



Newsletter

Volume 39 • August 2017

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Message from the President



David Harvey, P.Eng.

SEABC President

IABSE Symposium 2017

The IABSE Symposium is about to take place in Vancouver! Work started three years ago with wondering if we could hold such an event here, and whether SEABC could take on the massive amount of work involved. With cautious Board of Directors support, we first needed to write a proposal. While Vancouver is an attractive destination, we needed guidance to secure a world-class event. Thankfully, Tourism Vancouver lent a hand, making excellent publicity material available.

The next step was identifying people for key roles. Fortunately, Peter Taylor agreed to be Honorary Chair, while Adam Lubell and Katrin Habel took on the role of Co-Chairs. Peter, Adam and Katrin had the advantage of previous connections with IABSE. Many of Vancouver's structural engineers were named as organizers. We built this strong list of names into an attractive proposal. We reached out to 'like' organizations and were delighted when ASCE, CSCE, IStructE, APEGBC, UBC, and CAEE (the Canadian Association for Earthquake Engineering) sent us supporting letters which we appended to the document. This turned out to be a key move. When later accepting our proposal, IABSE commented favourably on the industry support, and the suitability of Vancouver as a host city.

Our excitement at being selected was quickly tempered by the realization that we had a lot of work to do. We first needed a venue, and after looking closely at the Hyatt Regency and Westin Bayshore hotels, selected the Westin based on its unique location on the sea-wall adjacent to Stanley Park. The Westin also has top-drawer conference facilities which well suited our needs. We next

needed a conference organizer. We were delighted when SEABC Registrar Melanie Fung took on the role and co-opted Jena Fair to assist her in the busy run-up to the event.

We next started work on promoting the 2017 Symposium, we were pleasantly surprised at how much interest we generated from sponsors and exhibitors. David Ellis' marketing effort quickly secured strong sponsorship and exhibit sales which underpin our budget. Thanks to strong sales, we kept prices slightly lower than previous IABSE symposia, and at a comparable level to ASCE's Structures Congress. We then moved on to the Call for Abstracts to which we received 800 submissions. The healthy response translated into over 400 paper submissions and over 50 poster acceptances.

Meanwhile the Local Organizing Committee was hard at work on the rest of the program. The outcome included three social events – an on-site Icebreaker Reception, a Networking Social at Rogue Kitchen and Wet-bar, and the flagship Gala Dinner at the Vancouver Convention Centre Level 3. Also included were three technical tours – the Bridges of Vancouver Harbour dinner cruise, the Bridges of the Fraser River paddle-wheeler tour, and the two-day Whistler and Sea-to-Sky adventure tour.

The final ingredient is the pre-conference workshops – available to both delegates and non-delegates. The stellar line up includes Seismic, Young Engineers, Timber and Forensic engineering workshops. These excellent events have high-calibre presenters, excellent technical content and are not to be missed. I urge you and your colleagues to take advantage of these great workshop learning opportunities and to consider joining us for this once-in-a-lifetime international structural engineering conference in Vancouver.

A big thank you to the hard work from our chairs, the Local Organizing Committee, our conference organizer, and those who have helped – you were wonderful to work with. Your efforts have shown everyone what Vancouver structural engineers can do. IABSE Symposium 2017 – bring it on!

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



September 21 to 23, 2017

The Westin Bayshore, Vancouver

www.iabse2017.org

SEABC will host the 2017 IABSE Symposium, a three-day technical conference at The Westin Bayshore hotel in Vancouver, 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 Preliminary Program Schedule, Final Invitation and more information, please see: www.iabse2017.org

Our symposium website shows regular updates (www.iabse2017.org). Make sure to follow us on Twitter (twitter.com/IABSE_Vancouver) and Instagram (www.instagram.com/iabse_vancouver)

using #IABSE2017.  

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.

Pre-Conference Workshops

Of particular interest to SEABC members, several pre-conference workshops will be held during the period Sept 18-20, 2017.

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

Workshop fees for SEABC members range between \$250 and \$600, depending on length and content with special rates for full-time students. **Prices increase after Sept. 1.** Register now to reserve your place and avoid disappointment!

Workshops can be added during your Symposium registration, or add your favorite workshop to your existing registration account.

Interested in the workshops but can't attend the Symposium? The workshops are also available for separate registration to SEABC members at: www.seabc.ca/events

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 - 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

Symposium Registration

Online registration for the Symposium is 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.

The Corporate Pass option is a transferable pass that can be shared amongst work colleagues and used by one person at a time. This is a great way to let several engineers in your office each attend some presentations of special interest.

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



Photo: Tourism Whistler / Mike Crane



Photo: Tourism Vancouver / Clayton Perry

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

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

Technical Program

Over 450 papers will be presented in 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 are of excellent quality, and we are looking forward to an interesting and varied program at the Symposium.

The following 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.

The preliminary presentation schedule is available on the Symposium website.

Technical Tours

We still have space on our post-symposium technical tours 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. Includes dinner. \$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 Westminister to visit some of the major bridges of the Lower Mainland. Includes buffet lunch. \$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. Includes dinner, one night accommodation in Whistler and most admission fees. \$475+GST Single Occupancy; \$800+GST Double. (Sept. 24 and 25)

Please see: www.iabse2017.org/scientific-program/technical-tours for detailed programs of each tour.

Notable Structures in Vancouver

To help participants explore the many impressive structures in Vancouver, the Organizing Committee compiled information on recent, notable and historically significant structures. The brochure is currently being formatted and should be available in early September. We would like to thank all people who have contributed to this brochure that helps to highlight the remarkable and innovative engineering work of SEABC members!

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 secured both local and international sponsors to make this event a success. Our website is constantly updated to show confirmed sponsors as they come on board.

The tiered sponsorships and exhibition are fully sold out but fantastic opportunities to sponsor events are still available at different price tiers starting at \$750. Newly added sponsorship opportunities for the workshops are also available. Sponsorship of the Symposium will give your firm strong exposure to local, national and international delegates. We also have new opportunities for signature workshop sponsorship.

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!

Katrin: klabel@iabse2017.org

Adam: alubell@iabse2017.org

Don't forget to register for the event at the Symposium website:

www.eply.com/IABSE2017

Committee Reports

Technical Committee



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

The Task Group investigating the Seismic Design of Basement Walls has received the final round of review comments and are preparing their final report to be published through APEGBC. The education committee is organizing a seminar where the results of this exhaustive research project can be presented.

As previously mentioned, 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.

SEABC has been recently approached by APEGBC to develop a professional practice guideline for the “Structural Condition Assessments of Existing Building and Designated Structures”. The technical committee will be forming a task group in the fall to move this initiative forward.

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

The SEABC Communications Committee is responsible for this newsletter, so we really hope you like the content. The Committee also looks after our website where most of SEABC’s business is carried out. If you have an interest in publishing or website development, please let us know – we could use some help. So please get in touch – we would love to hear from you!

SEABC members reading this newsletter can be forgiven for not noticing that they have been receiving new editions every quarter since SEABC started operating in 2008. This consistent publishing takes commitment by the editorial team to provide content that is of interest to readers and relevant to today’s practice of structural engineering.

To achieve this excellent objective on a continuing basis, we would appreciate your assistance. What interests you will certainly interest others. Please write articles and send us photographs that illustrate a topic of interest, or point out who can help. Do take the effort to send us information we need for future newsletters – we need to keep SEABC members well informed.



Young Members Group



Thomas Duke, EIT.

Over the summer months the SEABC YMG organized a tour of the StructureCraft shop, as well as participated in the 2017 Emergency Preparedness Week. In addition, the YMG has worked hard to organize the YMG Structural Challenge and is excited to announce it's beginning with this newsletter, and encourages all members to participate by taking the quiz. Lastly, this newsletter edition also summarizes the UBC and BCIT student engineering teams and events that received funding from the SEABC YMG during the 2016/2017 school year.

New YMG initiative: the YMG Structural Challenge

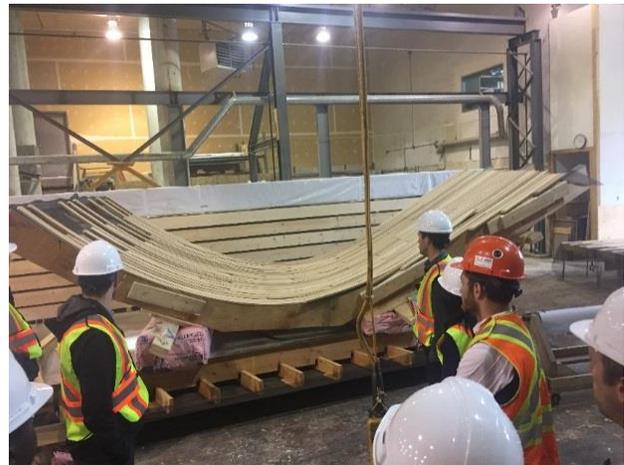
The Young Members Group is happy to issue the first YMG Structural Challenge in this edition of the Newsletter. The questions will be based on both building and bridge projects to satisfy all structural engineers' curiosity. All members are invited to participate. One winner will be selected from among the pool of participants who have correctly answered all of the building-project questions or all of the bridge-project questions. The questions will be project-specific and/or technically focused, and clues in the photo or description (or some Internet research) should help you find the right answer... See end of newsletter for the challenge! Good luck!

Do you have an interesting project that you would like to share and could prepare fun questions about? The YMG would like to hear from you! Email us at ymg@seabc.ca.

StructureCraft Shop Tour

In May, the SEABC YMG organized a tour of the StructureCraft Shop. StructureCraft is engineer-led construction firm specializing in timber and hybrid-timber structures. StructureCraft employees guided the group through their shop to see various timber components from several projects that are currently

in construction. After a detailed tour of the manufacturing facility, SEABC members were provided a presentation on recent innovative StructureCraft projects such as T3 Minneapolis and the new StructureCraft shop and office building. The SEABC YMG thanks StructureCraft for providing such an engaging tour.



StructureCraft Shop Tour

Emergency Preparedness Week

The SEABC Young Members Group (YMG) had a busy and fun day as group members participated in this year's Emergency Preparedness (EP) Week, on May 7 at Science World. EP Week is a national annual event coordinated by Public Safety Canada meant to help Canadians take action to protect themselves and their families during emergencies. Through this campaign, participants learned the risks of emergency events, such as earthquakes, and mitigation methods. Building upon the success of the 2017 EG-Fest, the SEABC YMG collaborated with the UBC EERI Student Chapter to engage the 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. Visitors of the booth were challenged to create small structures comprised of straw, cardboard, and plasticene to support gravity and earthquake loads. The building models were loaded with weights and subjected to recorded ground motions using a miniature shake table. The event drew over 6400 members of the community and the SEABC YMG is glad to have been a part of such a successful campaign.



Emergency Preparedness Week 2017

University of British Columbia Student Highlights

EERI

The UBC EERI Seismic Design Team competed at the 2017 Earthquake Engineering Research Institute Student Design Competition with their model, the Amhara Tower. The Amhara Tower was able to safely withstand all three ground motions during the shake table test. Overall, the team placed 16th out of the 35 international teams that participated, as well as they placed in the top 10 ranks for performance predictions and the presentation component of the competition.



UBC EERI Team at the 2017 Competition

Steel Bridge

The UBC Steel Bridge Team competed at two competitions: the ASCE Pacific Northwest Regional Competition and the 2017 CSCE-CISC Canadian National Steel Bridge Competition. At the national competition, they earned third place out of the eight teams. This competition included timed construction and load testing, with evaluation based on construction speed, lightness, stiffness, construction economy, structural cost, design aesthetics, and overall cost. The team's strong results included a first place finish in the design aesthetics category.



The UBC Steel Bridge Team

Concrete Canoe

The UBC Concrete Canoe Team competed at both the ASCE Pacific Northwest Concrete Canoe Competition and the Canadian National Competition. The team placed third in the ASCE Pacific Northwest Concrete Canoe Competition and was awarded first place in the Final Product category for the canoe's overall construction, and second place joint finish with UBC Steel Bridge in the ASCE conference standings. They also placed eighth in the Canadian National Concrete Canoe Competition and created an all-new concrete mix and construction plan, designed entirely by students.



The UBC Concrete Canoe Team

Concrete Toboggan

The UBC Concrete Toboggan Team competed at the 2017 Great Northern Concrete Toboggan Race. The team earned second place in two categories: concrete mix and reinforcement design for their innovative design, incorporating an evolved steering system, a reinforced roll cage, and a nautical theme (complete with seashells mixed into the concrete). The team also placed third in the Spirit category. Even though the team was unable to complete the course, they were able to earn a ranking of fourteenth place overall, thanks to their strong showing in other categories.



The UBC Concrete Toboggan Team

British Columbia Institute of Technology Student Highlights

BCIT CSCE 11th Professional Night

On February 23, 2017, the 11th annual BCIT CSCE Professional Night was hosted with approximately 200 participants in attendance. In the interest of continually improving the event, our organizing committee made several additions to the event such as hiring an audio-visual technician for the night, staffing the cash bar with CSCE student members, and having CSCE sponsored competition teams as well as Women in Engineering representatives at tables throughout the venue. In addition to various speeches made throughout the night, the CSCE Vancouver Section awarded three scholarships to our student executive members. We also used this opportunity for the inaugural presentation of the instructor appreciation awards and plaque.



The 11th Annual BCIT CSCE Professional Night

Troitsky Bridge Building Competition

The BCIT CSCE Student Chapter entered a team into the annual Troitsky Bridge Building Competition held at Concordia University in Montreal. The team of seven civil students designed, built, and assembled a bridge made of popsicle sticks, white glue, and dental floss to compete against other teams across Canada. The team placed 17th out of 36 teams.



2017 CSCE BCIT Troitsky Competition Team in Montreal with their "Star Bridge"

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.

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 one local SEABC event now in planning stage.

Proposed Events:

- **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 comments or questions.
- **Non-structural components:**
"What Not to Do". Case studies and acceptable solutions. To be kept on the table.

• Social events:

We are planning a social/get together on August 17, 2017 at 5:00pm at a venue to be confirmed 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. Registration is available at Eventbrite. For more information contact Dan Gao: dgao@rjc.ca

• Executive Meeting:

Our last meeting was the first week in August. Our meetings are open so anyone wishing to attend and contribute is always welcome.

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

Contact: Thor Tandy

vicpeng@telus.net

On the Web



Stephen Pienaar, P.Eng.
Webmaster

Current activities on the website

- **September 2017 Term of the Certificate in Structural Engineering Program:**
The upcoming term offers four courses, all available in classroom and live interactive webcast formats:
 - C4-1 Introduction to Earthquake Engineering & Seismicity
 - C12 Practical Design of Reinforced Concrete (1)
 - C13 Structural Steel Design for Buildings
 - E1 Masonry Design of Buildings

Courses will run between September 11 and December 6, 2017. **Early-bird discounts are available until August 18.** For more information, please see: www.seabc.ca/cse-current.

- **IABSE 2017 pre-conference workshops:**
Registration is open for five workshops that will be presented in the days leading up to the Symposium. Members that do not plan on attending the Symposium but want to register for a workshop, can do so the SEABC website. The workshops are:
 - Seismic Engineering: Issues in Displacement Based Design and Assessment
Monday and Tuesday September 18 and 19, 2017
 - Timber Engineering: Innovations in Structural Timber Design and Construction
Wednesday September 20, 2017
 - Forensic Engineering: Structural Failures- Cases, Causes, Lessons Learned
Wednesday September 20, 2017
 - Young Engineers Workshop: Bridge Dynamic Response by Design
Wednesday September 20

Early-bird discounts are available until September 1. For more information and registration, please see www.seabc.ca/events.php#IABSE-2017.

- 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

Website refresh

We are making progress with the SEABC website refresh project. It has been a complex project with many delays. We are optimistic that we will be ready to transition to the new website in September.

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.
Director SEABC

President's Visit

A quick reminder that in connection with the upcoming 2017 International Association for Bridge and Structural Engineering (IABSE) Symposium, IStructE President, Ian Firth, will be visiting Vancouver to attend the conference and the IABSE business meetings. Ian will be the latest of the IStructE presidents that have travelled from the UK to meet with local members, and we are indeed honoured to be visited regularly. This level of interest is not unconnected with the significance of our strong group of local members and their value to the Institution.

Ian is keen to meet Vancouver's structural engineering community. He can inform local structural engineers of the value of Institution membership, and also point to IStructE's publications, its E-library, the growing list of Technical Guidance Notes, and the very popular on-line Structural Behaviour Course.

Ian Firth is a leading bridge designer. He has been responsible for many significant suspension and cable-stayed bridges across the world and has received several design awards. Ian is a firm believer in providing full engineering services to clients to prevent short-cutting professional responsibilities and preserve design integrity. Ian is the Chief Operating Officer of the international engineering firm COWI. As part of his visit to Vancouver, Ian wishes to meet with local Institution members on Monday September 18, 2017 so look out for event details.



IStructE President Ian Firth

Council Meeting

The second meeting of IStructE's 2017 Council took place at the headquarters building in Bastwick Street, London, UK, on July 20 and 21, 2017. Council members present consisted of elected members of Council, regional group representatives, past presidents, and appointees. I represented the British Columbia Regional Group, while Robert Jackson attended the meeting as one of two Young Members appointed to Council. The meeting was very informative and provided an excellent opportunity for international networking. As part of the meeting Ian Firth reported on his presidential year to date. Ian touched on his regional group visits and other key meetings he had attended, but his main focus was on the devastating Grenfell Tower fire and its potential consequences. It is clear that this is a national tragedy in the UK with potential international impacts. While the investigation is ongoing and will be for some time, it is known that the building regulations and their implementation in this case is under close scrutiny. It seems likely that a seed change in the way that tall buildings are designed and built and professional advice is given are in the works.

While Ian's report was sobering, IStructE CEO Martin Powell provided an upbeat report on the state of the Institution, its staffing and its operations – encouraging news for all the volunteers in the room! Two personal awards were presented and reports given from the domestic, international and young-members group chairs on their respective group activities. The reports were followed by two workshop sessions which were themed: Diversity and Social Inclusion, and Graduate and Student Membership Development. Council members discussed these important issues in great depth as break-out groups before getting together and

comparing notes. The general impression I got was that the Institution's general direction is progressive and adapting well to societal change. Thankfully, IStructE is using its worldwide connections to good effect and is thinking carefully through the challenges it will face in a rapidly changing world.

Robert and I had an enjoyable time in London and left feeling proud of the great Institution we belong to. We are glad that we have been able to contribute to the valuable debate that is steering IStructE, and look forward to future opportunities to contribute.

Photos to Tempt you to Sign up for the IABSE 2017 Symposium!



BC Place – featured in the Notable Structures



Bridges of the Fraser River (Vancouver Paddle Wheeler)



The Westin Bayshore (photo: Westin Bayshore)



Seismic Workshop: Photo: Massimiliano Stucchi

Mosquito Creek Bridge



Eric de Fleuriot, P.Eng.

Historic Site Dedication and Plaque Unveiling Ceremony of the Mosquito Creek Bridge, the First Prestressed Concrete Bridge in Canada

Mosquito Creek Bridge is located near the intersection of Marine Drive and Fell Avenue in the City of North Vancouver. Originally completed in 1953, the structure represents the first use of prestressed concrete technology in Canadian bridge construction

Eric de Fleuriot, representing SEABC at a CSCE ceremonial event on June 1, 2017, spoke at the bridge site of the unique achievements and bold engineering acumen of Canadian Engineers at the time when the bridge was constructed.

Prestressed concrete technology was a significant advancement in bridge design and construction methods at the time. The benefits of concrete in compression was utilized by the application of external forces via cables which were cast in the girder and anchored at girder ends. This enabled the use of more slender girders providing additional freeboard to the river in flood without the need to raise the roadway. Unknowns such as creep of concrete, the performance of the cable wedges that prevent slip after the release of the jacking forces and the difficulties faced in the grouting of the cable ducts were met head on and proven to be a real success given the bridge is still in use today 64 years after it was built. One of the difficulties faced was the need to achieve consistent high strength concrete needed to resist the forces from the cable anchors.

We were fortunate to have Ramsay Murray, one of the original designers of the bridge, at the ceremony to entertain us with his stories on the challenges faced during design and construction. The photos to the right show the bridge as it is today; Mr. Murray standing beside the plaque at the bridge site; and one girder being tested to destruction to better understand the strength of the new materials in use and to gain confidence in the new technology.

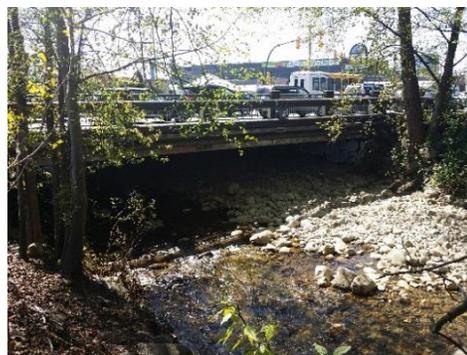


Photo: Paul McGrath, North Shore News



Certificate in Structural Engineering Program



Shannon Remillong,
CSE Program Co-ordinator

The September term is just weeks away!

The following four courses offered this September 2017 at UBC Robson Square are:

- **E1** Masonry Design of Buildings
- **C4-1** Introduction to Earthquake Engineering & Seismicity
- **C12** Practical Design of Reinforced Concrete
- **C13** Structural Steel Design for Buildings

Registration for the September 2017 term is open to end of day Friday, September 8th through the SEABC website: www.seabc.ca/certificate. Early-bird rates apply until Friday, August 18th. Specifically, this term, classes will be on either Monday or Wednesday evenings beginning the week of September 11th and ending the week of December 6st with a mid-term break in the week of October 23rd.

If you have ever wanted to try our live webcast format, this is the year! Live webcast course fees are reduced by an additional \$50.

In addition, if you were ever thinking of becoming a SEABC member, there is an increased course discounted rate of \$50 for members applied to each registered course. Please see SEABC's website for membership details and perks:

www.seabc.ca/membership

39th IABSE Symposium, September 19 – 23, 2017

Three educational institutions come together this fall at the 39th IABSE Symposium held in Vancouver. A shared booth at the Exhibition will feature educational initiatives offered through UBC Civil Engineering, BCIT Engineering and the SEABC Certificate in Structural Engineering Program. Please take a moment to visit our booth and see what we are up to!

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

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Condo Risks & Tips for Design Professionals



Rob McLeod, CIP, CAIB
Professional Liability Insurance Broker

Just because the liability issues associated with condo projects are daunting, that doesn't mean you need to turn your back on all potential condominium work.

It just means that you have to approach such projects with your eyes wide open and the steadfastness to demand certain safeguards.

What's All the Worry About?

1. Highly leveraged developers.
2. Low design fees.
3. Narrow scope of services.
4. Below par construction.
5. Duplicative construction, duplicative liabilities.
6. Unsophisticated buyers with unrealistic expectations.
7. Poorly run condo corporations.
8. Legal pitfalls (e.g. joint and several liability).
9. Aggressive lawyers.
10. Costly insurance.

Making Condo Work More Palatable

Here are 10 rules you should apply to any condo design work you may consider:

1. Only work with developers with a successful track record building condos and a commitment to quality.
2. Choose developers with a penchant for risk management.
3. Look for adequate project financing.
4. Avoid single-purpose LLCs or other paper or shell corporations.
5. Insist on providing a full scope of services.
6. Research the contractors.
7. Examine the developer's marketing approach.
8. Insist on approving all substitutions and changes in materials and design.
9. Schedule and conduct regular communications.
10. Contractual Protection.

The full article reviews these items in more detail: [Condo Risks & Tips for Design Professionals](#).

For additional information on this or other matters related to liability risks and insurance, you can contact me at rmcleod@mpib.com.

For more details:

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Mark Your Calendar

Upcoming SEABC Seminars

Young Engineers Workshop: Bridge Dynamic Response by Design:

Date: Wednesday September 20, 2017
Venue: The Westin Bayshore Hotel & Conference Center, 1601 Bayshore Drive, Vancouver, BC
Presenters: Dr. P. Irwin (RWDI, Canada)
Dr. D. Radojevic (COWI, Canada)
& Dr. P. Taylor (Canada)
Time: 08:00-17:30
Registration: www.seabc.ca/commerce

2017 IABSE Symposium: Pre-Conference Workshops

Date: September 18 – 20, 2017
Registration: www.iabse2017.org

Seismic Engineering: Issues in Displacement Based Design and Assessment

Dates: Monday September 18, 2017 at 13:30-18:00
and Tuesday September 19, 2017 at 08:00-17:30
Presenters: Prof. G.M. Calvi (IUSS Pavia, Italy)
Prof. A. Filiatrault (Uni at Buffalo, USA)
Venue: The Westin Bayshore Hotel & Conference Center, 1601 Bayshore Drive, Vancouver, BC
Registration: www.seabc.ca

Industry Events

APEGBC: Power System Stability and Control

Date: Monday, September 11, 2017- Thursday, September 14, 2017
Presenter: Dr. Prabha S. Kundur
President, Kundur Power System Solutions Inc.
Venue: Vancouver, BC
More information: 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.

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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!

The Arc



The Arc Building in Vancouver
Credit: Courtesy of Concord Pacific

The ARC, a new building at the foot of the Cambie Street Bridge and entrance to downtown Vancouver is set to be an architectural icon. Not only will The ARC be a visually stunning building, it will also have impressive features, including a suspended glass bottomed swimming pool at the 20th floor as part of a Sky Club fitness facility.

Developer: Concord Pacific | **Architect:** Frandl Architecture
Engineer: Glotman Simpson Consulting Engineers

Question 1: Guess the maximum clear span of the sky pool's supporting structure:

- a) 50 - 55 ft.
- b) 70 - 75 ft.
- c) 90 - 95 ft.

Question 2: What type of structural system is supporting the sky pool?

- a) A reinforced concrete system
- b) A steel system
- c) A hybrid system (concrete + structural steel)

Question 3: If you dive to the bottom of the pool, how many feet will you be above ground level? *Look at the description above for a hint!*

- a) 75 - 100 ft.
- b) 125 - 150 ft.
- c) 175 - 200 ft.

Question submitted by: *Omar AlHarras*, Glotman Simpson

The Lions Gate Bridge



View of Lions Gate Bridge looking north.
City of Vancouver Archives Reference CVA-586-463. Don Coltman (Steffens-Colmer Studios Ltd.). 1940.

The suspension bridge connecting the North Shore to downtown Vancouver, BC, was built in 1938 by developers to provide road access to their vacant North Shore property. When completed, it had the longest suspension bridge span (472m) outside the USA. The 600 m long north approach viaduct was renovated in 1975 by replacing the deck with an orthotropic steel deck, one panel at a time, during 6½-hour nighttime closures. In 1999-2000, the entire suspended structure of the suspended spans was replaced, 20 m at a time during nighttime 10-hour full bridge closures. In both cases, full three-lane traffic was maintained during the day.

Structural Engineering Company: Design – Monsarrat and Pratley | **Renovation** - Buckland & Taylor (now COWI)

Question 1: Who led the engineering team which completed the ground-breaking work on the approaches of the Lions Gate Bridge in Vancouver in the early 1970s ?

Note: He is also the Honorary Chair of the IABSE symposium coming this September 2017!

- a) Bill Bennett
- b) Peter Taylor
- c) Charles Marega

Question 2: A similar design with approximately 100 m high steel towers, was used for the following bridge:

- a) Golden Gate Bridge, CA, USA
- b) Tacoma Narrow bridge, WA, USA
- c) Angus L. Macdonald Bridge, Halifax, Nova Scotia

Question 3: The renovated bridge is about 35% wider than it was originally. Paving 35 mm thick and solid traffic barriers were also added. What was the increase in weight?

- a) Approximately 15%
- b) Approximately 5%
- c) There was no increase in weight

Question submitted by: *Anna Lemaire*, COWI NA

[**Click here to participate!**](#)

PRIZE : \$25 gift cards or AGM dinner

Deadline: September 29, 2017

Note: One winner drawn among the participants who answered correctly to all three questions.
Increase your chance of winning by answering both the building and the bridge YMG Structural Challenge quiz!

Interested in submitting your questions to share your project to the community?

Email ymg@seabc.ca for more information about how to contribute to the YMG Structural Challenge!