

# Final Program

6th Congress on  
**ASCE** | **Forensic Engineering**  
San Francisco, CA • October 31 – November 3, 2012



## Gateway to a Safer Tomorrow

Hyatt Regency San Francisco,  
San Francisco, California, USA

[www.asce.org/forensiccongress](http://www.asce.org/forensiccongress)

Earn up to  
**18** Professional  
Development  
Hours (PDHs)

Awards Luncheon & Order of the Engineer **12-13**

Committee Meetings **14**

Cooperating Organizations **16**

Exhibits **15**

General Information **14**

Hotel Map **15**

International Breakfast **13**

Keynote Speaker **5**

Steering Committee **3**

Plenary Session **5**

Schedule-at-a-Glance **3**

Sponsors **12**

Technical Program Grid **7-12**

Tours **4, 6, 13**

Welcome Letter **2**

Workshop **4**



## Welcome Letter



Dear Colleagues,

### **Welcome to the 6<sup>th</sup> Congress on Forensic Engineering!**

On behalf of the Steering Committee for the 6<sup>th</sup> Congress on Forensic Engineering and the Technical Council on Forensic Engineering (TCFE) of the American Society of Civil Engineers (ASCE), authors, presenters, panelists, cooperating organizations, sponsors, and exhibitors, we are pleased to welcome you to San Francisco.

Our goals are to present a forum for the exchange of practices and procedures to reduce the number of failures; to disseminate information on failures, their cause, and repair; and to promote the state of the practice and the process for conducting forensic investigations and for ethical conduct.

The Steering Committee has worked diligently to achieve our goals by offering a welcoming reception, pre-congress and congress workshops, technical sessions with peer reviewed papers, panel discussions, committee meetings, technical tours, keynote presentation, Order of the Engineer ceremony, awards luncheon, exhibits, and a wine country tour and tasting.

Sincerely,

**Anthony M. Dolhon, P.E., M.ASCE**

Exponent, Inc.  
Congress Chair

# Schedule-at-a-Glance

(Subject to Change)

## Wednesday, October 31, 2012

7:00 a.m. – 5:00 p.m.	Registration
7:30 – 8:30 a.m.	Continental Breakfast
8:30 a.m. – 5:00 p.m.	Workshop: Practice of Forensic Engineering
1:30 – 5:00 p.m.	Bay Bridge Tour
4:00 – 5:30 p.m.	Exhibitor Move-In
5:00 – 9:00 p.m.	TCFE EXCOM Meeting
5:30 – 7:00 p.m.	Welcome Reception

## Thursday, November 1, 2012

7:00 a.m. – 5:00 p.m.	Registration
7:30 – 8:30 a.m.	Continental Breakfast
8:30 – 10:00 a.m.	Opening Plenary Session
9:00 – 10:00 a.m.	Spouse and Guest Orientation Breakfast
9:30 a.m. – 6:00 p.m.	Exhibit Hours
10:00 – 10:30 a.m.	Networking Break
10:30 a.m. – 12:00 p.m.	Concurrent Technical Sessions
12:00 – 1:30 p.m.	Lunch in Exhibit Hall
1:30 – 3:00 p.m.	Concurrent Technical Sessions
2:00 – 5:00 p.m.	San Francisco City Hall Tour
2:00 – 5:00 p.m.	ASCE Publications Table
3:00 – 3:30 p.m.	Networking Break
3:30 – 5:00 p.m.	Concurrent Technical Sessions

## Friday, November 2, 2012

7:00 a.m. – 5:00 p.m.	Registration
7:30 – 8:30 a.m.	Continental Breakfast
7:30 – 8:30 a.m.	International Author's Breakfast
8:30 a.m. – 12:00 p.m.	Committee Meetings
9:30 a.m. – 3:30 p.m.	Exhibit Hours
9:30 a.m. – 3:30 p.m.	ASCE Publications Table
12:00 – 1:30 p.m.	Awards Luncheon & Order of the Engineer
1:30 – 3:00 p.m.	Concurrent Technical Sessions
3:00 – 3:30 p.m.	Networking Break
3:30 – 5:00 p.m.	Concurrent Technical Sessions
3:30 – 6:00 p.m.	Exhibitor Move-Out
5:00 – 9:00 p.m.	TCFE EXCOM Meeting

## Saturday, November 3, 2012

7:00 a.m. – 12:00 p.m.	Registration
7:30 – 8:30 a.m.	Continental Breakfast
8:30 – 10:00 a.m.	Concurrent Technical Sessions
10:00 – 10:30 a.m.	Networking Break
10:30 a.m. – 12:00 p.m.	Concurrent Technical Sessions
12:30 – 6:00 p.m.	Sebastiani Vineyards & Winery Tour

## Organizing Committee Members

### Congress Chair

**Anthony M. Dolhon, P.E., M.ASCE**, Exponent, Inc.

### Technical Program

**Shen-En Chen, Ph.D., P.E., M.ASCE**, University of North Carolina at Charlotte

**Alicia Díaz de León, P.E., S.E., AIA, M.ASCE**, A/E Consultant

**Michael J. Drerup, P.E., M.ASCE**, 5th Congress Past-Chair, Walter P. Moore

**Joshua B. Kardon, Ph.D., S.E., F.ASCE**, Joshua B. Kardon + Company Structural Engineers

**Derrick S. Hancock, P.E., M.ASCE**, HAS Engineers & Scientists

### Exhibits/ Sponsorship Chair

**Ziad M. Salameh, Ph.D., P.E., M.ASCE**, ZS, LLC

### Committee Members

**Deepak Ahuja, P.E., M.ASCE**, Nelson Architectural Engineers, Inc.

**Ronald W. Anthony, Aff., M.ASCE**, Anthony & Associates, Inc.

**Colin Blaney, P.E., M.ASCE**, Crosby Group and Structural Engineers Association of Northern California (SEAONC), Key Contact

**Kenneth L. Carper, M.ASCE**, Washington State University

**Kelly Cobeen, P.E., M.ASCE**, Wiss, Janney, Elstner Associates, Inc. and Structural Engineers Association of Northern California (SEAONC), Key Contact

**Julie Mark Cohen, Ph.D., P.E., SECB, M.ASCE**, Consulting Structural and Forensic Engineer

**Leighton Cochran, Ph.D., P.E., M.ASCE**, CPP Wind Engineering & Air Quality Consultants and Technical Council on Wind Engineering (TCWE), Key Contact

**James S. Cohen, P.E., M.ASCE**, Arup

**Norbert J. Delatte, Jr., Ph.D., P.E., F.ASCE**, 4th Congress Past Chair, Cleveland State University

**Michael P. Lester, P.E., M.ASCE**, Element Analytical, PLLC, TCFE ExCom Past Chair

**Brian M. McDonald, Ph.D., S.E., M.ASCE**, Exponent Failure Analysis Associates and Structural Engineers Association of Northern California (SEAONC), Key Contact

**Peter J. Maranian, S.E., M.ASCE**, Brandow & Johnston, Inc.

**Ali M. Memari, Ph.D., P.E., M.ASCE**, Pennsylvania State University and Architectural Engineering Institute (AEI), Key Contact

**Leonard J. Morse-Fortier, Ph.D., P.E., M.ASCE**, Simpson Gumpertz & Heger

**Brian S. Neale, C.Eng., F.ICE, F.IStructE, Hon.FIDE**, Independent Consultant and Institute of Civil Engineers (ICE), Key Contact

**Dale A. Nelson, P.E., F.ASCE**, ASCE TAC Contact

**M. Kevin Parfitt, P.E., F.AEI, M.ASCE**, Penn State University – Architectural Engineering

**David B. Peraza, P.E., M.ASCE**, Exponent, Inc.

**Robert T. Ratay, Ph.D., P.E., F.ASCE**, Consulting Engineer and International Association for Bridge and Structural Engineering (IABSE), Key Contact

**Clemens J. Rossell, P.E., M.ASCE**, The Boeing Company

**Kent K. Sasaki, P.E., M.ASCE**, Wiss, Janney, Elstner Associates, Inc. Structural Engineers Association of Northern California (SEAONC), Key Contact

**Kenneth B. Simons, P.E., F.ASCE**, Damage Consultants

**Lloyd M. Sonenthal, P.E., M.ASCE**, Consulting Forensic Engineer

**Glenn G. Thater, P.E., LEED AP, M.ASCE**, Thornton Tomasetti

**Arn Womble, P.E., M.ASCE**, Consultant and Technical Council on Wind Engineering (TCWE), Key Contact

### ASCE Conference Staff

**Elaine V. Watson**, Manager, Conference & Meeting Services  
**Alyssa R. Moore**, Coordinator, Conference & Meeting Services

## Workshop and Tour Information *(You must purchase a separate ticket to participate in the workshop and tour. They are not included in your Congress registration).*



### Practice of Forensic Engineering

**8:30 a.m. – 5:00 p.m.**

*Location: Bayview A*

This one-day workshop covers the main issues related to the practice of Forensic Engineering and includes the following subjects:

- Introduction – What is Forensic Engineering?
- The Business of Forensic Engineering
- Ethics and Forensic Engineering
- Conducting the Investigation
- The Practitioner and the Legal System

The workshop will be based on the latest editions of the ASCE Guidelines for Forensic Engineering Practice and the ASCE Guidelines for Failure Investigation. It will be divided into four segments, each with a 90-minute lecture and discussion period. The workshop is intended for a broad audience, from engineers, architects, contractors, and attorneys that want to explore this area of practice, to seasoned practitioners that want to engage in a discussion of the relevant issues of the practice.

A continental breakfast, lunch and breaks will be provided.

**Instructors:** **Ronald Anthony, Aff.M.ASCE**, Anthony & Associates, Inc.; **Kimball Beasley, P.E., F.ASCE**, Wiss, Janney, Elstner Associates, Inc.; **James Cohen, P.E., M.ASCE**, Arup; **Clemens Rossell, P.E., M.ASCE**, The Boeing Company

**PDHs:** 6.0

**Fees:** **Member:** \$265

**Non-Member:** \$315

### Bay Bridge Seismic Safety Project Tour

**1:30 – 5:00 p.m.**

*Meet at the Congress registration desk by 12:15 p.m. to depart at 12:30 p.m. Tour begins at 1:30 p.m.*

This project is one of the largest construction activities underway in the United States. Construction began in 2002 and is expected to be completed in 2013, at an estimated cost of \$6.3 billion. The 2-hour tour begins with a background presentation on the current project and ends with a boat tour of the eastern span replacement.

You will receive high-visibility safety vests, glasses and hardhats. The weather on the water can be windy and cold, so please wear appropriate outerwear. In case of rain or high winds, the tour will be cancelled. The tour office reserves the right to cancel the outing at any time. You are welcome to bring binoculars and/or a camera.

*ASCE and its officers, directors, employees, affiliates and agents nor American Bridge Company/Fluor Enterprises/Coltrans are not responsible for the conduct of the tour.*

### TCFE EXCOM Meeting

**5:00 – 9:00 p.m.**

*Location: Pacific BC*

*Refer to page 14 for a full list of committee meetings.*

### Welcome Reception and Exhibit Hall Opens

**5:30 – 7:00 p.m.**

*Location: Grand Foyer*

What a terrific way to end the first day of the Congress. Enjoy light refreshments while you browse the new and exciting developments our exhibitors have to offer. Meet old and new colleagues and make plans to enjoy the night life that San Francisco has to offer.

This is open to all registered attendees and registered guests.

## Registration

7:00 a.m. – 5:00 p.m.

Location: Grand Foyer

## Continental Breakfast

7:30 – 8:30 a.m.

Location: Grand Foyer

Start the day off with the first breakfast of the Congress.  
Breakfast is Sponsored by



## OPENING PLENARY SESSION

8:30 – 10:00 a.m.

Location: Grand Ballroom A

### Gregory E. DiLoreto, P.E., F.ASCE

ASCE President 2013



Greg DiLoreto, P.E., F.ASCE, is the Chief Executive Officer of the Tualatin (To-wal-a-tin) Valley Water District located in metropolitan Portland, Oregon. He has worked in the public works field for 34 years; 17 years as a public works director/city engineer. Mr. DiLoreto holds a B.S. in Civil Engineering from Oregon State University and a Masters in Public Administration from Portland State University. He is registered as a civil and environmental engineer and a professional land surveyor in Oregon.

Mr. DiLoreto is a fellow in the American Society of Civil Engineers. He served on the ASCE Board of Direction from 2004-2006. He has received the 1986 ASCE Edmund Freidman Young Engineer Award, the 1995 ASCE Oregon Section Outstanding Civil Engineer award and the 2005 ASCE Government Engineer of the Year award. In 2003, he was inducted into the Oregon State University Academy of Distinguished Engineers.

Greg will deliver the State-of-the-Society address.



### KEYNOTE SPEAKER

**Raymond "Paul" Giroux, M.ASCE,**  
District Quality Manager, Kiewit  
Infrastructure West Co.

**Presentation:** Building Golden Gate  
Bridge

Celebrate the 75th Anniversary of the Golden Gate Bridge, the longest bridge from 1937 to 1964; the 2<sup>nd</sup> longest in the United States; and the 10<sup>th</sup> longest in the world. Our featured speaker, **Raymond "Paul" Giroux, M.ASCE,** will transport us back to the Great Depression, by way of dynamic animation and historic photographs, to show how builders accomplished such an undertaking in the midst of daunting challenges - politically, technically, financially, and environmentally.

Mr. Giroux received his B.S. in Construction Engineering from Iowa State University in 1979. Since then, Mr. Giroux has been with Kiewit Corporation for the past 32 years, working on a wide variety of heavy civil engineering mega projects throughout the United States and is currently the District Quality Manager for Northern California. He is a member of the Iowa State University Civil Engineering Advisory Board, the Transportation Research Board and is the Corresponding Member of the American Society of Civil Engineering History and Heritage Committee.

Mr. Giroux is currently serving as ASCE Chairman for the Golden Gate Bridge 75<sup>th</sup> Anniversary. In 2008, he was the ASCE Chairman and featured speaker for Brooklyn Bridge 125<sup>th</sup> Celebration and in 2010, he presented the closing speech at the Hoover Dam 75<sup>th</sup> Anniversary Symposium. He is the author of several bridge design and civil engineering history papers and is a frequent lecturer at engineering schools throughout the United States.

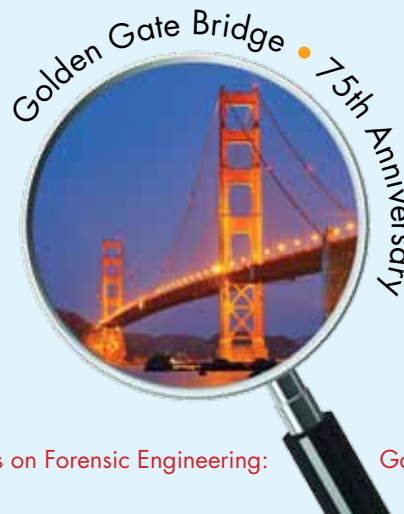
## Spouse & Guest Orientation Breakfast

9:00 – 10:00 a.m.

Location: Pacific K

Guests are invited to meet and mingle with other guests and spouses at this continental breakfast. The Hotel concierge will give a brief presentation about places to visit in San Francisco.

Open to registered guests.



## TECHNICAL SESSIONS

**10:30 a.m. – 5:00 p.m.**

*Location: Check the program grid on page 7 – 12*

### Introduction to LiDAR Laser Scanning for Measurement and 3D Modeling

**10:30 a.m. – 3:00 p.m.**

*Location: Pacific I*

Learn how laser scanning can be integrated into your workflow for measurement and documentation. Ken Smerz, President of Precision 3D Scanning, will provide an introduction and overview of laser scanning and demonstrate its benefits through the use of actual case study data. This is an interactive presentation and open discussion is encouraged.

**Presenter: Ken Smerz, President, Precision 3D Scanning**

### Ethical Issues for the Forensic Engineer — What would you do?

**10:30 a.m. – 3:00 p.m.**

*Location: Pacific J*

Two case studies have been selected to be representative of the type of ethical situations forensic engineers may encounter. It is recommended that a person attend both sessions.

**Presenter: Robin A. Kemper, P.E., LEED AP, F.ASCE**

### PANEL DISCUSSION: Beyond the Grades — Rising to the Challenge of ASCE's Report Card for America's Infrastructure

**10:30 a.m. – 12:00 p.m.**

*Location: Pacific F*

Join us for a spirited discussion of the Report Card, beginning with a historical overview of the first such document prepared by the Reagan Administration and ASCE's subsequent stewardship, a review of local and regional Report Cards prepared by ASCE chapters, and trends in infrastructure legislation and programs.

**Moderator: Micheal J. Drerup, P.E., M.ASCE**

**Panelists: Brian T. Palasch, CAE, Managing Director, Government Relations & Infrastructure Initiatives, ASCE; Mike Kincaid, P.E., PLS, F.ASCE, Senior Project Director, GHD**

### Exhibit Hall Lunch

**12:00 – 1:30 p.m.**

*Location: Grand Foyer*

*Lunch is Sponsored by*



### San Francisco City Hall Tour

**2:00 – 5:00 p.m.**

*Meet at the Congress Registration Desk by 2:00 p.m. to depart promptly at 2:15 p.m. Tour begins at 3:00 p.m.*

Take an exclusive tour of San Francisco City Hall, with one of the building's finest historians, and learn about the features of this remarkable building. The "people's building" is an elegantly restored historic landmark of the city. It is a fabulous showcase with a rich history – a destination and tourist attraction known worldwide. The building is often referred to as the "Crown Jewel" of classical architecture in America. Originally opened in 1915, the

building was damaged in the 1989 Loma Prieta earthquake. Since that time, extensive renovations have been accomplished. It is the largest base-isolated building in the world, and the only isolated national landmark.

You will visit the Rotunda, Second Floor Balcony, Elegant Fourth Floor galleries, North Light Court and South Light Court.

**Fees: Member: \$30**

**Non-Member: \$40**

### ASCE Publications Table

**2:00 – 5:00 p.m.**

*Location: Grand Foyer*

### Afternoon Networking Break

**3:00 – 3:30 p.m.**

*Location: Grand Foyer*

Sponsored by  ZS LLC

## PANEL DISCUSSIONS

### Resilience Engineering

**3:30 – 5:00 p.m.**

*Location: Pacific F*

This session will focus on the development and modeling of various resilient systems, safety-critical systems, methods for designing resilient systems, metrics for resiliency, the connection between resiliency and sustainability and case studies. The underlying methodologies anticipated include, but are not limited to, graph theory and networks, risk analysis, extreme event theory, operational risk, fault tree analysis, computational intelligence and probabilistic reasoning. Contributions from engineers, social scientists and insurance industry are welcome.

**Moderator: Nii Attah-Okine, University of Delaware**

### Meet the Second Edition of Guidelines for Forensic Engineering Practice

**3:30 – 5:00 p.m.**

*Location: Pacific J*

The Forensic Practices Committee of the Technical Council on Forensic Engineering of ASCE has revised the 2003 Guidelines for Forensic Engineering Practice and has issued the *Guidelines for Forensic Engineering Practice, Second Edition, 2012*. The editor, authors, contributors and reviewers of the Second Edition will conduct a panel discussion and question and answer session introducing the concepts and practices described in the *Guidelines*.

This panel discussion session will not only introduce attendees to the *Guidelines*, but will give them a unique opportunity to discuss its content with some of the Forensic Practices Committee members who wrote it.

**Moderator: Joshua B. Kardon, Ph.D., S.E., F.ASCE**

**Panelists: Deepak Ahuja, P.E., M.ASCE; Behnam Arya, Ph.D., P.E., M.ASCE; James Cohen, P.E., M.ASCE; Derrick Hancock, P.E., M.ASCE; Joshua Kardon, Ph.D., P.E., F.ASCE; Leonard J. Morse-Fortier, Ph.D., P.E., M.ASCE; Robert T. Ratay, Ph.D., P.E., F.ASCE; Clemons Rossell, P.E., M.ASCE; Lloyd Sonenthal, P.E., M.ASCE**

# PROGRAM GRID

## Wednesday, October 31, 2012

7:00 a.m. – 5:00 p.m.	Registration
7:30 a.m. – 8:30 a.m.	Continental Breakfast
8:30 a.m. – 5:00 p.m.	Forensic Engineering Workshop
10:00 – 10:30 a.m.	Networking Break
12:00 – 1:30 p.m.	Lunch for Workshop Attendees Only
1:30 – 5:00 p.m.	Bay Bridge Tour
3:00 – 3:30 p.m.	Networking Break
4:00 – 5:30 p.m.	Exhibitor Move in
5:00 – 9:00 p.m.	TCFE ExCom Meeting
5:30 – 7:00 p.m.	Welcome Reception

## Thursday, November 1, 2012

7:00 a.m. – 5:00 p.m.	Registration
7:30 – 8:30 a.m.	Continental Breakfast
8:30 – 10:00 a.m.	Opening Plenary Session
9:30 – 6:00 p.m.	Exhibits
10:00 – 10:30 a.m.	Networking Break
10:30 a.m. – 12:00 p.m.	Concurrent Technical Sessions

Track 1 Location: Pacific D Michael P. Lester, P.E., CFEI, M.ASCE (Track Chair)	Track 2 Location: Pacific E Kenneth L. Carper, M.ASCE (Track Chair)	Track 3 Location: Pacific F Michael J. Drerup, P.E., M.ASCE (Track Chair)	Track 4 Location: Pacific G Alicia Díaz de León, P.E., S.E., AIA, M.ASCE (Track Chair)	Track 5 Location: Pacific H Robert T. Ratay, Ph.D., P.E., F.ASCE (Track Chair)	Track 6 Location: Pacific I Clemens J. Rossell, P.E., M.ASCE (Track Chair)	Track 7 Location: Pacific J Joshua B. Kardon, Ph.D., S.E., F.ASCE (Track Chair)
<i>Structural I: Stage Framing, Modeling Double-Angle Shear Connections, Tramway Modernization, and CFRP Strengthened Square Hollow Steel Section</i> Moderator: David B. Peraza, P.E., M.ASCE	<i>Building Envelope I: Glazing and Curtain Wall Systems</i> Moderator: Ziad Salameh, Ph.D., P.E., M.ASCE	<i>Disaster Risk Management I: Panel Discussion</i> Moderator: Michael J. Drerup, P.E., M.ASCE	<i>Avoiding Gas Pipeline Failures</i> Moderator: Joseph Medina; Director, Pacific Gas and Electric	<i>Bridges I: Inspection and Rating, Structural Health Monitoring, and Assessment</i> Moderator: Jonathan G.M. Wood, BSc Ph.D., FStructE, MICE, CEng	<i>LiDAR I (Part 1 of 2)</i> Moderator: Ken Smerz	<i>Ethics and Professional Practice I (Part 1 of 2)</i> Moderator: Joshua B. Kardon, Ph.D., S.E., F.ASCE
<i>The Indiana State Fair Collapse Incident: Anatomy of a Failure</i> Scott G. Nacheman, MSc. Eng., AIA, M.ASCE; Kevin J. Jackson, P.E.; Joelle K. Nelson, P.E.; Marguerite J. Pinto, A.M.ASCE; Luis Valderruten; Aditya Bhagath, E.I.T. <i>Modeling of Double-Angle Shear Connections for Evaluation of Structural Robustness</i> Judy Liu, Ph.D., Joseph Main, Ph.D., and Fahim Sadek, Ph.D. <i>The Roosevelt Island Tramway Modernization Project</i> Joelle K. Nelson, P.E. and Glenn G. Thater, P.E., LEED AP, M.ASCE <i>Experimental Investigation on Torsional Behavior of CFRP Strengthened Square Hollow Steel Section</i> N. Abdollahi Chahkand, M. Z. Jumaat, N. H. Ramli Sulong, M. R. Mohammadzadeh, A. Asadi, and M. Mojarad	<i>Review of the Performance of Glazing Systems in Earthquakes and Recent Developments to Mitigate Damage</i> Ali M. Memari <i>Mitigating the Injuries from Flying Glass due to Air Blast</i> Hossein Ataei, Ph.D. Candidate and James C. Anderson <i>Thermal Breakage of Spandrel Glass: A Case Study</i> James Triano, P.E. and John Cocco, P.E. <i>WilTel Technology Curtain Wall Framing Failure Investigation</i> D.A. Wojnowski, Ph.D., P.E., M.ASCE and C.R. Fischer, Ph.D., P.E., S.E., M.ASCE	<i>Panel Discussion: Beyond the Grades – Rising to the Challenge of ASCE's Report Card for America's Infrastructure Structural Diagnostics</i> Walter P Moore <i>Presented in Cooperation with ASCE Government Relations Office.</i> <i>Panelists:</i> Brian T. Pallasch, CAE Managing Director, Government Relations & Infrastructure Initiatives ASCE and Mike Kincaid, P.E., PLS, F.ASCE, Senior Project Director, GHD	<i>Panel Discussion: 2010 Gas Pipeline explosion in San Bruno, California"</i>	<i>Inspection and Rating of the Platte River Bridge in Denver</i> Rui Liu, Ph.D.; Kevin L. Rens, Ph.D., P.E. <i>Use of Structural Health Monitoring System for Assessment of Bridge Load Rating</i> Junwon Seo, Ph.D., E.I.T.; Brent M. Phares, Ph.D., P.E.; Ping Lu, Ph.D., P.E.; Terry J. Wipf, Ph.D., P.E.; and Justin Dahlberg, E.I.T. <i>Structural Health Monitoring with Interferometric Radar</i> Paul James Bennett, P.E., CBIE, M.ASCE and Frederick R. Rutz, Ph.D., P.E., S.E., M.ASCE <i>Visual Information Processing for Status Assessment in Bridges</i> Natarajan Meenu; Rajaram, Chidambaram Thanu Natarajan	<i>Introduction to LiDAR Laser Scanning for Measurement and 3D Modeling</i> Ken Smerz, Precision 3D Scanning	<i>Ethical Issues for the Forensic Engineer – What would you do?</i> Robin A. Kemper, P.E., LEED AP, F.ASCE, Building Design Services, French and Parrello Associates
12:00 – 1:30 p.m.	Lunch in the Exhibit Hall					

# Thursday, November 1, 2012 (cont.)

1:30 – 3:00 p.m. Concurrent Technical Sessions

Track 1 Location: Pacific D Michael P. Lester, P.E., CFEI, M.ASCE (Track Chair)	Track 2 Location: Pacific E Kenneth L. Carper, M.ASCE (Track Chair)	Track 3 Location: Pacific F Michael J. Drerup, P.E., M.ASCE (Track Chair)	Track 4 Location: Pacific G Alicia Diaz de León, P.E., S.E., AIA, M.ASCE (Track Chair)	Track 5 Location: Pacific H Robert T. Ratay, Ph.D., P.E., F.ASCE (Track Chair)	Track 6 Location: Pacific I Clemens J. Rossell, P.E., M.ASCE (Track Chair)	Track 7 Location: Pacific J Joshua B. Kardon, Ph.D., S.E., F.ASCE (Track Chair)
<i>Structural II: Steel Space Frame, Low-Cycle Fatigue in Steel Structures, Light Gage Steel, and Steel Moment Frames</i> Moderator: Jun Yu, Ph.D., P.E., LEED AP	<i>Building Envelope II: Composite Foam Panels, Shingle Roofs, Residential Construction, and Large Scale Building Envelopes</i> Moderator: Leonard J. Morse-Fortier, Ph.D., P.E., SECB, M.ASCE	<i>Disaster Risk Management II: Critical Structural Safety Factors, Urban Public Infrastructure, Mitigation Assessment Team, and Case Studies</i> Moderator: Andrea Shear, P.E.	No Session Scheduled	<i>Bridges II: Forensic Investigation Modeling, Bridge Falsework, Reinforced Concrete Bridges, and Collapse</i> Moderator: John F. Duntemann, P.E.	<i>LiDAR II (Part 2 of 2)</i> Moderator: Ken Smerz	<i>Ethics and Professional Practice II (Part 2 of 2)</i> Moderator: Joshua B. Kardon, Ph.D., S.E., F.ASCE
<i>Thermal Load-Induced Failure of Steel Space Frame Structure</i> B.M. McDonald and J. P. Hunt  <i>The Effects of Low-Cycle Fatigue in Steel Structures</i> Navid Nastar, Ph.D., P.E., S.E., M.ASCE; Gregg Brandow, Ph.D., P.E., S.E., M.ASCE; James Anderson, Ph.D., M.ASCE; and Robert Nigbor, Ph.D., P.E., M.ASCE  <i>Failures of Light Gage Steel Structural Framing</i> David B. Peraza, P.E., M.ASCE  <i>Considerations on Buckling and Lateral Bracing Issues With an Emphasis on Steel Moment Frames in Seismic Areas</i> Peter Maranian; Robi Kern; and Ashwani Dhalwala	<i>Potential Problems Arising from the Use of Composite Foam Panels on Sloping Roofs</i> Leonard J. Morse-Fortier, Ph.D., P.E., SECB, M.ASCE  <i>Guidelines to Assess Hail Damage to Shingle Roofs</i> B. East, M.S., P.E., M.ASCE; T. Lozas, CPE; S. Verhulst, M.S., P.E., M.ASCE; M. DeLeon M.E., P.E., M.ASCE; and D. Ahuja M.S., P.E., M.ASCE  <i>The Hamptons at MetroWest, a Case Study of an Investigation Into the Causes For Structural Rot Damage</i> Felix Martin  <i>Investigating Large Scale Building Envelope Leakage: Ten Practical Tips for Litigation Projects</i> C.L. Searls and T.N. Stubblefield	<i>Possible Critical Structural Safety Factors: a Literature Review</i> Karel Terwel and Jan Vambersky  <i>Agent-Based Risk Assessment and Mitigation for Urban Public Infrastructure</i> Gabriela M. Atanasiu and Florin Leon  <i>FEMA Mitigation Assessment Team Program</i> John Ingargiola, E.I., CFM, CBO and Manuel Perotin, P.E., CFM  <i>Corps of Engineers Forensic Studies</i> P.F. Mlakar, Ph.D., P.E., J.C. Ray, P.E., and V.P. Chiarito, P.E.	No Session Scheduled	<i>Forensic Investigation Modeling (FIM) Approach: I35 West Bridge Collapse Case Study</i> F. Brando; A. Iannitelli; L. Cao; E.A. Malschp G. Panariello; J. Abruzzo; and M.J. Pinto  <i>Collapse of Robinson Road Bridge Falsework</i> R.A. Dethlefs and Z.A. Martin  <i>Failure of Reinforced Concrete Bridges in California</i> K.K. Sasaki and T.F. Paret  <i>Statistical Analysis of Cause of Bridge Collapse in China</i> Zhongqiu Fu, Bohai Ji, Miao Cheng, and Hirofumi Maeno	<i>Introduction to LiDAR Laser Scanning for Measurement and 3d Modeling</i> Ken Smerz, Precision 3D Scanning	<i>Ethical Issues for the Forensic Engineer – What would you do?</i> Robin A. Kemper, P.E., LEED AP, F.ASCE, Building Design Services, French and Parrello Associates

2:00 – 5:00 p.m.

San Francisco City Hall Tour

ASCE Publications Table

3:30 – 5:00 p.m.

Concurrent Technical Sessions

Track 1 Location: Pacific D Michael P. Lester, P.E., CFEI, M.ASCE (Track Chair)	Track 2 Location: Pacific E Kenneth L. Carper, M.ASCE (Track Chair)	Track 3 Location: Pacific F Michael J. Drerup, P.E., M.ASCE (Track Chair)	Track 4 Location: Pacific G Alicia Diaz de León, P.E., S.E., AIA, M.ASCE (Track Chair)	Track 5 Location: Pacific H Robert T. Ratay, Ph.D., P.E., F.ASCE (Track Chair)	Track 6 Location: Pacific I Clemens J. Rossell, P.E., M.ASCE (Track Chair)	Track 7 Location: Pacific J Joshua B. Kardon, Ph.D., S.E., F.ASCE (Track Chair)
<i>Structural III: Post-Tensioned Concrete, Non-Destructive Testing, and Carbonation</i> Moderator: Navid Nastar, Ph.D., P.E., S.E., M.ASCE	<i>Building Envelope III: Terra Cotta Masonry, Facade Repairs, and Solid Masonry</i> Moderator: Kimball J. Beasley, P.E., F.ASCE	<i>Disaster Risk Management III: Panel Discussion</i> Moderator: Nii Attoh-Okine	No Session Scheduled	<i>Bridges III: Curved Steel Bridges, Reinforcement with FRP, Structural Investigation, and Bridge Cables</i> Moderator: Karel Terwel	<i>Emerging Technologies: 3D LiDAR Scanning and Smart Phone Applications</i> Moderator: J. David Frost, Ph.D., P.E., F.ASCE	<i>Ethics and Professional Practice III: Panel Discussion</i> Moderator: Joshua B. Kardon, Ph.D., S.E., F.ASCE
<i>Practical Evaluation of Two-Way Slabs with Distressed PT Strands</i> K. Gatto, Z. Martin, and R.A. Dethlefs  <i>Non-Destructive Evaluation and Laboratory Testing of Concrete Structure Damaged by Fire</i> E.M. Reis, Ph.D., P.E. and U. Dilek, Ph.D., P.E.  <i>Effect of Surface Treatments and Texture on Carbonation Rates of Fly Ash Concretes for Crack Dating</i> L. Sullivan-Green  <i>Comparison of Non-Destructive Testing Findings to Laboratory Testing Findings from a Concrete Wall with Strength Deficiencies</i> E.M. Reis, Ph.D., P.E. and U. Dilek, Ph.D., P.E.	<i>Identifying Non-Catastrophic Failures in Glazed Architectural Terra Cotta Masonry</i> T.A. Gentry  <i>Repair of a Landmark Building's Facade 230 Park Avenue, New York, NY</i> Robert Nacheman, P.E., LEED AP BD+C; Jun Yu, Ph.D., P.E., LEED AP, BD+C; and Kunal Badheka  <i>Investigation and Remedial Strengthening of Deteriorated Masonry Walls</i> Amy S. Graver, P.E.; Charles J. Russo, P.E.; and Michael L. Brainerd, P.E.  <i>Investigation and Repairs of a Leaning Historical Bell Tower</i> Prasad M. Samarajiva, Ph.D., P.E., M.ASCE and Narendra Gosain, Ph.D., P.E.	<i>Panel Discussion: Resilience Engineering</i> Moderator: Nii Attoh-Okine University of Delaware Sponsored by the Council on Disaster Risk Management	No Session Scheduled	<i>Influential Curved Steel Bridge Fragility Analysis Parameters</i> Moderator: Junwon Seo, Ph.D., E.I.T. and Daniel G. Linzell, Ph.D., P.E., F.ASCE  <i>Failure Analysis of Bridges Span Reinforced with FRP: a Computer Simulation</i> A.Sabamehr and N. Amani  <i>Structural Investigation of the Sherman Minton Bridge Closure</i> Lisa Davey, Sara Jozefiak, Jimmy Lau, John Abruzzo, and Gary F. Panariello  <i>Restrained Bending Fatigue Design of Bridge Cables</i> S.W. Khan and M. Raouf	<i>Post-Earthquake and Tsunami 3D Laser Scanning Forensic Investigations</i> Michael J. Olsen and Robert Kayen  <i>3D LiDAR Scans for Bridge Damage Evaluation</i> Shen-En Chen; Wanqiu Liu; Haitao Bian; and Ben Smith  <i>Damage Evaluation Using LiDAR Scan and Smart Piezo Layer</i> Shen-En Chen; Howard Chung; Youngjin Park; Shannon Bell; and Alex Deaton  <i>Opportunities and Considerations for Smart Phone Applications and Mobile Social Media in Post Extreme Event Reconnaissance Data Collection</i> Heidi Michelle Bland and J. David Frost, Ph.D., P.E., P.Eng., F.ASCE	<i>Panel Discussion: Meet the 2nd Edition of Guidelines for Forensic Engineering Practice</i> Joshua B. Kardon, Moderator  <i>Panelists will include:</i> Deepak Ahuja, P.E., M.ASCE Behnam Arya, Ph.D., P.E., M.ASCE James S. Cohen, P.E., M.ASCE Derrick S. Hancock, P.E., M.ASCE Joshua B. Kardon, Ph.D., S.E., F.ASCE Leonard J. Morse-Fortier, Ph.D., P.E., M.ASCE Robert T. Ratay, Ph.D., P.E., F.ASCE Clemens J. Rossell, P.E., M.ASCE Lloyd M. Sonenthal, P.E., M.ASCE



## Friday, November 2, 2012

7:00 a.m. – 5:00 p.m.	Registration
7:30 a.m. – 8:30 a.m.	Continental Breakfast
7:30 a.m. – 8:30 a.m.	International Author's Breakfast
8:30 a.m. – 12:00 p.m.	Committee Meetings
9:30 a.m. – 3:30 p.m.	Exhibits
9:30 – 3:30 p.m.	Book Store Hours
10:00 – 10:30 a.m.	Networking Break
12:00 – 1:30 p.m.	Awards Luncheon & Order of the Engineer
1:30 – 3:00 p.m.	Concurrent Technical Sessions

Track 1 Location: Pacific D Michael P. Lester, P.E., CFEI, M.ASCE (Track Chair)	Track 2 Location: Pacific E Kenneth L. Carper, M.ASCE (Track Chair)	Track 3 Location: Pacific F Michael J. Drerup, P.E., M.ASCE (Track Chair)	Track 4 Location: Pacific G Alicia Diaz de León, P.E., S.E., AIA, M.ASCE (Track Chair)	Track 5 Location: Pacific H Robert T. Ratay, Ph.D., P.E., FASCE (Track Chair)	Track 6 Location: Pacific I Clemens J. Rossell, P.E., M.ASCE (Track Chair)	Track 7 Location: Pacific J Joshua B. Kardon, Ph.D., S.E., FASCE (Track Chair)
<i>Structural IV: Concrete Garage with Precast Formwork, Historic High-Rise Reinforced Concrete Building, Linear Elastic Finite Element Analysis, and Concrete Podium Slab</i> Moderator: Ashwani Dhalwala, M.S., S.E., M.ASCE	<i>Building Envelope IV: Cellulose Insulation, Stucco Trim, and Composite Wood Products</i> Moderator: Shen-en Chen, Ph.D., P.E., M.ASCE	<i>Education: Failures Education and Failure Case Studies in the Civil Engineering Curriculum</i> Moderator: M. Kevin Parfitt, P.E., F.AEI, M.ASCE	<i>Fires: Chlorine Gas Release, Fire Sprinklers, and Damage Evaluation</i> Clemens J. Rossell, P.E., Moderator: M.ASCE	<i>Professional Practice I: Standard of Care, Contract Management, Expert Witnessing, and Ethics</i> Moderator: Robert T. Ratay, Ph.D., P.E., F.ASCE	<i>Critical Infrastructure I: Asbestos-Cement Pipe, Containment Dike, HDPE Pipe, and Non Circular Tunnel</i> Moderator: Ming Zhu, Ph.D., P.E.	<i>Geotechnical I: Mechanically Stabilized Earth, Tunnel Heave, Partially Saturated Soils, and Bearing Characteristics</i> Moderator: Kenneth B. Simons, P.E., F.ASCE
<i>Collapse Investigation of a Concrete Garage With Precast Formwork</i> Matthew J. Sheehan and W. Gene Corley  <i>Evaluation of a Historic High-Rise Reinforced Concrete Building</i> James S. Cohen, P.E., M.ASCE  <i>Identification of Reinforced Concrete Failure Modes Using Linear Elastic Finite Element Analysis</i> James B. Deaton, Ph.D. Candidate and Lawrence F. Kahn  <i>Investigation and Remedial Strengthening of Concrete Podium Slab</i> R. Scott Silvester, P.E.; Nicholas J. Palumbo, P.E.; and Charles J. Russo, P.E.	<i>Potential Pitfalls of a Green Building Material: A Case Study of Cellulose Insulation</i> Deepak Ahuja, M.S., P.E., M.ASCE; B. Matthew Smith, M.Arch.; Gregory G. Schober, M.S., P.E.; and Marco A. DeLeon, M.E., P.E., M.ASCE  <i>Casing the Joint: Cutting Corners with Stucco Trim ≠ Waterproofing Flashing</i> Robert Bateman, AIA and Rene Luft, Sc.D., P.E.  <i>Interpreting Continuous v. Repeated Water Damage</i> Ralph E. Moon, Ph.D.	<i>Creating Better Buildings through Failures Education: Wikis, Forums, Synths, Tweets, Case Studies and Discussion Posts</i> M. Kevin Parfitt, P.E., F.AEI  <i>Implementation and Assessment of Failure Case Studies in the Engineering Curriculum</i> Norbert J. Delatte, Paul A. Bosela and Joshua Bagaka's  <i>Introducing Case Studies in the Civil Engineering Curriculum of the Tongji University, China</i> Kaoshan Dai, Ph.D. A.M.ASCE; Xiaosong Ren, Ph.D.; Wensheng Lu, Ph.D.; and Chao Liang	<i>Investigation of a Chlorine Gas Release Caused by the Mixing of Incompatible Chemicals</i> Russell Ogle; Suzanne Smyth; and Andrew Carpenter  <i>Investigating Inadvertent Automatic Fire Sprinkler System Discharges</i> A.F. Blum, CFEI; R.T. Long, Jr., P.E., CFEI; and S.E. Dillon, P.E.  <i>Fire Damage Evaluation for Residential &amp; Commercial Buildings</i> James W. Jordan, S.E., P.E., M.ASCE; Marc A. Sokol, P.E.; and John H. Stewart, P.E., M.ASCE  <i>Analyzing Unsatisfactory Fire Sprinkler Performance</i> A.F. Blum, CFEI; R.T. Long, Jr., P.E., CFEI; N.P. Wu, P.E., CFEI, CBO; and S.E. Dillon, P.E.	<i>The Standard of Care, Case Law, and Jury Instructions</i> Joshua B. Kardon, Ph.D., S.E., F.ASCE and Lloyd M. Sonenthal, Ltd. P.E. M.ASCE  <i>Forensic Engineering Applied to Contract Management in the Construction Industry</i> Sergio Palazzo  <i>Experts Beware – The Risks of Making It Up</i> T.F. Paret and G.R. Searer  <i>Expert Witness 101: Balancing Professional Ethics with Client Desires</i> D.A. Hodgin, PE, RRO, RRC, REWC, RWC, RBEC, CDT	<i>Asbestos-Cement Pipe Condition Assessment and Development of Optimum Replacement Methodology</i> N.J. Harris, Ph.D., P.E. and M. Radlinski, Ph.D., P.E.  <i>Instability of a Fly Ash Pond Containment Dike in Eastern India</i> Debasis Roy and Raghendra Singh, Ph.D. Candidate (QIP)  <i>A Case Study of a Ground Slip during Installation of an HDPE Pipe</i> L.S. Bryson, Ph.D., P.E., M.ASCE; C.L. Yohe, P.E., M.ASCE; and D. Hinkle, A.M.ASCE  <i>Wedge Stability in the Roof of a Non-Circular Tunnel</i> Hang-Zhou Li; Hong-Jian Liao; and Xianlun Leng	<i>Look Out Below!!! Potential Pitfalls and Suggested Improvements in Design and Construction of Mechanically Stabilized Earth (MSE) Walls</i> Scott J. DiFiore and Bryan P. Strohman  <i>Theoretical Analysis on Underlying Tunnel Heave during a New Pit Construction</i> Ping Li; Tao Yu; Hanlong Liu; and Xingde Zhou  <i>Forensic Evaluation on Bearing Capacity of Partially Saturated Soils – A Heuristic Approach</i> M. Adil Haque, Ph.D., P.E. and John T. Bryant, Ph.D., P.G., P.E.  <i>Study on the Bearing Characteristics of Long-Short Piles Composite Foundation Under Embankment Load</i> Yue-dong Wu; Ce-hui Shi; Jian Liu; and Zhi-guo Li
3:00 – 3:30 p.m. Networking Break						



## Friday, November 2, 2012 (cont.)

3:30 – 5:00 p.m. Concurrent Technical Sessions

Track 1 Location: Pacific D Michael P. Lester, P.E., CFEI, M.ASCE (Track Chair)	Track 2 Location: Pacific E Kenneth L. Carper, M.ASCE (Track Chair)	Track 3 Location: Pacific F Michael J. Drerup, P.E., M.ASCE (Track Chair)	Track 4 Location: Pacific G Alicia Díaz de León, P.E., S.E., AIA, M.ASCE (Track Chair)	Track 5 Location: Pacific H Robert T. Ratay, Ph.D., P.E., F.ASCE (Track Chair)	Track 6 Location: Pacific I Clemens J. Rossell, P.E., M.ASCE (Track Chair)	Track 7 Location: Pacific J Joshua B. Kardon, Ph.D., S.E., F.ASCE (Track Chair)
<i>Structural V: Prefabricated and Historic Wood Trusses, Termites, and Non-Destructive Testing</i> <b>Moderator:</b> Ronald W. Anthony, Aff.ASCE	<i>Building Envelope V: Cutting Edge Forensic Tools</i> <b>Moderator:</b> Ziad Salameh, Ph.D., P.E., M.ASCE	<i>Design Practices: Design for Safety, Coordination Responsibilities, Engineer's Responsibilities, and Civil Engineer's Role in Accessibility</i> <b>Moderator:</b> Deepak Ahuja, P.E., M.ASCE	<i>Floods: Residential Structures, Watermarks, Damage Resistant Materials, and Wind and Wave Action</i> <b>Moderator:</b> Ralph E. Moon, Ph.D., CHMM, CIAQP	<i>Professional Practice II: International Practices in European Countries, Latin America, India, and Italy</i> <b>Moderator:</b> Robert T. Ratay, Ph.D., P.E., F.ASCE	<i>Critical Infrastructure II: Rapid Damage Assessment, Earthquake-Induced Steel Fracture, and Natural Gas Systems</i> <b>Moderator:</b> J. David Frost, Ph.D., P.E., F.ASCE	<i>Geotechnical II: Time-Dependent Geothermal Analysis, Expanded Polystyrene Composite Soil, Sodium Silicate System Grouts, and Dredger Fill</i> <b>Moderator:</b> Derrick S. Hancock, P.E., M.ASCE
<i>Prefabricated Wood Truss Roof Failure Under Wind Induced Loads</i> Behnam Arya, Ph.D., P.E., SECB, M.ASCE and Anurag Jain Ph.D., P.E., SECB, M.ASCE	<i>Building Information Modeling (BIM) and the Building Envelope Consultant</i> Ziad Salameh, Ph.D., P.E., M.ASCE  <i>Imaging Concrete with Ground Penetrating Radar</i> Tony De Souza	<i>Application of Visualization Technologies to Design for Safety Concept</i> Mohammad Kasiroussafar, M.ASCE and Farzad Shahbodaghlu  <i>Failure to Communicate: Risks of Independently Retained Design Professionals</i> Robert C. Haukohl, P.E. and W. Joseph Macicak, S.E.  <i>An Engineer's Responsibility in the Design and Detailing of a Structure's Lateral Force Resisting System (a Case Study)</i> Daniel M. Killian, B.S., P.E. and Kerry S. Lee, M.B.A., P.E., M.ASCE  <i>The Civil Engineer's Role in Mitigating ADA Disputes in California</i> Kenneth J. Pinnegar, P.E. CASP, M.ASCE and Fred Pinnegar, Ph.D.	<i>Flood Damage Evaluation for Residential Structures</i> James W. Jordan, S.E., P.E., M.ASCE and Craig D. Rogers, P.E., M.ASCE  <i>Use of Watermarks for Discerning Hurricane-Induced Flood Levels</i> Erik L. Nelson, Ph.D., P.E., M.ASCE  <i>Draft Standard for Flood Damage-Resistant Materials</i> John Ingarziola, E.I., CFM, CBO and Julia Moline, CFM  <i>A Case Study of the Impact of Wind and Wave Action on Floating Dock Anchorage Systems on Lake Brownwood, Texas</i> David C. Jones, B.S., P.E., M.ASCE; Marco A. DeLeon, M.E., P.E., M.ASCE; Matthew L. Breidenthal, M.S., P.E., S.E., M.ASCE; and Kurt W. Cady, M.E., P.E., S.E.	<i>An Initial Survey of Forensic Engineering Practices in Some European Countries and the USA</i> Karel Terwel; Robert Ratay; Eugen Brühwiler; Jonathan Wood; Bruno Godart; and Dénes Dalmay  <i>Forensic Engineering Education Workshops: A Review of Experiences in the U.S. and in Latin America</i> Norbert J. Delatte; Paul A. Bosela; Kenneth L. Carper; Hugo Landivar; Hugo Navarro; and Oswald Rendon-Herrero  <i>The First Indo-US Forensic Engineering Workshop and Beyond</i> C. Natarajan; R. Janardhanam; A.R. Rajaram; Shen-En Chen; and Ryan Schmidt  <i>The Italian Association of Forensic Engineering</i> Nicola Augenti	<i>The February 2011 Christchurch Earthquake: Incorporating Transect Methodology into Rapid Damage Assessment</i> L.M. Moon; D.T. Biggs, Dist.M.ASCE; J.M. Ingham, M.ASCE; M.C. Griffith  <i>A Framework for Forensic Examination of Earthquake-Induced Steel Fracture Based on the Field Failures in the 2011 Christchurch Earthquake</i> D.A. Grilli; K. Marshall; and A.M. Kanvinde	<i>Time-Dependent Geothermal Analysis – A Forensic Evaluation</i> John T. Bryant, Ph.D., P.G., P.E.; M. Adil Haque, Ph.D., P.E.; and Brent L. Douglas, P.E.  <i>Creep Model of EPS Composite Soil and Secondary Development in FEM</i> H.M. Gao and G.X. Chen  <i>The Rheology Properties of Peat Treated with Sodium Silicate System Grouts</i> Hossein Moayedi; Sina Kazemian; Amir Hossein Vakili  <i>The Performance of Super Soft Foundation Under Modified Vacuum Preloading Method</i> Yang Shen; Mingan Tao; Hanlong Liu; Youbin Gao; and Yunliang Cui
3:30 – 6:00 p.m.	Exhibitor Move-Out					
5:00 – 9:00 p.m.	TCFE ExCom Meeting					



# Saturday, November 3, 2012

7:00 – 12:00 p.m. Registration

7:30 – 8:30 a.m. Continental Breakfast

8:30 – 10:00 a.m. Concurrent Technical Sessions

Track 1 Location: Pacific D Michael P. Lester, P.E., CFEI, M.ASCE (Track Chair)	Track 2 Location: Pacific E Kenneth L. Carper, M.ASCE (Track Chair)	Track 3 Location: Pacific F Michael J. Drerup, P.E., M.ASCE (Track Chair)	Track 4 Location: Pacific G Alicia Díaz de León, P.E., S.E., AIA, M.ASCE (Track Chair)	Track 5 Location: Pacific H Robert T. Ratay, Ph.D., P.E., F.ASCE (Track Chair)	Track 6 Location: Pacific I Clemens J. Rossell, P.E., M.ASCE (Track Chair)	Track 7 Location: Pacific J Joshua B. Kardon, Ph.D., S.E., F.ASCE (Track Chair)
<i>Structural VI: Wind, Snow, and Applied Load Failures</i> Moderator: John Abruzzo, P.E., LEED AP	<i>Flooring: Finished Quality, Carpet Tack Strips, Engineered Wood, and Ceramic Tile Systems</i> Moderator: James S. Cohen, P.E., M.ASCE	<i>Investigative Methodologies: Forensic Information Model, Myths, Oversimplifications, Misunderstandings, Collapse Mitigation, and Strengthening</i> Moderator: Alicia Diaz de León, P.E., S.E., AIA, M.ASCE	<i>Research and Testing: Laser Scanning Microscopy, Radiographic Evaluation, Load Testing of Shoring Systems, Repair Technology</i> Moderator: Brian M. McDonald, Ph.D., S.E., M.ASCE	<i>Hurricanes, Tornadoes, and Extreme Winds I: Residential Damage, Computational Fluid Dynamics Simulations, Debris Assessment, and Condominium Building Damage</i> Moderator: Michael P. Lester, P.E., CFEI, M.ASCE	<i>Critical Infrastructure III: Technical Responder Training, Crane Collapse, Laser Scanning, and Legal and Insurance Issues</i> Moderator: P. Anbazhagan, M.E., Ph.D.	<i>Geotechnical III: Subsidence, Stabilization, Sinkholes, and Slope Stability</i> Moderator: Shen-en Chen, Ph.D., P.E. (Moderator)
<i>An Investigation of the Collapse of the Dallas Cowboys Practice Facility</i> Christopher Trautner, E.I.T, A.M.ASCE; Rasko Ojdrovic, Ph.D., P.E., M.ASCE; Benjamin W. Schafer, Ph.D., P.E., M.ASCE; and Nicholas P. Jones, Ph.D., M.ASCE  <i>Case Study: Failure at an Abutting Lower Roof due to Snowdrift</i> Jed B. Larsen, M.E., A.M.ASCE; Marco A. DeLeon, M.E., P.E., M.ASCE; Deepak Ahuja, M.S., P.E., M.ASCE  <i>Investigation of Effect of Wind on Nettings</i> Dan Eschenasy, P.E., M.ASCE  <i>A Case Study on the Collapse of Industrial Storage Racks</i> James P. Plantes, B.S.; Deepak Ahuja, M.S., P.E., M.ASCE; Ryan T. Chancey, Ph.D., P.E., M.ASCE	<i>Using ASTM E1155 to Determine Finished Floor Quality: Background and Areas for Consideration</i> Patxi Uriz; John Osteraas; Brian McDonald  <i>Using ASTM E1155 to Determine Finished Floor Quality: Minimum Sampling Requirements used to Establish Compliant Floor Flatness and Levelness</i> Duane Steffey, Patxi Uriz, and John Osteraas  <i>Carpet Tack Strips: Determining the Duration of a Water Loss</i> Donald E. Nehrig, CIAQP, EI, CIEC and Ralph E. Moon, Ph.D.  <i>Trouble Under Foot – In Situ and Laboratory Investigation of Engineered Wood Flooring</i> Michael J. Drerup, P.E.; Ibrahim Erdem, Ph.D., P.E.; and Ronald W. Anthony  <i>Common Perils of Ceramic Floor Tile Systems</i> Bart B. Barret, P.E. and James M. Falls, E.I.	<i>A New Method for M+A2Bnaging and Presenting Facade Investigation Data</i> E. Karanci and R. Nagata  <i>Combating Myths, Oversimplifications and Misunderstandings about the Causes of Failures</i> Jonathan G.M. Wood, BSc Ph.D., FStructE, MICE, CEng  <i>Current Analysis Methods and Structural Collapse Mitigation</i> S. Marjanishvili, Ph.D., P.E., S.E., B. Katz, P.E.; and E. Hinman, ScD, P.E.  <i>Strengthen America</i> Kenneth B. Simons, F.ASCE	<i>A Universal Method to Determine Crack Age in Construction Materials</i> L. Sullivan-Green  <i>Non-Destructive Radiographic Evaluation and Repairs to Pre-Stressed Structure Following Partial Collapse</i> E.M. Reis, Ph.D., P.E. and U. Dilek, Ph.D., P.E.  <i>Testing of US&amp;R Shoring Systems Under Non-Ideal Conditions</i> M. Bazan, M. Engelhardt, D. Wheat and D. Hammond  <i>Research on Disengaging Detection and Repair Technology of Turbine Spiral Case</i> Jikai Zhou; Jianhua Li; Yunxiong Zhang; Xiaohui Ma; Xudong Chen; and Shengxing Wu	<i>Study of Residential Damages in Coastal North Carolina from Hurricane Irene</i> Michael P. Lester  <i>Sifting Through The Debris: Determining Damages Following Catastrophic Natural Events</i> Michael Horst, P.E. and Ralf Leistikow, P.E.  <i>Investigation of Hurricane Damage to a Condominium Building in Florida</i> Anurag Jain, Ph.D., P.E., M.ASCE and Can C. Sinsir, Ph.D., P.E., M.ASCE	<i>Structural Engineering Training and Experience Requirements at an Origin &amp; Cause Scene Scenario with Subsequent Crane Collapse</i> Douglas L. Fell, P.E., M.ASCE  <i>51st Street Crane Collapse: Issues in Investigation During Criminal Proceedings</i> James S. Cohen, P.E., M.ASCE  <i>Laser Scanning at an Origin &amp; Cause Scene Scenario with Subsequent Crane Collapse</i> Douglas L. Fell, P.E., M.ASCE and Vladimir Scheglovski, P.E., M.ASCE  <i>Common Legal Doctrines and Insurance Issues Effecting the Forensic Structural Engineer</i> David J. Taylor	<i>Analysis of Subsidence and Resulting Damage over an Area for 3 Decades</i> Gennaro G. Marino, Ph.D., P.E., M.ASCE and Abdolreza Osouli, Ph.D., M.ASCE  <i>Stabilization of Dispersive Soils by Pozzolan</i> A.H. Vakili, M.R. Selamat, H. Moayedi, and H. Amani  <i>Florida's 2011 Sinkhole Law Revisions Provide Needed Clarity</i> Mel Underwood, P.E.; Neil Cichy, P.E.; and Robert Granica, P.E.  <i>Study on Wind Erosion Resistance Ability and Slope Stability of Wind-Eroded Desert Roadbed</i> Chi Li, Xiaodong Ge and Hao Huang
10:00 – 10:30 a.m. Networking Break						



## Saturday, November 3, 2012 (cont.)

10:30 a.m. – 12:00 p.m. Concurrent Technical Sessions

Track 1 Location: Pacific D Michael P. Lester, P.E., CFEI, M.ASCE (Track Chair)	Track 2 Location: Pacific E Kenneth L. Carper, M.ASCE (Track Chair)	Track 3 Location: Pacific F Michael J. Drerup, P.E., M.ASCE (Track Chair)	Track 4 Location: Pacific G Alicia Diaz de León, P.E., S.E., AIA, M.ASCE (Track Chair)	Track 5 Location: Pacific H Robert T. Ratay, Ph.D., P.E., F.ASCE (Track Chair)	Track 6 Location: Pacific I Clemens J. Rossell, P.E., M.ASCE (Track Chair)	Track 7 Location: Pacific J Joshua B. Kardon, Ph.D., S.E., F.ASCE (Track Chair)
<i>Structural VII: Undermining, Building Settlement, Adjacent Construction, and Pre-Construction Surveys</i> Moderator: Michael P. Lester, P.E., CFEI, M.ASCE	<i>Residential Construction: Hail Damage, Wall Systems, and Cabinets</i> Moderator: Robb Haukohl, P.E.	<i>Practices to Reduce Failures: Imminent Collapse, Wood Deterioration, Facade Failures, and Code Considerations</i> Moderator: Michael J. Drerup, P.E., M.ASCE		<i>Hurricanes, Tornadoes, and Extreme Winds II: Tornado Damage Survey, Residential Construction, Damaged Structures, and Wind Speeds</i> Moderator: Cris Subrizi, P.E.	<i>Weak Story Wood Frame Buildings – What we Have and Haven't Learned</i>	<i>Geotechnical IV: Soil Failure, Subsurface Conditions, and Soil Compaction</i> Moderator: Howard Chung
<i>How was a SoHo Building Undermined?</i> Benjamin Lavon, P.E. and Carl J. Schoenberger, P.E.  <i>Assessment of Building Settlement and the Litigation Process – A Case Study</i> Ming Zhu, M.ASCE, Ph.D., P.E., T. Bart Gary, Esq., and Robert C. Bachus, M.ASCE, Ph.D., P.E., D.GE  <i>Case Study: Property Damage from Adjacent Construction</i> James S. Cohen, P.E., M.ASCE, Frank J. Giliberti, Esq., and Jeffrey Migdalen, Esq.  <i>Best Practices for Conducting Pre-Construction Surveys: Lessons Learned From Construction Claims</i> Anthony M. Dolhon, P.E., M.ASCE, David B. Peraza, P.E., M.ASCE, Ibrahim Erdem, Ph.D., P.E., M.ASCE, and Rahul Ratakonda, P.E., M.ASCE	<i>Wright House, Wrong Peril A Case Study in Hail Damage to a Frank Lloyd Wright Residence</i> Erik L. Nelson, Ph.D., P.E., M.ASCE  <i>Comparative Study of Multi-hazard Performance of Different Wall Systems Used in Single-Family Dwelling Construction</i> Ali M. Memari  <i>Differences in Cabinet Damage Exposed to Water and Water with Detergent</i> B. Davis, R.E. Moon, and D. Rondy	<i>Substantial Impairment vs. Imminent Collapse of Wood Structures</i> Kenneth B. Simons, F.ASCE  <i>Deterioration of Wood Structures – Basic Forensic Considerations</i> Ronald W. Anthony  <i>Latent Building Facade Failures</i> Kimball J. Beasley, P.E., F.ASCE  <i>The Building Code and Repairs to Damaged Structures</i> Paul James Bennett, P.E., CBIE, M.ASCE	No Session Scheduled	<i>Findings and Recommendations of FEMA's Mitigation Assessment Team Investigations of the Spring 2011 Tornado Outbreaks</i> Erin Walsh and Scott Tezak, P.E., BSCP  <i>Damage to Residential Construction from the Tornadoes in Vaughan, Ontario on August 20, 2009</i> Murray J. Morrison, Gregory A. Kopp, Eri Gavanski, Craig Miller, and Arnold Ashton  <i>Post Event Forensic Investigation of Damaged Structures from Strong Wind Events</i> David A. VanDerostyne, P.E., S.E., Sean K. Hallet, P.E., and Jason A. Nichols, P.E.  <i>Failure vs. Flight: An Experimental Study of Wind Speeds Associated with Roof Failures of Houses</i> S.E. Stenabaugh and Gregory A. Kopp, Ph.D., P.Eng., M.ASCE	<i>Pounding of Closely Spaced SWOF Buildings in San Francisco</i> Bruce Maison, S.E.  <i>Laboratory Testing of SWOF Structures</i> Gary Mochizuki, S.E., LEED AP  <i>Implementation of a Rational SWOF Retrofit Policy: FEMA P-807</i> David Bonowitz, S.E.  <i>What NOT TO DO when Retrofitting Wood Framing</i> Thor Matteson, S.E.	<i>Partial Collapse of an Ancient Masonry Church</i> Nicola Augenti  <i>Use of Forensic Engineering to Determine the Cause of a Crane Tip Over</i> E.D. Zisman, P.E., P.G., M.ASCE  <i>Investigation of Soil Compaction Homogeneity in the Finished Building Using Ground Penetrating Radar</i> Anbazhagan P, Deepu Chandran, and Shashank Burman

12:30 – 6:00 p.m.

Sebastiani Vineyards & Winery Tour

### CONCLUSION OF THE 6TH CONGRESS ON FORENSIC ENGINEERING

## FRIDAY, NOVEMBER 2, 2012

### Registration

7:00 a.m. – 5:00 p.m.

Location: Grand Foyer

### Continental Breakfast

7:30 – 8:30 a.m.

Location: Grand Foyer

Sponsored by



### International Author's Breakfast

7:30 – 8:30 a.m.

Location: Pacific F

International authors are invited to attend a free roundtable discussion on publishing in ASCE Journals and on the International Activities of TCFE at this Breakfast. Ken Carper and Dr. Norb Delatte are the chief editors of two different ASCE journals and will answer your questions on publishing with ASCE. They will also discuss the New International Activities Committee of TCFE and the development of international delegations, symposia and conferences. Following this meeting, you are invited to attend the International Activities Committee meeting.

**Panelists: Norbert J. Delatte, Jr., Ph.D., P.E., F.ASCE**, Chair of the New International Activities Committee of TCFE; **Kenneth L. Carper, M.ASCE**, Editor of the Journal of Performance of Constructed Facilities

### Committee Meetings

8:30 a.m. – 12:00 p.m.

Refer to page 14 for a complete list of meetings. All registered attendees are encouraged to attend.

### Exhibit Hours and ASCE Publications Table

9:30 a.m. – 3:30 p.m.

Location: Grand Foyer

### Awards Luncheon & Order of the Engineer

12:00 – 1:30 p.m.

Location: Grand Ballroom A

The ASCE Technical Council on Forensic Engineering (TCFE) has announced the recipients of 2009, 2010, 2011 and 2012. Forensic Engineering Awards. The Forensic Engineering Award recognizes individuals for outstanding contributions to the field of forensic engineering.

Each year the ASCE Technical Council on Forensic Engineering (TCFE) presents an award to the authors of the Outstanding Paper published in the *Journal of Performance of Constructed Facilities* the preceding calendar year. The Outstanding Reviewer Award was established in 2009 by the Journals Division of ASCE. The success of ASCE peer-reviewed publications has always been dependent on the altruistic contributions of dedicated reviewers. The recipients are:

**Arthur A. Huckelbridge, Jr., D.Eng., P.E., M.ASCE**  
2009 TCFE Outstanding Paper Award

**Andrew T. Metzger, Ph.D., P.E., M.ASCE**  
2009 TCFE Outstanding Paper Award

**Kelly A. Salyards, Ph.D., P.E., M.ASCE**  
**Linda M. Hanagan, Ph.D., P.E., M.ASCE**  
2010 TCFE Outstanding Paper Award

**Richard J. Deschamps**  
**Charles S. Hanskat**  
2011 Outstanding Reviewer Award

**David W. Mockbee, J.D.**  
**Jud R. Jones, J.D.**  
2011 Outstanding Paper Award

**Denis Mitchell, Ph.D., F.CSCE, F.ACI**  
**Jacques Marchand, Ph.D., F.ACI**  
**Paul Croteau, Ph.D., F.ACI, M.ASCE**  
**William D. Cook, Ph.D.**  
2011 Outstanding Paper Award

**Richard J. Deschamps, Ph.D., P.E., M.ASCE**  
**Charles S. Hanskat, P.E., F.ASCE, F.ACI**  
**Carl H. Carpenter, P.E., F.ASCE, Life Member, ASCE**  
2011 Outstanding Reviewer Awards

**Carl Carpenter**  
2012 Outstanding Reviewer Award



**Rameshchandra N. Raikar, F.ACI, F.IE, F.ISSE, F.CSCE**  
2009 National Forensic Engineering Award – Awarded Posthumously



**Rubin M. Zallen, P.E., M.ASCE**  
2010 National Forensic Engineering Award

The lunch will conclude with the Order of the Engineer Induction Ceremony. Over 4,400 engineers have participated in ASCE led Ring Ceremonies since the summer of 2003. You are invited to show your commitment to high ethics and professionalism by taking the Obligation of the Engineer Oath and receiving a certificate and stainless steel ring. Any engineer is eligible if he or she has graduated from an ABET-accredited engineering program or holds a license as a Professional Engineer in the United States. Students enrolled in ABET-accredited engineering degree programs are eligible if they are within two academic terms of graduation. Sign up for the ceremony at the registration desk by Thursday, November 1, at 5:00 p.m.

Sponsored by 

**Fees: Member: \$30**  
**Non-Member: \$40**

**TECHNICAL SESSIONS**

**1:30 p.m. – 5:00 p.m.**

*Location: Check the program grid on pages 7 – 12*

**Networking Break**

**3:00 – 3:30 p.m.**

*Location: Grand Foyer*

**SATURDAY, NOVEMBER 3, 2012**

**Registration**

**7:00 a.m. – 12:00 p.m.**

*Location: Pacific Foyer*

**Continental Breakfast**

**7:30 – 8:30 a.m.**

*Location: Pacific Foyer*

**Technical Sessions**

**8:30 a.m. – 10:00 p.m.**

*Location: Check the program grid on pages 7 – 12*

**Networking Break**

**10:00 - 10:30 a.m.**

*Location: Pacific Foyer*

**Sebastiani Vineyards & Winery Tour**

**12:30 – 6:00 p.m.**

*Meet in the Grand Foyer at 12:00 p.m. for a 12:30 p.m. departure.*

With over a century of wine-making experience, Sebastiani Vineyards & Winery focuses on crafting small lots of super-premium wines from Sonoma County.

Sebastiani's first century in Sonoma winemaking began when the founder, Samuele, emigrated from the Tuscany region of Italy in 1895 and started Sebastiani nine years later. A stone mason by trade, he quarry-mined the Sonoma hills for cobblestones that were used to build the streets of San Francisco. He worked long hours and saved carefully to buy land in Sonoma County, from which he would make wine for the Sonoma community and San Francisco's restaurants.

The winery was the only one in Sonoma County to continue operations through Prohibition, making a small amount of sacramental and medicinal wines. It has been joked, and perhaps with some grain of truth, that during this time there was a resurgence of people becoming very religious.

Enjoy a personal tour through the history of the vineyards and its own winemaking practices. The tour includes a carved cask collection, antique redwood barrels, crush pads and fermentation tanks. Following the tour, sit down and sample Sebastiani's Reserve Wines that will be paired with locally grown and prepared artisan foods. A \$30 credit will be applied toward the purchase of wine.

**Fees: Member: \$95**  
**Non-Member: \$105**

# GENERAL INFORMATION

## ADA Compliance

The Hyatt Regency San Francisco at 5 Embarcadero Center is barrier-free in compliance with the Americans with Disabilities Act (ADA). While ASCE/TAC will make every effort to meet the needs of the physically challenged, accommodations cannot be guaranteed without prior notification.

## Attendee Packets

The packet you received at the on-site Registration Desk includes your name badge, the tickets for events you have ordered, PDH information and general announcements.

## ASCE Publications Table

Located in the exhibits area, stop by to look through books that cover Forensic Engineering, including the 2012 Failure Case Studies in Civil Engineering and Guidelines for Forensic Engineering Practice. Hours are:

- **Thursday, November 1**  
2:00 – 5:00 p.m.
- **Friday, November 2**  
9:30 a.m. – 3:30 p.m.

## Badge Policy and Ribbons

Your name badge is your admission to the Congress. Please wear your badge at all times while in the hotel. ASCE recommends you remove your badge when leaving the premises. Where tickets are required, please bring them with you as you will not be admitted without one. Ribbons will be available at the Congress registration desk.

## Cancellations

Requests for cancellations should have been received in writing at ASCE headquarters by **October 3, 2012**, to receive a refund of the registration fee, less a \$100 processing fee. Additional event tickets would have been fully refunded if the request was received in writing by **October 3**, via fax at (703) 295-6144; e-mail at [registrations@asce.org](mailto:registrations@asce.org); or mail to ASCE Attn: Customer Service, 1801 Alexander Bell Drive, Reston, VA 20191-4400, USA. NO REFUNDS were

granted after **October 3, 2012**.

## Congress Attire

The dress code for the Congress is business casual (i.e. slacks, casual dresses). Meeting room temperatures will vary, so wear layered clothing to ensure your personal comfort. We also recommend attendees wear comfortable shoes.

## Congress Proceedings

The Congress proceedings will be available on CD. One copy is included with each full registration. Additional copies may be purchased for \$75. To pick up your copy, present the ticket you received in your registration packet to an ASCE staff member at the Registration Desk. You must claim your CD by **November 28th**. To purchase a copy after the Congress, call ASCE at (800) 548-ASCE (2723), send a fax to (703) 295.6211; or order online at [www.pubs.asce.org](http://www.pubs.asce.org).

## Medical Emergencies

ASCE/TAC hopes that your visit to San Francisco and the **6<sup>th</sup> Congress on Forensic Engineering** will be free of medical incident. However, if you become ill at the Hyatt, please contact the Front Desk and tell them you have a medical emergency that requires immediate attention. The closest medical facility located 1.35 miles/4 minutes away is:

### Saint Francis Memorial Hospital

1150 Bush Street  
San Francisco, CA 94109

## No Smoking Policy

ASCE supports a "No Smoking" policy. Smoking is prohibited in the Hyatt Regency San Francisco and all venues hosting ASCE events.

## Post-Congress Evaluations

An electronic evaluation will be sent out to all attendees immediately following the Congress.

## Professional Development Hours (PDH)

You may earn up to **18** PDHs, which are nationally recognized units of record, by

attending Congress technical sessions. Please note that there are differences from state to state in continuing education requirements from professional engineering licensure. Each state licensing board has the final authority to approve courses, credits, PDHs and other methods of earning credits in that state. ASCE does not keep record of credits earned and strongly recommends that individuals keep record of credits earned. Submit your credits to the licensing board and regularly check for specific continuing education requirements in the jurisdictions that affect professional engineering licensure and the ability to renew licensure. Certificates will be provided upon request at the conclusion of the Congress. For details on your state's requirements, please go to [www.ncees.org/licensure/licensing\\_boards](http://www.ncees.org/licensure/licensing_boards).

## Recording Policy

Video or audio recording of any education session is strictly prohibited without prior written permission from both ASCE and the session presenter(s).

## Release/Waiver

**Photograph Release:** By attending this Congress, I hereby release any photographs that may be incidentally taken of me by ASCE/TAC Institute during these events to be used for any purpose.

**Liability Waiver:** I agree and acknowledge that I am participating in ASCE/TAC Institute events and activities at my own free and intentional act; and I am fully aware that possible physical injury might occur to me as a result of my participation. I give this acknowledgement freely and knowingly that I am, as a result, able to participate in ASCE/TAC Institute events, and I do hereby assume responsibility for my own well-being. I also agree not to allow any other individual to participate in my place.

## Weather in San Francisco, CA

The average high is 66° F/24° C and average low is 52° F/11° C.

## Committee Meetings

All registered attendees are encouraged to attend the following meetings:

### Wednesday, October 31

**5:00 p.m. – 9:00 p.m.**

- TCFE ExCom  
*Location: Pacific BC*

### Friday, November 2

**8:30 a.m. – 12:00 p.m.**

- Dissemination of Failure Information  
*Location: Pacific E*
- Education  
*Location: Pacific D*
- Forensic Investigations  
*Location: Pacific K*

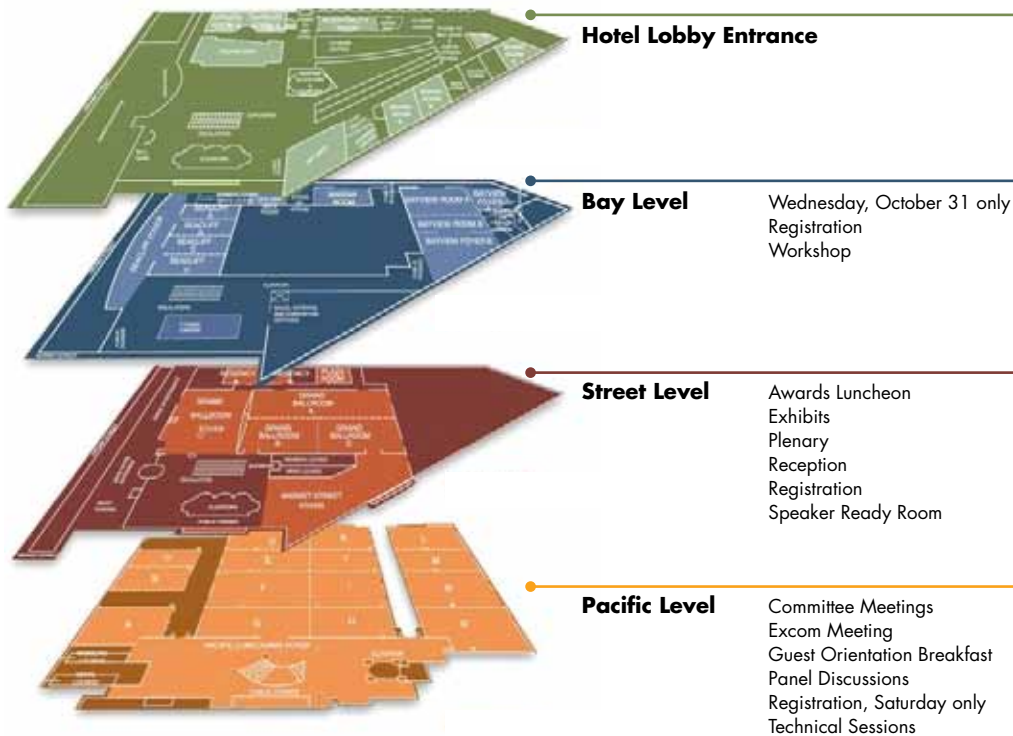
- Forensic Practices  
*Location: Pacific N*
- International Activities  
*Location: Pacific O*
- Practices to Reduce Failures  
*Location: Pacific L*

### Friday, November 2

**5:00 p.m. – 9:00 p.m.**

- TCFE ExCom  
*Location: Pacific K*

# HYATT REGENCY HOTEL MAP



## EXHIBITS

The 6<sup>th</sup> Congress on Forensic Engineering would like to thank our exhibitors for helping to make this event possible.

### Exhibit Schedule

#### Wednesday, October 31, 2012

4:00 – 5:30 p.m. Exhibitor Move-in  
5:30 – 7:00 p.m. Welcome Reception in Exhibit Hall

#### Thursday, November 1, 2012

9:30 a.m. – 6:00 p.m. Exhibit Hours  
10:00 – 10:30 a.m. Morning Break  
12:00 – 1:00 p.m. Exhibit Hall Lunch  
3:00 – 3:30 p.m. Afternoon Break

#### Friday, November 2, 2012

9:30 a.m. – 3:30 p.m. Exhibit Hours  
10:00 – 10:30 a.m. Morning Break  
3:00 – 3:30 p.m. Afternoon Break  
3:30 – 6:00 p.m. Exhibitor Move out

#### ASCE/TCFE Forensic Engineering

Tenzing Barshee  
1801 Alexander Bell Drive  
Reston, VA 20191  
Phone: 703-295-6115  
Email: tbarshee@asce.org  
Website: www.asce.org

#### FEMA Building Science Branch (URS Corporation)

Laura Seitz  
12420 Milestone Center Drive  
Suite 150  
Germantown, MD 20876  
Phone: 301-820-3436  
Email: laura.seitz@urs.com  
Website: <http://fema.gov/building-science>

#### FYFE Co, LLC

Scott Arnold  
8380 Miralani Drive  
Suite A  
San Diego, CA 92126  
Phone: 858-642-0694  
Email: scott@fyfeco.com  
Website: www.fyfeco.com

#### National Academy of Forensic Engineers (NAFE)

E. Ross Curtis  
1123 Cannon Hill Road  
Hedgeville, NV 25427  
Phone: 304-754-5560  
Email: curtiseng@frontier.com  
Website: www.nafe.org

#### PT&C

Recruiting Manager  
2727 Paces Ferry Road  
Suite 1-1200  
Atlanta, GA 30339  
Phone: 770-444-9799  
Website: www.ptcinc.com

#### Precision 3D Scanning

Laura Newbrough  
3195 W. Armstrong Place  
Chandler, AZ 85286  
Phone: 480-522-2560 x2635  
Email: lauran@precision3dscanning.com  
Website: www.precision3dscanning.com

#### Rimkus Consulting Group, Inc.

Lindsay Martenak  
8 Greenway Plaza #500  
Houston, TX 71406  
Phone: 713-621-3550  
Email: lmmarten@rimkus.com  
Website: www.rimkus

#### Sensors & Software

Carrie-Ann Amyot  
1040 Stacey Court  
Mississauga, ON Canada L4W 2X8  
Phone: 905-624-8909  
Email: camyot@senssoft.ca  
Website: www.senssoft.ca

#### Thomson Reuters

Megan Dailey  
610 Opperman Drive  
Eagen, MN 55123  
Phone: 651-687-4506  
Email: megan.dailey@thomsonreuters.com  
Website: www.thomsonreuters.com

The 6<sup>th</sup> Congress on Forensic Engineering would like to thank our Sponsors and Cooperating Organizations for helping to make this event possible.

## SPONSORS

### Gold Level Sponsors



### Silver Level Sponsors



### Bronze Level Sponsors



## COOPERATING ORGANIZATIONS

