ENGINEERS AND GEOSCIENTISTS BRITISH COLUMBIA MAY/JUNE 2023

INNOVATION

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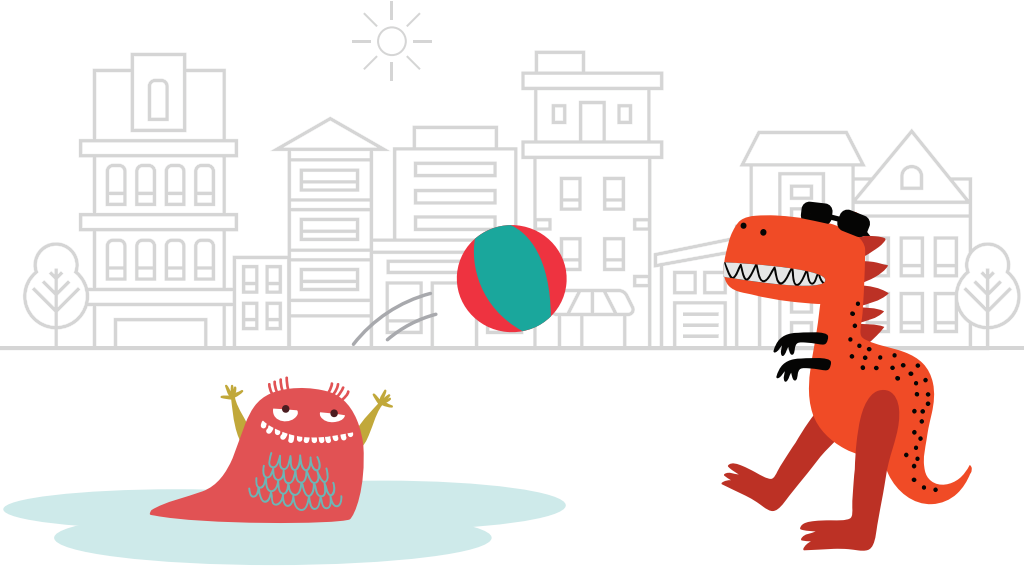

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INNOVATION

MAY/JUNE 2023 | VOLUME 27 NUMBER 3

NEWS / DEPARTMENTS

COMMENT

OTHER

COVER STORY

PROJECT HIGHLIGHTS

Once again, we present our annual Project Highlights edition showcasing the recent projects of Engineers and Geoscientists BC registrants. Over the past year, BC's engineers and geoscientists have displayed innovation and environmental stewardship in their many projects in BC and around the world.

Ituango, a hydroelectric project in Colombia, used unique mechanical plugs to facilitate construction. (See page 29)

ON THE COVER

The post office redevelopment project is the largest office building in downtown Vancouver.
PHOTO: RICO MARQUES PHOTOGRAPHY

THIS DIGITAL EDITION OF *INNOVATION* INCLUDES VIDEO EXTRAS. LOOK FOR THIS PLAY ICON, AND CLICK ON IT TO VIEW VIDEO AND OTHER MULTIMEDIA CONTENT. AN INTERNET CONNECTION IS REQUIRED.

ENGINEERS & GEOSCIENTISTS
BRITISH COLUMBIA

LICENSE FEES AND FINANCIAL STEWARDSHIP

One of the most important functions of Engineers and Geoscientists BC's Board is financial stewardship, including approving and monitoring the annual budget to ensure we have the resources to deliver on our regulatory obligations and meet our mandate of protecting the public and environment.

With the implementation of the *Professional Governance Act (PGA)* in 2021, Engineers and Geoscientists BC's regulatory responsibilities were broadened. We are now responsible for regulating firms as well as individuals and are continuing to integrate the *PGA* and other legislative requirements into our operations—all of which has an impact on the cost of regulation.

Annual license fees are and should be the main source of funding for any regulatory body. Although we have been able to limit license fee increases to $10 or less over the past three years, we have seen the costs of regulation steadily increase.

At our April meeting, the Board approved a license fee increase that will take effect in January 2024. This will be an increase of $50 for practising registrants, $13 for non-practising registrants, and $10 for trainees. (See article page 6.)

As an organization that is accountable to the public and subject to the oversight of the provincial government, it is necessary for us to maintain our ability to regulate engineering and geoscience effectively, with the appropriate financial resources to fulfil our mandate.

In addition to meeting the requirements of the *PGA* and responding to the pressures of inflation, this license fee increase will support needed improvements to our data management and protection, enable us to address increases in complaints, investigations, and enforcement actions, and work towards reaching our reserve fund target of six months' operating funds.

We recognize that, for registrants, this is a considerable fee increase and we are mindful of the impact. Still, our annual license fees remain relatively low compared to the other major professions in BC and Canada such as law, accounting, medicine, pharmacy, and dentistry.

As a Board, we will continue to review the organization's financial standing to ensure it remains stable and can be responsive to regulatory requirements. We weigh carefully any license fee changes as we work to improve our services and programs and deliver on our mandate to protect the public and environment by effectively regulating engineering and geoscience in BC.

MARK ADAMS, P.ENG., BOARD CHAIR

info@egbc.ca

INNOVATION

MAY/JUNE 2023 | VOLUME 27 NUMBER 3

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Innovation does not accept unsolicited articles or photos, but we do welcome article proposals and ideas. Proposals should be of interest and relevant to our readers and recognise the regulatory role of Engineers and Geoscientists BC in ensuring public safety and environmental protection. They should not be a "sales pitch" for a company or organization. Send suggestions to: innovation@egbc.ca.

LETTERS
Innovation welcomes letters from our readers. All submitted letters may be subject to editing for length, clarity or accuracy. We reserve the right to reject unsuitable letters and we do not publish open letters to third parties. Send letters to: innovation@egbc.ca

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FOLLOWING SAFETY PROCEDURES SAVES LIVES

Editor,

I was dismayed to read the report in the magazine about the ammonia leak in May 2022 (*Innovation* March/April 2023). Such tragic events should never happen. I have worked at a chemical plant facility where serious life-altering injury did occur. You never quite stop wondering if it could have been and should have been avoided!

The rigorous application of modern safety procedures saves lives and prevents serious injury. As someone who has both operational experience in handling ammonia and the application of HAZOP, the permitting for the operation of this facility is so bad as to be criminal. De-commissioning of a small facility such as this might appear trivial but that is a serious mistake. It is important to note that de-commissioning is very different from routine shutdown and is often much more challenging. It can be accomplished without major incident or injury but only when a proven thorough approach is taken:

- Using HAZOP to identify and clearly document safety issues and the correct procedures to follow both during de-commissioning and subsequent dismantling.
- Meticulous documentation of the exact condition of every part of the plant (each vessel and pipeline) after de-commissioning—sometimes it can be very difficult to leave a plant completely free of hazards.
- Detailed description of how every plant item is to be safely taken apart and safely disposed of.

In instances like this, it might be tempting to not apply the appropriate care and attention, especially if those involved are not suitably trained. No facility is ever too trivial if it poses potential threat to life, and that is always the case anywhere ammonia is handled. Familiarity breeds contempt, and that rarely ever ends well.

Noel Graham Jones, P.Eng. (retired)

Innovation welcomes letters from our readers. All submitted letters may be subject to editing for length, clarity or accuracy. We reserve the right to reject unsuitable letters and we do not publish open letters to third parties. Send letters to: *innovation@egbc.ca*

CLARIFICATION

In a March/April *Innovation* article "Accredited Employer Program Marks 5 Years," the photo caption on page 27 indicated that it was a recent photo. The photo was actually from 2020. *Innovation* regrets any confusion.

Photo: Steve Smith/Shutterstock

2023/2024 BUDGET APPROVED WITH FEE INCREASE

Engineers and Geoscientists BC's Board approved the organization's 2023/2024 budget at its April meeting. The balanced budget accounts for implementing requirements of the *Professional Governance Act* and inflation. It also includes resources to address significant increases in applications, high demand for online exams, and increased complaints and enforcement action.

The budget includes a fee increase to take effect in January 2024. Fees will increase by $50 for practising registrants, $13 for non-practising registrants, and $10 for trainees. For the past three years, fees have remained mostly flat and have been limited to inflationary increases of $10 or less.

"Licensing fees represent the cost of regulation, and we recognize this increase is significant," said Heidi Yang, P.Eng., Engineers and Geoscientists BC's CEO.

"It is also necessary for Engineers and Geoscientists BC to meet its legislated requirements and be responsive to the demands placed on it as a regulator. It is important that we maintain our ability to regulate engineering and geoscience and that we have the financial resources to fulfil our mandate."

Like many organizations, Engineers and Geoscientists BC has experienced the impacts of inflation, which accounts for just under half of the fee increase. In addition, the increase will support needed improvements to systems and processes that support the organization's strategic plan and secure and protect the organization's critical data to remain in compliance with the evolving requirements of BC privacy legislation. It will also support new initiatives for the organization's more than 1,800 volunteers and allow for continued growth towards the organization's contingency fund target of 6 months' operating funds.

Fees for firms will not be adjusted at this time, as the licensing model in place is just concluding its second year of operation and the first year of audits. As the firm regulation program stabilizes and the costs of regulation are better understood, fees for firms will be reviewed as part of the organization's annual budget.

Engineers and Geoscientists BC is a non-profit organization, accountable to government and the public. The annual budget is approved by Engineers and Geoscientists BC's Board, and its financial statements are audited by an independent third-party auditor. Financial statements are published in Engineers and Geoscientists BC's Annual Report, which is available on our website, *egbc.ca/About/Publications/Annual-Report*.

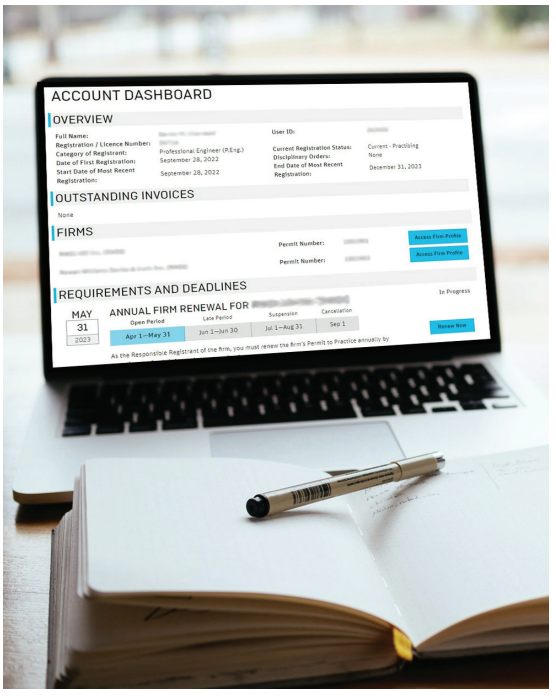


PHOTO: SHUTTERSTOCK/GORODENKOFF

ANNUAL REPORTING DUE JUNE 30

Annual Reporting (AR) opened May 1 and this year Engineers and Geoscientists BC is introducing a new Account Dashboard. The new dashboard enhances the reporting experience by providing personalized yearly requirements for registrants in a single online view.

Practising registrants can log into their account (*egbc.ca/Account*) to see their requirements and the status of each requirement. Registrants will only see requirements that are applicable to them in this dashboard.

AR is due June 30 and can be submitted between May 1 and June 30 every year. Under the *Professional Governance Act*, registrants are required to verify contact and certain practice-related information, and complete declarations in the AR platform each year.

Continuing Education requirements are also due June 30 and practising registrants can record their CE activities throughout the reporting year.

Registrants can visit the AR or the CE Program webpages to learn more about these programs and access resources including videos, templates, and guides. *egbc.ca/Practice-Resources/Individual-Practice/Annual-Reporting* and *apps.egbc.ca/CEP-Reporting*

INDIVIDUAL AUDIT PROGRAM BEGINS IN JULY

As required by the *Professional Governance Act (PGA)*, Engineers and Geoscientists BC will begin a new audit program for individual registrants in July.

The Individual Audit Program is designed as a proactive, quality-assurance check on those practicing engineering and geoscience in BC. It is intended to be a constructive process to educate registrants on their regulatory requirements.

Individual registrants who are audited through the program will have their compliance with regulatory requirements reviewed. Areas assessed include continuing education, quality management, code of ethics, and declared practice areas. While a similar process existed prior to the introduction of the *PGA* that was referred to as a practice review, the term "practice review" now refers to a different process, as explained in the box below.

Registrants will be chosen for audits through a random selection process, based on risk-based criteria. Each year, the Board will determine the percentage of individual registrants who will undergo an audit; the first-year target is to audit one percent of individual registrants. The Individual Audit Program does not apply to firms or sole practitioners, which have a separate process.

Engineers and Geoscientists BC hopes to identify professional practice trends and address those that may impact the safety, health, and welfare of the public and the protection of the environment. The audits also provide direction to the organization in developing new programs and modifying existing programs to improve operations.

WHO CAN BE AUDITED?

Most registrants can be selected for a compliance audit, including registrants with a professional designation (P.Eng., P.Geo. P.L.Eng., P.L.Geo), as well as those with non-practising and retired designations.

Those exempted from individual audits include:

- Trainees (EITs and GITs);
- Sole practitioners, who are subject to regular training and compliance audits under the Regulation of Firms – Permit to Practice Program;
- Individual registrants who have undergone a compliance audit in the past five years;
- Individual registrants who work for a regulated firm that has undergone a firm audit in the previous 12 months with an in-compliance result; and
- Life members or life limited licensees, except those with practising status (e.g., honorary life member, life member prior to 1998).

Registrants will be selected for audits at the beginning of each quarter of the Engineers and Geoscientists BC fiscal year, which starts July 1. Based on the current risk-based criteria, 95 percent of the first-year audits will review practising registrants and five per cent will be for non-practising registrants.

The random selection process is based on risk-based criteria that considers trends identified through the complaints, investigation, and discipline processes, as well as trends in non-conformances identified from audits and practice reviews of individuals and firms. As more audits are done and statistical information compiled, the risk-based critera may be adjusted.

HOW THE AUDIT PROCESS WORKS

When registrants are selected, they are required to comply with the audit

INDIVIDUAL AUDIT VS PRACTICE REVIEW

What's the difference between an individual audit and a practice review? To clarify, here are the key differences.

INDIVIDUAL AUDIT	PRACTICE REVIEW
An audit takes a proactive, quality-assurance approach to ensure registrants understand and are complying with regulatory requirements such as continuing education requirements and declaring appropriate areas of practice.	A practice review is a reactive process that is only performed when professional or ethical issues or risks have been identified either during an audit, through another practice review, or through the complaint and investigation process.
Registrants are randomly selected to undergo an audit.	Practice reviews tend to be more technical in nature and may focus on specific processes, areas of practice, or projects.

process. The process starts with a documentation review by an assessor. Registrants will be asked to provide all requested information, files, or records in their possession or control within a specific time frame. If necessary, the assessor may ask for an interview with the individual.

Once the review of the audit is finished, registrants may be asked to complete one or more Corrective Action Plans (CAPs).

The final report provided to the registrant determines the next steps. If the registrant is in compliance, their file is closed. If the registrant has minor non-conformance issues, they will be required to submit their CAP to correct the items in the allotted time.

If the registrant has major non-conformance indicated, their file will be referred to the Audit and Practice Review Committee. It will be up to the committee to decide to close the file, initiate a practice review, assign an additional compliance audit, or refer the file to the Investigation Committee.

The compliance audit process is confidential, except in narrow circumstances where the assessor or the Audit and Practice Review Committee is required by superseding legal and ethical duties to report dangerous or illegal practice to another body, including the Engineers and Geoscientists BC Investigation Committee.

Except where obligated to do so in accordance with legal or ethical duties, Engineers and Geoscientists BC will not release any information related to a registrant's compliance audit to a third party, including their employer.

RESOURCES

Visit *egbc.ca/Individual-Audit* for more information about the Individual Audit Program or to download the program guide for more details.

Questions regarding this program can be directed to *individualaudits@egbc.ca*

PHOTO: WENDY D PHOTOGRAPHY

APRIL 21, 2023

Engineers and Geoscientists BC's Board of elected registrants and government representatives meets throughout the year to conduct the business of organizational governance. The following are the highlights of its April 21, 2023, meeting.

2023/2024 BUDGET APPROVED

The Board approved the organization's 2023/2024 budget, which includes a fee increase that will take effect in January 2024. Fees will increase by $50 for practising registrants, $13 for non-practising registrants, and $10 for trainees.

In addition to continuing to implement the requirements of the *Professional Governance Act*, the increase addresses rising costs associated with inflation, supports improvements that are needed to protect the organization's critical data, and supports improvements to our operations to respond to significant increases in applications, high demand for online exams, and increased complaints and enforcement action. For more information, see page 6.

BYLAWS AMENDED

The Board approved several amendments to Engineers and Geoscientists BC's Bylaws. The amendments include several administrative changes to our Continuing Education (CE) and Annual Reporting (AR) requirements. These changes will enable the Registrar to grant exemptions from AR requirements, set a deadline for applying for special consideration (e.g. exemptions, deferral), and harmonize late fees.

Engineers and Geoscientists BC's current Bylaws are available at *egbc.ca/Bylaws*.

ANNUAL GENERAL MEETING TO BE HOSTED IN HYBRID FORMAT

The Board approved that the 2023 Annual General Meeting (AGM) will be hosted in a hybrid format (virtual and in-person). This format will enable registrants who are not able to attend the AGM in person to participate from wherever they are. As organizations return to in-person events, many regulators are now hosting hybrid AGMs with good results.

The AGM is scheduled for Saturday, October 28, 2023. The in-person format will be hosted in Whistler, BC, coinciding with the organization's annual conference. Registration for the AGM will open in the summer.

ENGINEERS &
GEOSCIENTISTS
BRITISH COLUMBIA

SAVE THE DATE FOR OUR ANNUAL CONFERENCE

OCTOBER 26–28, 2023 | WHISTLER, BC

We are pleased to announce that, after three years of virtual conferences, the 2023 Engineers and Geoscientists BC Annual Conference will be held in person.

Don't miss out! Mark this in your calendar today.

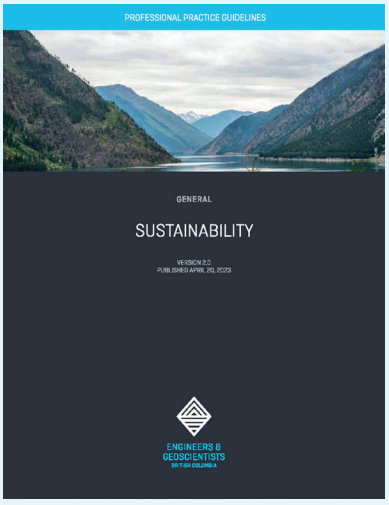
egbc.ca/conference

These guidelines, and other professional practice guidelines and practice-related resources, are provided at egbc.ca/Guidelines.

NEWLY PUBLISHED PROFESSIONAL PRACTICE GUIDELINES AND ADVISORIES

egbc.ca/Guidelines

Professional Practice Guidelines: Sustainability



These *Professional Practice Guidelines – Sustainability* were developed by Engineers and Geoscientists BC to provide guidance to engineering and geoscience professionals and registrant firms on how to incorporate sustainability in their professional practice.

These guidelines are distinct from other practice guidelines as they are principles-based and overarching and therefore address broader social and cultural matters that impact professional practice. They describe the expectations and obligations of professional practice to be followed in relation to sustainability.

Registrants are expected to consider the objectives and intent of these guidelines while using their professional judgment when incorporating the guidance to a specific situation. These guidelines form part of Engineers and Geoscientists BC's ongoing commitment to maintaining the quality of professional services that registrants provide to their clients and the public.

These guidelines were initially published in 1995 to address the topic of sustainability in professional practice. They were then updated in 2016, and this most recent 2023 revision provides additional clarity with respect to how individual and firm registrants can bring a "lens of sustainability" to their work.

Sustainability Reference Materials

The recently published Sustainability Reference Materials is a complement to the *Professional Practice Guidelines - Sustainability*. These resource materials are a starting point for registrants who want to learn more about key sustainability concepts, and how to integrate them into their practice.

The materials do not constitute or replace the professional practice guidance, but rather aim to empower registrants to integrate sustainability into their practice, and to contribute to the three pillars of sustainability. The Sustainability Reference Materials can be found on the Engineers and Geoscientists BC Climate & Sustainability webpage (*egbc.ca/Practice-Resources/Programs-Resources/Climate-Sustainability*).

Revision - Practice Advisory: Relying on The Work of a Specialist

This Practice Advisory was initially published in June 2021 to clarify the conditions under which engineering and geoscience professionals may rely on specialists to inform or contribute to engineering or geoscience work. Engineers and Geoscientists BC is currently updating this practice advisory in light of the *Professional Governance Act*, as well as regulations and bylaws under the *Professional Governance Act*. To reflect the impending update, Version 1.1 of Relying on the Work of a Specialist was published March 2023 and includes some updated principles to follow in situations where engineering and geoscience professionals work with specialists.

These webinars, and other professional practice-related webinars, are provided at egbc.ca/Events.

UPCOMING PROFESSIONAL PRACTICE WEBINARS

egbc.ca/Events

Professional Practice Guidelines: Landslide Assessments in British Columbia: Tuesday, June 20, 2023.
egbc.ca/Events/Events/2023/23JUNLGZ

FREQUENT PROFESSIONAL PRACTICE INQUIRIES

How do I become a volunteer to assist in recovery efforts following a disaster?

Engineers and geoscientists are key members of post-disaster recovery teams that investigate the impact of natural disasters and assess the stability of community infrastructure following the event. In BC, teams were most recently mobilized following the 2022 wildfires and the 2021 atmospheric river.

As part of its larger Post Disaster Building Assessment initiatives, BC Housing wants to increase the number of people qualified to conduct Rapid Damage Assessments in BC. Rapid Damage Assessments are disaster-agnostic and can be done following any extreme event (e.g., flood, earthquake, windstorm).

Engineers and Geoscientists BC registrants who are interested in supporting relief efforts in BC are encouraged to take the Rapid Damage Assessment training and put themselves on BC Housing's Building Assessor Registry so they are ready to be called on following future disasters.

BC Housing hosts a Post Disaster Building Assessment advisory group that provides feedback and creates training and resources for BC communities. This group includes local government officials, professional engineers, architects, provincial ministries, building assessors, Indigenous communities, and many others.

Post Disaster Building Assessments enable communities responding to extreme events to assess the safety of buildings more rapidly, which allows people to remain in or return to their homes and businesses as soon as possible. This reduces the impact of such events, helping communities recover more quickly, and reduces the impact on emergency and social service resources.

Engineers and Geoscientists BC registrants with experience with buildings or construction, and those who are interested in supporting relief efforts, can join this initiative by completing the Rapid Damage Assessment Training (*bchousing.org/About/SES/Post-Disaster-Building-Assessments*).

There are no pre-requisites to take the training; however, experience with buildings or building systems will help volunteers learn the skills needed to identify unsafe conditions in wood frame, masonry, and concrete structures caused by floods, earthquakes, or windstorms. Following the training, qualified volunteers can self-register with the BC Housing Building Assessors Registry to respond to local emergencies.

For additional information, please contact: *SES@BCHousing.org*.

INDUCTION CEREMONY WELCOMES NEW PROFESSIONALS

On April 25, Engineers and Geoscientists BC celebrated the induction of 158 new professional engineers and geoscientists.

At the ceremony in Vancouver, it was the first time in three years that new inductees could walk across a stage to receive their framed certificate, hear live applause from their guests and mingle in person.

Engineers and Geoscientists BC CEO Heidi Yang, P.Eng., welcomed the inductees, noting the many different journeys inductees take towards their designation.

"For many of you here today, receiving your professional designation may have a unique meaning to you. It may represent the resilience of you or your family, who came to Canada to begin a new life, and worked hard to make that life a reality."

She added, "Your designation may also represent your perseverance in the face of barriers and challenges that others around you may not have faced."

Board Chair Mark Adams, P.Eng., encouraged the inductees to become actively involved in volunteering, which has been worthwhile to him.

"Volunteering is a highly rewarding, fulfilling, and worthwhile experience that can help you become a better professional—a professional who truly understands the challenges of others, who naturally keeps an open mind, who feels a sense of community around them, and who understands what's at the heart of public safety and environmental protection."

Chief Regulatory Officer and Registrar David Pavan, R.Ph., who handed out the certificates with the Board Chair, read the invocation and encouraged the inductees to display their certificates with pride.

For one inductee, Kimberley Silver Brown, receiving her P.Eng. represented an accomplishment for herself and her community. Kimberley, whose Tsimshian name is Footsteps on the Moon, is a member of the Lax Kw'alaams Band. Wearing a prominent red and black blanket, she acknowledged she was the only Indigenous inductee.

"That's why I wore my blanket," she said. "To take up some space—for those people who weren't able to take part."

With a background in water treatment and municipal infrastructure, Brown is a public health engineer at the First Nation Health Authority. As she describes it, "Any infrastructure or resource on First Nation land, I review." That includes everything from housing to water treatment plants.

New inductees stand to read the invocation.
Photo: Wendy D Photography

Engineers and Geoscientist BC CEO Heidi Yang reads the list of inductees at the Induction Ceremony.
Photo: Wendy D Photography

While she became interested in engineering after watching her brother get his engineering degree from UBC, it's the important challenges facing First Nations that drives her in her profession now. She points out that many First Nations still don't have access to clean drinking water.

Another inductee, Uranbileg Yondon, P.Geo., also finds her career rewarding. The geoscientist has spent the last 10 years working on the massive Oyu-Tolgoi copper and gold mine in Mongolia—developing it from scratch to operating. She has significant knowledge of deep mineral exploration techniques gained from the project using geophysical methods and ZEUS, an induced polarization and resistivity technique licensed in Mongolia.

When the mine project started in 2002, she said there was nothing there. As of earlier this year, the mine is in full operation.

"I'm so proud to see the mine finally finished. It's proof of conception," she said. "It's a once-in-a-lifetime experience. I'm very fortunate."

Yondon has also worked in Australia, China and Canada, noting they are all interesting settings. "They are all different problems to solve."

The problem-solving aspect of engineering is what drew inductee Mina Abdelmasih, P.Eng., to his engineer designation.

As a curious youngster, he said with a laugh, "I enjoyed breaking things and putting them back together. I wanted to open them up and see how they worked."

Now a mechanical engineer with a bachelor's degree from the University of Toronto, Abdelmasih works for Cellula Robotics in Burnaby, designing autonomous underwater vehicles. Among his projects is robots for pipeline inspecting.

Another engineering inductee, Gaspare Boscarino P.Eng., also looked back to his childhood as the basis for his career. In his native Italy, he and his brother would make toys together, delving into the electronic aspects of battery-operated devices and opening up radios.

"Since I was a child, I wanted to know how things worked," he said. "I also had a passion for design. I like the concept of creating something through a process."

Boscarino is a senior software engineer whose current research is focused on systems engineering, biomechanics, and control systems. He holds master's degrees in electronics engineering and mechatronics systems engineering. He recently arrived in Canada from Milan and pursued his P.Eng. to practice in BC.

Left Page:

From Left: Mina Abdelmasih, P.Eng., receives his certificate from Engineers and Geoscientists BC Chair Mark Adams, P.Eng., right, and Chief Regulatory Officer and Registrar David Pavan, R.Ph. Uranbileg Yondon, P.Geo., centre photo, and Gaspare Boscarino, P.Eng., right, also received their certificates.
Photo: Wendy D Photography

Right Page:

Kimberley Brown, P.Eng., right, poses with fellow inductee Jasmine Dozlaw, P.Eng. Photo: Wendy D Photography

GUIDE TO INCLUSIVE PRACTICES

ENGINEERS & GEOSCIENTISTS BRITISH COLUMBIA

NEW GUIDE FOR INCLUSIVE PRACTICES

The Guide to Inclusive Practices is a new resource that provides direction for volunteers, registrants and Engineers and Geoscientists BC staff in building and maintaining inclusive working environments.

The Guide to Inclusive Practices, developed by Engineers and Geoscientists BC, covers a range of topics that can be applied to work and volunteer environments and in general areas of professional practice.

Not all topics will be relevant to each individual or role. The guide is structured so each section can be used as a stand-alone resource or as part of a group of resources, depending on an individual's role and/or the specific activity or event.

The guide is supported with a series of one-page core concept resources that provide summary information on each topic, allowing individuals to easily access key information.

The core concepts cover:

- Land acknowledgements
- Language
- Inclusive meeting facilitation
- Meeting participation
- Inclusive mentorship for professionals and students
- Inclusive presentations

These resources highlight many easy-to-implement practices. For example, the section on inclusive meeting facilitation highlights practices such as welcoming participants by their name to meetings, providing different ways for people to participate, and facilitating balanced conversations.

Engineers and Geoscientists BC recognizes that individuals will be at different stages of understanding and applying

The Guide to Inclusive Practices and accompanying core concept resources are now available on the website: *egbc.ca/About/Programs-Initiatives/Equity-Diversity-and-Inclusion/Guide-to-Inclusive-Practices*.

The new guide is part of Engineers and Geoscientists BC's commitment to equity, diversity, and inclusion (EDI). Learn more about EDI at *egbc.ca/About/Programs-Initiatives/Equity-Diversity-and-Inclusion*.

EDI practices. The guide supports all those levels. Individuals who are just starting to adopt EDI practices are encouraged to take the recommendations one step at a time—select one area to work on and build over time.

Inclusive practices are a valuable part of the workplace. Inclusion cultivates an environment where people are treated respectfully, individual differences are embraced, and all individuals have equitable access to opportunities and support.

Sometimes the process involves unlearning and re-learning ways of doing things and considering perspectives that may not have been previously included. For example, something as simple as saying ancestors instead of forefathers is a start to utilizing gender-neutral language.

Individuals and organizations are encouraged to approach this learning and work with an open mind and respect for other perspectives.

TWO LONG-TIME DIRECTORS RETIRING

Don Gamble, Director, Information Systems

DIRECTOR DON GAMBLE RETIRES

Don Gamble, Director, Information Systems, retired May 31, after 12 years at Engineers and Geoscientists BC.

"It is with mixed feelings that I leave the organization," said Don. "While I'm excited to explore new opportunities, I am also stilled by the thought of no longer working with our staff. I'm confident that our team will move on to even greater accomplishments, and that, through collaboration, the organization will continue to transform. I look forward to watching this growth."

During his tenure with the organization, Don was the driving force behind several initiatives that modernized information technology and systems, which enabled the organization to better serve registrants and stakeholders. This included leading the development of the Member Relationship Management (MRM) system—a fully custom database that allows registrants and firms to independently manage several activities. Don Also led the project to create the organization's built-in-house Competency-Based Assessment (CBA) system. This national system is now in use by six other regulators, cementing the organization's position as a leader in technology and innovation for regulators across Canada.

"Don is a true visionary, leader, and mentor who leaves behind an incredible legacy at our organization," said Heidi Yang, P.Eng., CEO of Engineers and Geoscientists BC. "He has truly lived and breathed our value of innovation, building technology solutions that have touched thousands of registrants across British Columbia and beyond. He is thoughtful, forward-thinking, supportive, and never afraid to question the status quo. He will certainly be missed."

The organization and staff wish Don health and happiness as he embarks on his well-earned retirement.

Two long-serving Engineer and Geoscientists BC directors are heading into retirement: Don Gamble, Engineers and Geoscientists BC's Director, Information Systems, retired May 31, and Peter Mitchell, P.Eng., Director, Professional Practice, Standards & Development leaves at the end of June.

DIRECTOR PETER MITCHELL TO RETIRE

Peter Mitchell, P.Eng., Director, Professional Practice, Standards & Development, will be retiring at the end of June after 26 years at Engineers and Geoscientists BC.

Over his tenure, Peter developed programs, guidelines, and systems that govern registrants and firms across BC, and oversaw a team providing support to a dozen advisory groups who provide advice on regulatory matters.

"When I started at the organization in 1997," Peter said, "Canada had no template for developing proactive regulatory tools to support engineers and geoscientists in their professional practice. I would like to express my sincere gratitude to our executive team, Board, staff, volunteer registrants and other stakeholders who believed in me and supported me. Without them, many initiatives would not have achieved the level of success realized."

Peter's impressive accomplishments include developing a common engineering methodology for the seismic assessment and retrofit of approximately 500 at-risk school buildings in BC. He also conceptualized and established professional practice guidelines and quality management guidelines in BC, and created the Organizational Quality Management (OQM) program, which evolved into the Regulation of Firms program.

"You don't come across a person like Peter every day," said Heidi Yang, P.Eng., CEO of Engineers and Geoscientists BC. "Peter has championed technical excellence and cutting-edge standards over the last 25 years, helping us deliver on our promise to protect the public interest in BC. When people think of Peter, they think of his passion, his sincerity, and his genuine care for those around him. If you needed it, he is the kind of person who would give you the shirt off his back without a question. He will be tremendously missed at our organization."

The organization and staff wish Peter health and happiness as he embarks on his well-earned retirement.

Peter Mitchell. P.Eng., Director, Professional Practice, Standard & Development

PROJECT HIGHLIGHTS 2022|2023

From an energy-efficient ice arena project in Prince George to a hydroelectric dam project in Colombia, BC's engineers and geoscientists have displayed innovation and environmental stewardship in their work over the past year. *Innovation*'s annual Project Highlights edition showcases the many and varied recent projects of Engineers and Geoscientists BC registrants.

WUIKINUXV DEBRIS WALL AND WHARF FACILITY RECONSTRUCTION

The Wuikinuxv Nation is heavily reliant on its wharf facility in Wuikinuxv Village, on the north bank of the Waanukv River. The wharf was severely damaged by large seasonal debris flows, which have worsened in recent years due to climate change. Westmar Advisors led a team that included Hatfield, EXP, DHI, and David Nairne & Associates to develop, design, lead community consultation, and obtain environmental permitting for an improved wharf facility protected by an innovative debris barrier. The new barrier is almost 100-m long and is supported by steel pipe piles up to 23.5-m long, driven up to 12 m into the riverbed. The barrier features fish passage and low environmental impact while offering improved safety, durability, and performance.

Owner: Wuikinuxv Nation
Participants: Westmar Advisors: Daniel Leonard, P.Eng., Jason Braun, P.Eng., Hong Liang, P.Eng.; David Nairne & Associates: Neil Courtney, P.Eng.; EXP: Ujjal Chakraborty, P.Eng.; DHI: Danker Kolijn, P.Eng.

Photo: Brett Hitchins

BURNABY FLEET ELECTRIC VEHICLES AND SOLAR CANOPY

Electrical engineers, Tony Seddon, P.Eng., and Sonny Bharaj, P.Eng., designed the power distribution system for 105 fleet EV chargers in Burnaby's City Hall parking lot. They also incorporated a solar canopy and movie-set distribution kiosk to help the City reduce their overall greenhouse gas emissions and meet their ambitious GHG targets for 2040. Civil engineers, Todd Bowie, P.Eng., and Jasdeep Dhillon, P.Eng., designed upgrades to the parking lot and improved the stormwater collection system with the addition of an oil/grit separator. Structural engineer, Nick Schweers, P.Eng., designed the foundation for the solar canopy structure that is in the middle of the parking lot.

Participants: Tony Seddon, P.Eng., Sonny Bharaj, P.Eng., Todd Bowie, P.Eng., Jasdeep Dhillon, P.Eng., Nick Schweers, P.Eng.

Photo: Behnisch Architekten 2023

VLEST IN PHILADELPHIA

The Vagelos Laboratory for Energy Science and Technology (VLEST) is a seven-storey laboratory building to be built at the University of Pennsylvania campus in Philadelphia, PA. Passive design features include a high-performance envelope and shading strategies, optimizing thermal comfort. An automatic window system enables passive cooling and natural ventilation. The ventilation design uses a Konvekta propylene glycol run-around loop recovering heat from exhaust from variable-speed Strobic fans, providing pre-conditioning to central air handlers. Hydronic fan coils and radiant systems are served by a heat-recovery chiller, with additional heating and cooling from the campus steam and chilled water systems. The project is projected to achieve the maximum 18 points under the LEED V4 Optimize Energy Performance credit.

Participants: Focal Engineering: Riley Beise, P.Eng., Danny Taylor; Behnish Architekten (Architect, Boston, MA), VanZelm Heywood & Shadford, Inc. (Mechanical Engineer, Farmington, CT), Transsolar, Inc. (New York, NY).

PRINCE GEORGE KIN CENTRE ENERGY RECOVERY SYSTEM

The Kin Centre is a community ice arena in Prince George that serves over 500,000 visitors annually. In 2022, Polar Engineering worked alongside the City of Prince George to identify several key safety and energy efficiency measures to be implemented in 2023. Through upgrading end-of-life equipment in the ice plant, the facility will reduce its ammonia charge by 71 percent. Additionally, the facility is installing Canada's first custom-built R515 high-temperature heat recovery chiller to recover waste heat from the ice plant. This system will deliver 1,800 MBH at 180°F using R515, a low GWP refrigerant aligned with the Paris Agreement and Kigali Accord. This will offset the facility's annual GHG emissions by 73 percent (323 tCO2e) and cut water consumption by 52 percent (765,000 US gallons), ensuring access to sustainable recreation for the residents of Prince George.

Participants: City of Prince George: Leland Hanson; Polar Engineering: Ian Welle, P.Eng.

LOW PERMEABILITY BARRIER AT SUMAS RIVER DIKE BREACH REPAIR

In November 2021, emergency repairs were completed on the Sumas River Dike under flood conditions. Flowing and then standing water precluded the use of fine-grained fill to construct a low permeability barrier (core) as part of the repair. Crushed rock of varying sizes was used to close the dike breach and prevent flows from entering Sumas Prairie. Smaller sized crushed gravel was used within the central zone of the dike repair to facilitate construction of a barrier to mitigate through-seepage. In the fall of 2022, Cutter Soil Mixing (CSM) technology was implemented to re-establish a barrier comprised of the finer crushed gravel, mixed in place with bentonite and Portland cement. CSM technology eliminated the need to deconstruct the initial emergency repair.

Participants: City of Abbotsford: Tyler Bowie, P.Eng.; Kontur Geotechnical Consultants Inc.: Brian L.J. Mylleville, Ph.D., P.Eng.; Kerr Wood Leidal Associates Ltd.: Colin Kristiansen, P.Eng.: Keller: Brian Wilson, P.Eng.

IONA ISLAND WASTEWATER TREATMENT PLANT PROJECTS - IONA ISLAND FORESHORE ECOLOGICAL RESTORATION

Built in 1963, the Iona Island Wastewater Treatment Plant is located in the dynamic Fraser River delta, one of the richest and most diverse ecosystems in BC. The plant is being upgraded to improve the quality of treated wastewater being discharged to the Salish Sea. Metro Vancouver's integrated team of engineers, biologists and landscape architects is working towards developing complementary ecological restoration projects to re-establish aquatic ecosystem connections, restore fish habitat, build climate resilience, and integrate xʷməθkʷəy̓əm (Musqueam) cultural values and interests. Hydrodynamic modelling and biophysical studies are being completed to inform the design of 10 foreshore ecological restoration projects, including a breach of the Iona Island Causeway. These projects are expected to benefit aquatic species such as juvenile salmon.

Participants: Metro Vancouver: Nelson Szeto, P.Eng, Emily Bickel, EIT; Advisian: Margaret Scott, P.Eng., Helen Ambrose, Hammad Mir, P.Eng.; Associated Engineering: Tijana Vulic, P.Eng.

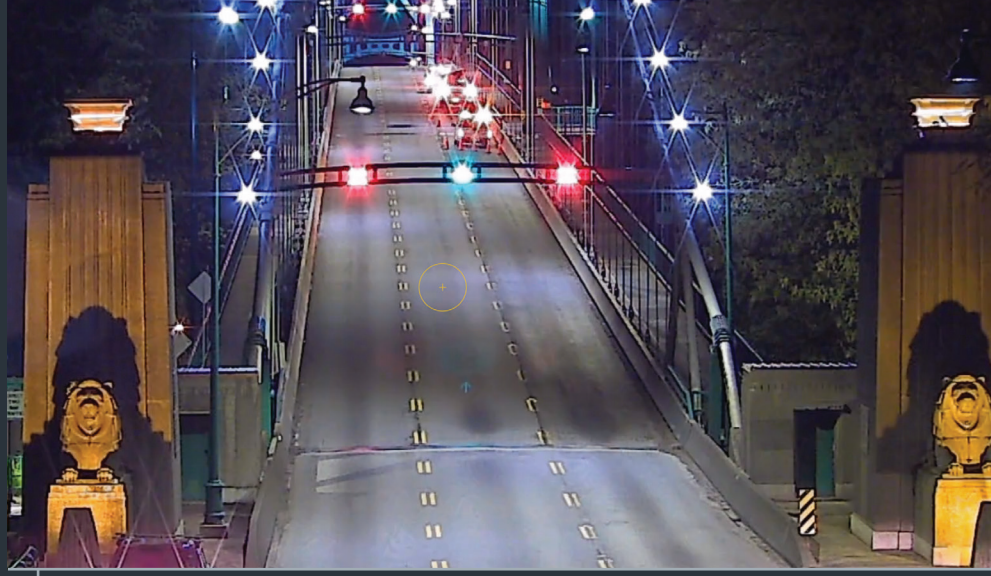
ANNACIS ISLAND WWTP OUTFALL DIFFUSER PIPE INSTALLATION

The project involves the installation of new outfall diffuser pipes in the Fraser River near the Annacis Island Wastewater Treatment Plant. Ruskin Construction Ltd. was hired to install the diffuser pipes and they in turn hired Allnorth Consultants Ltd. to do the required engineering.

The project, which began in March 2021, involves lowering two 500-ton diffuser pipes, which are 130-m long and 2.5 m in diameter, into trenches at the bottom of the Fraser River under 19 m of water. The engineering solution involves a large overhead support structure to support the pipe along with 11, 25-ton winches to lower the pipe into place. The support structure also includes systems to manipulate the pipe to adjust it vertically, longitudinally, laterally and along its axis to allow it to be bolted to the outfall riser.

The two diffuser pipes were lowered into place successfully in November 2022 and January 2023.

Participants: Don Williams, P.Eng.



LIONS GATE BRIDGE REVERSIBLE LANE CONTROL SYSTEM REHABILITATION

Each day, 60,000 vehicles cross the Lions Gate Bridge. Since 1994, a counterflow system helped keep traffic flowing over the three-lane bridge. But as vehicle volume increased and original technology aged out, a new system was needed. The Ministry of Transportation and Infrastructure engaged PBX to design and implement a new Reversible Lane Control System. PBX developed and implemented a sophisticated high-availability software solution under demanding constraints. The team prepared an innovative cutover plan allowing the entire system to successfully transition from old to new in one weekend with minimal traffic impact. The updated RLCS maximizes traffic throughput—especially during peak periods—and will provide a resilient and reliable system for the next 25 years.

Participants: PBX Engineering: Ian Steele, P.Eng., Fil Rossi, EIT, Fred Vey, Michael Alton, AScT, Peter Moffatt, Phil Pierce, EIT, Rupert Vey; Paladin Technologies: Radu Manor, Carl Sell; Ministry of Transportation and Infrastructure: Raj Sangha, JP Hernandez.

UBC EVOLVE

Located in the Wesbrook Place neighborhood on the University of British Columbia (UBC) campus, Evolve is a six-storey multi-unit residential rental building that houses faculty and staff. The building is Passive House certified and Net-Zero Energy Ready. High-performance design elements include a superior building envelope, a high-efficiency heat-recovery ventilation system, exterior sun shading, photovoltaic panels and an air-sourced heat pump to produce domestic hot water.

In addition to being one of Canada's largest Passive House certified residential buildings, this project is used by UBC researchers for monitoring performance and further studying best building practices. Supported by a grant from Natural Resources Canada, researchers at UBC are collecting and analyzing data to evaluate the benefits and trade-offs between Passive House and typical construction.

Participants: Jerry Chung, P.Eng., LEED AP, Mike Kasuya AScT, PTech, CPHD, LEED AP BD+C.

WHALE COVE WATER TREATMENT PLANT

BI Pure Water is designing and fabricating an advanced technology modular WTP for Whale Cove, Nunavut. The plant will end the boil-water advisories the residents have endured for the past decade. The treatment process includes screening, dissolved air floatation, ultrafiltration, followed by UV and chlorination, designed to meet the latest Guidelines for Canadian Drinking Water Quality.

The treatment system is housed within a CSA-A277 certified modular structure, which includes boilers, MCC and full SCADA controls. With no road access to Nunavut, the six modules will travel on the annual Arctic sealift. Designed to endure the harsh conditions and high energy cost (>$1.25 /kWhr), the building is equipped with a HRV and RSI-8.6 insulated envelope and is mounted on steel piles to protect the surrounding permafrost.

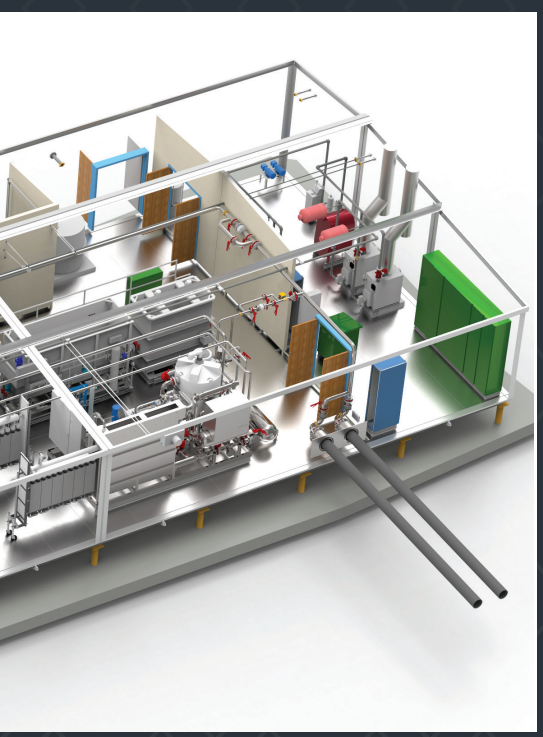
Participants: Kaushik Biswas, P.Eng., Guan Wong, P.Eng., Catherine Anderson, P.Eng., Jim Tam, P.Eng., George Thorpe, P.Eng., Gerard Merced, EIT, Edward Tisserand, EIT.

IMOTUS-S SYSTEM FOR VESSEL SIGNATURE MEASUREMENTS

In 2022, Cellula Robotics began a program to build and test the prototype underwater drone, Imotus-S, for acoustic and magnetic ship signature measurements. The Imotus-S system builds on Cellula's existing commercial Imotus AUV and is configured with a smart hydrophone and a self-compensating magnetometer.

The testing program focused on the ability to deploy a system from a marine vessel to provide signature measurements in open water. This capability would enable deployed vessels to easily monitor their signature in a timely manner, increasing safety and reducing transit requirements. The project included the Imotus-S manufacture and testing in local waters, followed by testing in Saanich inlet with an Orca class vessel in December 2022.

Participants: Eric (James) Jackson, P.Eng., Alex Johnson, P.Eng., Chris Kaminski, P.Eng., Mei Jin, P.Eng, Thomas Deaton, EIT, Neiah Montero, EIT, Drew Davison, EIT, Zach Willson, EIT.



SCHOOL DISTRICT 78 SOLAR AND MICROGRID CONTROLLER

Hedgehog Technologies completed a unique solar microgrid project for Harrison Hot Springs Elementary, a school in Hope, BC, that was experiencing blackouts due to mountain winds. The project included a PV solar, battery storage, and an innovative microgrid controller solution that addressed the issue of power outages.

Today, the system allows the school to maintain power during power outages and provides the opportunity for BC Hydro to access stored energy through demand response events. With this solution, students can remain in school during blackouts and avoid being stranded. The project is also being demonstrated to students as an example of how renewable energy can be applied to inspire the next generation.

Participants: Hedgehog Technologies.

TIDAL CAUSEWAY CULVERT REPLACEMENT

SweetTech Engineering Consultants conducted an engineering assessment of a 40-plus year-old asphaltic coated CSP culvert in Atlantic Canada to evaluate options for its refurbishment or replacement. The existing 2.4-m diameter culvert is located on a tidal causeway that provides the only road access between a small costal community and the mainland. Substantial corrosion of the existing culvert was observed with significant voids in the backfill surrounding the culvert, requiring the culvert and backfill to be replaced. SweetTech developed a detailed staged construction sequence which allowed the causeway to remain open to local traffic throughout construction. This staged construction utilized sheet piling to isolate construction from the tidal zone. In conjunction with a modular free span bridge which allowed traffic over the trench during replacement works, a 2.9-m D.O. precast concrete pipe was selected as the replacement culvert structure.

Participants: SweetTech Engineering Consultants, Eric Sweet, M.Eng., P.Eng., Andres Ocejo, P.Eng.

ITUANGO UNDERWATER WORKS

Ituango is a hydroelectric project under construction in Colombia with a 225-m high dam; it is expected to have an installed capacity of 2,400 MW and will generate 13,900 GWh each year. KCB provided third-party technical assistance for the underwater works to the owner during the design of mechanical bulkheads (plugs) by DCN, a European company. The mechanical plugs will seal the entrance of the intake so the water passage downstream of the plugs can be dewatered, to permit completion of the concrete liner in one intake and removal of the concrete plugs in two other intakes.

The design of these mechanical plugs is unique, as the intakes are now under 70 m of water head. The plugs must be adapted to the shape of the intakes, which requires a survey of the intakes with a remote operating vehicle (ROV).

Owner: Empresas Públicas de Medellín, EPM
Participants: Rob McLachlan, P.Eng; David Dowdell, Ph.D., P.Eng.; Bruno Bagnérès.

5TH STREET BRIDGE REPAIRS

The 5th Street Bridge is a vital component of the City of Courtenay's infrastructure and an important local landmark. Nearing the end of its service life, rehabilitation was required. In consultation with the City, it was apparent that a full closure of the bridge was not feasible.

A complex 40-year service-life extension was completed by the multidisciplinary team of Thurber (materials: concrete topping, cathodic protection system, coatings, contract administration), Hatch (structural), PBX (electrical), lead by Urban Systems (prime consultant, environmental and traffic design).

The rehabilitation involved complex traffic and environmental management, lead coating abatement, structural steel repairs, concrete deck repair, installation of a high-performance concrete overlay with an integral impressed current cathodic protection system (ICCP)—all while maintaining single-lane alternating traffic.

Participants: Thurber: Mark Byram, P.Eng., Oleksandr Lisoivan, P.Eng.; Urban Systems: Eric Sears, P.Eng., Natasha Elliott, P.Eng.; Hatch: Filip Hristov, P.Eng., Samson Lee, P.Eng.; PBX: Irvin Naidu, P.Eng.; City of Courtenay: Chris Davidson, P.Eng.

PHOTO: RICO MARQUES

THE POST

The Post office complex in downtown Vancouver is the largest office building in the area, completed and scheduled for opening in 2023. Boasting a massive 1.5-million square feet of development, the project is aiming for LEED Gold (CS) certification, with the retention of the heritage facade serving to showcase the city's history and cut down on 25,000 tonnes of carbon emissions that would have otherwise been produced during construction. In line with its commitment to sustainability, the complex will feature a highly efficient building envelope, advanced mechanical systems, heat-recovery chillers, and connections to CE's upcoming Zero Carbon Energy Solution. Introba provided top-quality mechanical, sustainability, and fire protection consulting for this ambitious redevelopment, which will occupy a full city block and serve as the headquarters for one of North America's largest tech companies.

Participants: Jubin Jalili, P.Eng., Majid Al Sayyedan, P.Eng., Wister Yuen, Qingyuan Wu, P.Eng., Pouya Khatibi, Paul Costa, Kevin Welsh.

WCMRC NANAIMO FACILITY DESIGN

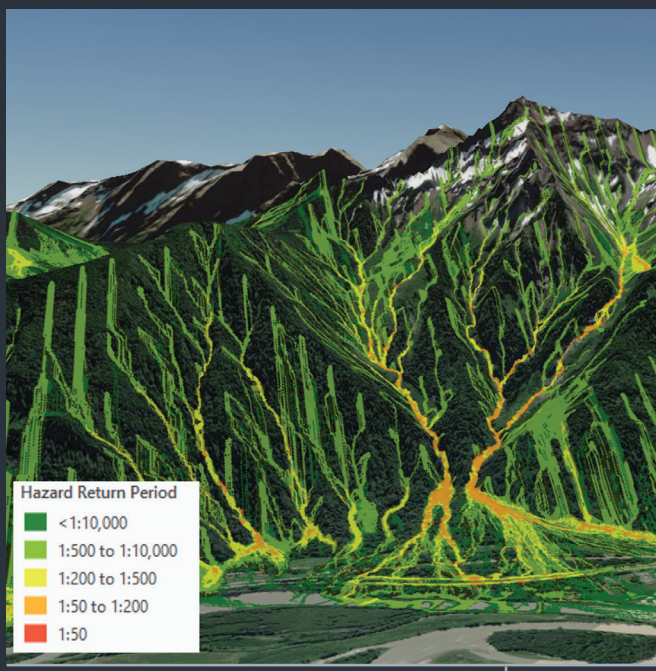
Herold Engineering worked closely with Western Canadian Marine Response Corporation and the consultant/contractor teams to deliver the $11.2 million facility. The project consists of the construction of a two-storey steel-framed office and warehouse building located in Nanaimo, BC. The 1,710m² building area consists of a two-storey office component complete with an elevator, curtain wall glazing, and programming spaces. The double-height shop includes a mezzanine structure, exterior covered work area, recessed loading dock and overhead roll-up doors on two building faces. The project included a challenging site due to geotechnical conditions and contaminated soils that were incorporated into the design by the consulting team. Included was associated structural, electrical, mechanical, fire suppression, civil site works, contaminated soils remediation, fencing and road works.

Participants: George Hrabowych, P.Eng., Adam Basler, P.Eng., Sean Mahon, P.Eng., Paul Foers, C.Eng., P.Eng., Aaron Mullaley, P.L.Eng., Walter Rathbun, P.Eng., Todd Backus, EIT.

VANCOUVER FIRE HALL NO. 17

Fire Hall No. 17 is the first Zero Carbon Building (ZCB) certified fire hall in Canada, and first ZCB certified project in BC. In addition to finalizing certification to Passive House and LEED Gold standards, Introba was able to incorporate various design synergies aligning with the project's ambitious sustainability goals. The mechanical systems consist of a geo-exchange field coupled with ground-source heat pumps for the building's heating and cooling. The high-performance building envelope allows for the geo-exchange field to be 20 percent of the size when compared to an equivalent code-minimum standard. This allowed the team to use cost-barrier upgrades, like electrochromic glazing, to further reduce cooling energy demand. An 83-kW solar photovoltaic array helps offset its reliance on grid-tied electricity, reducing the all-electric post-disaster facility's reliance on the grid.

Participants: Scott Ghomeshi, P.Eng., Dylan Farina, EIT, Adam Dring, P.Eng., Ivan Lee, P.Eng., Jayce Chen, P.Eng., Keith Trulson, P.L.Eng.



DEBRISFLOW PREDICTOR

As demonstrated during the 2021 atmospheric river, roads, highways, and communities are particularly vulnerable to debris flow hazards. Stantec is collaborating with the Geological Survey of Canada (NRCan) to test DebrisFlow Predictor (DFP), an agent-based, probabilistic landslide simulation software and service created by Dr. Richard Guthrie, P.Geo., and Andrew Befus.

DebrisFlow Predictor allows geohazards specialists to realistically predict landslide (debris flows and debris avalanches) runout and impacts from either specific or widely distributed initiation points. As part of a test project funded by Innovation Solutions Canada – Testing Stream (ISC-TS) program, Stantec is modeling debris flows in five test sites in BC and Alberta. Stantec expects that DebrisFlow Predictor will provide substantial improvements in expert hazard and risk assessments for debris flows or debris avalanches anywhere in BC.

Participants: Richard Guthrie, P.Geo., Graham Knibbs, P.Geo., Jessica Stewart, P.Geo., Andrée Blais-Stevens (Geological Survey of Canada/NRCan), Thad Wasklewicz, Emma Reid, Eric Hertzman.

PHOTO: WILLIAM JANS

CENTERM EXPANSION PROJECT

The Centerm Expansion Project was integral to the Port of Vancouver's mission and vision to enable Canada's increasing trade while becoming the world's most sustainable port. The project involves the expansion of an existing operational container terminal located near downtown Vancouver on the south shore of Burrard inlet within a busy marine environment. Hatch led a skilled team to execute the project which included construction of new port land, reconfiguration of the terminal, modernized truck gates, and a new operations centre. The terminal remained in operation throughout construction, requiring complex staging and sequencing planning, including multi-party stakeholder engagement and coordination. The project is key to providing a 60 percent increase in throughput and was awarded Envision Platinum for sustainability.

Owner: Vancouver Fraser Port Authority
Owner's Engineer: AECOM
Participants: Hatch: Adam Neale, P.Eng., Matthias Yu, P.Eng., Byron Cline P.Eng., Jackson Bryla, EIT.
Subconsultant Moffatt & Nichol Participants: Farhad Shushtarian, P.Eng., Jim Erickson, P.Eng.

QUEENSBOROUGH SUBSTATION

The City of New Westminster contracted SNC-Lavalin for design and build of a green-field substation. The project will provide a reliable power supply for the City of New Westminster. This new substation will alleviate a distribution back-up requirement and will provide back-up for the existing City's RO2 (Royal 2) and BC Hydro's NWR (New Westminster) substations. The substation connected load will be supplied by two 50-MVA 69/25/12-kV transformers. The present city load is supplied by the 12-kV distribution system; however, the City's future plan is to convert the distribution system to 25 kV.

Participants: Steve Faltas, P.Eng., Marc Ruthishauser, P.Eng., Raafat Megahed, P.Eng., Jessiya Thasneem, EIT, Reza Youssefi, P.Eng., Jason Hoa, P.Eng., Seif Mansour, P.Eng., Sushama Khot, P.Eng., Rabie Abdul-Sahib, P.Eng., Viraj Devapriya P.Eng., Xian da Chen, P.Eng., Arun Iyer, P.Eng., Mehdi Hosseyni, P.Eng., Yan Li, P.Eng., Helen Iosfina, P.Eng.

MV NORTH STAR LNG CONVERSION

On February 15, 2023, Seaspan's Victoria Shipyards completed the industrial work to convert the TOTE Services vessel, the MV North Star, to use natural gas. The MV North Star is 255 m long and can carry 600 FEU and 220 autos.

This was a complex project with work coordinated between 20 companies, in eight countries, spanning three continents. Seaspan's Victoria Shipyards executed work over two, 10-week work periods installing four structural units totaling 520 metric tonnes, two 1,100-m^3 LNG tanks, 2,700 m^2 of structural fire insulation, five km of piping, 53 km of cable and 5,000 individual items.

TOTE Services will soon conduct testing and commissioning activities in Tacoma, WA. When using gas, the vessel will virtually eliminate sulphur oxide (SOx) emissions and particulate matter, while reducing nitrogen oxide (NOx) emissions by 90 percent and CO2 emissions by 35 percent.

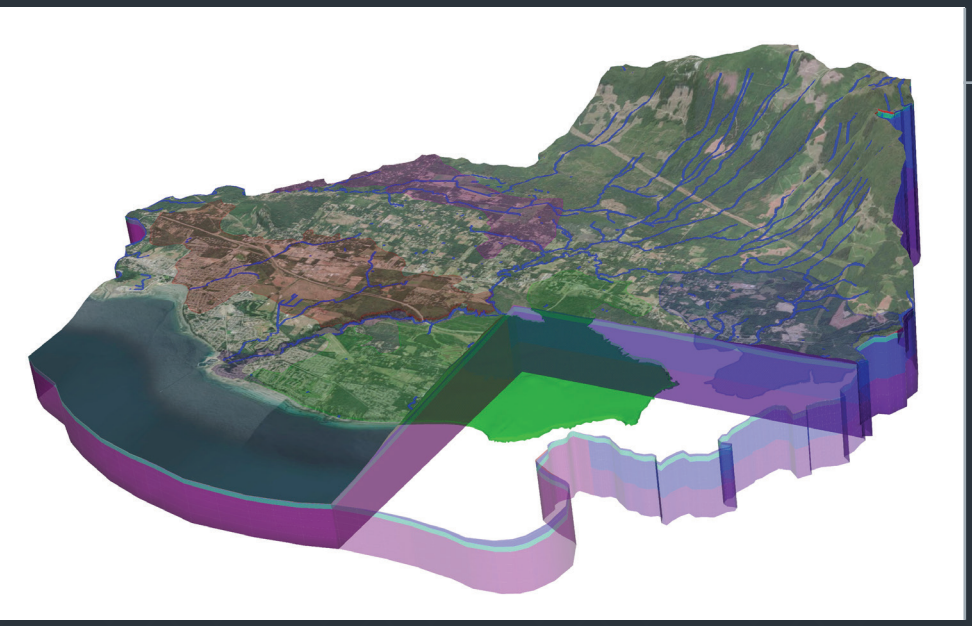
Participants: TOTE Services: Kelly Scott; Glosten: Jon Markestad, PE.; Seaspan, Victoria Shipyards: Ryan Tuira, P.Eng.; NASSCO: Steve Miller.

GALORE CREEK PROJECT

The Galore Creek project is a large copper-gold-silver deposit in Tahltan Territory, approximately 370 km northwest of Smithers, BC. Klohn Crippen Berger is assisting project partners Teck Resources and Newmont to advance the tailings management aspects of the project. Work began in 2019 on a prefeasibility study update, building on several years of design work, and continues with baseline social and environmental field programs and the start of major regulatory approvals. Galore Creek is one of the largest undeveloped copper projects in the province and has the potential to contribute significant critical minerals in support of increasing electrification demands. The prefeasibility study is one step on the path to an operating mine.

Fieldwork includes: studies and tests of water and flora and fauna; ecosystem, biodiversity, and geohazard mapping; archaeological studies; and inclusion of Tahltan knowledge, perspective and value.

Participants: Galore Creek Mining Corporation; Klohn Crippen Berger.



WATER BUDGET MODELLING FOR SUSTAINABILITY PLANNING IN FRENCH CREEK

The French Creek water region within the Regional District of Nanaimo (RDN) is currently experiencing water scarcity, and climate models predict longer, drier summers in the future. Looking beyond the operation of its groundwater supply wells, the RDN teamed with WSP to implement an innovative approach to proactively manage and protect water resources at the regional scale.

WSP developed and calibrated a regional scale numerical model using FEFLOW software to conduct water budget analysis for the aquifers and assess potential effects to streamflow in the French Creek region. This analysis identified areas of higher water stress and where future potential impacts to groundwater and streamflow may occur due to climate change, development and land cover changes. The results provide the RDN with the basis to guide land-use decisions and implement resilient water management strategies.

Participants: WSP Canada Inc.: Arianna Piazza, P.Eng., Mark Bolton, P.Geo.; RDN: Erica Forssman, Murray Walters, P.Eng.

Photo: Metro Vancouver

EARTHQUAKE EARLY WARNING AND STRATEGIC RESPONSE SYSTEM

Metro Vancouver's drinking water system provides a vital service to 2.8 million people. Metro Vancouver is undertaking numerous measures to harden its facilities to withstand seismic events. The *ShakeAlarm®* and *ShakeMonitor®* network-based Earthquake Early Warning and Strategic Response System provides operations staff early warning of an earthquake through audible alarms and digital alerts, as well as providing structural-health monitoring and reporting at the Seymour Capilano Filtration Plant.

Early warning of an earthquake is critical for staff to ensure drinking water continues to be delivered throughout the region. The system is currently being piloted at the region's filtration plant, a treatment plant and one of their operations centres. These locations are equipped with seismic sensors providing real-time data capable of detecting seismic events that may disrupt the region's drinking water system. The three sites operate as a network, employing a distributed computing framework and a client-server model.

Participants: Weir-Jones Engineering Ltd: Iain Weir-Jones, Ph.D., P.Eng., Anton Zaicenco, Ph.D., P.Eng., Metro Vancouver: Amin Kassim, P.Eng.

DISTRICT 56 TALLWOOD 1

District 56 Tallwood 1 is celebrated as the first tall mass timber building on Vancouver Island, the first Encapsulated Mass Timber Construction (EMTC) building, and the second tallest wood building in Canada. This 12-storey residential building consists of 11 storeys of mass timber on a one-storey concrete podium commercial space, atop a two-level concrete underground parkade.

The superstructure is a streamlined and efficient point-supported CLT floor plate on glulam columns, allowing easy integration with MEP services, rapid erection, and minimum structural depth. The building meets extremely high seismic demands with highly ductile steel eccentrically braced frames, optimized to be highly prefabricated in multi-storey sections. This unique combination of mass timber and steel construction drastically reduced the structural embodied carbon relative to a conventional concrete build while maintaining fast construction times and keeping costs reasonable.

Participants: Aspect Structural Engineers: Mehrdad Jahangiri, P.Eng.; Ilana Danzig, P.Eng., Struct.Eng., Jackson Pelling, P.Eng., Ornagh Higgins; Architect: Jack James.

MUSEUM OF ANTHROPOLOGY GREAT HALL SEISMIC UPGRADE

The centrepiece of the project is the reconstruction of the iconic and historically significant Great Hall at the Museum of Anthropology, originally designed by Arthur Erickson. In collaboration with Nick Milkovich Architects, Equilibrium developed a structural scheme consisting of post-tensioned concrete frames with a state-of-the-art base isolation system—a first in Canada. The design team focused on retaining the original character of the building with minimal intervention to the visual appearance and to the visitor experience of the massive carvings within the space. The base isolation system offered the least architecturally intrusive solution for the seismic upgrade while providing a significantly more resilient structure compared to the original construction. The exposed concrete members, together with the distinctive glazed façade and roof lights, will provide long-term protection to significant artifacts and wood carvings.

Participants: Equilibrium Consulting: Eric Karsh, M.Eng, P.Eng; Craig Fowler, P.Eng,, Alejandro Coronado, P.Eng.

KILMER CREEK DAYLIGHTING AND CULVERT REPLACEMENT

Kerr Wood Leidal designed and constructed the daylighting and realignment of Kilmer Creek in North Vancouver using innovative techniques that reduce the risk of flooding and erosion while restoring fish access and creating a newly naturalized creek within a very narrow corridor.

The team designed a natural stream bed, an enhanced, fish-passable culvert, and bioengineered streambanks incorporating vegetated soil wraps, all while increasing flood conveyance. The design allows salmon to access Kilmer Creek, piped under Argyle school for over 70 years. Pool-riffle sequences and instream habitat complexes provide new aquatic and riparian habitats for local biodiversity. Dense riparian plantings filter runoff to the stream, reducing sedimentation.

Owner: School District 44
Project Partner: District of North Vancouver
Participants: Andrew Kolper, P.Eng., Clayton McBride, P.Eng., Caroline Charbonneau, P.Eng., Sonya Oetterich, RPBio, Patrick Lilley, RPBio, Alan Jonsson; Kontur Geotechnical Consultants inc.: Matthew Yip, M.Eng., P.Eng.; Van der Zalm + associates inc.: David Jerke, ASLA, IMBA, BCSLA; Contractor: D.G.S. Construction Company Ltd.

Photo: Brett Hitchins

RAS 34 – GOLD RIVER HATCHERY EXPANSION

On June 28, 2022, Grieg Seafood celebrated the completion of the Gold River Hatchery expansion project, known as RAS 34. The project is a recirculating aquaculture system (RAS) that recycles water through an aerated treatment system, providing a closed loop inside the building. The facility is completely instrumented, and all controls are automated. The RAS technology greatly reduces water usage compared to older technologies. The new facility effectively doubles Grieg's smolt capacity and allows fish to be kept in the hatchery longer, therefore reducing the amount of time required in the ocean and greatly minimizing interactions with wild populations.

Participants: Wedler Engineering LLP: Andrew Gower, P.Eng.; Home Structural Inc: Eric Heidema, P.Eng.; Muir Engineering Ltd: Brian Muir, P.Eng.; Rocky Point Engineering Ltd: Aaron Mullaley, P.L.Eng, Mike Warrington, EIT; PR Aqua, ULC: Mark Weckworth, P.Eng.

SCIENCE GAMES ENGAGES STUDENTS AROUND THE PROVINCE

Throughout the month of February, Engineers and Geoscientists BC hosted its 12th annual Science Games. This year, 130 students from across the province explored various science principles over Zoom.

Science Games provides a fun environment where students can explore different science principles in an engaging, hands-on format with volunteer engineers and geoscientists.

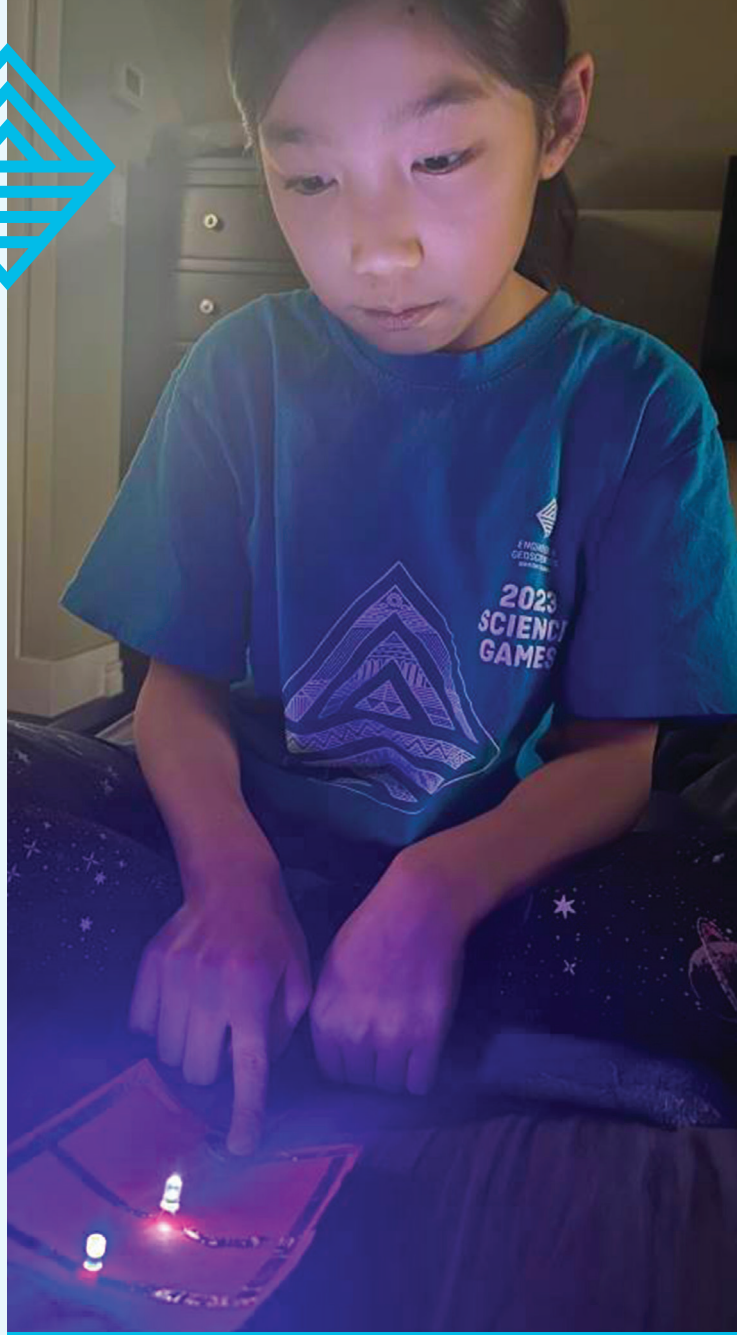
The program shifted to a virtual format in 2021 to increase accessibility for students around BC who may have less educational opportunities relating to science, technology, engineering, and math (STEM). This year, over 30 percent of the participants were from outside of the Lower Mainland, logging in from Fernie, Port McNeil, and Prince Rupert.

New to this year's Science Games program were weekly themes. Activities were structured around the themes: magic of science; sustainability; and science of the future.

For the second year, Engineers and Geoscientists BC offered a bursary to students with a financial barrier to their participation, which allowed eight students to participate.

Over 50 volunteers inspired student participants in Grades 1 to 6 during each Saturday activity session, as they discovered the exciting side of science through six different activities spread over a three-week long period. Activity topics this year included capillary action, electro-chemical reactions, states of matter and climate change.

Engineers and Geoscientists BC thanks its sponsors and supporters: TRUE Consulting, Oculus Engineering Ltd. SLR, Teck, and Urban Systems.



PHOTOS SUBMITTED

Engineers and Geoscientists BC's website contains information on the complaint, investigation, and discipline processes. You can contact us at 604.558.6647 or toll-free at 1.888.430.8035 ext. 6647, or by email at *complaints@egbc.ca*. The full text of notices can be found in the Discipline Notices section of our website, at *egbc.ca/Discipline-Notices*.

DISCIPLINE NOTICE: JEREMY WOLLIN, P.ENG.

In a March 30, 2023, Consent Order, Jeremy Wollin, P.Eng., admitted that he demonstrated conduct unbecoming and acted contrary to the Code of Ethics of Engineers and Geoscientists BC by harassing a colleague.

Mr. Wollin's registration with Engineers and Geoscientists BC is suspended for a period of two months starting on June 30, 2023. Mr. Wollin's suspension is stayed provided that he completes several conditions in accordance with the Consent Order.

In February 2022, Mr. Wollin engaged in and, in some instances, initiated "jokes" and "pranks" against a now former colleague, which in some cases reinforced false stereotypes related to sexual orientation. In the Consent Order, Mr. Wollin admitted that he violated personal boundaries and defaced personal property. Mr. Wollin also admitted to using rude or vulgar language and engaging in behaviour that was emotionally harmful.

In the Consent Order, Mr. Wollin agreed that he demonstrated conduct unbecoming, which is defined in section 1 of the *Professional Governance Act* as conduct of a registrant that brings the regulatory body or its registrants into disrepute.

Mr. Wollin also admitted that his conduct was contrary to the Code of Ethics of Engineers and Geoscientists BC, which requires that registrants act at all times with fairness, courtesy and good faith towards all persons whom the registrant has professional dealings, and in accordance with public interest.

As outlined in the Consent Order, Mr. Wollin's registration with Engineers and Geoscientists BC is suspended for a period of two months effective June 30, 2023. Mr. Wollin's suspension is stayed provided that by June 30, 2023, Mr. Wollin provides evidence of the successful completion of several requirements in accordance with the Consent Order, including workplace sensitivity training and educational courses relating to diversity and inclusion.

Mr. Wollin agreed to pay $1,750 toward the legal costs of Engineers and Geoscientists BC.

DISCIPLINE NOTICE: EDWARD YIP

In a March 23, 2023, Consent Order, Edward Yip admitted that he demonstrated unprofessional conduct by preparing an inadequate geotechnical inspection report in which he failed to note the presence of structures along the anticipated trench area and to identify the steps to safely excavate a trench in Burnaby, BC. Mr. Yip's registration with Engineers and Geoscientists BC is cancelled.

On March 23, 2023, Mr. Yip agreed to a Consent Order cancelling his registration with Engineers and Geoscientists BC.

In October 2012, Mr. Yip was retained to provide a geotechnical inspection report providing instructions for the excavation of a trench in accordance with the Occupational Health and Safety Regulation of WorkSafeBC. Mr. Yip prepared the report despite failing to physically attend and make observations of the whole of the area in which the trench could reasonably be expected to have been excavated over the 14 days for which the report's certification applied (the Anticipated Trench Area).

In the Consent Order, Mr. Yip admitted that he demonstrated unprofessional conduct related to the preparation of the report and acted contrary to the Engineers and Geoscientists BC Code of Ethics. Mr. Yip agreed that, among other things, he failed to adequately:

- note the presence of structures along the anticipated trench area;
- state the required distance between the excavation edge and any structures along the anticipated trench area;
- state the steps that should have been taken to safely excavate if the required distance between the trench excavation edge and a structure was not possible.

In addition to his registration with Engineers and Geoscientists BC being cancelled. Mr. Yip agreed to not re-apply for registration with Engineers and Geoscientists BC at any time in the future. Mr. Yip agreed to pay a fine of $10,000 and $5,000 toward the legal costs of Engineers and Geoscientists BC.

DISCIPLINE NOTICE: VICTOR PROCTOR

In a February 23, 2023, Consent Order, Victor Proctor admitted that he engaged in structural engineering work in contravention of the practice restriction set out in his Consent Order with Engineers and Geoscientists BC dated April 5, 2017. Mr. Proctor's registration with Engineers and Geoscientists BC is cancelled. Mr. Proctor agreed to pay $2,500 toward the legal and investigation costs of Engineers and Geoscientists BC.

On February 23, 2023, Mr. Proctor agreed to a Consent Order cancelling his registration with Engineers and Geoscientists BC (the Consent Order). Mr. Proctor was subject to two prior Consent Orders with Engineers and Geoscientists BC dated June 22, 2015 and April 5, 2017.

On June 22, 2015, Engineers and Geoscientists BC and Mr. Proctor agreed to a Consent Order regarding the deficient engineering services he provided in relation to a sewerage system and a stormwater management plan for a residence in the District of Oak Bay, BC. Mr. Proctor received a reprimand and was required to have a peer review for his work related to stormwater management plans. On April 5, 2017, Mr. Proctor and Engineers and Geoscientists BC entered into a second Consent Order regarding the deficient engineering services he provided in relation to two guardrail design projects in Langford, BC. Mr. Proctor was suspended for two months, paid a fine and was prohibited from performing structural engineering work (the Practice Restriction).

On November 25, 2020, Mr. Proctor authenticated a Schedule B and Schedule C-B for a structural engineering project in Victoria, BC. On June 16, 2021, Mr. Proctor authenticated a Schedule B and Schedule C-B for another structural engineering project in Esquimalt, BC. In both projects, Mr. Proctor authenticated the structural capacities for the projects' mechanical and plumbing components in contravention of the Practice Restriction.

As outlined in the Consent Order, Mr. Proctor's registration with Engineers and Geoscientists BC is cancelled. If Mr. Proctor reapplies for reinstatement of his registration, in addition to complying with the requirements set out in the Bylaws and any requirements mandated by the Credentials Committee, he must complete the Professional Practice Examination and the Professional Engineering and Geoscience in BC Online Seminar.

If Mr. Proctor's registration is reinstated, all engineering work prepared by him must be peer reviewed for a minimum period of one year or six projects, whichever comes later.

Mr. Proctor agreed to pay $2,500 toward the legal costs of Engineers and Geoscientists BC.

IN MEMORIAM

Engineers and Geoscientists BC announces with regret the passing of the following registrants.

Mr. Arno Copeland, P.Eng. (Non-Practising)

Mr. Jesus Trullench Gonzalez, P.Eng. (Retired)

Mr. Alex Iskander, P.Eng.

Mr. Alan James Karges, P.Eng. (Non-Practising)

Mr. James Malcom Smith, P.Eng. (Non-Practising)

Mr. George Juris Salmins, P.Eng. (Retired)

Mr. William Donald Lewicky, P.Eng. (Non-Practising)

Mr. Walter Angus McPhee, P.Eng. (Non-Practising)

Mr. Lawrence Edward Drake Hill, P.Eng. (Non-Practising)

Mr. David Thomas Drew Dunlop, P.Eng.

Mr. Hans-Joachim Brumme, P.Eng. (Retired)

Mr. Donald Gordon James, P.Eng. (Retired)

Mr. Peter John Shand, P.Eng. (Retired)

Mr. Donald Gerhard Loehr, P.Eng. (Non-Practising)

Mr. Robert (Bob) Joseph Dovey, P.Eng. (Retired)

Mr. Nels Burger Vollo, P.Eng. (Retired)

Mr. George William King, P.Eng. (Non-Practising)

Mr. William John Beck, P.Eng. (Retired)

Mr. Kenneth Edward Barron, P.Eng. (Non-Practising)

Mr. Norman Gisli Arnason, P.Eng. (Retired) ♦

CONTINUING EDUCATION: REQUIREMENTS

CONTINUING EDUCATION REQUIREMENTS

The Continuing Education (CE) Program is mandatory and applies to all registrants with practice rights. Participation in the CE Program is optional for Engineers-in-training, Geoscientists-in-training, Non-Practising, Retired, and Life Non-Practising registrants. By June 30 each year, registrants must complete CE requirements in their online reporting system and then submit their CE declaration in the annual reporting system. More information, including our Guide to the Continuing Education Program, a CE Plan Template, a CE Plan Example, and a link to the Reporting System is provided at **egbc.ca/Continuing-Education.**

DESIGNATION	TOTAL HOURS REQUIRED	ETHICAL/REGULATORY	TECHNICAL, COMMUNICATIONS AND LEADERSHIP	CE PLAN
P.Eng., P.Geo, P.L.Eng., P.L.Geo.	60 CE Hours per 3-year rolling period	The Mandatory Regulatory Learning Module (once per reporting year) One CE Hour of Ethical Learning (once per reporting year)	Balance of Hours	Required
Struct.Eng.	120 per 3-year rolling period	The Mandatory Regulatory Learning Module (once per reporting year) One CE Hour of Ethical Learning (once per reporting year)	Balance of Hours, Including 60 Technical Hours	Required
EIT/GIT, Non-Practising Life Member, Non-practising/Retired	Optional	Optional	Optional	Optional

PROFESSIONAL SERVICES

CONTINUING EDUCATION

UPCOMING WEBINARS

egbc.ca/Events

BUSINESS DATA ANALYTICS TOOLS AND TECHNIQUES

June 9, 2023 | Eligible for 7 CE Hours

This workshop provides a foundation for engineers, geoscientists, and managers to better describe analytics strategy, operations strategy, and maintenance strategy holistically by discussing the asset-based environment and information management. ○

HELIUM AND LITHIUM EXPLORATION IN WESTERN CANADA

June 13, 2023 | Eligible for 2 CE Hours

Helium and lithium are two critical materials needed to develop low-emissions energy technology and other high-tech applications. Markets are exploding as traditional supplies of both elements fail to meet the ever-growing demand. In this session, we will learn how professional engineers and geoscientists are applying their skills in these exciting new marketplaces. ○

CONTRACT ADMINISTRATION AND CONTRACTUAL ISSUES FOR ENGINEERING AND CONSTRUCTION PROJECTS

June 14, 2023 | Eligible for 7 CE Hours

This session will cover legal and contractual issues related to the effective management and administration of construction projects. It focuses on the roles and responsibilities of the owners, contractors, and engineers. ○

PROJECT CLAIMS AND DISPUTES ON ENGINEERING AND CONSTRUCTION PROJECTS

June 14, 2023 | Eligible for 4 CE Hours

This session discusses the causes and types of claims, the procedures by owners and contractors to avoid claims, and methods to quantify and resolve claims. ●

PROFESSIONAL PRACTICE GUIDELINES: LANDSLIDE ASSESSMENTS IN BRITISH COLUMBIA

June 20, 2023 | Eligible for 1.5 CE Hours

This webinar will review the recently updated Engineers and Geoscientists BC's Professional Practice Guidelines: Landslide Assessments in British Columbia (2022). ●

STORMWATER DETENTION PLANNING AND DESIGN

June 21, 2023 | Eligible for 7 CE Hours

This seminar is the third of a series that will cover the complex topic of stormwater management and will provide the foundation information necessary to plan and design existing and future stormwater management systems. ○

ADVANCED SANITARY SEWER MODELLING AND MASTER PLANNING

June 22, 2023 | Eligible for 7 CE Hours

In this session, participants will be introduced to advanced topics like dynamic simulations, load calculation and allocation, field data monitoring, dry weather and wet weather model calibration, and planning system improvements. ○

ACTIVATING ALLYSHIP: ADVOCATING FOR OTHERS WORKSHOP

June 23, 2023 | Eligible for 2 CE Hours

Allyship has been defined as a lifelong process of building relationships based on trust, consistency, and accountability with individuals and groups of people who are different than you. In this session you will learn what it means to be an active ally and unpack what can stand in our way to unlock advocacy for other people—including microaggressions in the workplace. ●

STRESS MANAGEMENT

June 27, 2023 | Eligible for 3.5 CE Hours

This workshop focuses intensively on skills practice to ensure participants build a higher level of resilience in dealing with stress. ●

BUSINESS DEVELOPMENT AND SALES SKILLS FOR ENGINEERS AND GEOSCIENTISTS

July 4-September 29, 2023 | Eligible for 4 CE Hours

This program provides registrants with the skills and confidence to effectively address issues relating to sales and business development. Topics include: presenting your firm's value proposition, discovering your client's requirements, conducting professional sales presentations, and securing commitment while selling. ●

SEDIMENT ENGINEERING FOR RIVER AND COASTAL PROJECTS

July 27, 2023 | Eligible for 14 CE Hours

This course offers fundamentals of sediment engineering for river and coastal projects. ○

● **Regulatory Learning** ● **Ethical Learning** ○ **Technical Learning** ● **Communications/Leadership Learning**

Registrants are encouraged to take advantage of the new Knowledge Centre, at **www.egbc.ca/knowledge-centre**, *which provides on-demand educational opportunities. The Centre now hosts more than 100 on-demand recorded and self-directed courses on a variety of topics.*

KNOWLEDGE CENTRE

egbc.ca/Knowledge-Centre

MANDATORY: REGULATORY LEARNING MODULE FOR 2022-2023

Eligible for 1.5 CE Hours

As part of the Continuing Education (CE) Program, each year, the Regulatory Learning module will cover essential regulatory topics relevant to all Engineers and Geoscientists BC registrants. This year's module is focused on Truth and Reconciliation with Indigenous peoples and what reconciliation means for engineering and geoscience professionals working in BC. ●

EQUITY, DIVERSITY, AND INCLUSION (EDI) FOR ENGINEERS AND GEOSCIENTISTS

Eligible for 1 CE Hour

This free, self-paced online course provides foundational training on equity, diversity, and inclusion (EDI) to help individuals develop competencies in inclusive behaviours and emotional intelligence. ●

LAND ACKNOWLEDGEMENTS FOR ENGINEERS AND GEOSCIENTISTS

Eligible for 1 CE Hour

Explore the practice of acknowledging First Peoples and traditional land as a way to open meetings but also as part of a larger process towards reconciliation between non-Indigenous and Indigenous Peoples in Canada, with a panel of Indigenous engineers and geoscientists. ●

CALL FOR PRESENTERS

Are you an expert in your field who would like to contribute to engineering and geoscience practice? Engineers and Geoscientists BC is actively seeking members to present on a variety of topics. For more information, please visit *egbc.ca/Practice-Resources/Professional-Development*.

ENGINEERS & GEOSCIENTISTS BRITISH COLUMBIA

75
1948 - 2023

Enjoy the gift of a **75% rate reduction**[1]

To celebrate the 75th anniversary of the **Engineers Canada-sponsored Term Life Insurance Plan**, we're offering you and your spouse or partner a **75% rate reduction** on new or additional coverage until March 31, 2024.[1] First-time applicants can also get an extra $50,000 of coverage at no cost for up to 2 years![2]

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ENGINEERS & GEOSCIENTISTS BRITISH COLUMBIA

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[1] Premium rates have been reduced by 75% for new or additional Member Term Life and Spouse Term Life coverage. Premium rates will increase on April 1, 2024. Please see manulife.ca/Celebrate75 for further details. The premium rate reduction does not apply to existing Term Life coverage.
[2] To be eligible for the offer of $50,000 of additional Term Life coverage at no extra cost for up to two years, Members must meet the Engineers Canada-sponsored Term Life eligibility requirements: be aged 18 to 65; be applying for Engineers Canada-sponsored Term Life Insurance for the first time without having previously been declined for Term Life coverage by Manulife; be applying and approved for $25,000 of Term Life coverage or more. Available to Members only (not available on Spousal coverage). For complete details, see manulife.ca/newmember.
[3] Odds of winning depend upon the number of eligible Entries received. Limit one (1) Entry per entrant. Total of twelve (12) Prizes available. Winner(s) will receive an Apple® Gift Card valued at approximately CAD $750. Correctly answered skill-testing question required. No purchase necessary. Contest closes February 29th, 2024 at 11:59 PM Eastern Time (ET). See full contest rules at manulife.ca/rules75.

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