



Newsletter

Volume 38 • May 2017

In This Issue

- 2 Message from the President
- 3 IABSE 2017
- 8 2017 AGM and Dinner Meeting
- 17 Certificate in Structural Engineering Program
- 18 APEGBC's Accredited Employer Member-in-Training Pilot Program
- 19 Hurricane Matthew: An Engineer's Recent Experience in Haiti

Association News

- 12 Committee Reports
- 16 IStructE News
- 23 Mark Your Calendar

Final Words

- 24 Editorial Information
- SEABC Board of Directors
- Advertising

Copyright: Tourism Vancouver, Photographer: Clayton Perry



Message from the President



David Harvey, P.Eng.
SEABC President

SEABC Hosts 39th IABSE Symposium

IABSE is an international structural engineering organization based in Switzerland, which publishes peer-reviewed papers and organizes high-quality conferences around the world.

You have no doubt heard that SEABC is hosting the 39th IABSE Symposium in September – we are thrilled that IABSE chose Vancouver as the location for this year's symposium and entrusted the event organization to SEABC. Check out the article on the upcoming symposium in this newsletter.

You might also know that the event was last in town 33 years ago, long before SEABC appeared on the scene. Those of you who attended the 1984 IABSE Symposium may recall that prominent local engineer Peter Taylor was at the event, talking about the design of the record-breaking Alex Fraser Bridge, then under construction.

Moving back to 2017, Peter is now the Honorary Chair of the 39th IABSE Symposium – but do not be misled by the title! Far from the traditional meaning of 'honorary', Peter's role has involved a lot of hard work on the Local Organizing Committee. Among his contributions, Peter has attended the preceding symposia, helped source the keynote speakers, and organized the Young Engineers Workshop.

Peter's efforts have been a huge help to Symposium Co-chairs Katrin Habel and Adam Lubell, and the other members of the Local Organizing Committee (LOC). I am particularly grateful to the LOC members for their commitment, and ability to deliver the requirements in a timely fashion – something not always seen in volunteer groups. Their diligence is helping to minimize the significant risk SEABC took on in offering to host the 2017 IABSE Symposium.

The Final Invitation is on line at:
www.iabse.org/IABSE/Events/Vancouver_2017/

You will be impressed by the quality of the technical program and supplementary activities outlined in this brochure. The content and graphics speak to the professionalism of all involved and promise us a top-notch structural engineering conference in our beautiful city. Do not miss the five excellent workshops that are on offer, or overlook the great social events and post-conference tours.

The comprehensive program will draw delegates from across the world. We are expecting a strong turn-out of IABSE members, supplemented by members from the supporting organizations – ASCE/SEI, IStructE, CSCE, and CAEE. We are also expecting delegates from the Northwest SEAs, including, of course, SEABC members.

So far, everything is on course for a successful event. At this stage, we are far from being home and dry, but the indicators are all positive. First, we saw strong interest when we received over 800 abstracts, and more recently the Scientific Committee has accepted a record level of papers which will constitute much of the technical program.

Earlier this month the exhibit hall sold out. While we had expected a sell-out, to do so four months prior to the event was a pleasant surprise. So, expect a packed exhibit area, some big-name vendors, and plenty of action. The success in the exhibit hall is matched by our event sponsors. We have sold all our tiered sponsorships, and currently there are only a handful of other sponsorships available.

Registration opened only recently, and accommodation at the Westin Bayshore, our conference hotel, can be booked via the website. SEABC is responsible for selling our room block, and so we are delighted to see strong uptake in room reservations – helped, no doubt, by an attractive room rate. While conference registration is currently lagging behind accommodation, we are expecting a massive response when over 400 accepted authors register and delegates reserve their places prior to the Early Bird date of May 31.

So, have you registered yet? Do not miss this fantastic opportunity to mix and mingle with leading practitioners from across the globe, gathering in Vancouver this September. I hope to see you there!

IABSE 2017



Adam Lubell, PhD, P.Eng.
Read Jones Christoffersen Ltd
Symposium Co-Chair



Katrin Habel, Dr. Sc. Techn.
P.Eng.
Associated Engineering
Symposium Co-Chair

SEABC will host the 2017 IABSE Symposium, a three-day technical conference preceded by a program of pre-conference workshops and the Annual Meetings of IABSE's technical committees and working groups. Technical Tours to local structural engineering projects will follow the conference.

For the Final Invitation and more information, please see: www.iabse2017.org

We have recently updated a lot of event information on the symposium website and will continue to make regular updates over the coming months.
www.iabse2017.org

Check out the Symposium promotional video on the website (also available at vimeo.com/157380662) and share the link with your colleagues and friends. Be sure to sign up for the mailing list to receive important announcement about the conference.

Registration

Online registration for the Symposium is now available at: www.iabse2017.org/

Registration is available in several categories. SEABC members will receive a preferred rate by selecting the “*Supporting Organization*” category and including the SEABC membership number in the sign-up form.

Registration includes access to the lectures and parallel sessions, daily lunch, coffee breaks, and

evening receptions, etc. See the Symposium website for more details as well as information on extra cost events such as the Gala Dinner and various tours.

Hotel

Symposium activities will occur at the Westin Bayshore Hotel and in the vicinity. For those that want to stay where the action is, a very favorable room rate has been negotiated at the Westin Bayshore Hotel. September is a busy travel period in Vancouver and all room rates are based on availability. Book early!

See www.iabse2017.org for more information on the room block.

Technical Program

The Call for Papers for the Symposium was a tremendous success, with over 800 abstracts received in early November 2016 from local and international engineers. The Scientific Committee has recently finished its review of all full papers. Over 450 papers on were accepted for formats that include oral presentations, facilitated poster sessions and panel discussions. Many of the papers include case studies and will be sure to appeal to designers and researchers alike. The papers were of excellent quality, and we are looking forward to an interesting and varied program at the Symposium.

The Organising Committee is also pleased to announce that keynote addresses related to the main Symposium themes will be presented by the following distinguished speakers:

- Seismic Assessment and Rational Renovation of the Structural Heritage:
Dr. G. Michele Calvi, Director of the ROSE School, Italy.
- Challenge and Innovation of Long Span Bridges in China and over the World:
Dr. Yaojun Ge, Professor at Tongji University, China.
- Developments in the Wind Engineering of Tall Buildings:

Dr. Peter Irwin, founding partner and principal, RWDI, Guelph, Ontario, and Professor at Florida International University.

- **Measuring, Monitoring and Evaluating Community Resilience using Remote Sensing Technologies:**
Dr. Ron Eguchi, CEO, ImageCat Inc., Long Beach, California.

Technical Tours

Post-symposium technical tours are also being organized for Symposium delegates, including:

- **TOUR 1 — Bridges of Vancouver Harbour: Dinner Cruise**
A dinner cruise from the Westin Bayshore to False Creek and return with descriptions of significant buildings and bridges of Downtown Vancouver. \$150+GST. Sept. 23.
- **TOUR 2 — Bridges of the Fraser River: Paddle-Wheeler Boat Tour**
A five hour paddle wheeler cruise on the Fraser River from New Westminster to visit some of the major bridges of the Lower Mainland. \$100+GST. (Sept. 24)

- **TOUR 3 — Whistler & Sea-to-Sky Adventure**
A two day excursion on the Sea-to-Sky Highway to Whistler with planned visits to the Sea-to-Sky gondola, the Audain Art Museum, the Peak-to-Peak gondola, the Fitzsimmons debris barrier and other notable structures. \$475+GST Single Occupancy; \$800+GST Double. (Sept. 24 and 25)

Pre-Conference Workshops

Of particular interest to SEABC, we will offer several pre-conference workshops during the period Sept 18-20, 2017. Workshops will be delivered by international and local experts.

The workshop fees are between \$250 and \$600, depending on length and content with special rates for full-time students. The workshops are currently only open for registration in conjunction with the online Symposium registration form.

Don't forget to register for the event at the Symposium website (www.iabse2017.org)! Early bird registration closes May 30, 2017.

	Early Bird (until May 30, 2017)	Regular (until Sept 8, 2017)	At the Door
IABSE Member	\$ 990.00	\$ 1090.00	\$ 1190.00
Supporting Organization Member <small>ASCE / CAEE / CSCE / IStructE / SEABC</small>	\$ 1090.00	\$ 1190.00	\$ 1290.00
Young Engineer <small>born January 1, 1983 or later</small>	\$ 600.00	\$ 650.00	\$ 700.00
Non-Member	\$ 1190.00	\$ 1290.00	\$ 1390.00
Corporate Pass <small>Transferable; One Attendee</small>	\$ 1290.00	\$ 1390.00	\$ 1490.00
One Day Pass	\$ 625.00	\$ 650.00	\$ 675.00
Accompanying Person	\$ 150.00	\$ 150.00	\$ 200.00

Note: All registration fees are subject to prevailing taxes including GST. Cancellation fees apply.

Corporate Sponsorship & Exhibition

The success of high-calibre conferences like the IABSE Symposium rely on the tremendous energy from our local volunteers and from the support of corporate partners and organizations. The Organising Committee has continued to focus on our sponsorship programs in recent months and we have secured both local and international sponsors to date. Our website is constantly updated to show confirmed sponsors as they come on board. Some categories of the tiered sponsorships are now sold out but many fantastic sponsorship opportunities at different price tiers are still available. Sponsorship of the Symposium will give your firm strong exposure to local, national and international delegates. Our exhibition booths are also rapidly filling, only one booth still available.

We still have some sponsorship opportunities left – including newly added sponsorship opportunities for the workshops. Please contact David Ellis, Chair of the Sponsorship Committee, if you would like to discuss these opportunities in further detail (sponsorship@iabse2017.org, 778-746-7426) or check out our sponsorship brochure at: www.iabse2017.org/images/PDF/IABSE2017-sponsorship-brochure.pdf (brochure does not include workshop sponsorship opportunities).

We are excited to welcome this high-quality international conference to Vancouver and we hope to present a program of great interest to SEABC members. Please contact us with any comments, suggestions or questions regarding the IABSE Symposium and register for our exciting event!

Notable Structures in Vancouver

To help participants explore the many impressive structures in Vancouver, the Organizing Committee is compiling information on recent, notable and historically significant structures. This will be provided to all conference attendees in the form of a printed or PDF-brochure for self-guided visits. We are currently preparing a template, and we will solicit input from all SEABC members. This brochure will be a fantastic means of promoting the

outstanding engineering in our City far beyond the IABSE Symposium, and we encourage all of you to participate to assemble the information.

The workshops present a unique opportunity to increase your knowledge with renowned local and international instructors, and we encourage you to take advantage of this opportunity. More information is available at: www.iabse2017.org/scientific-program/workshops!



Ariel View of Vancouver - Photo Credit: Tourism Vancouver Albert Normandin



Cycling along False Creek, Tourism Vancouver, Cycle City Tours

Interested in the workshops but can't attend the Symposium? Workshops will also be available for separate registration to SEABC members beginning June 15 2017. Please note that space in the Young Engineers workshop (Workshop 5) is limited and the ability to offer registrations to those not attending the Symposium will depend on demand.

WORKSHOP 1 – Seismic Engineering

Issues in Displacement Based Design and Assessment

Instructors: Prof. G.M. Calvi (IUSS Pavia, Italy) & Prof. A. Filiatrault (Univ at Buffalo, USA)

Schedule: Monday Sept 18, 13:30-18:00 + Tuesday Sept 19, 08:00-17:30

The course presents the fundamentals and application of seismic design and assessment based on damage-controlled limit-states. The fundamentals will be applied to a range of structural types and problems, not commonly addressed in standard courses on seismic design, including bridges, seismically isolated structures and non-structural components.

WORKSHOP 2 – Timber Engineering

Innovations in Structural Timber Design & Construction

Instructors: J. Natterer (Polyscope, Etoy, Switzerland), M. Flach (University of Innsbruck, Austria), and P. Fast (Fast & Epp, Vancouver, BC)

Schedule: Wednesday Sept 20, 08:00-17:30

The course presents principles and recent advances in heavy timber engineering, including conceptual design, good detailing for durability and structural performance. It will use recently built examples to demonstrate innovations in the field and discuss current trends in timber engineering and construction.

WORKSHOP 3 – Forensic Engineering

Structural Failures – cases, causes, lessons learned

Instructors: J. Duntemann (WJE, USA), D. Peraza (Exponent, USA) & Prof. R.T. Ratay (Columbia Univ., USA)

Schedule: Wednesday Sept 20, 08:00-17:30

The primary objectives of the course are to provide understanding of the causes and consequences of failures, the lessons learned from them and thereby to improve design practices and adherence to the standard-of-care – all to mitigate errors that may lead to failures. The course is aimed at young, mid-career and experienced structural engineers who want to acquire a better understanding of failures towards improving their design, inspection, construction, administrative and other project-related practices to avoid pitfalls that may lead to failures. It is also aimed at those wanting to acquire a working knowledge of the challenging and lucrative professional practice of forensic structural engineering.

WORKSHOP 4 – Cold Regions Engineering

Contemporary design for a harsh environment

Instructors: A. Gygax (Gygax Engineering Associates, Canada), E. Hoeve (Tetrattech, Canada) & L. Mihalik (Associated Engineering, Canada)

Schedule: Wednesday Sept 20, 08:00-14:00

Cold regions in the arctic and at high altitude pose particular challenges for structural engineers. The cold environment influences the performance of a structure above grade, at grade and below grade in different manners than structures built in warmer regions. The workshop will summarize these issues and review recent projects for practical solutions.

WORKSHOP 5 - Young Engineers Workshop

Bridge Dynamic Response by Design

Instructors: Dr. P. Irwin (RWDI, Canada), Dr. D. Radojevic (COWI, Canada), & Dr. P. Taylor (Canada)

Schedule: Wednesday Sept 20, full day

This is a practice-based Workshop offering IABSE Young Engineers the opportunity to participate in exploration of Bridge Dynamics. The dynamic considerations and implications at each stage of the design development process for a major cable stayed bridge will be examined. This workshop will only be open to Young Engineer delegates, which are registered for the conference and are born after Jan. 1, 1983



*Lions Gate Suspension Bridge: Tourism Vancouver,
Clayton Perry*



*Vancouver, Gastown: Tourism Vancouver,
Nelson Mouellic*

2017 AGM and Dinner Meeting



David Harvey, P.Eng.,
Struct.Eng.

Director SEABC

The 2017 Annual General Meeting of SEABC took place on March 1st at the Sutton Place Hotel, Vancouver. Addressing the 97 members attending SEABC's flagship event, President David Harvey referenced the financial balance sheets and the various committee reports which had been distributed to the membership earlier by email. He also confirmed that current membership renewals indicate that membership in the Association remains strong which is expected to continue through this year and beyond. David thanked our sponsors for continuing their support of our Annual Dinner and for helping to make this popular event accessible to all:

- COWI
- Glotman Simpson Consulting Engineers
- Gyga Engineering Associates Ltd
- Masonry Institute of BC
- Metrix Professional Insurance Brokers
- S-Frame Software
- Sacre-Davey Engineering
- Thomas Leung Structural Engineering Inc.

Co-chairs Katrin Habel and Adam Lubell then gave a summary of SEABC's boldest undertaking so far, the IABSE 2017 Symposium, to be held on September 21-23 in Vancouver. A promotional video on this symposium was shown, highlighting the sights and activities that Vancouver offers visitors. The symposium theme is Engineering the Future. Topics include innovations and performance based design of buildings, bridges and other structures. The Scientific Committee received 800 abstracts, 445 paper submissions and 12 special session requests. Members are strongly encouraged to participate in the world class structural engineering conference.

David then introduced Francois Pepin, Ing., of COWI North America, winner of the Young Members Group "So You Think You Can Give a Seminar?" competition

and presented him with a cheque for \$1000. Taking us through his winning presentation *'The Story of Champlain Bridge Superbeam and Modular'*, Francois described bridge strengthening work carried out to maintain the existing Champlain Bridge in service while its replacement is being built.

John Pao reported that the SEABC Certificate in Engineering Program has found a new home at UBC's Robson Square campus which is suitably equipped to suit CSE program needs. John expressed great sadness at losing key CSE program contributor Dr. Mahmoud Rezai, and announced the establishment of a scholarship fund in his honour. John handed cheques to the recipients of Dr. Mahmoud Rezai scholarships: Jackson Pelling, Emmet Burke, and Jared Walls. Mehrdad Jahangiri was awarded his Certificate having completed the required 12 courses over the previous eight years.

The following door prizes were handed out:

- Attendance at one of the 2017 IABSE Symposium pre-conference workshops from the SEABC Board of Directors
- Three prizes of Courses C12 and C13 textbooks from the CSE Program.

The thirteen 2017 SEABC Board of Directors were then elected by acclamation.

Paul Fast then introduced the evening's keynote

speaker, Sam Price of London, UK firm Price & Myers, who is currently visiting Vancouver. Sam spent his early career at Arup and has worked with some of the firm's

engineering giants, including Ove Arup. Sam is now a Consultant to the firm he co-founded with Robert Myers in 1978. Price & Myers is noteworthy for its fine structural engineering craftsmanship and is well respected. Sam is a Fellow of the Royal Academy of Engineering, the Institution of Structural Engineers and the Institution of Civil Engineers. Sam is also an Honorary Fellow of the Royal Institution of British Architects and served for many years on the UK's prestigious Cathedrals Fabric Commission.



Sam Price

Sam's keynote presentation to SEABC, described the wide range of structures that Sam had worked on during his distinguished and lengthy career. Sam kicked off with the novel structural building systems used by Arup Associates for Lloyds Building, Chatham, during his early career, which even today bear witness to the quality of the design work.

Sam then moved on to an early commission for Price & Myers – a rather undistinguished industrial warehouse building. Sam's design featured novel precast concrete columns for an end bay, showing that early on, Sam understood how to switch between and best use the different structural materials.



St. John's College Oxford. Use of Precast Concrete

Next, Sam gave us a tour of St John's College, Oxford, showing us the delightful use of precast concrete for arched roofs in a courtyard – part of a new student residences building. An eye-catching detail was the helical stairway (a signature feature for his firm) which uses precast concrete treads notched into the inner leaf of the circular cavity wall.



St. John's College Oxford. Signature Helical Stair

Three steel buildings display Sam's mastery of lightweight roofs. Cobb's lane is an industrial building crafted to fit into a village – an efficient modular truss supports a pitched roof. Atrium Lots Road features elegantly detailed cast connections between tension rods supporting the roof, while his novel design for the Cricket School at Lords building roof is all about using the natural light to best effect.

Taking us to alterations of fine buildings, Sam described his work on the Royal Festival Hall, followed by the serious intervention he undertook for the Royal Court Theatre. To provide the significant below-grade space required for modernization, Sam built a basement below the adjacent London street – a costly and complex. The result is an elegant mix of historic fabric and modern components.



Royal Court Theatre. Mix of Historic and Modern Materials

Perhaps the real love of Sam's structural engineering life has been cathedrals. These monumental buildings are extremely heavy and were often provided with rudimentary foundations, as hundreds of years ago, design was mostly trial-and-error. Such was the case with Beverly Minister, a gargantuan edifice that was founded above trenches filled with

hand-packed stone. Unsurprisingly, the stones had settled significantly over time resulting in distortion of the cathedral's cross section. There had been several prior unsuccessful attempts to correct the long-standing problem, which Sam may well have solved by simply pressure-grouting the stone.



Beverly Minster



Bishop Edward King Chapel

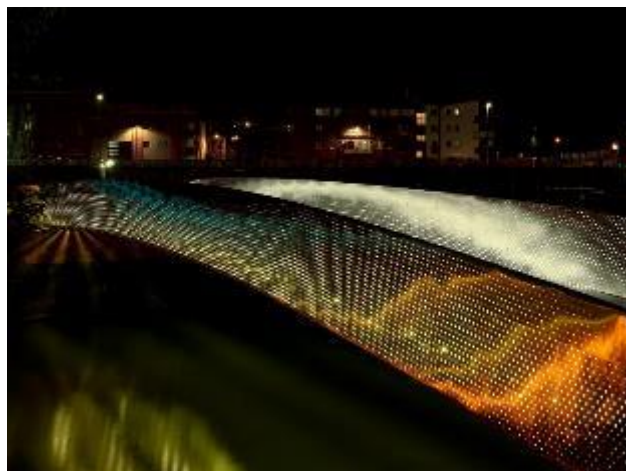
Touching down briefly on the novel Brockholes Visitors Centre, Sam moved on to describe two project "Gems" with Niall McLaughlin Architects. The Fisherman's hut is rustic and minimalist and looks perfectly at home 'floating' above a lake. The Bishop Edward King Chapel is a finely crafted composition with intersecting glulam portal frames. The internal space is ethereal; the aesthetics are simply stunning.

Sam walked us through two eye-catching engineered geometric sculpture projects, The Angels Wings, and

Rise, before covering Bridges. Naturally, this included the spectacular Meads Reach Bridge, fabricated from perforated stainless steel plate and playfully illuminated.



The Angels Wings



Meads Reach Bridge

Sam wrapped up his fascinating talk by describing his unique restoration work on the historic Triforium Tower at Westminster Abbey – the Queen's place of worship. The refurbished tower was recently officially dedicated by HRH Prince Charles.

David Harvey thanked Sam for sharing his amazing story with SEABC members and provided him with a piece of native artwork as a memento of his visit.



Bishop Edward King Chapel – Ethereal Interior

Committee Reports

Technical Committee



Kevin Riederer, M.A.Sc.
P.Eng.,
Director SEABC

The Task Group investigating the Seismic Design of Basement Walls has made more progress and is preparing for the Education Committee to host a seminar later this year to present the proposal to SEABC members.

The Guard Design Task Group also remains in the early stages of updating the Guard Design Guidelines published by SEABC.

The SEABC Technical Committee is also starting a review of the seismic design of storage racking systems, specifically addressing questions raised by members of SEABC with regards to site specific response spectrum for projects with Site Class F. SEABC will be working with the APEGBC Consulting Practice Committee to provide members with recommendations on this issue.

Anyone with interest in participating on a Technical Subcommittee is encouraged to contact SEABC. Any member with an issue or concern that they would like to have the Technical Committee consider is also encouraged to reach out to the committee.

Communications Committee



David Harvey, P.Eng.,
Struct.Eng.
Director SEABC

We need your support!

I trust that you enjoy reading your SEABC newsletter as much as I do. I always enjoyed reading the

messages of our former presidents who clearly understood how structural engineering fits into the bigger picture, and I appreciate the opportunity to share my views with you. I also appreciate knowing what our committees and branches are doing, and like reading a structural engineering project or research article. And who does not want to read the latest news?

So, this is where you come in. We need your contributions to keep our communications both relevant and newsworthy. So please send us your articles or photographs and tell us what you have been doing. You will help to raise our professional profile, and inspire those following in our footsteps. I enjoy knowing what my fellow structural engineers are creating and I'm sure that you do as well.

Kindly send information for publication to:

newsletter@seabc.ca

– We'll be pleased to include your submission.

The Communication Committee is growing. Interested in publishing? Do you like writing structural engineering news articles? Consider helping us edit the SEABC Newsletter. Let us know if you are keen to join our team.

Young Members Group



Thomas Duke, EIT

The SEABC YMG has been busy with a variety of events over the past several months. Highlights include the sixth annual YMG presentation competition, a tour of the exchange office tour, participation in the Greater Vancouver Regional Science Fair and the Engineering and Geoscience Fest.

So You Think You Can Give a Seminar?

In February, the Young Members Group hosted the sixth annual 'So You Think You Can Give a Seminar' presentation competition. Six young engineers took the stage to give presentations on structural engineering topics of their choice. The 2017 winner was François Pépin who presented on the Champlain Bridge superbeam and modular truss. As part of François' victory, he presented his topic at the 2017 SEABC Annual General Meeting. The six competition presentations were followed by a guest presentation by Paul Fast titled 'Saving an Engineering Marvel – the Mannheim Gridshell.'



The six presenters of the 2017 SEABC YMG Presentation Competition

Exchange Tower Tour

On April 5th, 2017, a group of SEABC members attended a tour of the Exchange Office Tower project which is nearing completion. Once completed, it will become Canada's second tallest LEED Platinum office tower. The lateral force resisting system of the 32-storey tower employs a pair of outrigger trusses combined with buckling-restrained-braces. Another unique feature of this development is that the office tower footprint overlaps significantly with one of the Old Stock Exchange heritage buildings which is preserved and tied into the new tower that emerges out of the historical building. The project engineer from RJC and representatives from PCL provided a short presentation before leading the group on a guided tour of the building. The group toured the existing structure then climbed up to the top of the 32-storey tower to observe the large steel outrigger elements and connections to the concrete core.



SEABC YMG Exchange Tower Tour

The Greater Vancouver Regional Science Fair

The 2017 Greater Vancouver Regional Science Fair (GVRSF) was held at UBC, and attended by over 300 students ranging from grades 7 – 12. There were many exciting and innovative projects, and as a

sponsor of the event, the SEABC YMG was able to present an award to a project demonstrating interest, enthusiasm, and understanding in the field of Structural Engineering. The winners were Julien Mo and Abdurrahmaan Abdulaziz with their project, Eco-ffee. They chose to make a building material out of used coffee grounds in response to the volumes of waste produced in Canada daily. Congratulations to the winners and all other GVRSF participants!

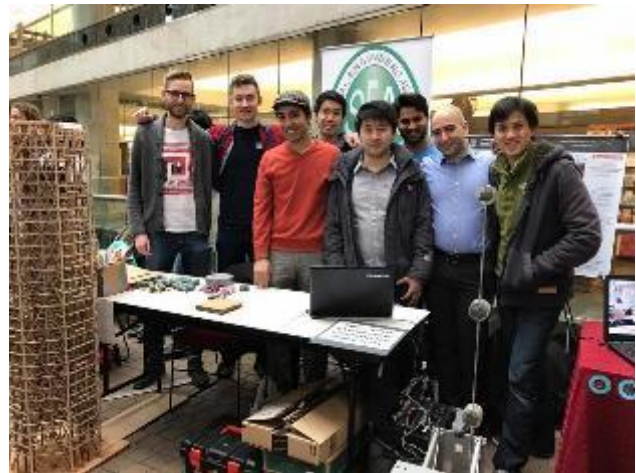


The winners Julien Mo and Abdurrahmaan Abdulaziz with their project 'Eco-ffee'

SEABC YMG EG-Fest

On March 11, the SEABC Young Members Group, in collaboration with the UBC EERI Student Chapter, participated in this year's Engineering and Geoscience Fest (EG-Fest), hosted by APEGBC and the Vancouver Public Library. This annual event, which occurs during National Engineering and Geoscience Month, aims to extend public knowledge and appreciation of the professions by showing the community how the many facets of engineering and geoscience affect everyday lives. To this end, the SEABC YMG engaged the general public by explaining fundamental concepts of earthquake engineering, ground motions, the design of earthquake resistant structures, and building upon public emergency preparedness by considering the seismic hazard of the area we live in and holding discussion. Visitors of the booth were also challenged to create small-scale building structures comprised of straw, cardboard, and plasticine to support gravity and earthquake loads. The building models are then loaded with weights and subjected to recorded ground motions using a miniature shake table. It was a successful event where both the YMG and the public shared in

a fun-filled day of teaching, learning, and interactive activities.



SEABC YMG and UBC EERI 2017 EG-Fest booth

Vancouver Island Branch



Thor Tandy, P.Eng, Struct.Eng,
MISTructE
Branch Chair

Mission:

To provide a focal point for SEABC members on the Island to meet, discuss SEABC issues and to take benefit in the form of exchange of items of technical interest.

2017 Branch Executive:

Thor Tandy, Dan Weber, Dan Gao, Lee Rowley. Tyler Best has accepted a research post in NZ with Ken Elwood.

Inter-Branch Liaison as best we can: Meagan Harvey (Okanagan), Ralph Watts (North Island)

Branch Demographic:

- Members in the local Victoria, Gulf Islands area.
- A central Island group centred on the Nanaimo, Port Alberni area.
- A small North Island group.

Events:

The bright side is that we are all busy, busy but no local SEABC events.

Proposed Events:

- **Polystyrene Building Blocks:** We would still like to present this but for now it will be postponed until a later date.
- **Rubble Foundations:** *“Performance of Rubble Foundations in Seismic Zones”*. This will probably be of interest to those who are involved in Heritage and other past-century structures. The current opinion, however, is that rubble foundations is not a realistic topic for presentation. We will keep it on the table for now. Member opinion welcomed.
- **Rammed Earth:** *“Ancient art seeking technical rationalization”*. Opinion is to continue to develop a presentation. There is a small number of residential RE projects coming on stream and we propose developing one, or more, case studies. Again, as this is one of a number of alternative building materials, we encourage members to send in comment or questions.
- **Non-structural components:** – *“What Not to Do”*. Case studies and acceptable solutions. To be kept on the table.
- **Social event(s):** We are planning a social/get together for June 1, 2017 at a venue to be confirmed but in the Victoria downtown area. We invite all members to attend. One of our objectives is to develop a roundtable, or similar format, at which we can discuss structural issues and share our ideas and strategies.
- **Executive Meeting:** Our meetings are open so anyone wishing to attend and contribute is welcome.

We encourage members to submit comment to our executive on any matter that may concern or be of interest to structural engineers.

On the Web



Stephen Pienaar, P.Eng.
Webmaster

- Upcoming one-day seminar:
Registration is open for the **Structural Health Monitoring** seminar on May 27. This seminar is presented by the Certificate in Structural Engineering Program.
www.seabc.ca/shm
- Past seminars:
Members can log in to watch **video recordings** of seminars.
www.seabc.ca/videos
- Be first the first to know:
Follow us on **Twitter** for announcements of SEABC events.
www.twitter.com/seabc

Other website updates

- Member login to the website is now secured with a digital certificate. While previous eavesdropping was highly unlikely, it is now impossible.
- Seminar recordings going back to 2012 were updated from Silverlight to HTML5 format so that members can use any modern web browser to view the recordings. Our thanks to Mark Van Driel at UBC Lecture Capture & Webcast Event Services for his work on this.

Work on refreshing the SEABC website is progressing at a measured pace. We hope to make this transition in the summer.

Suggestions

We welcome your comments for improving the SEABC's website and other online services. Please send your suggestions to webmaster@seabc.ca.

Sincerely,
Stephen Pienaar, P.Eng SEABC Webmaster

IStructE News



David Harvey, P.Eng.
Struct.Eng.

Director SEABC

In keeping with our focus on the upcoming 2017 International Association for Bridge and Structural Engineering (IABSE) Symposium, I am delighted to report that the Institution of Structural Engineers President, Ian Firth, will be visiting Vancouver to attend the conference. Ian will be the latest in a series of IStructE presidents that have visited our fair City, which underscores the significance of our strong group of local members and the specialized knowledge they bring to the Institution.

Ian is keen to engage with the local structural engineering community to inform them of the value of Institution membership. Key accessible resources available to members include the unparalleled list of IStructE publications, the E-library, access to the long list of Technical Guidance Notes, and the unique On-line Structural Behaviour Course.



Ian Firth

Ian Firth is well-known as a leading bridge designer, responsible for the design of a wide variety of bridges around the world. He regularly works in multi-disciplinary teams alongside leading bridge architects and several of his projects have received significant design awards. His bridge projects include major large span suspension and cable-stayed bridges, as well as aesthetically rewarding and technically challenging pedestrian bridges.

Ian is also interested in significant building structures, having worked on the London Olympic Stadium, the O2 Millennium Dome, and the National Theatre. In addition to his design work, Ian is involved in the assessment, maintenance and upgrading of existing bridges, particularly steel box girder bridges, and he provides specialist advice on long span bridge design and construction.

After graduating from the University of Bristol, Ian joined Flint & Neill in 1979, becoming a Partner in 1990. When the firm joined COWI in 2008, Ian became the Chief Operating Officer.

Ian has been for many years an active member of IABSE and is Chairman of the British Group. As well as being the President of the Institution of Structural Engineers, Ian is a member of the Bridges to Prosperity Board of Directors and Chair of the Bridges to Prosperity UK Charitable Trust.

As part of his visit to Vancouver, Ian wishes to meet with local Institution members. Ian would like to tell us about the many initiatives that are underway in London. Newly installed in their purpose-built Bastwick Street headquarters, the many changes and upgrades in IStructE operations will particularly benefit members located outside of London and facilitate participation in Institution activities.

So, as part of planning your participation in the IABSE Symposium and pre-conference workshops, you should anticipate an IStructE reception. Look out for event details which will be sent later to local IStructE members. At this time, kindly reserve the evening on Monday September 18th and come and meet Ian Firth.

Certificate in Structural Engineering Program



Shannon Remillong,
CSE Program Co-ordinator

Save the date!

On Saturday, May 27th the Certificate in Structural Engineering Program (CSEP) is offering a one-day seminar on Structural Health Monitoring (SHM) at our new location, UBC Robson Square, 800 Robson Street.

For more information and registration please go to our webpage www.seabc.ca/events.php.

The Structural Health Monitoring (SHM) one-day seminar is intended for engineers and focuses on both the theory and the practical use of the SHM for civil engineering structures.

- It examines the basic principles of measurement and data processing; the use of low-cost and long term seismic and environmental monitoring systems to keep civil engineering infrastructure under constant surveillance; and assessing the structural health in real-time.
- SHM provides quantitative means to implement and develop sustainable maintenance and rehabilitation schemes and programs for structures such as bridges, buildings, tunnels, and dams.
- The seminar will cover the concepts of rapid post-disaster assessment of instrumented civil infrastructures.

September term is just around the corner!

The following four courses will be offered this September 2017 at the UBC Robson Square:

- **E1** Masonry Design
- **C4-1** Introduction to Earthquake Engineering & Seismicity

- **C12** Practical Design of Reinforced Concrete
- **C13** Structural Steel Design for Buildings

Course Outlines will be available through the CSEP webpage this July.

Registration for the September 2017 term will open Friday, July 14th through the SEABC website. SEABC Members will receive a discounted rate; additional savings with early-bird rates apply until Friday, August 18th. Classes begin the week of September 11th and end the week of December 6st with a mid-term break in the week of October 23rd.

Registration Inquiries and Requests/Suggestions: Please contact Shannon Remillong, Certificate Program Administrative Assistant, at email: courses@seabc.ca

CSE Board of Directors

John Pao, M.Eng., P.Eng., Struct.Eng., Bogdonov Pao Associates Ltd. (Chair)

Shannon Remillong (Administrative Assistant)

Farshid Borjian, M.A.Sc., P.Eng., C.Eng., M.I.Struct.E., Struct.Eng.

Svetlana Brzev, Ph.D., P. Eng.,

Anthony El-Araj, P.Eng., PE, LEED AP, Glotman Simpson Consulting Engineers

Andreas Felber, Ph.D., P.Eng.,(on temporary leave), BC Hydro

Darrel Gagnon, M.Sc., P. Eng., Cowi N.A. Engineering

Chris Jacques, P. Eng., M.I.Struct.E, LEED AP, Read Jones Christoffersen Ltd

Bishnu Pandey, Ph.D., P. Eng., British Columbia Institute of Technology

Carlos Ventura, Ph.D., P.Eng., University of British Columbia

APEGBC's Accredited Employer Member-in-Training Pilot Program

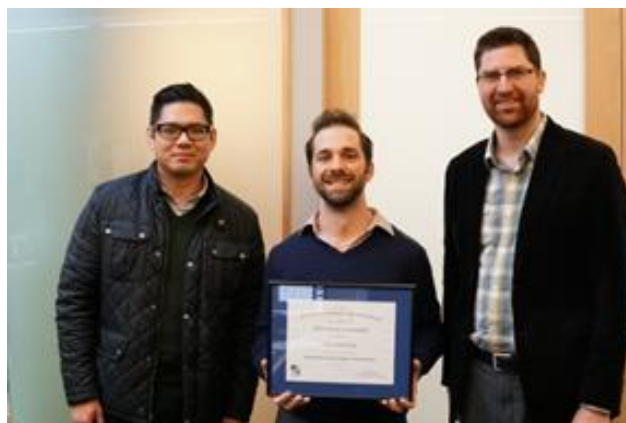


Leila Lagroix
APEGBC
Member-in-Training
Program Administrator

The Association of Professional Engineers and Geoscientists of British Columbia (APEGBC) is looking for structural engineering firms to join the Accredited Employer Member-in-Training program. This partnership streamlines the processing and evaluation of applicants seeking professional membership and helps employers attract and retain high-calibre talent. Nine organizations and 70 Engineers-in-Training (EITs) are currently participating.

These companies work with APEGBC to offer environments that ensure EITs are able to satisfy the APEGBC experience requirements when applying for their professional (P.Eng.) designation. Employers develop their own EIT training programs, apply to APEGBC to become accredited, and identify which of their EITs will participate. EITs who wish to be considered for the program must work for an accredited company and enroll through their employer. At this time, the program is only available to EITs. Geoscientists-in-Training (GITs) will be included when a competency-based assessment system has been implemented specifically for them. COWI North America, Dynamic Structures, Fast + Epp, Glotman and Simpson, Ministry of Transportation and Infrastructure, and Omicron are some of the firms accredited with APEGBC.

"The MIT Pilot Program has benefited us by creating a more attractive environment for junior engineers that are considering joining our firm," says Nick Bevilacqua, P.Eng., Struct.Eng., an associate with Fast + Epp. "When we explain the MIT system to juniors during the recruiting process, most of them are encouraged by the higher level of involvement that our firm takes in the mentorship and advancement of young engineers."



APEGBC's Jason Ong presenting the accreditation certificate to Nick Bevilacqua, P.Eng., Struct.Eng., and Derek Ratzlaff, P.Eng., Struct.Eng. of Fast + Epp.

Results to date indicate EIT registration is being expedited while ensuring those individuals are qualified for licence to practice. The program can almost quarter the amount of time it takes to complete the application and registration process for a participating EIT. During their first year of accreditation, Fast + Epp has had three engineers obtain professional registration through the program in less than one month. Their most recent candidate achieved licensure in seven days.

"Participating in the MIT program for my P.Eng. application was fast and easy. The MIT process effectively had no impact to the application process from my perspective, and the timeline from submission to receiving my P.Eng. was even faster than I had hoped," says Carla Dickof, P.Eng., who was an EIT with Fast + Epp and completed the registration process in 14 days. "From an applicant's perspective, I would happily recommend it to any of my colleagues and encourage other firms to participate."

The Accredited Employer Member-in-Training program is available at no cost to participating employers.

For more information, contact Leila Lagroix at: llagroix@apeg.bc.ca to apply, or visit: apeg.bc.ca/Accredited-Employer-MIT-Program.

Hurricane Matthew: An Engineer's Recent Experience in Haiti



Joel A. Hampson, MASC,
PEng, LEED AP

On the morning of 4 October 2016, Hurricane Matthew made landfall on south-western peninsula of Haiti.



Map of Haiti with the remote town of Dame-Marie indicated (Google Maps, 9 May 2017)

The Hurricane was classed as a Category 4: strong winds, heavy rains and flooding. Winds up to 240 km/h caused major damage to tin-roof homes, schools and other buildings. The disaster affected an estimated 2.1 million people in an area that already suffers from deeply entrenched poverty and little infrastructure.

The International Organization for Migration is an inter-governmental UN agency with an office already in Port-au-Prince. They immediately opened an office in the urban centre on the affected coast, the City of Jeremie, and they coordinated hurricane response efforts and supplies. Shortly after, they called me with a mandate to open another office in remote area of Dame Marie and to establish a program to distribute durable roof repair materials along with

teaching people how to “build back better”.

I arrived late November and immediately helped finalize the material specification for the intended distributions: sheets of GCI, treated 2x4, various types of nails, rope and galvanized tie wire. Given these limited materials, we designed a simple repair system that would make the vulnerable homes more resistant to wind and earthquake events: we used the tie wire and nails to create dedicated load paths for up-lift and lateral force resistance. We developed tie-wire connection techniques based lashing techniques that the army uses to build elevated rope ways with timbers.



Some of the durable roof-kit components: CGI, tie-wire, packet of nails, safety glasses & gloves

A curriculum was created and lesson plans written for teaching beneficiaries and local trades people, providing the techniques and instructions of how to install the durable roof kit. We then recruited and trained a team of engineers and “mobilizers” (community social-work types who interface with the beneficiaries and public) in pedagogy, the techniques and technical aspects of the kits.



Beneficiaries learning better building techniques in one of the program's classes

Although it was not in our original mandate, we had to set up a system to assess who might qualify as a beneficiary. The system was based on vulnerability criteria and an assessment of hurricane damage. We surveyed almost 19,000 homes and selected 1000 beneficiaries. Once the beneficiaries were identified and trained, we conducted distributions. We did about two of these a week and targeted twenty to a hundred beneficiaries for each. These distributions were big events that involved plenty of logistical and on-the-ground coordination.



An engineer assessing a typical hurricane damaged home

We followed-up to see how people were using the kits and techniques; to our surprise, beneficiaries were storing the materials and not repairing their homes. We did a special research to find out why and determined deeper economic factors were

prevented beneficiaries from using the kits, so we enacted a cash grant system—this allowed the beneficiaries to hire one of our previously trained tradesman. It also allowed them to purchase a little more building material if they thought it was needed. Once we added this construction administration aspect to the mandate, rebuilding really started to happen.



Carpenters, who were trained under our program, working on a beneficiary's home



Trained carpenters installing lumber from the kit to rebuild the roof

Other difficulties include the remoteness of the location (1.5 hrs helicopter plus three hours drive over mountain roads), constant equipment failure—generator, internet, water supply, vehicles, everything—political unrest and rioting. It was a daily struggle to keep the operation going and to meet the end of then mandate—for me that was the end of April.



Drivers trying to fix another one of our break-downs with limited resources (again)

One of the most serious set-backs was the political unrest that effectively stopped the delivery our materials. Because of this, and the added construction administration, the program received several weeks of extension, and IOM is now using our program as a model for similar distributions in other hurricane affected areas.



Rwanda UN soldiers providing security for a distribution

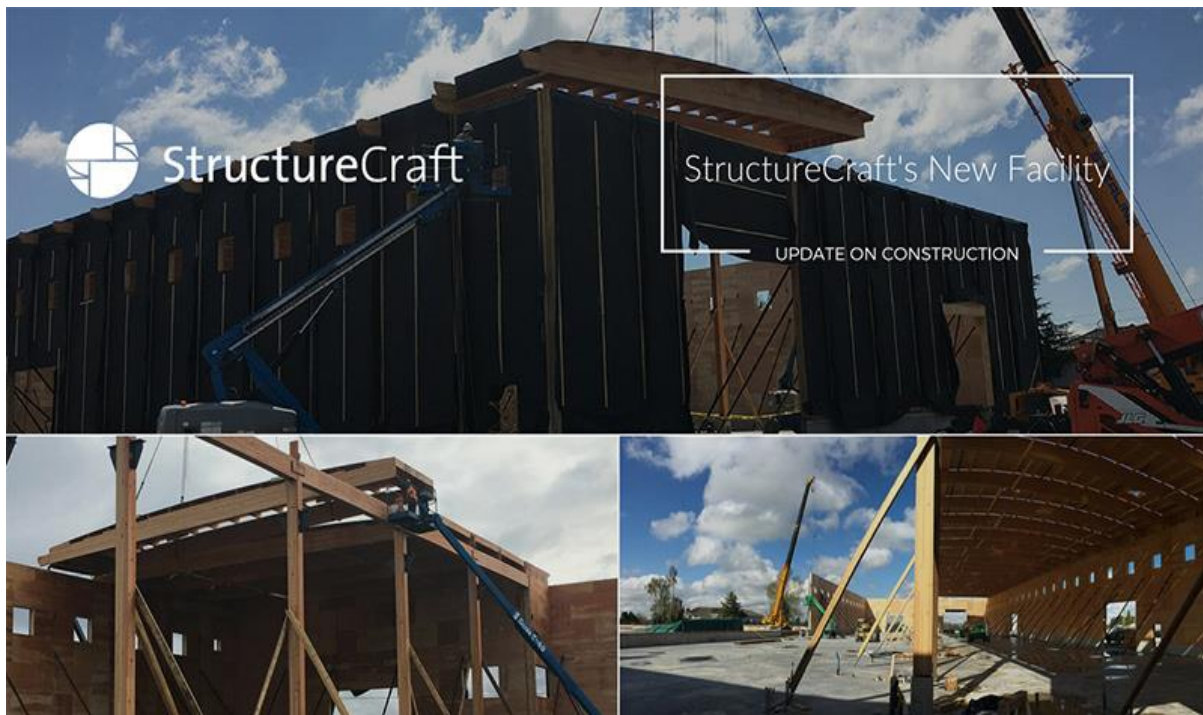
On a personal note, this is the third time I have been involved in a disaster response in Haiti. This time had the typical difficulties and its unique challenges; ultimately, it was very satisfying to work with a dedicated team of engineers and mobilizers.



The lead mobilizer talking to beneficiary's outside their repaired home



Most of team of engineers, mobilizers and drivers in the house we rented for an office



StructureCraft is excited to announce that in fall of 2017, we will start manufacturing **Dowel Laminated Timber (DLT)**, the only All Wood mass timber product in North America, in our new 50,000sqft facility in Abbotsford, British Columbia.

About the New StructureCraft Facility

The new plant will be designed and built with a variety of mass timber and engineered wood products, including DLT, LSL, NLT, and Glulam.

Designed as a demountable structure, with modular wall and roof panels- this gives us the flexibility to move or expand.

Latest Update

Construction is progressing rapidly. Our building superstructure installation commenced on Monday, April 17, and we installed the entire building structure by Friday, April 21- in just one week, all four walls and a 40,000sqft roof are now up. [Learn more here.](#)

Let's create the next special timber structure together,

StructureCraft Team

T +1 604-940-8889 | E: slintz@structurecraft.com | W: StructureCraft.com



Timber Design & Construction

Engineering, fabricating, and installing
timber buildings and bridges since 1998.

Mark Your Calendar

Upcoming SEABC Seminars

IABSE Symposium

Date: September 21- 23 2017

Venue: Westin Bayshore Hotel, Vancouver, BC

More information: www.iabse2017.org/

Structural Health Monitoring

Date: Saturday 27 May 2017

Presenter: Dr. Yavuz Kaya, PhD, P.Eng., The University of British Columbia

Venue: Room C180, UBC Robson Square, 800 Robson Street, Vancouver

Time: 9:00 am- 3:00 pm

Registration: www.seabc.ca/SHM

Upcoming Industry Events

APEGBC: Hydrotechnical Design of Tunnels (Bring Calculator to sessions)

Date: Monday May 29- Tuesday May 30

Presenter: Saied Saiedi PhD, P.Eng.

Venue: Vancouver, BC

Time: Day 1: 8:00am – 4:30pm, Day 2: 8:30am-4:30pm

Registration: www.apeg.bc.ca

APEGBC: Geostatistics and Resource Estimation

Date: Wednesday May 31 – Thursday, June 1

Presenter: Dr. Oy Leuangthong

Venue: Vancouver, BC

Time: 8:00am – 4:30pm

Registration: www.apeg.bc.ca

Final Words

Editorial Information

The SEABC Newsletter is published by the Structural Engineers Association of British Columbia. The current and past issues are available on the SEABC website at www.seabc.ca.

The Newsletter is edited and managed by the SEABC Communications Committee.

- Committee Chair: David Harvey
- Newsletter Editor: Catherine Porter
- Webmaster: Stephen Pienaar

Submissions are welcomed and all SEABC members are encouraged to actively contribute to the Newsletter. Submissions, letters to the Editor, questions and comments can be sent to: newsletter@seabc.ca.

The Committee reserves the right to include or exclude submitted material and in some cases edit submitted material to suit overall space requirements. If content is not to be edited, please advise so at submission time.

SEABC Board of Directors

President:	David Harvey
Past President:	Cameron Kemp
Secretary / Treasurer:	Surinder Parmar
Other Directors:	Perry Adebar, Bill Alcock, Grant Fraser, Paul Fast, Tejas Goshalia, Adrian Gyga, David Davey, Kitty Leung, Andrew Seeton, Kevin Riederer, John Sherstobitoff
Committee Chairs:	
Education:	Tejas Goshalia
Structural Practice:	John Sherstobitoff
Technical:	Kevin Riederer
Communications:	David Harvey
Young Members:	Grant Fraser
Branch Chairs:	
Vancouver Island:	Thor Tandy
Okanagan:	Meagan Harvey

Advertising

Pre-paid rates per edition:

- \$270 (quarter page), \$360 (half page) or \$450 (full page) plus GST. Rates include a banner advert on the Events page of the SEABC website.
- 50-word "Available for Employment" ads are free.

Please address advertising enquiries to: newsletter@seabc.ca.

Please support our advertisers!