

PRE-CONFERENCE WORKSHOP

# Forensic Engineering: Structural Failures – Cases, Causes, Lessons Learned

**DATE** WED., SEPT. 20, 2017 • 8:00AM - 5:30PM

**VENUE** THE WESTIN BAYSHORE,  
1601 BAYSHORE DRIVE, VANCOUVER, BC



*Failure of box girder during construction. Photo: Robert Ratay*

**WORKSHOP DESCRIPTION**

Failures of structures occur in all parts of the world as the result of design errors, construction defects, abuse or misuse, lack of maintenance, aging and deterioration, as well as environmental effects such as wind, flood, snow and earthquakes. They can result in heavy financial losses as well as in catastrophic human costs.

“Welcome” effects of these unfortunate events are better understanding of the origin and causes of structural failures, and more effective mitigation of their occurrence.

In several countries the investigation of the causes of failures, responsibilities, and resolution of the consequent claims have created an active, professionally demanding, and financially lucrative field of professional practice – often referred to as Forensic Structural Engineering – with well-defined technical and legal procedures.

IABSE Working Group 8 on Forensic Structural Engineering was formed in 2011. It aims to examine failures, improve the professional practice of forensic structural engineering,

facilitate the dissemination of failure information, and ultimately to enhance the mitigation of failures by improved structural design and construction practices throughout the world.

Following the demonstrated interest in the forensic structural engineering sessions at the last three IABSE conferences, and the success of the pre-conference courses in Geneva 2015 and Stockholm 2016, it was decided to offer yet a third appropriate course at the 39th IABSE Symposium, Vancouver 2017. In Vancouver, the course will emphasize:

- What are structural failures; their origins, causes and opportunities to catch them?
- Cases, causes and lessons learned from failures in buildings, bridges, other permanent structures, and temporary structures in construction.
- Changes in codes & practices following failures.
- Engineers’ liability; standard of care.

**REGISTRATION FEES**

This course is being offered by the SEABC and enrolment is also offered to participants of the 2017 IABSE Symposium at preferred rates:

	<b>Advance On-Line Registration (by Sept. 1, 2017)</b>	<b>Late Price / In-Person (after Sept. 1, 2017)</b>
<b>2017 IABSE Symposium Delegate or SEABC Member</b>	\$ 400	\$ 500
<b>Student*</b>	\$ 300	\$ 400

\* Full-time student with valid photo ID from their educational institution.

The registration fee includes:

- Printed course notes and handouts during workshop
- Morning and afternoon coffee breaks on day of workshop
- Lunch on day of workshop

All registration fees are in Canadian Dollars (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. All fees are non-refundable after Sept. 1, 2017.

Non-member price includes complimentary membership in SEABC until Dec. 31, 2017.

See registration website for additional Terms and Conditions.

**INSTRUCTORS:**



**John Duntemann, P.E., S.E.** is a Senior Principal at Wiss, Janney, Elstner Associates, Inc. in Northbrook, Illinois, USA.

He is a licensed structural engineer with over 35 years of experience. He is primarily engaged in the analysis and rehabilitation of existing structures, and specializes in the assessment of structural distress and serviceability problems. He has published and lectured extensively on the performance of structures, structural failures, the rehabilitation of structures, and design codes and standards. He is a member of IABSE and serves on Working Group 8 Forensic Engineering and the Outstanding Structure Award (OStrA) Committee. He is also a member of the American Society of Engineers (ASCE) Standard Committee for Minimum Design Loads for Buildings and Other Structures (ASCE 7) and a contributing author to the Forensic Structural Engineering Handbook, 2nd edition, published by McGraw-Hill. Mr. Duntemann is the current Chair of the IABSE Working Group on Forensic Structural Engineering.



**David Peraza, P.E.** is a structural engineer with 40 years of experience in design, investigations of major collapses, and evaluation of distressed

buildings, is Principal Engineer with Exponent in New York. He has led numerous high-profile structural collapse investigations around the nation. Following the 9/11 terrorist attacks on the World Trade Center, he led the emergency engineering response for the City of New York. He has published and lectured extensively on structural failures. He is the author of chapters in the Forensic Structural Engineering Handbook published by McGraw-Hill, and Structural Condition Assessment published by Wiley. Most recently he spearheaded the ASCE publication "Engineering Investigations of Hurricane Damage: Wind versus Water," which assists engineers in providing high quality following catastrophic hurricane damage. Mr. Peraza has served on several technical committees including ASCE 7, Minimum Design Loads for Buildings and Other Structures, and ASCE 37, Design Loads for Structures During Construction, and ASCE's Forensic Engineering Division. He was named "Forensic Engineer of the Year" by ASCE in 2014.



**Robert T. Ratay, Ph.D., P.E.** is a structural engineer in private practice and an Adjunct Professor at Columbia University in New York, where

he has developed the M.S. Degree Concentration program of Forensic Structural Engineering and teaches the two core courses of the program: Forensic Structural Engineering and Structural Failures. His five decades of structural engineering practice includes design, investigation of failures, and university teaching. He has been expert consultant/witness on over 200 cases of structural failures. He is the editor of three books: Handbook of Temporary Structures in Construction, 3rd edition; Forensic Structural Engineering, 2nd edition; and Structural Condition Assessment. He is the originator and Founding Chair of the ASCE/SEI 37 Design Loads on Structures During Construction Standard. He has published numerous articles and lectured widely in the US and abroad on the subjects of temporary structures in construction and forensic structural engineering. Dr. Ratay is a Fellow of IABSE, and the Founding Chair of its Working Group on Forensic Structural Engineering.

