



# SEAU NEWS

The Newsletter of the Structural Engineers Association of Utah

Volume VIII- Issue VII April 2004

▼  
*This newsletter is a monthly publication of the Structural Engineers Association of Utah.*

*Articles or advertisements appearing herein may be submitted by anyone interested in expressing a viewpoint on structural engineering.*

*Articles for publication may be submitted to:*

*Mike Buehner, Editor*

*(801) 486-3883*

*mbuehner@reaveley.com*

*Advertisements for publication may be submitted to:*

*Jerod Johnson, Advertising*

*(801) 486-3883*

*jjohnson@reaveley.com*  
▼



*Christopher Nissan Dealership; North Salt Lake City, Utah, by June Engineering, PLLC.*

## IN THIS ISSUE

Message From The Board ..... p 1

Member Forum..... p 2

Bulletin Board ..... p 4

## APRIL EVENT

### REVISIONS TO IBC 2003 STRUCTURAL PROVISIONS

Presented by:  
David Fanella Ph.D., S.E.

▼  
**Date:**  
Thursday, April 15, 2004  
4:00 to 7:00 p.m.

▼  
**Location:**  
EMCB Room 103,  
University of Utah

▼  
**Cost:**  
\$20.00 for SEAU members,  
▼

## MESSAGE FROM THE BOARD

### MENTORING AND LEARNING FROM OTHERS



By Brent Maxfield,  
SEAU UEC Delegate Elect

Way back in 1984 while still a graduate student at BYU, I began working as a structural engineer for James M. Montgomery, Consulting Engineers Inc. I was the second structural engineer in the Salt Lake office. The other structural engineer was David Hooley. Dave became my mentor for the next five years of my career - and beyond. (I still call Dave to bounce ideas around.) Much of

what I am as an engineer today can be traced back to my five years working with Dave Hooley. He was a patient teacher. He took an interest in helping me succeed as a professional engineer. We developed a mutual trust and understanding of each other. I hope each of you can look back and remember one or two people who helped get you going in your career.

After five years, I decided that I needed a broader range of experience, so I chose to leave Montgomery Engineers. I started working for Kelly Calder and Eric Kankainen. I still remember proudly showing Kelly my 1/2" thick pile of calculations on my first project, and Kelly asking, "What is this?" He then showed me many design aids that they used to reduce the time and effort of engineering calculations. I learned much from working with Kelly and Eric - things that I would never have learned had I

CONTINUED ON PAGE 3

## MEMBER FORUM

## FOCUS

*Utah Structural Engineers provide a significant contribution to a wide variety of projects for commercial, government, industrial, and residential clients. Each month, SEAU would like to focus attention on the accomplishments, successes, and hard work of our Utah Structural Engineering firms. This month the focus is on:*

**EASE, INC.**

**E**nvironmental and Safety Engineering was established in 1991 and incorporated as EASE, Inc. in 1994. EASE, Inc.'s engineers have a wide range of expertise gained from completing projects for the Department of Defense (DoD), and commercial industrial clients. Projects typically involve a combination of planning, architectural-engineering (A-E) services, process engineering, environmental management, hazardous/explosive waste management, air resources, and safety engineering.

Sarah Winkler is one of EASE, Inc.'s principal engineers. She graduated with a MS in structural engineering from the University of Texas, Austin. Sarah has served two years as a member of the SEAU board and is just completing a five-year commitment serving on the Utah Engineers Council executive board. She has specialized experience in the analysis and design of structures to resist accidental detonations or deflagrations in accordance with DoD accepted methodologies.

The basis for EASE, Inc.'s business has been to provide engineering support to the explosives manufacturing industry and the DoD's demilitarization efforts. Work has included the analysis of waste streams to determine the most effective way of managing the potentially hazardous waste, environmental and safety audits of facilities that provide demilitarization services, special engineering analyses (i.e., hazards analysis and blast analysis) of explosive handling facilities, and strategic planning.



*Watergel Manufacturing Plant, Hallowell, KS*

EASE, Inc. designed a prototype facility that was constructed in Hallowell, Kansas, to convert excess propellant from an aerospace manufacturing company in California to a water-gel explosive product that is used in the commercial blasting industry. The plant was designed to be "mobile" so that it could be used in support of efforts to demilitarize rocket motors in the Ukraine.

EASE, Inc. designed, fabricated, and installed a bomb washout system at Eglin Air Force Base, Florida. The system was designed to demilitarize a selection of the U.S. Air Force's bombs. Wash out is accomplished with high-pressure water remotely controlled. The wash-out water is recycled. EASE, Inc.'s scope of work included development of the control system and training of the operators.



*Bomb Washout System, Eglin Air Force Base, FL*

For many years, EASE, Inc. was a part of a team developing a confined burn facility for the U.S. Navy at Indianhead Naval Surface Warfare Center in Maryland.

The U.S. Army has been researching alternatives to incineration for demilitarization of chemical munitions. EASE, Inc. provided testing and logistical support at Dugway Proving Ground to General Atomics in their development of the super critical water oxidation alternative.

Funding for demilitarization projects has dropped significantly in the past couple of years due to the terrorist attacks and the wars in Afghanistan and Iraq. EASE, Inc. has developed project experience and contracts over the last 6 years in the area of architectural-engineering (A-E) design to keep the business viable.

Currently, EASE, Inc.'s clients include Hill AFB, Utah and U.S. Army Dugway Proving Ground, Utah. The design team is led by EASE, Inc.'s principal engineer, and is typically made up of an architect, mechanical and electrical engineers. Work for each project varies in scope and includes new facilities or modifications/ renovations of existing facilities. Work at Dugway Proving Ground can have some challenges since many of the facilities support Dugway's chemical and biological defense mission.

**MESSAGE FROM THE BOARD (continued from page 1)**

stayed with Montgomery Engineers. I also had great experiences working with and learning from Youra Zivait and Joe Crilley. After three years, I left to join the structural engineering group at the LDS Church. My life and my career has been molded by the things I have learned from Leon Williams, Kent Reimschuessel, Rob Hughes, Oliver Wood, Steve Markham, and Richard Hughes. I have learned something from each of them, and I hope they have learned from me.

My point here is not to give you a travel log. It is to point out how many SEAU members have helped me become the engineer who I am today.

The list of SEAU members from whom I have learned continues. I still remember my first year in SEAU with presidents Ken Karren and Ken Willmore. I was a young engineer and appreciated the warm welcome I received from them. In years past I was the chairman of the Codes Committee. I will be ever grateful for the insight I received by fellow committee members David Alter, George Grygar, Carl Eriksson, and David Curtis. As the chairman of the By-Laws Committee I appreciate the help and support I received from Julie Ott and Steve Judd. In the late 1990's I served on the Board. It is amazing how much I learned from

fellow board members: Brent White, JR Richards, Craig Cartwright, Kelly Calder, James Williams, Parry Brown, Duane Green, David Smith, and Sarah Winkler. I currently serve on the Utah Structural Advisory Committee to the Uniform Building Codes Committee. I am always amazed at the insight of fellow SEAU members who have served with me such as Brent White, George Hansen, Don Barker, Steve Cohen, Justin Naser, Eric Kankainen, and Dave Pierson. Now, as I serve on the Board again, I am grateful to have such capable people to serve with. It is great to work with Carl Eriksson again. Our president Ron Dunn has such a great vision of what SEAU can and should accomplish. Fellow board members Barry Arnold, Jeff Miller and Kim Robinson contribute a well-rounded view point. I am in awe at how much they know. It has been an honor to get to know Larry Reaveley better. He has such a wealth of knowledge, experience, and wisdom. I am a much better person because of serving with him and the other board members.

The list goes on. There are dozens of other SEAU members who I have interacted with over the years from whom I have learned many things. There are dozens more who I do not know. I hope that circumstances allow me to get to

know you, and to be able to learn from you.

As SEAU members, I hope that you are having similar experiences. There is so much we can learn from each other. The wealth of knowledge available in SEAU is incredible. The newest graduate can contribute to the knowledge of SEAU, as much as the oldest member. If you haven't served on an SEAU committee, then you are missing out on a great learning experience. We are also missing out on your contribution. I hope that each of you will realize that you gain more from serving on a committee than you put in. It is a great experience. If you are not actively participating in the monthly SEAU meetings, then you are also missing out on critical interaction with fellow structural engineers. Young and old, please make a commitment to yourself to help the organization and yourself by being an active member, and by serving on a committee. If you don't know how to join a committee, send an email to [SEAU@SEAU.org](mailto:SEAU@SEAU.org). Tell us what your interests are. We will have a committee chairman contact you. If you already serve on a committee, we thank you.

From someone, to who has gained so much from you. . . Thank you!

**MESSAGE FROM THE PRESIDENT**

This isn't the same profession I got into over 20 years ago. I never thought I would become old enough that I would say the words, "when I first started out" or "this is how we used to do it" or even "before the computer we . . . . ."

Can you imagine what it was like to have a question sent from a contractor via the US Mail, with the expectation it would be answered within a few days? What about actually surprising the contractor if shop drawings were returned within two weeks? With the difficulty of erasing ink off of Mylar, or even lead off of linen; can you imagine significant floor plans drawn only once? We were taught never to draw more in the morning than you can erase in the afternoon!

Cutting edge engineering offices perhaps had one or maybe two personal computers. These were used only for crude number crunching and usually sat idle.

SAP80 was a real breakthrough! Small engineering models could be run overnight, only to find an input error which aborted the process. Oh well there was always the next night!

Can you imagine keeping track of only one original? Any changes, additions or modifications took place on only one location. Printing took significant preparation and printing of outdated material was not tolerated. Oh the sweet aroma of the print room. Large scale Xerox copies were nowhere to be found. Prior to this "paperless society" we had less paper to keep track of, and stamping of drawings did not require the entire afternoon.

This just isn't the same profession. Faxes have allowed and encouraged immediate responses to questions. Clients assume we are all gathered around the fax machine waiting for the next beep. It has

become much easier to write questions than ask them. We are now requested to answer questions without a visit to the fax machine with the advent of email. We can even copy our paper laundry with one press of a "send" button. And now ftp sites allow our clients to even use our paper.

Projects would take weeks instead of days, detailing was not cut and paste, and architects were actually paid to coordinate drawings. Pencils and erasers are now stored next to our slide rulers; triangles and lettering guides are lost under mouse pads, and reams of computer output replace a dozen sheets of graph paper. No 2 pencils are replaced by ink cartridges, and "the server is down" has become our best alibi!

Phone conversations were limited to the office, pagers were for doctors, and two-way radios were only used by survey crews. Home phone numbers were given only to friends, lunch hours were hours, and weekends you mowed your lawn.

Where are we going from here? Will the next 20 years produce as much change? It is exciting to contemplate what lies in store in the upcoming years. No, this isn't the same profession I got into; and that is a good thing! I love my job.

Ron Dunn  
President, SEAU

## BULLETIN BOARD

### NOMINATING COMMITTEE BALLOT RESULTS

Ballots were counted for the 2004 Nominating Committee. SEAU thanks all those voting grade members who submitted ballots. The following people have been selected to be on the Nominating Committee:

Steve Cohen  
Jonathan Richards  
Kim Robinson  
Barry Welliver  
Barry Arnold – Chair (by virtue of his position as President Elect)

SEAU members are encouraged to contact any one of the above committee members with their ideas for nominees for SEAU Board positions.

### SEAU MEMBERSHIP APPLICANTS

The following individuals have submitted applications for approval by the SEAU membership committee for new members:

Aladin Hadzikadunic – Student  
Thomas E. Mathews Jr. – Student

### SEER COMMITTEE UPDATE

Thank you to all those who participated in the Emergency Response Committee's Post Earthquake Safety Evaluation from the example posed in February's newsletter. Most participants posted the entrance with the collapsed canopy a 'yellow' tag (limited entry). The consensus seemed to be that since the canopy had already collapsed, the owner should be able to enter the building here to retrieve valuables, but should not occupy the building until a more detailed evaluation could be performed. The entrance with the swamp cooler teetering overhead was often marked with a 'red' tag (do not enter) as a good possibility still exists that the cooler could fall in an aftershock. This example illustrates an important item from the ATC-20 methodology. All entrances of a building need to be posted even during a rapid evaluation. You never know where a person will enter and the hazards may be different at each entrance.

Look for further announcements and activities from the Emergency Response Committee. If you have not taken the time to register as an Emergency Response Volunteer, and would like to, please contact Barry Welliver by email at [barrywelliver2@earthlink.net](mailto:barrywelliver2@earthlink.net).

## VERCO MANUFACTURING CO.



*Steel Floor & Roof Deck*

Engineering Office:  
Fremont, CA

**Jeffrey R. Martin, P.E.**  
**Collin Lee Lowry**  
(510) 792-8370

Sales Office:

**Ross Deeter**  
(510) 792-8926

BULLETIN BOARD

**BULLETIN BOARD SPECIAL FEATURE**

Each month this year SEAU will feature recent building code developments and design requirements. This month our focus is on:

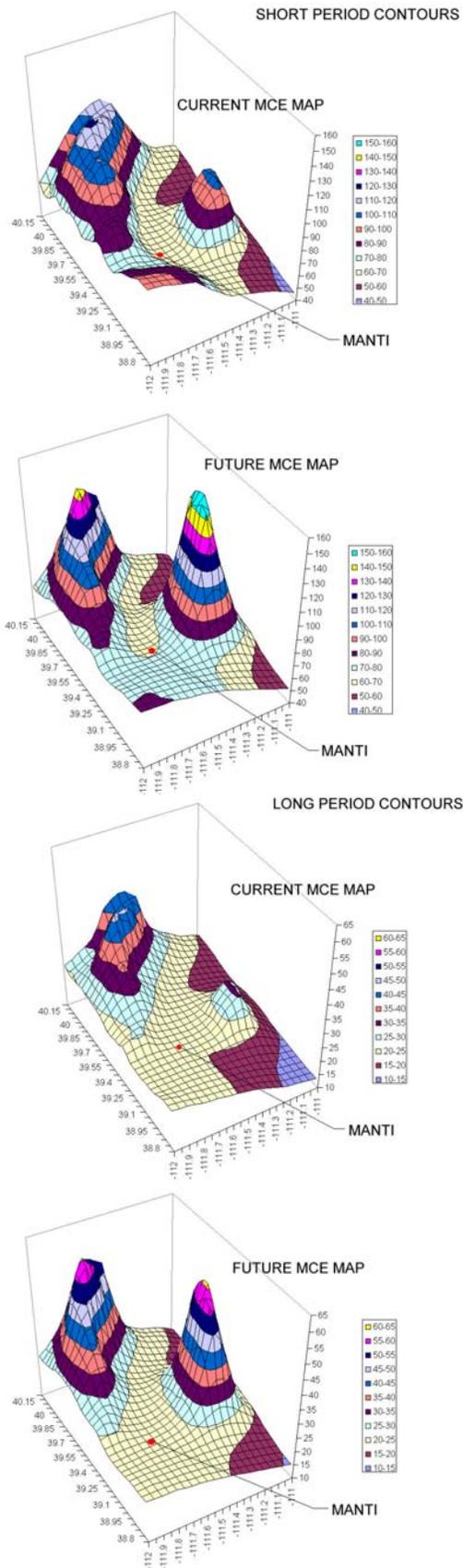
**HORIZONS – SPECTRAL ACCELERATION MAPS PART II**

by Jerod Johnson P.E.

The November 2003 edition of SEAU News presented a feature dealing with the future NEHRP/USGS MCE spectral acceleration maps expected to be adopted in the 2006 edition of the International Building Code (2005 edition of ASCE 7). The ‘good news’ presented by the article was that in large measure, spectral accelerations will be reduced for both long and short periods for *most* of Utah. The reduction in spectral accelerations is expected primarily to reduce the level of prescribed load used in seismic design. Due to shifts in locations of some contours, seismic design categories may also shift. Whereas the current code may require category *E* classification for a specific site, the future contours may enable the lower classification of *D* for the same site. At other sites, the reverse is true.

Although spectral accelerations will be reduced on the new contour maps for most of Utah, there is a significant increase in accelerations at the region of the State midway between Price and Manti (See Figures 1 and 2). At the ‘peak’ of this region, the current spectral acceleration maps indicate an  $S_s$  value of approximately 110% *g* whereas the new spectral acceleration maps indicate an  $S_s$  value of nearly 160% *g*, which translates to prescribed lateral forces almost 50% greater than those of the current code. Likewise, for longer periods, the current maps require an  $S_1$  of about 35% *g* at this region whereas the new maps will require  $S_1$  values in excess of 60% *g*. Nearly a twofold increase! The good news is that this area of the state is somewhat remote and will not likely (at least within our lifetimes) have a new structure erected with a design controlled by long period response. Nevertheless, recent USGS data support the increase of spectral accelerations for both long and short periods at this region.

As structural engineers, we should consider these increases in spectral acceleration as noteworthy. Not only because of the magnitude of the increase, but also because any one of us could, in the near future, be involved in the design of new facilities or evaluation of existing facilities that will be subject to significantly larger prescribed spectral accelerations.



*SEAU Presents:*

# ANALYSIS OF REVISIONS TO THE 2003 IBC STRUCTURAL PROVISIONS

Date: Thursday, April 15, 2004

Place: University of Utah  
EMCB Room 103

Time: 4:00 p.m. to 7:00 p.m.  
(Dinner provided, 30-minute dinner break 5:30 to 6:00 p.m.)  
2.5 CEUs      Parking passes will be provided.  
Cost: \$20:00 for SEAU Members, \$15.00 for students, \$50.00 for all others.

Register by sending your check made out to SEAU to SEAU's P.O. Box address below. All registration must be received by Monday, April 12, 2004, to guarantee a seminar book and dinner. You will not receive a book or dinner if your registration is not received by the deadline. Also, if you do not show up to the seminar on time, your book may be sold to late registrants.

Presenter: David Fanella Ph.D., S.E, S.K.Gosh Associates, Inc.

David A. Fanella is a registered professional engineer and a registered structural engineer in Illinois. Until recently, Dr. Fanella was Manager, Buildings and Special Structures, Portland Cement Association, Skokie, IL.

Covered topics: Revisions to seismic provisions, soils and foundations, masonry design, steel design, and non-seismic design loads; and amendments to ACI318-02.

**Partial funding has been provided by the Division of Occupational & Professional Licensing from the 1% surcharge funds on all building permits. SEAU thanks DOPL for its support.**

## **STRUCTURAL ENGINEERS ASSOCIATION OF UTAH**

P.O. Box 58628

Salt Lake City, Utah 84158-0628

[www.seau.org](http://www.seau.org)



### **Board of Directors**

Ron Dunn, *President*

Barry Arnold, *Vice Pres./Pres. Elect*

Larry Reaveley, *Past President*

Jeff Miller, *Treasurer*

Kim Robinson, *Secretary/Historian*

Carl Eriksson, *Member of the Board/UEC Delegate*

Brent Maxfield, *Member of the Board/UEC Delegate Elect*

---