering seal (forged or otherwise) when not qualified can net the defendant a maximum fine of $10,000 for a first offence and $25,000 for each subsequent offence. But what is engineering? The PEA defines professional engineering as any act that:

- Plans, designs, composes, advises, reports, directs or supervises any such act;
- Requires the application of engineering principles; and
- Concerns the safeguarding of life, health, property, economic interest, public welfare or the environment.

For PEO's enforcement team, successful prosecution for unlicensed practice involves the ability to show how the alleged activity aligns with the definition of engineering, and that isn't simple. "It has to be done on a case-by-case basis," Knox asserts. "People may say, 'This activity involves engineering design,' and I say, 'I need to see the actual work you're doing to make the determination.' Are you setting the requirement on how much drainage is needed or the volume of the sewage to be processed, or are you saying, 'I need pipes to go from this location to that location'? That's work that can be done by an engineer, but it might not be engineering." Do you need to calculate the size of the pipe that's needed to handle the flow or volume of waste? And how long does the waste have to sit in the system? These questions may fit closer to engineering.

Knox was recently approached by the Ministry of Health and Long-term Care regarding medical x-rays. They queried if the specifications on shielding for medical x-rays falls under the practice of engineering. "When a hospital, or, more often, a dental office, is putting in x-ray equipment, they have to submit a plan that is then reviewed and approved by the ministry," Knox says. "Hospitals will often have a medical physicist on staff who will give specifications on the shielding for x-ray equipment. But when it comes to dental offices, it may be an architect or the dentists themselves who submit the plans. They may apply national guidelines or manufacturer's instructions for shielding but have no understanding of how to calculate the required minimum shielding." Knox notes that engineers trained in disciplines such as engineering physics have the knowledge to do the calculations. The ministry was, according to Knox, "looking for an opinion on whether the design should be done by an engineer with appropriate knowledge. To ensure there are safeguards for the technician, the patient and the bystander, the designer must consider the intensity of the x-ray in determining the appropriate shielding." Knox's verdict? "PEO may give an opinion that this design activity is engineering, but a legal decision is needed to settle any difference of opinion."

For PEO to get that legal decision, enforcement needs to file charges and bring a person or company to court. Knox adds: "We would have to line up experts in the relevant area of practice to give opinions. They would have a record of practice and knowledge in that area. The charged party could say, 'We were just following the national guidelines.' And we would say, 'How do you know that you applied it correctly?' And they say, 'We ran the calculations.' But PEO would require an engineer to render an opinion on if those actions were the practice of engineering. The responding party would have to bring in an expert to prove their assumption, and PEO would attempt to argue if their expert was competent to give an opinion. Does this expert have equivalent knowledge to a person who would normally do this type of work? Anytime we're making a case on whether an activity falls within the practice of professional engineering, PEO may need to provide an expert who can make the case."

ENFORCING EMERGING FIELDS

With the exponential rise in technology, the mandate to regulate engineering is a challenge that PEO has to navigate. For Knox, knowing how to regulate these emerging engineering fields is daunting when schools have yet to develop appropriate syllabi to define them. "One example is communication infrastructure engineering, which we do not have a syllabus for; we don't have a set of courses or a set of defined concepts that can be used to test the knowledge of the individuals practising in that area," Knox says. "PEO also recognizes nanomolecular engineering, but there's only one school in Canada that offers an accredited program, and we don't have a syllabus." Knox disagrees that it is increasingly difficult for PEO to regulate the ever-increasing technological changes, stating, "PEO doesn't regulate technology: PEO regulates practitioners, so we have to look at the emerging technology that's out there, ask if it has the potential to impact our lives, then ask what is the engineering content, and what should we be reasonably attempting to regulate?" Knox uses the example of autonomous vehicles, which require software engineers to integrate control systems that can make decisions about speed and weather conditions and use global positioning. Plus, Knox says, "there are a whole set of rules that don't involve engineering. They involve liability and indemnity questions best answered by insurance professionals. If an autonomous vehicle gets into an accident, who's at fault? Who takes responsibility for any damage or injury as a result? You could argue it's whoever manufactured the autonomous vehicle, but they didn't say, 'Drive me from [Toronto] to Newmarket.'"

EXCEPTIONS TO THE RULE

Under the PEA, the use of "engineer" in a title is restricted to licence holders and temporary licence holders; however, there are exceptions under other Ontario and federal statutes. People without a PEO licence who can call themselves engineers include:

- Flight engineers (licence under federal regulation);
- Locomotive engineers (reference under federal regulation);
- Sound engineers (recording and broadcast industry);
- Aircraft maintenance engineers (licence under federal regulation)
- Operating engineers (cited in provincial legislation); and
- Certified hoisting engineers (cited in provincial legislation).

THE FUTURE OF ENFORCEMENT

Over the next year, the Enforcement Committee has a number of working goals: developing a set of representative examples of engineering practices to illustrate traditional and emerging disciplines; exploring loopholes and shortcomings in the PEA that limit enforcement action that can be taken; and preparing a position paper on the impact of providing split registration for practice and title and how it might affect practising engineers and non-practising engineers. But whether the P.Eng. is eventually split or stays the same, the value of the P.Eng. remains high. Consider that PEO, on its website, tells prospective applicants that "the P.Eng. licence…demonstrates that you have met a rigorous educational standard through a demanding, hands-on internship process…[you] are obliged to adhere to a strict code of ethics that puts the public interest first. All of these are valued within the engineering working community and society at large, awarding you credibility and recognition."

Haddock is philosophical about some of the more devious people attempting to practise engineering without a licence. He remembers a respected Ontario university that hired a barely credible C of A holder—he had a forged seal and an absentee P.Eng. to be responsible for the C of A—to design a special chemical ventilation system in one of their labs. A different client paid him $40,000 after he said, "I did all this work for you; I didn't get a message to stop." (He was fighting a lawsuit in Superior Court.) The client successfully sued him, but the cost of lawyers' fees barely made it worthwhile, and the defendant at one point attempted to have the court proceedings thrown out. "You hear about certain elected officials who think they can flout the law because they can fight in court, and that seems to be this guy's attitude," Haddock explains. "It doesn't matter to him that he's doing stuff that's against the law, because the process of getting things out are so time-consuming, and by the time anything comes to fruition, it's too late for anybody to do anything about it." And that is where PEO and enforcement step in. Thanks to the diligent efforts of PEO staff and the reporting by people in the engineering community, unscrupulous people are weeded out. **e**

Attend

August 2019

AUGUST 9–10
International Conference on Structural, Civil and Architectural Engineering, Montreal, QC
icscae.org

AUGUST 5–6
International Conference on Aerospace, Mechanical, Automotive and Materials Engineering, Montreal, QC
waset.org/conference/2019/08/montreal/ICAMAME

AUGUST 12–14
International Conference & Exhibition on Advanced & Nano Materials, Montreal, QC
icanm2019.iaemm.com

AUGUST 13–15
International Conference on Modeling and Simulation of Metallurgical Processes in Steelmaking, Toronto, ON
aist.org/conference-expositions/steelsim

AUGUST 18–21
MetSoc Conference of Metallurgists, Vancouver, BC
com.metsoc.org

September 2019

SEPTEMBER 16–17
Advanced Clean Energy Summit, Denver, CO
event.asme.org/ACES

SEPTEMBER 9–11
Conference on Smart Materials, Adaptive Structures and Intelligent Systems, Louisville, KY
event.asme.org/SMASIS

SEPTEMBER 16–17
Canadian Shale Water Management Exhibition and Conference, Calgary, AB
canada.shale-water-management.com

Watch

700 mph in a Tube: The Hyperloop Experience
Trying to make Elon Musk's pipe dream a reality
www.youtube.com/watch?v=7A7GsAPR3J0

Makani Energy Kite: A Smarter Wind Turbine
An improved wind turbine generates more energy, with less materials at lower costs.
www.youtube.com/watch?v=UauZ9XEra98

Ekso Bionics: Building Stronger Humans
Building robotic exoskeletons to enhance human capabilities
www.youtube.com/watch?v=kUCxAd1n9us

Read

The Ethical Engineer: Contemporary Concepts and Cases, by Robert McGinn, 2018: An exploration of the ethics of practical engineering, from technology transfer to privacy protection to whistle-blowing, by analyzing case studies and illuminating the ethical dimension of engineering practice.

Law for Professional Engineers: Canadian and Global Insights, by Donald L. Marston, P.Eng., LLB, 2019: A general reference text for engineers and candidates preparing for engineering law exams, as well as for owners, consultants, project managers and others engaged in engineering projects.

Engineering Justice: Transforming Engineering Education and Practice, by Jon A. Leydens and Juan C. Lucena, 2017: Engineering curricula as a conduit for making social justice visible in engineering, exploring the complex socio-technical interplays inherent in engineering practice and enhancing teaching and learning.

Deep Medicine: How Artificial Intelligence Can Make Healthcare Human Again, by Eric Topol, 2019: A medical doctor writes about the potential of AI to transform everything doctors do, can empower them, revolutionize patient care and make medicine better for everyone involved.

Surf

Efunda.com: Fundamentals, formulas and engineering reference tools
Engineeringtoolbox.com: Features a collection of unit conversion tools for engineers
Globalspec.com: Offers product and supplier lists for engineering projects
Eng-tips.com: An online forum for a global network of engineers
Discovere.org: For young minds exploring the possibilities of engineering

P.ENGs AND ENGINEERING STUDENTS WIN PRESTIGIOUS AWARDS

By Marika Bigongiari

Catherine Karakatsanis, P.Eng., FEC, COO of Morrison Hershfield, won the Gold Medal Award from Engineers Canada.

Helen Wojcinski, P.Eng., FEC, president, Wojcinski & Associates Ltd., won the Meritorious Service Award for Community Service from Engineers Canada.

The 2019 Engineers Canada Award recipients were honoured at a gala in Quebec City, Quebec, in May. The awards highlight excellence in engineering achievement, as well as recognizing those with exceptional passion for the profession. Among this year's winners are **Catherine Karakatsanis P.Eng., FEC,** chief operating officer of Morrison Hershfield and a past president of both PEO and Engineers Canada, winner of the Gold Medal Award; **Jennifer Drake, PhD, P.Eng.,** researcher and assistant professor in the department of civil and mineral engineering, cross-appointed with the John H. Daniels faculty of architecture, landscape and design at the University of Toronto, winner of the Young Engineer Achievement Award; and **Helen Wojcinski, P.Eng., FEC,** president, Wojcinski & Associates Ltd. and longtime PEO volunteer, winner of the Meritorious Service Award for Community Service.

Consulting Engineers of Ontario (CEO) hosted their 17th annual Ontario Consulting Engineering Awards gala in Kleinburg, Ontario, in April. The awards honour firms doing exceptionally innovative work in consulting engineering. Eleven awards were presented, with **John G. Cooke & Associates** taking home top honours with the Willis Chipman Award for their Ottawa, ON, Government Conference Centre Rehabilitation, a project that involved restoring a federal government building built in 1912 while maintaining its historical charm. Awards of Excellence were awarded to **AIA Engineers LLC** for the Highway 407 East Extension Phase 2A in the Region of Durham, ON; **Blackwell** for the Schulich School of Business Expansion in Toronto, ON; **Parsons** for the Fountain Street/Grand River Bridge Superstructure Replacement in the Region of Waterloo, ON; and **Hatch** for the Oxec II Hydroelectric Project in north central Guatemala. Awards of Merit were awarded to **Adjeleian Allen Rubeli Limited** for the Algonquin College DARE District in Ottawa, ON; **Robinson Consultants Inc.** for the Northwest Arm Trunk Sewer Rehabilitation in Halifax, Nova Scotia; **DST Consulting Engineers Inc.** for the New Gold Rainy River Mine Development in the Township of Chapple, ON; **Stantec** for the First Nations Infrastructure Resilience Toolkit and Pilot Projects; **AECOM** for the Dundas Connects–Dundas Street Corridor Master Plan in Mississauga, ON;

John G. Cooke & Associates accepts the Willis Chipman Award at the Ontario Consulting Engineering Awards for the Government Conference Centre Rehabilitation in Ottawa, ON. Left to right: Mary Cooke, John Cooke, P.Eng., Chris Vopni, P.Eng., Lisa Nicol, P.Eng., and Consulting Engineers of Ontario Chair Christine Hill, P.Eng. Photo: Consulting Engineers of Ontario

and **WSP** for the F.G. Gardiner Expressway Lower Simcoe Street (York–Bay–Yonge) Off Ramp in Toronto, ON.

Paul Fieguth, PhD, P.Eng., vice dean of the faculty of engineering, professor and department chair of the department of systems design engineering and a co-director of the Vision and Imaging Processing Lab at the University of Waterloo, has been recognized with a Distinguished Teacher Award for his enthusiastic passion for teaching and celebrated support of his students. The awards are given to exemplary teachers at the University of Waterloo, where four recipients are chosen annually.

Also at the University of Waterloo, world-class researcher and professor of engineering **Keith Hipel, PhD, P.Eng.,** has been awarded the prestigious 2019 Killam Prize by the Canada Council for the Arts. Hipel, who is also an officer of the Order of Canada, is one of five winners collecting a $100,000 prize, which recognizes his unique approach and use of modelling tools to study water resources and the environment. The award is given annually to scholars in engineering, natural sciences, social sciences, health sciences and humanities.

University of Toronto Professor **Molly Shoichet, PhD, LEL,** has been inducted as a fellow of the Royal Society. Shoichet, who is the Canada research chair in tissue engineering, has been working diligently in the area of treating damage to nerve tissues, a treatment particularly critical in the instance of traumatic spinal cord injury and stroke. She is also an officer of the Order of Canada, a member of the Order of Ontario, a member of the US National Academy of Engineering and a past recipient of the aforementioned prestigious Killam Prize.

Essam Hussein, PhD, P.Eng., dean and professor in the faculty of engineering and applied sciences at the University of Regina, Saskatchewan, has been awarded the prestigious Outstanding Achievement Award by the Association of Professional Engineers and Geoscientists of Saskatchewan (APEGS). Hussein, a registered professional engineer in the provinces of Saskatchewan, New Brunswick and Ontario, works in developing peaceful uses of nuclear technology, including the detection of contraband material. The award is given by APEGS to those demonstrating technical excellence and achievement in engineering and/or geoscience in the province of Saskatchewan.

McMaster University's **Thomas Adams, PhD, P.Eng.,** an associate professor and associate chair (graduate) in the department of chemical engineering with a well-established track record of community building, has been named a University Scholar. Adams is one of six recipients of the prestigious award, valued at $15,000 for each year of the award, up to a maximum of $60,000. The award honours mid-career researchers and recognizes international scholars working tirelessly to promote excellence in education and pedagogy and who are devoted to the preservation of knowledge. Adams' area of expertise lies in green energy conversion, semicontinuous systems, process design, modelling and simulation and optimization. His primary research interests are in process systems engineering and the design, optimization and control of energy systems.

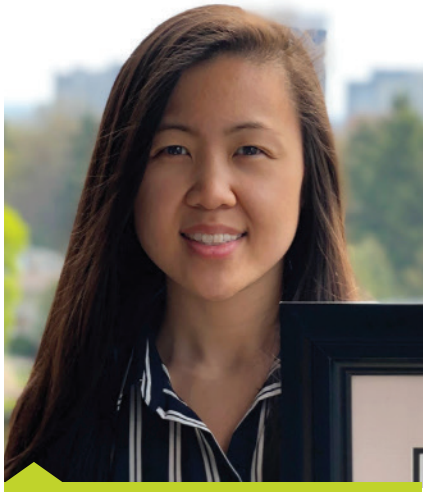
Assistant professor in the department of civil engineering at York University's Lassonde School of Engineering **Magdalena Krol, PhD, P.Eng.,** has won the 2019 Early Career Hydrogeologist Award. The award was given by the International Association of Hydrogeologists (IAH) in recognition of Krol's dedication to the hydrogeological community and her continued contributions to the field, including her expertise in groundwater remediation. The IAH is a scientific and educational charitable organization for scientists, engineers and other professionals working in the fields of groundwater resource planning, management and protection, with a mission to further the understanding and protection of groundwater resources throughout the world.

AIA Engineers LLC won an Award of Excellence at the Ontario Consulting Engineering Awards for the Highway 407 East Extension Phase 2A in the Region of Durham, ON.

WSP won an Award of Merit at the Ontario Consulting Engineering Awards for their F.G. Gardiner Expressway Lower Simcoe Street (York–Bay–Yonge) Off Ramp in Toronto, ON.

(Left) McMaster University's Thomas Adams, PhD, P.Eng., an associate professor and associate chair (graduate) in the department of chemical engineering, has been named a University Scholar by McMaster University.

(Right) Assistant professor in the department of civil engineering at York University's Lassonde School of Engineering Magdalena Krol, P.Eng., has won the 2019 Early Career Hydrogeologist Award.



University of Waterloo civil engineering graduate student Michelle Liu, EIT, has been recognized by the City of Waterloo for giving back to her community.

STUDENT AWARDS

University of Waterloo graduate student **Michelle Liu, EIT,** who is working towards her masters in civil engineering, has been recognized by the City of Waterloo for giving back to her community. Liu, who volunteers up to 40 hours per month in varying capacities both in and out of school, was presented with a certificate signed by Waterloo Mayor Dave Jaworsky. The hard-working engineering student divides her time between the Kitchener, ON, Grand River Hospital, where she spends much of her time at the hospital's cancer centre and oncology unit, and PEO, where she is the secretary of her local PEO chapter and works with its awareness programs to promote women in engineering.

Kritika Mehta, a third-year University of Waterloo biomedical engineering student, has won a $5,000 scholarship, the Nellie Giffin Engineering Award, from the Canadian Memorial Foundation. The foundation, which was created in honour of the 14 women murdered at Polytechnique Montréal (then known as École Polytechnique) in Montreal, QC, in 1989, is dedicated to promoting females in engineering and provides scholarships to exceptional students who demonstrate leadership. The award recognizes Mehta—who actively works to encourage younger students who may be struggling to keep moving forward—as a role model for young women in engineering.

York University's Lassonde School of Engineering PhD student **Athina Peidou** has won the International Association of Geodesy Young Authors Award for her research paper *On the feasibility of using satellite gravity observations for detecting large-scale solid mass transfer events*, which analyzes the capability of satellites to detect landslides, especially those that are submarine. Peidou's research marks an important step towards understanding our planet's mechanisms.

University of Waterloo teaching assistant and PhD candidate in the department of mechanical and mechatronics engineering **Apratim Chakraborty** has won an Amit and Meena Chakma Award for Exceptional Teaching by a Student. Chakraborty is being honoured for his exceptional dedication to his students and is one of four recipients of the award at the university.

The McMaster University faculty of engineering has announced its inaugural Co-op Student of the Year award recipients. The awards mark the first time engineering students have been recognized for both their academic and professional work. The first-time recipients of the award include **Noelle Wilton**, a chemical and bioengineering student placed at BioMarin Pharmaceuticals in Marin County, California, and **Abraham Omorogbe**, a software engineering and management student placed at Microsoft in Bellevue, Washington.

Humber College won the 2019 National Engineering Month (NEM) College Student Challenge. The competition invites students at colleges across Ontario to host events during NEM to compete for prizes and complimentary memberships to the Ontario Association of Certified Engineering Technicians and Technologists. Humber's team planned a community outreach event—themed "There's a place for you in engineering"—aimed at getting girls interested in science, technology, engineering and math (STEM) fields. The successful event offered two workshops that afforded female students the chance to build their own circuit board and have fun doing it. **e**

Professional Engineers Ontario

2020 COUNCIL ELECTIONS CALL FOR CANDIDATES

All PEO members are invited to become candidates for the positions of **president-elect, vice president, councillor-at-large** and **regional councillor** (one for each of PEO's five regions) on PEO Council.

1. Any member may be nominated for election to Council as **president-elect, vice president** or **councillor-at-large**, by at least 15 other members. The nomination must include at least one member resident in each region. [Regulation 941/90, s. 14(1)]
   (a) The position of **president-elect** is for a one-year term, after which the incumbent will serve a one-year term as president and a one-year term as past president.
   (b) The position of **vice president** is for a one-year term.
   (c) The **councillor-at-large** position is for a two-year term. One councillor-at-large is to be elected in 2020.
2. Any member residing in a region may be nominated for election to Council as a **regional councillor** for that region by at least 15 other members who reside in the region. [Regulation 941/90, s. 14(2) and s. 15.1(2)]
   (a) The position of **regional councillor** is for a two-year term.

A member nominated for election to Council must complete a nomination acceptance form that states he or she is a Canadian citizen or has the status of a permanent resident of Canada and is a resident in Ontario [section 3(3) of the *Professional Engineers Act*] and consents to the nomination [Regulation 941/90, s. 15]. Nomination petitions for collection of nominators' signatures and nomination acceptance forms may be obtained from the PEO website at www.peo.on.ca, or Ralph Martin, PEO, 40 Sheppard Avenue West, Suite 101, Toronto ON M2N 6K9. Email: rmartin@peo.on.ca; Tel: 416-840-1115; 800-339-3716, ext. 1115.

Completed nomination petitions and nomination acceptance forms are to be sent only electronically and only to the chief elections officer at elections@peo.on.ca, by 4 p.m., November 29, 2019. No personal delivery of forms will be accepted. For further information on becoming a candidate, please refer to the *2020 Council Elections Guide* posted on PEO's website.

2020 VOTING PROCEDURES

The 2020 voting and election publicity procedures were approved by the Council of PEO in June 2019. Candidates are responsible for familiarizing themselves with these procedures. Any deviation could result in a nomination being considered invalid. Candidates are urged to submit nominations and election material well in advance of published deadlines so that irregularities may be corrected before the established deadlines. Nominees' names are made available as received; all other election material is considered confidential until published by PEO.

1. The schedule for the elections to the 2020–2021 Council is as follows:

Date nominations open	October 21, 2019
Date nominations close	4 p.m., November 29, 2019
Date PEO's membership roster will be closed for the purposes of members eligible to automatically receive election material[1]	January 10, 2020
Date a list of candidates and voting instructions will be sent to members	no later than January 17, 2020
Date voting will commence	on the date that the voting packages are sent to members, no later than January 17, 2020
Date voting closes	4 p.m., February 21, 2020

All times noted in these procedures are Eastern Time.

[1]Members licensed after this date may call in and request that election information be mailed to them by regular mail or, upon prior written consent by the member for use of his/her email address, via email or via telephone.

2. Candidates' names will be listed in alphabetical sequence by position on the list of candidates sent to members and on PEO's website. However, the order of their names will be randomized when voters sign in to the voting site to vote.
3. A person may be nominated for only one position.
4. Nomination papers are to be submitted only by email (elections@peo.on.ca) for tracking purposes. Forms will not be accepted in any other format (e.g. fax, personal delivery, courier, regular mail).
5. Only nomination acceptance and nomination forms completed in all respects, without amendment in any way whatsoever will be accepted.
6. Signatures on nomination forms can be hand signed or electronic.
7. Signatures on nomination papers do not serve as confirmation that a member is formally endorsing a candidate.

8. Candidates will be advised when a member of the Central Election and Search Committee has declared a conflict of interest should an issue arise that requires the consideration of the committee.
9. An independent agency has been appointed by Council to receive, control, process and report on all cast ballots. This "official elections agent" will be identified to the members with the voting material.
10. If the official elections agent is notified that an elector has not received a complete election information package, the official elections agent shall verify the identity of the elector and may either provide a complete duplicate election information package to the elector, which is to be marked "duplicate," by regular mail or email or provide the voter's unique control number to the voter and offer assistance via telephone. In order to receive such information via email, the elector must provide prior written consent to the use of his or her email address for this purpose.
11. Council has appointed a Central Election and Search Committee to:
    - encourage members to seek nomination for election to the Council as president-elect, vice president or a councillor-at-large;
    - assist the chief elections officer as may be required by him or her;
    - receive and respond to complaints regarding the procedures for nominating, electing and voting for members to the Council;
    - conduct an annual review of the elections process and report to the June 2020 Council meeting.

12. Council has appointed a Regional Election and Search Committee for each region to:
    - encourage members residing in each region to seek nomination for election to the Council as a regional councillor.

13. Candidates for PEO Council may submit expense claims. The travel allowance to enable candidates to travel to chapter events during the period from the close of nominations to the close of voting will be based on the distance between chapters and the number of chapters in each region. Such travel expenses are reimbursed only in accordance with PEO's expense policy.
14. Council has appointed an independent chief elections officer to oversee the election process and to ensure that the nomination, election and voting are conducted in accordance with the procedures approved by Council.
15. The chief elections officer will be available to answer questions and complaints regarding the procedures for nominating, electing and voting for members to the Council. Any such complaints or matters that the chief elections officer cannot resolve will be forwarded by the chief elections officer to the Central Election and Search Committee for final resolution. Staff is explicitly prohibited from handling and resolving complaints and questions, other than for administrative purposes (e.g. forwarding a received complaint or question to the chief elections officer).
16. On or before the close of nominations on November 29, 2019, the president will appoint three members or councillors who are not running in the election as returning officers to:
    - approve the final count of ballots;
    - make any investigation and inquiry as they consider necessary or desirable for the purpose of ensuring the integrity of the counting of the vote and report the results of the vote to the registrar not later than March 10, 2020.

17. Returning officers shall receive a per diem of $250 plus reasonable expenses to exercise the duties outlined above.
18. Nomination papers are to be submitted only by email for tracking purposes. Forms will not be accepted by any other format (e.g. personal delivery, courier, fax or regular mail). Candidates should allow sufficient time for their emails to go through the system to ensure that the completed papers are, in fact, received by the chief elections officer by 4 p.m. on November 29, 2019. In the event of a dispute as to when the forms were sent vs received, a candidate can provide the chief elections officer with a copy of his or her email to PEO that would indicate the time the nomination forms were sent from his/her computer. A nomination, once withdrawn, may not be re-instated.
19. If a candidate withdraws his or her nomination for election to PEO Council prior to the preparation of the voting site, the chief elections officer shall not place the candidate's name on the voting site of the official elections agent or on the list of candidates sent to members and shall communicate to members that the candidate has withdrawn from the election. If the candidate withdraws from the election after the electronic voting site has been prepared, the chief elections officer will instruct the official elections agent to adjust the voting site to reflect the candidate's withdrawal.
20. In the event a candidate changes his or her mind on a position and decides to run for a different position after submitting nomination forms, a newly completed nomination petition form, in addition to a new acceptance form, will be required.
21. In the event a chapter holds an All Candidates Meeting, the chapter must invite to the meeting all candidates for whom voters in that region are eligible to vote.
22. Voting will be by electronic means only (internet and telephone). Voting by electronic means will be open at the same time the electronic election packages are sent out.
23. All voting instructions, a list of candidates and their election publicity material will be sent to members. All

voters will be provided with detailed voting instructions on how to vote electronically. Control numbers or other access control systems will be sent to members by email after the election package has been sent out. The official elections agent will send out an eblast with the control numbers (PINs) every Monday during the election period. Election material sent to members electronically or by mail will contain information related to the All Candidates Meetings.

24. Verification of eligibility, validity or entitlement of all votes received will be required by the official elections agent. Verification by the official elections agent will be by unique control number to be provided to voters with detailed instructions on how to vote by internet and by telephone.
25. The official elections agent shall keep a running total of the electronic ballot count and shall report the unofficial results to the chief elections officer, who will provide the candidates with the unofficial results as soon as practically possible.
26. Voters need not vote in each category to make the vote valid.
27. There shall be an automatic recount of the ballots for a given candidate category for election to Council or bylaw confirmation where the vote total on any candidate category for election to Council between the candidate receiving the highest number of votes cast and the candidate receiving the next highest number of votes cast is 25 votes or less for that candidate category or where the votes cast between confirming the bylaw and rejecting the bylaw is 25 votes or less.
28. Reporting of the final vote counts, including ballots cast for candidates that may have withdrawn their candidacy after the opening of voting to PEO, will be done by the returning officers to the registrar, who will advise the candidates and Council in writing at the earliest opportunity.
29. Certification of all data will be done by the official elections agent.
30. The official elections agent shall not disclose individual voter preferences.
31. Upon the direction of the Council following receipt of the election results, the official elections agent will be instructed to remove the electronic voting sites from its records.
32. Election envelopes that are returned to PEO as undeliverable are to remain unopened and stored in a locked cabinet in the Document Management Centre (DMC) without contacting the member until such time as the election results are finalized and no longer in dispute.
33. Elections staff shall respond to any requests for new packages as usual (i.e. if the member advises that he/she has moved and has not received a package, the member is to be directed to the appropriate section on the PEO website where the member may update his/her information with DMC).
34. DMC staff shall advise elections staff when the member information has been updated; only then shall the elections staff request the official elections agent to issue a replacement package with the same control number.
35. Elections staff are not to have access to, or control of, returned envelopes.
36. After the election results are finalized and no longer in dispute, the chief elections officer shall authorize the DMC to unlock the cabinet containing the unopened returned ballot envelopes so that it may contact members in an effort to obtain current information.
37. After the DMC has determined that it has contacted as many members whose envelopes were returned as possible to obtain current information or determine that no further action can be taken to obtain this information, it shall notify the elections staff accordingly and destroy the returned elections envelopes.
38. PEO will post total votes cast in the election on the PEO website on each Friday of the voting period and will post final vote totals by candidate after voting has closed. No other information related to vote totals will be made available.
39. Nothing in the foregoing will prevent additions and/or modifications to procedures for a particular election if approved by Council.
40. The All Candidates Meetings will take place the week of January 6, 2020.
41. All questions from, and replies to, candidates are to be addressed to the chief elections officer:

By email: elections@peo.on.ca

By letter mail: Chief elections officer
c/o Professional Engineers Ontario
101–40 Sheppard Avenue West
Toronto, ON M2N 6K9

2020 ELECTION PUBLICITY PROCEDURES

IMPORTANT DATES TO REMEMBER

Deadline for receipt of publicity materials for publication in *Engineering Dimensions* and on the PEO website, including URLs to candidates' own websites	4 p.m., December 9, 2019
Deadline for submission of candidate material to eblast to members	1. January 13, 2020—1st eblast 2. January 27, 2020—2nd eblast 3. February 10, 2020—3rd eblast
Dates of eblasts to members	1. January 20, 2020 2. February 3, 2020 3. February 18, 2020
Date of posting period	January 17, 2020, to February 22, 2020
Dates of voting period	12 p.m., January 17, 2020, to 4 p.m., February 21, 2020

1. Names of nominated candidates will be published on PEO's website as soon as their nomination is verified.
2. Names of all nominated candidates will be forwarded to members of Council, chapter chairs and committee chairs and published on PEO's website by December 2, 2019.
3. Should a candidate wish to withdraw from the election, their name will remain on the website and the word "withdrawn" will appear beside their name on the PEO website.
4. Candidates will have complete control over the content of all their campaign material, including material for publication in *Engineering Dimensions*, on their additional material on PEO's website and on their own websites.
5. Candidate material is readily available to the public and should be in keeping with the dignity of the profession at all times. Material will be published with a disclaimer. The chief elections officer may seek a legal opinion prior to publishing/posting of any material if the chief elections officer believes campaign material could be deemed libelous. The chief elections officer has the authority to reject the campaign material if so advised by legal counsel.
6. Candidate material may contain personal endorsements provided there is a clear disclaimer indicating that the endorsements are personal and do not reflect or represent the endorsement of PEO Council, a PEO chapter or committee or any organization with which an individual providing an endorsement is affiliated.
7. Candidate material for publication in *Engineering Dimensions* and any additional material they wish to publish on the website, including URLs to candidates' own websites, must be forwarded to the chief elections officer via email at elections@peo.on.ca no later than 4 p.m. on December 9, 2019, and **must be in accordance with these procedures and Schedule A attached.**
8. Candidates have the option of using one of two templates to present their election material in *Engineering Dimensions*. Both templates are included in Schedule A of these procedures. The size of both templates is the equivalent of one-half page, including border, in *Engineering Dimensions*.
   a. Option 1: Candidates using the blank template will have discretion over the presentation of their material, including but not limited to font style, size and effects. Candidates using the blank template will be permitted to include their portrait within the template.
   b. Option 2: Candidates using the fillable template must provide responses to the questions provided in the allotted space. The presentation of the fillable template is fixed and no modifications will be permitted. Candidates using the fillable template must submit their portrait separately for insertion into the designated location by PEO staff.
9. Candidates shall not use the PEO logo in their election material.
10. Candidates may include links to PEO publications but *not* a URL link to a third party in their material on PEO's website. Links to PEO publications are not considered to be to a third party. For clarity, besides links to PEO publications, the only URL link that may be included in a candidate's material on PEO's website is a URL link to the candidate's own website.
11. If campaign material is submitted by a candidate without identifying information, PEO staff are authorized to contact the candidate and ask if he or she wishes to resubmit material. If campaign material is received by the chief elections officer and returned to the candidate for amendment to comply with the Election Publicity Procedures, and the amended material is not returned within the prescribed time, staff will publish the material with a notation explaining any necessary amendments by staff.
12. The chief elections officer is responsible for ensuring that all candidate material (whether for *Engineering Dimensions*, PEO's website or eblasts) complies with these procedures. Where it is deemed the material does not satisfy these procedures, the chief elections officer will, within three full business days from receipt of the material by the chief elections officer, notify the candidate (or an appointed alternate), who is expected to be available during this period by telephone or email. The candidate (or appointed alternate) will have a

further three full business days to advise the chief elections officer of the amendment. Candidates are responsible for meeting this deadline. Should a candidate fail to resubmit material within the three-business-day period, the candidate's material will be published with a notation explaining any necessary amendments by staff.

13. Candidate publicity material will be published as a separate insert in the January/February 2020 issue of *Engineering Dimensions* and to PEO's website in January 2020 and included in any hardcopy mailing to eligible voters with voting instructions. Links to candidate material on PEO's website will be included in any electronic mailing to eligible voters.
14. Candidate material will be considered confidential and will be restricted to staff members required to arrange for publication until published on PEO's website. All candidates' material will be published to PEO's website at the same time.
15. Candidates may submit updates to their material on PEO's website once during the posting period. Any amendments to a candidate's name/designations are to be considered part of the one-time update permitted to their material during the posting period.
16. Candidates may post more comprehensive material on their own websites, which will be linked from PEO's website during the posting period. Candidates may include active links to their social media accounts (Facebook, Twitter, LinkedIn, etc.) in material appearing in *Engineering Dimensions*, published on PEO's election site (i.e. the 1000-word additional information candidates may submit), or included in an eblast of candidate material.
17. PEO will provide three group email distributions to members of candidate publicity material beyond the material published in *Engineering Dimensions*. Material to be included in an eblast must be submitted to the chief elections officer at elections@peo.on.ca in accordance with Schedule A. In the event of a dispute as to when the material was sent vs received, the material will be accepted only if a candidate can provide the chief elections officer with a copy of his or her email to PEO sent from his or her computer indicating a sent time before the deadline.
18. All material for the eblast messages must be submitted in a Word document only and must not be included as part of the message in the transmission email. Where the email message is received in a font size or style that is different from the specifications but otherwise meets all the requirements, the chief elections officer may authorize staff to change only the size and font of the material so it conforms to specifications. Staff are prohibited from amending material in any way except with the written permission of the candidate.
19. Candidates are responsible for responding to replies or questions generated by their email message.
20. The chief elections officer is responsible for ensuring that all candidate material (whether for *Engineering Dimensions*, PEO's website or eblasts) complies with these procedures. Where it is deemed the material does not satisfy these procedures, the chief elections officer will, within three full business days from receipt of the material by the association, notify the candidate or an appointed alternate, who is expected to be available during this period by telephone or email. The candidate or appointed alternate will have a further three full business days to advise the chief elections officer of the amendment. Candidates are responsible for meeting this deadline. Should a candidate fail to resubmit material within the three-business-day period, the candidate's material will be published with a notation explaining any necessary amendments by staff.
21. PEO will provide candidates the opportunity to participate in All Candidates Meetings, which will be held at PEO offices during the week of January 6, 2020. The All Candidates Meetings will be video recorded for posting on PEO's website. On the day of the first All Candidates Meeting, an eblast will be sent to members announcing that these video recordings will be posted on the PEO website within two business days.
22. Candidate materials from previous elections will remain on PEO's database as part of the record of the election.
23. Caution is to be exercised in determining the content of issues of membership publications published during the voting period, including chapter newsletters. Editors are to ensure that no candidate is given additional publicity or opportunities to express viewpoints in issues of membership publications distributed during the voting period from January 17, 2020, until the close of voting on February 21, 2020, beyond his/her candidate material published in the January/February issue of *Engineering Dimensions* and on the PEO website. This includes photos (with or without captions), references to, or quotes or commentary by, candidates in articles, letters to the editor and

opinion pieces. PEO's communications vehicles should be, and should be seen to be, nonpartisan. The above does not prevent a PEO publication from including photos of candidates taken during normal PEO activities (e.g. licensing ceremonies, school activities, GLP events, etc.) provided there is no expression of viewpoints. For greater clarity, no election-specific or election-related articles, including Letters to the Editor and President's Message, are to be included in *Engineering Dimensions* during the voting period. *Engineering Dimensions* or other PEO publications may contain articles on why voting is important.

24. Chapters may not endorse candidates, or expressly *not* endorse candidates, in print, on their websites or through their list servers or at their membership meetings or activities during the voting period. Where published material does not comply with these procedures, the chief elections officer will cause the offending material to be removed if agreement cannot be reached with the chapter within the time available.
25. Councillors may use their positions to encourage candidates to stand for PEO office and members to participate in the election process but may not endorse candidates for PEO election.
26. Candidates may attend chapter annual general meetings and network during the informal portion of the meeting. Candidates are permitted to attend chapter functions in their current official capacity but are prohibited from campaigning while operating in their official capacity.
27. The Central Election and Search Committee is authorized to interpret the voting and election publicity guidelines and procedures and to rule on candidates' questions and concerns relating to them.

These Election Publicity Procedures form part of the Voting Procedures.

SCHEDULE A: 2020 ELECTION PUBLICITY PROCEDURES

SPECIFICATIONS FOR CANDIDATE MATERIALS

FORMAT FOR CANDIDATE STATEMENTS IN *ENGINEERING DIMENSIONS*

All submissions will be published with a border. If submissions are received without a border, one will be added as shown on the templates. If submissions do not fit within the chosen template, they will be mechanically reduced to fit.

Option 1: Blank template

Candidates using the blank template to present their material for publication in *Engineering Dimensions* must ensure the content fits in the bordered template provided at the end of these specifications. The template dimensions are 6.531 inches wide and 4.125 inches in height.

All material for publication must be submitted as a PDF document, with images in place for reference, *and* in Word format only, showing where images are to be placed. No other formats will be accepted.

Portraits must also be submitted as specified in the next section.

The publications staff needs both a PDF file and Word file of candidate material so they will know how candidates intend their material to look. If there are no difficulties with the material, the PDF file will be used. The Word file is required in case something isn't correct with the submission (just a bit off on measurement, for example), as it will enable publications staff to fix the problem, if possible. A hard and/or digital copy of a candidate's portrait is required for the same reason and for use on the PEO election website.

Option 2: Fillable template

Candidates using the fillable template must provide responses to the questions provided in the allotted space. The completed template must be submitted as a PDF document.

Portraits must be submitted separately, as specified in the portraits section below, and will be added to the template by PEO staff.

The presentation of the fillable template is fixed, and no modifications will be permitted. The profile template will be available on PEO's elections website, www.peovote.ca. A hard and/or digital copy of a candidate's portrait is also required for use on the PEO elections website.

PORTRAITS/PHOTOGRAPHS

Photographs must be at least 5" x 7" in size if submitted in hard copy form so that they are suitable for scanning ("snapshots" or passport photographs are not suitable). Only pictures taken in the last five years will be accepted.

If submitted in digital form, photographs must be JPEG-format files of at least 300 KB but no more than 2MB.

Candidates can submit a digital photo at the specifications noted, or hard copy as noted, and preferably both. In case the digital file is corrupted or not saved at a sufficiently high resolution, publications staff can rescan the photo (hard copy) to ensure it prints correctly, as indicated on the PDF.

PEO WEBSITE (CANDIDATES' ADDITIONAL INFORMATION)

Candidates may publish additional information on PEO's website by submitting a Word or Word-compatible file of no more than 1000 words and no more than three non-animated graphics in JPEG or GIF format. Graphics may not contain embedded material. Candidates may post additional material on their own websites, which will be linked from PEO's website. URLs for candidates' websites must be active by December 9, 2019. Candidates may include links to PEO publications but *not* a URL link to a third party in their material that is to be posted on PEO's website. Links to PEO publications are not considered to be to a third party. For clarity, the only URL link that may be included in a candidate's material on PEO's website is the URL to the candidate's own website. Candidates may include active links to their social media accounts (Facebook, Twitter, LinkedIn, etc.)

EBLAST MATERIAL

Candidates are permitted a maximum of 300 words for email messages. Messages are to be provided in 11 pt. Arial font; graphics are not permitted. For clarity, a "graphic" is an image that is either drawn or captured by a camera.

HELP

Candidates should contact the chief elections officer (elections@peo.on.ca) if they have questions about requirements for publicity materials.

.

Option 1: Blank template

Option 2: Fillable template

Name:

Current employer and position:

Degree(s), school(s) attended, year(s) of graduation:

Employment history:

Participation on PEO Council, committee/task forces, chapters:

Other professional affiliations and community service:

Years of registration in Ontario:

Candidate statement:

COUNCIL APPROVES PUBLIC RELEASE OF ITS EXTERNAL REVIEW

By Nicole Axworthy

528TH MEETING, JUNE 20–21, 2019

At its June meeting, Council accepted the report *A Review of the Regulatory Performance of Professional Engineers Ontario* submitted by Harry Cayton, international consultant to United Kingdom–based Professional Standards Authority (PSA) and approved a motion to make it available publicly no later than June 27, 2019. The report—which is now available on PEO's website at www.peo.on.ca/index.php?ci_id=33533&la_id=1—comes after PEO commissioned Cayton in September 2018 to assess its performance as a regulator (see "PEO undergoes external review," *Engineering Dimensions*, January/February 2019, p. 8) and includes 15 recommendations for improving PEO's performance based on the standards of good regulation developed by PSA covering three regulatory activities: licensing and registration; complaints, discipline, compliance and enforcement; and professional standards and guidance.

The review found that PEO meets one out of seven standards for licensing and registration; six (and partially meets one other) out of 11 standards for complaints, discipline, compliance and enforcement; and one (and partially meets two others) out of four standards for professional standards and guidance. The 15 recommendations are:

1. PEO should review all its committees, subcommittees and working groups to ensure they are both necessary and fit for a regulatory purpose.
2. PEO should clarify the roles of Council members, staff and volunteers. It should delegate more operational decision-making and responsibility to executive staff and streamline its internal accountabilities, policies and procedures.
3. PEO should consider if its chapters are either necessary or desirable in delivering its functions as a regulator and should redirect its financial support for them to its core regulatory functions and activities.
4. PEO should implement all the recommendations of the Office of the Fairness Commissioner in his report of 2014 and his subsequent letters. It should consider the way it uses negative language about everyone who is not a licensed P.Eng. and describe people as what they are rather than as what they are not.
5. The process for application for a professional engineering licence should be simplified and speeded up; the discriminatory aspects of written examinations, a Canadian year of experience and face-to-face interviews should be discarded. Appeals against refusal of licence should be made available on request of the applicant, who should be provided with legal support in the event of an appeal hearing.
6. PEO should review and revise all its current licensing categories and designations and eliminate those that do not directly contribute to protection of the public/serving the public interest.
7. The public register of licensed engineers and other public directories published by PEO must be complete and kept up to date. Currently they are neither.
8. Licensed engineers employing another engineer should be required as a matter of good practice to check their registration status. PEO should promote to employers and the public the value of checking the register before engaging an engineer.
9. PEO should establish a formal process for keeping engineering standards up to date and relevant to contemporary practice in all the fields of engineering that it aims to regulate. PEO should engage fully with setting standards as well as with guidance. PEO should be clear about the enforcement of guidance in complaints and discipline.
10. PEO should revise its Practice Evaluation and Knowledge (PEAK) program to ensure it is proportionate and outcome focused and achievable by licensed engineers. It should then make participation in this continuing professional development program mandatory for licensed engineers.
11. PEO should review its approach to complaints and discipline. In particular, it should:
    - take a more confident approach to the interpretation of its legislation, seeking to protect the public rather than itself;
    - enforce guidance;
    - pay more regard to professional conduct and ethics, as breaches of these bring the profession and its regulator into disrepute; and
    - give fuller reasons for disciplinary decisions and publish them.
12. Members of the Complaints Committee and the Discipline Committee should not be drawn from the members of the Council. The members of these committees must be able to make judgments independent of the interests of PEO Council.
13. PEO should commission a full digital strategy for the organization. This should include implementation of an electronic case management system and a database to manage licence and certificate of authorization applications, continuing professional development and complaints and discipline. It should aim for automation of processes. In the meantime, it must improve the security and confidentiality of paper files.
14. PEO should work with the attorney general's office to seek changes to its statute to modernize its organization and regulatory powers.
15. Council should assess and implement these recommendations. It should require an action plan and timeframe for implementation from its executive staff. When it approves the action plan, Council should commit the necessary resources to deliver it.

At its June meeting, Council also directed the registrar to develop a high-level action plan for PEO to act on the above recommendations for consideration at the September Council meeting. **e**

Proactively engaged in setting standards

Peter Broad, P.Eng., FEC,
London, ON

José Vera's professional practice article on the *Occupational Health and Safety Act* ("A professional engineer's duties under other legislation," *Engineering Dimensions,* May/June 2019, p. 16) reminds us of our duties outside of *The Professional Engineers Act*; however, I was a little disappointed that 61 other acts and regulations that also specify participation by an Ontario P.Eng. were not mentioned.

Our government has identified hazardous conditions requiring a high standard of licensed engineering oversight. Therefore, should PEO not be actively engaged in formulating these standards and acting as a conduit to enforcing these regulations? Being proactive does not restrict accessibility but rather fulfills duties that government has already established.

Within PEO, much of this work is undertaken by volunteers, and there is always a need for new insights. Even when a regulation does not specifically require a P.Eng. but rather adopts the lesser standard of "competent person," we as engineers need to ask ourselves, "Does this adequately protect the public?" It is true that we live and work across a very large province, but we have social media, including PEO's own forum, where issues can be discussed. Self-regulation requires active involvement. We should choose to provide solutions rather than being part of an unsolvable problem.

Some Blue Box history

Rick Findlay, P.Eng.,
Ottawa, ON

I was pleased to read "The problem with plastics" by Adam Sidsworth in the March/April 2019 edition of *Engineering Dimensions* (p. 28). I just wanted to recycle a bit of additional historical information that might be of interest.

Prior to the very successful launch of the Blue Box curbside recycling system in Kitchener, the Blue Box technique was first developed and tested by Jack McGinnis and his colleagues at the Is Five Foundation, working with us at Environment Canada (where I had been the project engineer) and with the Canadian Forces Base Borden officers. Credit is due to Laidlaw Waste Systems for recognizing the merits of the Blue Box approach to recycling and really putting it on the map in Kitchener.

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

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