



# FINAL INVITATION

## **39TH IABSE SYMPOSIUM ENGINEERING THE FUTURE**

**VANCOUVER** CANADA  
**SEPTEMBER 19-23, 2017**

ORGANIZED BY  
THE CANADIAN GROUP OF THE  
INTERNATIONAL ASSOCIATION  
OF BRIDGE AND STRUCTURAL  
ENGINEERING (IABSE)



and  
THE STRUCTURAL  
ENGINEERS ASSOCIATION OF  
BRITISH COLUMBIA (SEABC)



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**CONTACT AND FURTHER INFORMATION**

[www.iabse.org/Vancouver2017](http://www.iabse.org/Vancouver2017)  
[info@iabse2017.org](mailto:info@iabse2017.org)

**Message from the President**

It is with great pleasure that we received the invitation by the Canadian Group of IABSE and the Structural Engineers Association of British Columbia to be in Vancouver next September to participate in the high point of the IABSE calendar, the International Symposium.



This internationally renowned technical meeting joins members, colleagues and friends, during a few intense days of learning and discussing the new themes of Structural Engineering, arising from around the world.

With the theme “Engineering the Future”, the Symposium presents the discussion of the existing solutions as well as the evolution of our built environment to achieve a good performance over its service life, always trying to increase the wellbeing of our society.

This theme is especially important to our young colleagues, who are invited to join the Symposium and to join our famous Association, taking advantage of the “IABSE Young Engineers Networking”. It is with them that the performance of our built environment must be discussed, as they will be the builders of the future.

The Organizing Committee, with Peter Taylor as Honorary Chair, has prepared a very attractive and innovative Symposium with renowned keynote speakers, with sessions presented in Tracks of specialized themes, with direct presentations from the industry and special pre-symposium workshops, allowing you to spend almost a week updating your knowledge with the experience from colleagues from all over the world.

Besides the Symposium activities, interesting technical visits, tours and a pleasant social program are also arranged to enjoy Vancouver. This marvelous city, between the Pacific Ocean and the high mountains is considered the capital of the West Coast, a place where nature is always nearby allowing for spectacular visits.

Leave your office for a few days, and come to Vancouver in September to meet again your friends, to make new contacts, to learn more about the Future of our Profession and simultaneously absorbing some of the spectacular landscape of the Vancouver West Coast.

**Fernando Branco**  
 President of IABSE



## Message from the Organizers

The built environment is becoming increasingly complex, and we face ever growing expectations by society that our infrastructure and buildings must provide exceptional performance over a long service life. The 39th IABSE Symposium provides a platform to the world's structural engineers to share their experiences with contemporary structures and their vision for the future. The conference theme "Engineering the Future" is highly relevant today when the solutions have to be engineered using innovative technologies and past experience in a way that is economical, robust and enhances the sustainability of the built environment.

The Organizing Committee invites practitioners, researchers and public agencies from around the world to exchange ideas and explore solutions to topical structural design, construction and maintenance issues. The Symposium will challenge the participants to actively discuss practical topics related to the structural engineering of buildings, bridges and other civil infrastructure.

The Symposium is organized by the Canadian Group of IABSE in collaboration with the Structural Engineers Association of British Columbia. We have an impressive roster of keynote presenters, panellists and industry stakeholders. In addition, we have planned unique workshops, tours and social events to provide the participants with an enriching and engaging experience.

Located on Canada's spectacular West Coast, the host city Vancouver is one of the most beautiful and vibrant cities in the world. Its prominent location combines nature with urban life, making it an exciting conference and travel location. The Vancouver region has seen remarkable growth in recent years, with an explosion of new residential and commercial construction in the walkable Downtown core while preserving the city's varied past. Considerable rehabilitation and expansion to Vancouver's landmark bridges, transit structures and other civil infrastructure has also occurred in recent years.

This Symposium would not have been possible without the sustained effort and the hard work of many people. Obviously, the authors, the committee members, and the reviewers are essential to the success of the Symposium. In particular, we thank the dedication of the Scientific Committee for their efforts in handling of the papers and preparing an engaging technical program, and the members of the Local Organizing Committee for making the Symposium a memorable event.

On behalf of the Organizing Committee, we would like to cordially welcome you to the 39th IABSE Symposium with the theme, "Engineering the Future" which takes place in Vancouver, Canada, from September 19th to 23rd, 2017.

We hope that you enjoy the Symposium and find the technical program interesting and stimulating.



**Peter Taylor**  
Honorary Chair,  
Local Organization  
Committee



**Katrin Habel**  
Co-Chair,  
Local Organization  
Committee



**Adam Lubell**  
Co-chair  
Local Organization  
Committee



**Maria Anna Polak**  
Chair,  
Scientific  
Committee





## About IABSE

The International Association for Bridge and Structural Engineering (IABSE) is a scientific / technical association comprising members in 100 countries and counting 51 National Groups worldwide. Founded in 1929 it has its seat in Zurich, Switzerland. The President of IABSE (2016-2019) is Fernando Branco, Portugal.

IABSE deals with all aspects of structural engineering: the science and art of planning, design, construction, operation, monitoring and inspection, maintenance, rehabilitation and preservation, demolition and dismantling of structures, taking into consideration technical, economic, environmental, aesthetic and social aspects. The term 'Structures' includes bridges, buildings and all types of civil engineering structures, composed of any structural material.

The aim of the Association is to exchange knowledge and to advance the practice of structural engineering worldwide in the service of the profession and society.

IABSE has the following objectives:

- to promote cooperation and understanding among all those concerned with structural engineering and related fields by worldwide exchange of knowledge and experience
- to encourage awareness and responsibility of structural engineers towards the needs of society
- to encourage actions necessary for progress in structural engineering
- to improve and foster cooperation and understanding between organisations having similar objectives.

To fulfil its mission, IABSE organizes conferences, publishes a high quality journal, Structural Engineering International (SEI), publishes books reflecting the work of its Technical Groups, creates Working Groups as required by new needs and technological progress, offers activities within the National Groups of IABSE, supports engineers at the beginning of their careers with a Young Engineers programme, and presents annual Awards in recognition of outstanding contributions in the field of structural engineering.

For more information, contact:

### IABSE

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 Switzerland

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 Fax: +41-44-633 1241  
 E-mail: [secretariat@iabse.org](mailto:secretariat@iabse.org)  
 Web: [www.iabse.org](http://www.iabse.org)

## Supporting Organizations

### CO-ORGANIZER



**The Structural Engineers Association of British Columbia (SEABC)** is an association that promotes the interests of structural engineers in British Columbia. Activities of the SEABC include seminars and discussion on technical matters relating to structural engineering.

### CO-SPONSORS



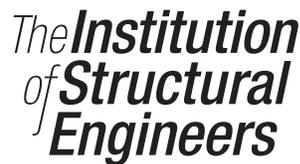
**The Canadian Society for Civil Engineering (CSCE)** is a learned society created to develop and maintain high standards of civil engineering practice in Canada and to enhance the public image of the civil engineering profession.



**The American Society of Civil Engineers (ASCE)** represents more than 150,000 members of the civil engineering profession in 177 countries. ASCE stands at the forefront of a profession that plans, designs, constructs, and operates society's economic and social engine – the built environment – while protecting and restoring the natural environment.



Established in 1996, **Structural Engineering Institute (SEI)** drives the practical application of cutting edge research by improving coordination and understanding between academia and practicing engineers.



**The Institution of Structural Engineers (IStructE)** is an internationally recognised source of expertise and information concerning all issues that involve structural engineering and public safety within the built environment. The core work of the Institution is supporting and protecting the profession of structural engineering by upholding professional standards and acting as an international voice on behalf of structural engineers.



**The Canadian Association for Earthquake Engineering (CAEE/ACGP)** is a national, non-profit, technical society whose membership is open to all interested engineers, geoscientists, architects, researchers, educators, designers, planners, economists, social scientists, public officials, government and building code officials.

# Committees

## SCIENTIFIC COMMITTEE

The scientific committee consists of members from diverse backgrounds and experience from all around the globe.

### Lead group of the Scientific Committee:

- Maria Anna Polak, Chair
- Evan Bentz, Vice-Chair
- Adam Lubell, Vice-Chair
- Scott Walbridge, Vice-Chair
- Colin van Niejenhuis, Secretary

## OTHER MEMBERS

- |                                   |                                     |                               |
|-----------------------------------|-------------------------------------|-------------------------------|
| Georgios Balomenos, USA           | Ulrike Kuhlmann, Germany            | Devis Sonda, Italy            |
| F. Michael Bartlett, Canada       | Eva Lantsoght, Ecuador              | Harshavardhan Subbarao, India |
| Malena Bastien-Masse, Switzerland | Roberto Leon, USA                   | Thomas Surtees, Canada        |
| Mikael W. Braestrup, Denmark      | Jose Antonio Lozano Galant, Spain   | Peter Taylor, Canada          |
| Bruno Briseghella, Italy          | Fernando Madrazo Aguirre, UK        | Philippe Van Bogaert, Belgium |
| Eugen Brühwiler, Switzerland      | Ana Mandić Ivanković, Croatia       | Tina Vejrum, Denmark          |
| Maria Grazia Bruschi, USA         | Andrew Martin, Denmark              | Marco Viviani, Switzerland    |
| Stathis Bousias, Greece           | Jose Campos e Matos, Portugal       | Thomas Vogel, Switzerland     |
| Paolo Calvi, USA                  | Philippe Menétrey, Switzerland      | Jan Wium, South Africa        |
| Laura Ceriolo, Italy              | Konstantinos Kris Mermigas, Canada  | Congzhen Xiao, China          |
| Eleni Chatzi, Switzerland         | Serge Montens, France               | Dong Xu, China                |
| Jae-Yael Cho, Korea               | John Newhook, Canada                | Yongxin Yang, China           |
| Dong-Ho Choi, Korea               | Kazuyoshi Nishijima, Japan          | Daia Zwicky, Switzerland      |
| John Duntemann, USA               | Markus Nöldgen, Germany             |                               |
| Jacob Egede Andersen, Denmark     | Alessandro Palermo, New Zealand     |                               |
| Lennart Elfgren, Sweden           | Ignacio Paya-Zaforteza, Spain       |                               |
| Michael Engelhardt, USA           | Giorgio Proestos, Canada            |                               |
| Paul Fast, Canada                 | Gianluca Ranzi, Australia           |                               |
| Ian Peter Thomas Firth, UK        | Robert Ratay, USA                   |                               |
| Markus Gabler, Germany            | Marion Rauch, Germany               |                               |
| Aikaterini Genikomsou, Canada     | José Romo Martin, Spain             |                               |
| Branko Glisic, USA                | David Ruggiero, Canada              |                               |
| David W. Goodyear, USA            | Fathy Saad, Egypt                   |                               |
| Katrin Habel, Canada              | Luis Oliveira Santos, Portugal      |                               |
| Bartłomiej Halaczek, UK           | Martina Schnellenbach-Held, Germany |                               |
| Stephen Hicks, New Zealand        | Mauro Schulz, Brazil                |                               |
| Niels Peter Høj, Switzerland      | Ann Schumacher, Switzerland         |                               |
| Johan Jonsson, Sweden             | Ikuhide Shibata, Japan              |                               |
| Igor Kavrov, Germany              | Tomasz Siwowski, Poland             |                               |
| Hyon-Moo Koh, Korea               | H. H. (Bert) Snijder, Netherlands   |                               |
| Johann Kolleger, Austria          | Juan Sobrino, Spain                 |                               |





## Organizing Committee

The local Organizing Committee is led by the following people:

- Peter Taylor, West Vancouver, BC (Honorary Chair)
- Katrin Habel, Associated Engineering, Vancouver, BC (Co-chair)
- Adam Lubell, Read Jones Christoffersen, Vancouver, BC (Co-chair)
- David Ellis, McElhanney Consulting Services, Victoria, BC (Sponsorship and Exhibition)
- Lucas Epp, StructureCraft Builders, Delta, BC (Social Program)
- Bernhard Gafner, ACC Structural Engineers, Vancouver, BC (Young Engineers Program)
- David Harvey, Associated Engineering, Vancouver, BC (Supporting Organizations and SEABC Liaison)
- Adrian Gygax, Gygax Engineering Associates, Vancouver, BC (Canadian Group of IABSE Liaison & Workshops)
- Andrew Seeton, Glotman Simpson Consulting Engineers, Vancouver, BC (Technical Tours)
- Thomas Surtees, COWI, North Vancouver, BC (Treasurer)
- Jeff Yathon, University of British Columbia, Vancouver, BC (Secretary and Communications)
- Prerna Sohal, Ministry of Transportation and Infrastructure, Coquitlam, BC (Publicity)

## Scientific Program

Taking responsibility for the future means that our built environment must exhibit good performance with adequate safety over a long service life. This requires us to understand innovative technologies that are being used in structures today, and those that will see increased use in the years ahead. It also means that we must learn from the past, understand issues surrounding existing structures, and facilitate rational approaches to the assessment, rehabilitation, strengthening or repurposing of our existing infrastructure. We must continually explore and adopt new rational design and analysis methodologies, including performance-based design concepts that have gained prominence in recent years to deal with conventional and extreme actions alike. The Symposium will explore these areas for all structure types, including buildings, bridges, civil infrastructure and other essential structures. Come to Vancouver, and experience first-hand the latest information from leading structural engineers that will shape the future built environment.

The Symposium topics that will be addressed under the overall symposium theme include:

### 1. INNOVATIONS IN STRUCTURES

- New methods of design
- Analysis and modeling techniques
- High-performance materials
- Novel structural systems
- Hybrid and composite construction
- Innovative construction methods
- Modular and pre-fabricated construction
- Accelerated bridge construction
- Information Technology
- Aesthetics in structural design
- Alternate project delivery models
- Other breakthrough technologies
- Case studies



## 2. EXISTING STRUCTURES INTO THE FUTURE

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- Evaluation and assessment techniques
- Codes of practice for existing structures
- Structural health monitoring
- Extending the service life of existing structures
- Enhancing the durability of structures
- Climate change adaptation
- Sustainability
- Reducing seismic risks
- Strengthening and repurposing of structures
- Historical structures
- Learning from eminent engineers
- Case studies

## 3. PERFORMANCE BASED DESIGN

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- Establishing design criteria
- Reliability and risk in structural design
- Relationship of PBD to traditional codes
- Serviceability of structures
- Design for durability
- Beyond the 100 year design life
- Dampers, isolators and structural control systems
- Natural and man-made hazards
- Taller, longer and lighter structures
- Aerodynamics of bridge decks
- Wind effects on tall buildings
- Advances in seismic design
- Design for soil-structure interaction
- Building resilient infrastructure
- Case Studies

## Important Dates

Important dates for the 2017 Symposium are:

May 15, 2017	Registration deadline for all presenting authors
May 31, 2017	Deadline for Early Bird registration
May 31, 2017	Deadline for submission of final camera-ready papers
September 18-20, 2017	Workshops
September 19-20, 2017	IABSE Annual Meetings
September 21-23, 2017	Symposium
September 21, 2017	Symposium Report available in electronic form
September 23-25, 2017	Technical Tours and Visits



## Preliminary Schedule & Event Information

All items subject to change.

√ = Separate Fee required for all attendees

‡ = Included with Accompanying Persons registration. Accompanying Persons may also purchase access to any of the Separate Fee Required events (√).



### Monday September 18, 2017

13:30 - 18:00 √ Seismic Engineering Workshop (Part 1 of 2)

### Tuesday September 19, 2017

07:30 - 17:00 IABSE - Annual Meetings Registration Desk

08:00 - 18:30 IABSE Annual Meetings

08:00 - 17:30 √ Seismic Engineering Workshop (Part 2 of 2)

19:30 - 21:00 Reception of the President of IABSE

### Wednesday September 20, 2017

07:30 - 17:00 IABSE - Annual Meetings Registration Desk

08:00 - 18:00 IABSE Annual Meetings

08:00 - 17:30 √ Timber Engineering Workshop

08:00 - 14:00 √ Cold Regions Engineering Workshop

08:00 - 17:30 √ Forensics Engineering Workshop

08:00 - 17:30 √ Workshop for Young Engineers

13:00 - 20:00 Symposium Registration Desk

18:00 - 20:00 ‡ Icebreaker Reception, hosted by SEABC and Canadian Group of IABSE

### Thursday September 21, 2017

07:30 - 18:00 Symposium Registration Desk

08:00 - 18:00 Exhibition Hall

08:30 - 10:00 ‡ Opening Session & Keynote Presentation

10:00 - 17:00 Parallel Sessions & Poster Sessions

17:15 - 18:15 Pecha Kucha Session; IABSE Awards Ceremony

18:30 - 23:30 ‡ Networking Social (Program until 21:00)

### Friday September 22, 2017

7:30 - 18:00 Symposium Registration Desk

08:00 - 18:00 Exhibition Hall

08:30 - 10:00 Keynote Presentations

10:00 - 17:00 Parallel Sessions & Poster Sessions

18:30 - 22:00 √ Gala Dinner

22:00 - 01:00 ‡ After Party

### Saturday September 23, 2017

07:30 - 15:00 Symposium Registration Desk

08:00 - 15:00 Exhibition Hall

08:30 - 15:00 Parallel Sessions & Poster Sessions

15:00 - 17:00 ‡ Keynote Presentation & Closing Ceremony

17:30 - 21:00 √ Tour 1: Bridges of Vancouver Harbour - Dinner Cruise

### Sunday September 24, 2017

07:00 - 15:30 √ Tour 2: Bridges on the Fraser River - Paddle-wheeler Boat Tour

08:30 - 19:30 √ Tour 3: Whistler Sea to Sky Adventure Tour (Day 1 of 2)

### Monday September 25, 2017

08:30 - 17:30 √ Tour 3: Whistler Sea to Sky Adventure Tour (Day 2 of 2)

## Plenary Lectures

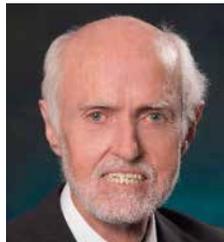
Invited Keynote Speakers will present lectures on key symposium topics. Confirmed speakers as of May 1, 2017 are listed below.



### SEISMIC ASSESSMENT AND RATIONAL RENOVATION OF THE STRUCTURAL HERITAGE

**Dr. Gian Michele Calvi**

Professor of Structural Design, Istituto Universitario di Studi Superiori (IUSS) di Pavia, Italy  
President, EUCENTRE – European Centre for Training and Research in Earthquake Engineering, Pavia, Italy



### DEVELOPMENTS IN THE WIND ENGINEERING OF TALL BUILDINGS

**Dr. Peter Irwin**

Founding Partner and Principal, RWDI, Guelph, Ontario, Canada.  
Professor of Practice at Florida International University, Miami, USA.



### CHALLENGE AND INNOVATION OF LONG SPAN BRIDGES IN CHINA AND OVER THE WORLD

**Dr. Yaojun Ge**

Professor, Tongji University  
Shanghai, China.



### MEASURING, MONITORING AND EVALUATING COMMUNITY RESILIENCE USING REMOTE SENSING TECHNOLOGIES

**Dr. Ronald Eguchi**

CEO, ImageCat Inc.  
Long Beach, California, USA.



## Young Engineers Program

All participants born after January 1, 1983 will benefit from a reduction in their registration fee by selecting the Young Engineers registration option.

In addition, any principal author registered as a Young Engineer, who personally presents his or her own paper at the Symposium, will be considered for additional recognition. An independent jury will select two contributions from young authors – oral or poster – and each will receive a prize. The prizes will be presented at the Closing Session of the Symposium.

A workshop on Bridge Dynamics is planned for Young Engineers on September 20, 2017. An evening Networking Social with additional incentives for participation by Young Engineers is planned for September 21, 2017.



## Symposium Report & Abstract Book

All accepted abstracts and papers will be published in the Symposium Report. The Report will be available in electronic format at the beginning of the Symposium.

A printed book containing 1-page abstracts of each paper will also be available for purchase at a fee. Only a limited number of Abstract Books will be available for purchase on-site. To guarantee your copy, pre-ordering with your registration is recommended.

Publication of each paper is conditional upon the presenting author registering to attend the Symposium according to the listed schedule.

## Registration

Registration is provided in several categories based on membership status and time of registration.

### Registration Fee

	EARLY BIRD (until May 31, 2017)	REGULAR (until Sept. 8, 2017)	AT THE DOOR
IABSE MEMBER	\$990	\$1090	\$1190
SUPPORTING ORGANIZATION MEMBER ASCE/CAEE/CSCE/IStructE/SEABC	\$1090	\$1190	\$1290
YOUNG ENGINEER Born January 1, 1983 or later	\$600	\$650	\$700
NON MEMBER	\$1190	\$1290	\$1390
CORPORATE PASS Transferable, One Attendee	\$1290	\$1390	\$1490
ONE DAY PASS	\$625	\$650	\$675
ACCOMPANYING PERSON	\$150	\$150	\$200

*All registration fees are in CAD and are subject to prevailing government taxes at the time of the transaction, including a Goods and Services Tax (GST) of 5%. Cancellation requests received in writing prior to Sept. 1, 2017 are subject to a \$200 processing fee.*

## How to Register

Participants can register via the IABSE website, [www.iabse.org/Vancouver2017](http://www.iabse.org/Vancouver2017). Registration fees and optional tour fees must be paid to the Symposium Secretariat in advance. All fees must be paid in Canadian dollars (CAD), and will be subject to prevailing local taxes at the time of the transaction.

Presenting authors must be registered by May 15, 2017 or their paper will be removed from the proceedings and their assigned presentation will be canceled. Reinstatement upon late registration will be subject to availability of suitable opportunities in the conference schedule.

Fees can be paid on-line via the registration form. Accepted cards are Visa and MasterCard.

## Details and Inclusions in Various Categories

### Full Delegate Registration

Applies to Categories: IABSE Member, Supporting Organization Member, and Non-Member

Select the appropriate Category based on your membership status. Your membership number and other credentials will be requested as part of the registration process.

Presenting authors born prior to January 1, 1983 must select a Full Delegate Registration category.

Each Full Delegate Registration package includes:

- Entrance for pass holder to all technical sessions including keynotes and parallel sessions.
- Admittance for pass holder to exhibit hall.
- 1 copy of the Symposium proceedings and abstract collection on USB stick; printed abstract book available for advance purchase at extra cost.
- Daily coffee breaks and lunch (Thursday, Friday and Saturday) for pass holder.
- Admittance for pass holder to Social Events: Icebreaker Reception, Networking Social, and After-Party following the Gala Dinner.
- Discounted admission to many Vancouver attractions when you “show your pass”.
- Access to register for Gala Dinner, Technical Tours and Pre-Conference Workshops at extra cost.

### Young Engineer Registration

Applies to: participants born after January 1, 1983.

Presenting authors born after Jan 1, 1983 should select the Young Engineer category.

Government-issued photo ID may be requested when you pick up your registration package.

Each Young Engineer Registration package includes:

- Entrance for pass holder to all technical sessions including keynotes and parallel sessions.
- Admittance for pass holder to exhibit hall.
- 1 copy of the Symposium proceedings and abstract collection on USB stick; printed abstract book available for advance purchase at extra cost.
- Daily coffee breaks and lunch (Thursday, Friday and Saturday) for pass holder.
- Admittance for pass holder to Social Events: Icebreaker Reception, Networking Social with complimentary drink tickets, and After-Party following the Gala Dinner.
- Discounted admission to many Vancouver attractions when you “show your pass”.
- Access to register for Gala Dinner, Technical Tours and Pre-Conference Workshops at extra cost.

### Corporate Pass

The Corporate Pass is registered under a corporate name and is Transferable for use by one employee of the company at a given time. One pass provided. No replacements for lost passes.

Note that the Corporate Pass cannot be used by presenting authors. Presenting authors must select a Full Delegate Registration category or a Young Engineers Registration as described above.

The Corporate Pass holder will receive:

- Entrance for pass holder to all technical sessions including keynotes and parallel sessions.
- Admittance for pass holder to exhibit hall.
- 1 copy of the Symposium proceedings and abstract collection on USB stick; printed abstract book available for advance purchase at extra cost.

- Daily coffee breaks and lunch (Thursday, Friday and Saturday) for pass holder.
- Admittance for pass holder to Social Events: Icebreaker Reception, Networking Social, and After-Party following the Gala Dinner.
- Discounted admission to many Vancouver attractions when you “show your pass”.

## One Day Pass

The One Day Pass is made available for those only attending a portion of the Symposium.

Day of pass specified at time of purchase (Thursday, Friday and Saturday available). No changes after issue. Non-transferable.

Note that the One Day Pass cannot be used by presenting authors. Presenting authors must select a Full Delegate Registration category or a Young Engineers Registration as described above.

The One Day Pass holder will receive on the day selected only:

- Entrance for pass holder to all technical sessions including keynotes and parallel sessions.
- Admittance for pass holder to exhibit hall.
- 1 copy of the Symposium proceedings and abstract collection on USB stick; printed abstract book available for advance purchase at extra cost.
- Coffee breaks and lunch for pass holder.
- Admittance for pass holder to Social Events that occur on the valid day of the pass: Icebreaker Reception, Networking Social, or After-Party following the Gala Dinner.
- Discounted admission to many Vancouver attractions when you “show your pass”.

## Accompanying Person

An Accompanying Person registration is for those joining a Delegate to attend social events, technical tours and Opening and Closing Ceremonies as well as special events organized for Accompanying Persons.

It does not provide access to the Exhibit Hall or regular technical sessions.

The Accompanying Person pass holder will receive:

- Designated meeting point with local volunteers and guides to help you plan excursions.
- Daily morning coffee break (Thursday, Friday and Saturday) for pass holder in designated reception area.
- Discounted admission to many Vancouver attractions when you “show your pass”.
- Admittance for pass holder to Opening and Closing ceremonies.
- Admittance for pass holder to Social Events: Icebreaker Reception, Networking Social, After-Party following the Gala Dinner.
- Access to register for Gala Dinner at preferential rate.
- Access to register for Technical Tours at extra cost.





## THE WESTIN BAYSHORE

1601 Bayshore Drive  
Vancouver, BC, Canada V6G 2V4  
+1-604-682-3377



## The Conference Venue

Most Symposium activities will occur at the Westin Bayshore Hotel & Conference Center and in the immediate vicinity. The Westin Bayshore is a modern, four-star hotel with 511 rooms and suites on Vancouver's spectacular waterfront, featuring a scenic north-shore mountain vista.

## Accommodation

An attractive room rate has been arranged for conference delegates at the Westin Bayshore Hotel, including the days before and after the Symposium for those wishing to extend their stay. The conference rate is based on availability. As September is a busy travel period in Vancouver, it is recommended to book your accommodation early.

Visit the Symposium website for additional information and a link to book your discounted room at the Westin.

## General Information

### About Canada

Canada is the world's second-largest country by area (9,976,140 km<sup>2</sup>), surpassed only by the Russian Federation. The country is surrounded by the world's longest coastline. More than 50 percent of Canada's land is blanketed with rich forest ranges, accounting for 10 percent of the world's remaining forests and 20 percent of the world's remaining wilderness areas. Canada is made up of ten provinces and three territories.

For nine consecutive years (1994-2002), a United Nations survey found Canada to be among the top three places in the world to live. Conducted every year, the survey evaluates quality of life in 174 countries, using over 200 performance indicators. Canada earned particularly high marks for its access to education, high life expectancy (due to universal health care system), and low crime rates. Canada continues to remain in the top five on the list. In addition, Canada's largest cities – Vancouver, Toronto and Montreal – have been recognized as world-class cities in which to live and work, for their cleanliness and safety and for their cultural activities and attractive lifestyles.

### About Vancouver

Vancouver is one of the most beautiful and multicultural cities of the world. Surrounded by the Pacific Ocean with rising mountains to the north, Vancouver has all amenities of a major city including cultural and sporting events, and world-class shopping and dining.

Vancouver began as a cluster of log cabins amongst the tall trees. After the railway connected BC's ports to the rest of Canada in the 1880's, Vancouver grew as an important gateway to the Orient and the world beyond. Today, Vancouver's harbours have 25 specialized terminals for goods like cars, coal, forest products, minerals and petroleum. Technology and knowledge-based industries continue to expand at a rapid pace.



Nature is never far away, reinforced by Vancouver's drive to become the world's Greenest City by 2020. Groomed parks give way to lush wilderness, and city sidewalks become sandy beaches, beckoning you to partake in a barefoot stroll. Even in the heart of the city, nature is around the corner. An array of outdoor activities with easy access from the Symposium venue awaits visitors, including jogging along the nearby seawall, boating in the bays and inner harbours, taking a gondola ride or hiking in the north-shore mountains, golfing, or cycling through world famous Stanley Park at the doorstep of the hotel. Farther afield, the Sea-to-Sky Highway shows off the spectacular Howe Sound scenery on the way to the resort of Whistler, BC, site of the alpine events at the 2010 Winter Olympic Games. Other nearby destinations for adventure include the Okanagan wine country in British Columbia's interior, ferry or sea-plane trips to Victoria or the Gulf Islands to the west, or an Alaskan cruise departing from the Vancouver waterfront terminal.



## Official Language

The official Symposium Language is English.

A multitude of languages are used by Canadians, with English and French (the official languages) being the mother tongues of approximately 60% and 20% of Canadians respectively.

Vancouver is very cosmopolitan and is a mix of many multicultural groups. Because the city is so multicultural, it's also multilingual on an unofficial level. Its people speak many different languages and many follow the traditions of their native lands, sometimes moderating them with Canadian culture.

After English and Chinese, the most common mother tongue languages spoken are Punjabi, German, Italian, French, Tagalog (Filipino) and Spanish. More than half of Vancouver's school-age children have been raised speaking a language other than English.



## Weather

*"In winter, the heart of downtown [Vancouver] is 30 minutes from the ski slopes. In summer, sun seekers crowd its beaches and seaside promenades. And despite a rain-prone climate, it displays a perpetually sunny disposition. Consider it the supermodel of North American cities."*

- USA Today

Warmed by Pacific Ocean currents and protected by a range of mountains, Vancouver's weather is mild year-round. From the low 20's Celsius in summer to a mild 0° to 5° Celsius in winter, the climate is always hospitable. September usually has nice sunny weather with temperatures in the 15° to 20° Celsius range.

## Food

Vancouver is renowned for its incredible food. In 2014, Condé Nast Traveler Readers' Choice Awards named Vancouver one of the Top 15 Cities for Food in the World; in 2016, The Culture Trip did the same. Ranging from fresh seafood, Sushi, aromatic Indian, Chinese, Mexican or Thai cuisine accompanied by exquisite BC wines - Vancouver has everything to tantalize your taste buds.

## Foreign Exchange

The local currency is the Canadian dollar (CAD).

The Canadian dollar is made up of 100 Canadian cents. Coins are in denominations of 5 cents (nickel), 10 cents (dime), 25 cents (quarter), \$1 (loonie), and \$2 (toonie). Notes are in denominations \$5, \$10, \$20, \$50, \$100 and \$1,000.

Major credit cards (e.g. VISA, MasterCard) are widely accepted for payments for taxis, hotels, restaurants, etc. Electronic bank machines to withdraw Canadian funds are easy to find. Visitors can also exchange most major currencies at Canadian banks or at offices of foreign exchange brokers.

## Travel

YVR is consistently ranked as one of the top airports in North America and offers direct routes to major centres in Europe, Asia and the Americas, with easy onward connections.

**To and From the Airport:** The Vancouver International Airport (YVR) allows for easy access to Downtown and the Symposium venue in 20 minutes.

**Inside Vancouver:** Vancouver is known for being a very walkable city with a compact downtown core, and many of the attractions are just a short walk from your hotel.

The city boasts an accessible and convenient public transit system, offering a great way for visitors to see the city. Most of the city's top attractions are reachable via transit. Translink is Metro Vancouver's regional transportation authority, and operates a public transit system made up of a network of buses, the SkyTrain, and the SeaBus, as well as the West Coast Express commuter train service.

Taxis (including accessible wheelchair taxis) are plentiful and can be hailed on the street, as well as found at designated stands, and called for pick-up. If you prefer to drive yourself, you will find that most major car rental companies have offices in Vancouver or at the airport. Parking is available at most hotels and attractions.

The City of Vancouver also encourages active transportation, and has designated over 400 km of on-street and separated bicycle routes. Some complimentary bicycles are available to Westin hotel guests through the BikeWestin program. Several stores offering bicycle rentals and a dock for the Mobi bike share system are also located near the Westin, perfect for a ride around the seawall at nearby Stanley Park.

## Time Zones

Vancouver is located in the Pacific Time Zone and observes Daylight Savings Time from the second Sunday in March until the first Sunday in November.

## Visas

International delegates are encouraged to review the specific requirements for visas and other requirements to enter Canada at [www.cic.gc.ca/english/visit/index.asp](http://www.cic.gc.ca/english/visit/index.asp)

Visa processing time can vary based on your origin country. The Symposium recommends that you submit your visa application as early as possible. Delegates from some countries may require a Letter of Invitation when applying for a visa. If you require a Letter of Invitation, please refer to the Symposium website for additional information.



## Technical Visits and Tours

Half-day, full-day and multi-day technical visits to interesting engineering projects in the vicinity of Vancouver are planned. All technical visits will be guided by local engineers. Visits will also be open to Accompanying Persons.

All tour times are preliminary and subject to change. Times are based on departure and return to the Westin Bayshore Hotel & Conference Center. Final return times are approximate. Please book your onward travel with appropriate allowance for unforeseen delays. All tour prices mentioned below are in Canadian dollars (CAD) and subject to prevailing local taxes, including a Goods and Services Tax of 5%.

While we expect all tours to operate, the Organizing Committee reserves the right to cancel any tour with an insufficient number of registered attendees by August 1, 2017. In the event of tour cancellation, the full tour price including applicable taxes will be refunded to all registered participants; no reimbursement will be made for other participant costs or change fees as a result of cancelled tours including airline ticket change fees or accommodation changes.

### Tour 1 Bridges of Vancouver Harbour: Dinner Cruise

SATURDAY SEPTEMBER 23 | 17:30-21:00 | \$150+GST



Following the Closing Ceremonies, an evening of dining, sight-seeing and engineering celebration awaits aboard a specially chartered luxury yacht! Socialize with your fellow Symposium delegates on the open air deck as we cruise around the magnificent Vancouver Harbour, enjoying views of the downtown urban skyline, the North Shore Mountains, and the gateway to the Pacific Ocean. We will be visiting and learning about some of Vancouver's important bridges. Within the Burrard Inlet, we will see the Ironworker's Memorial Crossing at the Second Narrows, and the Lion's Gate Suspension Bridge at the First Narrows. After sailing around scenic Stanley Park, we travel to False Creek to see the art deco Burrard Bridge, Granville Street truss bridge and the Granville Island Market, as well as the Cambie Street concrete bridge. There will be plenty of noteworthy building structures on display along the shoreline as well! Tour guests will enjoy a delicious meal complimented by lively story-telling and stunning scenery.

Tour includes:

- 3 hour evening harbour cruise departing from and returning to the Westin Bayshore
- Dinner meal including 2 alcoholic beverages
- Cash bar available

## Tour 2 Bridges of the Fraser River: Paddle-Wheeler Boat Tour

SUNDAY, SEPTEMBER 24 | 07:00-15:30 | \$100+GST



Our group will walk to the nearby Burrard transit station and then travel by the fully automated SkyTrain rapid transit line to the Quay in nearby New Westminister. There we will board the M.V. Native, an authentic 100-passenger paddle-wheeler, for a boating adventure on the mighty Fraser, British Columbia's longest river! We will cruise by the following bridges:

- Alex Fraser (1986, Cable-Stayed)
- Pattullo (1937, Steel Trussed Through-Arch)
- SkyTrain SkyBridge (1990, Cable-Stayed)
- Port Mann (2012, Cable-Stayed)
- Golden Ears (2009, Extradosed)



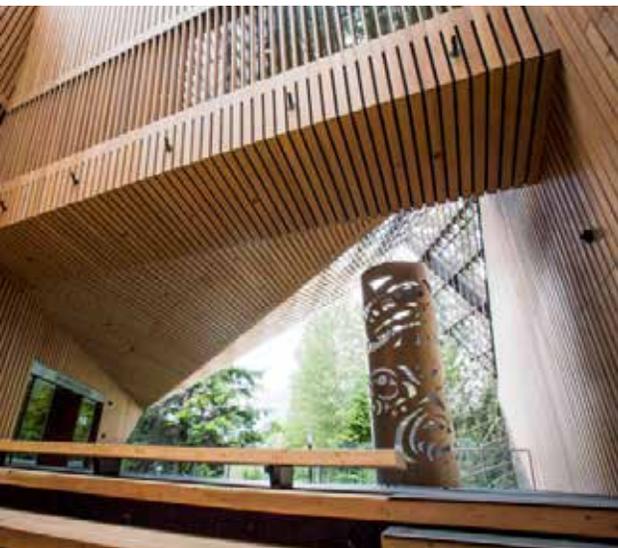
Engineers involved in the design of the modern bridges on our tour will be on hand to provide technical background and share anecdotes from the design and construction challenges that were encountered. We will be further entertained with live narration of facts and fiction about the Fraser and its history, and will encounter all the activity of a busy working river as well as the ever-present sights and sounds of marine wildlife such as seals, ospreys, great blue heron, eagles, salmon and sturgeon. The lush Coast Mountain Range provides a breathtaking backdrop to our day on the water.

Tour includes:

- Return transportation ticket to/from the docks at New Westminister Quay via SkyTrain rapid transit
- 5-hour guided boat tour including buffet lunch
- Cash bar available

## Tour 3 Whistler Sea-to-Sky Adventure Tour

SUNDAY SEPTEMBER 24, 08:30 - MONDAY, SEPTEMBER 25, 17:30  
SINGLE OCCUPANCY: \$475+GST, DOUBLE OCCUPANCY: \$800+GST



Tour includes Standard Accommodation at Crystal Lodge in Whistler, BC on Sunday, September 24, 2017.

A two-day tour to explore recent engineering projects and the incredible scenery along the Sea-to-Sky Highway on route to Whistler, host city of the 2010 Olympic Alpine activities. The group will be accompanied by local designers to share their insight on these structures. Planned stops and activities include:

- Sea-to-Sky Highway roadway, bridge, and retaining structures along one of the world's most scenic drives
- Sea-to-Sky Gondola ride: near the town of Squamish, offering spectacular views of Howe Sound and surrounding coastal forests and mountain ranges

- Whistler Peak-to-Peak Gondola ride: the world’s longest unsupported gondola span stretching 3 km between the peaks of Blackcomb and Whistler Mountains, travelling 436m above the forested glacial valley below.
- Group BBQ dinner on Sunday night on the patio of the Roundhouse Lodge, located at 1800m (6000 ft) elevation, near the top of Whistler Mountain. (Weather permitting).
- Free time to explore the shops, restaurants, and nightlife of Whistler Village, at the base of Whistler and Blackcomb mountains.
- Fitzsimmons Creek Debris Barrier: Protecting Whistler Village from the full force of a debris flood, this large-scale barrier is designed to retain 34,000 m<sup>3</sup> of debris and the impact from 2.8 tonne boulders and 1 m diameter tree stumps travelling at 5 m/s.
- Audain Art Museum in Whistler: an architecturally stunning structure spanning across Fitzsimmons Creek, the museum houses notable art of British Columbia, from the traditional works of the province’s First Peoples through to its contemporary masters.
- Olympic Ski Jump, at the Whistler Olympic Park in the Callaghan Valley.

The tour price includes return chartered bus transportation from the Westin Bayshore Hotel & Conference Center, admission fees to the listed attractions, and private hotel accommodation (single or double occupancy; 1 king bed) at the 3.5-star Crystal Lodge in the heart of Whistler Village on Sunday September 24, 2017. With the exception of the Sunday night group BBQ dinner, guests will be responsible for their own food costs.

**Note:** The return time to the Westin Hotel on Monday, September 25, 2017 is approximate, and could be subject to traffic or other delays. It is recommended that participants book accommodation in Vancouver for Monday, September 25, with onward travel occurring the following day.



## Workshops

Several pre-conference workshops are planned to occur in the days prior to the Symposium. All workshops will be held at the Westin Bayshore Hotel & Conference Center. See the Symposium website for detailed course descriptions and information on the instructors.

### 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, September 18, 13:30-18:00, and Tuesday, September 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:** Dr. J. Natterer (Polyscope, Switzerland), Prof. M. Flach (Univ. Innsbruck, Austria) & Paul Fast (Fast + Epp, Canada)

**Schedule:** Wednesday, September 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, September 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 aims 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 IN A HARSH ENVIRONMENT

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

**Schedule:** Wednesday, September 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, September 20, 08:00-17:30

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.





## Workshop Fees

	Regular (until Sept 1, 2017)		Late (after Sept 1, 2017)	
	Symposium Attendee	Full time Student*	Symposium Attendee	Full time Student*
W1: Seismic Engineering (Monday afternoon and Tuesday, Sept. 18 & 19, 2017)	\$600	\$400	\$700	\$500
W2: Timber Engineering (Wednesday, Sept. 20, 2017)	\$400	\$300	\$500	\$400
W3: Forensic Engineering (Wednesday, Sept. 20, 2017)	\$400	\$300	\$500	\$400
W4: Cold Regions Engineering (Wednesday morning, Sept. 20, 2017)	\$300	\$225	\$350	\$275
W5: Young Engineers Workshop- Bridge Dynamics (Wednesday, Sept. 20, 2017)	\$250	\$250	\$300	\$300

All registration fees are in CAD and subject to prevailing government taxes at the time of the transaction, including a Goods and Services Tax (GST) of 5%. \* Valid Student ID required

The 2017 IABSE Organizing Committee and SEABC reserve the right to cancel any workshop if insufficient number of pre-registered participants at August 1, 2017. In the event of workshop cancellation, the full workshop price including applicable taxes will be refunded to all registered participants; no reimbursements will be made for other participant costs or change fees as a result of cancelled tours, including airline ticket change fees or accommodation charges.

Workshop fees include coffee breaks and lunch, and all handouts and notes. See the Symposium website for additional information.

## Social Program

A social program has been organized for all participants and Accompanying Persons:

### Icebreaker Reception

WEDNESDAY, SEPT. 20, 18:00-20:00

INCLUDED WITH DELEGATE & ACCOMPANYING PERSONS REGISTRATION

To welcome all the Delegates and give them a chance to mingle in a social setting, the Canadian Group of IABSE and the Structural Engineers Association of BC (SEABC) will host an Icebreaker Reception.

Come and join old acquaintances and meet new contacts while you enjoy canapes and beverages.

All Delegate Registration, Young Engineer and Accompanying Person Registration packages include two drink tickets. A cash bar will also be available.



### Networking Social

THURSDAY, SEPT. 21, 18:30-23:30 (PROGRAM UNTIL 21:00)

INCLUDED WITH DELEGATE AND ACCOMPANYING PERSONS REGISTRATION

Meeting and interacting with one's peers is vital for sharing knowledge, exchanging ideas and discovering new opportunities; especially for students and young Engineers. The Organizing Committee invites all participants, both young and old, to join us for a networking social in a casual setting.

Canapes provided. Meals also available for purchase. Cash bar available. All Young Engineer Delegates will receive some complimentary drinks.



## Symposium Gala Dinner & After Party

FRIDAY, SEPT. 22 | GALA DINNER 18:30-22:00 | AFTER PARTY 22:00- 01:00

Gala Dinner tickets –\$175 advance purchase for Delegates and Accompanying Persons, \$ 200 after Sept 8, 2017. Extra tickets for Guests, \$ 200 advance purchase, \$ 225 after Sept 8, 2017. Purchase your Gala Dinner tickets with your Symposium registration through the website. The price of the tickets are in CAD and are subject to prevailing local taxes, including a Goods and Services Tax of 5%.

Complimentary access to the After-Party with your Symposium Pass or Guest Ticket.

This will be the networking and entertainment highlight of the conference. Come and enjoy panoramic views of the North Shore Mountains and Burrard Inlet while we enjoy a unique evening filled with live music and fine cuisine.

## Social Hub/ Information Centre

Vancouver is consistently rated as a top tourist destination, with exciting cultural, sporting and recreational activities for all ages in close proximity to the Symposium venue. A social hub will be organized at the Westin Bayshore for Accompanying Persons, and information will be provided on accessing the numerous regional activities by local commercial tour operators.

## IABSE Annual Meetings

September 19 (Tuesday)		September 20 (Wednesday)		
08:00 - 11:00	Administrative Committee	08:00 - 12:00	Executive Committee	
	Working Commission 1 to 13*		E-Learning Board	
	SEI Editorial Board		OStrA Committee	
11:00 - 13:00	SC Nantes 2018		SC Vancouver 2017	
	Working Groups 5, 10, 11*		SC Kuala Lumpur 2018	
11:00 - 14:00	SEI Correspondents		SC Guimarães 2019	
	IABSE Strategy		SC New York 2019	
	Technical Committee		YEP Board*	
14:00 - 18:30	Chairs National Groups		08:00 - 17:00	Working Group 7*
	Foundation Council		12:00 - 13:30	Lunch of the President of IABSE
17:00 - 18:30	Bulletin Editorial Board (1)	14:00 - 17:00	Permanent Committee	
19:30 - 21:00	Reception of the President of IABSE	17:00 - 18:00	Bulletin Editorial Board (2)	
		18:00 - 20:00	Icebreaker Reception, hosted by Canadian Group of IABSE and SEABC	

*Note: Schedule shown as of May 1, 2017. All information subject to change - refer to IABSE website for latest Annual Meeting Information.*

*\*Guests are welcome with approval from the Chair of the group.*



# Exhibition

A commercial exhibition is planned at the Symposium venue. This offers a unique opportunity for companies to display their projects, products and services. Confirmed exhibitors as of May 1, 2017 include those below.

1	21	34
2	22	35
3	23	36
4 + 5	24	37
6	25	39
7	26	38
8	27	40
9	28	41
10	29	42
11	30	43
12	31	44
13	32	45
14	33	
15		
16		
17		
18		
19		
20		

**Exhibition Floor Plan**

An exhibitor's booth number is shown next to their logo.

## Symposium Sponsors (as of May 1, 2017)

### DIAMOND



### PLATINUM



### GOLD



### SILVER



### BRONZE



### LANYARDS



### USB STICKS W. PROCEEDINGS



### CONFERENCE BAG



### UMBRELLA

Opportunity still available.

### GALA DINNER



### OPENING RECEPTION



### YOUNG ENGINEER'S NETWORKING EVENT



### TECHNICAL TOURS



### LUNCHES

Opportunities still available.

### COFFEE BREAKS



For more information on sponsorship opportunities, contact the 39th Symposium Secretariat: Mr. David Ellis, P.Eng., Sponsorship and Exhibition Chair c/o McElhanney Consulting Services Ltd. Tel: (778) 746-7426 | sponsorship@iabse2017.org

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