

ENGEOActions

THE NEW BRUNSWICK SOURCE FOR ENGINEERING AND GEOSCIENCE NEWS



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THE NEW BRUNSWICK SOURCE FOR ENGINEERING AND GEOSCIENCE NEWS

Publisher:

Association of Professional Engineers
& Geoscientists of New Brunswick
183 Hanwell Road
Fredericton, NB E3B 2R2

Tel: 506.458.8083
Toll Free: 1.800.458.8083
Fax: 506.451.9629
info@apegnb.com
www.apegnb.com



Editor:

Lia Daborn
Chief Executive Officer

Contributions:

Marlo Rose, P.Eng.
Lia Daborn
Carol MacQuarrie, P.Eng.
Kate Sisk
Stamatia Baker
Laura Douglass, MIT
Sherry Trenholm, P.Eng.
MCW Maricor
Ian Fogarty
Kisenge Mbaga
Ray Ritchie, P.Eng.
Julien Caissie, P.Eng.
Phil Lamey, P.Eng.
Dibyendu Debanth, P.Eng.

Graphic Design:

John Christenson Design

Translation:

Bourret Translation Inc.

APEGNB Staff

Program Coordinator

Stamatia Baker
stamatia@apegnb.com

Administrative Assistant

Stéphane Cormier
reception@apegnb.com

Chief Executive Officer

Lia Daborn
lia@apegnb.com

Diversity and Inclusion Coordinator

Laura Douglass, MIT
laura@apegnb.com

Director of Administration and Finance

Jocelyn Durette
jocelyn@apegnb.com

Director of Professional Affairs & Registrar

Carol MacQuarrie, P.Eng.
macquarrie@apegnb.com

Director of Communications

Lauren Nicholson
lauren@apegnb.com

Director of Registration

Kate Sisk
kate@apegnb.com

Software Developer

Bruce Wallace
wallace@apegnb.com

APEGNB Executive and Council

President

Marlo Rose, P.Eng.

Vice-President

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ENGEOActions

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Association of Professional Engineers and Geoscientists of New Brunswick
Protecting public interests is the forefront of our thinking!

Message from the President

Marlo Rose, P.Eng.



My message to you for this edition was supposed to be all about the 100-year celebration that was scheduled to take place in Fredericton on April 25th, 2020. However, we have now become deeply entrenched in a situation that no one predicted would happen. Schools and universities are closed, restaurants and businesses are shut down or keeping the doors open by providing curbside pickup, and various Government bodies are making decisions with only 20 minutes of debate. Many people are working from home offices and spending more hours on web conferences and perhaps have reached a higher level of tech savviness than we care to admit. We also find ourselves embracing new work-life balance challenges while becoming educators and caregivers.

Despite all of that, I count myself to be part of a fortunate profession. We have not had to close our doors completely. Council receives weekly updates from the CEO about the activities of the office and I am comforted to know that operations continue to run smoothly, although at a distance. Many of you are likely still working full time in your respective jobs, or are at least telecommuting and connecting with clients and partners in alternative ways. Of course, we have all had to deal with changes – to the way we work, to our daily routines, to our home environments – but we continue to work and fulfill our obligations as engineers and geoscientists.

So much has already changed since our recent AGM in February, but if there is one thing I know about our professions, it is that we will continue to adapt during these uncertain times. We are needed to keep systems running, to ensure infrastructure operates properly, and to develop creative solutions for changes in how we operate and do business. I know that many of you are already contributing in new and unique ways, without expecting anything in return.

My heart goes out to those students who have lost part of their year and perhaps field school or co-op placements. For existing employers, please continue to find creative opportunities for students to contribute in a meaningful way. As a profession, we will need to make every effort to provide these future members with opportunities as soon as possible to ensure they can obtain the experience they need.

It is still unknown what kind of a legacy this pandemic will leave on our province, but I hope it is one of innovation, creativity, and of finding solutions to problems we never knew existed. I am certain that as a profession we will all demonstrate our best skills and work to enhance public confidence in our chosen fields and will continue to hold paramount the healthy, safety, and welfare of our family, friends and co-workers.

I hope to have the chance to see you in person over the coming months while I serve as your President. In the meantime, do not hesitate to reach out to me at president@apegnb.com.

Marlo Rose, P.Eng.
APEGNB President, 2020

The results of the 2020 APEGNB election are as follows:

President	Marlo Rose, P.Eng.
Vice President	Maggie Stothart, P.Eng.
Fredericton Councillor	Tammy Lamey, P.Eng.
Moncton Councillor	Jérémie Aubé, P.Eng.
Northwest Councillor	Karine Savoie, P.Eng.
At-Large Councillor	Maryse Doucet, P.Eng.

Number of valid ballots received for each position:

Fredericton	372
Moncton	242
Northeastern	105
Northwestern	24
Saint John	265
Total number of valid ballots cast:	1048

Message from the CEO

Lia Daborn, CEO



“In our personal and professional lives, we are constantly hit with one adversity after the other, most of which we have no control over. But the four things we have total control over is how we react, how we adapt, how we breathe, and how we take action.”

- Diamond Dallas Page

In sitting down to craft this message, I realized that if there is one thing that the COVID-19 pandemic has taught us, it is that we are all able to adapt. Whether working from home (“WFH”), assuming a new role, becoming a home-school teacher or learning to communicate via a web cam, we have all learned new skills and grown. Without a doubt, this situation will make us all better humans in some way or another.

The **APEGNB Code of Ethics** clearly outlines the obligation to “*hold paramount the safety, health and welfare of the public and the protection of the environment and promote health and safety within the workplace*”.

At a time when medical professionals and

first responders are at the forefront of the world crisis, engineers and geoscientists also protect the public interest.

Ethics (noun): *moral principles that govern a person’s behavior or the conducting of an activity.*

Integrity (noun): *the quality of being honest and having strong moral principles; moral uprightness.*

Ethics and Integrity go hand in hand. APEGNB Council identified Integrity as a key value in its new strategic plan. It is one of the principles that will guide our organization forward in our mission “*to protect the public interest by regulating practice and to maintain public confidence in the professions*”. This means Council needs to have the courage to make decisions or take actions for the ultimate good of the organization; as professionals, you put the public interest first. A great number of our members who have been contributing to the efforts to tackle the COVID-19 pandemic have demonstrated integrity in so many ways.

Many of you continue in your regular jobs (possibly still at your job site, possibly from home) to make sure that public infrastructure is still operating properly; some have been engaged to ensure the hospital services remain operational; several have turned their basements into 3-D printshops to create supplies for frontline workers. Yet others know that when this is over, they will be called upon to ensure that the new ways of doing things are reliable and sufficiently protected should another incident arise again in the future. We are also aware that some of our members have not escaped the pandemic unscathed. There have been layoffs. Work is not as easy to find. While challenging times continue to lie ahead; as problem-solvers, engineers and geoscientists are well-equipped to meet society’s needs.

Within the APEGNB offices, we continue to work as usual, although from our respective homes. The interests of our registrants and future members have remained at the forefront of our daily work, and our professional staff work to ensure that files are processed as quickly as possible. We are keeping up to date with developments for graduating students, and exams are still being written, although virtually. Collaborating and sharing information with our sister organizations across the country, we continue to learn and develop new ways to manage the impacts of the pandemic.

It will be a long time until we return to a ‘business as usual’ scenario but rest assured that we will continue to work to exceed your expectations.

Lia Daborn, CEO
lia@apegnb.com

Editor's Message

Lia Daborn, Interim Editor & CEO



"Integrity is doing the right thing even when no one is watching." - C.S. Lewis

I am very happy that this issue is being published on time. To start with, the publication took place during the pandemic when our office and many others were closed, and also during a time when our Chief Communications Officer, Heather MacLean, resigned to pursue another role. Like you, we all had a lot to learn in a very short period of time.

Over the fourteen months that Heather worked with APEGNB, she contributed significantly to expanding content and enhancing the professionalism of this publication and our other communications efforts. We owe her a debt of thanks for all that she accomplished in that short time.

This theme of this issue is Ethics. APEGNB registrants would be familiar with the Code of Ethics by which they are bound, and which forms part of the By-Laws.

The idea of an issue focused on Ethics may cause many eyes to glaze over. No doubt it is one of the least preferred topics, although ethical breaches make for very interesting dinner party gossip (think Conrad Black or Scott Thompson of Yahoo). That being said, ethics are extremely important, and especially when a self-regulated profession is under scrutiny. There are several articles contained in this edition that address the importance of ethics in the professions.

I am particularly excited about the 1:1 Thought Leadership interview with Dr. Eleanor O'Higgins, from the University College Dublin, School of Business. Her research into ethics and corporate social responsibilities highlights the challenges experienced by professionals of all types when ethics clash with business models focused on profit. A Canadian by birth, she is a widely respected author and speaker around the world. Her comments on the ethical obligations of professionals are based on many years working with a variety of professional groups, from accountants to engineers.

The COVID-19 pandemic has had a significant impact on local meetings and activities. Branches have had to adapt, as has the head office. Nevertheless, the celebration of our 100 years continues! I encourage you to check out the new promotional video on our website at www.apegnb.com which highlights the Association over the past 100 years. The centenary gala is now scheduled to be held in Fredericton on October 23rd. Of course, this is still subject to change as we follow government guidelines on large gatherings. Little did we know that our hundred-year anniversary would be impacted by a 'once-in-a-hundred years' pandemic virus. Check out our brief review of this year in history to see what else happened in New Brunswick and Canada in 1920.

This edition contains project updates to keep you informed about various activities around the province and elsewhere. APEGNB sponsors students and others to expand their experience in STEM through attendance at conferences, participation in science fairs and other activities. We are pleased to support many different groups each year, and you can read about some of the various projects in the following pages. Some of the experiences are truly inspiring.

As we continue to work to improve this magazine, feel free to let us know what else you would like to see on these pages. We are always looking for content ideas so please drop us a line!

Lia A. Daborn
Interim Editor & CEO
lia@apegnb.com

From the Desk of the DPA

Carol MacQuarrie, P.Eng., Director of Professional Affairs and Registrar



- we render services based on advanced knowledge, skill and judgment. In fact, to become a P.Eng./P.Geo. requires both a formal education and four years of relevant work experience;
- we perform our services largely in the public interest; and...
- we are bound by a distinctive ethical code that governs our relationships with our colleagues, clients, employers, and the public.

Why is an ethical code necessary? Don't we have laws to enforce ethical behavior and a just society?

The ethical code is more than a minimum standard of conduct and goes beyond legal requirements. The APEGNB Code of Ethics sets out the framework to help ensure that engineers and geoscientists carry out their work in an ethical manner. It provides guidance and establishes a consistent set of expectations and understanding for all. This protects the reputation of the professions and ultimately ensures that we maintain the public's confidence and trust.

What is the APEGNB Code of Ethics?

The APEGNB Code of Ethics has been adopted from Engineers Canada's Code of Ethics. It applies to engineers, geoscientists and members-in-training. As part of the Association [By-Laws](#), failure to abide by the Code of Ethics may be considered professional misconduct and can result in disciplinary action.

Adherence to the standards set by the Code is mandatory. This differentiates it from voluntary obligations undertaken by graduating students at iron ring and earth ring ceremonies wherein participation is an opportunity to make a lifelong commitment to high level ethical and behavioral standards.

The APEGNB Code begins with an overarching statement of conduct and values. It states that engineers and geoscientists will conduct themselves with integrity and in an honorable and ethical manner. It further states that we will uphold truth, honesty and trustworthiness. This preamble is followed by ten interrelated ethical principles that serve as a compass to guide ethical behavior.

The Code of Ethics is accompanied by a Code of Conduct which provides more specific guidance surrounding relationships with others including colleagues, clients, employers, and the public.

The first tenet links professional actions back to the fundamental obligation to protect the public interest:

Hold paramount the safety, health and welfare of the public and the protection of the environment and promote health and safety within the workplace.

In New Brunswick, the Legislature has given most professions, including engineers and geoscientists, the right to self-regulate. This is both a privilege and responsibility that APEGNB takes very seriously.

What does this mean?

Self-regulation means that we have a private Act ([Engineering and Geoscience Professions Act](#)) that creates a self-governing body with the mandate to ensure only qualified individuals practice engineering and geoscience in New Brunswick. We establish qualifications, discipline members, enforce against unlicensed practice, and set standards of professional ethics. Registrants have the right to title and the right to practice.

What is a profession?

A profession is defined as a learned calling with specialized skills, distinctive functions and recognized social obligations. All professions, from architects to veterinarians, have the same fundamental characteristics:

(continued on next page)



APEGNB CODE OF ETHICS

To “hold paramount” is the key concept. Ethical dilemmas occur when there are two competing duties such as to an employer and to the public. This principle states clearly that the public interest always takes precedence over any other obligations.

The remaining nine tenets include concepts such as: working only in areas of competence, maintaining confidentiality, keeping informed, reporting illegal or unethical practices, and upholding the honour of the professions. (refer to Code of Ethics here).

Do professional ethics really matter?

Yes. History has shown that many engineering and geoscience failures are related to a failure by individuals to live up to their ethical obligations. The Bre-X fraud of 1997 seriously damaged the Canadian mining industry and caused thousands of people significant financial harm; seven people were killed from e-coli contamination during the Walkerton Ontario water crisis in 2000; and the Elliot Lake Ontario mall collapse killed two people in 2012. These tragic events were caused by individuals who failed to put the interests of the public ahead of personal interests or client’s considerations. Ethics matter!

For more information on the APEGNB Code of Ethics, please contact Carol MacQuarrie, P.Eng., Director of Professional Affairs & Registrar at macquarrie@apegnb.com

Engineers, geoscientists and members-in-training shall conduct themselves with integrity and in an honourable and ethical manner. Engineers, geoscientists and members-in-training shall uphold the values of truth, honesty and trustworthiness and safeguard human life and welfare and the environment. In keeping with these basic tenets, engineers, geoscientists and members-in-training shall:

- 1.1 hold paramount the safety, health and welfare of the public and the protection of the environment and promote health and safety within the workplace;
- 1.2 offer services, advise on or undertake engineering/geoscience assignments only in areas of their competence and practise in a careful and diligent manner and in compliance with applicable legislation;
- 1.3 act as faithful agents of their clients or employers, maintain confidentiality and avoid conflicts of interest, but, where such conflicts arise, fully disclose the circumstances without delay to the employer or client;
- 1.4 keep themselves informed in order to maintain their competence and strive to advance the body of knowledge within which they practise;
- 1.5 conduct themselves with equity, fairness, courtesy and good faith towards clients, colleagues and others, give credit where it is due, and accept, as well as give, honest and fair professional criticism;
- 1.6 present clearly to employers and clients the possible consequences if engineering/geoscience decisions or judgements are overruled or disregarded;
- 1.7 report to their association or other appropriate agencies any illegal or unethical engineering/geoscience decisions or practices by engineers/geoscientists or others;
- 1.8 be aware of and ensure that clients and employers are made aware of societal and environmental consequences of actions or projects and endeavour to interpret engineering/geoscience issues to the public in an objective and truthful manner;
- 1.9 treat equitably and promote the equitable and dignified treatment of people in accordance with human rights legislation; and
- 1.10 uphold and enhance the honour and dignity of the professions.

Registration FAQs

Kate Sisk, Director of Admissions



As we all transition to the new ‘normal’, APEGNB is introducing some changes to the ways in which Registration staff can serve you once our offices re-open to visitors.

Instead of dropping by the office hoping to speak to someone about your application, log-book entries, or exams, an appointment is now required to be made in advance. The quickest way to do this is to email registration@apegnb.com. In your email, provide your name, your member or applicant number (if you have been assigned one), and, most importantly, what you would like to discuss. Many questions can likely be answered by email or a quick call, saving dedicated appointment times for specific issues while keeping us as socially distanced as possible. One of our staff will respond as soon as possible with some potential meeting times. (We aim to respond within 10 working days. If you have not heard back in this time frame, feel free to follow-up.) The more specific you can be in your email, the better prepared our staff can be, which will make the best use of everyone’s time and resources. If you plan on bringing additional people to the meeting (supporters, family members, etc.), we will need to know this too so we can arrange for an appropriate meeting space.

If you prefer, you may call the office at 506.458.8083 to make an appointment.

If you are simply dropping something off, no appointment is necessary. If you have questions but no staff person is available at the time, you may email us at registration@apegnb.com and we will be in contact after we review your documents. If you have already made an appointment, you can send documentation for staff to review in advance. As every admissions case is unique, the better prepared our staff are, the more focused and relevant your meeting will be.

Lots of information and answers to commonly asked questions can be found on our website. Check out these sections; it may save you a trip!

If you are interested in applying, first check out this page: www.apegnb.com/registration/

Want to know what are we looking for in work experience submissions? It is explained in this section: www.apegnb.com/registration/members-in-training/

Do you need to apply to write exams? Information is available here: www.apegnb.com/member-resources/applications-forms-member-information/

What topics are covered on the National Professional Practice Exam? How do you sign up? You can find the syllabus here: www.apegnb.com/wp-content/uploads/NPPE-Application-ENG.pdf

What is a Certificate of Authorization? Does your company need one? Learn about that here: www.apegnb.com/registration/certificate-of-authorization/

How do I confirm if someone is registered as a Professional Engineer or Geoscientist? Our frequently updated rosters can be found here: www.apegnb.com/member-resources/register-of-members/

Finally, for engineering and geoscience companies, universities, or community organizations (for instance, immigrant serving associations) who would like to host an information session for your employees, Members-in-Training (MIT), or clients, you can contact us at registration@apegnb.com too. We’d be happy to discuss virtual or face-to-face possibilities.

All that said, if you have any questions about becoming an MIT, Professional Engineer or Geoscientist, or obtaining a Certificate of Authorization, please ask! Send us an email or call our office. We are here to help, even at a distance. Take care!

Kate Sisk
Director of Registration
Kate@apegnb.com

Continuing Professional Development

Stamatia Baker, Program Coordinator



National Professional Practice Exam: Law and Ethics in the Time of Coronavirus

One of the most common questions I am asked these days in my role as Program Coordinator at APEGNB is “will the NPPE be going ahead as scheduled?” A perfectly valid question, considering the disruption that COVID-19 has brought to our lives. People are giving themselves haircuts and sewing surgical masks; they’re throwing drive-by birthday parties and homeschooling their kids while working from home. How on earth is this exam, of all things, able to happen as planned?

The National Professional Practice Exam (NPPE) is a 110-question, multiple choice exam covering six subject areas: professionalism, ethics, professional practice, law for professional practice, professional law, and regulation of members & discipline processes. Candidates have 2 ½ hours to complete the exam. The NPPE went digital in 2015, with candidates moving to computer-based testing locations in cities around the country. For candidates living in more remote locations, the first version of a “virtual remote proctor” option allowed an exam candidate to be proctored by a P.Eng. or P.Geo. in person, in conjunction with a 3rd-party proctor from a computer-based testing company (Yardstick) via webcam.

Despite being a vast improvement over the alternative (travelling hours by car or plane to sit an exam), virtual remote proctoring had its limitations. Candidates needed to find a suitable environment, which sometimes presented them with unfamiliar or undependable equipment. Some individuals, due to their location overseas or in remote communities, had trouble finding a registered P.Eng. or P.Geo. to proctor them.

As the technology and capacity continued to improve, the in-person proctor was seen as redundant. Just as plans were being made to drop the requirement for the in-person proctor, COVID-19 struck. With no sense of when testing centres would re-open, candidates were permitted to delay their exam to a future date (which might be in a physical testing centre), or to write from home with a virtual remote proctor.

There are obvious pros and cons to such an arrangement. Access is not universal: candidates must use a laptop or desktop computer with a webcam (phones or tablets are not permitted). High-speed, stable internet is a must (Wi-Fi is OK if it’s at least 10 Mbps). Candidates need access to a quiet, private space where they will be uninterrupted (what does a single parent do with the kids for 2 ½ hours?).

For most, the pros outweigh the cons. After the April 2020 session, 97% of the exam candidates surveyed by APEGA said they were happy with their environment during the exam. Lighting, temperature, comfort, and ergonomics are more easily controlled in your own home than in a test centre. Special accommodations such as a low-distraction or scent-free environment are no longer an issue: no other exam candidates, or construction noise. Candidates need not worry about finding the test centre, parking, or arriving on time. You can test your equipment

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beforehand and won't have trouble with an over-aggressive corporate firewall or other technical issues.

How does the virtual proctoring work? Can it really replace a physical proctor? Absolutely! The remote proctor starts with a visual sweep of the area (desk has to be clear, no electronic devices, only one screen permitted, any others must be unplugged and turned around). The candidate's browser is locked down so they can't access anything else on their computer during the exam. The remote proctor intervenes if someone is doing something odd – whispering, looking down or off screen too often, etc. If it continues, the testing company can terminate the candidate's exam. Collusion detection analysis and other measures are employed after the fact.

All that said, how should you prepare for this exam? The study material or content has not changed, but your source may have: borrowing books from the university engineering library is out of the question for the time being.

The two recommended textbooks:

- *Canadian Professional Engineering and Geoscience: Practice & Ethics*, Sixth Edition, 2018 by Gordon C. Andrews, and
- *Practical Law of Architecture, Engineering, and Geoscience*, Third Canadian Edition, 2015 by Brian M. Samuels and Doug R. Sanders

can be purchased from the APEGNB office and shipped at no additional charge, but they are also available from www.amazon.ca or www.chapters.indigo.ca. However, the specific book (or edition) you study is not as essential as the content. Read the syllabus for the exam (www.apega.ca/apply/membership/exams/national-professional-practice-exam-nppe/syllabus) and use that as your guide. Ensure you have a book about law and a book about ethics – only studying one topic will only get you halfway to your goal.

Two practice exams are available through Yardstick, in partnership with APEGA (nppepractice.ysasecure.com/). Each consists of 50 retired NPPE exam questions. Purchase both versions at the same time to save \$5 – trust me, you'll want all 100 questions! Exam

candidates asked for practice exams for years and this is a very useful tool.

Last but not least is the APEGNB review seminar. Presented by Université de Moncton professor Serge Dupuis, P.Eng., FEC, it is a review of the recommended textbooks, rather than a "how to pass the NPPE" session (we don't know what the questions will be on the exam, any more than you do!). This session provides a good opportunity to review some dense texts in a more digestible format, as well as to ask questions of an instructor. Traditionally offered in-person, this seminar will, like so many other gatherings these days, now be online (at least for the time being).

When I started my involvement with the NPPE nearly ten years ago, APEGNB exam candidates living in New Brunswick were required to come, en masse, to the Delta Fredericton Hotel at 9 a.m. on a Monday to sit in a ballroom and fill out scantron sheets. They were given either an English or French exam booklet, depending on what they'd asked for a month beforehand. If you had told me then that (almost) a decade later candidates would be writing the exam on their day of choice of day (usually a Monday, Tuesday, or a Wednesday), in the morning or afternoon, switching back and forth from English to French if the mood struck them, from the comfort of their own home, I would not have believed you. In fact, I probably would have laughed! Of all the changes and adjustments we've had to make over the past months during the COVID-19 crisis, switching to remote virtual proctoring for the NPPE feels like a step forward, rather than a compromise, and I would argue that it is here to stay.

APEGNB Scholarships

Graydon Nicholas Indigenous Scholarship in Engineering

Available to New Brunswick residents of indigenous ancestry who have been accepted into an engineering program at either the University of New Brunswick (Fredericton or Saint John) or Université de Moncton. Value: \$3000 (renewable for up to five years based on academic performance). **Deadline September 1st.**

Jocelyne Roy-Vienneau Undergraduate Engineering Scholarships for Women

The Association of Professional Engineers and Geoscientists of New Brunswick (APEGNB) has created the Jocelyne Roy-Vienneau Undergraduate Engineering Scholarships for Women in honour of New Brunswick's first female engineer Lieutenant Governor. Value: Two scholarships of \$3000 each will be awarded to female engineering undergraduate students entering their 2nd year or higher of full-time study: one (1) at the University of New Brunswick (Fredericton or Saint John) and one (1) at the Université de Moncton. **Deadline September 30th.**

For full criteria for Scholarships
www.apegnb.com/about-us/awards-scholarships

Diversity & Inclusion Update

Laura Douglass, MIT, Diversity and Inclusion Coordinator



The Ethics of Diversity & Inclusion

If you were in attendance at the Diversity & Inclusion Panel Discussion at the 2020 Annual General Meeting in Saint John, you had the opportunity to hear how diversity positively affects your company's bottom line. Companies with diverse teams experience increased retention, improved employee satisfaction, and higher levels of creativity. While that's great news, the inclusion of diverse members of our workforce isn't just good for business, it's part of our ethical obligation as professionals. The APEGNB Code of Ethics states:

3. Engineers, geoscientists, and members-in-training shall:

3.6 conduct themselves with equity, fairness, courtesy and good faith towards clients, colleagues and others, give credit where it is due, and accept, as well as give, honest and fair professional criticism; and

3.7 treat equitably and promote the equitable treatment of all clients, colleagues, and coworkers, regardless of race, religion, gender, sexual orientation, age, physical or mental ability, marital or family status, and national origin.

Across Canada, there are examples of professional engineers and geoscientists who have been held accountable for discrimination and harassment by their regulators. The following two cases demonstrate the penalties that may be levied for not meeting ethical obligations.

In British Columbia, a discipline case was initiated against a member after receiving complaints that he made sexually graphic comments in emails to employees at both the Architectural Institute of British Columbia and Engineers and Geoscientists BC. The individual had his membership immediately revoked and was ordered to pay more than \$40,000 to Engineers and Geoscientists British Columbia to cover legal and related expenses.

The Association of Professional Engineers and Geoscientists of Alberta brought a discipline case surrounding improper conduct against a member which resulted in the cancellation of membership, permanent ineligibility in the future for membership and over \$140,000 in fines and legal fees. While there were many pieces to this particular discipline case, some of the notable charges were email harassment and vulgar comments about an individual during a meeting, as well as crude and vulgar comments about that individual's spouse.

In another field within SETT (Science, Engineering, Technology and Trades), a company came before not only the British Columbia Human Rights Tribunal, but also the British Columbia Supreme Court after one of their employees was charged with discrimination against another based on race and religion. While the employers had not participated in any direct discriminatory behavior, the Tribunal ruled that their failure to act created a poisonous work environment for the employee, and that

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constituted discrimination. The company was ordered to pay \$11,000 in restitution following the Tribunal, which was upheld by the Supreme Court.

While these cases are extreme in nature, they highlight the need to be vigilant within our own professional practice to ensure that there is zero tolerance for any type of discrimination or harassment. Some actions that you can take are listed below:

- Try *the 50 Ways to Fight Bias Program from Lean In* with your team. (1-2 hours)

- Take the *Implicit Association Test from Harvard University* to uncover your personal implicit biases. (15 minutes)
- Download the *DiversifySTEM app* and take the micro-lessons that are available. (5-minute lessons)
- Speak up if you see discrimination or harassment in your workplace, and support those who may be subject to unconscious biases.
- Review the resources addressing workplace harassment available at WorkSafe NB (www.worksafenb.ca/safety-topics/workplace-violence-and-harassment/)
- Ensure that your workplace has policies in place to effectively deal with any situations that may be considered harassment under provincial law. Look for opportunities to mentor and sponsor diverse individuals.

Laura Douglass
laura@apegnb.com

APEGNB Awards

C.C. Kirby Award

Given in recognition of outstanding service or contribution to both the engineering profession and the province of New Brunswick. The C.C. Kirby Award is the most prestigious award a professional engineer can receive from the Association.

L.W. Bailey Award

Given in recognition of outstanding service or contribution to both the geoscience profession and the province of New Brunswick. The L.W. Bailey Award is the most prestigious award a professional geoscientist can receive from the Association.

APEGNB President's Award

Given to a professional engineer/geoscientist who, in the opinion of the Association, has enhanced the role of APEGNB and other professional associations and societies such as Engineers Canada and Geoscientists Canada. Consideration is given to continued leadership in the profession and in the community, to outstanding achievements, and to recognition obtained.

Support of Women in Engineering Award

Presented to an outstanding engineer who, in the opinion of the Association, through their engineering and career achievements, has demonstrated noteworthy support for women in engineering and has established a benchmark of engineering excellence. Consideration is

given to leadership in engineering, business or industry, the education sector, provincially or nationally, and recognition as a role model for women entering or in the practice of engineering.

Young Professional Achievement Award

Given to a young outstanding professional engineer/geoscientist who has carried out major engineering/geoscience achievements in or on behalf of New Brunswick. The Award recognizes exceptional technical achievements in his/her chosen fields. Consideration is given to the nominee's engineering/geoscience excellence within the professions, business or industry, or education sector.

Community Leadership Award

Given to a professional engineer/geoscientist who, in the opinion of the Association, has made a significant contribution to improving the quality of life in his/her community. The Award recognizes outstanding service and dedication to the Province of New Brunswick through voluntary participation in community organizations, government sponsored activities, or humanitarian work. Consideration is given to continued leadership in the profession and in the community, to outstanding achievements, and to recognition obtained.

Nomination Deadline: September 1st
APEGNB Awards continued on Page 28

For full criteria for Awards - www.apegnb.com/about-us/awards-scholarships/



Dr. Eleanor O'Higgins

Ethical Leadership

Eleanor O'Higgins (BA, MBA, MSc, PhD) is Adjunct Associate Professor at the College of Business at University College Dublin, and an Associate at the London School of Economics. She specializes in teaching, research and publications on business and professional ethics, corporate responsibility and governance, and strategic and public management. She is the author of numerous papers in academic and professional journals, book chapters and case studies and a recent book publication, *Progressive Business Models*. Currently, she serves on the Judicial Appointments Advisory Board and the Dental Council of Ireland. Past board appointments include Industrial Development Agency Ireland, the Press Council of Ireland, the Board of St. James's University Hospital and Transparency International Ireland. (PS: She was also born in Canada!)

EGA: We know that many professions have an established Code of Ethics. Is it important to have such a thing?

O'Higgins: Yes, a Code of Ethics is one of the hallmarks of a profession. This is a shared code which stipulates a higher-level set of principles or ethical tenets and expected standards of conduct that reflect the stipulated principles. Professional codes go beyond what is legal. Short codes based on ethical principles are better than long rules-based codes which can get overly tied up in legalistic technicalities, rather than basic integrity as a professional.

A code is of no use unless it is enforceable and enforced, so the certifying body may monitor adherence to the code by members, and impose sanctions when expected standards are not maintained - up to expulsion from the register - even if the individual has not been found legally liable for any transgression.

A typical transgression among engineers could be to certify an installation without proper due diligence, with the hope of receiving further commissions from a construction company.

I would also add that research has found that people who have just signed an oath to an ethics code are less likely to transgress, at least for a period of time, so the recency of pledging an oath acts as some kind of brake or conscience – at least temporarily. Anecdotally, it makes sense that signing an annual compliance re-engages a professional's ethical awareness and responsibilities.

EGA: Can ethics be learned?

O'Higgins: Yes, we learn the difference between right and wrong as we grow up. Lawrence Kohlberg conceived a three-level six-stage theory of moral development to describe our moral reasoning as we mature. The pre-conventional level is the most basic, typical of children, who behave according to fear of being punished at stage 1, and then what will be rewarded at stage 2, so this first level is very egocentric. The conventional level comes next, where stage 3 is typified by the need for social approval and avoiding disapproval as governing an individual's moral choices. Stage 4 suggests an awareness to be obedient to authority and social conventions, a duty to uphold laws and rules for the sake of an orderly society. Most people do not get beyond stage 4. The post-conventional level, which is based on principles, is one that most people never reach on a consistent basis. Stage 5 is known as the "social contract" stage, characterised by an understanding that people have social obligations to each other beyond mere law. The most

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advanced level of moral reasoning at stage 6 is the principled one, whereby the individual believes in the primacy of universal ethical principles, such as justice, human rights, etc.

The milieu in which people develop ethical standards and behaviour is critical. The values that are inculcated at home and school and among friends are critical. This means that parents, teachers, and other significant figures should not only espouse these values, but also show in their actions that they live their lives according to them. For example, what kind of signal does it send to impressionable aspiring young athletes if those who cheat at school sports get away with it and become school heroes?

EGA: What types of values, standards of behaviour, and organizational support mechanisms would reinforce and encourage professionals to act in an ethical manner?

O'Higgins: Values of integrity should be embedded and assumed in any professional organisation.

Ethical behaviour should be the norm.

It is unethical behaviour that should become remarkable and regarded as a transgression of values. Underlying values are the higher-level principles and beliefs, such as honesty, respect, fairness, that determine standards of behaviour or conduct. For example, bullying is entirely inconsistent with respect, and exaggerating expense claims contravenes honesty. But many contraventions of ethics in everyday organisational life are more subtle and ingrained, such as hiring or promotion solely on the basis of the prestigious school the candidate attended, or insinuating personal credit for the achievements of others. These are more difficult to identify and to deal with.

This brings up the question of moral/ethical awareness. Decisions made by engineers and other professionals are frequently made on a technical, morally-blind basis as the decision-maker is not even aware that the choice harbours an inherent moral judgement, for example, the instance of dubious certification, mentioned above.

There are various support mechanisms which organisations introduce these days to highlight ethics. These range from codes of ethics outlining 'dos and don'ts' of what is acceptable/unacceptable behaviour, seminars and online classes in ethics, whistleblowing procedures, etc. However, this is all meaningless window dressing unless the culture itself is inherently ethical. For example, having whistleblowing procedures in a culture of intimidation is usually counterproductive, as whistleblowing is seen as disloyal, with ulterior motives. Thus, people are fearful of reporting organisational wrongdoing, and either stay silent and tolerate it, or just resign and move to another job outside the organisation without saying anything. So, what I am saying is that unless organisational procedures and ethics activities are supported by an already inherently ethical culture, or by a genuine attempt to improve an unethical one, on their own, they have little effect.

This is not to say that positive change is not possible. It usually entails a change of leadership and senior management, as these individuals are the vanguard of culture in a self-perpetuating vicious cycle. Unethical leaders condone and encourage unethical actions, usually to inflate financial performance to enable everybody to obtain big bonuses. This type of culture attracts certain types of employees and future leaders to the organisation, thereby perpetuating and intensifying the culture. This merry-go-round typified the financial crisis of 2008.

Naturally, smaller organisations do not have the resources and supports of large ones. In this instance, the professional body may provide assistance, such as helplines or volunteer professionals to discuss any problems an individual may be facing.

EGA: Does an annual requirement to complete formal training in ethics make a better professional?

O'Higgins: Annual formal training in ethics may be helpful in reminding the professional of her/his professional duties. However, an online box-ticking style session hardly constitutes training.

Ethics is the kind of subject that requires interaction and discussion that inspires thoughtful reflection. Even better, an interactive session may be an opportunity to discuss up-to-date ethical dilemmas to reach constructive solutions.

This can encompass current industry issues, company issues or individual dilemmas that could become a matter of discussion. For example, an individual may be under time pressure from an important client to deliver a project, and cannot achieve the requisite quality required in the time given, but can still get away with inferior quality. What should s/he do?

EGA: Are the actions of a professional a matter of what they do in their public role only, or also their private life when not in that role? Is it possible for these to be separate or different, or must they be in harmony and alignment?

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O’Higgins: It is difficult to separate professional from private life. It is a matter of character. You are who you are as a continuous being.

The management guru, Peter Drucker advocated plain everyday honesty in every walk of life. He said that standards of personal behaviour are not suspended just because someone carries out their job properly. I would add that it is vice versa.

It is not feasible for someone who cuts ethical corners in their business life to plead that s/he is a pillar of the community or the church, a philanthropist, etc. So, it is not a matter of how you give away your money, but rather, how you make it in the first place.

EGA: How does one balance professional ethics with business, especially when it comes to projects that are expected (or required) to make a profit?

O’Higgins: It is assumed that being a trustworthy professional is part-and-parcel of making a profit. There should not be any conflict between the two. Clients want to know they have hired a competent and responsible firm, untarnished by scandal. Certainly, due

attention should be paid to pricing and tendering for work. But cutting corners through unethical practices should never be a way out of a problematic profitability situation.

EGA: What would you advise newly licensed professionals to consider when faced with an ethical dilemma?

O’Higgins: Anyone facing an ethical dilemma has passed the first hurdle by acknowledging that it is an ethical dilemma in the first place, signifying moral awareness. This is where initial training as a professional comes in – to recognise ethical dilemmas as such when they encounter them. The individual should then try to dissect what is the issue within the dilemma. Is it a conflict of interest? Inaccurate or misleading information in reports? etc. What principles are at stake? The resolution of ethical dilemmas requires assembling all the facts, and then considering possible resolutions from the point of view of various stakeholders and their concerns. For example, product safety is about more than engineers’ careers and profitability. It involves customers, their families, the community. Possible resolutions should also consider short and long-term repercussions, but all solutions should pass the ethics tests, as against the company ethics code, and especially the professional code.

On a practical level, an individual should be able to discuss a dilemma with trustworthy colleagues, or personnel from her/his professional organisation – of course, without breaching client confidentiality.

EGA: Thank you so very much for taking the time to share your expertise with us on this important subject.

If you have a suggestion for the 1:1 Thought Leadership series, be sure to reach out directly (info@APEGNB.com). We would love your input.



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Project Updates

City of Moncton

New East End Pool Project

Sherry Trenholm, FCSCE, P.Eng., FEC,
City of Moncton

Originally constructed in the early 1970s, the East End Pool was an outdoor public pool located at 43 Fergus Street, Moncton.

The pool experienced significant water loss and critical maintenance issues for several years. A 2014 condition assessment report indicated that the pool's concrete structures were at the end of their service life, the pool's mechanical components were due for replacement, the change rooms were outdated, and the pool had multiple structural and safety non-compliance issues. The pool was decommissioned by the City in 2014.

Through a Request for Proposal process, Northland Design Studio Inc. was retained by the City in 2015 for the development of

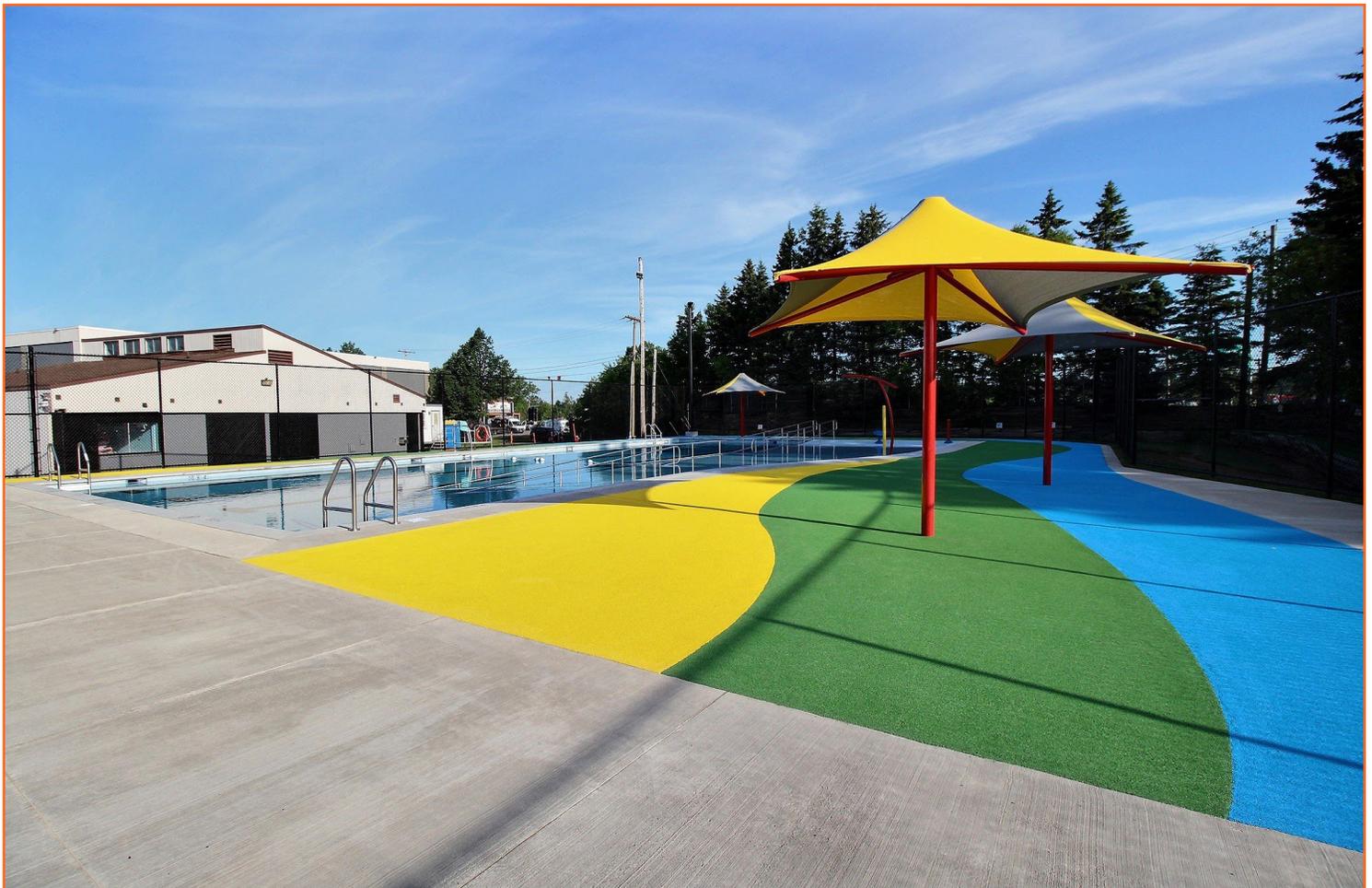
the conceptual design of the \$2.3 million East End Pool Project. The Architect's contract included design development, construction tender documents, inspection and post-construction services for the removal of the existing pool structures and change rooms and the construction of a new outdoor heated public pool facility and change rooms.

The Province of New Brunswick awarded the City a grant of \$500,000 towards the project. The City of Moncton Facilities Project Manager was Sylvain Beaulieu, P.Tech and other key project team members were:

- Architect - Northland Design Studio
- Structural - Delray Engineering Inc.
- Civil - Fisher Engineering Ltd.
- Mechanical - Tweedie & Associates Consulting Engineers Ltd.
- Electrical - AEC Engineering Inc.
- General Contractor - Avondale Construction Ltd.

Due to challenging soil conditions at the site, the pool project involved the use of a 281 rrammed aggregate pier system to ensure the stability of the pool and building, and to mitigate potential flooding issues in the designated construction area.

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The project tender was issued in late April 2018 to solicit competitive bids for the demolition and removal of the existing East End outdoor pool, and the construction of a new pool and support facility complete with a new pathway, new fencing, modular concrete retaining wall, pool deck, security enclosure, plant material, splash pad components, six heat pumps and new site services. The ultimate goal was to construct a high-quality outdoor heated public aquatic facility that would provide family-friendly, inclusive, and accessible amenities and activities for the community.

The pool house was designed to be a “net-zero” facility meaning it will produce as much energy as it requires. Designed to host multiple solar panels on its rooftop, a large portion of which are photovoltaic and expected to produce enough electricity for the building and LED lighting.

Solar hot water panels have been installed to provide hot water to the pool house. This will allow the City to reduce greenhouse gas

emissions resulting from the operation of the new facility and reduce its operational costs. The new pool project is also constructed to be net-zero runoff.

The East End Pool building includes insulated exterior walls and roof and is heated in the cooler seasons at a minimal temperature with in-floor heating to maximize the longevity of the electronically controlled washroom faucets and toilets, as well as electrical and mechanical equipment. To date, the solar panels at the East End Pool building are generating more energy than is required. In 2020 Facilities/Parks will work with the design team to review options for utilizing surplus energy from the solar panels to heat the pool, assist the heat pumps and reduce energy costs.

The design and construction aspects were completed on budget although approximately six weeks behind schedule due to weather conditions and construction challenges. Once construction was complete, the facility was commissioned by filling the pool, balancing the pool chemistry for its intended use, testing all of the equipment and systems, and training the administration on the maintenance and operation of equipment and systems.

The project’s completion date was July 15, 2019, and the pool facility opened to the general public on July 20, 2019.

Project Updates

UNB Fredericton Campus

UNB Kinesiology Building, UNB Fredericton Campus

MCW Maricor: Mechanical, Electrical, Energy
Engineering Design

Background

MCW is a long-standing energy management and sustainability partner for UNB, having developed the Campus Utility Master Plan, implemented metering and energy reporting programs, and developed and implemented energy retrofit and renewable energy projects based on investment, LCC and GHG framework. Campus investments have surpassed \$12 million with over 10,000 tonnes in annual reported emissions reduction. Most recently MCW was retained to carry out the mechanical and electrical design for the new Kinesiology Centre.

Profile

The three-storey, \$36 million, 68,850 sq. ft. academic and research building opened in August 2018. UNB had a vision of constructing a state-of-the-art Kinesiology facility that would bring students and faculty together like never before. It includes research laboratories focused on occupational performance, motor control and learning, cardio-metabolic health, and a center for recreation and sport in society; all specifically designed to maximize cross-disciplinary study. It is integrated into the Richard J. Currie Center.

UNB took advantage of the Post-Secondary Institutions Strategic Investment Fund (SIF), a program to accelerate infrastructure projects that support research and innovation at universities and colleges across Canada. Design and construction were fast-tracked, as the SIF specified 20 months from design to substantial completion. The schedule was:

- April 6, 2016: SIF announcement
- May 9, 2016: Detailed proposals due
- September 6, 2016: Project officially announced
- April 30, 2018: Requirement that projects must be substantially complete

MCW Maricor were the mechanical and electrical design engineers on the project including LEED certification credit

responsibilities. MCW worked closely with the Design Team and the University of New Brunswick to achieve the unique and aggressive energy targets for the facility, while maximizing the user experience and indoor environment.

By retrofitting the adjacent Currie Centre, MCW was able to utilize the existing energy assets to service the heating and cooling needs of the new Kinesiology Building. This allows the existing equipment in the Currie Center to be maximized and operate at higher efficiencies. MCW recognized the energy advantage the Currie Centre had with excessive heat that could be stored using a thermal energy storage system and then transferred for use at the new building.

Sustainable, energy efficient technologies include:

- Natural ventilation
- Displacement ventilation for lecture theatre
- DOAS Systems
- Earth tube intake for building fresh air
- Central plant heat/cool generation from heat recovery chiller with steam backup
- Integrated Thermal Energy Storage
- Energy recovery wheels
- Rainwater harvesting
- Daylighting harvesting
- Low Demand LED lighting
- Green Roof Technology
- Smart Building Management System
- Electric Vehicle Charging Station

The facility will provide a full interactive dashboard for user interaction and effective energy management strategies.



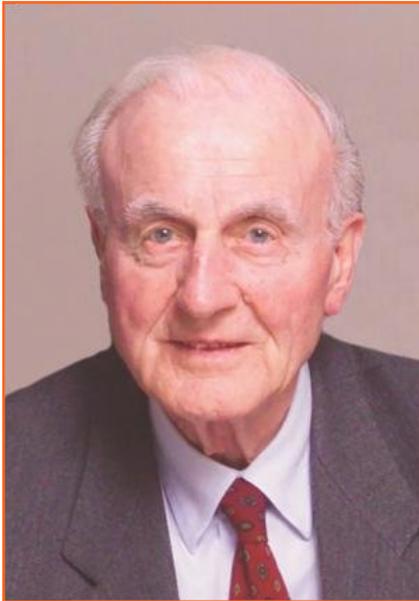
The building is designed and built to achieve a Gold certification from LEED (Leadership in Energy and Environmental Design), which requires sustainable site development, water savings, energy efficiency, appropriate materials selection, and indoor environmental quality. There are currently 10 GOLD buildings in New Brunswick, including the Kinesiology Centre, and this is the 1st LEED building for UNB Fredericton.



The building is also aimed at achieving a Silver certification from the International WELL Building Institute which is based on eight concepts that include light, fitness, physical and psychological comfort, and a built environment that reflects the values of the Faculty. This centre will be the 1st academic building in Canada and one of five in North America to be certified under the WELL program. The WELL Certification Process has many similarities to LEED. Some credits apply to both but the primary difference is performance verification, and recertification every 3 years. Certification is based on seven concepts and tracking 57 features.

Condolences to Family and Friends

Hans Walter Klohn, Saint John, NB 1927 - 2020



Hans Walter Klohn of Saint John N.B. passed away on April 15, 2020.

Originally from Kiel, Germany, Hans Klohn had a tremendous impact on engineering and the construction industry in Atlantic Canada.

Having received an engineering diploma, Mr. Klohn came to Canada in 1952 to manage the supply and erection of the structural steel needed for the expansion of the Irving Pulp and Paper Mill in Saint John, New Brunswick.

During the expansion, the Ontario manufacturer that supplied the precast concrete wall panels went into receivership. Looking for an economical way to finish the project on schedule, Mr. Klohn decided he and his staff had the engineering know-how to make these concrete insulated wall panels themselves. With the assistance of professional engineers, he set up some production lines and entered the precast concrete business.

His exceptional performance on the project impressed K.C. Irving enough to appoint him construction manager.

Mr. Klohn developed a close working relationship with K.C. Irving, and in 1955, they started a new construction company, Ocean Steel and Construction Ltd. As president of Ocean Steel, it wasn't long before Mr. Klohn had to increase its engineering workforce and upgrade its facilities and equipment in preparation for large construction projects and the modernization of industry throughout New Brunswick. Noteworthy engineering projects during this time included the expansion of Irving Pulp and Paper, Dominion Food Stores, the Kimberly Clark Kleenex Mill, the Lord Beaverbrook Rink and the original footprint of the Irving Oil Refinery.

Under Mr. Klohn's direction, the three original divisions of the company – steel fabrication, precast concrete manufacturing, and industrial construction – flourished to become Strescon Limited, Marque Construction Limited and FCC Construction.

The portfolio of companies modernized, diversified and expanded several times resulting in a continuous supply of high quality products and services. Mr. Klohn's newly incorporated Strescon Limited supplied New Brunswick with its first concrete beams reinforced with wire strands at the Jemseg Bridge. Other product shapes were also developed and used for the first time, such as Giant T's, Double T's and AASHTO bridge girders.

This marked a new era of large-span precast concrete buildings and bridges, including the War Memorial Arena at Acadia University. According to Arthur Irving, "nobody in Canada knows as much about steel and concrete as Hans. He (ensures) great engineering work."

Mr. Klohn's focus on engineering and attention to detail was legendary. During his lengthy career, he hired and mentored hundreds of engineering graduates from the University of New Brunswick, the Université de Moncton as well as Memorial and Dalhousie Universities.

Mr. Klohn was named an Honorary Life Member of the Saint John Construction Association and selected as an Industry Titan in the advancement of Canadian precast concrete. He was also awarded honorary Doctorate degrees by both the University of New Brunswick and Acadia University.

For his considerable efforts in expanding and promoting New Brunswick's engineering talent, Engineers and Geoscientists New Brunswick named Hans Klohn an Honorary Member of the engineering profession in 2014.

We offer our deepest condolences to his family and friends for their loss.

APEGNB AGM 2020





A Hundred Years Ago...

What was happening when APEGNB was incorporated?

Known as “the Roaring Twenties” or “the Jazz Age” in North America, and Western Europe, the 1920s were an era of invention, development and travel. The end of the First World War in 1918 caused instability and labour unrest as Canada, and the world, transitioned from war to peace time economies.

INDUSTRY

Since the early 19th century, timber dominated the New Brunswick economy. The declining shipbuilding industry, stagnant timber markets and increased tariffs struck hard, causing severe economic issues.

In the 1920s industrial towns declined as industries were closed after takeovers by central Canadian competitors or were adversely affected by national policies and hindered by federal tariffs and policies.

New railways and the rise of manufacturing towns failed to compensate for the losses. Yet, there was hope in the rise the pulp and paper industry.

April 24th, the New Brunswick Electric Power Commission was established by Order-In-Council through the New Brunswick Electric Power Act. The original Commission consisted of the Honourable C.W. Robinson, chairman; C.O. Foss, commissioner and chief engineer; and Reid McManus, commissioner and secretary.

The publicly-owned Commission, headed by its first president, C. W. Robinson, began construction on a \$2 million hydroelectric dam at Musquash, west of Saint John, which was completed in 1922. An 88-mile (142 km) long high voltage power line was subsequently built to serve the cities of Saint John, Moncton and Sussex.

The Irving Oil Co. was founded by K. C. Irving in the mid 1920s.

POLITICS

The town of St. Leonard was incorporated on June 18, 1920.

On October 9th, the provincial election resulted in the first minority government in New Brunswick since the 1840s. The United Farmers of New Brunswick won nine seats in 1920 and was the only third party to make a mark in provincial politics until 1982.



The Association of Professional Engineers of New Brunswick was incorporated on April 24th. That first year the Association registered 92 engineers.

On July 1, 1920, female teachers in New Brunswick were given equal pay with men. The Schools Act of 1903 had distinguished between male and female teachers regarding salary levels.

As with other provinces, initially not everyone had the right to vote in provincial elections. New Brunswick women received the right to vote in 1919. Two years later, the right to vote during municipal elections was extended to all property owners regardless of sex and marital status.

On December 6, 1920 partisan violence broke out at a speaking engagement in Moncton by Irish nationalist Lindsay Crawford.

Father Patrice Alexandre Chiasson became Bishop of Chatham on December 16, 1920

TRANSPORTATION

The automobile industry grew as public demand for cars increased.

In 1920, the New Brunswick legislature passed an act authorizing the change from driving on the left to driving on the right as in the rest of Canada (Maritimes were an anomaly and New Brunswick was the first province to make this change). The law came into effect on December 1, 1922.

On August 17, 1920 Saint John native Robert T. Mawhinney patents the Dump Box for trucks. A mast between the cab and the dump box was powered by a winch and cable system in order to raise and lower the dump box.

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New Brunswick license plates in 1920 had five yellow serial numbers on a black flat metal plate; with vertical “NB” and “1920” on the left and right respectively.

SPORT

Canadian boxers won five medals in the eight events at the Antwerp Olympics 1920.

Ice hockey made its Olympic debut as part of the program for the summer Games at Antwerp 1920. Canada was represented by the Winnipeg Falcons, who rolled through the competition, scoring 29 goals while allowing just one.

CULTURE

Cultural and artistic accomplishments nonetheless flourished, fed by the new medium of radio broadcasting. Canada licensed its first radio broadcasting station.

On February 5, 1920 Eaton’s opened a huge mail-order business in Moncton in a six-storey building on Foundry Street. Seven years later, a retail operation is added to the busy enterprise.



Winnipeg Falcons won the first Olympic hockey gold medal in history at the Antwerp Olympics in 1920.

The Group of Seven came into being on May 1920 – This group of Canadian landscape painters originally including Franklin Carmichael, Lawren Harris, A. Y. Jackson, Frank Johnston, Arthur Lismer, J. E. H. MacDonald, and Frederick Varley.

SOURCES

www1.gnb.ca/0131/en/heritage/thisweekd-e.asp :

www.electionsnb.ca/content/enb/en/about-us/history.html

www.nbpower.com/media/1489688/seventy-years-of-service.pdf

Originally built as a private toll crossing in 1901, the Hartland bridge was rebuilt and covered in 1920-1921, becoming “The World’s Longest Covered Bridge”.



CurrentGeneration.org

All Roads Lead to Rome



By: Ian Fogarty, Anglophone School District East

Current Generation is comprised of New Brunswick high school students who learn to design, solder, 3D print and distribute lights for their field-testing friends around the world living in 'light poverty'. After the sun sets, 1.3 Billion people burn kerosene, candles or brush for lighting in order to do chores and homework. Each of these has serious negative socio-economic, health and environmental concerns. How do students gain an education that will allow them to participate in a global or even local economy if they cannot study? Current Generation students use the design-thinking process with their global peers to provide customized lights and brighten the hearts and minds around the world.

Engineering becomes a warm-hearted way to solve real problems for real people. Current Generation kids use their learning to do good in the world and the result over the past few years has been an increased number of students pursuing engineering in university. Prior to participating in Current Generation, none of last year's graduating females considered studying engineering. After Current Generation, 100% of them attended university engineering programs in September.

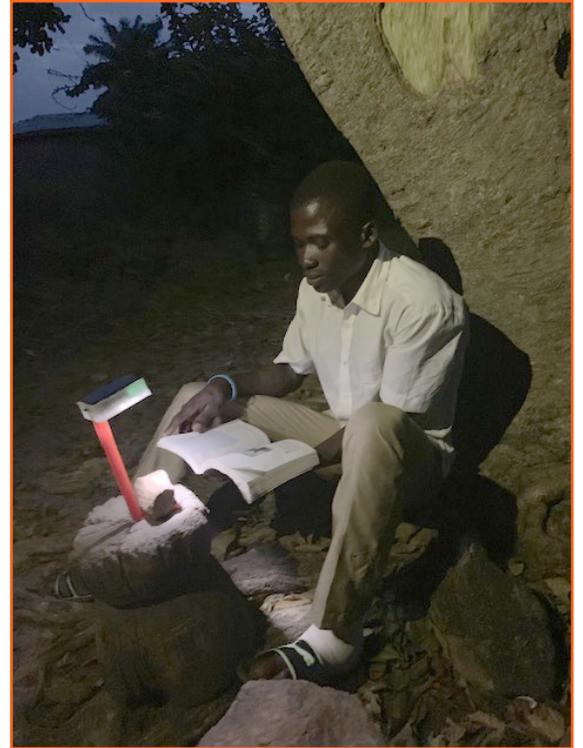


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elevator pitches, and make pamphlets in both English and Italian. Skills that were once neglected or avoided, are now practiced enthusiastically because there is a direct and timely purpose. Art, language, history, geography, economics, electrical engineering, and CAD all combined with a sense of social justice and empowerment. While there are many examples globally where all the disciplines are combined in a transdisciplinary project, there are only a few examples at the high school level. Perhaps this is why we have been recognized over the last couple of years: ranking in the top 10 in the world for sustainability in education (LA), Global Teacher Prize top 50 (Dubai), top 100 for innovation in education (Helsinki) and mentioned from the floor of the UN regarding global education.



Last October, Current Generation was invited to present their work at the European Maker Faire in Rome. We were the only high school on this side of the Atlantic and one of only three outside of the EU to attend. In preparation, students learned to write sponsorship letters, organize travel logistics, fundraise, sew tablecloths, design and print banners, deliver

Traveling to Rome had a psychological and cultural impact on the students who travelled and those who stayed home. Students who are continually bombarded with negative messaging towards Atlantic Canada, all of a sudden caught a glimpse of an exciting and creative world, and simultaneously gained pride because as “small town” New Brunswickers, they could compete with the rest of the world from right here at home. They have hope and excitement for engineering in Atlantic Canada.

This program is teaching students to see problems, to act and to innovate. Participants experience the frustration and elation that come when failure leads to success. If we are to thrive in tomorrow’s global economy, Atlantic Canada will need innovators. During this strange COVID-19 era, Current Generation students are designing 3D-printed face shields that use less plastic, ear protectors for surgical masks and tools to open grocery store doors without contact.

Thank you for the encouragement, mentorship and support from New Brunswick engineers. None of this cultural change would be possible without your support. We are looking forward to the challenges of expanding this program throughout Atlantic Canada.



Canadian University Software Engineering Conference (CUSEC)

By: Kisenge Mbaga



As a first-year student in Software Engineering, I knew the Canadian University Software Engineering Conference (CUSEC) was an experience that I wanted to experience: an opportunity to interact with bright students and industry professionals. As a student who wishes to actively improve my software engineering faculty and community, I was overjoyed to learn I was chosen.

On January 16th, 2020, all 13 members of UNB's delegation excitedly made the trip to Montreal. This was the first CUSEC experience for most of us. We knew to expect a fast-paced and educational conference with hundreds of motivated software engineer students. Some of the greatest things I took away from the trip were the friendships that developed among my fellow UNB delegates. As a first-year student, I was unaware of the very supportive and closely-knit software engineering family and community that existed.

Over three days, sixteen speakers captivated their audiences, sharing experiences and expertise on different topics such as the future uses of 3D technology, the benefit of

using time series data, the role of AI in education, and machine learning in the cloud. The technical workshops enabled hands-on learning. I quite enjoyed the SQL and web security workshops offered by Wish and Shopify respectively. The Career Fair was a rare opportunity for students to engage with employers and potentially secure a position with a company.

A unique theme of CUSEC 2020 was the importance of soft skills in software engineering. Spearheaded by Megan Doherty, former CUSEC attendee, UNB Software Engineer alumna and currently a Technical Account Manager at Microsoft, she encouraged us to continue to develop ourselves and our passions in combination with our technical skills.

One of the best take-aways of the conference was that nobody's path in software engineering is the same. As a first-year student, I started the year believing that there were specific steps that I could take over my four years of university, which would certainly lead to me reaching my tech dream. After talking to many of the 500 students it seemed as if no one had the same experiences or outcomes and perhaps that is what makes the journey of a software engineer so thrilling.

As I reflect on the wonderful events of CUSEC I can certainly say that the experience changed me for the better. Most importantly, our delegate team brought reinvigorated energy and information back to UNB's Software Engineering. I joined UNB's Developer Society and we eagerly planned Microservices and React workshops, and a hackathon for the Spring semester that were unfortunately cancelled. However, in September, we will return ready to enrich the student experiences and opportunities of UNB's software engineering students, and I will certainly encourage my peers to apply to CUSEC 21.



Atlantic Geoscience Society (AGS)

Annual Colloquium and Annual General Meeting 2020

By: Chris White and Rob Raeside

The 2020 Colloquium and Annual General Meeting of the AGS was held at in Truro, Nova Scotia, on February 7-8, 2020. The organizers, Rob Raeside (Acadia University) and Chris White (Nova Scotia Department of Energy and Mines) assisted by numerous student volunteers, facilitated an excellent meeting with 205 registered participants. Before the main conference on Friday, members of the Nova Scotia and New Brunswick Energy and Mines met to discuss the planned new editions of the Geological Highway Maps of Nova Scotia and New Brunswick and ultimately of the Maritime provinces. At stake was the fate of PEI – which map should it be on? You will be happy to know that New Brunswick won!

The Colloquium kicked off on Friday with a short course by Cliff Stanley (Acadia University), on QAQC Methods in Geochemical Research and Mineral Exploration, with a Focus on Gold Assay Quality Control.

The afternoon was filled with business meetings : an AGS council meeting, a meeting of the Halifax 2022 LOC, and a meeting of Atlantic Geology editors. The Society continues to enjoy a strong membership and is well-placed financially. Poster displays were available throughout the conference. Three concurrent sessions ran Friday evening: Advances in the Carboniferous in the Maritimes; Current Research in Hydrogeology and Environmental Geology in Atlantic Canada; and a general session focussing on mineralogy and igneous rocks, but with forays into geoparks and enigmatic offshore mounds.

Saturday's concurrent sessions included Paleontology and Sedimentology in Atlantic Canada; Structure, Tectonics and Magmatism of the Appalachian-Caledonides from Iapetus to Pangea; Gold: An Atlantic Canada Perspective; Geoscience Education – Vision 2020; and a general session on sediments

and geohazards. A particularly well-attended plenary discussion on “Being a Woman in the Field” was organized by Lexie Arnott (Dalhousie University).

A variety of awards were presented to students and professionals as follows:.

Rob Raeside Award (best undergraduate student poster)

“Heat as a tracer in coastal settings: quantifying pore water fluxes using temperature, pressure, and conductivity.”

Nicole LaRoux (Dalhousie University); Joseph Tamborski and Barret L. Kurylyk

Graham Williams Award (best graduate student poster)

“The effects of dolomitic limestone application on forest soil and tree nutritional status on two acidic sites in Nova Scotia.”

Caitlin McCavour (Dalhousie University), Shannon Sterling, Kevin Keys, Edmund Halfyard and Lawrence Plug

Rupert MacNeill Award (best undergraduate student oral presentation)

“Strength evolution of a crustal-scale shear zone on the example of the Himalayan Main Central Thrust.”

Olivia Rolfe (Dalhousie University), and Djordje Grujic

Sandra Barr Award (best graduate student oral presentation)

“Investigation of submarine landslides and geological hazard assessment of Pangnirtung Fjord, eastern Baffin Island (Nunavut)”

Philip Sedore (Dalhousie University), Vittorio Maselli, Alexandre Normandeau and Calvin Campbell



The Laing Ferguson - Distinguished

Service Award, given in recognition of exceptional and altruistic contributions to the Atlantic Geoscience Society and/or to foster public appreciation of Atlantic Geoscience over a long period of time went to Terry Hennigar of Wolfville, NS. In his nearly 60 years of work in hydrogeology, Terry has been at the forefront of research in groundwater in the Maritimes.

Terry Hennigar receiving the Laing Ferguson - Distinguished Service Award.

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The Distinguished Scientist Award - Gesner Medal, given to a person who developed and promoted the advancement of geoscience in the Atlantic Region in any field of geology was awarded to Ralph Stea (retired from the Nova Scotia Department of Energy and Mines). Ralph pioneered the study of Quaternary geoscience in the region, and has been an advocate for the complex models of Holocene deglaciation.

The banquet guest speaker was the new director and curator of the Fundy Geological Museum, Dr. Danielle Serratos. Her presentation, "Not all who wander are lost," gave us an at-times humorous glimpse into the life of a paleontologist in the field.

AGS acknowledges the financial support from the corporate sponsors and partners of the meeting, especially the Association of Professional Engineers and Geoscientists of New Brunswick which contributed to a successful AGS colloquium.



Ralph Stea (centre) receiving the Distinguished Scientist Award - Gesner Medal from Denise Brushett (left) and Dave Lentz (right).

APEGNB Awards (continued from Page 12)

Individual Award for Technical Excellence

Presented to an outstanding engineer and/or geoscientist who has made significant contributions in applied research, design, innovation, industrial problem-solving, construction, or technology transfer. Consideration is given to continued leadership in the professions and in the community, to outstanding achievements, and to recognition obtained.

Corporate Award of Excellence

Bestows distinction on a team of engineers/geoscientists or an outstanding engineering/geoscience project that has had, or will have, a significant positive impact on society, industry, and/or engineering/geoscience, and recognizes engineering/geoscience achievements involving New Brunswick professionals. Consideration is given to the magnitude of impact a project or team of engineers/geoscientists has had on society, industry and/or engineering/geoscience.

Outstanding Educator Award

Recognizes exemplary contributions to the teaching of the engineering/geoscience professions at New Brunswick universities. Consideration is given to personal teaching effectiveness; evidence of distinguished contributions by the nominee to the learning environment for engineering/geoscience students; and, evidence of outreach and continuing education activity directed toward the improvement of engineering/geoscience education.

Honorary Membership

Council may confer Honorary Membership in the Association upon any person who, through his/her own initiative and leadership, has rendered eminent service to the professions and has been elected to honorary membership by unanimous vote of Council.

Nomination Deadline: September 1st

For full criteria for Awards - www.apegnb.com/about-us/awards-scholarships/

Branch Updates

Northeastern Branch Update - Ray Ritchie, P.Eng., FEC, Chair



MIT Night

The highlight over the past few months was certainly our MIT Night, held Saturday, February 22nd, 2020, at the K.C. Irving Centre in Bathurst. Due to a severe snowstorm, the original outing on February 7th had been postponed. We still had a great turnout with 22 people in attendance including seven MITs and 15 members.

Marc Losier, P.Eng. once again dedicated his time to organize the event, with St. Isidore Asphalte and Roy Consultants donating the tickets for the Acadie Bathurst Titan's game against Charlottetown. A satisfying meal and beverages were provided, as well as a significant slew of Prizes from Kent Building Supplies. It was another great opportunity for networking and camaraderie.



Branch Skype (Social Distancing) Meeting

At our most recent Skype (Social Distancing) Meeting of the Northeastern Branch Executive, it was decided to postpone our Annual Branch Meeting (normally held the first week in June) until early Autumn, assuming that it will be appropriate for us to attend in person. A round of golf at that time would be a good draw for the crowd. The jury is still out on whether the 20th Annual Pumpkin Fling Event (primarily for school kids) will be held this September 25th.

Ray Ritchie, P.Eng., Branch Chair
Kevin Gallant, P.Eng., Vice Chair
Maggie Stothart, P.Eng., Treasurer
Joey Nowlan, P.Eng., Secretary
Kathleen McConnell, MIT,
Communications Director
Michael Parkhill, P.Geo.,
Geoscience Representative
Stephanie Doucet-Landry, P.Eng.,
Provincial Councillor
Claude Mallet, P.Eng.,
Consulting Engineer Representative
Antoine Legresley, P.Eng.,
Northumberland County Representative
Lisa Albert-Therault, P.Eng.,
Gloucester-West Representative
Raphael Roy, P.Eng.,
Gloucester-East Representative
Michel Cotton, P.Eng.,
Restigouche Representative

Branch Updates

Moncton Branch Update - Julien Caissie, P.Eng., Chair



Julien Caissie, P.Eng., Chair
Dani LeBlanc, EIT, Vice-Chair
Sigourney Stott, P.Eng., Treasurer
Jacqueline Jordan, P.Eng., Secretary
Emilie Pellerin, P.Eng., Past Chair
Richard LeBreton, P.Eng., Communication
Jérémie Aubé, P.Eng., Signature Event Chair
André-Michel Léger, Signature Event Vice-Chair
Michel Bourgoin, P.Eng., Social Committee
Stéphane Richard, P.Eng., Social Committee
Arsham Ahmadi, P.Eng., Professional Dev.
Serge Doucet, P.Eng., Branch Councillor
Rémi Valdron, P.Eng., Branch Councillor
Jérémie Aubé, P.Eng., Provincial Councillor

Since the new year, the Moncton Branch hosted three events for our members.

Members Reception

The first event of the new year was the Members Reception, held February 6th at St-James Gate in Dieppe. We had a great turn-out despite the stormy weather with 30-40 attendees during the evening.

Professional Development

Our second event was a professional development presentation on “Marine Renewable Energy”, held at Université de Moncton Faculty of Engineering. There were 40 in-person attendees and ten individuals streaming in real-time.



Branch AGM

Due to the COVID-19 pandemic, we were not able to have our AGM in person as planned but opted to have our first virtual AGM by teleconference. Held April 30th, there were 23 participants. During this event we awarded two bursaries to engineering students. The VC Blackett Scholarship (\$1000) was awarded to Emilie Savoie, a 4th year mechanical engineering student at Université de Moncton. and the APEGNB Branch Scholarship (\$1000) was awarded to Brycen Munroe, a 1st year software engineering student at UNB.

As the situation is evolving daily due to the COVID-19 pandemic there is a lot of uncertainty concerning our yearly events. Nonetheless, the Moncton Branch will do everything we can to save our key events (Lobster Supper, Soapbox Derby, Golf Tournament and Members Reception) while following the guidelines set by the provincial government.

Branch Updates

Fredericton Branch Update - Phil Lamey, P.Eng., Chair



Phil Lamey, P.Eng., Chair
Melissa Steeves, P.Eng., Vice Chair
Melissa Dawe, P.Eng., Treasurer
Tracey Germon, P.Geo., Secretary
Diana Loomer, P.Geo., Past Chair
Coady Cameron, P.Eng. Communications
Christina Varner, P.Eng., Councillor
Kevin Beattie, P.Eng., Councillor
Alain Cormier, P.Eng., Councillor
Bill Lamey, P.Eng., Councillor
Rachel Hogge, P.Eng., Councillor
Jean-Frederic Lalonde, P.Eng., Councillor
Peter Wedge, P.Eng., Councillor
Tammy Lamey, P.Eng.,
Councillor/Provincial Representative
Luc Bouvier, UNB EUS Representative
Matthew Sukstorf, Base Gagetown
MEAC Representative

Branch AGM

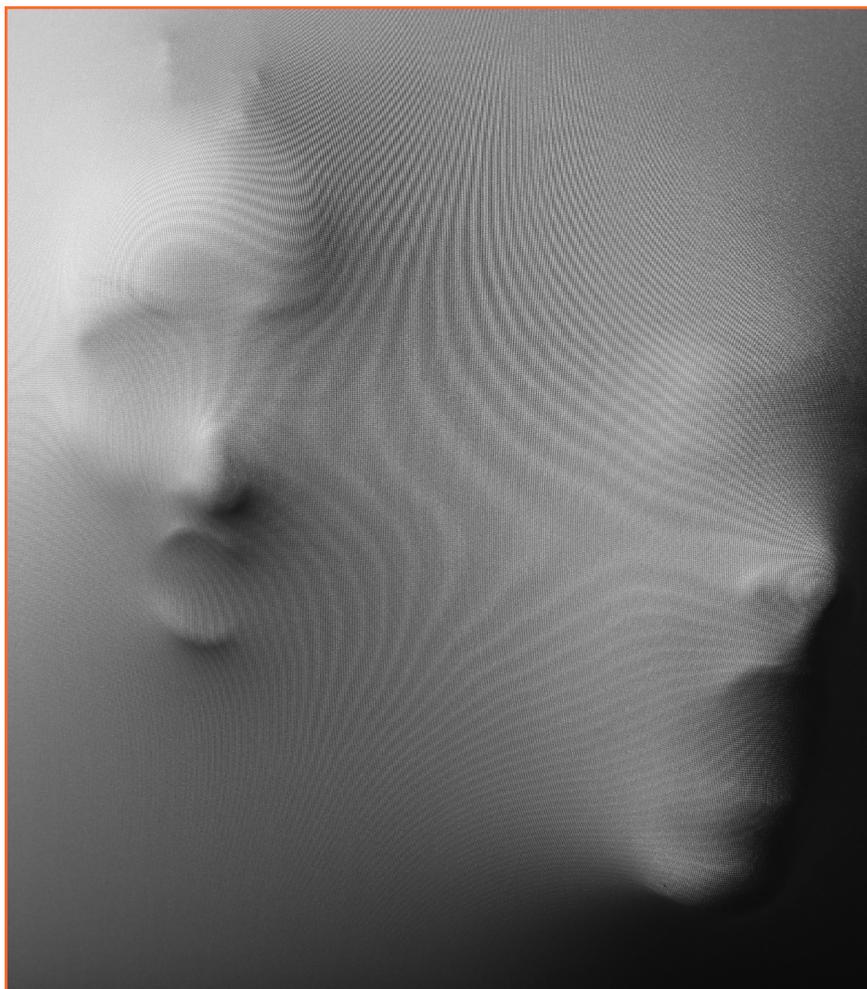
Fredericton council started the year with the Annual General Meeting. Our council remained fairly unchanged from the previous year with the exception of the addition of a new council member (Rachel Hogge) and the retirement of two long-time councillors (Sean Bartlett and Adam Young). We appreciate the efforts they have provided over the years. The AGM was well attended (about 80 people). We all enjoyed a wonderful meal and presentations by the City of Fredericton, APEGNB and CyberNB.

Upcoming Year

We were looking forward to a busy year of events but like everyone else, our year has been turned upside down. We have shifted our focus to looking at how we can provide value to our membership using remote capabilities.

Haunted Tour 2020

Our Haunted Tour will certainly be different this year, but we plan to do something exciting; so stand by for news on that.



Branch Updates

Saint John Branch Update - Dibyendu Debanth, P.Eng., Chair



Dibyendu Debnath, P.Eng., Chair
Greg Donovan, P.Eng., Vice-Chair
Rachel van Wart, P.Eng., Treasurer
Theresa Winslow, P.Eng., Secretary
Alex Bardsley, P.Eng., Communications Representative
Marlo Rose, P.Eng., APEGNB President
Jeffrey Underhill, P.Eng., APEGNB Saint John Councillor
Michelle Paul-Elias, P.Eng., APEGNB At-Large Councillor
Tanya Horgan, P.Eng., P.Geo., Councillor
Lipika Nath, E.I.T., Councillor
Jessica Davis, E.I.T., Councillor
Kelsey Cronin-McKenna, E.I.T., Councillor
Beth Giroux, E.I.T., Councillor
Bryna McMurtrie, E.I.T., Councillor
Mark Guest, P.Eng., Councillor
Dr. Perry Riley, P.Eng., UNBSJ Faculty Representative
Jayme Girouard, UNBSJ Student Representative

Branch AGM

APEGNB Saint John Branch held our 2020 Annual General Meeting (AGM) on Thursday February 6th. This was a change from previous years, when the branch fiscal year ran from September to August and the AGM occurred in the fall. The new fiscal year will follow the calendar year. Seventy-six members and MITs registered for the event.

Professional Development

The AGM was followed by a professional development session (PD) on “Engineering Law and Ethics”. Attendee responses were positive and highly supportive.

We are planning to hold a similar session in the fall of 2020.

Atlantic Engineering Competition

The branch, which is committed to supporting the student engineering community, funded a group of UNB Saint John engineering students to take part in the Atlantic Engineering Competition in January 2020.

Upcoming Events

Unfortunately, both the Annual Saint John Soapbox Derby (sponsored by the APEGNB Saint John Branch) and the school outreach program have been cancelled for this year.

Typically, the Saint John branch is very active during the summer. If all restrictions are lifted, the branch will host our Annual Young Professionals Night in July or August.



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Friday, October 23, 2020

Delta Fredericton Hotel

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