

EARTHQUAKE ENGINEERING RESEARCH INSTITUTE

Founded in 1948, EERI's mission is to reduce earthquake risk by (1) advancing the science and practice of earthquake engineering, (2) improving understanding of the impact of earthquakes on the physical, social, economic, political, and cultural environment, and (3) advocating comprehensive and realistic measures for reducing the harmful effects of earthquakes.

LEARNING FROM EARTHQUAKES

► M8.2 Iquique, Chile Earthquake and Tsunami: Preliminary Reconnaissance Observations

The EERI Learning from Earthquakes (LFE) Committee, led by chair **Ken Elwood** (M. EERI, 1994), reached out to colleagues in Chile to compile this article for the EERI membership that summarizes their initial observations from the April 1, 2014 M8.2 earthquake and tsunami. This article is compiled by **Juan Carlos de la Llera Martin** of [Pontificia Universidad Católica de Chile](#)  with contributions from researchers at the National Research Center for Integrated Natural Disasters (CIGIDEN), Santiago, Chile; researchers from University of Concepción; and Rene Lagos Engineers.

On April 1, 2014 at 20:46:50 local time (23:46:50 UTC), a Mw8.2 megathrust earthquake, with a depth of 20.1 km and epicenter 95 km NW from Iquique, ruptured an estimated surface of about 40 km (strike) by 30 km (dip) with a maximum slip of about 6.5 m (USGS). This earthquake occurred in a historic seismic quiescence zone in Northern Chile (previous significant Mw8.8, 1877). The seismic sequence started March 16 with an Mw6.7 earthquake, and foreshock activity that ended in a quiet period of 2.5 days. Following the main shock, a new aftershock (Mw7.6) occurred south of Iquique April 3 at 2:43:14 UTC (21:43:14 local time). Six people have been reported dead as a direct consequence of this earthquake.

More than a million people felt the ground shaking. The seismic intensity was strongest in Iquique (MMI VII), Arica (VII), and Tacna (VI). The earthquake also generated a tsunami with a maximum water run up measured of 4.4 meters above sea level and 3.15 meters above sea level at Patache and Iquique, respectively (CIGIDEN). The tsunami affected mostly fishermen's activities and all coastal towns from Arica to Iquique. The maximum inland penetration of water was 315 m at the Ike-Ike beach.

The region is an industrial area (mining, fishing, commerce). Small towns and villages with non-engineered adobe and masonry houses were strongly affected by the main shock (*Figure 1*). Some concrete-block masonry houses and short buildings were severely damaged, but no collapse was observed. Heavy damage occurred in some locations in Iquique and Alto Hospicio, the latter showing a clear topographic amplification effect. Three-story building blocks founded on collapsible soils in Alto Hospicio were damaged due to seismically-induced settlement. Extensive diagonal shear cracks were observed in the first-story masonry walls of the 5-story complex Pablo Neruda (Iquique). The estimated total number of damaged houses in the affected region is over 13,000.



Figure 1: Pounding and infill masonry damage to mid-rise structures. Source: Rene Lagos Engineers.

High-rise buildings (38 stories or less) showed no structural damage in Iquique beyond small pounding between structures (*Figure 2*), and localized moderate cracking and spalling in some columns. Large non-structural damage was observed in Zofri (Iquique's free trade zone). Nonstructural failures contributed largely to the public's perception of significant damage.

The port of Iquique had one of the two piers damaged due to liquefaction and lateral spreading in the eastward direction (*Figure 3*). The damaged pier dates from 1928, and the east wall of the damaged pier tilted outward leading to a settlement of about 1.4 m of the central platform measured next to the pier. The other pier, responsible for 85% of the cargo of the port, had been retrofitted in 2007, thus suffered only minor damage.

The electricity was shut down as a result of the earthquake, with 50% of the service recovered in Iquique in 24 hours. Water supply was recovered slower than electricity, taking a full week to recover at Cerro Dragon (Iquique).

Traffic on route A16 was interrupted as a result of movement of several unstable slopes and rock falls. This route is strategic for the regional economy, and an 80 m long section dropped 40 cm (*Figure 4*). Slope stability failures occurred at various locations on the natural terrace along the coast; measured accumulated displacement reached over one meter. Rockfalls from the hillside caused major traffic delays, until the traffic flow was partially restored two days after the earthquake. Basement walls, bridge abutments, and retaining walls performed well at this level of ground accelerations (PGA ~ 0.3g). Some cantilever walls of Cerro Dragon (Iquique) sustained significant rotations ($\Delta/H \sim 1\% - 8\%$).

More information can be found and continues to be added to the Clearinghouse website at <http://www.eqclearinghouse.org/2014-04-01-chile/>.

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Figure 3: Damage to the north end of Iquique Port Pier 1. Source: Gonzalo A. Montalva and Fernando A. Cerda.



Figure 2: Tall building with no visible structural or non-structural damage. Source: Rene Lagos Engineers.



Figure 4: Slope (20°) displacement on Route A16 is 40cm vertical and 10 cm horizontal. Source: Gabriel Candia A.

NEWS OF THE INSTITUTE

► 10NCEE Program Is Available Online: Register Today Before Rates Go Up!

The full program for the Tenth U.S. National Conference on Earthquake Engineering (10NCEE) is now available online at <http://www.10ncee.org/program>. The program includes over 1,000 presentations in 130 sessions, including 27 invited presentations by distinguished speakers in the plenary and theme sessions. The online program is completely searchable and can be used to search for presentations by colleagues or to find presentations by keyword.

Register now for 10NCEE in Anchorage, Alaska, July 21–25, 2014. *Registration rates will increase after May 15, 2014 (by \$100 for full conference rate and by \$50 for one-day rates).*

 10NCEE website

Information about [Travel and Lodging](#), [Airline Discounts](#), [Pre-Conference Events](#), and [Thursday Evening at the Alaska Native Heritage Center](#) is available at www.10ncee.org.

Questions or concerns about the online program should be sent to 10ncee@eeri.org.

New 10NCEE Sponsors: AMEC and PRA

AMEC is a new Bronze Sponsor of 10NCEE. Ranked 24th in *Engineering News-Record's* Top 500 Design Firms, AMEC (EERI Bronze Subscribing Member) is one of the leading engineering and design, environmental, and construction services companies in the US. Providing a full range of services to more than 7,000 public and private clients worldwide, AMEC's 3,000-plus employees, with specialists in over 50 scientific and engineering disciplines, work from over 100 offices across the U.S. AMEC's broad geographic coverage and technical depth allows the company to perform virtually any scope of work, regardless of location, size or complexity. For more info, visit the AMEC website at <http://www.amec.com/> .



Petrotechnical Resources of Alaska (PRA) is a new Bronze Sponsor of 10NCEE. PRA was founded in 1997 by a group of five independent consultants. Currently managed by Chris Livesey and Tom Walsh, PRA has grown into a group of over 115 affiliated geologists, geophysicists and petroleum engineers, among other diverse oil and gas professionals. Most of PRA's affiliates have in excess of 20 years in the oil industry with the bulk of that experience in Alaska. PRA's professionals have worked in every basin in Alaska on both exploration and development projects. From the North Slope to Cook Inlet, PRA consultants know and understand the regional geology, the unique operating conditions, and the regulatory environment. For details, visit the PRA website at <http://www.petroak.com/> .



New 10NCEE Exhibitors

The following companies and organizations are new exhibitors for 10NCEE in Anchorage:

FYFE Co. LLC
SidePlate Systems, Inc.
Unbonded Brace

For the full list of 10NCEE exhibitors, visit: <http://10ncee.org/exhibitors>.

10NCEE Cooperating Organizations

The following organizations have agreed to be non-financial **sponsors** of 10NCEE:

Alaska Seismic Hazards Safety Commission
American Concrete Institute
Central U.S. Earthquake Council
Consortium of Organizations for Strong Motion Observation Systems
Consortium of Universities for Research in Earthquake Engineering
International Code Council
Mid-American Earthquake Center
Natural Hazards Center, University of Colorado
Pacific Earthquake Engineering Research Center
Southern California Earthquake Center
Western States Seismic Policy Council

Register today for 10NCEE at www.10ncee.org! We hope to see you in Anchorage this summer.

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► **EERI Honorary Members: Bill Anderson and Bill Iwan**

The EERI Board of Directors selected **William (Bill) A. Anderson** (M. EERI, 2001) and **Wilfred (Bill) D. Iwan** (M. EERI, 1989) as Honorary Members of the Institute. Honorary membership is awarded to recognize members who have made sustained and outstanding contributions to the field of earthquake engineering and to EERI and the pursuit of its objectives. Presentation of EERI Honorary Awards and Tribute to Bill Anderson will take place at the **10NCEE Wednesday lunch** on July 23, 2014.



William A. Anderson

EERI Honorary Member **Bill Anderson** (1937–2013) passed away unexpectedly in **late December** . Anderson was trained as a sociologist at the Ohio State University Disaster Research Center and was a professor of Sociology at Arizona State University before going to the Engineering Directorate of the National Science Foundation in 1976, where he remained for the next 26 years.

While on leave from NSF, Anderson took a position with the Disaster Management Facility at the World Bank where he was one of the architects of the ProVention Consortium. In 2001, he moved to the National Academy of Sciences to direct the Disasters Roundtable and serve as associate executive director of the Division on Earth and Life Studies.

Coming from a tradition of field research carried out in the immediate aftermath of disasters, Anderson recognized the value of EERI's Learning from Earthquakes program, enabling multidisciplinary teams to collect perishable data after damaging earthquakes. NSF funding for the LFE program enabled EERI to disseminate field observations through written reconnaissance reports and live presentations throughout the country.

Recognizing the need to develop ties to researchers in other earthquake-prone countries, Anderson funded a series of international workshops that allowed researchers to exchange information about their work and to develop personal relationships. That tradition served EERI well after major earthquakes in many countries; it lived on after Bill left NSF, ensuring valuable post-earthquake research collaboration throughout the world.



Wilfred D. Iwan

EERI Honorary Member **Bill Iwan** is emeritus professor of applied mechanics and emeritus director of the Earthquake Engineering Research Laboratory at the California Institute of Technology. Professor Iwan joined the Caltech faculty in 1964. His research deals with fundamental areas of mechanics, understanding and characterization of strong earthquake ground motion, analysis and monitoring of the response of structural systems subjected to extreme events, and public policy regarding disasters.

Iwan's research achievements include the development of methods to represent complex nonlinear structures with simpler linear systems, the development of practical methods for earthquake-resistant design, and the development of simplified methods for the analysis of seismic isolation systems for critical equipment. In 1979 he proposed an earthquake early-warning system for urban regions. He introduced the concept of a "drift demand spectrum" as a means of measuring the damage potential of strong earthquake ground motion, and has worked toward improving both seismic instrument design and the interpretation of data.

Professor Iwan is a Distinguished Member of the American Society of Civil Engineers, a Fellow of the American Society of Mechanical Engineers, and a member of the Earthquake Engineering Research Institute (EERI). He is a recipient of the George W. Housner Medal awarded by EERI, both the William H. Wisely American Civil Engineer Award and the Nathan M. Newmark Medal awarded by ASCE, the Alfred Alquist Medal awarded by the Earthquake Safety Foundation, and a Lifetime Achievement Award presented by the Consortium of Strong Motion Observation Systems (COSMOS). He was the inaugural recipient of the Bruce A. Bolt Medal awarded jointly by EERI, the Seismological Society of America, and COSMOS.

For more information on the EERI Honorary Membership, visit the EERI website at <https://www.eeri.org/about-eeri/honors-awards/honorary-membership/> .

Note: See the full list of 2014 EERI Award Recipients at <http://bit.ly/1c3HttF> . In the next issue of The Pulse, we will feature the Earthquake Spectra Outstanding Paper Award.

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▶ Heidi Tremayne Joins EERI Staff as Program Manager

The EERI Board of Directors and Staff are thrilled to announce that **Heidi Tremayne**, P.E. (M. EERI, 2004) became EERI's Program Manager in early April. In this new position, Heidi will be responsible for managing multiple projects and programs, creating and leading professional development programs, and supporting the Institute's committees and chapters.



Heidi Tremayne

Prior to joining EERI, Heidi was the Outreach Director at the Pacific Earthquake Engineering Research Center (PEER) for six years where she coordinated PEER's numerous education and communications programs. A selection of her accomplishments include convening a successful symposium on the twentieth anniversary of the Northridge earthquake, creating PEER's Internship Program that provided internationally-respected research opportunities for undergraduate students, facilitating numerous technical workshops and webinars, and overseeing an elementary school outreach program for the nees@berkeley laboratory.

Heidi is also currently serving the second year of her two-year term as the President of the EERI Northern California Chapter. Her experience at the regional chapter level will make her an ideal liaison for regional and student chapter representatives looking to engage with other chapters and expand their activities.

Heidi is passionate about earthquake risk mitigation and looks forward to helping EERI both further its mission and serve its members. Please don't hesitate to contact her at heidi@eeri.org with ideas, questions, or suggestions as she launches into her career at EERI!

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▶ Call for Abstracts: 3rd International Conference on Urban Disaster Reduction

Abstracts are being solicited for the 3rd International Conference on Urban Disaster Reduction (3ICUDR), which will be held September 28 – October 1, 2014 in Boulder, Colorado. The conference builds on an established practice of international collaboration and knowledge-sharing after disaster events in Japan, U.S., and Taiwan. In this third conference, New Zealand joins the three collaborating countries. The mission of this conference is to develop, integrate, and promote new knowledge and best practices in sustainable disaster recovery, with a particular emphasis on urban environments.

Abstracts that take bold steps in describing new strategies and ways of thinking to significantly reduce potential casualties, damage, and disruption from future disasters; and create safe, resilient, and adaptive communities, regions, and nations are being solicited.

Young scholars are encouraged to present emerging research. Papers that bridge the knowledge gaps between research and practice are particularly welcomed. For more information and suggested topic areas, view the Call for Abstracts at <http://3icudr.org/call-for-abstracts/>. The deadline for submission is **May 1, 2014**.

 **Save the Date: 3rd International Conference on Urban Disaster Reduction (3ICUDR)**

The conference is being organized by the Earthquake Engineering Research Institute in collaboration with colleagues from the following partner organizations: **USA** — the Natural Hazards Center, University of Colorado, Boulder; Disaster Research Center, University of Delaware; Hazard Reduction and Recovery Center, Texas A&M University; **Japan** — the Research Center for Disaster Reductions Systems (DRS), Disaster Prevention Research Institute, Kyoto University, Kyoto, and the Risk Management Office/Research Center for Natural Hazard & Disaster Recovery, Niigata University, Niigata, in coordination with the Institute of Social Safety Science; **Taiwan** — the National Science and Technology Center for Disaster Reduction (NCDR) and the Disaster Management Society of Taiwan; and **New Zealand** — the New Zealand Society for Earthquake Engineering (NZSEE) and GNS Science, New Zealand. For more information about the conference, visit: www.3icudr.org.

 **3rd International Conference on Urban Disaster Reduction (3ICUDR)**

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▶ 2014-2015 EERI/FEMA Graduate Fellowship in Earthquake Hazard Reduction

EERI is pleased to announce the availability of a Graduate Fellowship for the 2014-2015 academic year to support one full-time student in a discipline contributing to the science and practice of earthquake hazard mitigation.

The one-year fellowship, underwritten with funds provided by the [Federal Emergency Management Agency](#)  , is designed to foster the participation of capable individuals in working toward goals and activities of the National Earthquake Hazards Reduction Program.

Award

The EERI/FEMA NEHRP fellowship provides a nine-month stipend of \$12,000 with an additional \$8,000 for tuition, fees, and research expenses.

Criteria

Applicants must be enrolled in a graduate degree program at an accredited U.S. college or university and must hold U.S. citizenship or permanent resident status. All applications must include an academic transcript and a statement of educational and career goals.

All application materials must be submitted electronically to EERI, including a letter of nomination from a faculty sponsor at the student's institution and two additional reference letters. Letters should evaluate the applicant's recent academic performance, document the applicant's research accomplishments, and assess the candidate's potential to contribute to the field.

Application

Candidates may apply online at <https://eeri.org/cohost/registration/fema-grad-fellowship>. Deadline for submission of all application materials is **May 12, 2014**. Announcement of the award will be made on June 16, 2014.

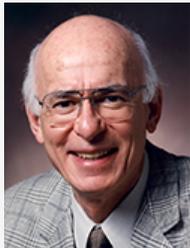
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IN MEMORIAM

▶ Remembering Sheldon Cherry (1928-2014)

EERI Honorary Member **Sheldon Cherry** (P.E.; Ph.D.; M. EERI, 1974), Professor Emeritus of Civil Engineering at the University of British Columbia, died March 23, 2014 a few days short of his 86th birthday.



Sheldon Cherry

Sheldon was born in Winnipeg, and received his B.S. (C.E.) from the University of Manitoba in 1949. He subsequently received an M.S. from the University of Illinois (1952) and a Ph.D. from the University of Bristol (1955). He then spent one year as an Assistant professor at the University of Manitoba, before joining the Civil Engineering Department at UBC as an Assistant Professor in 1956, becoming Professor in 1969. He remained in the Department until his retirement from teaching in 1993, though he continued to do administrative work for UBC until 2010.

Professor Cherry's greatest contribution was the development of earthquake engineering in Canada. He originated earthquake engineering at UBC and was the driving force behind the first Canadian shake table for seismic testing. He also was a leader in the development of the codes that govern the seismic design of structures in Canada. He was the Founding Chairman of the Canadian National Committee on Earthquake Engineering, which was a committee of the National

Research Council (1964-1975) that formulates the seismic provisions of the National Building Code of Canada. The committee has since become the Standing Committee for Earthquake Engineering of the National Building Code of Canada with the same responsibilities.

He chaired and was a member of the organizing committee for several Canadian Conferences on Earthquake Engineering, and was instrumental in organizing the first such meeting, held at UBC, in 1965. He represented Canada on several international earthquake organizations, including serving as a Director and President of the International Association for Earthquake Engineering. He was frequently an invited speaker at meetings, and prepared a number of invited papers.

Within UBC, Professor Cherry served on seemingly countless committees, and was Associate Dean of the Faculty of Graduate Studies for several years. After his retirement from teaching, he continued to serve UBC by chairing the committee charged with reviewing all UBC faculties. This lasted for seven years until his final retirement in 2010.

Over the years, Professor Cherry mentored numerous doctoral students who are now in leadership positions in business and educational institutions worldwide, including EERI members **Andre Filiatrault** (M. EERI, 1986), University at Buffalo Professor, and **Joseph Quarshie** (M. EERI, 1993), Caltrans Engineer.

In 2013, Professor Cherry was awarded the Queen Elizabeth II Diamond Jubilee Medal for his contribution to education and earthquake engineering in Canada. An endowment at UBC has been established, the Sheldon Cherry Scholarship in Civil Engineering. The Awards Office at UBC is accepting donations to this scholarship.

Sheldon is survived by his wife Jane, two daughters, and two grandchildren.

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PUBLICATIONS

▶ Earthquake Spectra Preprints

In early April, several preprint manuscripts were posted on the *Earthquake Spectra* website prior to their formal publication. The list of new preprint manuscripts, including authors, follows:

- “Epistemic Uncertainty for NGA-West2 Models” by Linda Al Atik and **Robert R. Youngs** (M. EERI, 1983) 
- “Nonlinear Response Potential of Real versus Simulated Ground Motions for the 11th March 2011 Great East Japan Earthquake” by **Katsuichiro Goda** (M. EERI, 2009), Susumu Kurahashi, Hadi Ghofrani, **Gail M. Atkinson** (M. EERI, 1981), and **Kojiro Irikura** (M. EERI, 2000)
- “Recorded ground motion and estimated soil amplification for the May 11, 2011 Lorca earthquake” by Myriam Belvaux, Albert Macau, Sara Figueras, Xavier Goula, and Teresa Susagna

To read preprint manuscripts or browse the complete list of preprint manuscripts, visit the *Earthquake Spectra* website at <http://earthquakespectra.org/toc/eqsa/0/0> .

In addition, the *Spectra* editors also posted **Special Collections of Preprints** of the papers that will be published in the **2010-2011 Canterbury Earthquake Sequence**  special issue (forthcoming) and the **NGA-West2**  special issue (forthcoming, August 2014).

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PROGRAM UPDATES

▶ M5.1 La Habra, California Earthquake

At 9:09 p.m. on March 28, 2014, a M5.1 earthquake struck near the city of La Habra in Southern California. The California Earthquake Clearinghouse used this lower magnitude event in an urban area to exercise its activation procedures. The management committee of the Clearinghouse, which includes EERI as vice-chair, conducted a call-down shortly after the earthquake and activated a low-level virtual clearinghouse.

The earthquake occurred on the Puente Hills fault, which has been the focus of much attention recently with new efforts in Los Angeles to increase earthquake safety. While instances of structural damage have been reported, most damage in the epicentral area appears to be to non-structural elements and contents.

 **California Earthquake Clearinghouse (EERI)**

As part of this activation, discussion forums were established on the [Clearinghouse website](#), and a SpotOnResponse map, the Clearinghouse's situational awareness tool, was placed on the website. EERI members in California were notified by email of the Clearinghouse's response and members in the affected area were encouraged to submit observations to EERI or the Clearinghouse.

Taking preliminary reports of damage into consideration, the Clearinghouse management committee deactivated the virtual clearinghouse at 8:00 a.m. on Sunday, March 30, 2014. EERI members interested in learning more about the California Earthquake Clearinghouse are encouraged to register online at <http://www.californiaeqclearinghouse.org/user-request-form/>.

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ANNOUNCEMENTS

▶ USGS Seeks Earthquake Hazards Research Proposals

The U.S. Geological Survey will award up to \$5 million in grants for earthquake hazards research in 2015.

“The grants offered through the USGS Earthquake Hazards Program are an established and long-standing effort that have proven to be a success every year, with talented, scientific applicants who significantly contribute to the advancement of earthquake research,” said Bill Leith, USGS Senior Science Advisor for Earthquake and Geologic Hazards. “Every year we are rewarded by innovative proposals from across the country, so we encourage the continued submission of new ideas to help earthquake science evolve and, ultimately, reduce earthquake losses.”

 **U.S. Geological Survey**

Interested researchers can apply online at [GRANTS.gov](#)  under funding opportunity number G14AS00036. Applications are due **May 22, 2014**.

Each year the USGS awards earthquake hazards research grants to universities, state geological surveys, and private institutions. Past projects included investigating the Central Virginia Seismic Zone to develop a better understanding of this active seismic zone; examining the

paleoseismic record in the Prince William Sound area of Alaska to characterize earthquakes prior to the Great Alaska Earthquake of 1964 to better understand future earthquakes in this hazard-prone area; and using GPS to measure ground deformation in the greater Las Vegas area and provide information on how faults will rupture in large, damaging earthquakes.

A complete list of funded projects and reports can be found on the USGS Earthquake Hazards Program external research support website.

For more information, visit the USGS website at <http://on.doi.gov/1fkR65e> .

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▶ ATC Seeks Qualified Consultants to Provide Technical Services to NEHRP and NIST

The Applied Technology Council (ATC) is seeking qualifications and statements of interest for candidates to serve as technical consultants on a variety of ATC projects funded under a recently awarded 5-year task order contract in support of the National Earthquake Hazards Reduction Program (NEHRP) and the National Institute of Standards and Technology (NIST).

 The focus of this contract is on "Structural Engineering Research for Reducing Risks Due to Earthquakes and Other Extreme Hazards." Work will include integrated earthquake science, earthquake engineering, lifeline engineering, geotechnical engineering, wind engineering, coastal inundation (storm surge and tsunami), fire effects, progressive collapse, and general structural engineering, in the following areas of emphasis:

- Technical Support for Engineering Practice and Codes and Standards Development
- Performance-Based Engineering Support
- Problem-Focused Research and Development
- Technology Synthesis and Presentation
- Project and Program Planning
- Expert Peer Review
- Knowledge Transfer and Outreach
- NEHRP Lead Agency and Program Management Support

To read the full consultant description, qualifications, and requirements, visit the ATC website at <http://bit.ly/1ncPgsh> . Submissions received by **April 30, 2014** will be considered for work on the ATC-114 Project.

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▶ 2014 LATBSDC Conference: Advances in Structural Design for Seismic Regions

The 2014 LATBSDC (Los Angeles Tall Buildings Structural Design Council) Conference will cover a variety of topics related to recent advances in structural design of tall and special buildings. Distinguished speakers will present topics ranging from the new earthquake ground motions for design to showcasing new tall building projects under development for Los Angeles; new techniques for design of tall buildings; foundation design for tall buildings; new code provisions; and building on or near faults.

In addition, an update will be provided on LATBSDC efforts to develop a reliability based alternative procedure for seismic retrofit of tall buildings.

Date: *Friday, May 2, 2014*

Time: *8:00 a.m. – 5:30 p.m.*

Location: *Los Angeles, California*

The tentative program includes:

- **Mike Valley** (M. EERI, 1995), Design of Transbay Tower in San Francisco
- Len Joseph, Design of the Wilshire Grand Tower
- **Mike Mehrain** (M. EERI, 1983), Overview of ATC-78 on Nonductile Concrete Buildings
- **Omid Esmaili** (M. EERI, 2009) and **Farzin Zareian** (M. EERI, 2005), Improved Performance-Based Seismic Assessment of Tall Buildings by Utilizing Bayesian Statistics
- **Marshall Lew** (M. EERI, 1978), Spectral Scaling or Matching Earthquake Ground Motions in the Light of ASCE 7-10
- **Gary Hart** (M. EERI, 1974), Reliability Based Design Approach to Retrofit of Structures
- **Farzad Naeim** (EERI Honorary Member; M. EERI, 1983), 2014 LATBSDC Alternative Criteria for Tall Building Design
- **Manuel Archila** (M. EERI, 2009) and **Carlos Ventura** (M. EERI, 1987), New Insights on Effects of Directionality and Duration on Seismic Response of Tall Buildings
- Sofia Gavridou and **John Wallace** (M. EERI, 1988), Comparative Study of Performance on Post-Tensioned Rocking Systems
- **James C. Anderson** (M. EERI, 1985) and Ahmed Mantawy, Earthquake Damage Potential due to Low-Cycle Fatigue in RC Moment Frame Buildings.



For details and registration, visit the LATBSDC website at <http://www.tallbuildings.org/> .

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► 2014 Shamsheer Prakash Annual Prize for Excellence in the Practice of Geotechnical Engineering

The Shamsheer Prakash Foundation solicits nominations (no application) for the 2014 Shamsheer Prakash Annual Prize for Excellence in the Practice of Geotechnical Engineering for young persons (45 years old or younger) primarily from practicing engineers from all over the world.

The candidates should be specialists in geotechnical engineering and/or geotechnical earthquake engineering, and it is necessary that they have significant independent contributions to practice and show promise of excellence. Nominations should be submitted to the Honorary Secretary on or before **June 30, 2014**. For details, visit the Foundation website at http://www.yoga10.org/prize_excel_MST.html

 [external link icon](#) .

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OPPORTUNITIES FOR STUDENTS

► Academic Opportunities in Germany

The following 2014 engineering programs in Germany may interest EERI student members:

"Forecast Engineering: Global Climate Change and the Challenges for Built Environment" Summer School

Bauhaus University Weimar and its partner universities present special topics on structural engineering in a summer school to be held August 18–29, 2014, in Bauhaus University Weimar, Germany, funded by the European Commission Lifelong Learning Programme. Through a challenging and demanding series of lectures, as well as seminars and project work, presented with a state-of-the-art information and communication technology, this project seeks to impart knowledge and to combine research with a practical context. The objectives of the planned summer course are to emphasize the demands and solution approaches on civil engineering structures due to the climate changes and their consequences. For more information, visit: <http://www.uni-weimar.de/summerschool/bauing> .

Master's Degree in Natural Hazards and Risks in Structural Engineering

The master's degree program in Natural Hazards and Risks in Structural Engineering (NHRE) at Bauhaus University Weimar is an intensive and application-based advanced course of study. The program is highly supervised and research-oriented. It provides students a solid technical basis in the key areas of structural engineering through a coherent and coordinated degree program, integrating research and practical applications. Further information about the focus of the scholarship program can be obtained from the DAAD website at <https://www.daad.de/entwicklung/hochschulen/zusammenarbeit/ast/08079.en.html> . For details and to apply, visit <http://www.uni-weimar.de/nhre> .

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CALENDAR

Follow these steps to add EERI Calendar to your own Google calendar.

1. Open [Google Calendar](#)
2. On the left, above "My Calendars," click Add + and then **From URL**.
3. Enter the EERI calendar's address in the field provided. EERI Calendar ics link
https://calendar.google.com/calendar/ical/eeri.org_s9151tit0ab26dnf2epn25d7rg%40group.calendar.google.com/public/basic.ics
4. Click **Add Calendar**. The calendar will appear on the left side under "Other calendars."

Tuesday, October 29, 2019 - October 30

APGCE

The Asia Petroleum Geoscience Conference & Exhibition (APGCE)

29 – 30 October 2019

KUALA LUMPUR CONVENTION CENTRE, MALAYSIA

[REGISTER](#)

Monday, December 09, 2019 - December 13

AGU 2019 Fall Meeting

9-13 December 2019 San Francisco, California

Tuesday, March 03, 2020 - March 06

EERI 2020 Annual Meeting/Natl EQ Conference

National Earthquake Conference & 72nd EERI Annual Meeting
March 3 - 6, 2020
Sheraton San Diego Hotel & Marina
San Diego, California
[website](#)

Wednesday, March 04, 2020 - March 06

2020 RBDCC

5th Residential Building Design & Construction Conference (RBDCC)
Hosted by The Pennsylvania Housing Research Center
March 4-6, 2020
Penn Stater Conference Center
State College, PA.
[website](#)

Monday, April 27, 2020 - April 30

SSA 2020 Annual Meeting

SSA 2020 Annual Meeting
27-30 April 2020 — Albuquerque, New Mexico
The 2020 Annual Meeting will be held in Albuquerque, New Mexico.
[Check back later for more information.](#)

Monday, September 14, 2020 - September 18

17th WCEE

The 17th WCEE will be hosted in Sendai, Japan, from September 14th to 18th 2020. Check <http://www.iaee.or.jp/> for more information.



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