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September 9th Program

Development of Fracture Toughness Requirements for Weld Metals in Seismic Applications

Dr. John M. Barsom, President of Barsom Consulting, Ltd

By Hamid Fatehi, Program Committee Chair

Since the Northridge earthquake the structural engineering community has been looking into how to improve the steel moment connection in seismic zones. Dr. John M. Barsom, President of Barsom Consulting, Ltd., Pittsburgh, PA, a forensic engineering company will be addressing the fracture toughness aspect of weld metals. He received the 2003 AISC TR Higgins Award Lectureship for his paper, "Development of Fracture Toughness Requirements for Weld Metals in Seismic Applications".

The presentation will expand and update the topic of his paper. Fracture behavior of structural components is governed by several factors including material properties, design, fabrication, inspection, and usage. Failure of otherwise properly designed structures is frequently caused by the design configuration and geometry of the joints. Joint design can have a significant effect on the deformation and fracture toughness of steels and weld metals. The presentation describes the basic properties of steels and weld metals and the effects of joint design on these properties. Several examples of structural failures are presented to demonstrate the effects of joint design on the fracture behavior of structural components.

Meeting Notice

Tuesday, September 9, 2003

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

The City Club

155 Sansome Street, 10th Floor
San Francisco

Fax registration form on the back of this newsletter to the SEAONC office by **12 noon Friday, Sept. 5, 2003**

FAX: 415–764–4915

A Message from the President

Building Standards Commission selects NFPA over IBC

By now you've probably heard the news from Sacramento. On July 29th the California Building Standards Commission made its selection – the NFPA 5000 will become California's next building code. The long-fought and politically charged battle was finally settled when the Commission voted 8-2 in favor of the NFPA over the IBC. The NFPA selection occurred in spite of the fact that testimony at the public hearing was strongly in favor of the IBC. SEAOC took a position in favor of the IBC and representatives from each of the four sections testified at the hearing. I was joined by SEAONC members Kelly Cobeen, Craig Comartin and Bill Vaughn. SEAOC president-elect Jim Malley had testified at the first session of the hearing on July 16th. Joining SEAOC in support of the IBC were such organizations as the California AIA, CALBO, AGC, BOMA, CBIA and the Silicon Valley Manufacturers Association. The key NFPA proponents were the fire departments from San Francisco, Los Angeles, and Alameda Counties and the unions representing the plumbing and mechanical contractors.

In keeping with the current spirit of things in Sacramento, politics is suspected to be behind the NFPA selection. The battle between the ICC and NFPA dates back to 1998 when NFPA informed the ICC that it would not be a part of the effort to develop a single US model building code. In 1999 NFPA signed memos of understanding with the International Association of Plumbing and Mechanical Officials (IAPMO) and the Western States Fire Chiefs Association (WCFA) and an-

Continued on page 2

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nounced its intent to develop its own suite of codes, including for the first time its own building code (NFPA 5000). From that point it was generally felt that the NFPA suite of codes would be preferred over the I-codes in locations where organized labor is strong, due to the influence of the mechanical contractors and fire fighters and code provisions that are considered more favorable to their interests. Given the current makeup of the Building Standards Commission there was speculation by many participants in the process that technical arguments by structural engineers and building officials would not be sufficient to outweigh political influence. That apparently was the case.

SEAOC had favored the IBC for a number of technical reasons including superior seismic provisions on foundations, engineered wood and masonry construction, concrete flat plate design, prescriptive (conventional) construction and superior quality assurance provisions. In addition, a companion to the IBC is the International Existing Buildings Code (IEBC), which is referenced from Chapter 16 of the IBC. The IEBC references FEMA 356 *Prestandard for Seismic Rehabilitation of Buildings* and the *Guidelines for Seismic Retrofit of Existing Buildings* (GSREB) which contains requirements for retrofit of unreinforced masonry, tilt-ups and other structures. NFPA will need to catch up with the IBC in adopting provisions such as these. Finally, and perhaps most important to SEAOC, the IBC provided a greater opportunity to make the amendments needed from time to time that serve California's needs related to lessons learned from earthquakes or research.

In spite of all of the above, it is likely that the structural provisions in the two codes will eventually be similar. That is because both codes adopt standards by reference to a much greater degree than was ever done in the UBC. Both codes reference ASCE 7-02 for their structural (Chapter 16) provisions, including seismic, wind and gravity loads and load combinations; and both reference the latest provisions from ACI for concrete, AISC for steel, TMS for masonry and AFPA for wood. These reference standards are the documents that practicing structural engineers will have at their disposal on a daily basis and the building code itself will be more of an occasional reference to cover administrative issues. However, it will take another ASCE 7 code cycle (ASCE 7-05) before the various gaps and inconsistencies are resolved so there will need to be significant adjustments made in our State Building Code in the meantime.

Of interest to the California structural engineer is the recently evolved ASCE 7 seismic code development process. While ASCE 7 had previously been a little-used reference standard relative to seismic provisions, it has quickly moved beyond that. The ASCE 7 Seismic Task Committee (STC) was reformulated for the 2002 cycle and has taken over the task once held by the SEAOC Seismology Committee in seismic code development. The STC is much larger than the Seismology Committee and has a greater national emphasis, though SEAOC engineers are still very influential. The committee also has members who are researchers, building officials and industry representatives. Where ASCE 7 had previously been the most referenced standard for wind provisions, it will now hold that position in the seismic area as well.

Regardless of the selected building code, we've moved into a new era in structural design requirements, one that is more driven by national standards than by our own Blue Book and UBC. Finally, it should be noted that the 1997 UBC will remain our code for a couple more years in any case, since there are numerous administrative issues to be handled before the next code becomes the State Building Code. Then there is a period of up to 18 months before local jurisdictions need to adopt it.

A final note of interest to our membership: SEAONC member Bill Vaughn, a Lafayette structural engineer, has decided to express his dissatisfaction with the Building Standards Commission by using the political process of the day. Bill gathered the necessary signatures (about half from SEAONC members), paid the $3,500 filing fee along with a $2,500 candidate statement fee, and is officially in the race for governor. At the very least he wants to make the public aware of an issue that has rightfully upset many structural engineers – the lack of structural engineering input to the Commission. If you weren't aware, the Governor has left the Structural Engineer seat on the Building Standards Commission vacant for over two years. While not necessarily expecting ever to occupy the governor's mansion, Bill intends at least to let some of the public know that structural engineers exist and serve an important role in our society. Bill has also set up a website to accumulate information: www.vaughnengineering.com.

- David Bonneville, President

NEW MEMBER ORIENTATION!

If you are new to SEAONC, we would like to invite you to the 2003 SEAONC New Member Orientation. This is an informal event where you can:

- Learn about SEAONC Committees
- Network
- Meet your peers

DATE: September 9th, 2003
TIME: 5:30-6:30 p.m.
(prior to monthly dinner mtg.)
PLACE: City Club – Bechtel Room
155 Sansome Street, SF

For more information or questions please call Ali Afrasiabi at (650) 494 – 1600 or aafrasiabi@umerani.com

Hope to see you there!

Ali Afrasiabi, YMF Chair

"Captivating" Opportunities

By Evan Reis, SEComartin-Reis

Professional liability E&O insurance premiums have skyrocketed in the past several years. Large and small professional service firms have seen premiums rise as much as 30% to 70% annually according to the LA Times. Most insurance experts see no short- term softening of the market.

Why are E&O insurance rates so high for structural engineers? There has been no spike in claims against SE's. Insurance rates actually have little to do with the risk posed by the insured. In fact, over the past twenty years, premiums have not kept pace with claims paid. Rather, insurance company profits are made primarily through their investments. The downturn in the stock market has forced insurers to raise premiums in order to maintain shareholder value.

SE's have among the lowest profit margins of professional service providers. We are seeing those margins, already affected by the lagging economy, dwindle even further as E&O expenses continue to rise. To find a solution we must look to the past, and within rather than outside of our industry.

In 1971, DPIC (one of our industry's most well-known insurers) was formed by a group of architects and engineers burdened with their own hard E&O market. DPIC was formed as a "captive." A captive is essentially a mutual insurance company, wholly owned and capitalized by its policy holders. It's goal is to keep insurance costs stable for its members, not to maximize investment returns. Profits are distributed to members as dividends, keeping premiums low. DPIC was sold to a publicly traded company in the mid 1980's and so its primary goal became the interest of its shareholders, not its policy holders.

I believe the time has come again to consider forming a captive or other mutual risk retention group among SE's, to control the cost of E&O insurance. The process of captive formation is well established and the capitalization requirements should not be particularly burdensome considering the relative infrequency with which SE's suffer large claims. Some of the advantages of forming a captive include:

1. a more stable premium basis,
2. accumulation of investment income to help reduce premium costs,
3. coverage that can be tailored to the members' specific needs,
4. direct incentives for loss control through membership,
5. reduced operating costs.

I encourage firms who are alarmed about the rising cost of professional liability insurance to consider the opportunities offered by captives. I know that as engineers we probably find the idea of getting into the insurance business wholly unexciting. However, we are also business people who have the interests of our employees and shareholders to consider.

SEAONC Business Forum September Luncheon

WHY WORKPLACE WELLNESS IS CRITICAL TO THE HEALTH OF YOUR BUSINESS

City Club
155 Sansome Street, Game Room, 10th Floor
San Francisco, California

Thursday, Sept. 4th, 2003 from 12:00p.m. – 1:30 p.m.

As we experience the changes in the business environment in this first decade of the second millennium, companies are struggling to recruit and retain excellent talent to help them achieve corporate objectives. Any revenue expended on recovering from the loss of a valuable employee has a direct impact on the bottom line of your business. You may never have considered how work/life balance, stress management, health seminars and burnout prevention affect your business. Many of the best companies in America are realizing how workplace wellness initiatives are imperative to increase organizational efficiency and profitability. Come learn how wellness strategies can be implemented at the executive, managerial and employee levels to create employee and client loyalty and to contribute to the financial health of your business.

We are fortunate to have Marie Henseler as our program speaker this month. Ms. Henseler is a well known organization effectiveness consultant, speaker, and author with 17 years of experience. She has spent many years working as an executive recruiter, consultant and HR executive, and brings first-hand experience with implementing positive strategies to improve the individual and work place health as direct means of affecting the bottom line. Ms. Henseler has authored many publications on the subject, including a book that she will autograph during our program.

We encourage you to attend this thought-provoking and effective presentation by a well-known speaker.

We encourage your active participation in the Business Forum. If you have any suggestions for future meeting topics please contact Business Forum Chair, Simin Naaseh, at 415/837-0700 or e-mail: simin@forell.com

Cost: $20.00 Business Forum Member
$30.00 Non-Business Forum Member

Meal Selections: Chicken, Flank Steak, or Pasta

RSVP: Contact the SEAONC Office via e-mail at: seaonc@ix.netcom.com (or phone 415-974-5147)

Registration Deadline: Tuesday, September 2nd by 12:00 p.m. Space is limited so register early.

Committees on Assignment

Seismology & Structural Standards

2002-2003 Year-End Report

By Rafael Sabelli

The Seismology and Structural Standards Committee and its subcommittees investigated several issues relating to the implementation of engineering research into codes and practice. The committee also reviewed significant documents relating to structural standards, such as code-change proposals. In addition, the committee provided opinions in response to questions posed by the membership.

The steel subcommittee was able to complete its three-year long effort in the development of recommended provisions for the design of buckling-restrained braced frames. Additionally, it has developed a survey concerning design and detailing of braced frames; the results of the survey will be useful to researchers attempting to create realistic models, and to the profession in its efforts to provide reliable and efficient designs. An effort has also been begun to study the application of the "Staggered Truss" as a seismic-load-resisting system. The steel subcommittee has also identified errors in, and helped implement corrections to, the AISC LRFD Manual.

The concrete subcommittee, in conjunction with the detailed systems requirements subcommittee, developed guidelines for alternative methods of diaphragm analysis more consistent with the strength methods of concrete deign and the mechanics of concrete diaphragms. These methods were presented for discussion in a brief article in the SEAONC Newsletter. The continuation of that charge, a treatment of collector design in concrete-diaphragm systems, is an ongoing charge for the subcommittee.

The wood subcommittee participated in the review of the SEAOC streamlined-code document. The subcommittee also continued its involvement with the CUREE project and the task of bringing its findings to the profession.

In addition, the Seismology and Structural Standards Committee undertook a special investigation of building-code requirement of columns shared by orthogonal frames. After several studies of increasing complexity and several rounds of thorough discussion by the committee, code-change proposals were developed for NEHRP and ASCE-7 in conjunction with the SEAOC Seismology Committee.

Continuing Education

A Summary of the Summer 2003 Seminar

By Troy Morgan, CE Committee Chair

The SEAONC Summer 2003 Seminar was held at the PG&E auditorium on July 23rd and 30th, 2003. Over 200 people attended the seminar, which was entitled "Modern Design of Masonry and Tilt-up Buildings." Topics included in this seminar covered a broad range of timely design and construction issues encountered in the creation of masonry and tilt-up buildings.

Mr. Bob Chittenden started off the seminar with a presentation of the strength design provisions for masonry contained in the UBC and IBC. He was followed by Dr. Chukwuma Ekwueme, who spoke about a variety of design and detailing challenges related to masonry design. Mr. Neal Kanaya concluded the first night with a discussion on field issues and laboratory testing in masonry construction.

For the second evening of the seminar, Mr. John Lawson began with his presentation on the classification and design of tilt-up shear walls. He was followed Mr. Dan Lewin, who spoke on the design and detailing of diaphragms in tilt-up buildings. Messrs. Jim Powers and Lee Mattis concluded the seminar with a two-pronged presentation on concrete mix designs and field welding in tilt-up construction.

Many thanks to all of the speakers for their informative presentations and thanks to the SEAONC office and Continuing Education Committee members Julia Hunting, Jackie Bassett, Reina Farah, Taryn Williams, C.S. Hwang, Howard Zee, Marci Uihlein and Berta Rodriguez for all their help. Look for the announcement in next month's newsletter regarding the upcoming Fall 2003 seminar on November 11th and 18th.

Seismology & Structural Standards Committee Meeting

September 30th, 5:30 p.m.

Rutherford & Chekene
427 13th St., Oakland (510) 740-3200

2003-04 Committee Chairs

Business Forum
Simin Naaseh
415/837-0700
simin@forell.com

Bylaws
J.E. Goudie
925/933-5876

Computer Applications
(TBD)

Construction Quality Assurance
Art Dell
415/989-9900
adell@soha.com

Continuing Education
Troy Morgan
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Disaster Emergency Services
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Legislative
David Wilson
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dwilson@cdengineers.com

Professional Practices
(TBD)

Program
Hamid Fatehi
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Pat Chow (South Bay)
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Public Affairs & Membership
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Seismology & Structural Standards
Gary Mochizuki
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gary@structsol.com

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

Young Members Forum
Ali Afrasiabi
650/494-1600
aafrasiabi@umerani.com

Web Site Committee

SEAONC Website Launches New Member Features

By Darrick B. Hom

We are pleased to announce that we have upgraded the SEAONC Website with new features exclusive to SEAONC members! The roster is now dynamically online, allowing members to change their membership information online automatically. We have added the DES Phone Tree Directory online as well. In order to access these new features, you will need a username and password. This information has been mailed to your business email address that we currently have on file.

If we do not have an email address on file for you, you will not be able to access the new features initially. Please contact the SEAONC office at **office@seaonc.org** and we will be happy to set up your access. If you have any questions or difficulties accessing the new features, please feel free to contact the SEAONC office. We hope you find these new features useful and take advantage of all the website has to offer.

SEAONC/ UC Berkeley Extension Short Course SE Exam Review

$595

- FREE copy of *Structural Engineering License Review: Problems and Solutions* by Alan Williams.
- 6 Weeks (consecutive Saturdays, for 6 hours per day)
- Emphasizes tips and techniques rather than problem solving in class.
- Designed and taught by a group of younger SEAONC members who recently passed the SE Exam.

See Enclosed Registration Form for more information

New Members

Life Member SE
Lawrence Daniels
George Henderson
John Hom

Life Member
John Paquette

Member SE
Brian Hartley
Principal, Structural Design Group, Inc.
Lawrence Keil
Owner, Lawrence W. Keil
Chien Lee
Principal, CLA Engineers, Inc.

Member
Justin Capp
Staff Engineer, R.B. Welty & Associates
Vu Huynh
Bridge Engineer
James Rahrick
Senior Plans Review Engineer, Linhart Petersen Powers Associates
Joseph Sarmiento
Project Engineer, Paradigm Structural Engineers, Inc.
Richard Terrazas
Project Engineer/Civil Engineer, Black & Yeatch
Arash Zokaei
President, National Earthquake Engineers (NEQE)

Associate
Ali Afrasiabi
Umerani Associates
Ruben Alvarez
Designer, Degenkolb Engineers
Geoff Bomba
Engineer, Forell/Elsesser Engineers
Megan Elliot
Structural Designer, Jon Brody Consulting Engineers
Jacob Rodriquez
Wendy Taniwangsa
KL&A of California

Affiliate
Justen Nero
Pacific Coast Restoration

Student
An-Binh Tran
Graduate Student, UC Berkeley
Frances Yang
Graduate Student, UC Berkeley

Thank you** to the following members and firms who contributed to the **SEAONC Scholarship Fund since last month:

$100 - $51

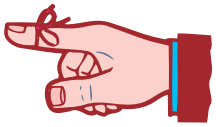
Edward Rivera
Daniel Shapiro
William Vaughn

$50 and Under

Sankaran Chandramouli
Donald Cushing Jr.
Samuel Fletcher
David Graff
Tim Hart
Reinhard Ludke
John Miller
Donald Peterson
William Price
Clarence Rinne
Bryce Tanner
Homer Wong

Make a contribution this year when renewing your membership and join this prestigious list!

DON'T FORGET...



to pay your 2003-04 SEAONC Dues!

Don't let your membership lapse!

Shah Family Innovation Prize

Until October 15, 2003, EERI is accepting nominations for the Shah Family Innovation Prize.

With a generous gift from the Shah family, EERI created the Shah Family Innovation Prize which rewards younger professionals and academics for creativity, innovation, and entrepreneurial spirit in the field of earthquake risk mitigation and management. A $10,000 prize will be awarded to recognize and honor one or more individuals who have been involved in the development of cutting-edge, innovative solutions to problems in earthquake engineering and related disciplines. The individual(s) should be in the developing or expanding stage of his or her career, with the promise of important contributions ahead. The intent of the prize is to stimulate further creativity and leadership in the earthquake risk mitigation community and EERI.

For more information, please visit www.eeri.org/career/careers.html

New Practice Opened

Kevin Donahue, Member SE and former Associate with Toft, de Nevers & Lee, has opened his own practice in Berkeley with an emphasis on engineering for sustainable design utilizing materials such as straw bale and rammed earth. Contact information: Kevin Donahue, Structural Engineer, 1101 8th St., #180, Berkeley, CA 94710-1203. 510-528-5394, kdse@sbcglobal.net.

Facility Relocation

Earthquake Protection Systems, Inc. (EPS), designer and manufacturer of Friction Pendulum seismic isolation bearings, is pleased to announce that we have relocated to a new facility with 130,000 sq. ft. of building space on a 10 acre site on Mare Island in Vallejo, California. The new facility allows us to substantially expand our manufacturing capacity in response to the growing worldwide demand for our seismic isolation bearings. Our new address is 451 Azuar Drive, Building 759, Mare Island, Vallejo, California 94592, tel. (707) 644-5993, fax. (707) 644-5995. Earthquake Protection Systems' principals are SEAONC members Victor Zayas and Stanley Low.

New Board Rules Adopted

The new Codes of Professional Conduct for Professional Engineering and Professional Land Surveying became effective on July 4, 2003. These new Codes, as codified in the Board Rules (Title 16, California Code of Regulations section 400, et seq.), were developed and adopted by the Board to protect and safeguard the health, safety, welfare, and property of the public. These Codes apply to every person who is licensed by the Board as a professional engineer or a professional land surveyor, including licensees employed in any manner by a governmental entity or in private practice.

A violation of the Codes in the practice of professional engineering or professional land surveying constitutes unprofessional conduct and is considered grounds for disciplinary action by the Board against the licensee, pursuant to Business and Professions Code sections 6775 and 8780.

Board Rule 475 addresses the Code of Professional Conduct for Professional Engineering and applies to everyone licensed by the Board as a Professional Engineer. The actual language of Board Rule 475 is available at http://www.dca.ca.gov/pels/475.pdf.

Board Rule 476 addresses the Code of Professional Conduct for Professional Land Surveying and applies to everyone licensed by the Board as a Professional Land Surveyor and to all Civil Engineers who are legally authorized to practice land surveying (those whose Civil Engineer license was issued prior to January 1, 1982, and have a license number lower than C 33966). The actual language of Board Rule 476 is available at http://www.dca.ca.gov/pels/476.pdf

If you have any questions about the new Codes of Professional Conduct, please contact the Enforcement Unit of the Board at: BPELS_Enforcement_Information@dca.ca.gov or (916) 263-2241, (916) 263-2249, (916) 263-2250, (916) 263-2251, or (916) 263-2253.

SEAONC Treasurer's Report

Fiscal Year 2002-2003

This report summarizes SEAONC's financial statement for the last fiscal year 2002-2003. Our original budget for the past fiscal year was projected to break even. During the year we became aware that due to the current economy we would not be receiving some of our projected revenue. We therefore revised our budget and projected a loss of about $22,800. The projected revenues were $525,000, and the projected expenses were $547,000. I am pleased to report that the Board of Directors managed to cut some expenses and added some sources of revenue, so we have ended the year with a surplus of $4,200.

This year our revenues were largely from the Membership Dues (50%), Seminars (22%), and Advertising (Newsletter and Website) (8%). Our advertising revenue was only about two-thirds of the previous year's amount. This past year we had three SEAONC seminars which were successful, both technically and financially, thanks to our very active and committed Continuing Education Committee members. We made a net profit of over $77,000 for the three seminars. In addition to the three seminars produced by the Continuing Education Committee, we also were able to profit from the SEAOC/CUREE Woodframe Seminar, through an agreement with CUREE and SEAOC.

Our expenses for the past year were primarily Management Fees (28%), SEAOC Dues (22%), Meetings (13%), Board and Committee expenses (4%), Newsletter expenses (8%), and Seminar expenses (8%). While we charge our members for the meetings, SEAONC subsidizes the meetings because of their high cost. Last year SEAONC subsidized $33,022 of the meeting costs (a 47% subsidy). This is an increase in the subsidy from previous years. Most of this added expense was due to increases in the cost of providing dinners at the City Club. The President has recently renegotiated the rates for dinners at the City Club, so next year's subsidy should be greatly reduced. This year, our committee's only spent 65% of their combined budget. Although this reduction in spending added to our budget surplus, we would encourage all committees to look for worthwhile ways to further the goals of their committee and SEAONC even if it requires additional expense. The SEAONC Board also invested in a new projector and laptop for use at meetings and seminars.

In addition to SEAONC's general funds, the Board spent some time on soliciting contributions from members for our Scholarship Fund. Our year-end balance for the Scholarship Fund was $84,444. Last year, the members contributed $10,188 to the Fund, and the Board of Directors is thankful to all of you who did. SEAONC contributed an additional $10,000 out of the General Funds to the Scholarship Fund. These contributions allowed SEAONC to award $5,000 scholarships to three applicants as well as increase the endowment of the Fund. This makes us proud of SEAONC's role in supporting the young students in their interest in our profession. SEAONC also has continued to support the Engineer's Alliance for the Arts with a contribution of $10,000.

SEAONC's largest asset for the last fiscal year was the endless volunteer hours that you as members devoted to this organization. The Board of Directors thanks you for all your contributions.

Steel Deck Welding

By Art Dell, CQA Committee Chair

This is a continuance of the series of articles about real life jobsite Quality Assurance challenges, triumphs and disasters. As testimonials or cautionary tales, these experiences can help you achieve similar success or avoid similar pitfalls. Please – contact me if you have a good story to tell. No names or specific project identification of any sort will be used.

A project involving a retrofit and expansion of an existing building included a new steel deck diaphragm supported on wide flange steel framing.

The Contractor submitted written welding procedure specifications (WPS) and supporting procedure qualification records (PQR) for the arc spot welding of the deck to the framing and for the deck-to-deck welding (top seam welds). The engineer was a little surprised at the thoroughness of the submittal, since deck welding is often qualified on the job by the simple twist-off tests described in AWS D1.3, *Structural Welding Code – Sheet Steel*. The WPS and PQR indicated the use of the shielded metal arc welding (SMAW – often called "stick") process, with E7010 electrodes. The engineer returned the submittal with no exceptions noted.

When the deck welding began, the welding inspector took a look at the WPS and noticed something: E7010 is not a low-hydrogen electrode (SMAW electrodes with designations ending in 15, 16 or 18 are "low-hydrogen"). The engineer was brought into the discussion, and after a review of his rather outdated welding codes, had to agree with the welding inspector. D1.3, paragraph 1.1.1 states that "When sheet steel is welded to primary structural members, the provisions of the latest edition of ANSI/AWS D1.1, Structural Welding Code – Steel, shall also apply (e.g., adequate preheat, low hydrogen electrodes, etc.)." Table 3.1 in AWS D1.1 requires the use of low-hydrogen electrodes for ASTM A36 steel more than 3/4 inch thick, and for all thicknesses of the higher strength steels of Group II and III including ASTM A572 Grade 50.

The floor framing has both A36 and A572 steel. Project specifications said to weld the deck according to ASW D1.3. Accordingly, the contractor was directed to qualify procedures for the use of low hydrogen electrodes at the higher strength steel (the flanges of the A36 beams were less than 3/4 inch thick).

Then things got complicated. The contractor (actually the deck subcontractor) pointed out that there are extra costs associated with the use of low-hydrogen electrodes, both in electrode storage and handling (you have to keep them dry in a portable rod oven so the coating does not absorb moisture) and in the welding itself (you need to take extra care to avoid leaving holes in the sheet steel around the weld).

More importantly however, the contractor maintained that qualification of the procedure by testing can supercede the code requirement mandating the use of low-hydrogen electrodes. They pointed out that Table 3.1 is for "pre-qualified WPSs" only, not for WPSs qualified by testing (see AWS D1.1 Section 3.3) and that Annex IV in D1.1 specifically references the filler metal requirements of Section 3.3 in a table titled "Code Requirements That May Be Changed by WPS Qualification Tests."

Regardless of the technicalities of the code language, if there was a good structural/public safety reason to use the low hydrogen electrodes, then the extra cost would have to be absorbed (by the owner of course). The engineer had a little knowledge: he knew that the concern with hydrogen in the weld metal had to do with the possibility of delayed or cold cracking. Could cracking occur after the qualification tests are made? Does this mean that a fabricator could successfully do qualification tests on welding high-strength steel to high-strength steel using E7010 electrodes and then proceed to fabricate a structure that may be subject to cracking in service?

The engineer now realized he was going to have to learn something. Calls were made to the metallurgy supervisor of the welding inspector's testing lab, to a major steel deck manufacturer, to AWS technical services, and to a local welding engineer recommended by AWS. The testing lab said, "No, you can't change the code requirements simply by doing qualification tests." The deck manufacturer said, "Heck, we do all our full-scale testing for certification by ICBO using E6010 – it produces better welds and we have never had a problem with cracking during the testing." AWS was careful and non-committal but did provide the reference to the local welding engineer. The welding engineer said that, regardless of whether or not the code allows these parameters to be changed by the qualification process, for hydrogen-induced cracking to occur three elements need to be in place: a source of diffusible hydrogen (non-low hydrogen electrode); a high degree of restraint (like welding a continuity plate to a heavy section column); and a deep weld pool to make it difficult for the hydrogen to escape. In deck welding, only the first of the three elements is present.

The engineer, with his little knowledge augmented somewhat, now made an informed decision: go ahead and use the E7010.

The CQA Committee is looking for feedback here. The basic code interpretation question remains unanswered. Any ideas? And, what is the general practice in the area? At a different project that the engineer visited recently, he picked up a rod off the deck –E7010. Is that typical? Are testing labs or engineers enforcing the low hydrogen requirement? Contact Art Dell at odell@soha.com.

By the way, don't let the low-hydrogen issue confuse you in the use of welding processes other than SMAW – see http://www.lincolnelectric.com/knowledge/articles/content/fillermetals.asp "Selecting Filler Metals" for an excellent article on the subject.

SEAONC's Rebuilding Together Committee Has Open Seats!

Within the next month, SEAONC's team for Rebuilding Together will start gaining momentum toward our 2004 project. The coordination of our repeatedly successful projects is a collective effort, and some seats are open on the committee.

Rebuilding Together (formerly Christmas in April - you knew that by now, right?) is a nation-wide, and bigger, organization with local chapters in San Francisco and the East Bay. (More information is available at www.rebuildingtogether.org and at www.rebuildingtogethersf.org.) SEAONC has a strong history with the San Francisco chapter of Rebuilding Together, and is viewed by the organization as one of its strongest teams at the residential-project level. We have decided to advance our efforts, beginning with the coming year, to the facility level, meaning that our efforts will be toward a place such as a homeless shelter or local school.

The committee in the coming year will be made up partly of the Construction Coordinator Jim Passaglia, and "Past Volunteer Coordinator" Jennifer Lynn. The remaining seats are available and are as follows:

Volunteer Coordinator: selects and coordinates project with Construction Coordinator; communicates with facility representatives to arrange for Rebuilding Day; recruits volunteers; communicates with volunteers and other committee members in arrangement of Rebuilding Day; serves as Safety Captain and Historian during Rebuilding Day; serves as liaison for facility representatives during Rebuilding Day.

Fundraiser/Treasurer: arranges fundraising efforts; receives and relays raised funds; communicates with Volunteer and Construction Coordinators, as well as Rebuilding Together staff, about project budget.

Donation Coordinator: solicits donations of necessary goods (food and beverages, materials, etc.) from local businesses for the Rebuilding Day team; arranges for delivery/pickup of donated items; arranges meals for the team on Rebuilding Day.

If you are interested in participating in our Rebuilding Together endeavors, please contact Jennifer Lynn at jennrt@hotmail.com.

Rebuilding Together San Francisco

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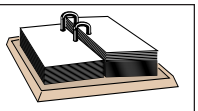
CALENDAR OF EVENTS



September 4
Business Forum Luncheon
City Club, San Francisco

September 9
Monthly Dinner Meeting
City Club, San Francisco

September 15
ATC-20 Training
1919 Webster, Oakland

September 30 - Committee Mtg.
Seismology & Structural Standards
Rutherford & Chekene, Oakland

Posting for Membership

Member

Masami Jin
Project Engineer, Nabih Youssef & Associates

Craig Lewis
Project Engineer, Winzler & Kelly Consulting Engineers

Shalva Marjanishvili
Senior Engineer/2003, Hinman Consulting Engineers, Inc.

James Morton
Project Engineer, Hohbach-Lewin, Inc.

Patricia Preston
Civil Engineer, EFI Engineering

Thomas Wismar
Project Engineer, DASSE Design, Inc.

Associate

Joanne Fong
Staff Engineer, Summit Engineering, Inc.

Jason Horwedel
Degenkolb Engineers

Erik Kunkel
Staff Engineer, Hohbach-Lewin Inc.

Jennifer Lovejoy
Engineer, E.I.T., Simpson, Gumpertz & Heger

Industry

Richard Gibson
Senior Vice President, Dealey Renton & Associates

Student

John Eggers
Graduate Student, University of Texas

DeSimone Consulting Engineers has an immediate opening for a senior-level Project Manager with 5-7+ years experience in new design and seismic rehabilitation. The candidate must have excellent communication skills and a PE or SE (preferred). We offer competitive benefits and a great work environment. Please fax resume to Ron Polivka, 10 United Nations Plaza, Suite 410, San Francisco, CA 94102 (415/398-9834) or
e-mail to rpolivka@de-simone.com

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

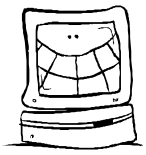
Structural Engineer - Are you dynamic, competitive, creative? **Marr Shaffer & Miyamoto** is ready for you. Established over a half a century ago, MSM is one of the most respected engineering firms, with an office in Pasadena and Sacramento. Our projects range from complex high-rise structures to commercial buildings with expertise in seismic rehabilitation and state-of-the art design procedures. In earthquake engineering we design retrofits and new buildings with dampers, base isolators and fiber reinforced plastic. We are seeking project engineers, project managers, and CAD drafters. Communication skills and a commitment to be the best are essential. We offer a great working environment, a complete benefit package, and a chance to take a great life journey! Check out our website at www.msm1.com for more information. If you are ambitious and have a minimum 2+ years experience with a variety of building materials (steel, concrete, timber), please submit your resume to resume@msm1.com

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

Wildman & Morris, a multi-discipline architecture and engineering firm, is looking for a Project Structural Engineer. Minimum of 10 years experience required. Experience designing maintenance, training, warehouse, administrative, and other light industrial projects in steel, concrete, and masonry is also required. Although not a requirement, experience designing using metric units and designing military projects is highly desirable. The ability to work with a multi-discipline staff and to communicate directly with clients is essential. Wildman & Morris offers the chance to work on unusual and challenging projects. This position offers the potential for advancement for the individual able to accept challenges and responsibility. FAX resumes to 415-896-2636 or email to barbara.mason@wildman-morris.com

October *News* deadline:
Wednesday, Sept. 10th, 2003

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



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.

DISPLAY ADS

Full Page	**$900/mo.**
2/3 Page	**$600/mo.**
1/2 Page	**$480/mo.**
1/3 Page	**$360/mo.**
1/4 Page	**$270/mo.**
1/6 Page	**$225/mo.**

Rates are for finished camera-ready black and white ads or proofed PDF files with embedded fonts. *Full payment is required at time of insertion order.* For advertising contract, size specifications, and special rates for running an ad for multiple months, contact the SEAONC Office at seaonc@ix.netcom.com or phone 415/974 -5147.

NEW Ad for
Computers and Structures

upcoming events

SEPT	
4	**Business Forum Luncheon**
9	**Dinner Meeting & New Member Orientation** **City Club - San Francisco**
15	**ATC-20 Training** **1919 Webster, Oakland**
30	**Seismology & Structural Standards** **Rutherford & Chekene, Oakland**
OCT	
7	**South Bay Dinner Meeting**
NOV	
11 & 18	**Continuing Education Committee** **Fall 2003 Seminar**

Registration

Structural Engineers Association of Northern California

September 9TH SEAONC DINNER PROGRAM, SAN FRANCISCO CITY CLUB

5:45 pm
General Assembly

6:30 pm
Dinner

7:30 pm
Program

Location:
The City Club
155 Sansome St.
10th Floor
San Francisco

BART:
Montgomery St. Station, Exit on Sansome Street, 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: 415/ 764-4915, Phone: 415/ 974-5147, e-mail: seaonc@ix.netcom.com

Deadline for pre-registration: 12 noon, Friday, September 5th, 2003

Make check payable to SEAONC and bring with you to the door.

Register early! Dinner and program reservations are limited. No cancellations after 12 noon, Friday, September 5th, 2003. 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 REGISTERED (After Deadline)
SEAONC Member	❑ $34	❑ $39
Junior Mbr (29 and under)	❑ $28	❑ $33
Non-Member	❑ $39	❑ $44
Student	❑ $15	❑ $15