



## EARTHQUAKE ENGINEERING RESEARCH INSTITUTE NEWSLETTER

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### EARTHQUAKE ENGINEERING RESEARCH INSTITUTE

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### News of the Institute

## How to Apply for Housner Fellows Program

As described on page 1 of the September *Newsletter*, EERI is launching a new leadership program, the Housner Fellows Program. This program has the strategic objective to recognize and equip promising and motivated young to mid-career professionals with the confidence, skills, and sense of responsibility needed to exercise leadership in the mission of earthquake risk reduction in the work and volunteer settings of their choice throughout their careers. The program includes a one-week leadership institute, two years of mentoring, participation in the EERI Annual Meeting, and group and individual projects. Funding is being provided by a gift from George Housner and support from the Federal Emergency Management Agency and the Global Facility for Disaster Reduction and Recovery (GFDRR) of the World Bank. Three Fellows in each of the first two years will be GFDRR-Housner Fellows from developing countries. Each class will have five to eight members. For more information, visit <http://www.eeri.org/projects/housner-fellows-program/>. The application package consists of the following:

1. Contact information
2. A set of essay questions (online)
3. A professional resume
4. Two letters of recommendation, including one from your current employer
5. Suggested names (up to three) of potential mentors (optional)
6. Supporting material (optional) that represents a sample of your work, such as articles, other publications, and items that demonstrate your interest and experience in the promotion of seismic risk reduction.

Applications are due at EERI by **November 18, 2011**, preferably by email ([eeri@eeri.org](mailto:eeri@eeri.org)). Selected Fellows will be announced by December 20, 2011.

## Register for Nonstructural Elements Seminar

Register now at <https://www.eeri.org/registration/tech-seminar.php> and save your space at the new one-day EERI technical seminar on **Seismic Design and Performance of Nonstructural Elements**. In several recent earthquakes, costs from nonstructural damage exceeded costs due to structural damage because of the severe impacts to mechanical, architectural, electrical, and plumbing systems. Registration fees are low (\$225 for EERI and cosponsor members, \$300 for nonmembers, and \$125 for EERI student and young professional members) because the seminar series receives partial support from FEMA/Department of Homeland Security. Dates and locations are Thursday, **October 27**, in San Francisco, California; Friday, **October 28**, in Seattle, Washington; Thursday, **November 3**, in Los Angeles, California; and Friday, **November 4**, in San Diego, California. The registration site has a link to the seminar brochure PDF that has details on the program, presenters, venues, and a printable form to register by fax or mail, if preferred. Attendees will receive a notebook of seminar presentations and lunch and will earn 6 Professional Development Hours.

## Printed Newsletter: Do You Want to Receive It?

On the membership dues statements for 2012, you will have the opportunity to indicate whether you wish to continue receiving the printed version of the *EERI Newsletter*. If you do not check the box, you will receive only the e-mailed link to the electronic version. The Board of Directors decided at their September meeting to offer members this option in order to conserve environmental resources and trim unnecessary expenses, as many members only read the e-version and may not want or need the printed one.

## Obituary

### Joseph Penzien, 1924-2011

Joseph Penzien, an Honorary Member of EERI and a world renowned pioneer in the field of earthquake engineering, passed away on September 19, 2011, at Kaiser Hospital in Redwood City, California. He received EERI's highest honor, the George W. Housner Medal, in 1993, and was EERI's Distinguished Lecturer in 2000, for which his topic was "Earthquake Engineering for Transportation Structures: Past, Present, and Future."

The only one of eight siblings to attend college, Joe took 2½ years to earn a Ph.D. from the Massachusetts Institute of Technology, and then embarked on a 35-year academic career (1953-1988) at the University of California, Berkeley (UCB). He was instrumental in developing the teaching program in structural dynamics and earthquake engineering that many considered the best in the world. Because of his ability to foster a spirit of collaboration, his tenure was characterized by groundbreaking research on a wide variety of topics, such as characterization of ground motions (including the concept of their principal axes), inelastic response of buildings, soil-structure interaction, stochastic response of structures, and earthquake engineering of tunnels, offshore oil-drilling platforms, and bridges.

At UCB's Earthquake Engineering Research Center (EERC), he played a major role in developing the shaking table, dedicated in 1972, that was the forerunner of those that now exist in many countries. He spearheaded long-lasting cooperative research programs with Japanese colleagues. His 1975 book, *Dynamics of Structures* (co-authored with Ray Clough), was translated into several languages and was a major influence on subsequent textbooks. After retiring from UCB, Joe co-founded, with Wen Tseng, International Civil Engineering Consultants (ICEC) in Berkeley.

Highlights of Joe's distinguished career are recounted in his 2004 EERI oral history, available at <http://www.eeri.org/site/images/projects/oralhistory/penzien.pdf>. The printed version can be ordered for \$15 from the online store, [http://www.eeri.org/cds\\_publications/catalog/index.php?cPath=23\\_31](http://www.eeri.org/cds_publications/catalog/index.php?cPath=23_31).

A celebration of his life is being planned for the afternoon or evening of Saturday, November 12, 2011, in or near Berkeley. For more information, visit <https://peercenter.wufoo.com/forms/contact-list-for-events-honoring-joseph-penzien>.



Joseph Penzien

## News of the Institute

### Call for Nominations for Bruce Bolt Medal

The Bruce Bolt Medal is awarded jointly by the Consortium of Organizations for Strong Motion Observation Systems (COSMOS), the Seismological Society of America (SSA), and EERI. Members of EERI, SSA, and COSMOS are encouraged to submit nomination packages for this distinguished award.

The following criteria are used to evaluate nominees: (1) promotion of strong-motion instrumentation or advancement of strong-motion data processing or data utilization; (2) technical contributions in seismic engineering or engineering seismology; and (3) leadership in the transfer of knowledge into practice or policy that has led to improved seismic safety.

Nominations will be reviewed in confidence by a six-person Joint Nomination Panel formed by two representatives from each of the three sponsoring organizations. The recommended nominee will be considered in confidence by each organization's board for their approval and joint selection of the medalist.

The nomination package should include a letter not exceeding two pages that addresses the ways in which the candidate meets all three of the criteria as well as a substantial summary of the relevant professional history of the candidate. Submissions should be sent to the Bolt Medal Nomination Panel, in care of William (Woody) Savage at [woody savage@gmail.com](mailto:woody savage@gmail.com).

The closing date for submitting nominations is **December 31, 2011**. For all required submission details, visit <http://www.eeri.org/site/bolt-medal>. Incomplete nomination packages will not be considered.



## Publications

### ICC Blowout Sale

The International Code Council is holding an engineering blowout sale, with discounts up to 40% off the member price on 57 selected titles through October 31, in the following categories: foundations (3), code references (7), concrete (6), steel (1), masonry (2), seismic/miscellaneous (18), standards (4), wind (10), and wood (6). The majority of discounts are in the 40% range. To access the

discounts, visit [www.iccsafe.org/engsale](http://www.iccsafe.org/engsale).

As part of ICC's partnership with EERI, EERI members receive up to 20% off the titles listed at [www.iccsafe.org/EERI](http://www.iccsafe.org/EERI). Enter the promotional code "EERI" upon checkout. (If you are not signed in as an ICC user before you add items to your cart, you will not see your discount until the very end of your transaction, after you enter the credit card information but before you hit accept.)

## News of the Institute

# Concrete Coalition Report Available

The Concrete Coalition is a network of individuals, governments, institutions, and agencies with a shared interest in assessing and mitigating the risk associated with nonductile concrete buildings. The Coalition is a program of EERI, the Pacific Earthquake Engineering Research Center, the Applied Technology Council, and their partners, including the Structural Engineers Association of California, the American Concrete Institute, the Building Owners and Managers Association of Greater Los Angeles, and the U.S. Geological Survey. With funding from the California Emergency Management Agency, the Coalition has been helping California assess the size and scope of the potential risk by providing an

**Table 1:**  
Estimated Number of Pre-1980 Concrete Buildings in the 23 Highest Seismicity Counties of California

Private buildings	14,000-15,000
K-12 public schools and local government buildings	1670-1770
State government buildings, including UC and CSU buildings	540-710
Federal government buildings	9
<b>TOTAL</b>	<b>16,000-17,000</b>

educated estimate of the state's existing nonductile concrete building stock. A final report detailing this work is now available at [http://www.eeri.org/wp-content/uploads/Concrete\\_Coalition\\_Final\\_0911.pdf/](http://www.eeri.org/wp-content/uploads/Concrete_Coalition_Final_0911.pdf/).

For purposes of this project, the Coalition studied pre-1980 concrete buildings. The Coalition has now estimated their number in the 23 counties (and two additional cities) with the highest seismicity and exposure, using sidewalk surveys, public records, data compiled by

government agencies, and a regression model (see Table 1). Because there is a large uncertainty with some of these numbers, particularly those generated by the regression model, the Coalition encourages volunteers to conduct surveys in the cities with questionable data. Over time it is expected that these estimates will improve.

Not all these buildings are hazardous. The next step involves more careful study of specific buildings, applying our understanding of the riskiest structural conditions.

Under the leadership of Craig Comartin, David Bonowitz, David McCormick, and Marjorie Greene, the project engaged more than 250 volunteers. For basic information on the building type as well as individual reports from cities in the California Inventory Project, visit [www.concretecoalition.org](http://www.concretecoalition.org).

## Design Guide for Confined Masonry

The final version of *Seismic Design Guide for Low-Rise Confined Masonry Buildings* is now available on the Confined Masonry Network and World Housing Encyclopedia web sites, as follows: <http://www.confinedmasonry.org/risk-management-solutions-supports-network/design-guideline-working-group> and <http://www.world-housing.net/tutorials/confined-masonry/tutorials>.

The *Guide* was authored by an international volunteer committee consisting of masonry experts from 13 countries, led by EERI members Roberto Meli of Mexico and Svetlana Brzev of Canada. The *Guide* incorporates lessons learned in the 2010 Chile earthquake. For more information, see p. 8 of the June 2010 *Newsletter*.

A separate guide on engineered confined masonry buildings is under development by a group chaired by EERI members Sergio Alcocer of Mexico and Tim Hart of the U.S.A.

Key features of confined masonry construction are shown:



*Foundation construction (note tied-column reinforcement cages extending from the foundation)*



*Wall construction (photos: S. Brzev).*

## Call for Proposals

### SSA Special Sessions

The Seismological Society of America is now accepting session proposals for the 2012 SSA Annual Meeting in San Diego, California, 17-19 April 2012. The meeting will focus on seismotectonics and hazards in continental margins with regional emphasis on plate boundary processes. With the meeting's proximity to the U.S.-Mexican border, sessions that involve cross-border interaction and collaboration are especially encouraged.

For more information on potential topics of interest, visit <http://www.seismosoc.org/meetings/2012/index.php>. To see examples of special sessions from the 2011 meeting, visit <http://www.seismosoc.org/meetings/2011/specialsessions.php>.

To propose a session, contact David Oglesby by 1 October 2011 at [david.oglesby@ucr.edu](mailto:david.oglesby@ucr.edu).

## News of the Membership

### Build Change in the News

#### **Hausler Named Social Entrepreneur of Year**

EERI member Elizabeth Hausler, founder and CEO of the nonprofit social enterprise Build Change ([www.buildchange.org](http://www.buildchange.org)), has been recognized as one of three U.S. Social Entrepreneurs of the Year for 2011 by the Schwab Foundation ([www.schwabfound.org](http://www.schwabfound.org)) for Social Entrepreneurship. The awardees have in common the development of strategic partnerships with the private and public sectors to solve social problems, enabling them to accelerate their impact. Hilde Schwab presented the awards in September at the World Economic Forum's Annual Meeting of the New Champions in China. Build Change is changing practices of home building in earthquake-prone regions to engage citizens and establish lasting practices ensuring that earthquake-resistant construction becomes common.

#### **Initiatives in Indonesia, Haiti**

At the 2011 Clinton Global Initiative Annual Meeting in New York City last month, Hausler announced Build Change's continuing commitment to training vocational teachers in Indonesia and its new commitment to improving the concrete block-making skills and capacity of small and medium-sized manufacturers in Haiti.

**Indonesia:** The commitment in Indonesia, with ongoing support from the Caterpillar Foundation, will benefit 1,500 teachers and students and will ensure courses in earthquake-resistant construction techniques are incorporated into the school curriculum. To fund this initiative, Build Change is looking to raise a minimum of \$170,000 over the next year to expand the number of teachers and to develop an internship program.

**Haiti:** The commitment in Haiti, implemented in collaboration with the Haitian Ministry of Public Works,

## NEES News

### NEEShub Project Warehouse: Data Updates

The Project Warehouse on the NEEShub is the centralized data repository for sharing and publishing earthquake engineering research data from experimental and numerical studies. The data in the Project Warehouse are associated with research projects funded by a variety of agencies and include experiments performed at NEES and non-NEES equipment sites. Two highlighted projects, which take advantage of data viewing within the NEEShub using the tool inDEED, are summarized below.

#### **Investigation of Near-Fault Ground Motion Effects on Substandard Bridge Columns and Bents** (<http://nees.org/warehouse/project/712>),



PI: Mehdi Saiidi (U. Nevada Reno).

This shared-use project funded by FHWA involved shaking table tests at the University of Nevada at Reno on large-scale, reinforced-concrete bridge bents and columns. The specimens were subjected to both near-fault and far-field earthquake recordings. The near-fault records generally led to larger strains, curvatures, and drift ratios than those of the far-field

motions. The available data include accelerations, forces, displacements and strains measured during the tests.

#### **Development of a Seismic Design Methodology for Precast Floor Diaphragms** (<http://nees.org/warehouse/project/46>), Pls: Robert Fleischman



(University of Arizona), Clay Naito and Richard Sause (Lehigh University), and Jose Restrepo (UC San Diego).

This project has an ultimate goal of developing a comprehensive seismic design methodology for precast/prestressed concrete floor diaphragms. Simulation-driven physical experiments were conducted on key precast floor diaphragms, details, and joints

at Lehigh University, and a shaking table test of a half-scale, three-story diaphragm-sensitive precast concrete structure was conducted at UC San Diego. Design factors based on a calibrated analytical model have been developed, and a draft version of the methodology appears in the 2009 NEHRP Recommended Provisions. Available data from the experiments include accelerations, displacements, and forces measured during the tests.

Transportation & Communications and Save the Children, will benefit 60 concrete block manufacturing enterprises. Build Change developed simple building guidelines, after determining that minor, inexpensive changes to the production process, as well as better cash flow management, could markedly increase the quality of concrete blocks and the profitability of the facilities. Technical experts, including EERI Subscribing

Member Degenkolb Engineers, are partnering to develop a portable testing apparatus for confirming that blocks meet quality standards. To fund this initiative, Build Change seeks to raise an additional \$240,000 over the next year. The technical assistance is part of a comprehensive million-dollar program that includes certification, business planning, and market demand-generation activities.

## Meet the Candidates For President Elect



### Ian Buckle

Ian Buckle is a Foundation Professor at the University of Nevada, Reno, and director of the University's Center for Civil Engineering Earthquake Research. He has previously served as the deputy vice-chancellor (research), University of Auckland, New Zealand, and as the deputy director of the National Center for Earthquake Engineering Research, University at Buffalo, New York (now the Multidisciplinary Center for Extreme Events Research).

In his current position he teaches structural engineering, conducts research in the seismic performance of transportation structures, and serves on numerous university and professional committees. He also directs the Large-Scale Structures Laboratory at Reno, and is principal investigator for the UNR NEES Equipment Site, one of fifteen such sites established by the National Science Foundation in 2004 for earthquake engineering experimental research. In this regard, Ian served two terms as the first president of the Board of Directors charged with setting up the nonprofit NEES Consortium to manage, operate, and maintain the NEES Network of Equipment Sites and related cyberinfrastructure.

Ian is a past member of the EERI Board of Directors, past chair of the

Experimental Research Committee, past chair of the Special Projects and Initiatives Committee, current member of the Honors Committee, and a member of the EERI reconnaissance teams to Chile and Japan. In addition to his EERI activities, he is currently vice chair of the Caltrans Seismic Advisory Board, and a member of the Board of Directors, Nevada Earthquake Safety Council.

### Vision

I am honored to be nominated to be the president of the Institute and somewhat humbled by the implication. Ever since I became aware of EERI in the mid-eighties, I have been in awe of its reputation and the skill of the men and women who have led its success. To be given the chance to join their ranks is indeed a true honor. I thank the Nominating Committee for their confidence and now ask for your vote.

EERI has a bold mission — reducing earthquake risk — which is more relevant today than at any time in the past. It is ambitious and far reaching. Events in Haiti, Chile, New Zealand, and Japan all speak to the urgency of what we do. But not everybody sees it this way. At a time when resources are short and the effects of a deep recession continue to linger, it is more difficult to be heard among the competing priorities for time and money. Hurricanes, tornados, floods, and wildfires have taken a deep toll this year on the nation's resources and resilience. Earthquake risk reduction is no longer a high priority in the minds of many stakeholders and decision-makers, despite four catastrophic disasters, offshore, in the last two years.

It follows that EERI faces many challenges going forward, ranging from shifting priorities in state and federal governments, to little or no growth in its membership. We therefore need to develop clear and compelling arguments for earthquake risk reduction, identify the gaps in our knowledge, advocate for strong

research programs, find fresh ways to work with the media, and take every opportunity to get our message out. We should not only be nurturing old partnerships and but also making new ones, national and international, earthquake and multi-hazard.

In addition we need to take the pulse of our membership. Our diversity is our greatest strength, from seismology to social science, from academicians to practicing professionals. But satisfying the needs of such a diverse group is another of our significant challenges. The Board and officers are elected to lead, to set goals and achieve them on behalf of the membership. But in doing so it is important to know that every activity is related to the Institute's core business of earthquake risk reduction. It is also important for the Board to not get too far out in front of the membership, but to communicate its short and long term goals, explain where it is going and how it is going to get there. And periodically make sure the membership is right behind it.

EERI has overcome many challenges in the past and I am confident it will continue to do so in the future. If elected I will work to secure long-term funding sources, increase membership across all ages and disciplines, be responsive to the needs of our members and, by doing so, protect and grow what has become a truly unique organization with a critical role to play in earthquake risk reduction at home and around the world.

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### Call for Papers

### NZSEE Conference

The New Zealand Society for Earthquake Engineering has issued a call for abstracts for its 2012 Annual Conference to be held in Christchurch 13-15 April. For more information on suggested topics and to submit an abstract (deadline November 2), visit <http://conference.nzsee.org.nz/>.

## For Director A



### Jerome F. Hajjar

Jerome F. Hajjar is professor and chair of the Department of Civil and Environmental Engineering at Northeastern University in Boston, Massachusetts. His research and teaching interests include analysis, experimental testing, design of steel and composite steel/concrete building and bridge structures, regional modeling and assessment of infrastructure systems, and earthquake engineering. He is currently on the editorial board of *Earthquake Spectra*, has served as the faculty advisor for the EERI Student Chapter at the University of Minnesota, and served on the EERI Seismic Ethics Review Committee.

Jerome served as chair of the Structures Faculty and as deputy director of the NSF Mid-America Earthquake Center at the University of Illinois at Urbana-Champaign, where he was a professor from 2005-2010. Prior to joining the University of Illinois, he was a professor at the University of Minnesota for thirteen years. Earlier, Jerome was a structural engineer and associate at the architectural/engineering firm of Skidmore, Owings & Merrill in their Chicago and New York offices. Jerome serves on the American Institute of Steel Construction (AISC) Committee on Specifications and several of its task com-

mittees, and he chairs Subcommittee 6 on Composite Construction for AISC Task Committee 9 on Seismic Design. He has served on the Building Seismic Safety Council Provisions Update Committee and several of its task subcommittees; is the past-chair of the NEES Information Technology Strategy Committee and the American Society of Civil Engineers (ASCE) Structural Engineering Institute Technical Administrative Committee on Metals; and was the 2004-2005 ASCE Minnesota Section President.

Jerome received his B.S. degree from Yale University and his M.S. and Ph.D. degrees from Cornell University. He was made a Fellow of ASCE in 2007, and has been awarded the 2010 *Popular Mechanics* Breakthrough Award, the 2009 ASCE Shortridge Hardesty Award, the 2005 AISC T. R. Higgins Lectureship Award, the 2004 AISC Special Achievement Award, the 2003 ASCE Walter L. Huber Civil Engineering Research Prize, and the 2000 ASCE Norman Medal for his research on steel structures, composite construction, structural stability, and earthquake engineering. Jerome is a registered professional engineer in Illinois and Minnesota.

### Vision

EERI serves as the leading organization for promoting the advancement of science and practice in earthquake engineering. I am enthusiastic about the vision and mission put forward by the organization, as EERI plays a pivotal role in ensuring continued excellence in the field of earthquake engineering.

I look forward to helping EERI continue to be a leader in supporting programs in earthquake engineering, particularly through interactions with government and nongovernmental organizations. As no entity is better suited to this task through the multidisciplinary talent embodied with the organization, EERI can serve as a strong advocate for

ensuring that earthquake hazard mitigation, response, and recovery remain both a national and international priority for research and implementation.

While historically there have been meaningful interactions among the various disciplines in earthquake engineering, the challenges and barriers to deep and long-lasting integration remain significant. Interdisciplinary approaches towards earthquake hazard mitigation are fundamental to establishing new strategies for creating resilient societies. EERI is well positioned to facilitate these types of interactions, and I would like to help it create additional opportunities to increase dialogue, research, and broad practical strategies that foster interdisciplinary collaborations in earthquake engineering.

The challenges to establishing comprehensive earthquake hazard mitigation are particularly difficult in parts of the world that are outside high-seismicity regions in highly developed countries. EERI will continue to have opportunities to facilitate dissemination of information and advocacy for seismic risk management in these regions. It is important that the Board help EERI address these important challenges, as these regions demand our ongoing attention.

For the future, the wealth of knowledge available now within the field of earthquake engineering must be passed on to a new generation of professionals. This is a sizeable task, particularly as we facilitate new approaches to hazard mitigation and response. I will help the organization expand its leadership role in engaging students and young professionals in fields vital to earthquake engineering.

I am honored to have the opportunity to serve EERI, and look forward to working with earthquake engineering professionals and students to advance earthquake hazard mitigation.

## For Director A



### Roberto T. Leon

Roberto T. Leon is currently a structural engineering professor in the School of Civil and Environmental Engineering at the Georgia Institute of Technology; he will be joining the Via Department of Civil Engineering at Virginia Tech as a Burrows Professor of Engineering in January 2012. Roberto earned his BSCE from the University of Massachusetts at Amherst, his MSCE from Stanford University, and his Ph.D. from the University of Texas at Austin.

Over a 25-year career in experimental structural engineering, his research interests have centered on dynamic behavior and design of composite and hybrid steel-concrete structures, composite action in beam-slab systems, bond of reinforcement under cyclic loads, testing of full-scale and model structures in the laboratory, and field instrumentation of structures.

Roberto has been and remains extensively involved in technical committees, including the Building Seismic Safety Council Provisions Update Committee (BSSC/PUC), the American Institute of Steel Construction (AISC) TC-5 Composite Design, TC-9 Seismic Design, the Committee on Specification, and American Concrete Institute Com-

mittees 408 (Bond and Development Length) and 352 (Beam-Column Joints).

He is a registered professional engineer in Minnesota, the co-author of a book on composite construction and a nontechnical book on bridges and tunnels, and is the author or co-author of over 80 articles in refereed journals. Roberto currently serves as president of the Board of Governors of the Structural Engineering Institute (SEI) of ASCE and is past president of both the Consortium of Universities for Research in Earthquake Engineering (CUREE) and the NSF Network for Earthquake Engineering Simulation (NEES).

### Vision

Among the numerous technical and professional associations that I have been involved in throughout my career, EERI holds a very special place as the most diverse, cross-disciplinary and international in nature. Since joining in 1986, EERI is the single organization whose mailings I scrutinize carefully, from the many useful tidbits in its monthly *Newsletter* to the technical articles in *Earthquake Spectra*, earthquake reconnaissance reports and monographs. I believe that the development, synthesizing, and dissemination of information that EERI and its partners have accomplished over the years should be a source of great pride to its leaders and members. More recently, I have been heartened by EERI's outreach to both young members and students, its effective use of Internet resources, and its more vocal involvement in seismic mitigation studies and public policy. If chosen to serve on its Board, foremost in my mind will be to strengthen and extend these core missions of the organization, and, in particular, those related to multidisciplinary efforts in the areas of preparedness and public policy.

These emphases stem from my recent experience of living through the February 2011 Christchurch earthquake and its aftermath, in

addition to my visit to Chile last year as part of an EERI team. Both events, in addition to the images we have all seen from Japan, have significantly reshaped and broadened my views on the impact of large seismic events. From the professional standpoint, I have come to accept the limits of what building codes, voluntary retrofitting, and similar approaches can do for the very large number of older, vulnerable structures and for the infrastructure that make up much of our urban fabrics. Accepting these limits only means that we need to redouble our efforts in the areas of public policy and preparedness, an area where EERI's cross-disciplinary membership can have a real impact. From the personal standpoint, I have come to better understand both how unprepared most of us are for dealing with natural disasters and yet how resilient and strong humans can be when dealing with such occurrences. If serving on the EERI Board, I would work to strengthen the partnerships between the natural and social sciences and engineering to bring a more holistic approach to seismic mitigation.

### Opportunities

#### Alabama Faculty Openings

The University of Alabama's Department of Civil, Construction and Environmental Engineering ([ce.eng.ua.edu](http://ce.eng.ua.edu)) invites applications for multiple tenure-track faculty positions at the assistant, associate, or full professor level in structural engineering, civil engineering materials, and construction engineering. Of particular interest are candidates with a focus on improving the performance of constructed facilities subjected to natural hazards. Required: a doctorate in civil engineering or a closely related field. The application deadline is January 4, 2012. For more information and to apply, visit [facultyjobs.ua.edu](http://facultyjobs.ua.edu).

## For Director B



### Lucy Arendt

Lucy Arendt is an associate professor of Business Administration (Management) in the Cofrin School of Business at the University of Wisconsin at Green Bay. She earned her Ph.D. in management science from the University of Wisconsin at Milwaukee. She received both her B.S. in business administration, and her M.S. in administrative science from the University of Wisconsin at Green Bay.

Lucy has been a faculty member at the University of Wisconsin at Green Bay since 2006, teaching courses in organizational behavior and theory, and leadership. She was the recipient of the 2008 Founders Association Award for Excellence in Teaching, and the 2010 Student Nominated Teaching Award. She is a member of EERI's Social Science Committee. She was a member of the Organizing Committee for the 9th US National and 10th Canadian Conference on Earthquake Engineering. She has participated as a speaker at the 2008, 2009, and 2010 EERI Annual Meetings. Lucy will serve as the lead trainer for EERI's Housner Fellows Program.

Lucy conducts research on individual and organizational decision-making vis-à-vis disasters, and also on

community resilience. She has participated in reconnaissance research in the wake of Hurricane Katrina and the September 2010 Canterbury, New Zealand, earthquake, the former funded by MCEER and the latter as part of the Learning from Earthquakes program.

She and her co-authors, Daniel Alesch and William Petak (M.EERI), have extensively researched SB 1953, California's controversial hospital seismic safety law. Their findings are described in a forthcoming book, *Natural Hazard Mitigation Policy: Implementation, Organizational Choice, and Contextual Dynamics* (Springer). She has also published *Managing for Long-Term Recovery in the Aftermath of Disaster* (PERI) with co-authors Daniel Alesch and James Holly. Lucy has been the recipient of several NSF and NEES grants.

### Vision

I'm sincerely excited about the opportunity to join the EERI Board of Directors, and hope that you'll cast your vote in my favor. EERI is a dynamic organization that attracts the very best people dedicated to reducing earthquake risk. What that means to me is that we in EERI care deeply about our fellow human beings and their physical, social, cultural, and political structures.

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." It's the latter two components of the mission that I think I can best help EERI achieve.

My research in decision making and the culture of business gives me insight into why individuals and organizations do what they do. I under-

stand the decision-making criteria that people use, the biases that dominate, and the perceptions that need altering in order to reduce the consequences associated with earthquake risk. With an understanding of why people might choose to put themselves in harm's way, we can better devise the means to protect them, their property, and their communities. As a member of EERI's Board of Directors, I will work actively to persuade business owners, legislators, and others to implement the policies and practices that our best science tells us will save lives and maintain building and infrastructure functionality.

EERI is a great organization, thanks to its proactive membership and leadership. EERI must continue to reach beyond national borders and embrace global opportunities for research and education. EERI must continue to reach beyond disciplinary borders and welcome all who might contribute to its multidisciplinary mission. EERI must continue to reach out to professionals at all stages in their careers, and to integrate their knowledge into practice. EERI must continue to work with all levels of government, both to secure funding for its efforts and to communicate persuasively the need to make earthquake risk reduction a priority.

I believe that EERI is strengthened by its focus on multidisciplinary approaches to earthquake risk reduction. The best earthquake engineering science must join with the best minds in the social, cultural, political, and business arenas in order to effect long-term, sustainable change in individual, organizational, and governmental practices. Together, we can make a real difference!



## For Director B



### Kathleen Tierney

Kathleen Tierney is a professor in the Department of Sociology and the Institute of Behavioral Science and director of the Natural Hazards Center at the University of Colorado at Boulder. The Natural Hazards Center serves as a clearinghouse for information on the societal dimensions of hazards and disasters; conducts research in that area; and takes a leadership role in advocating for disaster risk reduction. Kathleen has been a member of EERI since 1987. Prior to moving to the University of Colorado in 2003, she was director of the Disaster Research Center at the University of Delaware. Her research focuses on social aspects and impacts of earthquakes and other hazards, and over time she has conducted studies on the human and organizational dimensions of the Whittier Narrows, Loma Prieta, Northridge, Kobe, and Haiti earthquakes, as well as on other disasters such as Hurricanes Hugo, Andrew, and Katrina and the terrorist attacks on the World Trade Center. She is co-author of *Facing the Unexpected: Disaster Preparedness and Response in the United States* (Joseph Henry Press 2001) and co-editor of *Emergency Management: Principles and Practice for Local Government* (ICMA 2007), as well as several dozen articles and book chapters. For 17 years, she was an investigator and coordinator for the disaster response and recovery thrust area with the Multidisciplinary

Center for Earthquake Engineering Research. She has served twice on the NEHRP Advisory Committee. She co-edited the ASCE journal *Natural Hazards Review* and has also served on the editorial board of *Earthquake Spectra*. For many years, she served on the EERI Learning from Earthquakes Committee, and is a current member of the Honors Committee. She has taken part in EERI post-earthquake investigations and report writing for the Whittier Narrows, Loma Prieta, Northridge, and Tohoku earthquake events, and it has been her privilege to serve as a keynote or plenary speaker at many earthquake engineering meetings and workshops, including, most recently, the 9<sup>th</sup> U.S. and 10<sup>th</sup> Canadian Conference on Earthquake Engineering in 2010 and the 2011 EERI Annual Meeting. In 2006, she received the EERI Distinguished Lecturer award—the first woman and only sociologist to receive that honor.

### Vision

My vision for EERI is complex but also achievable. First, as a critically important professional association, EERI must continue to champion

state-of-the-art research and practice in the core earthquake engineering disciplines. At the same time, in the spirit of the EERI report *Contributions of Earthquake Engineering to Protecting Communities and Critical Infrastructure from Multihazards* (2008) to which I contributed, EERI must advocate for and pursue the application of earthquake engineering knowledge and techniques to reducing losses from other hazards. I also have a strong commitment to multidisciplinary and interdisciplinary research and practice—the topic to which I devoted my EERI award lecture and an approach that MCEER and the other earthquake centers sought to foster. When we focus not on earthquake phenomena per se, but rather on the *societal problems* we seek to address and the *social change* we seek to promote, we immediately recognize the need for more cross-disciplinary collaboration. EERI must continue to focus on the next generation. That generation is seeking an understanding of earthquakes and other disasters that is both deep and broad, both scientific and problem-focused, and we must help them achieve that understanding.

## News of the Profession

### 4<sup>th</sup> UniQ-UB/MCEER Seminar Series in Haiti

More than 215 Haitian engineers, architects and students attended the 4<sup>th</sup> UniQ-UB/MCEER Earthquake Engineering Seminar, held August 1-23, 2011, in Port-au-Prince, Haiti. The seminar featured nine programs on earthquake engineering and seismic design of buildings in Haiti. Three of the best-attended programs, simplified seismic design, seismic design of steel buildings, and geotechnical earthquake engineering and seismic design of foundations, were offered for the first time and each drew over 100 participants. A new building on the Quisqueya University

(UniQ) campus was the venue for the seminars. The building's design was based on a seismic design example presented at an earlier installment of the series. For more information, see page 6 of the July *Newsletter* or visit <http://mceer.buffalo.edu/education/UniQ/default.asp>.



Participants in the seismic design of steel structures program.

## Opportunity

### Japan Internships for U.S. Ph.D. Students

Internship applications are sought from Ph.D. students working with U.S. faculty on structural earthquake engineering research for the purpose of collaborating with Japanese university researchers on tasks related to the Tohoku earthquake. Potential host institutions and faculty include: (1) University of Tokyo (UT) (Hitoshi Shiohara, M.EERI), (2) UT, Earthquake Research Institute (Toshimi Kabeyasawa, M.EERI), (3) Tokyo Institute of Technology (Kazuhiko Kasai, M.EERI), (4) Hokkaido University (Mitsumasa Midorikawa, M.EERI), and (5) Tohoku University (Masaki Maeda).

The internships will last one month between mid-to-late October and mid-December 2011. Funding for travel and living expenses will be provided by the Japan Science and Technology Agency (JST) in collaboration with EERI. Interns would spend approximately two weeks at the host institutions helping prepare reports in English. For the remaining two weeks, they will interact with faculty and students outside the host institution, visiting laboratories and areas impacted by the earthquake. Some understanding of Japanese would be helpful but not necessary.

This JST-EERI research collaboration is being co-organized by Professors Hitoshi Shiohara (UT) and John Wallace, M.EERI (University of California, Los Angeles).

For more information and to download the application form, visit <http://www.eeri.org/wp-content/uploads/JST-EERI-Tohoku-Earthquake-Collaboration-US-Student-Exchange.docx>.

Applications will be accepted until the positions are filled; however, for full consideration, the deadline is October 5 (5:00 p.m. PDT).

## Announcements

### COSMOS Technical Session

The Consortium of Organizations for Strong Motion Observation Systems (COSMOS) will be holding its Annual Meeting and Technical Session at the Hilton Garden Inn in Emeryville, California, on Friday, November 4, co-sponsored by the Pacific Earthquake Engineering Research Center (PEER) and the California Geological Survey (CGS). The day-long session will focus on "Recent Major Earthquakes and their Influence on Strong Ground Motion Determinations and Design."

The 2010 and 2011 earthquakes in Chile, New Zealand, Japan, and Virginia will have a major influence on strong ground motion determinations and design. This technical session will provide presentations on ground motions measured in these earthquakes and in their influence on attenuation relationships. There will also be presentations on how these earthquakes will influence the design of foundations and geotechnical structures such as earthen dams. The last part of the technical session will include a lively panel session. For complete program and registration details, visit [www.cosmos-eq.org](http://www.cosmos-eq.org).

### New Publications of Interest

***Seismic Design Aids for Nonlinear Pushover Analysis of Reinforced Concrete and Steel Bridges:*** This new book, co-authored by EERI member Jeffrey Ger of the Federal Highway Administration and Franklin Y. Cheng of the Missouri University of Science and Technology, fills the need for a complete reference on pushover analysis for practicing engineers, senior undergraduates, and postgraduates. The popularity of pushover analysis in performance-based bridge seismic design is due to its ability to identify the failure modes and the design limit states of bridge piers and to provide the progressive collapse sequence of damaged bridges when subjected to major earthquakes. Published by CRC Press, the book includes step-by-step numerical procedures with five different nonlinear element stiffness formulation methods that vary from the most sophisticated to the simplest and are suitable for users with varying levels of experience. This book provides new technology for displacement-based seismic analysis with various in-depth, nonlinear member stiffness formulations. It also contains an executable computer file for readers to perform pushover analysis.

For more details and to order the book for \$119.95, visit <http://www.crcpress.com/product/isbn/9781439837634>.

**2008 Wells, Nevada, Earthquake Report:** The Nevada Bureau of Mines and Geology has issued an online report, co-edited by EERI member Craig de Polo, about the 2008  $M_w$  6.0 Wells, Nevada, earthquake that occurred within 9 km of Wells, a community of 1,657 people. The event damaged more than half of the 80 commercial and government buildings, destroyed three homes, damaged 10% to 15% of the chimneys in town, and injured three people. Shaking durations reported by people and observed on security cameras were long (40 to 45 seconds) for a magnitude 6 event and were likely related to local basin effects. With more than 600 photos in a gallery, the Wells earthquake report documents the geological and geophysical setting, seismicity and infrasound studies, geodetic and state-of-stress studies, earthquake damage and effects, the community response, impacts on Wells, community recovery, and the lessons learned. The report is available at <http://www.nbmng.unr.edu/Pubs/sp/sp36/index.html>. It can also be purchased from <http://www.nbmng.unr.edu> as a spiral-bound hard copy for \$62 or as a DVD for \$35.

## CALENDAR

The issues containing the first and subsequent appearances are indicated at the entry's end. Items listed for the first time are shown in bold.

### 2011

#### OCTOBER

2-6. 7th World Cong. Joints, Bearings, & Seis. Sys./Conc. Structs., Las Vegas, NV. [www.ijbrc.org](http://www.ijbrc.org) (8/10)

10-11. Workshop on Advances in Real-Time Hybrid Simulation, Lehigh NEES facility. <https://nees.org/announcements/realtimehybridsimulationworkshop> (9/11)

10-12. CTBUH 2011, Seoul, S. Korea. <http://www.ctbuh2011.org/ctbuh/ctbuh.asp> (3/11)

11-14. Turkish EQ Eng./Seis. Conf., Ankara. [www.tdmd.org.tr](http://www.tdmd.org.tr) (3/11)

18-21. Deep Foundations Inst. (DFI) Annual Conference, Boston, MA. [www.dfi.org/conferencedetail.asp?id=172](http://www.dfi.org/conferencedetail.asp?id=172) (12/10, 2/11 8/11, 9/11)

27-28. EERI Seminar on the Seismic Design and Performance of Non-structural Elements, San Francisco, CA and Seattle, WA. **See page 1.** (8/11, 9/11, 10/11)

#### NOVEMBER

3-4. EERI Seminar on the Seismic Design and Performance of Non-structural Elements, Los Angeles and San Diego, CA. **See page 1.** (8/11, 9/11, 10/11)

**4. COSMOS Technical Session**, Emeryville, CA. **See page 10.** (10/11)

**27-Dec. 2. Conf. on Understanding Extreme Geohazards**, Spain. **See this page.** (10/11)

#### DECEMBER

1-3. Int'l Conf. on EQ Analysis & Design of Structures, Coimbatore, India. <http://www.psgtech.edu/eqads2011/> (6/11)

6-7. Geotechnical Short Course, Virginia Tech, Blacksburg, VA. [www.cpe.vt.edu/gee/](http://www.cpe.vt.edu/gee/) (9/11)

11-15. 5th Int'l Conf. Structural Health Monitoring of Intelligent Infrastructure (SHMII-5), Cancun, Mexico. [www.shmii.unam.mx](http://www.shmii.unam.mx) (4/11)

### 2012

#### JANUARY

9-11. Behavior of Steel Structures in Seismic Areas (STESSA 2012), Santiago, Chile. [www.ingcivil.uchile.cl/stessa2012](http://www.ingcivil.uchile.cl/stessa2012) (11/10)

**22-25. 7th Gulf Seismic Forum**, Jeddah, Saudi Arabia. **See this page.** (10/11)

#### FEBRUARY

15-18. 4th Int'l Conf. Grout/Deep Mix, New Orleans, LA. [www.dfi.org/conferencedetail.asp?id=163](http://www.dfi.org/conferencedetail.asp?id=163) (5/10)

#### MARCH

3-4. Int'l Symposium One Year after the 2011 Eastern Japan Earthquake, Kenchiku-kaikan Hall, Tokyo. Info: [kawashima.k.ae@m.titech.ac.jp](mailto:kawashima.k.ae@m.titech.ac.jp) (8/11)

#### APRIL

10-14. EERI Annual Meeting/Nat'l EQ Conf., Memphis, TN. [www.eeri.org](http://www.eeri.org) (5/11, 9/11)

**13-15. New Zealand Society for EQ Eng Annual Conf.**, Christchurch, NZ. **See page 5.** (10/11)

**17-19. Seismological Society of America Annual Meeting**, San Diego, CA. **See page 3.** (10/11)

#### MAY

18-21. International Conference on Earthquake Engineering: Research Challenges, Harbin, China. e-mail Ms. Bing Bai, [iceer2012@iem.cn](mailto:iceer2012@iem.cn). (9/11)

28-30. 2nd Int'l Conf. PBD in EQ Geotech Eng., Taormina, Italy. <http://addon.webforum.com/issmge/view.asp?EventID=2160> (5/11)

#### JULY

8-12. 6th Int'l Conf. on Bridge Maintenance, Safety and Management (IABMAS 2012), Lake Como, Italy. [www.iabmas2012.org](http://www.iabmas2012.org) (12/10, 1/11)

#### SEPTEMBER

24-28. 15th World Conf. on EQ Eng. (15WCEE), Lisbon, Portugal. [www.15wcee.org](http://www.15wcee.org) (8/10, 8/11)

#### OCTOBER

3-6. Symp. on Life-Cycle Civil Eng. (IALCCE), Vienna, Austria. [www.ialcce2012.org](http://www.ialcce2012.org) (12/10, 1/11)

## Call for Papers

### Tsunami Volume

The Tsunami Society International (TSI — <http://www.tsunamisociety.org>), publisher of the quarterly journal *Science of Tsunami Hazards*, is collecting interdisciplinary papers for publication in a comprehensive book that will document the great Tohoku, Japan, earthquake and tsunami of 11 March 2011.

For information on suggested topics, contact TSI President George Paras-Carayannis at [drgeorgepc@yahoo.com](mailto:drgeorgepc@yahoo.com). Abstracts or full papers (in Word or PDF format) should be sent by November 15, 2011, to [postmaster@tsunamisociety.org](mailto:postmaster@tsunamisociety.org).

## Announcements

### Conference on Extreme Geohazards

The Conference on Understanding Extreme Geohazards will be held 27 November to 2 December 2011 in Spain, organized by the European Science Foundation in partnership with the European Cooperation in Science and Technology and with support from the Group on Earth Observations and UNESCO.

Attendance is possible only after successful application. For more information and the application form, visit <http://www.esf.org/index.php?id=8974> immediately.

### Gulf Seismic Forum

The 7th Gulf Seismic Forum (GSF 2012) will be held January 22-25, 2012, in Jeddah, Saudi Arabia, hosted by the Saudi Geological Survey, with the theme of "Seismology and Earthquake Engineering in the Arabian Gulf Region." The language of the forum will be English. The abstract submission deadline is September 30. For more information, visit <http://7gsf.info/>.



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## Learning from Earthquakes Virginia Earthquake Update

As reported in the September *Newsletter*, EERI members and colleagues have been documenting damage associated with the August 23, 2011, Virginia earthquake. It is expected that a full report will be published as an insert in the November *Newsletter* and available on the Virginia Clearinghouse website. Following are some preliminary findings:

The earthquake occurred as reverse faulting at shallow depth on a north or northeast-striking plane within the previously recognized "Central Virginia Seismic Zone." A network of seismographs installed following the main shock has enabled accurate location of many aftershocks. The locations of aftershocks do not correspond to any previously identified fault.

The earthquake was felt over a wide area, with many reports to the USGS "Did You Feel It?" (DYFI)

website. Reports came in from most zip codes within 800 km from the epicenter; with some additional observations from greater distances.

Field observations indicate that an area in rural Louisa County situated close to the causative faulting experienced shaking corresponding to Modified Mercalli Intensity VIII.

As of September 7, state damage estimates for Louisa County and surrounding counties were as follows:

Total private property damage:  
\$23,083,200 (33 structures destroyed, major damage to 180; minor damage to 510, and 330 affected)

Total public property damage:  
\$67,683,176, including two significantly damaged schools.

The EERI and GEER teams visited several Smithsonian Institution buildings two weeks after the earthquake. They observed significant cosmetic and architectural damage as well as structural damage in the pods (Smithsonian Collection Storage

and Laboratory Facilities), which exhibited damage to the infill walls. Inside the pods are three-story steel frames with concrete floors that support museum items. The cross-bracing in these frames at all three levels yielded and buckled. Fracture of one of the cross-braces was also observed, in addition to shear-failure and pullout of the anchor bolts at the ground floor of the steel frames.

In urban areas, building evacuation, communication, and transportation were closely interrelated, with problems in one area affecting the others. In the greater Washington, D.C., area, the surge of people using the highways and expressways to get home caused significant delays.

Teams from the Disaster Research Center at the University of Delaware are documenting response in the epicentral region and Washington, D.C. Their findings will be included in the larger report.

For more information, visit <http://www.eqclearinghouse.org/2011-08-23-virginia/>.

## M 6.9 Earthquake in India

On Sunday, September 18, 2011, a magnitude 6.9 earthquake occurred in Sikkim, India, near the border with Nepal. The earthquake killed at least 100 people in the state, damaged

buildings and infrastructure, and triggered hundreds of landslides, which have slowed the rescue and relief efforts in west Sikkim, exacerbated by relentless monsoon rain. The earthquake caused damage in India, Nepal, Bhutan, and Tibet. EERI is coordinating with members and colleagues in India and Nepal,

who will be conducting field reconnaissance in the coming days. Updates from these field investigations will be posted on the EERI website.

For more information, visit <http://www.eeri.org/2011/09/magnitude-6-9-earthquake-%E2%80%93-sikkim-india/>.