



## 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.

### NEWS OF THE INSTITUTE

#### ▶ [EERI Letter to NSF on the Future of Earthquake Engineering Research](#)

Following the National Science Foundation (NSF) decision to not move forward with an award for NEES2 Operations, EERI President **Ian Buckle** sent a letter of concern to NSF on behalf of the EERI Board of Directors. The October 30, 2013 letter expresses unease about this decision and the lack of specifics or a timeline for the announcement of an alternate plan.

NSF has since replied saying the federal shutdown in October and budget uncertainties have led to this delay and, in the meantime, researchers should be aware that proposals are being accepted for use of the NEES facilities through the usual channels.

EERI played an active role in the establishment of the [George E. Brown Jr. Network for Earthquake Engineering Simulation \(NEES\)](#)  more than a decade ago, and has watched it grow and mature into a remarkably successful program in earthquake risk reduction. Since its creation, NEES has become a key part of a community-wide effort to enhance the seismic resilience of the nation and has played a unique and essential role in this regard.

To read President Buckle's letter (PDF), visit the EERI website at [www.eeri.org](http://www.eeri.org).

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#### ▶ [10NCEE: New Sponsors and Discover Alaska](#)

The **Tenth U.S. National Conference on Earthquake Engineering (10NCEE)** in Anchorage, Alaska, July 21–25, 2014, will be held on the 50th Anniversary of the Great Alaska earthquake and tsunami. The theme for the conference is "Frontiers of Earthquake Engineering."

##### **New Sponsors**

**MTS Systems Corporation** (M. EERI), a Silver Sponsor of 10NCEE, will sponsor the Wednesday afternoon Poster Session on July 23, 2014. MTS has worked side-by-side with engineers in a wide range of industries to solve complex challenges since 1966. Today, high-performance testing and sensing solutions are deployed around the world, enabling precise control of forces and motions as well as real-time feedback that optimizes performance. With more than four decades of real-world experience, MTS is uniquely equipped to help customers adapt to change, anticipate new requirements, and take on even the most difficult tasks with speed and confidence.



**DOWL HKM** is a new Friend of 10NCEE. The DOWL HKM difference is defined by the quality of its people. For 50 years, DOWL HKM's staff of dedicated professionals has consistently exceeded client expectations and developed into one of the West's leading planning, surveying, civil/transportation, and environmental services firms. Today, the firm offers a wide range of engineering services to public and private clients from the Arctic Ocean to the Rio Grande; DOWL HKM is ready to handle any challenge.



### Discover Alaska

Anchorage, "the city of lights and flowers," offers a number of fun and educational experiences for 10NCEE participants and their companions. Adults and youth will appreciate the edifying exhibits and beautiful vistas at the Alaska Botanical Garden, Alaska Railroad Train, Alaska SeaLife Center, Alaska Wildlife Conservation Center, Alaska Zoo, Alaskan Native Heritage Center, Native Arts Gallery, and much more.



The 10NCEE local organizing committee and the folks at [Visit Anchorage](#)  have gathered a plentiful list of their favorite things to see and do in Alaska. For more details, visit the 10NCEE website at <http://10ncee.org/things-to-do-in-alaska/> .

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### ► Shah Family Innovation Prize: Call for Nominations

Do you know a young academic or professional making a difference in reducing global earthquake risk? Members are encouraged to nominate candidates for the Shah Family Innovation Prize from government, private firms, academia, and the international community.

The Shah Family Innovation Prize was created with a substantial gift to the EERI Endowment Fund by **the Hareh C. Shah family of Stanford, California**. The intent of the prize is to stimulate further creativity and leadership in the earthquake risk mitigation community and EERI.

The selection process recognizes a combination of past accomplishments and future potential, emphasizing creative and innovative thinkers who have demonstrated at early stages in their careers the potential to make major contributions. EERI membership is not required for either the nominator or candidate, although it is strongly encouraged. Candidates must be less than 35 years of age on January 1, 2014.

Submit your nominations for the Shah Innovation Prize online by **January 15, 2014** at <https://eeri.org/cohost/registration/shah-family-innovation-prize-nominations-online-2013>.

For more information about the required nomination package, selection criteria, and past winners, visit <https://www.eeri.org/about-eeri/honors-awards/shah-family-innovation-prize/>.

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### MEMBER SPOTLIGHT

#### ► A Symposium to Honor the Career and Contributions of Andrei M. Reinhorn

Former students of Professor Emeritus **Andrei M. Reinhorn** (M. EERI, 1986), at the University at Buffalo, organized a symposium to commemorate his storied career and lifetime achievements on Monday, September 30, 2013.

Andrei M. Reinhorn, P.E. and Ph.D., is a former Clifford Furnas Eminent Professor in the Department of Civil Structural and Environmental Engineering at the University at Buffalo (SUNY), where he taught courses in structural engineering with emphasis on experimentation and



simulations in structural dynamics and earthquake engineering. He conducted experimental and analytical research on structural control and the inelastic seismic behavior of buildings and bridge systems. He performed experimental studies and developed computational tools using generic macro-models for simulation of inelastic behavior of structures during progressive collapse.

He published over five hundred articles and reports in archival journals, conference proceedings, and institutional publications. He developed several computer platforms on inelastic analysis (IDARC series) and seismic isolation (3DBASIS series), currently used by engineers and researchers around the world. He was a member of MCEER's executive committee and directed the networking program.

Reinhorn served as the first Director of the University at Buffalo's Structural Engineering and Earthquake Simulation Laboratory, hosting the most versatile equipment site of the George E. Brown Network for Earthquake Engineering Simulation (NEES). He served as one of the founding members of the Board of Directors of NEESinc., the organization that coordinated the new network, and is the past chair of the NEESinc Data Sharing and Archiving Committee.

At the University of Buffalo, Reinhorn served as the Chair of the Department of Civil, Structural and Environmental Engineering, on the Presidential Review Board, and on other departmental, school, and university committees. In 2011, he received ASCE's highest honor, the Nathan M. Newmark Medal. Among other awards, he received the 2007 SUNY Chancellor Award for Excellence in Scholarship and Creative Activity and the 2005 ASCE-CERF Charles Pankow Award for Innovation.

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## PUBLICATIONS

### ▶ Earthquake Spectra: Preprint Manuscripts

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

- "Damping Scaling Factors for Vertical Elastic Response Spectra for Shallow Crustal Earthquakes in Active Tectonic Regions" by **Sanaz Rezaeian**, **Yousef Bozorgnia** (M. EERI, 1986), **I.M. Idriss** (M. EERI, 1972), **Norman Abrahamson** (M. EERI, 1984), **Kenneth Campbell** (M. EERI, 1975), and **Walter Silva** (M. EERI, 1988) 
- "The influence of source- and site-specific effects on response spectrum damping modification factors" by **Brendon A. Bradley** (M. EERI, 2012)
- "NGA-West 2 Equations for Predicting PGA, PGV, and 5%-Damped PSA for Shallow Crustal Earthquakes" by **David M. Boore**, **Jonathan P. Stewart** (M. EERI, 1994), **Emel Seyhan** (M. EERI, 2010), and **Gail M. Atkinson** (M. EERI, 1981)
- "Forced Vibration Testing and Finite Element Modeling of a Nine-Story Reinforced Concrete Flat Plate-Wall Building" by **Ozan Cem Celik** (M. EERI, 2002), **Haluk Sucuoğlu** (M. EERI, 1996), and **Ugurhan Akyuz**

- "An improved method for the generating of spectrum compatible time series using wavelets" by **Yufeng Gao, Yongxin Wu, Dayong Li, Ning Zhang, and Fei Zhang**

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

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## MEMBER RESOURCES

### ▶ Earthquake Photo Galleries New Feature: Bulk Download

Currently, photo galleries from over 30 earthquakes are available for EERI members to view and use in [the Member Resources Area of the EERI website](#) . A new bulk download tool is now available — EERI members may now download the entire photo gallery from an earthquake photo set with one click. Look for the "Download Gallery" tool at the bottom of each earthquake photo gallery.

In the next few months, the Institute will add earthquake photos from the extensive, personal collection of Professor George Housner, one of EERI's founding members. We should also mention that EERI members can enhance the photo galleries by contributing photos, improving captions, identifying photographers, and providing feedback.

To use the new photo gallery feature, log into [the Member Resources Area of the EERI website](#)  and click on the "EQ Photo Galleries" link in the top navigation.

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## PROGRAM UPDATES

### ▶ EERI Team Visits New Zealand

In September, a team of EERI members and colleagues visited the areas of New Zealand affected by the 2010 and 2011 Canterbury earthquakes. The New Zealand field visit was part of an initiative to document Building Back Better practices being developed by the European Union, the United Nations Development Program's Bureau for Crisis Prevention and Recovery, and the [World Bank's Global Facility for Disaster Reduction and Recovery \(GFDRR\)](#) .

 The following EERI members traveled to New Zealand for the field visit: **Scott Miles** (M. EERI, 2009), Western Washington University, and **Dana Brechwald** (M. EERI, 2013), Association of Bay Area Governments. The following experts also joined the team: **Katalin Demeter**, GFDRR, World Bank; **Rachel Davidson** (M. EERI, 1995), University of Delaware on sabbatical at the University of Canterbury; **David Johnston** (M. EERI, 2013), GNS Science and Massey University; **Stefano Pampanin** (M. EERI, 2011), University of

**Reduction of the World Bank** Canterbury and, President, New Zealand Society for Earthquake Engineering; **Sarah Beaven** and **Sonia Giovinazzi**, University of Canterbury; **Suzanne Wilkinson**, **Sandeeka Mannakkara**, and **Tinu Rose**, University of Auckland.

The team aimed to track Building Back Better practices that led to successful outcomes with a specific emphasis on housing, land-use planning, insurance, commerce, the seismic design code, and infrastructure. The field visit was comprised of a series of interviews with government and non-government officials, interviews of the resident population in reconstructed and resettled locations, as well as an informal survey of the building structures in the central business district.

The New Zealand field visit was funded by a grant agreement between EERI and the GFDRR at the World Bank. A report on the Building Back Better practices and lessons learned will be available early next year.

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## ANNOUNCEMENTS

### ▶ EERI Booth at AGU Fall Meeting

Be sure to stop by the **EERI booth** (space 741) at this year's AGU Fall Meeting at the Moscone Center (Hall D) in San Francisco, California.

The Institute invites EERI members who will attend the 2013 AGU Fall Meeting to visit the EERI booth and connect with old and new colleagues. The EERI booth will feature a game, best-selling monographs, special and themed issues of *Earthquake Spectra*, and other resources. EERI staff will be on hand to provide meeting participants with information about the Institute.



The EERI booth is open: *Tuesday to Thursday, Dec. 10-12, 9:30 a.m. – 6:00 p.m.*; and *Friday, Dec. 13, 9:30 a.m. – 1:30 p.m.*

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### ▶ PEER NGA-West2 Research Spurs Updates to Ground Motion Site Amplification Factors in Building Code

The site amplification factors used to develop design-basis ground motions will be changing in the next revisions of several building code documents due to research conducted as a part of the **Pacific Earthquake Engineering Research Center's (PEER) NGA-West2 project**. The new site factors have been approved by the Provisions Update Committee of the Building Seismic Safety Council and are expected to appear in the 2015 version of the NEHRP Provisions, followed shortly thereafter by ASCE-7 and various building code documents.



Engineers use site factors to modify ground motions from a reference rock site condition to reflect the influence of geologic conditions at the site of interest, i.e. the location where a new building is being constructed. These factors, commonly called  $F_a$ ,  $F_v$ , and  $F_{PGA}$  are found in Tables 11.4-1, 11.4-2, and 11.8-1 of the ASCE-7 code and have not been updated in several decades.

Experience in practice and from research indicates that the current NEHRP site factors, developed in the early 1990s, have discrepancies that are consequential for ground motion hazard analyses, loss estimation, and other applications. To resolve these issues, the new NGA-West2 ground motion data set was used by PEER researchers to develop a new site amplification model, which was then used to update the NEHRP site factors. Because the updated site factors operate seamlessly with the NGA-West2 GMPEs (which will soon be applied for the next-generation seismic hazard maps used in the code), a long-standing problem in earthquake engineering will be resolved.

PEER researcher **Jonathan Stewart** (M. EERI, 1994) from UCLA led this effort and is the first author of PEER Report 2013/13 that proposed the new factors. This report titled "Semi-Empirical Nonlinear Site Amplification and its Application in NEHRP Site Factors" is available for free

download at PEER's [NGA-West2 website](#) .

*The PEER NGA-West2 Project was the topic of this year's EERI Technical Seminar Series. Recordings of the seminar presentations will be available soon in the EERI Knowledge Center and Online Store.*

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### ▶ Register Now for Northridge 20

Registration is now open for Northridge 20, a symposium commemorating the twentieth anniversary of the 1994 Northridge, California earthquake to take place on January 16-17, 2014.

The two-day event at the University of California, Los Angeles will open on Thursday, January 16, 2014 with a multidisciplinary plenary session, "Northridge Earthquake: Impacts, Outcomes, and Next Steps." The symposium agenda on Friday, January 17, 2014 features concurrent sessions on resilience case studies, insurance, steel structures, wood-frame buildings, and more.

[Register now](#) .



The Northridge earthquake spurred important changes in design, engineering, public policy, risk modeling, and insurance. Panel discussions at the Northridge 20 symposium will focus on challenges and necessary steps forward to make our communities more resilient to future earthquakes. Join policy makers, government officials, engineers, earth scientists, emergency managers, building owners, community leaders, and professionals from business and financial services industries at this special symposium on January 16-17, 2014. View the [Symposium Program](#) .

[Register today](#)  to receive the early registration discount of 20% off through **December 1, 2013**. To learn more, visit the [Northridge 20 website](#) .

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### ▶ NEES/EERI Webinar, Nov. 20: From Large Scale Test Findings to Cost-Benefit Analysis of Base-Isolated Buildings

*Date:* Wednesday, November 20, 2013

*Time:* 11:00 a.m. – 12:30 p.m. Pacific Time (U.S. and Canada)

*Presenters:* **Keri Ryan** (M. EERI, 1999), University of Nevada, Reno; **Anthony Giammona**, Nabih Youssef & Associates; **Gilberto Mosqueda** (M. EERI, 2001), University of California, San Diego; and **Stephen A. Mahin** (M. EERI, 1975), University of California, Berkeley.



Seismic isolation has long been regarded as an effective technique to enhance the seismic performance of structures, but applications to new buildings have been limited in the United States. The following reasons have often been given for the slow growth of applications for seismic isolation systems: the high cost premium of isolation coupled with inability to convey the potential benefit to building owners; lack of field or laboratory data on full-scale, realistic buildings; and uncertainty about the response of isolated structures in extreme ground motions that exceed design levels.

This NEES/EERI research-to-practice webinar will present findings from the recently completed NEES TIPS (Tools for Isolation and Protective Systems) project. The project was designed as a comprehensive research and education program to facilitate the wider adoption of seismic isolation systems for the superior protection of structures. This webinar will focus on three main topic areas:

1) *Findings from a full-scale test program on isolated and conventional structures conducted at E-Defense.* Among the highlights, new knowledge is presented about the influence of vertical excitation on the response of nonstructural components and contents in base-isolated and conventional buildings. Furthermore, the test results from the E-Defense tests are used to validate and make recommendations regarding modeling procedures applied by practitioners for the design of base-isolated buildings.

2) Findings from limit state tests on isolated buildings conducted at the University at Buffalo NEES facility. Based on calibrated results from the limit state tests, a FEMA P695 procedure is applied to assess the behavior and collapse capacity of isolated buildings considering pounding against a moat wall.

3) Results from comparative life cycle cost-benefit analysis of base-isolated buildings. These results are interpreted within a broader FEMA P58 framework for practicing engineers to develop results to present to owners who are choosing between minimum code compliance and various enhanced performance designs.

Information about registration for this NEES/EERI Webinar will be available soon at <http://nees.org/events/details/246> .

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## OPPORTUNITIES

### ▶ Structural Project Engineer: Call for Applications

**KPFF Consulting Engineers** (an EERI Silver Subscribing Member) is seeking applications for a Structural Project Engineer position in Portland, Oregon.

As a Structural Project Engineer, you will work individually and collaboratively in the design/construction process for some of the most challenging projects in the Pacific Northwest, as well as nationally and overseas. The Structural Project Engineer will work closely with creative engineers, BIM/CAD technicians, architects, project managers, contractors, and client teams. For details and qualifications, visit the [KPFF careers website](#) .



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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](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](#)

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Monday, December 09, 2019 - December 13

**AGU 2019 Fall Meeting**

9-13 December 2019 San Francisco, California

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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](#)

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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](#)

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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.](#)

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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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