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Boston Chapter



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## 2017 Fall Lecture Series

# Construction Aspects of Structural Engineering - “If You Design It, Can They Build It?”

**Tuesdays, October 3, 10, 17, 24 and November 7, 2017**

**Tufts University, Barnum Hall, 163 Packard Avenue, Medford, MA**

**6:00 PM Registration, 6:30 – 8:30 PM Lecture**

BSCES SEI Boston is pleased to present the 23<sup>rd</sup> Fall Lecture Series entitled *Construction Aspects of Structural Engineering - “If You Design It, Can They Build It?”* Topics include ‘Virtual Design and Construction’, ‘Blurred Lines’, ‘Structural Issues during Construction’, ‘Legal Aspects / Risk Management’, and ‘You Want to Build It How?’ This Lecture Series is cosponsored by the Tufts ASCE Student Club.

### Lecture 1 – Tuesday, October 3, 2017

#### Virtual Design and Construction

**David Odeh, S.E., Principal, Odeh Engineers**

This lecture will focus on how digital design technology has impacted the structural engineering workflow, and in particular how it has become an important tool in the evaluation of constructability. Using examples from real projects in the Boston area, we will discuss the following key topics: (a) A Brief History of Digital Design in Structural Engineering (b) BIM for Structural Engineers – What is Your Scope? (c) Interdisciplinary Modeling and Clash Detection (d) Integrated Project Delivery and VDC (e) Existing Buildings and Reality Capture Technology (f) Vision for the Future: Virtual and Augmented Reality. Engineers who attend this lecture would be able to apply the latest virtual design and construction tools to their design workflow, manage client expectations for scope of services and level of detail specifications, understand the expanded VDC scope for engineers in IPD and other collaborative projects, specify the appropriate reality capture technology for existing building projects, evaluate how the standard of care is impacted by VDC for their projects and plan for new VDC technologies that will affect the role of the structural engineer.

### Lecture 2 – Tuesday, October 10, 2017

#### Blurred Lines

**Joseph P. Gill, P.E., President, Gill Engineering Associates, Inc., and  
Kevin Lampron, Jr., Area Manager, J.F. White Contracting Co.**

This presentation will include a discussion on the interaction between consulting engineers and contractors and how it changes depending upon the project delivery method. In design-bid-build, contractors can engineer most of their means and methods approach, or will use consulting engineers for specialty items or items which require submission with a PE stamp. In design-build, the engineer and the contractor are on the same team. Typically, the consulting engineer is a ‘Sub’ to the contractor, who is the



Completion of each Lecture provides 2 Professional Development Hours (PDH)

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'Prime'. However, the expectations need to be identified up front e.g. the detail level of a design, proposal deliverables, quantities, compensation during the proposal, reporting relationships etc. Most of these should be formalized in a 'teaming agreement' beforehand. Additionally, this lecture would include discussion on ethics for all parties involved and the contractor's make up and staffing needs during different stages.

### **Lecture 3 – Tuesday, October 17, 2017**

#### **Structural Issues during Construction**

**Alan Fisher, P.E., Construction Structures Group Leader, Cianbro Corporation**

There are two general areas of structural design issues during construction: the design of structures required for the creation of a project structure (construction structures); and the design of the project structure for the construction phase (permanent structures). This presentation will address both areas of structural issues during construction. The first half will address the design of structures used for constructing the project structure including the standards and resources available upon which to base the design. The second half will address the design of project structures for the construction phase including the standards and resources available for this work. Participants will be shown the extent of the design effort required to put a project structure in place and what can go wrong when the construction phase of a project structure is not considered. Design-side participants will gain insight to why the constructor keeps complaining that something can't be built. Constructor-side participants will appreciate that construction structures are finally getting recognized as the complicated structures they are. Owner-side participants will recognize that asking the designers to consider the construction phase is in their overall best interest. Finally, academic-side participants will see an additional course of study to inflict on their students.



### **Lecture 4 – Tuesday, October 24, 2017**

#### **Legal Aspects / Risk Management**

**David Hatem, P.C., Partner, Donovan Hatem LLP, and**

**Paul Kelley, P.E., Senior Principal, Simpson Gumpertz & Heger**

Over the past three decades, the construction industry has been gradually introducing alternative project delivery systems that integrate design and construction in efforts to save time and cost, and often to shift risk. The project participants beyond the design professionals increasingly may have roles, responsibilities and risk allocations relating to design adequacy. The key is to maintain focus on how these evolving roles, responsibilities and risk allocations (the 3Rs) affect the risk profile and the prudent and successful operations of design professionals and constructors. Participants will learn to conscientiously evaluate project delivery approaches in order to identify the roles, responsibilities and risk relating to design adequacy relative to their involvement. Moreover, they will learn to prepare a matrix of roles, responsibilities and risks allocation as to design adequacy that identifies and distinguishes those 3Rs among the various project participants. This presentation will also discuss certain topics of engineering risks that practitioners should be aware of as they procure work, execute work, and prepare to improve performance with alternative delivery systems that appear to become increasingly popular. The topics will include discussion on precautions in specifying new materials and systems, delegated and deferred design and recognizing risks in design-build assignments.

### **Lecture 5 – Tuesday, November 7, 2017**

#### **You Want to Build It How?**

**Tom Zieman, P.E., Principal, Zieman Engineering**



This lecture will showcase two projects: Large Scale, High Production Preassembly and Erection of Girder Units for the new Tappan Zee Bridge and Construction of Las Vegas High Roller Ferris Wheel. The new Tappan Zee Bridge consists of over two miles of plate girder approaches that are being built off-site in 135 large preassemblies, up to 420 feet long and weighing up to 2200 kips, which are then transported to the site and erected by a large barge crane. This presentation will focus on construction methods used to preassemble and erect the girders. The Las Vegas High Roller Ferris Wheel, at 550' tall, is currently the tallest observation wheel in the world. This presentation will focus on the erection methods used to construct the wheel, which was built by adding rim segments at the bottom of the wheel and then rotating the wheel to allow installation of the next rim segment. The presentation will describe erection of the support legs and temporary bracing, the erection of the hub and spindle, and erection of the wheel.

## **SPEAKERS**

### **David Odeh, S.E., Principal, Odeh Engineers**

David Odeh is a Principal at Odeh Engineers, Inc. in Providence, Rhode Island. David has over 20 years of experience in the design and analysis of building structures, with particular emphasis in the development and application of digital design tools to structural engineering practice. He is a registered PE in 23 states and SE in Illinois and California. David is certified in the structural engineering practice by the Structural Engineering Certification Board (SECB). David served as the President of the SEI in 2015-2016, and has been on its Board of Governors since 2012. He is a SEI and of ASCE Fellow. David has also been an adjunct faculty member at the Brown University School of Engineering for over 14 years. He has published articles in conference proceedings and journals.

### **Joseph P. Gill, P.E., President, Gill Engineering Associates, Inc.**

Joe is the President/Owner of Gill Engineering Associates, Inc. in Needham, MA. Before founding Gill Engineering in 2000, Joe had over 17 years of project and managerial experience with the Massachusetts Highway Department and Massachusetts Turnpike Authority. As former MassHighway Bridge Engineer and MassPike Chief Engineer, Joe gained a thorough knowledge of all aspects of bridge projects. Joe was involved in the successful completion of accelerated bridge construction projects, including the award-winning Wellesley Cedar Street Heavy Lift and Medford Fast 14 Bridge Replacement.

### **Kevin Lampron, Jr., Area Manager, J.F. White Contracting Co.**

Kevin Lampron is an Area Manager for J.F. White Contracting Co., where he has worked for over 30 years. He is currently responsible for the oversight of multiple projects with an approximate value of \$250 million. His experience ranges in the planning, construction and overall management on some of the most challenging and complex excavation, foundation, tunnel, bridge and railway projects. His most current projects include the Fore River Bridge Replacement Project, I-93 Medford Superstructures (FAST14) Project, Fore River Bridge Project and Chelsea Street Drawbridge Project amongst others.

### **Alan Fisher, P.E., Construction Structures Group Leader, Cianbro Corporation**

Alan Fisher leads the Construction Structures Group for Cianbro Corporation, a heavy civil construction contractor. Alan is an active member with FEMA's Urban Search and Rescue System, acting as a Structural Specialist and Planning Manager with the MA US&R Task Force. He is a member of the Structures Sub-Group which advises FEMA and a lead instructor for the Army Corps of Engineers US&R Program. Alan has been a member of ASCE since 1982. He is the current chair of the ASCE/SEI 37 Design Loads on Structures during Construction Committee. He is a member of several committees including ASCE Construction Institute Temporary Structures in Construction, TRB AFH40 Construction of Bridges and Other Structures and SHRP2 Renewal TCC.

### **David Hatem, P.C., Partner, Donovan Hatem LLP, and**

David J. Hatem is a partner with Donovan Hatem LLP in Boston, MA and leads the firm's Professional Practices Group. David has served as ACEC/MA Counsel since 1988. David received the Engineering Center Education Trust 2016 "Leadership in Professional Practice Legal Services" award and the 2008 ACEC Distinguished Service Award. David teaches courses on Legal Aspects of Engineering at Tufts University and Northeastern University. He has authored and edited numerous articles and publications, including the 2<sup>nd</sup> edition of Public-Private Partnerships and Design-Build: Opportunities and Risks for Consulting Engineers, Subsurface Conditions: Risk Management for Design and Construction Management Professionals.

### **Paul Kelley, P.E., Senior Principal, Simpson Gumpertz & Heger**

Paul Kelley is a Senior Principal and Director at Simpson Gumpertz & Heger Inc. in Boston, MA. He is a registered Structural Engineer in MA, CT, NY, FL and many other states. He has vast experience in structural design of hospitals, university science, library buildings and office buildings and in determining causes and costs of large complex claims involving buildings and civil structures. He has testified as an expert in many depositions, arbitrations, administrative hearings, mediations, and municipal, state, and federal trial courts in cases involving structural collapse, concrete technology and construction cost.

### **Tom Ziemann, P.E., Principal, Ziemann Engineering**

Tom Ziemann is founder and Principal at Ziemann Engineering, LLC, which was formed in 1992. The firm is located in Stamford, CT and specializes in structural and construction methods engineering on complex construction projects. . Notable projects by the firm have included Brooklyn Bridge, Richmond/San Rafael Bridge, Providence River Bridge, the Las Vegas High Roller Ferris Wheel, Madison Square Garden and many others. Prior to starting his firm he worked for as a Field Engineer, Project Engineer and Project Manager for a general contractor in New York City that specialized in complex bridge work.

# REGISTRATION DEADLINE: Wednesday, September 27, 2017

## Registration Information:

Registration Fees: See registration form below.

Register to attend this seminar and pay by credit card online at <http://bit.ly/BSCESFallLectureSeries>. To register online for an event at the BSCES member rate you must login using your BSCES assigned username and password. If you do not know your BSCES member login information call 617/227-5551. You can also register for this event by completing the registration form below and mailing, emailing or faxing it to BSCES, The Engineering Center, One Walnut Street, Boston, MA 02108, [bcesreg@engineers.org](mailto:bcesreg@engineers.org) or 617/227-6783, respectively. Cancellations received after September 29, 2017 and no-shows will be billed.

## Directions to Lecture Hall and Parking:

**Lecture Hall:** Tufts University, Barnum Hall Room 008, 163 Packard Avenue, Medford, MA

<http://campusmaps.tufts.edu/medford/>

**Parking:** Tufts University, Dowling Hall Garage, 419 Boston Avenue, Medford, MA

<http://publicsafety.tufts.edu/adminsvc/files/Medford-Parking-Map2015FINAL-21.pdf>

**Handouts:** Registered attendees will be provided a website reference for downloading handouts/notes.

**Pizza!** We begin each evening with pizza starting at 6 pm during registration.

## Registration Form

**BSCES SEI Boston 2017 Fall Lecture Series**

Tuesdays, October 3, 10, 17, 24 and November 7, 2017

Tufts University, Barnum Hall, 163 Packard Avenue, Medford, MA

6:00 PM Registration, 6:30 – 8:30 PM Lecture

### Registrant Information

Name: \_\_\_\_\_  
Company (if applicable): \_\_\_\_\_  
Address: \_\_\_\_\_  
City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_ Email: \_\_\_\_\_

### Registration Fees

#### Full Series of Five Lectures

- \$195 BSCES/ASCE Member
- \$245 Non-Member
- \$170 Public Employee Member
- \$195 Public Employee Non-Member
- \$70 Senior/Student

#### Single Lectures

- \$60 BSCES/ASCE Member
- \$75 Non-Member
- \$55 Public Employee Member
- \$60 Public Employee Non-Member
- \$25 Senior/Student

Circle Lectures Attending:      1    2    3    4    5

Total Amount Enclosed      \$ \_\_\_\_\_

Make checks payable to "BSCES" and mail with completed form to: BSCES, The Engineering Center, One Walnut Street, Boston, MA 02108-3616

Or Pay with (Check one):     Visa                       Master Card     American Express

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