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

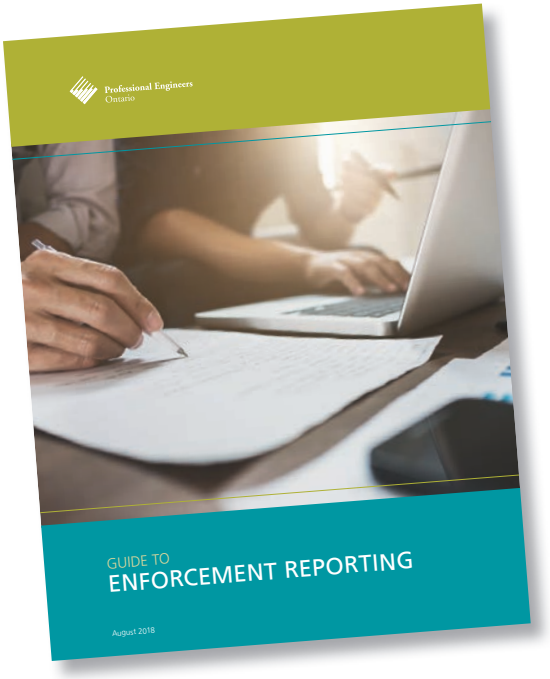
PEO's enforcement team investigates and prosecutes, among other things, the use of "engineer," "engineering" or any other variant of the word by unlicensed individuals or companies attempting to pose as professional engineers without authorization (see sidebar on page 47 for some exceptions); companies 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**