News of the Institute

Last Call: 54th Annual Meeting Travels Through Time

Beginning on the evening of Wednesday, February 6, attendees at EERI’s 54th Annual Meeting in Long Beach, California, will take a guided tour of the past, present, and probable future of the earthquake professions. Through films and historic accounts, they’ll revisit lessons learned from the Long Beach earthquake of 1933. In light of this historically significant seismic event, they’ll review scientific, design, and public policy advances over the years and assess the latest thinking on what could happen today in seismically vulnerable areas of the United States.

Experts from industry, academia, and government will share hands-on experiences with emerging earthquake technologies, including state-of-the-art, real-time ground motion sensors and FEMA’s HAZUS software. There will also be a special session presenting EERI’s draft plan on “Research Needs and Opportunities,” which has the goal of identifying the needs and opportunities that exist to advance the state of the art and state of the practice in earthquake engineering and earthquake loss reduction over the next several decades.

In a special pre-meeting training session beginning at 9:00 a.m. on Wednesday, February 6, there will be an opportunity for members to participate in training in post-earthquake investigations, an eight-hour Learning From Earthquakes program based on best practices from the Institute’s National

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News of the Institute

Northern California Chapter “Quake ’06” Campaign

The Board of Directors of EERI’s newly organized Northern California Chapter (see page 5 of the December 2001 Newsletter) is gearing up to launch a four-year campaign called “Quake ’06,” which will have the objective of achieving a significant and real reduction in the seismic risk of northern California by the 100th anniversary of the San Francisco earthquake of 1906. The campaign is a partnership among the community of earthquake professionals in the chapter and cities, agencies, and other groups at risk in northern California.

Spearheaded by Chapter Vice President Charles Scawthorn, the organizational and research phase of the campaign is currently underway, with a media campaign to be kicked off on April 18, 2002, the anniversary of the 1906 earthquake. We hope to engage the media as partners in this process, in publishing maps and estimating earthquake impacts; one of their roles also might be to request “report cards” from each community’s accountability groups on the anniversaries of the Loma Prieta (October 17) and San Francisco (April 18) earthquakes.

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News of the Institute

7NCEE Special Sessions Planned

Several sessions on topics of high current interest to the earthquake engineering community are now slated for the July 21-25, 2002, 7th National Conference. Sessions explore wide-ranging dimensions of "Urban Earthquake Risk." Among them are important lessons learned from the January 2001, Bhuj, India earthquake; reports on the latest retrofits of bridges in Mid-America; user experiences with new ground-motion technologies; and an assessment of blast effects on buildings in the September 11th terrorist attacks. Some details follow, but look for more information soon on plenary sessions and tours in future Newsletters and the preliminary program.

Application of advanced technologies in earthquake response and recovery. Experience has shown that impeded response or delayed recovery exacerbates conditions. Therefore, any technology that helps to identify — in near real-time — areas of strong ground shaking or severe damage can be critical. This session will emphasize real-time technologies and applications during recent, large earthquakes that demonstrate their value in regional damage assessment.

Blast effects. This session will feature a forensic report on building performance in New York City in the aftermath of the September 11, 2001, terrorist attacks.

Electricity deregulation. This session will deal with the impact of electric power deregulation and restructuring on seismic improvement programs, new issues for managing risks to electric power utilities, and acceptable risk processes.

Bridges in Mid-America. Presentations in this session concern the seismic evaluation and hazard mitigation of bridges in the New Madrid seismic zone, including testing of restrainer cable retrofits, development of bridge fragility curves, evaluation of superstructure retrofits, and reducing the vulnerability of multi-column bent bridges and bridges along designated emergency vehicle access routes.

Encyclopedia of housing. EERI and the International Association of Earthquake Engineering have teamed up to build a web-based encyclopedia of housing construction types in seismically prone areas of the world, which will provide basic information on their vulnerability and strengths that will be useful in efforts to improve a region's housing stock. This session will present an overview of the project and country-specific examples, including Canada, Chile, Colombia, Italy, Mexico, Peru, Turkey, and the United States.

The Bhuj, India, earthquake of January 26, 2001. This session will cover the origin and effects of the Bhuj earthquake, the performance of concrete frame buildings, damage to dams, post-earthquake reconstruction, public policy challenges, and lessons for the central and eastern United States.

In addition to the panel sessions described in the October Newsletter (page 3), there also will be one focusing on the consequences and the impacts on insurers of earthquakes that occur in Canada or the northeastern United States. It will look at potential losses, financial links between Canada and the United States, and the impacts on their economies.

News of the Institute

New Funding and New Programs for the Learning from Earthquakes Program

With the recent $3.1 million grant from the National Science Foundation for the next five years (see page 3 of the November Newsletter), EERI's Learning from Earthquakes Program is embarking on a number of new and expanded tasks. Jay Love of Degenkolb Engineers will be assuming the chairmanship of the LFE committee, succeeding Loring Wyllie. The committee has benefited greatly from Wyllie's experience and wisdom, and his solid leadership has been valuable during the current transition to a larger, more visible program. In his new capacity as chair, Love brings field experience in domestic and foreign events coupled with a strong interest in the use of new technologies in earthquake reconnaissance, and an interest in improving the acquisition and management of damage and loss data after earthquakes.

The first major activity under this expanded LFE program will be a one-day free training session to be held February 6 at the EERI Annual Meeting in Long Beach. This training will provide an overview of EERI's reconnaissance program and will focus on post-earthquake investigation skills. There will be a new emphasis on the use of personal digital assistants (PDAs) as a data collection tool, and participants will have the opportunity to test the use of PDAs in a data collection simulation exercise.

A second major activity that is being supported by the new LFE program is the organization of an invitational workshop to develop damage data collection protocols. It will be held in mid-2002, and will bring together
earthquake researchers and professionals to develop a framework that will meet the myriad needs in collecting and archiving earthquake loss data. The workshop organizing committee is chaired by Mary Comerio and includes EERI members Nesrin Basöz, Ron Eguchi, Bill Holmes, Charlie Kircher, Bob Reitherman, and Charlie Scawthorn.

Information on both these activities, as well as the LFE program in general, is available by contacting the Learning from Earthquakes Program Manager, Marjorie Greene, at the EERI office or by e-mail, mgreene@eeri.org.

Call for Abstracts

2002 SEAOC Convention

The 2002 Structural Engineers Association of California (SEAOC) Annual Convention will be held in Santa Barbara, California, September 26-28, 2002. The theme of “Real World Structural Engineering” has been tentatively chosen for the technical program. The emphasis is on the practical structural design of low-rise to high-rise buildings and other structures using both existing structural design philosophies and recently developed technologies. The technical session format will be divided into two parallel tracks allowing for a larger number of papers to be presented at the convention.

Those interested in presenting a paper should send a brief abstract (300 words or less) by March 1, 2002, to: Michael Cochran, Technical Program Committee, 2002 SEAOC Convention, c/o Brian L. Cochran Associates, Inc., 2040 Armacost Avenue, Los Angeles, CA 90025; phone 310/207-6638; fax 310/207-6188; e-mail MLCSE@aol.com.

Annual Meeting

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Science Foundation-funded earthquake reconnaissance program. Other highlights of regular sessions include a talk on the future of research in the field at the National Science Foundation, a status report on the NEES Consortium development, the first presentation of the 2002 Distinguished Lecture by Professor Mete Sozen, and a field trip consisting of a guided walk of historic retrofits in downtown Long Beach.

Subscribing members who are interested in exhibiting at the Annual Meeting should contact Sonya Hollenbeck (sonya@eeri.org) of the EERI staff.

All EERI members should have received in the mail the program brochure containing the meeting registration form and hotel information. For your convenience, this Newsletter contains a registration form that also has information about the many attractions in Long Beach that might be of interest to participants’ family members. The meeting registration fee includes the conference notebook, three lunches, and the Friday night banquet. For more information, contact the EERI office. Online registration is available at the web site www.eeri.org. Don’t delay in registering — this Annual Meeting will be timely, challenging, and memorable. You won’t want to miss it! Please make your hotel reservations by January 6 to help ensure that EERI fills its room block!

The Aquarium of the Pacific in Long Beach.
(photo courtesy of the Long Beach Convention & Visitors Bureau)

Call for Abstracts

Pacific Conference on Earthquake Engineering

The 2003 Pacific Conference on Earthquake Engineering will be held February 13-15, 2003, in Christchurch, New Zealand. The conference is being hosted by the New Zealand Society for Earthquake Engineering and will be held at the University of Canterbury. Papers are being solicited on all topical aspects of earthquake engineering, including structures, foundations and geotechnique, seismology and microzonation, lifeline systems, emergency management planning, learning from earthquakes, social and economic issues, and insurance issues. Abstracts are due by April 2002. For more information on abstract submittal and the conference, see the web site www.nzsee.co.nz/pcee.
News of the Profession

Implications of 9/11 Attacks for Earthquake Engineering

Editor’s Note: The following was contributed by EERI Member Ronald O. Hamburger.

On September 11, we all watched with sadness and disbelief as hijacked airliners slammed into, then caused collapse of the twin World Trade Center towers in New York City and the Pentagon in Virginia. Just as in the aftermath of a major earthquake, we were struck both by the tragic loss of life and the vulnerability of our built environment to extreme events.

In the United States, we had been fortunate. Though other nations have experienced earthquakes that were as destructive to property and life as the terrorist attacks of September 11, we have not had any earthquake in the United States that approached these staggering tolls. In fact, with the exception of a hurricane that struck the city of Galveston in 1900, no single disaster in the United States has been this costly.

There are many parallels between these tragic events and the destruction and losses caused by earthquakes. In addition to the scale of the losses that occurred, other parallels include the following. The same urban search and rescue teams used to search for victims following earthquakes were pressed into service in New York. The same ATC-20 procedures used by structural engineers in California and Washington to perform post-earthquake assessments of building damage and safety were used by structural engineers in New York to assess the condition of buildings surrounding the World Trade Center. Just as fire is often a major hazard and cause of loss following earthquakes, it was also a major cause of damage and loss following the aircraft impacts. Just as structural redundancy, continuity, and toughness are key to the performance of buildings in earthquakes, these same properties were key to the performance of buildings in New York and Virginia, and indeed were key to the avoidance of even more staggering losses. Portions of the Pentagon had recently been retrofitted, permitting the effectiveness of the particular retrofit techniques to be judged. Just as the earthquake community learns important lessons on how to mitigate the effects of extreme events following each earthquake, we can learn important lessons from the events of September 11.

On September 12, just one day after the attacks, the Structural Engineers Institute of the American Society of Civil Engineers (SEI/ASCE) began to form two Building Performance Assessment Teams (BPAT’s) to act in a very similar role to that of EERI’s post-earthquake reconnaissance teams. One team is focusing on the World Trade Center and surrounding buildings, while the other team is focusing on the Pentagon.

These teams are charged with collecting perishable data on the performance of affected buildings; evaluating how each of the buildings performed; identifying potential vulnerabilities in our design and construction methods that could be practically mitigated; recommending detailed studies and investigations, where appropriate, to confirm these observations; and preparing a report to document both teams’ findings and recommendations.

Each of the BPATs has been formed in cooperation with other organizations. In addition to SEI/ASCE, participating organizations include the National Council of Structural Engineers Associations (NCSEA), the American Institute of Steel Construction (AISC), the American Concrete Institute (ACI), NFPA, the International Code Council (ICC), the Society of Fire Protection Engineers (SFPE), the National Research Council of Canada (NRCC), the National Institute of Standards and Technology (NIST), the Council on Tall Buildings in the Urban Habitat (CTBUH), the Masonry Society (TMS), and a number of universities, private firms and individuals. The World Trade Center team, headed by EERI member Gene Corley, is proceeding forward in cooperation and with support from the Federal Emergency Management Agency. The extensive support and close cooperation of the New York City Department of Design and Construction and the Structural Engineers Association of New York are particularly worthy of mention. The Pentagon team, which is somewhat smaller, is headed by Paul Mlakar of the Army Corps of Engineers.

Each of the teams conducted field reconnaissance in early October. Investigations currently being conducted include review of construction drawings for the affected buildings, photographs, and television footage of the events, and recordings of 911 calls received by emergency services. Selected samples of construction materials have been removed from the affected buildings and are being subjected to laboratory testing. In addition, detailed analytical modeling of the aircraft impact events, the resulting blasts, fire spread and heat generation, and the structural behavior of affected buildings have been undertaken.

Specific details of the findings of the investigations will not be released until the investigations are completed. It is anticipated that the initial BPAT studies will be completed in early 2002 and a report published shortly thereafter. More detailed investigations and studies will likely continue for years.

EERI members interested in infor-
At a meeting on December 17, the chapter made decisions about the organization of the campaign, which will be implemented through accountability group task committees such as the following:

- Education
- Health care
- Lifelines and Utilities
- Local Government
- Seismic Hazards
- Commercial buildings
- Residential

Additional committees may be formed. Each will have two to four EERI members and five to ten non-members who would be representative of that accountability group. EERI members will work with them to develop analysis and reporting formats to assess risk for that group, and then to set appropriate risk reduction strategies and goals. The committees will work with group associations such as the American Society of Health Care Engineers, the Association of California School Administrators, and the Building Owners and Managers Association.

In her new position at EERI, Costello coordinates the Institute’s efforts to speak with "one voice," while representing many disciplines within the mitigation and risk management communities. This will include outreach to the general media as well as within EERI’s membership and cooperating organizations. As a first step, she is reviewing the organization’s history and talking to many EERI activists. To assist this process, she invites members to share their ideas, opinions, and personal visions for EERI. Please e-mail them to her at victoria@eeri.org.

Costello is also the primary EERI staff person working on fundraising for Institute projects, such as the Housing Encyclopedia and Earthquake Mitigation Center, in addition to other new and continuing programs. Working closely with the EERI Board and Development Committee, she’ll help create and execute a 2002-03 EERI Development Plan that includes foundation and corporate fundraising, as well as the launching of an EERI major donor campaign.

Although she commutes to EERI during the week from Marin County, Costello can be found most weekends at her home on the "high side" of Sonoma County’s beautiful Russian River.

Nominations for 2003 Distinguished Lecturer

Since 1992, EERI has honored leaders in the earthquake profession through the annual Distinguished Lecturer Award. This year’s awardee is Mete Sozen, Professor of Structural Engineering at Purdue University. His lecture will be presented at the EERI Annual Meeting and at a series of meetings nationwide. The Honors Committee will meet during the Annual Meeting in Long Beach, California, to consider candidates for the Distinguished Lecturer Award for 2003. Please submit your written nominations to the Honors Committee, in care of the EERI office, by January 31.
Announcements

Clough and Penzien Symposium

The UC Berkeley-CUREE Symposium in Honor of Ray Clough and Joseph Penzien will be held May 10 and 11, 2002, at the University of California, Berkeley. The purpose of the symposium is to recognize the notable contributions made by two of the most influential researchers and educators in earthquake engineering. The event will feature a technical program that is of broad appeal to engineers in practice and academia, combining historical perspectives with state-of-the-art discussions on topics deriving from the seminal work of Clough and Penzien. Social functions will provide opportunities for engineers and long-time friends alike to meet with these prominent figures in structural and earthquake engineering.

For more information, including registration for the symposium, see www.curee.org or e-mail curee@curee.org.

2002 PEER Annual Meeting

The 2002 Pacific Earthquake Engineering Research Center (PEER) Annual Meeting will be held January 17 and 18, 2002, at the Oakland Marriott City Center Hotel.

The first day is intended for PEER participants (researchers, students, industry partners, committee members, and other project personnel), and will focus on the methodology test-bed program in both plenary and breakout sessions. The second day, which is open to both PEER participants and the public at large, will feature presentations and poster sessions on current PEER research and the methodology testbed.

There is no charge to attend the meeting, but pre-registration is required. For more information, including a program and online registration form, see peer.berkeley.edu/2002annualmtg.

News of the Profession

Job Opportunities

University of Missouri-Rolla. Tenure-track position at the assistant professor level in the Department of Civil Engineering with an emphasis in geotechnical earthquake engineering (higher ranks may be considered for outstanding candidates). Additional information regarding the position can be found at: www.umr.edu/~civil or www.umr.edu/~geotech. Contact: Ronaldo Luna (rluna@umr.edu).

Washington State University, Pullman. Two tenure-track faculty positions in the area of structural engineering within the Department of Civil and Environmental Engineering. The first position requires expertise in earthquake engineering and dynamics, and the second requires expertise in structural material behavior. It is expected that both positions will be filled at the assistant professor level, although appointment at higher levels will be considered. Screening of candidates will begin January 15, 2002. Contact: Michael G. Katona, Chair, Structures Search, Department of Civil and Environmental Engineering, Washington State University, Pullman, WA 99164-2910.

University of Notre Dame, Indiana. Tenure-track faculty positions in the Department of Civil Engineering and Geological Sciences at the assistant professor level in the areas of structural, geotechnical, and materials engineering. Appointments at a higher rank are possible for exceptionally well-qualified candidates. Candidates should have interest in one or more of the following areas: steel structures; behavior of structures under dynamic loads; mechanics of advanced composites; engineering materials; soil dynamics; geotechnical engineering; natural hazard mitigation. Contact: Ahsan Kareem, Chair, Department of Civil Engineering and Geological Sciences, 156 Fitzpatrick Hall, University of Notre Dame, Notre Dame, IN 46556-0767.

University of California, Davis. Tenure-track faculty position at the assistant professor level in solid earth geophysics within the Department of Geology. Candidates should have interests that include one of the following: earthquake seismology, mathematical geophysics, modeling and observing deformation in the lithosphere, physical processes associated with volcanism, and structural seismology. Applications should be received by February 1, 2002. Contact: Chair, Geophysics Search Committee, Department of Geology, One Shields Avenue, University of California, Davis, CA 95616; phone 530/752-0350; fax 530/752-0951; e-mail geophys-search@geology.ucdavis.edu.

University of California, Davis. Tenure-track faculty position at the assistant professor level in structural geology/tectonics within the Department of Geology. Candidates should have interests that include one of the following: tectonics, especially neotectonics, analytic structural geology, regional structural geology/tectonics. Applications should be received by February 1, 2002. Contact: Chair, Structural Geology/Tectonics Search Committee, Department of Geology, One Shields Avenue, University of California, Davis, CA 95616; phone 530/752-0350; fax 530/752-0951; e-mail StrucTect-search@geology.ucdavis.edu.
Call for Abstracts

Special Session on Faulting at EGS

A special session on active faulting and continental deformation will be held at the XXVII General Assembly of the European Geophysical Society (EGS) meeting in Nice, France, April 21-26, 2002. The main goal of the session is to bring together research in seismology, geodesy, field geology, and other relevant areas of the earth sciences to constrain better conceptual and quantitative models for continental deformation over a wide range of temporal and spatial scales. Contributions are encouraged that consider the implications of observations and models for seismic hazards. The deadline for receipt of session abstracts is January 11, 2002. The submittal information and general information about the meeting can be obtained from the EGS home page at www.copernicus.org/EGS/EGS.html.

News of the Institute

UC Berkeley Student Chapter Assists City

The EERI student chapter at the University of California, Berkeley, under the direction of faculty advisor Bozidar Stojadinovic, recently participated in a city walk-about to help in the assessment of multi-unit, soft-story residential buildings. The city of Berkeley has been concerned for a number of years about the seismic vulnerability of its apartment buildings with soft first stories. Arrietta Chakos, EERI member and chief of staff of the city manager's office, and Joan MacQuarrie, the city's building official, conceived of this project, teaming UC Berkeley student volunteers with city engineers, to assess individual buildings. L. Thomas Tobin and Jim Russell, also EERI members, are the project advisors to the city. Brian Cowan from FEMA national, along with Jim Buika, FEMA Region IX, helped the city with project funding and proposed the current assessment as part of the federal Project Impact initiative. EERI student chapter president Tim Wiley serves as an intern to the city project, as does EERI student member Andy Espinosa, and both acted as liaisons between the city and the student chapter for the walk-about.

The walk-about brought together volunteer professional engineers, including EERI president Chris Poland, with engineering graduate students in small mentoring relationships. Twenty teams assessed 150 buildings over two Saturdays in October. The walk-about also incorporated the use of personal digital assistants for rapid building assessment. Georgia Tech researchers developed a Palm application based on the city's survey form, and teams were asked to use the Palm on-site in addition to the paper forms. Results of the walk-about are expected to be announced early next year.

More information on this project, including the survey forms used, is available from Tim Wiley, phone: 510/705-8182; e-mail: twiley@ci.berkeley.ca.us.

Obituary

Harry T. Halverson

Former EERI member Harry Halverson, the co-founder of Kinemetrics, Inc. in 1969, recently died at his home in Olympia, Washington, at the age of 82. For 20 years he pursued and promoted the importance of strong-motion earthquake recording. In 1994 he was elected an honorary member of the Seismological Society of America for his contribution towards earthquake hazard mitigation. After retiring in 1984 to Olympia, Halverson became a well-known photographer. He is the acknowledged master photographer of Washington's state capitol building. His photographs hang in the offices of the governor, supreme court justices, and state agency headquarters.

Call for Abstracts

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Announcements

Online Training through Int’l Code Campus

The International Code Council (ICC) has announced the creation of the International Code Campus, an online training initiative for code enforcement and fire officials, architects, engineers, builders, and others in the construction industry. A cooperative effort of the model code organizations (MCOs) BOCA (Building Officials and Code Administrators), ICBO (International Conference of Building Officials), and SBCCI (Southern Building Code Congress International), the new virtual campus replaces the online training programs previously offered by each MCO. It is part of the strategy to consolidate services offered by the MCOs as they advance toward the goal of being one organization under the ICC umbrella. The campus allows users to take training courses anytime, anywhere there is access to the Internet. It will offer more than 70 courses over a diverse range of topics, including technology, codes, and enforcement. Those who successfully complete courses earn continuing education units. For a free, interactive demonstration, point your browser to www.icccampus.org. For more information, call 800/214-4321 ext. 355, or e-mail lrosenfe@bocai.org.
Publications

CSSC Report on Proposition 122

The California Seismic Safety Commission (CSSC) has just completed its Seismic Retrofit Practices Improvement Program. This program, launched 10 years ago after the voters passed Proposition 122 in June 1990, authorized the state to issue $300 million in general obligation bonds for the seismic retrofit of state and local public buildings. Proposition 122 specified that up to 1% or $3 million of the total bond funds be used to support an earthquake research and development program. The CSSC was given the responsibility of administering the Seismic Retrofit Practices Improvement Program. The commission developed four main conceptual products (methodologies, techniques, and educational material), seven projects, and several related publications over the span of 10 years.

A summary report has been prepared that evaluates and assesses the program and products developed under the program. It also provides recommendations for future retrofit programs involving the remaining state buildings and a large number of local government buildings that the Proposition 122 bond was unable to fund.

For more information on the report,
News of the Membership

Frangopol Receives J. James R. Croes Medal

Dan M. Frangopol, an EERI member since 1988, and Michael P. Enright were awarded the 2001 J. James R. Croes Medal of the American Society of Civil Engineers (ASCE). This medal is awarded annually to the author or authors of the paper, among all journals published by ASCE, that is judged worthy of special commendation for its merit as a contribution to engineering science. They won this award for the paper, “Condition Prediction of Deteriorating Concrete Bridges using Bayesian Updating,” published in the Journal of Structural Engineering. This paper describes the procedure — considered a substantial improvement over present bridge condition prediction methodology — of combining information from both inspection data and engineering judgment, quantifying the effect of updating prior information on time-variant bridge-system reliability, and providing a probabilistic framework for incorporation of new information into existing bridge management systems.

Frangopol is a professor at the University of Colorado at Boulder. He is a fellow of ASCE and ACI and an honorary member of the Romanian Academy of Technical Science. Frangopol has also received the 2001 IASSAR Research Prize in the Area of Structural System Reliability and Optimization, and the 1998 ASCE State of the Art of Civil Engineering Award.

Shakes and Quakes: Bringing Earthquakes to the Classroom

In 1998, Bill Spencer of the University of Notre Dame founded the Shakes and Quakes outreach program in order to demonstrate the role of civil engineers in creating structures that perform well under earthquake forces. As reported in the February 2000 EERI Newsletter (page 10), graduate students in Notre Dame’s Structural Dynamics and Control Earthquake Engineering Lab (www.nd.edu/~quake) traveled to a local middle school with Legos and K’Nex building toys and challenged the students to design masonry and steel buildings to survive an earthquake simulated with a portable shaking table.

In 1999, this program became part of a national effort through the University Consortium on Instructional Shake Tables (UCIST), sponsored by the National Science Foundation (NSF). Twenty-three institutions joined this consortium, including Notre Dame, with the goal of utilizing portable shaking tables for improving undergraduate education and for educational outreach purposes. The supervision of the Shakes and Quakes program was formally adopted by the EERI student chapter at the University of Notre Dame and its advisor, Yahya Kurama, as a service project to the wider community. The chapter continues to visit a local elementary or middle school each semester.

Program overview: Shakes and Quakes has been used in earth science courses as a supplement to the textbook unit on earthquakes. The entire project lasts about three weeks. After the students have constructed their buildings during a two-week period, EERI members return on Quake Day to test them in a “Shake Off!” competition. While the activity produces a “winner,” it more importantly provides the opportunity to discuss what went wrong, which becomes helpful fodder for the groups’ final reports. The Shake Offs continue until one winner remains; that lucky team gets a ride on the thrilling earthquake table. Many lessons are learned through this program, including the concepts of base isolation made simple through the use of Legos on wheels. The program has been successfully adapted for audiences from elementary grades (3rd) to middle school grades up to 7th.

Starting a Local Program: A library of supporting documentation, which can be found at the chapter’s web site www.nd.edu/~eeriund/, has been developed to aid teachers. A list of participating universities is available at wuscel.cive.wustl.edu/ucist. EERI member Gerard Pardoen initiated a similar program at the University of California at Irvine in 2000 (www.cfep.uci.edu/K12/EarthQuake/Lego.html). Though the work involved in establishing a program is not trivial, once in place the program is easy to maintain and is tremendously rewarding for chapter members as well as the students they mentor. Please visit the chapter web site (www.nd.edu/~eeriund/) for more information on establishing a similar program or contact the University of Notre Dame’s EERI Student Chapter at eeriund@nd.edu.

Trembling Tower: Elementary students wait anxiously for the quake to end.
**Publications**

**2000 Professional Fellowship Report Available**

Rafael Sabelli, Director of Technical Development for DASSE Design in San Francisco, has completed his research project supported by the 2000 EERI/NEHRP Professional Fellowship in Earthquake Hazard Reduction. In his final report, *Research on Improving the Design and Analysis of Earthquake-Resistant Steel Braced Frames*, Sabelli examines the system-level performance of concentrically braced frame buildings subjected to severe ground motions, with the goals of (1) understanding the structural and ground motion characteristics that control behavior, and (2) assessing current design and analysis procedures, proposing modifications where appropriate. Sabelli has carried out a series of nonlinear dynamic analyses, examining the behavior of concentrically braced frames having conventional braces and buckling-restrained braces (a type of high-performance hysteretic brace). He analyzes how structural and ground motion characteristics affect seismic demands of braced frames. In looking at conventional braced frames, Sabelli assesses the influence on expected performance of brace configuration for typical applications and recommends modifications to current building code provisions for the special concentrically braced frame system. In dealing with buckling-restrained braced frames, Sabelli evaluates the adequacy of their seismic performance and sets forth appropriate system design factors for recommended building code provisions. In his opinion, the SAC Steel Project’s study of the steel moment-resisting frame system, with its performance-based methodology, can serve as a model for studying the frequently employed braced-frame system.

Sabelli’s research was conducted with the guidance of Professor Steve Mahin of the University of California at Berkeley. This fellowship is funded by FEMA, and the reports of the research are free. To obtain a copy, contact the EERI office. It is also posted on EERI’s web site at [www.eeri.org](http://www.eeri.org).

**News of the Profession**

**Free Software for Nonlinear Analysis**

Many engineers are familiar with the computer program Drain-2DX, which has been a standard nonlinear analysis tool for many years. RAM International is making available free student versions of the computer program RAM Perform-2D, which is loosely based on Drain-2DX, and which retains its simplicity, flexibility and reliability.

The student version comes with a self-paced tutorial that leads a user through all of the steps required to model a simple structure, specify member strength and deformation capacities, run nonlinear static pushover and dynamic time-history analyses, and process the results to assess the performance of the structure. It has all of the capabilities of the regular version, but is limited to 30 nodes. The regular version is protected using a hardware lock. The student version has no such protection, and it can be run on essentially any computer using the Microsoft Windows operating system.

RAM Perform-2D has powerful modeling capabilities, including stiffness degradation under cyclic loading, brittle strength loss, and a wide range of nonlinear elements.

To request a copy of the student version, fill out and submit the form from the RAM International web site located at: [www.ramint.com/specials/perform2D/studentVersion.shtml](http://www.ramint.com/specials/perform2D/studentVersion.shtml). A link to this page can be found on RAM’s front page at [www.ramint.com](http://www.ramint.com). A copy can also be obtained by writing or e-mailing RAM International at 5225 Avenida Encinas, Suite E, Carlsbad, CA 92008; toll free phone: 800/726-7789; fax: 760/431-5214; e-mail: perform@ramint.com.

**News of the Profession**

**Wenger New NSF Program Director; Solicitation of Proposals for Grants**

Dennis Wenger is a new program director for the Infrastructure Management and Hazard Response Program (IMHRP) of the National Science Foundation (NSF). The hazard program is part of the Division of Civil and Mechanical Systems within the Directorate for Engineering.

Wenger, a professor with the Hazard Reduction and Recovery Center at Texas A&M University, started his two-year term in Washington, D.C., in November 2001. Miriam Heller remains as a program director, and William Anderson, a previous program director, is now at the National Academy of Sciences.

NSF is soliciting proposals for its grant deadline of February 7, 2002. In addition to engineering, proposals are encouraged from the social sciences and related fields. Information about submitting proposals can be found at the NSF web site at [www.nsf.gov](http://www.nsf.gov).
## CALENDAR

Items that have appeared previously are severely abbreviated. The issue containing the first, or most informative, appearance is indicated at the entry's end. Items listed for the first time are shown in **bold**.

### 2002

#### JANUARY

17. **ATC-50 Seminar**, City of Commerce, CA. Info: [www.atcouncil.org](http://www.atcouncil.org) (12/01)


#### FEBRUARY


20. **SEAW Annual Trade Show and Seminars**, Tacoma/Fife, WA. See page 12. (1/02)

#### MARCH

14-16. **Disaster Management Conference**, Gujarat, India. Info: [klehrer@yorku.ca](mailto:klehrer@yorku.ca) (11/01)

15-17. **NZSEE Annual Conference 2002**, Napier, NZ. Info: [jacquie@hague.co.nz](mailto:jacquie@hague.co.nz) (11/01)

17-21. **Smart Structures and Materials**, San Diego, CA. Info: [www.spie.org/info/ss](http://www.spie.org/info/ss) (7/01)


#### APRIL

7-12. **World Conference on Structural Control**, Como, Italy. Info: [congress@icil64.cilea.it](mailto:congress@icil64.cilea.it) (7/01)

21-26. **EGS Meeting**, Nice, France. See page 7. (1/02)


26. **LA Tall Buildings Council Annual Meeting**, Los Angeles, CA. Info: [gbrandow@bjase.com](mailto:gbrandow@bjase.com) (12/01)

28-May 1. **Seismic Conference on Highways and Bridges**, Portland, OR. Info: [mceer@acsu.buffalo.edu](mailto:mceer@acsu.buffalo.edu) (7/01)

#### MAY


30-31. **ATC-17-2 Seminar**, Los Angeles, CA. Info: [www.atcouncil.org](http://www.atcouncil.org) (12/01)

#### JUNE

10-12. 3rd **International Conference on Composites in Infrastructure**, San Francisco, CA. Info: [www.azicci.org](http://www.azicci.org) (3/01)


#### JULY

21-25. 7th **National Conference on Earthquake Engineering**, Boston, MA. Info: [www.eeri.org](http://www.eeri.org). See page 2. (9/99, 8/01, 9/01, 10/01, 11/01, 1/02)

#### SEPTEMBER


9-13. 12th **European Conf. on Earthquake Engineering**, London, UK. Info: [12ECEE@ice.org.uk](mailto:12ECEE@ice.org.uk) (9/00, 12/00)


#### OCTOBER


#### 2003

**FEBRUARY**


### Announcements

#### UC Berkeley Short Courses in Earthquake Engineering

The Continuing Education in Engineering Program at the University of California, Berkeley, is offering several courses during the spring term that may be of interest to EERI members. The courses are: Earthquake Engineering: Laws, Regulations, and Policies taught by L. Thomas Tobin; Seismic Rehabilitation for Existing Buildings taught by Niaz Nazir; Seismic Analysis, Design, and Retrofitting of Bridges taught by Roy Imbsen; Seismic Design of Timber Structures taught by Edward Diekmann; and Introduction to Structural Dynamics and Earthquake Engineering taught by Troy Swenson.

With the exception of the course on bridges, all courses meet one evening a week for ten weeks, run from March until May, and have a fee of $495. The bridge course meets for three days only, March 25-27, and costs $995.

For more information on the courses and the UC Berkeley Continuing Education in Engineering Program, see [www.unex.berkeley.edu/eng](http://www.unex.berkeley.edu/eng).
 Contributions to the Endowment Fund

EERI would like to acknowledge the following contributions to the Endowment Fund.

$1,000
Clarence Allen
John Coil

$500-$999
I. M. Idriss
Charles Kircher
Cynthia Perry

$200-$499
Vitelmo Bertero
A. J. Eggenberger
Theodore Galambos
Robert Hanson
James Jirsa
Warren Minner
Douglas Nyman
James Russell

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Gerard Pardoen
Avigdor Rutenberg
William Savage
Anestis Veletsos
Sharon Wood

Other Amounts
Bedros Bedrosian
Roger Borcherdt
Ted Christensen
Gabor Czitrom
James John Day
Ricardo Dobry
Catherine French
Marshall Lew
John Lowney
Vicki Vance May
Victor Pavon
Alvin Rodriguez
James Slosson
Fred Turner
Shoichi Yamaguchi

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Roger Borcherdt
Ted Christensen
Gabor Czitrom
James John Day
Ricardo Dobry
Catherine French
Marshall Lew
John Lowney
Vicki Vance May
Victor Pavon
Alvin Rodriguez
James Slosson
Fred Turner
Shoichi Yamaguchi

SEAW Annual Trade Show and Seminars

The Structural Engineers Association of Washington (SEAW) South- west Chapter will be holding its 6th Annual Educational Trade Show and Seminars at the Best Western Executive Inn, Tacoma/Fife, Washington, on Wednesday, February 20, 2002.

Three series of four concurrent 50-minute seminars each will be held beginning at 4:00, 5:00, and 6:00 p.m. The trade show will begin at 5:00 p.m. The seminars and trade show are free for attendees who pre-register by February 11, and $10 for late reservations and at the door. Reservations are required for the complimentary buffet and refreshments. E-mail reservations to seawswchaptterr@attbi.com or call 253/565-0769.