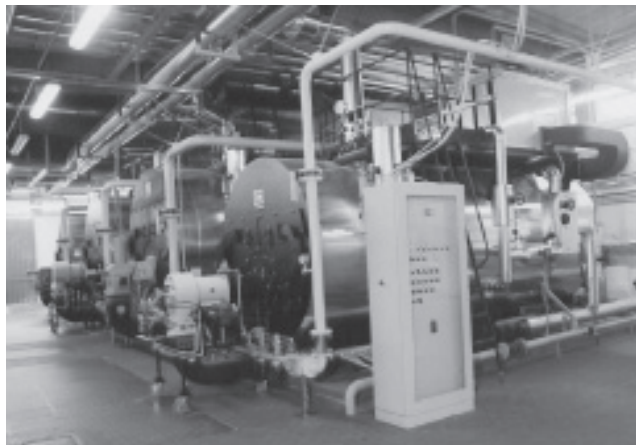


ATC-29-2 Seminar on Seismic Design, Performance, and Retrofit of Nonstructural Components in Critical Facilities



Sponsored by the
Applied Technology Council
and the
**Multidisciplinary Center for
Earthquake Engineering Research**

October 23-24, 2003

8:00 am to 5:00 pm

Radisson Hotel Newport Beach

*2nd Announcement: Preliminary Program
and Registration Information*

ATC-29-2 SEMINAR ON SEISMIC DESIGN, PERFORMANCE, AND RETROFIT OF NONSTRUCTURAL COMPONENTS IN CRITICAL FACILITIES

Newport Beach, California ♦ October 23-24, 2003

The Purpose of the Seminar is to present current research, practice, and informed thinking pertinent to seismic design, retrofit, and performance of non-structural components in buildings. Components and systems to be covered include: supports and bracing for elevator systems, ceilings, partitions, cladding, glazing, contents, water piping systems, and mechanical and electrical equipment. Nonstructural components or systems in facilities with critical functions (e.g., computer centers, hospitals, manufacturing plants with especially hazardous materials, museums with fragile/valuable collection items) are of special interest.

Seminar Program. The two-day seminar program has been developed for design professionals, regulators, researchers, manufacturers and contractors, insurers, owners, and facility managers. The program includes invited papers, as well as papers selected from submitted abstracts. All sessions will be plenary.

Seminar Location

Radisson Hotel Newport Beach (Phone: 949/833-0570)
4545 MacArthur Blvd.
Newport Beach, California 92660

Sponsoring Organizations

APPLIED TECHNOLOGY COUNCIL
201 Redwood Shores Pkwy, Suite 240
Redwood City, California 94065
Phone: 650/595-1542
Fax: 650/593-2320
Web site: www.ATCCouncil.org

MULTIDISCIPLINARY CENTER FOR EARTH-
QUAKE ENGINEERING RESEARCH

State University of New York
Red Jacket Quadrangle
Buffalo, New York 14261
Phone: 716/645-3391
Web site: <http://mceer.buffalo.edu>

Financial Sponsor

NATIONAL SCIENCE FOUNDATION
4201 Wilson Boulevard
Arlington, Virginia 22230

Cover photo: Courtesy of Vittorio Bearzi



Seminar Proceedings. Papers presented at the seminar will be published in the Seminar Proceedings, which will be available at the start of the seminar. The proceedings will be offered to seminar participants in two different formats: (1) a spiral-bound volume containing all papers, or (2) an abstract volume with a CD-ROM containing all papers. Participants are requested to specify the desired format (one format only) when registering.

Registration Information. The registration fee is \$275 (\$240 for ATC Subscribers) and includes a copy of the Seminar Proceedings (either in report form, or as an abstract volume with a CD-ROM containing all technical papers), lunches, and coffee breaks. A late fee of \$25 will be imposed on paid registrations post-marked or faxed after October 13, 2003. Persons interested in registering should complete, detach, and submit the Registration Form to ATC.

Seminar Cancellation Policy. Registrations cancelled one month before the seminar will be fully refunded. Cancellations between one month and one week before the seminar will be subject to the \$25 late registration fee. Within seven days of the seminar, no refunds will be given.

Continuing Education Units (CEUs). Participants will receive documentation for 1.6 CEUs or 16 equivalent hours.

Hotel Reservations. A block of guest rooms has been reserved at the special negotiated rate of \$99 single or double occupancy until *October 8, 2003*. After this date, the ATC seminar rate cannot be guaranteed. Reservations for accommodations can be made by contacting the hotel directly at 949/833-0570 and identifying yourself as an attendee at the Applied Technology Council seminar.

Steering Committee. C. Rojahn (Co-Chair), ATC; L. Soong (Co-Chair), University at Buffalo; M. Grigoriu, Cornell University; R. Hess, Hess Engineering; G. C. Lee, University at Buffalo; E. Maragakis, University of Nevada, Reno; R. Reitherman, CUREE; W. Staehlin, OSHPD; W. Vernon, Mazzetti & Associates; A. Whittaker, University at Buffalo.

ATC-29-2 SEMINAR ON SEISMIC DESIGN, PERFORMANCE, AND RETROFIT OF NONSTRUCTURAL COMPONENTS IN CRITICAL FACILITIES: PRELIMINARY PROGRAM

THURSDAY, OCTOBER 23, 2003

8:00 a.m. REGISTRATION AND COFFEE

SESSION I: CURRENT PRACTICES AND EMERGING CODES I

Invited Paper: Code Provisions with Special Reference to OSHPD Requirements; W. Staehlin*

Investigation of Code Seismic Force Levels for Hospital Equipment; J. Horne*

CalARP Seismic Evaluation Guidelines for Existing Facilities Containing Especially Hazardous Materials; A. Porush* and R. Bachman

Impact of the IBC Earthquake Design Provisions for Nonstructural Equipment and Systems on the Engineer, Equipment Manufacturer, Installing Contractor, and Building Official; M. Griffin*

Installing Seismic Restraints on Mechanical, Electrical, Pipe and Duct Equipment; J. Carlson*

SESSION II: CURRENT PRACTICES AND EMERGING CODES II

Invited Paper: ATC-58 Framework for Performance-Based Design of Nonstructural Components; R. Bachman*

A Taxonomy for Nonstructural Components; K. Porter*
Nonstructural Seismic Qualification: Development of a Rational Shake-Table Testing Protocol Based on Model Building Code Requirements; J.A. Gatscher* et al.

Seismic Protection of Critical Contents at U.C. Berkeley; M. Comerio* and W. Holmes

Recent and Future Developments in the NEHRP Provisions for Nonstructural Component Design; J. Gillengerten*

LUNCH

SESSION III: SEISMIC DESIGN AND RETROFIT I

Invited Paper: Current and Future Trends in Post-Installed Anchors; J. Silva*

It Makes Dollars and Sense to Improve Nonstructural System Performance; C. Kircher*

Design Considerations for Nonstructural Claddings and Partitions in Critical Facilities; G. Searer and S. Freeman*

Lessons Learned in the Large Scale Nonstructural Seismic Retrofit of Hospitals; J. Lewis* and A. Mohseni
Nonstructural Hazard Mitigation Implementation; G. Selvaduray*

Seismic Behavior of Free-Standing Bookcases and Partition Wall-Bookcase Systems; S. Kuan* et al.

The Seismic Retrofit of Nonstructural Elements at John Wayne Airport Terminal Building-A Performance Based Approach; S. Hilmy*

SESSION IV: SEISMIC DESIGN AND RETROFIT II

Invited Paper: Case Studies of Anchorage Failures; R. Lloyd*

Home and Office Nonstructural Mitigation: Lessons Learned from Shake Table Testing; R. Green* and O. Caliskan

The Value of Seismically Installing and Strengthening Nonstructural Equipment and Systems to Significantly Reduce Business Interruption Losses; N. Gould* and M. Griffin

Seismic Retrofit of Storage Racks and Shelving at Warehouse for High-Value Equipment and Parts; R. Gallagher* and J. Steinberg

Analytical and Experimental Seismic Assessment of Existing and Retrofitted Metal-Stud Partitions; R. Elhassan*, C. Tokas, and B. Faircloth

A Comparison of Seismic Risk of Nonstructural Systems in a Hospital Before and After a Major Structural Retrofit; M. Tong*, G. Lee, and V. Rzhnevsky

5:00 p.m. ADJOURNMENT OF DAY 1

FRIDAY, OCTOBER 24, 2003

8:00 a.m. OPENING REMARKS

SESSION V: RISK AND PERFORMANCE EVALUATION I

Invited Paper: An Overview of Nonstructural Research at Three National Earthquake Research Centers;

A. Whittaker* and T.T. Soong

A Framework to Quantitatively Assess and Enhance Seismic Resilience; M. Bruneau* et al.

Seismic Risk Assessment of Nonstructural Components in Hospitals; M. Shinozuka* and S. Masri

Seismic Fragility Analysis and Performance Improvement of Elevators in Buildings Structures; M. Singh* and Rildova

Experimental Evaluation of the Seismic Performance of Hospital Piping Systems; E. M. Maragakis* et al.

Performance Characterization of Suspended Ceiling Systems; H. Badillo-Almaraz* et al.

Estimation of Seismic Demands on Acceleration Sensitive Nonstructural Components in Critical Facilities; E. Miranda* and S. Taghavi

For complete program information,
including times and all authors' names,
visit our web site:
www.ATCouncil.org

SESSION VI: RISK AND PERFORMANCE EVALUATION II

Procedures for Estimating Floor Accelerations; B. Kehoe* and M. Hachem

Fragility of Nonstructural Components for Lifelines; J. Eidinger*

Fragility Analysis for Nonstructural Systems in Critical Facilities; M. Grigoriu* and C. Kafali

Nonstructural System Response to Vertical Excitation and Implications for Seismic Qualification Testing; G. Pekcan*, A. Itani, and W. Staehlin

Experimental and Analytical Studies on the Seismic Response of Slender Laboratory Equipment; D. Konstantinidis and N. Makris*

Performance Thresholds of Precast Cladding Systems; K. McMullin* et al.

LUNCH

SESSION VII: SYSTEM QUALIFICATION AND TESTING

An Overview of Shake-Table Characteristics Used for Seismic Qualification Testing; P. Laplace* et al.

Seismic Qualification Testing of Flexible Ceiling Mounted Double-Adjustable Hospital Equipment Arm; P. Dusicka* and A. Itani

Equipment Qualification for Product Line Families Using a Shaker Table Type Testing Campaign; P. Caldwell* and J.A. Gatscher

Non-stationary Strong Motion Time History for Qualification Testing of Electrical Equipment; G. Fenves, S. Takhirov*, and E. Fujisaki

Full-Scale Racking Test Evaluation of Autoclaved Aerated Concrete (AAC) Cladding Panels; A. Memari*

Bench- and Shelf-Mounted Equipment and Contents: Shake Table Experiments; T. Hutchinson* and S. Chaudhuri

SESSION VIII: ADVANCED TECHNOLOGIES

Experimental and Analytical Study of Base-Isolated Power Transformers; N. Murota* and M. Feng

Application of Wire Energy Absorbing Rope (WEAR) to Critical Facility Piping Systems; L. Loziuk* and T. Zemanek

Sliding Magnet Isolators (SMI) for Museum Showcase Protection; G. Yao* et al.

Seismic Protection of Nonstructural Components Using Semi-Active Devices; B.F. Spencer* et al.

5:00 p.m. ADJOURNMENT OF DAY 2

*Presenting author



ATC-29-2 SEMINAR REGISTRATION FORM: NEWPORT BEACH, CALIFORNIA



NAME(S) _____

ORGANIZATION _____

ADDRESS _____

CITY/STATE/ZIP CODE _____

BUSINESS PHONE _____ FAX NUMBER _____

Handout: Bound volume of Proceedings **or:** Bound volume of Abstracts with CD-ROM containing all seminar papers

Seminar Registration Fee: \$275 per registrant (\$240 for ATC Subscribers) \$ _____

Please enroll me as an ATC Subscriber (\$35 per year, individual rate) \$ _____

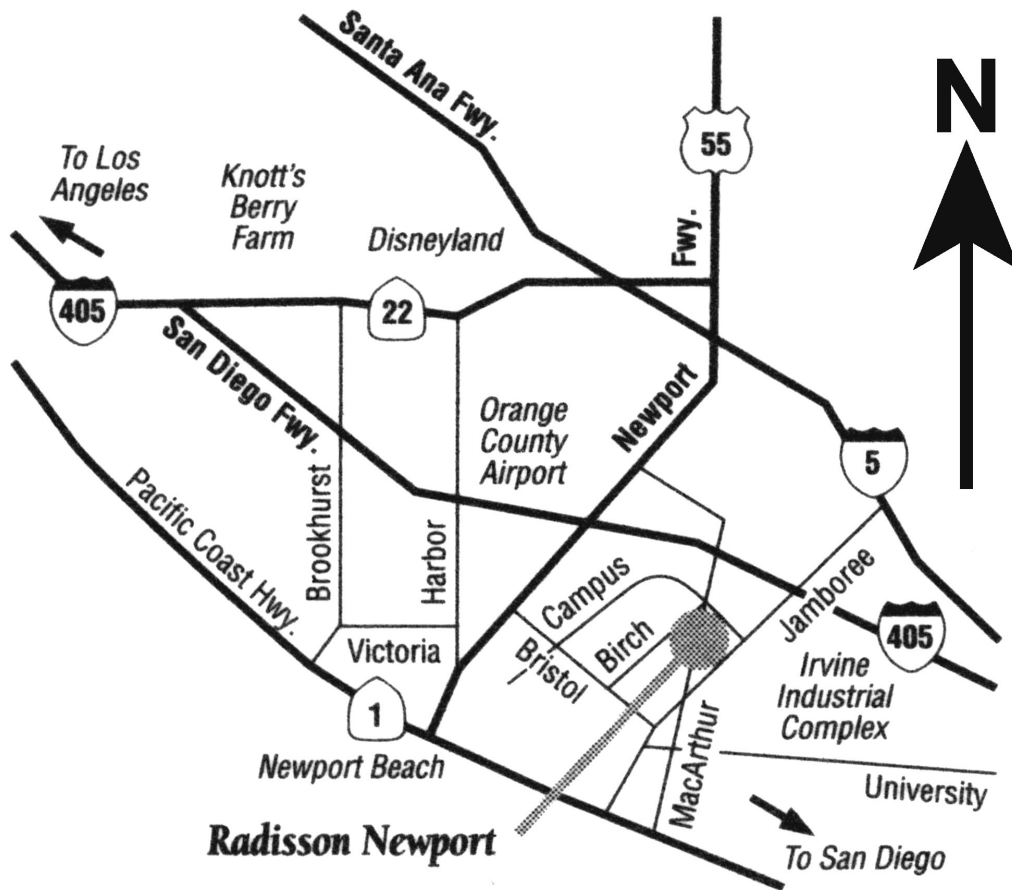
Late Registration Fee: add \$25 per registrant (if postmarked or faxed after October 13, 2003) \$ _____

TOTAL ENCLOSED \$ _____

Payment may be made by check or credit card (MasterCard or VISA). If paying by credit card, please provide the following information: MasterCard VISA # _____ Exp: ____ / ____

Cardholder's Signature _____

Checks should be made payable to ATC. Please mail or fax your completed form with the appropriate payment to:
Applied Technology Council, 201 Redwood Shores Parkway, Suite 240, Redwood City, CA 94065 FAX: 650/593-2320



The Radisson Newport Beach is located 1/4 mile south of the Orange County/John Wayne International Airport on the corner of MacArthur Blvd. and Birch, in Newport Beach

Radisson Hotel Newport Beach
4545 MacArthur Blvd, Newport Beach, CA 92660
Telephone: (949) 833-0570, FAX: (949) 833-3927