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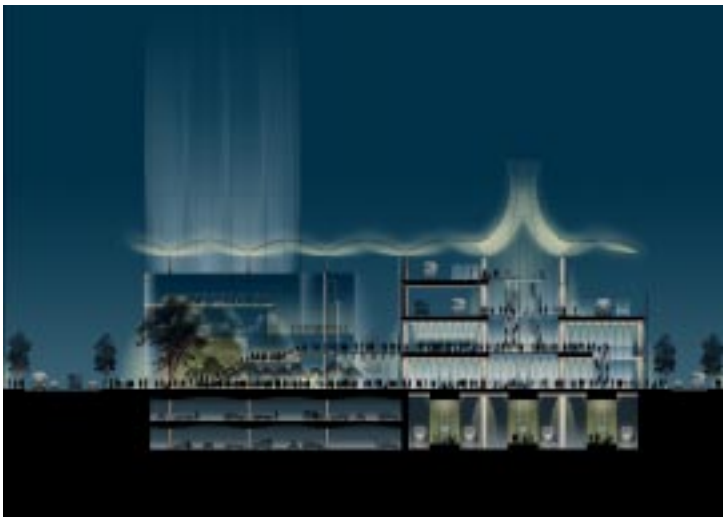
VOL. LVII, NO. 3 74 NEW MONTGOMERY STREET, SUITE 230 SAN FRANCISCO, CA 94105-3411 415/974-5147 MARCH 2002

## March 5th Program



*Evan Rose, SMWM Architects*

### San Francisco's Transbay Terminal

***Evan Rose, SMWM Architects***

*by Jamison Curry, Program Committee Chair*

Our program for March will be about the Transbay Terminal planned for San Francisco. Mr. Evan Rose of SMWM Architects will present the program.

The Transbay Terminal is the primary regional bus facility in downtown San Francisco, serving regional, interstate, paratransit, and private operators, and is the site for the proposed downtown extension of the CalTrain regional rail system. Plans are also in the works for a high-speed rail connection south to Los Angeles and, eventually, east to Sacramento. In the 70 years since it was first built, the Terminal has been converted from an elevated rail station to a somewhat forlorn bus facility, one that was damaged in the 1989 Loma Prieta earthquake, is in need of extensive repairs, and does not have the capacity to meet future service needs.

Working for the Metropolitan Transportation Commission and with a Panel of key decision-makers including the City and County of San Francisco, AC Transit, the JPB, Caltrans, MTC and multiple other stakeholders, SMWM led a multi-disciplinary team of planners, architects, engineers, and real estate specialists that crafted a consensus-based plan for a new terminal which will serve the region's transit needs for the next 50 years and beyond, an imperative given the region's incredible traffic and transportation problems.

The Transbay Terminal Improvement Plan calls for a new bus and rail terminal with 50 bus bays on two levels, an underground 6-track rail terminal, 225,000 sf of joint development in the Terminal, and

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## A Message from the President

One of the most valiant donations that structural engineers can make is to volunteer for emergency work, whether it is FEMA Urban Search & Rescue (US&R) or as a State of California - Office of Emergency Services (OES) post-earthquake disaster response engineer. On January 31, 2002, SEAOC and SEAONC Disaster Emergency Services (DES) Committee members and US&R team members (Dave Hammond, John Osteraas & Robert Scheibel) gave a presentation to SEAONC about the FEMA Urban Search and Rescue program and its role in US disasters.

There are 28 FEMA US&R Task Forces nationwide with 8 of these from California and three from Northern California (Menlo Park, Oakland, and Sacramento). The US&R team members have about two hours to be notified and to respond to the call to travel to a disaster response with the US&R team. Northern California teams have a response time of approximately 6 hours, Southern California teams have a response time of approximately 12 hours, and National teams have a response time of approximately 24 hours.

SEAONC members can volunteer to be structure specialists and try out for US&R teams. The commitment is not trivial. Volunteers must train one weekend per month and do week-long training sessions several times in the first two years. After successful completion of the training, successful candidate volunteers may be assigned to a FEMA US&R team. Positions are required to be

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## Meeting Notice

**March 5th, 2002**

**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, March 1st, 2002**

## A Message from the President

***Continued from page 1***

staffed six volunteers deep.

US&R team recourses include K-9 units, life-support medicine, structural assessment and mitigation, heavy rigging, shoring, bracing and debris mining, hazardous materials identification / removal, communications, logistics and planning. Teams are self-sustaining for 72 hours and own $2 million in rescue equipment. The teams operate under the Incident Command System (ICS) where the Incident Command is designated by a local authority or jurisdiction.

Victims of earthquake disasters (trapped but not injured) have a survival rate of approximately 80% after one full day and night. However, the rates drop dramatically as days pass (37% after 2 days, 20% after 4 days, 10% after 5 days). Therefore, rapid response is critical to saving lives and success of rescues. Victims of blast disasters have much less chance of survival.

OES post-earthquake disaster response volunteer engineers are willing to travel around California and assist OES and jurisdiction building departments to evaluate and post inspection placards on buildings in accordance with ATC-20 methodology. Many OES volunteers remember participating after the Loma Prieta Earthquake in the Bay Area (1989) and following the Northridge Earthquake in the San Fernando Valley and the surrounding area (1994). The DES Committee holds ATC-20 training every two years with the last occurrence being June 2001. The OES is now including expiration dates on OES volunteer identification cards so that engineers keep up with the ATC-20 training programs. SEAONC will likely have another ATC-20 training seminar in Fall 2002.

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Engineer's Week was the week of February 18-22, 2002. During that week several engineering organizations held events and the Engineer's Alliance for the Arts (EAA) kicked off its 2002 program "Student Impact Project," formerly known as the "Three Brick Bridge Project." The program was implemented last year by EAA, whose main visionaries include Ashraf Habibullah, Nick Watry, Maryanne Phipps, and Jax Kneppers. It will take place this year at six schools in the Bay Area, including four schools in San Francisco: High School of the Arts, Walleberg High School, Washington High School, and Thurgood Marshall High School, as well as El Cerrito High School in El Cerrito and Selby Lane Middle School in Atherton.

The goal is to teach young students some simple engineering principles and to use creativity to design and construct scale model bridges (out of foam, wood or other materials), which support one brick at mid span. Students will spend one class hour per week for eight weeks learning simple engineering principles and different types and aesthetics of bridge designs. Four professional structural engineers will spend time in each classroom each week teaching and helping student teams construct their projects.

Each school will ultimately produce a winning entry for that school and overall winning categories between all schools will include 1st, 2nd and 3rd place, as well as three honorable mention winners. Winners will be presented at Zeum in San Francisco in mid-April, 2002. Other structural engineers helping this year include (but are not limited to) Peter Bank, Don Cushing, Britta Gardner, Eph Hirsh, Josh Kardon, Janielle Maffei, Jon Meyer, David Nicholson, Kate Stillwell, and Tom Wosser. SEAONC has supported EAA in this effort for several years and is also donating the services of our PR consultant, Wes Starratt, who will arrange promotion of the events for consideration by the television and print media.

This program is a great service to our profession since it presents structural engineering to society and young students in a very positive light. It is one way for our profession to give something back to society. The publicity received last year, including radio, television, and print media, was fantastic. We at SEAONC look forward to another successful year for EAA.

*by Jon Kiland, SEAONC President 2001-2002*

### LEAP Jumps into Engineering!

LEAP, the non-profit organization responsible for the famed Sandcastle Classic, is launching a new program for the Engineering industry – that's right – no longer will Architects and Contractors get to have all the fun! The inaugural engineering competition will pit the Bay Area's top engineering firms in a battle of skill, ingenuity, creativity, and sportsmanship as they contend to build the world's most outrageous kites – all to benefit Bay Area children! The competition will culminate in a family event at one of San Francisco's most pristine locations – The Marina Green. So get out your physics books, brush up on your Ben Franklin experiments, and keep an eye out for details! If you can't wait to find out, or want to get a head start, contact Andrew Scott c/o Degenkolb Engineers at 415.392.6952 or contact LEAP's Naomi Sheridan at 415.512.1899. We'll see you there!

## Special Seminar Wrap-Up

### Special Seminar: Synopsis of the World Trade Center Disaster and Recovery

*by Reina Farah, Continuing Education Committee Chair*

The SEAONC Special Seminar was held at the PG&E auditorium on January 31, 2002. Over 150 people attended the seminar entitled "Synopsis of the September 11, 2001 World Trade Center Disaster and Recovery." The intent of the seminar was to provide insight into the disaster that occurred and provide an overview of the proceedings after the disaster.

Ron O. Hamburger from ABS Consulting led off the seminar with a Synopsis of the World Trade Center Incident. He was followed by Peter L. Lee from Skidmore Owings & Merrill who spoke about Post Disaster Assistance and Building Evaluations. The seminar was concluded with a talk on Urban Search and Rescue. This talk was given jointly by David J. Hammond of David J. Hammond Structural Engineer, John D. Osteraas of Exponent Failure Analysis Associates and Robert D. Scheibel of Dasse Design in Orange County.

Many thanks to all of the speakers for their informative presentations and thanks to the SEAONC office and Continuing Education Committee members Julia Hunting, Marci Uihlein, and Taryn Williams for all their help. Look for the article in this newsletter regarding the next seminar on Practical Concrete Design and Construction.

**Reminder:**
**April Newsletter Deadline:**
**Friday, March 8, 2002**

## Meeting at Michael's at Shoreline in Mountain View

### *San Jose Joint Library*

*by Jamison Curry, Program Committee Chair*

Thanks to Jim Guthrie and Marco Scanu of Forell and Elsesser and Kevin Krumdieck of Carrier Johnson for their presentation at the second South Bay SEAONC meeting. Not to be outdone by Stanford and the San Francisco Meeting, the South Bay Meeting hosted students from San Jose State University. There were about 80 people in attendance, much the same as the first South Bay meeting. We hope the South Bay SEAONC members will continue their enthusiastic support at the next meeting on May 14th.

Mr. Guthrie and Mr. Krumdieck (and Mr. Scanu, who answered all the analysis questions) made a presentation about the San Jose Joint Library to the assembled crowd. Mr. Krumdieck began the presentation with background and general information about the project. The design team consisted of Carrier Johnson – Architects, Gunner Birkerts – Executive Architects, Anderson Brule – Local Design Architects, Forell and Elsesser – Structural Engineer, Flack and Kurtz – Mechanical Engineer, URS Greiner – Geotechnical Engineer, Ted Zsutty – Peer Reviewer; San Jose Redevelopment Agency and San Jose State University were the joint clients; the contractor was Hensel Phelps; and the Construction Manager was Gilbane. Completion is slated for May 2003.

The building is 8 stories plus a basement. Whoops, Mr. Krumdieck advised the crowd not to call it a basement – it's a lower level, if anyone asks. The clients on that floor will be much happier if we call it a lower level. There are 475,000 square feet of space on a site with 80,000 square feet. The broad objective of the project was to create a new library community for dual users, the City of San Jose Library and the San Jose State University Library, with individual identities. Mr. Krumdieck indicated that the project was marked with an outstanding level of cooperation from the six entities concerned with the project, and a potentially conflict-ridden situation, yielded a very fine building. Project cost was $177.5M; construction cost was $107.0M.

The site at 4th and San Fernando Streets in San Jose is on the San Jose State University Campus and close to Public Transportation.

Mr. Guthrie then described the structure. The foundations are generally pre-cast piles which reach down to lower dense sand layers, about 95 feet beneath the ground surface. The water table is only about 5 feet below the ground surface, and therefore the cast-in-place concrete basement (sorry, lower level) has a waterproofing system that extends down the sides and underneath the 18" thick mat foundation and pile caps. Existing concrete piles on the northern part of the site had to be avoided during the construction of the new foundation; during bidding, the contractors were directed to put an extra two weeks into their schedules for pile cap redesign. In the end, however, only six piles had to be relocated significantly.

The ground floor framing system, with associated changes in level, disabled ramps, and grade changes was accomplished with a cast-in-place concrete framing scheme. The rest of the superstructure was steel, with pre-cast concrete cladding. The lateral system chosen was an eccentrically braced frame.



## Meeting at the City Club in San Francisco

### *Report on Structural Damage to the Pentagon*

*by Jamison Curry, Program Committee Chair*

Stanford structural engineering students joined engineers from SEAONC for dinner and a presentation by James Harris of J.R. Harris & Company about the damage done to the Pentagon on September 11th, 2001.

The evening began with a presentation and an appeal from Ray Lui of the SEAONC DES committee for structural engineers to become involved as Structures Specialists for Urban Search and Rescue (US&R) Teams. Such teams were employed at the World Trade Center after the September 11th attacks.

Mr. Harris then made his presentation about the Pentagon. Although much has been published about the World Trade Center, little has been published about the damage to the Pentagon. Mr. Harris is a member of a team from the Structural Engineers Institute of ASCE charged with studying the damage to the Pentagon.

The Pentagon, built in 1941 (interestingly enough the completion date is 9-11-41), is a 5-story structure with 5 rings. The width of the building across its pentagonal rings (one ring being about 50-60 feet wide) is 372 feet and the length of one of the Pentagon's 5 exterior walls is 922 feet. Throughout the entire structure, there are many 2" separation joints. The structural system is cast-in-place concrete slabs, beams, girders and columns with concrete walls and some brick infill. Columns are typically spaced 10 feet on center at the exterior wall and 20 feet on center in interior bays; the square columns were spirally reinforced at the lower stories. Exterior cladding is limestone. The originally intended use for the building was for record storage. That changed during World War II – the building was used to house the War Department.

In 1991 to 1993 there were studies done to renovate the building to add new information technology systems, elevators, additional support for cladding (this included some design for blast protection from car or truck bombs), new fire protection systems and other upgrades. A seismic evaluation was done and the building was found to be deficient, but Mr. Harris opined that the building would be structurally adequate to meet FEMA 310 standards. The government was currently implementing the mostly non-structural renovations at the time of the crash.

The plane impacted the 14-foot high first story at an angle to the exterior wall and caused damage across the pentagonal rings. Renovations had largely been completed in

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# Committees on Assignment

## SEISMOLOGY AND STRUCTURAL STANDARDS COMMITTEE REPORT

*by Rafael Sabelli, Committee Chair*

The Seismology and Structural Standards Committee is beginning the new year with a set of new charges. The issues that we will be addressing include the application of the special seismic load combinations (and the omega [$\Omega_o$] factor), design of diaphragm systems with non-uniform shear distribution, and a possible code-change proposal to permit redistribution of lateral force between ductile elements, to name a few.

The committee name, "Seismology and Structural Standards," may be unfamiliar to you. Last year the Board of Directors of SEAOC voted to merge the Seismology and Code committees and give it a new name. The general charges of the committee remain the same as those of its parent committees: developing and interpreting the Blue Book requirements, responding to proposed changes to the building codes, and incorporating earthquake engineering research into practice.

The committee also responds to issues raised by SEAONC members. This month, the recent SEAONC newsletter article on the application of the omega factor (Douglas Hohbach, February 2002) sparked a great deal of debate. One letter, along with my response, is reprinted here in an effort to further clarify the issue.

In the future I hope the Seismology and Structural Standards Committee can continue to bring technical issues to the newsletter. Committee meeting agenda and minutes will be posted on the SEAONC web-site. Our next meeting will take place on Tuesday, February 26 at 5:30 p.m. in the San Francisco Offices of Degenkolb Engineers (225 Bush Street, 10th floor).

### *Question to the Seismology and Structural Standards Committee Regarding Omega and Allowable Stress Design:*

*Regarding the Omega ($\Omega_o$) factor discussion in the February newsletter, I was surprised at one of the statements. The article states that in Chapter 22, Division V (ASD Version), certain elements should be designed for omega multiplied by the "design seismic forces," and that the forces for ASD should be multiplied by 1.4 prior to multiplying by omega. This is what I have been doing but after discussion with several other engineers, I can see their point: in the ASD section of the Code (Division V), forces are at an allowable stress level (i.e. - already divided by 1.4). Shouldn't the correct force for a bracing connection, for example, be omega multiplied by the ASD force? In short, unless specifically noted otherwise, the assumption is made that in the ASD section of the code, the "prescribed" or "design" seismic forces are those at the ASD level (i.e., already divided by 1.4), while in the LRFD section they are at a strength level (i.e., no 1.4 reduction). The newsletter article negates this practice, and seems to artificially punish ASD design by a factor of 1.4. Which is correct?*

### *Seismology and Structural Standards Chair replies:*

This issue has caused much unnecessary confusion. When people speak of "factoring up" the design base shear by 1.4, they are assuming that it has been divided by 1.4 for use with Allowable Stress Design (ASD) load combinations. Although it is the practice of many engineers to continue to use the symbol "E" to mean reduced earthquake loads corresponding to ASD load combinations (as it did under 1994 UBC [Uniform Building Code]), this causes misunderstandings since it is inconsistent with the 1997 UBC, in which "E" is defined as an ultimate load. Bear in mind that ASD and LRFD (Load and Resistance Factor Design) are not themselves loads; rather, they each contain sets of load combinations for use in designing members and connections. Where the UBC refers to loads, they should be taken as defined in Chapter 16. If a designer wishes, for the purposes of convenience, to define a reduced seismic load corresponding to the ASD load combinations, this should not serve to redefine the equations in the code.

Having said that, I think it best to clarify the issue by putting it in equation form. To make the discussion more general, I would like to begin by addressing the special load combinations in Chapter 16 of the UBC.

In LRFD terms, the strength requirement for elements requiring special load combinations 12-17 and 12-18 (such as collectors) can be expressed as:

$$1.2R_D + f_1R_L + \Omega_oR_E \le \phi R_n$$
$$0.9\,R_D \pm \Omega_oR_E \le \phi R_n$$

where $R_D$, $R_L$, and $R_E$ represent the element forces due to dead, live, and seismic loads, respectively, and $R_n$ represents the nominal strength.

In ASD terms, the strength requirement for these elements can be expressed as:

$$1.2f_D + f_1f_L + 1.4\Omega_o\,(f_E/1.4) \le 1.0 \times 1.7\,F_s$$
$$0.9\,f_D \pm 1.4\Omega_o(f_E/1.4) \le 1.0 \times 1.7\,F_s$$

where $f_D$ and $f_L$ represent the element stresses due to dead and live loads, $f_E/1.4$ represents the element stresses due to a reduced seismic load, and $F_s$ represents the allowable stress. The strength-reduction factor of 1.0 and the 1.7 factor to convert allowable-stress capacity to strength are given in section1633.2.6.

Thus, the UBC is merely equating member design strength to the allowable-stress capacity multiplied by 1.7. This does not represent a penalty for ASD. The special load combinations impose an amplified demand for certain elements; the level of amplification is the same for ASD and LRFD.

This same equivalence between the two methods applies to Chapter 22 of the UBC: wherever allowable values are increased to strengths per section 2213.4.2, they are compared with strength-level load combinations, including $\Omega_o$ when required. (The reduced safety factor represented by the 1/3 increase in allowable stress should not be combined with this increase to strength level, and the UBC specifically prohibits it, although the duration factor for wood can be included.) Although the steel LRFD section of the UBC is more difficult to work with, it does yield the same level of amplification wherever $\Omega_o$ is used.

Taking the example of fillet welds in bracing connections, the strength requirement in section 2213.8.3.1.2 could be expressed as: $\Omega_o f_E \le 1.7\,F_s$, the increase from allowable-stress capacity to strength being defined in section 2213.4.2 . Note that the SEAOC Blue Book recommends that these connections be designed for the tension strength of the member and that $\Omega_o$ not be used to calculate a lower demand; that approach is consistent with the AISC Seismic Provisions.

## Young Member Forum

*by Jason Towle, YMF Chair*

February has been a very busy month for the Young Members Forum (YMF) Committee. The February monthly dinner meeting coincided with the Stanford Student Night and the Young Members Design Forum. The Stanford students were welcomed by the membership at both the dinner as well as the Young Member Design Forum prior to the dinner.

SEAONC Student Nights are enjoying continued success this year as SEAONC maintains its important connection with civil and structural engineering students at Bay Area universities. The February 5th monthly meeting was no exception as over twenty Stanford students, accompanied by Professor Helmut Krawinkler, attended. The students visited the Oakland office of Rutherford and Chekene before proceeding to the dinner meeting at the City Club.

Just prior to the dinner meeting the YMF Committee and the Continuing Education Committee (CEC) jointly held the Young Members Design Forum (YMDF). Younger SEAONC members, including students, were treated to a presentation by Darrick Hom, S.E. of Degenkolb Engineers, entitled "Computer Modeling – Tips and Traps." Darrick covered general computer modeling techniques from basic concepts to complex applications, including checking your model and verifying computer output, nonlinear applications and soil structure interaction. The presentation was so popular that we had to bring in more chairs to accommodate everyone. Thanks to Darrick Hom for his presentation and to everyone who attended.

Lastly, on January 31st, I had the opportunity to give a presentation to the SEAOC student chapter, comprised of Architectural Engineering (ARCE) students, at Cal Poly, S.L.O. The topic of the presentation was Continued Involvement in SEAOC after Graduation. The talk encouraged the students to remain active in their regional Structural Engineering Association wherever they may go upon graduation. The following Saturday evening, I represented SEAONC

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## TWO $1,000 SSEC STIPENDS AVAILABLE

Young Members Forum (YMF) announces call for young member entries to receive the Structural Steel Educational Council (SSEC) stipends for the North American Structural Steel Conference.

The SSEC is generously offering two **$1,000** stipends to send two SEAONC young members to the North American Steel Construction Conference (NASCC) in Seattle, WA from April 24 – 27, 2002. In addition to plenary sessions with invited speakers, a complete track of presentations intended for structural engineers is included in the technical program. The conference also includes a large exhibition show of technical products used in the steel construction industry. According to AISC, "The North American Steel Construction Conference is a once-a-year opportunity for successful professionals to learn the latest design and construction trends and techniques that directly impact their business and work practices." The intent of the SSEC stipends is to cover the cost associated with conference registration, and travel and lodging expenses.

In order to distribute the two stipends, the YMF committee will be accepting brief essays from qualified SEAONC young members. To be qualified, you must:

• Be a SEAONC Member, Member SE, Associate Member or Student Member of age 33 or less with current association dues paid.

• Submit a typed essay of 500 words or less describing why you think this experience would benefit you. The essay should be submitted to: Jason Towle, 2001-02 SEAONC YMF Chair
c/o Simpson Gumpertz & Heger, Inc.
222 Sutter Street, 3rd Floor
San Francisco, CA 94108
or e-mail the essay to jltowle@sgh.com

The essay must be received by **March 13, 2002**. Please attach a business card or sheet containing all pertinent personal contact information. Any other materials submitted in addition to this will not be considered.

Winners will be selected by a joint SEAONC Board of Directors/YMF Panel and announced no later than March 20, 2002.

The following web site contains more detailed information regarding the conference program of events and other details, http://www.aisc.org/calendar.asp?ar=32&co=131.

## Public Affairs & Membership Committee

*by Andrew Scott, Public Affairs & Membership Committee Chair*

The PA&M Committee is currently working on a number of exciting projects in addition to the annual Rebuilding Together and Community Involvement Awards programs.

The first is a school outreach program aimed at introducing K-12 students to the field of Structural Engineering. The program, originally titled the Speakers Forum, is still evolving with the help of the YMF and PR committees. We are currently evaluating a Lego building project and are drafting lesson plans, project structure, building criteria, judging criteria, and testing criteria. Anyone interested in joining the effort or willing to donate or loan supplies, such as Legos, Knex, shake tables and/or learning aids, is encouraged to contact pam@seaonc.org or attend the next PA&M meeting.

The second project is being performed in conjunction with the Ad Hoc Committee on Membership and Participation. The project will investigate membership trends, general involvement in the Association, and committee participation. Information from the survey will be used to identify areas of improvement that will make Association involvement easier and more attractive to a larger portion of the membership and the profession. Anyone with thoughts concerning the current state of our membership and/or member participation is encouraged to contact pam@seaonc.org.

PA&M Committee involvement just got easier – join the meetings via conference call and get your lunch reimbursed! Free food and no travel – how can you go wrong? Meetings are informal and held monthly at Degenkolb Engineers, 225 Bush Street, 10th floor, San Francisco. Tasks are taken, not assigned, and involvement is voluntary, so give it try – fresh ideas and experience are always welcome! To join via conference call, call the front desk at 415.392.6952 and ask to be transferred to extension 720, then introduce yourself. For a meeting schedule and more information on committee activities, point your browser to the PA&M page at www.seaonc.org and we'll see or talk to you soon!

*Computer Applications Committee*

## Computer Forum: CAD Applications

*by Satinder P. Singh, Computer Applications Committee Chair*

The CAD applications forum, organized by the Computer Applications Committee of SEAONC on January 23, was well received by the Structural Engineers. Julie Cane, Andrew Stein, and Richard Owen of Autodesk gave presentations about two CAD products that are in the initial phases of development. The "Structural Desktop'" is similar in intent and applications to the "Architectural Desktop.'" The concept behind this product is to provide a CAD platform that simulates the tools actually used by the Structural Engineers in their physical desktop. The Structural Desktop will be able to interact with the architects for data transfer while its applications will be predominantly for the use of engineers. Another product under development utilizes the model-based approach by using enhanced 3-Dimensional models in CAD that will be able to interact with the production drawings and structural details.

While the audience liked these products under development, the open discussion emphasized the current priorities of the engineering community. The discontinuation of Softdesk S8 has affected many structural engineering offices. The available libraries of structural details and lisp routines are compatible only with Autocad R14. It appears that Autodesk will not be investing in the near future to update the Softdesk packages for the newer versions of Autocad. Another suggestion was that it will be useful to integrate the "Standard Details" from steel shapes, steel decks, rebar cages, wood frames, and other commonly used structural products in Autocad. A uniform library supported by Autodesk, instead of the individual manufacturers, can increase the efficiency of the CAD users. One application of interest to the audience was the integration of the analysis and CAD packages. A one-way interaction would allow the models developed in the analysis packages to be directly transferred to the CAD layout.

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*Business Forum*

## March Luncheon Meeting

**Date:** Thursday, March 21, 2002

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

**Place:** City Club, 155 Sansome Street, San Francisco

**TOPIC:** Round Table Discussion Group Employee Relations - What is your philosophy? Is it working?

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

**Lunch Selection:** chicken, beef, or pasta

RSVP: Make reservations by calling the SEAONC office at 415/974-5147 by Tuesday, March 19th at noon and don't forget to make a meal selection for this event.

ABOUT THE TOPIC:
Open Forum for sharing business ideas about employee relations. What is your company's philosophy regarding employees? Is it working? Topics can include: compensation packages, medical benefits, recruiting techniques, utilization rates, and administrative staffing.

You might want to ask questions of your peers such as...How much does it cost to recruit? Do you use a professional recruiting company? How did you deal with a layoff? What do you do to satisfy your employee's needs, both professionally and personally? Do you have a formal bonus/incentive program? Who has a full-time Human Relations staff member?

This is a service industry and your employees are the most valuable asset to your firm. Come to this round table discussion and invest your time wisely by enhancing your employee relations.

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 who's only requirement is that you eat a great lunch each month with us and receive some good information about running your business.

*Committee Chairs*

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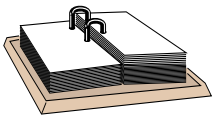
# Bulletin Board

## CALENDAR OF EVENTS



March 5th Dinner Meeting - The City Club, San Francisco, RSVP: 415/974-5147

March 21st - Business Forum Luncheon City Club, San Francisco RSVP: 415/974-5147

March 13th and 20th - SEAONC Spring Seminar

Practical Concrete Design and Construction

## Participate in SEAOC Salary Survey

SEAOC invites you to participate in the Fourth Annual Salary Survey for Structural Engineers in California. The results of the survey will be sent, free of charge, to all participating organizations and individuals. A summary of the survey results will also be made available, for sale, to all members. The statewide Business Operations and Practices Committee would like to encourage you to participate, in order to stimulate as broad as possible response and make the results more statistically significant and meaningful. Salary Survey forms are available on the SEAOC website: www.seaoc.org, and the deadline to return the questionaire is March 15, 2002.

## 2002 Spring Seminar: Practical Concrete Design and Construction

Dates: March 13th and 20th
Place: PG&E Auditorium, San Francisco
Time: 6:00 P.M. – 9:00 P.M.

The 2002 Spring Seminar is coming up quickly! The seminar will focus on several different aspects of concrete design and construction issues, including Concrete Moment Frame Design, Concrete Mix Design, Construction Issues with Concrete Slabs on Grade, Prestressed Concrete Slabs and Concrete Diaphragm Design. The seminar will be separated into two evenings, with three topics presented on the first evening and three topics presented on the second evening. Vendors with concrete-related products and services will be at the seminar, and food will be provided during the registration hour and the break. For more information and registration, see the flyer included in this newsletter.

## Rebuilding Together Needs Contributions

This year's Rebuilding Together Day is April 27, 2002. Rebuilding Together (formerly Christmas in April) is a nationwide, nonprofit organization that coordinates volunteers and sponsorship in an effort to improve the living conditions of disadvantaged homeowners who do not have the ability or means to maintain their homes. This is SEAONC's eleventh year of participation in this annual charity event benefiting low-income, elderly, and disabled homeowners in San Francisco.

Last April, over 4,500 Rebuilding Together volunteers pooled their labor and resources to renovate 38 homes and 20 community facilities in San Francisco's neediest areas. SEAONC was there, and with about 60 volunteers we helped restore the home of Gladys Baltodano in San Francisco's Mission District. The day was a huge success!

In order for SEAONC to participate this year, we will need volunteers in April, but right now we need donations. For SEAONC to become a "Home Renovation Sponsor," we need to raise $4,000. We'll be asking firms to participate in sponsoring the event, but even small donations from members will help us reach our goal. If every member gave even $1, with 1,800 members....

Please consider contributing to Rebuilding Together 2002. Your contribution puts hammers, saws, and paintbrushes into volunteers' willing hands, and it provides the "bricks and mortar" needed to build a better San Francisco. In addition, the knowledge that your contribution makes Rebuilding Together Weekend possible will bring special joy to your New Year.

Mail tax-deductible donations, payable to Rebuilding Together. You will receive a receipt for you donation. Send all donations to:

**Rebuilding Together**
**c/o Regan Milam**
**Degenkolb Engineers**
**225 Bush Street, Suite 1000**
**San Francisco, California 94104**

To volunteer, or for other information, contact:

**Jennifer Masich Lynn**
**Degenkolb Engineers**
**300 Frank H. Ogawa Plaza, Suite 450**
**Oakland, California 94612**
**510 / 272-9040, extension 215**

Thanks!

## SEAONC Community Involvement Awards – Request for Nominations

SEAONC would like to recognize its members who are highly involved in their community. This involvement exemplifies the SEAONC endeavor to "…enhance life safety, environmental health, and economic well being of the public." The *SEAONC Community Involvement Award* recognizes the members' commitment to SEAONC and the community, and appreciates the improved public perception of structural engineering and of SEAONC, as a result of their work.

The *SEAONC Community Involvement Award* winner will be selected by the SEAONC Board of Directors and presented at an upcoming dinner meeting. The award consists of a $500 donation to the recipient's charity of choice and a plaque bearing his/her name and the name of the charity. All nominees will be recognized in the monthly newsletters, in appreciation of their commitment to the community.

Do you know a SEAONC member who fits the description? Examples of community involvement include leadership in parent/teacher associations, high school tutoring, career day presentations, Habitat for Humanity, Rebuilding Together, Three Brick Bridge, neighborhood safety programs, earthquake preparedness seminars, public policy lobbying, dedication to the arts, and many other community outreach programs! If you know of a member who is committed to SEAONC and the community, please nominate him or her – either complete the nomination form (see insert) or send the bio of the nominee to pam@seaonc.org!

## SEAOC Plan Review Newsletter Available on Web Site

Many SEAOC members are receiving Plan Review by e-mail. For those not receiving the publication by e-mail, it is posted on the SEAOC web site (seaoc.org) at the secure section for members only. Members accessing this area must type the user ID "SEAOC" and password "SEA32OC". The access codes are case sensitive-be sure to use CAPITAL letters.

The latest issue of Plan Review has been posted. If you would like the newsletter e-mailed to you in the future, please send a request to kevin@seaoc.org.

## Members in the News

### New Appointments at Rutherford & Chekene

Rutherford & Chekene, Consulting Engineers is pleased to announce the recent promotion of four staff to the management team. The following are the newest members of the team: Bret Lizundia, S.E., Principal, Wayne W. Wong, S.E., Principal, David S. Bleiman, S.E., Associate and Ann E. Roche, P.E., Associate.

Mr. Lizundia joined R&C in 1988 and is involved in much of the firm's seismic research and development. His currently responsibilities include the new de Young Museum in Golden Gate Park. Mr. Wong has been with R&C since 1986 and has responsibility for the structural design of two major healthcare projects for Kaiser Permanente. With more than 20 years experience, Mr. Bleiman's projects include the Cal IT2 nanotechnology lab at UC San Diego and the new Engineering Building at the new UC Merced campus. Ms. Roche has 12 years experience and is involved in a major expansion of Children's Hospital Oakland.

## March 5th Program

***Continued from page 1***

6 million sf of joint development on adjacent, publicly-owned sites including 3000 housing units. This joint development is a critical component as it adds to the ridership base and creates revenue for the construction and operations of the Terminal.

The new Terminal is now a priority project for the City of San Francisco and the new Transbay Joint Powers Authority. Implementation is underway with the Environmental Review for the Terminal, Rail Extension, and Joint Development soon to be completed and groundbreaking on track for 2003.

Mr. Rose is a graduate of UC Berkeley and Reed College. In addition to the Transbay Terminal, he has worked on the St. Louis Downtown Core & Riverfront District Master Plan in St. Louis, Missouri and Planning and Urban Design for the Presidio Trust in San Francisco.



## Posting for Membership

**Member SE**
Douglas Robertson
*DES Archtiects & Engineers*
Paul Slattery
*Structural Engineers, Inc.*
**Member**
Efren Abarado
*ESA Design*
Mohsen Alhuraibi
*URS Corporation*
Hal Amick
*Colin Gordon & Associates*
Suresh Acharya
*Earthquake and Structures, Inc.*
Bryan Cortnik
*Rinne & Peterson*
Jeffrey Falero
*Biggs Cardosa Associates Inc.*
Michael Gemmill
*Paradigm Structural Engineers, Inc.*
Gerard Maloney
*Ben C. Gerwick Inc.*
Sako Noravian
*E2C Inc.*
Alfred Rafuson Jr.
*ABR Engineers*
Michael Salehi
*City of San Jose*
Constantine Shkapsky
*City of San Jose*
Joel Visaya
*Biggs Cardosa Associates Inc.*
Ariv Wong
*KSP Consulting Engineers*
Laura Yamaguchi
*Tipping Mar & Associates*
**Associate**
Seugntae (Andrew) Jung
*Peoples Associates*
Erik Kneer
*Biggs Cardosa Associates*
Thomas Lau
*Santa Clara Valley Water District*
Shakhzod Takhirov
*PEER, UC Berkeley*
Jonathan Toone
*Engineer*
**Student**
Ali Afrasiabi
*University of Southern California*
Jack Baker
*Stanford University*
Chung-Chuan Chang
*Stanford University*
Ian Glaser
*Stanford University*
Gokhan Gunan
*San Francisco State University*
Matthew Melrose
*Stanford University*
Chia-Wang Yeh
*Stanford University*

## New Members

**Life Member SE**
Keith Bull
*Retired*
**Member**
Jack Gulbenkian
*Prestress Service International*
Farhad Shahpar
*Washington Group International*
Gregory Totten
*Structural Engineer Inc.*
Chris Willcox
*Forell/Elsesser Engineers Inc.*
**Associate**
Babak Alavi
*Exponent Failure Analysis*
Christopher Bradbury
*Biggs Cardosa Associates*
Arlo Hulick
*VP Buildings*
Maria Nagy
*Van Maren & Associates*
Michael Quirk
*St. Onge & Associates*
Chien-Lung Tien
*OLMM Consulting Engineers*

## Program Committee

### Program Committee Seeks South Bay Members

If you are interested in helping with the South Bay Meetings of SEAONC, the Program Committee would like to hear from you. We've had two successful South Bay meetings so far, and one more is scheduled for this season. The next South Bay meeting will be on May 14th. In order to continue to hold these meetings, the Program Committee would like to have more direct input from the South Bay membership of SEAONC.

If this is something that interests you, please contact the Program Committee Chair, Jamie Curry. He can be reached at 510-740-3246 or at jcurry@ruthchek.com.

**SEAONC Multimedia Projector for Rent**
SEAONC's multimedia projector is available for rental! Voting members can rent the projector for only $100 a day (plus a $1000 security deposit). Contact the SEAONC office at 415/974-5147 for more details.

## Job Forum

Outstanding engineers with excellent communication skills sought by award-winning **DeSimone Consulting Engineers** in San Francisco. We are seeking ambitious individuals, from entry-level to Senior Project Managers and MSSE's, for the design of multi-story buildings. Our office is directly adjacent to BART and MUNI. A successful and growing firm, DCE also has offices in New York & Miami. For more information on DCE and a general overview of our project mix, visit our website at www.de-simone.com. Join our exceptional team of professionals! Send your introduction letter and résumé to Mr. Ted Canon, DCE, 10 United Nations Plaza, Suite 410, San Francisco, CA 94102.

**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.

**G.A. Graebe & Assoc., Inc.** in Salinas, CA. is seeking an Associate Civil Engineer with at least 10 years experience in Structural Design of Wood, Concrete, Masonry and Steel Structures. Familiar with 1997 UBC and skilled in Computer Programming, Engineering Software and Autocad. CA PE is a plus. Salary is negotiable, depending on experience. Call 831/422-6409 and/or e-mail/fax résumé to: structdraw@redshift.com, Fax#831/ 422-3275.

**Interactive Resources Architects & Engineers** (www.intres.com) offers competitive compensation & benefits, ongoing career development, interesting projects, and a unique firm culture in a great historic coastal town in the East Bay. We also offer ownership potential. Registered PE minimum, SE preferred. CA/West Coast experience necessary. See our website for more information. Send résumé to 117 Park Place, Point Richmond, CA 94801. Fax: 510/232-5325.

**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.

**Tipping Mar + associates** is an award-winning structural engineering firm. We have an enthusiastic staff of twenty-five who work collaboratively. Our approach is innovative, and our projects are diverse. We are seeking a bright, creative, self-motivated individual for a challenging position as a structural engineer. Please send your résumé with a cover letter to Tipping Mar + associates, 1906 Shattuck Ave, Berkeley, CA 94704, fax to 510/ 549-1912, or e-mail steve@tippingmar.com

**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: Lisa Blanton or you can send electronically to lblanton@watrydesign.com

**Biggs Cardosa Associates** has an immediate opening for a structural project manager for its San Jose office. Minimum of 15 years experience in building design and a California SE required. Visit our website www.biggscardosa.com for more info and to apply. EOE.

**DASSE Design Inc.** seeks Senior Project Engineers and Project Engineers experienced in building structural design and retrofit for both the SF and Oakland offices. Long-term career growth opportunity with potential for rapid advancement. Projects include health care, civic projects, K-12 schools, universities and corporate offices/light manufacturing. Preferred Sr. Proj. Engr.

***Continued on page 9***

## Job Forum

*Continued from page 8*

qualifications are MSCE, SE license, 10+ years of relevant design experience with a variety of projects. Preferred Proj. Engr. qualifications are MSCE, PE license and 5-10 years relevant design experience. Both positions require strong computer skills, excellent verbal/written skills and a desire to grow in a collaborative professional environment. Fax résumés to 415/243-9165, Attn: William Andrews, or e-mail to andrews@dasse.com. Visit our web site at www.dasse.com.

Santa Barbara structural engineering firm has an immediate opening for a California licensed CE or SE with 5-10 years experience. School, hospital, and retrofit experience and strong communication skills are preferred. Send résumé to Jeff Haight at **Ehlen & Spiess Structural Engineers**, 1119 Garden Street, Santa Barbara, CA 93101 or e-mail to <mailto:jhaight@esi-engineers.com>jhaight@esi-engineers.com.

**Liftech Consultants** is seeking a structural engineer with building design and project management experience. We're known around the world for our container cranes, but we also design wharves, buildings, rigging, and other special structures. Our emphasis is on quality, imagination, and work that is fun to do. Good working environment in a small firm; employees are treated well; everyone has a voice. Pay and benefits are competitive. License required, SE preferred. Fax résumé and cover letter to Cathy Morris, SE, at 510/832-2436 or e-mail cmorris@liftech.net.

**OLMM Consulting Engineers** (<http://www.olmm.com>www.olmm.com), is a reputable and growing structural engineering firm with offices in Oakland and San Francisco. The success of our strategic plan and the diversity of our projects has contributed to continued strong business. We have immediate opening for a Structural Engineer in our Oakland office. The position requires PE or SE license and minimum 5 years of responsible experience in the analysis and design of major building structures. We offer top compensation package, excellent opportunity for growth, challenging projects, and a great place to work. Come join us and make a difference! Send résumé to 1404 Franklin Street, #350, Oakland, CA 94612 or e-mail to sunil@olmm.com.

**SOHA Engineers** seeks Project Engineers with 4-7 yrs experience in structural/seismic analysis and design of buildings. Offers stability, diversity of projects, and career growth. CE license. Must have good technical skills, able to work fairly independently, team player with interest in working in a fun and technically challenging environment. Résumé with cover letter to: SOHA Engineers, c/o Human Resources-PE, 550 Kearny Street, Suite 200, San Francisco, CA 94108 or Fax 415/989-9909.

**SOHA Engineers** offers excellent career opportunities for experienced Project Managers and Principal Structural Engineers, 10-15 + yrs experience. SE license. Must have excellent verbal and written communication skills, ability to work with clients. Résumé with cover letter to: SOHA Engineers, c/o S. Hom, 550 Kearny St., Suite 200, SF 94108 or call (in confidence) S. Hom 415/989-9900, or e-mail to shom@soha.com

**Structural Design Group of Santa Rosa**, is looking for a motivated engineer looking to get in on the ground floor of a young, fast growing company. Associate position available for a bright, creative individual with experience in educational facilities, low rise commercial, or residential structures. We offer unlimited opportunities for career advancement with ownership potential and an excellent salary/bonus/benefit package. Please fax résumé to 707/284-3646 or e-mail RichB@s-d-g.net

**Summit Engineering, Inc.** (www.summit-sr.com), a 30+ consulting engineering firm in Santa Rosa, seeks a registered P.E. or S.E./Project Manager with 7+ years experience in the design of wood-framed, concrete tilt-up and steel-framed structures. This position offers great advancement potential along with a terrific work environment and interesting projects. We provide an excellent salary with a comprehensive benefits package, including alternate Fridays off! E-mail résumé to <mailto:tina@summit-sr.com>tina@summit-sr.com or fax to 707/527-0212.

*Job Forum insertion fee:*
*$150 up to 450 characters/spaces*
*$15 for each 45 characters/spaces thereafter*
*All job forum ads will be posted on the SEAONC web site.*

New 1/4 page ad for Coughlin Porter Lundeen
(pdf provided)

## Young Members Forum

*Continued from page 5*

at the12th Annual Cal Poly Structural Forum. SEAONC shared a booth with EERI, and many students stopped by to ask questions, pick up membership applications, and discuss the merits and benefits of involvement in professional engineering societies.

Thanks to all who attended these YMF events making them extremely successful.

## Computer Applications Committee

*Continued from page 6*

A preferred two-way interaction would even allow the CAD users to help generate or modify the analysis models.

The Autodesk development team was very helpful in entertaining and responding to many of the concerns of the Structural Engineering community. The Computer Applications Committee look forward to having another dialogue within the SEAONC membership and the developers of the commonly used computer programs for the building industry. If you have any suggestions for topics of interest for the computer forums in the future, please contact Satinder P. Singh at 'spsingh@pacbell.net.'

## February 5th Meeting Wrap-Up

*Continued from page 3*

the part of the building first struck by the plane. The other part of the building affected had been cleared to allow renovations to begin, so the number of occupants was less than usual.

Impact damage consisted of columns being destroyed, having significant bending deformations or having cover spalled off; beam soffits were stripped from the underside of slabs and slabs were pulled down by collapsing framing. Collapse of floors occurred in portions of the outer ring, but none occurred in the inner rings. There was also extensive fire damage. There was a difference in the fire-protection systems in the renovated portion affected by the crash and the portion that had not been renovated. Incidentally, a petroleum fire raises to high temperature more quickly than the usual "building" fire; however, the ultimate temperatures are about the same.

During the troubles in Northern Ireland, the British developed the idea of a structure being "robust," e.g. that the sudden removal of a single structural element, anywhere in a structure, would not cause that structure to collapse. This was done to design for protection from an IRA bomb blast. Mr. Harris concluded that because of the high degree of redundancy and the relatively high original design live load, 150 psf, the Pentagon structure had this quality of "robustness." It suffered much less collapse than a typical modern office building would have, if subjected to the same attack.

## In Memoriam: Karl V. Steinbrugge

*by Henry J. Lagorio & Robert A. Olson*

Karl V. Steinbrugge, Assistant Professor in the Department of Architecture from the early 1950s until his retirement in 1978 at the University of California at Berkeley, a member of SEAONC since July 1947, born in 1918 in Tucson, Arizona, passed away at home in Los Gatos, California, on Tuesday, October 9, 2001. At Berkeley, it was his responsibility to teach basic structural engineering principles and concepts to upper division architecture students enrolled in design studios and a combined set of multidisciplinary courses. During this period he also served as the head of the Earthquake Department of the Pacific Fire Rating Bureau in San Francisco, now the Insurance Services Office.

Over the years, Steinbrugge has served as a professional consultant to State and Federal government agencies and has published more than 100 technical articles. One of his best known works is a highly professional volume entitled "Earthquakes, Volcanoes and Tsunamis: An Anatomy of Hazards".

Steinbrugge was also a very active member of the Earthquake Engineering Research Institute (EERI) since 1954, where he was elected to and served as President during 1968-69, was appointed an Honorary Member in 1981, and received the EERI George W. Housner Medal in 1994.

Through a series of State and Federal grants available to him for work in various seismic hazards mitigation investigation projects, many of his architecture students at UC Berkeley were engaged in field work, data collection, and analysis under his close supervision. These students quickly learned, absorbed, and put into practice many of the basic principles of seismic safety and design from the architectural and site-planning point of view.

After the 1971 San Fernando, California, earthquake, Steinbrugge became a key professional dedicated to the development and improvement of seismic safety measures in California and the Federal levels of government. Also in California, working closely with Senator Alfred Alquist, he oversaw the work of nearly 70 volunteer advisors to the Joint Legislative Committee on Seismic Safety. He was directly involved in several critically important legislative actions that were passed into law, including the Hospital Seismic Safety Act of 1973, the Alquist-Priolo Geologic Hazards Zones Act of 1972, the authorization of the restoration of the State Capitol building, and the Seismic Safety Commission Act of 1974. During this period, in cooperation with Senator Alquist and Governors Ronald Reagan, for whom Karl served on the Governor's Earthquake Council, and later Edmund Brown, Jr., he helped negotiate the formation of and initial appointments to the California Seismic Safety Commission. Karl served as its first chairman from 1975-77. In 1988 Karl was the first person, after Senator Alquist in 1987, to be awarded the Alfred E. Alquist Award for Achievement in Earthquake Safety in California.

In 1978, after the passage of the Earthquake Hazards Reduction Act of 1977, he was appointed Chairman of the Working Group on Earthquake Hazards Reduction of the Office of Science and Technology, Executive Office of the President, under President Carter.

As an energetic member of the UC Berkeley Architecture Department, SEAONC, EERI, and California State and Federal committees and commissions, Karl Steinbrugge stands out as a unique person. The impact of his outstanding research achievements, publications, and public service have clearly identified him worthy of international recognition. Clearly, he will be missed by all his friends and professional colleagues. He will be remembered for the huge footprint he left on the landscape of seismic safety.

*New Ad for*
*Computers and Structures*

## upcoming events

**MAR**

**5** **SEAONC Dinner Meeting**
**The City Club**

**21** **Business Forum**
**Luncheon**

**13, 20** **Spring Seminar: Practical Concrete Design and Construction**

# Registration

## Structural Engineers Association of Northern California
### *MARCH 5th SEAONC DINNER PROGRAM, CITY CLUB, SAN FRANCISCO*

*5:45 PM*
General Assembly

*6:30 PM*
Dinner

*7:30 PM*
Program

*"San Francisco's Transbay Terminal"*

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, March 1, 2002**
Dinner and program reservations are limited. Register early! No cancellations after 12 noon, Friday, March1, 2002. *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 | ❑ $32 | ❑ $37 |
| Junior Mbr (34 and under) | ❑ $28 | ❑ $33 |
| Non-Member | ❑ $35 | ❑ $40 |
| Student | ❑ $15 | ❑ $15 |