

A Message from the President

On October 9, 2001 the first SEAONC South Bay Dinner meeting was held at Michael's at Shoreline Park in Mountain View with Hal Amick of Colin Gordon & Associates presenting a talk on "Structural Vibrations in Advanced Technology Facilities." The meeting was a considerable success with 80 members attending from the South Bay region. There is an obvious need for a venue in the South Bay for SEAONC members to gather, socialize, exchange ideas and discuss issues.

Many South Bay engineers informed me that they are very excited to have these dinner meetings and would like to see them more often. This year additional South Bay meetings are scheduled in February and May 2002. Next year, if interest holds, a total of five South Bay dinner meetings could be held: every other month, October through May.

I envision that the aspect of South Bay dinner meetings could generate a considerable interest for our South Bay members and could expand over the years to monthly dinner meetings, local seminars,

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URBAN SEARCH AND RESCUE

A First-Hand Account

by John Osteraas

In our capacities as volunteer Structures Specialists with FEMA's Urban Search and Rescue (USAR) program, seven Bay Area engineers (Blake Rothfuss, David Hammond, Joe Zsutty, Ray Lui, Tom Clark, Karin Kuffel, and myself) were called upon to serve at Ground Zero in New York. These are my thoughts and observations.

First, some background on the Urban Search and Rescue program may be helpful. The USAR program was set-up in the early 90s to establish specially trained rescue teams to extract victims trapped in structures that had collapsed as a result of natural disasters such as earthquakes or hurricanes. David Hammond was instrumental in setting up the program, recruiting engineers, developing training programs, and training USAR engineers across the country. Each team is comprised of 62 positions, including specialists in rescue, technical

and canine search, communications, logistics, hazardous materials, medical, and structural engineers. The teams are outfitted with tons of equipment for breaching, shoring, demolition, and rescue, and receive training in techniques and methods of finding and extracting victims from all types of collapsed structures. Teams are ready to be on an airplane within six hours of notification and have supplies to be self-sufficient for 72 hours. Three teams are based in Northern California Bay: California Task Force 3 (CATF3) in Menlo Park, CATF4 in Oakland, and CATF7 in Sacramento. In addition to the World Trade Center, CATF3 has been dispatched to Hawaii for Hurricane Iniki in 1992 (coincidentally the hurricane struck on Sept. 11), to southern California following the Northridge Earthquake in 1994, and to Oklahoma City following the bombing of the Murrah Building in 1995.

As we saw on the morning of September 11, hijacked 767s were flown into both of the 110 story towers of the World Trade Center. While both towers absorbed the impacts without collapse, the steel framing of the towers quickly lost strength from

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December 4th Program



Vertical Base Isolated System in Tokyo
Andrew Mole and Mitsuhiro Kanada
of Ove Arup & Partners

by Jamie Curry, Program Chair

Let's try this again. Our December program, which was originally scheduled for September 11th, will feature two members of Ove Arup & Partners presenting an example of a "vertical base isolation" system. Andrew Mole of Arup's San Francisco office will be joined by a colleague who is currently based in Arup's Tokyo office - Mitsuhiro Kanada. The client is a French fashion-house, Hermès, and the architect is Renzo Piano. For your convenience, this article, which was originally published in the September newsletter, is repeated here.

The site is located in a district of Tokyo famous for its high property costs. The client was able to obtain a long narrow site

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Meeting Notice

December 4th, 2001

The City Club
155 Sansome Street
10th Floor
San Francisco

Assembly 5:45
Dinner 6:30
Program 7:30

Fax registration form on the back of this newsletter to the SEAONC office by **12 noon Friday, November 30th, 2001**

A Message from the President

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and regional committee membership. I would certainly like to encourage this increase of activity in the South Bay region to help keep SEAONC's membership growing and strong. We were on the verge of losing South Bay membership since participation became so difficult due to regional travel and bad traffic. In time these regional concepts will be expanded to the East Bay and North Bay as demand presents itself.

To allow the South Bay activity to grow, SEAONC needs to have South Bay members step up and join the Program Committee and elect South Bay Liaisons to the Board. The SEAONC Board and current Program Committee can not continue to run two dinner meetings each month. Therefore, we must find ways to elect regional members willing to step up and be responsible for the regional meetings, and programs.

I suggest that a nominating committee of five members be elected verbally at the February South Bay dinner meeting on February 12, 2002. This nominating committee can elect two members responsible for running the South Bay dinner meetings and two members to form the South Bay program committee. In following years, one new member could be elected into each of these positions with

one past member discontinuing.

The two members responsible for running the dinner meetings would emcee the event, introduce speakers and guests, make announcements, and get the program started and completed. These members would also make sure that the PA system, slide projector, lap top computer and other aspects required for the dinner meeting were taken care of. The two South Bay Program Committee members could work with the main Program Committee to identify and schedule dinner presentations and to write a trailing review of the events for publication in the Newsletter. Currently, the Program Committee has a large list of potential dinner presentations, and finding quality topics is not a difficult problem.

I envision SEAONC in the future, where the South Bay region has all of these aspects of membership, is self-sustaining, will hold Board membership and will have thriving participation.

On another front, the SEAONC Board - Public Relations committee is now well into its year with two events scheduled. First, the PR Committee will make a contribution to Engineers Alliance for the Arts for EAA's Three Brick Bridge Project. The Three Brick Bridge project is one where high school students build a small model bridge and support the weight of a brick at center span. The students learn several aspects about structural

engineering and bridge design. The EAA Three Brick Bridge Project will expand this year to several high schools and districts in Northern California and has a substantial budget. Last year, this project generated considerable positive press and news releases painting structural engineering and structural engineers in a positive light.

Additionally, The PR committee is going to bring the Lego Project to Northern California. The Lego project is a project where small groups of middle school students (several classes and groups of 4-6) will build Lego structures from Lego kits and then test them on a shake table to see how they respond to base motion. The idea is for the students to learn about simple aspects of structural engineering and response of structures to ground motion.

The Lego Project was developed at UC Irvine, and the program in Southern California has become quite large. In Northern California, the PR committee is looking for one middle school (8th grade) to put the program into and achieve a successful program. Next year this program also will be expended when SEAONC achieves a successfully first pass at it. We need a volunteer middle school this year, and if any one has a strong contact at a middle school, or with the PTA, please contact me.

--by Jon Kiland, President 2001-2002

Urban Search and Rescue

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the intense heat of the ensuing fires and both towers collapsed, to the horror of us all. Nearly 5,000 people are unaccounted for, including 341 FDNY firefighters, including much of their command structure. Chief Ray Downey, with whom David Hammond and I had worked in Oklahoma City following the bombing of the Murrah Federal Building in 1995, was among the dead.

Within minutes of these events, FEMA activated its USAR teams nationwide, dispatching teams to New York City and Washington D.C. Those teams began searching partially collapsed areas and void spaces for possible trapped victims. The role of USAR engineers is to assess the structure and debris for stability, collapse, and falling hazards; recommend mitigation measures such as surgical demolition, shoring, and monitoring of identified hazards; and recommend the safest and most efficient entry points and breach-

ing locations. In both New York and at the Pentagon, despite public statements, it became apparent early on that there were no trapped survivors remaining. While the original mission of the USAR program and the motivation of everyone involved was extraction of live victims, in Oklahoma City it became apparent that body recovery was an essential aspect of the response to a major disaster and USAR teams would fill that role as well. Few trapped victims survive beyond 72 hours although there have been a few who have survived for as long as 14 days. (The rules change when the teams go from rescue to recovery mode. In rescue mode, the teams will accept high risks to extricate a trapped victim. In recovery mode, safety of the team is essential and the acceptable risks are much lower. Thus most of the USAR teams deployed to the Pentagon and the World Trade Center knew from the outset they would be assisting with body recovery, but were ready to do whatever possible to contribute to the overall recovery effort.

Much of the engineers' time was spent at Ground Zero. A typical day was 16 hours

of work and a few hours of sleep. During the collapse, much of the exterior structure of the towers broke free and fell onto surrounding buildings. Four 9-story, low-rise buildings in the WTC complex were partially crushed by falling structural debris, while other buildings several hundred feet away sustained serious structural damage. The 47-story, WTC7 building immediately north of the site collapsed several hours later as a result of fire damage. In excess of 10 million square feet of building space was lost. Total debris weight is estimated to be 1.2 million tons - 2.4 billion pounds.

But words cannot begin to describe it and none of the pictures in the paper or on TV can provide a sense of the magnitude of the destruction. The scene at Ground Zero is probably what hell would be like if the fire was turned off. The piles of rubble are taller than most buildings, and are still smoldering, three weeks later. Half of the floors of the twin towers have pancaked into the 70-foot deep basement, with each story reduced to an eight-inch thick layer.

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November Meeting Wrap Up

SEAONC East Bay Dinner Meeting Presentation

Greening of the Concrete Industry

Professor P. Kumar Mehta, U. C. Berkeley

by Jamie Curry, Program Chair

SEAONC held its November meeting at the Faculty Club on the Berkeley campus of the University of California. UC Berkeley's Professor Emeritus P.K. Mehta spoke to us about sustainable design and construction as it relates to the concrete industry. He spoke about conserving resources and about concrete durability.

Professor Mehta began by giving a general overview of the rapid changes that have occurred in the century just past, and by

summarizing the impact that the use of concrete has on our environment. Professor Mehta showed some examples of modern concrete structures that had a high degree of either thermal shrinkage cracking or a large amount of micro-cracking; in some cases, these cracks led to the early demise of the structures and in others it led to costly repairs being required.

Professor Mehta went on to say that the American Society of Civil Engineers has called for bridges to be designed for 150-year life spans, rather than the current standard, 50 years.

The professor made suggestions for conserving the basic components of concrete. These included using "gray" water, decreasing the water-cement ratio, use of recycled aggregates and especially the use of High Volume Fly Ash (HVFA) concrete. For example, the water-cement

ratio for conventional concrete might typically be 0.58; for HVFA concrete it might be 0.38.

A disadvantage of HVFA concrete is its curing rate – it takes longer to cure than conventional concrete. Strength differences between conventional and HVFA seem to diminish after about 90 days of curing.

The professor showed a couple of examples of the successful use of HVFA concrete structures. Barker Hall, a retrofit at the University of California at Berkeley campus used HVFA concrete for foundations and shear walls. The Iraivan Temple in Hawaii used HVFA for a non-reinforced mat foundation without crack control joints. Both of these structures had very good concrete quality with little or no micro-cracking and thermal shrinkage cracks. Our thanks to Professor Mehta for showing us the promise of a new paradigm for concrete construction.

December 4th Program

Continued from page 1

that has streets on two adjacent sides and existing buildings on the other two. Since Tokyo is one of the most seismically active regions in the world, the lateral-force resisting system was at the top of the design agenda. In the long direction it was not too difficult to provide a reasonable lateral system, but in the narrow direction overturning forces resulted in high column and foundation forces. The architect's aim was to provide as unencumbered a shop floor as possible, and this meant minimizing the size for columns in the area near the shop windows. This would mean moving the lateral-force resisting structure back even further, thereby increasing the overturning forces.

Arup investigated the use of damping and nonlinear systems to reduce overturning forces and therefore column and foundation forces. Horizontal base isolation was clearly not going to provide much help because of the high aspect ratio (height to depth) and the fact that there was no room to allow the base to move.

The approach taken was to allow one of the columns in each of the transverse frames to lift off the ground. This reduced the column forces significantly and allowed the use of a ground-bearing, rather than a piled, foundation. In order to reduce the resulting drifts, vertical dampers were installed which were activated once uplift occurred.

The performance was validated using non-

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SEAONC RECOGNIZES AND THANKS SCHOLARSHIP FUND CONTRIBUTORS

A special thanks to the following companies and individuals who have contributed to the SEAONC Scholarship Fund! Nearly \$2,000 has been collected since July. If you have not already done so, please consider making a contribution so that we can add you to this auspicious list.

Contribution Level: \$100-\$499

Thomas Adamo	Larry McLean	Edward Rivera
Ruth Gordon	James Murray	Virgilio Sarmiento
Stephen Harris	John Paquette	Kenneth Smetts
Loren Hinkelman		

Contribution Level: Under \$100

Pedro Bello	I.M. Idriss	F. Robert Preece
Vitelmo Bertero	William Kaplan	William Price
Lawrence Chan	Charles Kircher	Gregory Shriver
Sol Cooper	Arnold Kohnert	Steven Tipping
Stephen De Jesse	Darell Lawver	Frank Valavanis
Matthew Engle	Raymond Lundgren	Robert Vandenbosch
Harold Engle, Jr.	Yogesh Mehta	Mark Viesselman
Samuel Fletcher	John Miller	Ronald Vogel
Toma Goncerenco	Lowell Napper	Homer Wong
Gordon Hart	Russell Nygaard	Anoush Zebarjadian
Ephraim Hirsch	Harry Okino	

Ram International
Repeat Full Page Ad

Call For Entries

SEAONC Excellence in Structural Engineering Competition 2002

The Structural Engineers Association of Northern California announces the call for entries for its seventh annual Excellence in Engineering competition.

Purpose

The purpose of this competition is to provide public acknowledgement of creative achievement and innovation in structural engineering design, and to educate the public as to the contribution of Structural Engineers to the building industry and to public safety.

Eligibility

Project design must have been completed after January 1, 2000. Project must currently be under construction or completed. New projects, renovations, rehabilitation, structural upgrades and adaptive reuse projects, of any size or form, and in any locale, are eligible. Within the context of this competition, "design" may refer to the overall concept of a structure, or the detail of a single concept used during the design or construction process.

Entries must be submitted by a licensed professional engineer whose practice is primarily in the field of structural engineering. At least one member of the design team, or a principal of the firm responsible for the entry, shall be a member of SEAONC. Contestants may submit as many entries as desired. Projects previously submitted to this or other competitions are eligible for resubmission (except prior SEAONC Competition winning projects).

Categories of Awards

Awards will be presented for the following categories:

- New projects submitted by firms with more than 10 full-time licensed engineers
- New projects submitted by firms with 10 or fewer full-time licensed engineers
- Retrofit projects submitted by firms with more than 10 full-time licensed engineers
- Retrofit projects submitted by firms with 10 or fewer full-time licensed engineers

Judging Criteria

Projects will be assessed using the following criteria:

- Creativity or innovation in structural design or analytical procedures used
- Design efficiency, in terms of use of materials and labor
- Suitability of the material used for the environment
- How the design met the performance objectives of the project
- How the design met the unusual challenges of the project
- Reports, research, investigations, and plan review activities, which significantly contributed to the project
- Completeness of submission material

Submission of Entries

All entries must include:

- A completed SEAONC Award of Excellence in Structural Engineering Competition entry form
- An abstract describing the project and outlining the significant aspects of the entry as they relate to the judging criteria (one page maximum).
- A standard 30"x40" foam core display board. The board should highlight the significant structural aspects of the project through the use of drawings, photographs, diagrams, text, etc. All items must be secured to the board for display and transportation. Submitted materials must clearly show the basic

design of the structural system.

- One photograph of the under-construction or completed project.

All entries become the sole property of SEAONC. Submitted materials will not be returned. SEAONC reserves the right to use the entries and the accompanying materials for publicity purposes. All entries to SEAONC competition will automatically be forwarded to the SEAOC Competition.

Deadline for Entries

All entries must be received by 1:00 p.m. on Friday March 29, 2002. Materials should be labeled as "Submission for SEAONC Excellence in Structural Engineering Competition," and sent to the following address: SEAONC, 74 New Montgomery Street, Suite 230, San Francisco, CA 94105

Judging and Presentation of Awards

Entries will be displayed at the April SEAONC dinner meeting. A distinguished panel of five judges from SEAONC, with input from the SEAONC membership present at the meeting, will evaluate the entries based on the material submitted. Up to three awards may be presented for each category. However, if none of the entries in one category meets the Judging Criteria, there may be no award given in that category. Presentation of awards will be made at the June, 2002 SEAONC dinner meeting.

Entry forms may be downloaded from the SEAONC website (www.SEAONC.org); an entry form is also included in this month's SEAONC Newsletter. If you have any questions, please contact the SEAONC office by e-mail at SEAONC@ix.netcom.com, or by phone at 415/ 974-5147.

Committee Chairs

Bylaws

J. E. Goudie
925/933-5876
jedgoudie@cs.com

Business Forum

Lisa Blanton
650/298-8150
lblanton@watrydesign.com

Computer Applications

Satinder Singh
510/465-3977
spsingh@pacbell.net

Construction Quality Assurance

Derek Westphal
415/837-0700
derek@forell.com

Continuing Education

Reina Farah
415/989-1004
reina_farah@kpff.com

Disaster Emergency Services

Michael Fretz
415/538-8600
Mfretz@biggscardosa.com

Existing Buildings

David McCormick
415/989-2000
DLM@EQE.com

Legislative

Reinhard Ludke
415/834-2010 Ext 3003
rludke@cdengineers.com

Professional Practices

William Andrews
510/433-9370
andrews@dasse.com

Program Chair

Jamison Curry
510/740-3200
jcurry@ruthchek.com

Public Affairs & Membership

Andrew Scott
415/392-6952
ascott@degenkolb.com

Public Relations

David Bonneville
415/392-6952
dbonne@degenkolb.com

Structural Standards

David Bonowitz, S.E.
415/771-3227
dbonowitz@mindspring.com

Rafael Sabelli
415/243-8400
sabelli@dasse.com

Website

Darrick Hom
510/272-9040
dbhom@degenkolb.com

Young Members Forum

Jason Towle
415/495-3700
jltowle@sgh.com

Committees on Assignment

Report on Flexible Diaphragm Practice in Bay Area

By Gary Mochizuki, Wood Subcommittee Chair

Earlier this year, the Wood Subcommittee of the Seismology Committee began an investigation of the "State-of-the-Practice" regarding diaphragm design in wood-frame buildings. Preliminary results are now available.

The subcommittee developed and distributed a questionnaire regarding the issue of diaphragm design in wood-frame structures. The two-page questionnaire was sent in August to Building Officials representing member jurisdictions of the Association of Bay Area Governments, (ABAG). All contact information was developed from the ABAG website (www.abag.ca.gov) and associated links.

The following text regarding background, CBC provisions, and SEAONC's current position was offered to the Building Officials as part of the questionnaire:

Background

Historically, for wood-framed structures, engineers have used flexible-diaphragm analysis and distributed loads by tributary area. In recent years, some engineers,

taking an envelope approach, have calculated the shear wall forces using both flexible and rigid diaphragm analyses, and used either the more restrictive results or intermediate values.

Generally speaking, the use of rigid diaphragm analysis in design will not necessarily improve the seismic behavior, but will tend to increase calculated loads on long walls while reducing loads and hold-down requirements on short walls. Conversely, the use of flexible diaphragm analysis often increases calculated loads on interior or isolated walls, and increases hold-down requirements on shorter walls.

CBC Provisions

Section 1630.6 of the 1998 California Building Code requires the structural designer to distribute the story shear at each level to various supporting vertical elements in proportion to their rigidities, taking into account the rigidity of the horizontal diaphragm. Thus, if a wood diaphragm is deemed "rigid," loads are distributed to shear walls in proportion to the relative rigidity of the shear walls below the diaphragm; if the diaphragm is deemed "flexible," loads are distributed by tributary area.

Diaphragms are defined as flexible in the

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Business Forum

December Luncheon Meeting

Date: Thursday, December 13, 2001

Time: Board Meeting: 11:00 am-12:00
Lunch/Program: 12 pm-1: 30 pm

Place: City Club, 155 Sansome Street, San Francisco

Speaker: Louis L. Marines
President, Advanced
Management Institute

Topic: Leadership Transition

Cost: \$20.00 Business Forum Member
\$35.00 Non-Business Forum
Member

Lunch Selection: Chicken, Beef, Pasta

RSVP: Make reservations by calling the SEAONC office at 415/974-5147 by Tuesday, December 11 at noon, and don't forget to make a meal selection for this event.

Ironically, one of the most critical areas of firm life is the one to which many of us pay the least amount of attention on a daily basis: leadership. Part of any company's strategic plan is leadership development and transition. Firms that do place an emphasis on the "people" part of the equation, experience high employee retention, ability to attract star performers, improved client satisfaction, and increased profitability, among other significant benefits.

Louis L. Marines is President of the Advanced Management Institute for Architecture and Engineering. This San Francisco-based institution provides executive education in leadership and management skills for the design profession through customized in-firm education and public programs. AMI also consults to the A/E industry for a wide range of management and training issues.

Join the Business Forum and save \$15.00 a month on the luncheon! Yearly dues is \$150 for firms of 6+ employees and only \$75 for 5 employees or less. Call the SEAONC office directly at 415/974-5147 to join. This is an opportunity to join a committee whose only requirement is that you eat a great lunch each month with us and receive some good information about running a business.

Existing Buildings

By David McCormick, Existing Buildings Chair

The Chair of the Existing Buildings Committee Jim Miller of Degenkolb recently moved from the San Francisco Bay Area to San Diego. Consequently I have assumed the responsibilities of the chair for the remainder of the year. Currently I plan to work on two major items. Other items may come up based on member recommendations or direction from the State Committee.

1. IEBC Code Change Proposals.

Several members of our committee have played important roles in drafting the structural portions of the draft International Existing Building Code that will be published in 2002. The document includes requirements for seismic rehabilitation based on triggers related to architectural modifications, change in occupancy, additions, moving the building, etc, but seismic is only a small part of the code. The document references FEMA 356, FEMA 310 and the

GSREB (see below). Currently code change proposals are being developed by our committee and will be submitted to ICC. We will also be reviewing proposals by others. As this is the first time the document will be published, it is important that we try to make the document as good as possible. The current draft of the document can be found on the ICBO web site.

2. GSREB Commentary.

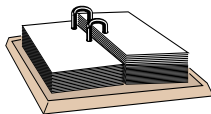
The Guidelines for the Seismic Retrofit of Existing Buildings was finally published this year after several years of effort by the committee. Most of you probably know the predecessor document UCBC. The document lost its code status for several non-technical reasons, but will be referenced by the IEBC. Included in the document are:

- Chapter 1 –URM

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Bulletin Board

CALENDAR OF EVENTS



December 4th Dinner Meeting - The City Club, San Francisco, RSVP: 415/974-5147

Dec. 13th - Business Forum Luncheon City Club, San Francisco RSVP: 415/974-5147

FOR SALE

At Discount Prices

Computers and Software used for 2001 CAD Training Courses. For details, see flyer in this newsletter.

COURSES OFFERED

The following new courses will be offered at San Francisco State University in the spring 2002 semester:

ENGR 826:

Structural Design for Earthquakes.
Mondays from 6:10 p.m. to 8:40 p.m.

ENGR 690:

Wood Structures.

Wednesdays from 6:10 p.m. to 8:40 p.m.

Anyone interested in either of these courses may register through the University's Open University office. For more details, please contact Dr. Wenshen Pong at 415-338-7738, or by e-mail at wspong@sfsu.edu.

Call for Papers

2002 LA Tall Building Structural Design Council Annual Meeting

The Los Angeles Tall Building Structural Design Council is calling for papers for the 2002 Annual meeting to be held in Los Angeles on April 26, 2002 at USC's Davidson Center. This year's focus is on structural and construction issues related to application of seismic upgrade criteria, innovative structural design, and the professional practice of structural engineering.

Suggested topics for papers include:
Are there issues applying seismic upgrade criteria (e.g. FEMA 273 and 356)?
Do you have case studies of innovative structural systems (e.g. added damping)?
Are there issues performing structural

MEMBERS IN THE NEWS

Anil K. Chopra and Rakesh Goel Awarded 2001 Norman Medal

Anil K. Chopra and Rakesh Goel were awarded the 2001 Norman Medal, the oldest and highly prized award of the American Society of Civil Engineers (ASCE). This award is given to the best paper among all journals published by ASCE. They won the 2001 award for the paper "Evaluation of NSP to Estimate Seismic Deformation: SDF Systems," published in the Journal of Structural Engineering.

A nonlinear static procedure to estimate seismic demands for buildings, which has been widely accepted by the profession, was evaluated in this paper and found to be unacceptably unconservative. This finding has motivated the profession to re-evaluate this procedure as evidenced by the recently initiated ATC-55 project by the Applied Technology Council. This research was funded by the National Science Foundation under its U.S.-Japan Cooperative Research in Urban Earthquake Disaster Mitigation.

observation?

Are there issues applying the peer review process?

How are different project delivery methods working (e.g. design build)?

Are there improved methods of seismic and wind analysis available?

Are there issues applying AISC Seismic Guidelines versus UBC?

Are there issues applying FEMA 350 Recommendations?

A one-page abstract describing the content of the paper must be received by January 7, 2002, and accepted papers are due April 1, 2002. Submit abstracts to:
Dr. Gregg E. Brandow, LATBSDC Executive Director
Brandow & Johnston Associates
1660 W. Third Street
Los Angeles, CA 90017
e-mail: gbrandow@bjase.com

Forell-Elsesser Announces Promotions

Forell/Elsesser Engineers, Inc., a San Francisco-based structural and civil engineering firm, recently announced the promotion of three employees to Senior Associates. These include two Engineers, Marco Scanu and Jim Mogannam, and the firm's IT manager, Peter Greenwood. According to company President David Friedman, "Each of these Senior Associates has proven themselves as an active and integral part of Forell/Elsesser Engineers, Inc. This promotion acknowledges their increasing leadership within the firm, and their outstanding contributions towards providing quality project engineering and design services."

Structural Composite Consultants

SEAONC Member James Korff, PE, PMP, announces that he has left his position as Chief Engineer, Structural Composites, Inc./DeNeef, to form Structural Composite Consultants, SF Bay Area, headquartered in San Mateo, CA. The consulting emphasis will be on the design, selection, and installation of advanced composite materials (CFRP / GFRP) for the repair, seismic retrofit, blast resistance and structural strengthening of existing concrete and/or masonry structures. He will consult to the Structural / Civil Engineering community, contractors, building owners, composite material manufacturers and facilities project managers. James Korff received his BS-Civil Engineering from MIT and his M.Arch-Structures from U. C. Berkeley. He is a voting member of ACI Committee 440 (FRP Composites for Concrete Reinforcement and Strengthening). His new office is at 2205 Bridgepointe Pkwy., Suite 218, San Mateo, CA 94404. Phone/Fax 650/357-1653. E-mail addresses: strucomp@hotmail.com, or jgkorff@yahoo.com.

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Forell/Elsesser Engineers, an award-winning structural/civil engineering firm, offers outstanding career opportunities to engineers and CAD drafters with all levels of experience who seek a dynamic, challenging and rewarding work environment (www.forell.com). Work on exciting projects and collaborate with innovative design engineers. We offer an unparalleled salary & benefits package, including employer matched 401(k), pension and incentive compensation plans. Contact: Jim Guthrie, 160 Pine St. #600, San Francisco, CA 94111; fax 415/837-0800 or jim@forell.com.

Structural designer position available with a Modesto based structural consulting office. Minimum 3 years experience in designing concrete, CMU, steel and wood structures. Must have good communication skills and be conversant in AutoCAD, SAP 2000, ETABS. Send resume to **Lawder Engineering**, PO Box 3206, Modesto, CA or fax to 209/521-1166.

MKM & Associates of Santa Rosa, CA seeks engineer with minimum 2 years experience with emphasis in timber construction in residential & commercial low-rise buildings. Salary with Bonus considerations dependent on experience & availability to start. Excellent benefits. Please fax résumé to 707/578-7153 or e-mail: office1@mkmassociates.com.

RPSE is a 30+ employee Palo Alto firm currently seeking talented EIT's, PE's, & SE's. If you are a dynamic individual with great communication skills and enjoy diverse and challenging projects, we want to talk to you! RPSE offers growth opportunity, competitive salary, great benefits, and a superb working environment. Please fax cover letter & résumé to

HR, Attn: Sharon at 650/ 428-2861 or email to sharonberman@rpse.com. For more details please visit www.rpse.com.

Career opportunities in the structural design of prestigious projects await you at **Rutherford & Chekene**, a recognized leader in structural design and seismic engineering. We have a large current workload and a significant backlog. Projects include museums, libraries, research laboratories, and hospitals. Opportunities are available in our San Francisco and Oakland offices for engineers with 3+ years of experience who have enthusiasm for participating in the design of some of the most exciting engineering projects in the Bay Area. CE/SE license and prior building design/detailing experience are a plus. If you wish to learn more, please contact Peter Revelli by phone at 510/740-3200 or e-mail at prevelli@ruthchek.com. Also visit our web site at www.ruthchek.com.

Simpson Gumpertz & Heger Inc. (SGH), founded in 1956 by three M.I.T. professors, is a growing and dynamic consulting engineering firm with \$20M in gross revenues, a staff of 170, and offices in Boston, MA, San Francisco, CA, and Washington, DC. SGH has an international reputation in design, investigation, research and development of structural and building envelope systems, mechanical components, and materials. The variety of our expertise enables the firm to undertake investigative, research, and design projects of a complex and unusual nature. We seek creative, enthusiastic, motivated individuals for positions in all three offices. We offer an excellent compensation and benefits package in a corporate culture based on learning and growth. At SGH you'll gain the strength of our reputation and the creativity of diverse and complex projects. To learn more about SGH, please visit our web site at www.sgh.com. We are an equal opportunity employer and value the diversity of our workforce. Please forward your résumé and letter of interest to Dept. LAS, SGH, 297 Broadway, Arlington, MA 02474; FAX 781/643-2009; e-mail jobs@sgh.com.

Sverdrup Civil, a major nationwide multi-discipline professional services firm, is seeking a structural engineer with a CE license and a BSCE in Civil Engineering. A Master's degree in structural engineering is preferred. Experience with an IBM PC is desirable. Good communication skills and the ability to work with peers and clients is required. A minimum of 3 years experience desired. Candidate

should have an interest in proceeding into management. Our office is conveniently located next to the Pleasant Hill BART Station. Please send résumé to: Personnel Manager, Sverdrup Civil, Inc., 1340 Treat Blvd., Suite 208, Walnut Creek, CA 94596. EOE WKW

Watry Design, Inc. which is located in the San Francisco Bay Area, is in search of highly motivated engineers to join our rapidly growing team. Watry is a full service Architectural/Engineering Firm specializing in the design of large concrete structures, including high-rise hotels and apartments as well as award-winning parking structures. This position offers the right individual an opportunity to play an integral role in the design of multi-million dollar projects with a firm that fosters a cohesive family like environment. The applicant must possess a B.S. in Structural Engineering (or equivalent) with a P.E. or S.E license being highly desirable. A background in the design of concrete and post-tensioned structures, strong computer skills, and excellent communication skills are beneficial. If you would like further information regarding Watry Design, Inc., please visit our web site at www.watrydesign.com. Submit all résumés to: Watry Design Inc., 815 Hamilton Street, Redwood City, CA 94063 attn: Therese Cook or you can send electronically to tcook@watrydesign.com.

Sacramento's largest Architecture/Engineering firm seeks qualified engineers. Minimum 2 years experience structural design and detailing of buildings. California CE, SE preferred. Multiple positions available. Strong communication/teamwork skills essential. Project management skills a plus. **Lionakis Beaumont Design Group, Inc.** Forward résumé to jobs@lbdg.com or Fax to: 916/558-1919 Reference number E2.

MBA Structural Engineers, Inc. seeks project structural engineers with 3 yrs. min. experience. Tired of the commute? Come join us in downtown Walnut Creek in our growing, professional office environment. We offer a strong compensation package, including flexible hours, bonuses, and full family medical coverage. Send your résumé to 1717 N. California Blvd., Suite 2A, Walnut Creek, CA 94596, or fax to 925/933-6140, or e-mail to mhaeng@pacbell.net.

Nagamine Okawa Engineers, a Honolulu Structural Engineering firm, seeks a structural engineer with MS & 2 yrs exp min. Must be skilled, motivated and want

Job Forum

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to live in paradise. Send résumé to Nagamine Okawa Engineers, 1001 Bishop St, Suite 725, Honolulu, HI 96813. Fax: 808/536-3926.

OLMM (www.olmm.com) has immediate opening for a Senior Structural Engineer in its Oakland office. The success of our strategic plan and the diversity of our projects has contributed to continued strong business. We are looking for a consummate structural engineer committed to helping us meet our current obligations and interested in contributing to our future growth. This is a key position and requires MS or PhD in structural engineering, SE license, and minimum 8 years of responsible experience in the analysis and design of major building structures. Good communication skills and ability to work well with others are extremely important. We offer top compensation package and benefits, excellent opportunity for professional growth, challenging projects, and a great working environment. Résumé to sunil@olmm.com, fax 510/433-0829.

Summit Engineering, Inc. seeks registered P.E or S.E./Project Manager with 7-10 years of experience in the design of wood-framed, concrete tilt-up and steel-framed structures. This is a great opportunity with long-term growth potential. We offer an excellent salary with a comprehensive benefits package, including alternate Fridays off. E-mail résumé to tina@summit-sr.com or fax to 707/527-0212 or send to 1400 N. Dutton Ave., #24, Santa Rosa, CA 95401

Job Forum insertion fee:
\$150 up to 450 characters/spaces
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All job forum ads will be posted on the SEAONC web site.

December 4th Program

Continued from page 3

linear analysis and was defended before a panel of Japan's top professors.

The building opened in June.

Mr. Mole has been with Arup since 1998 and was educated at Oxford University and the University of Washington where he earned a Masters of Science in Engineering. Mr. Kanada is a Berkeley graduate and was an intern with Steven Tipping. He has been with Arup for five years.

URBAN SEARCH AND RESCUE

Continued from page 2

Other than twisted structural steel and pipes, there is little recognizable in the debris - no office furniture, no computers, no books, and nothing with human form - just dust and ash. Molten aluminum is flowing at the bottom of the piles of debris that were once the twin towers. Essentially all combustible material has been consumed. Most of the debris from both towers above the point of impact has been removed, but only about 350 bodies have been recovered. I fear that no trace of many victims will be found and many families will not have the closure that a proper funeral can bring.

I have recounted above the sterile, technical aspects of the disaster. There was little "human" about the site, however, in either scale or content. Occasionally, FDNY firefighters or NYPD officers carry a flag-draped litter from the site, but otherwise there is nothing to belie the 5000 lives lost. On my first day at Ground Zero, I was walking past a group of

relatives who were standing quietly across the street staring at the rubble pile. I noticed one woman with puffy, bloodshot eyes. The sorrow in her face said more about the horror of this tragedy than that huge smoldering rubble pile.

One cannot be at Ground Zero and not feel a profound sense of loss, both for those who wait for a relative or friend they will never see again and for our country - we have lost a blissful innocence that we will never see again. Simultaneously, one cannot be at Ground Zero and not be heartened by the incredible energy and spirit of the American people united in a common purpose. Everyone from school children drawing pictures for the firemen to grandmas in Chinatown cooking meals for anyone who was hungry to celebrities serving in food kitchens to folks standing on the roadside cheering as rescue workers drove by was doing whatever they could to help. My fellow structural engineers and I were honored to have been able to serve in this effort.

Existing Buildings

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- Chapter 2 - Rigid wall/flexible diaphragm
- Chapter 3 - Residential
- Chapter 4 - Soft story (wood)
- Chapter 5 - Nonductile concrete

The commentaries for the first three chapters are nearly complete. We are just beginning the commentaries for the last two chapters. We are taking the lead on Chapter 4, and SEAOSC is taking the lead on Chapter 5. The motivation for Chapter 4 was of course the poor performance of tuck-under parking buildings in the Northridge earthquake. The City of Fremont has adopted an ordinance for soft story buildings that was actually the

predecessor of the provisions in Chapter 4. Last I heard, San Jose was also considering adopting an ordinance, so this is a timely subject. We may also recommend changes to the GSREB chapters this year, and those who are interested can review and provide input on the other draft commentaries.

We plan to have our meetings in the offices of SDE at 120 Montgomery Street, Suite 1410. Our next meeting will be January 9, 2001 to avoid the holidays. If you plan to come it will be helpful to review Chapter 4 of the GSREB beforehand. GSREB can be purchased from ICBO, or if you call me or email me, I can fax you a copy. My telephone number is 415-541-1825, and my email is d1m@eqe.com.

FOR RENT: SEAONC Multimedia Projector and Digital Camera

SEAONC's multimedia projector is available for rental! Voting members can rent the projector for only \$100 a day (plus a \$1000 security deposit) SEAONC also has a SONY digital camera available for rental. Voting members can rent the camera for only \$25 a day (plus a \$1000 security deposit). Contact the SEAONC office at 415/974-5147 for details.

Reminder: January Newsletter Deadline: Monday, December 10, 2001

Submit your articles by
e-mail!
SEAONC@ix.netcom.com

Flexible Diaphragm Practice

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Code when they deflect more than two times the average deflection (story drift) of the walls below them. While deflections can be reasonably well calculated for steel or concrete, the methods of determining the rigidity of wood diaphragms and shear walls are not yet well developed.

UBC Standard 23-2, Section 23.222, provides a formula for calculating wood diaphragm deflection; and Section 23.223 provides a formula for calculating wood shear wall deflection. Many engineers and researchers have questioned the adequacy of these formulas, but research to confirm or modify them has not yet been completed.

SEAONC Position

SEAONC feels that the designation of a wood horizontal diaphragm as “flexible,”

“rigid,” or “semi-rigid” should be a decision left to the engineer in consultation with the jurisdiction in charge.

Survey Findings

Ninety-six questionnaires were sent out. As of early November, 35 responses have been received. Twenty-nine of those agreed to have their responses published by SEAONC. The responding jurisdictions represent approximately 58% of the total Bay Area population. The effort to contact non-respondents continues.

A copy of the questionnaire distributed and detailed results, tabulated by jurisdiction, can be requested via e-mail (andy@jaxkneppers.com). An updated set of results will be available in January on SEAONC’s web site, (<http://www.seaonc.org>). Only respondents who agreed to their responses being disclosed have been shown in the results table.

The questionnaire featured three questions focused directly on the issue:

1. For R3 residential wood-framed structures, will your building department accept flexible diaphragm design without a rigorous engineering analysis of diaphragm stiffness?
Yes: 32 of 35

2. For R1 wood-framed buildings?
Yes: 26 of 35
Two of the 26 responded, “Maybe”. Eight of the 26 noted that the decision could also be dependent on building complexity or other factors.

3. For other nonresidential wood-framed buildings?

Yes: 24 of 35

Two of the 24 responded, “Maybe,” and eight noted the potential influence of building complexity or other factors.

The survey results for these questions reflect that many Bay Area jurisdictions are allowing for a case-by-case determination of diaphragm stiffness, particularly with respect to single-family residences.

The questionnaire was also submitted to both the City and County of Los Angeles. Their responses have been received and closely reflect the approach utilized by a majority of the bay area’s building officials.

Survey questions 4 and 5 asked whether third-party plan checkers were utilized and whether the responses above applied to them. Twenty-nine of 35 respondents said they employ third-party plan checkers some or all of the time. Twenty-seven of those said the responses to Questions 1, 2 and 3 also apply to their third-party plan-checkers.

Questions 6 and 7 asked whether the jurisdiction has or is planning to develop an ordinance or written policy addressing flexible diaphragms. Two respondents said they have a written policy. Three of 35 said they might develop one in the future.

Paul Cox of Wiss, Janney, Elstner (WJE) and Andy Fennell of Jax Kneppers Associates (JKA) contributed to this article and survey.

New Members

Member SE

Larry Dunn

Principal, Structural Design Group

Member

Bipin Desai

Senior Engineer, GEZ Architects Engineers

Vikki Hunter

Hohbach-Lewin, Inc.

Ahsanullah Kushkaki

Principal, ACS Consulting Engineers

Associate

Bradley Allender

Structural EIT, Parsons Brinckerhoff

Paolo Bazzurro

Manager, Engineering Analysis, Applied Insurance Research

Lydia Lai

Engineer, Ben C. Gerwick, Inc.

Eric Long

Staff Engineer, SOM

Jose Mendoza

Senior Field Engineer, Hilti, Inc.

Mumtaz Nazir

Structural Engineer, ABS G Consulting Inc.

Harel Schwarz

Engineer, Nishkian Menninger

Gordon Sham

Structural Designer, Structus, Inc.

Joel Villamil

Designer, Degenkolb Engineers

Jingbo Yang

Design Engineer, Nishkian Menninger

Affiliate

Bridget Hannon

Regional Field Engineer, Hilti

Student

Caroline Tsang

Graduate Student, University of California, Berkeley

Posting for Membership

Member SE

John McLucas

President, McLucas Engineers

Member

Matti Adan

Managing Engineer, Exponent

Douglas Gadow

Engineer 2 Wiss, Janney Elstner Associates

Stuart Oliver

Structural Design, Holmes Cully

Steven Reel

C+D Consulting

Chris Wilcox

Engineer, Forell/Elsesser

Associate

Bobby Chan

Staff Engineer, Hohbach-Lewin Inc.

Arlo Hulick

Designer, VP Buildings

John Leuenberger

Designer, Degenkolb Engineers

Stuart Lowe

Design Engineer, Hohbach-Lewin, Inc.

David McMillan

Project Engineer, KPFF Consulting Engineers

Michael Quirk

Associate Engineer, St. Onge & Associates

Richard Sanguinetti

Assistant Engineer, Biggs Cardosa Associates

Chien-Lung Tien

Project Engineer, OLMM Consulting Engineers

Student

Che-Han Lee

Graduate Student, Stanford University

Alex Lornie

Graduate Student, San Francisco State University

Eugene Suk,

Graduate Student, University of California San Diego

*Repeat Ad for
Computers and Structures Ad*

upcoming events

DEC

4 SEAONC Dinner Meeting
The City Club

13 Business Forum
Luncheon

Registration

**Structural Engineers Association of Northern California
December 4th SEAONC DINNER PROGRAM, CITY CLUB, SAN FRANCISCO**

5:45 PM
General Assembly

6:30 PM
Dinner

7:30 PM
Program

*"Vertical Base
Isolated System in
Tokyo"*

Location:

**The City Club
155 Sansome
Street,
10th Floor
San Francisco**

**BART:
Montgomery Street
Exit
San Francisco**

If no label is shown above, or for guests, please fill in the form below.

NAME _____

COMPANY _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

PHONE _____ FAX _____

RSVP by fax to: 415/764-4915 or phone: 415/974-5147
Make check payable to **SEAONC** and bring with you to the door.

Deadline for pre-registration: 12 noon, Friday, November 30, 2001

Dinner and program reservations are limited. Register early! No cancellations after 12 noon, Friday, November 30, 2001. No-shows will be invoiced. Tickets not claimed by 6:45 p.m. on the night of the event are subject to being sold. Note: Individuals with outstanding monthly meeting balances are required to pay in advance for a meeting reservation and pay all outstanding monthly meeting invoices.

COST:	PRE-REGISTERED	LATE REGISTRATION
SEAONC Member	<input type="checkbox"/> \$32	<input type="checkbox"/> \$37
Junior Mbr (34 and under)	<input type="checkbox"/> \$28	<input type="checkbox"/> \$33
Non-Member	<input type="checkbox"/> \$35	<input type="checkbox"/> \$40
Student	<input type="checkbox"/> \$15	<input type="checkbox"/> \$15