



SEAU *NEWS*

The Newsletter of the Structural Engineers Association of Utah

Volume V- Issue V March 2001

▼
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:
Scott Adan, Editor
(801) 486-3883
sadan@reaveley.com*

*Advertisements for publication may be submitted to:
Mike Buehner, Advertising
(801) 486-3883
mbuehner@reaveley.com*



Vintage Office Building, Provo, Utah, structural design performed by Karren and Associates.

IN THIS ISSUE

- Message From The Board..... p 1
- Member Forum..... p 2
- Upcoming Events p 3
- March Meeting..... p 5
- Bulletin Board p 4
- By-Laws Committee p 6

MARCH EVENT

Geotechnical Engineering Concepts and Deep Foundation Design

▼
Presented by:
James W. Niehoff, P.E.

▼
Program Date:
Thursday March 15, 2001
5:30 p.m. Social
6:00 p.m. Meeting and Program

▼
Location:
University of Utah
Engineering and Mines Building
Room 104

MESSAGE FROM THE BOARD

SEAU BOARD OF DIRECTORS SUPPORTS ADOPTION OF IBC 2000



By A. David P. Brown, SEAU
Member of the Board

After much discussion and debate, the board members of the SEAU Board of Directors have unanimously voted to support the adoption of the structural provisions of the IBC 2000 building code. The vote was taken at our January, 2001 board of directors meeting.

This action was not taken without reservation. The general response from SEAU members and non-members who have studied IBC 2000 is that there are provisions in the code that we need to further review. An example is the masonry section- the IBC is more conservative than previous codes and may result in thicker walls, which are, in the opinion of some, unnecessary.

The SEAU Codes Committee, Seismic Committee, and other committees have reviewed the structural provisions of IBC 2000. Several code amendments have been prepared as a result of these reviews and have been submitted to the state Uniform Building Code Commission. Most of the recommended code amendments are equivalent to past code amendments, such as the Utah snow load amendment.

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:

WCA Structural Engineering

WCA began as Willmore Engineering in 1982 and has evolved through four name changes into it's current and hopefully last organizational change, WCA Structural Engineering. Our office has always been located in Davis County and is presently in Bountiful. We are a small office of three professional engineers but have been fortunate to have worked on many interesting projects over the years. We have included three for this news article.

Utah State Governors Mansion



Structural engineering services were provided for the mansion after a fire destroyed part of the building in 1993. This happened when a Christmas tree caught fire from faulty wiring. There was more smoke than fire damage. During the rehab process, the State decided to include a partial seismic upgrade, a partial remodel as well as a total interior restoration.

The main thrust of our work included strengthening the floor diaphragms and tying the diaphragms to the 24" thick exterior walls (12" stone + 12" masonry). The majority of the cost for the work came out of insurance money. We would have liked to strengthen the walls but of course there was no money for that in an election year. In 1999 & 2000 we provided additional design work to finish the roof and the front entry. DO NOT be standing under the west porte-cochere when the big one hits, it was never included in the project. Your tax dollars at work.

C. Roland Christensen Business Center



The architectural requirements of this building on the University of Utah campus provided many challenges. First, the main lecture rooms were to be modeled exactly like those of the Harvard Business School and second, the lower floor walls did not line up with the walls above. Many transfer beams were required at the upper floors to pick up the roof framing. In addition, the structure was really two buildings connected together at the atrium entry. The atrium roof projects above the main roofs in this entryway and is supported by cantilevered columns that handle both vertical and lateral loads.

Brigham Young Academy

This last project was a three building design which we partnered with Tanner Smith Structural Engineers. WCA's portion included the retrofit of the old academy building and a one story clear span post-tensioned

underground parking structure (U shaped) that wraps around the exterior of the block on the north, west and south sides.



To reduce cost, Provo City allowed the Academy building to be designed to UCBC lateral forces. This was very helpful when the project began with the attempt to save most everything including money. In the end, the building was gutted and only the interior walls saved. At the last moment, the existing roof was also scrapped and a new one designed to cut costs due to construction scheme and erecting methods. The building now has three new steel-framed floors and a new wood roof.

It has been interesting to see how both city and state government's work when it's their money.

WCA has been and will continue to be a strong supporter of SEAU. We believe that this organization has provided a great service to both our community as well as proving a cohesive element to the structural engineering profession. We look forward to future association and service within the walls of SEAU.

MESSAGE FROM THE BOARD (continued from page 1)

Those of you who attended the IBC 2000 seminar in October understand that there are significant differences as compared to UBC 1997. Many of the differences are not much more than different symbols and terminology. Those of you who have had the pleasure of using IBC 2000 have probably found that the end results are comparable to the UBC results. There are unknowns, however, and concerns that some of our members have. All things considered, the board feels that the IBC 2000 code, as amended, is the most advanced building code yet and problems that we encounter as we gain experience with it can be dealt with.

On a related subject, IBC 2000, which was conceived and developed to unify several regional and local codes into one national code, may have competition in 2003. NFPA, which is the developing entity of several respected and widely adopted specialized codes (such as the NEC electrical code), is in the process of developing a building code, NFPA 5000. This building code has been a long term objective of NFPA. ICC, the authoring entity of IBC 2000, made efforts to have NFPA join the development of IBC 2000. NFPA declined to participate, mainly due to philosophical differences. NFPA develops what they call "consensus" codes, where voting authority includes broad based representation. The ICC considers

broad based input, but the voting authority consists primarily of building officials.

Some building code adoption entities, such as the State of California, have deferred adoption of IBC 2000, this either out of respect for NFPA or of concerns over IBC 2000. In the case of California, SEAOC had strongly recommended adoption of IBC 2000. The unfortunate outcome of this is that there may end up being competing codes nationwide or even statewide in some states.

The one positive side of this "battle of the codes" is that both of these codes will probably rely on "code by reference" (reference to established standards), which is now the case with IBC 2000 and will be more so with future editions. It appears that NFPA 5000 will use this approach as well. If this is the case, then there may be little substantive difference between the codes, at least as far as structural provisions are concerned.

I believe this is an issue of importance to most of us and I will continue following it. In the mean time, I think we all need to get ready for IBC 2000, which will likely be adopted by Utah effective January, 2002.

- DPB

UPCOMING EVENTS

2001 STRUCTURES CONGRESS

**2001 Structures Congress &
Exposition**
"A Structural Engineering Odyssey"



Presented By:
The Structural Engineering Institute of the American
Society of Civil Engineers presents:

▼
May 21-23, 2001

▼
Location:
Washington Renaissance Hotel
Washington, D.C.

▼
For more information, check
www.asce.org/conferences/structures2001

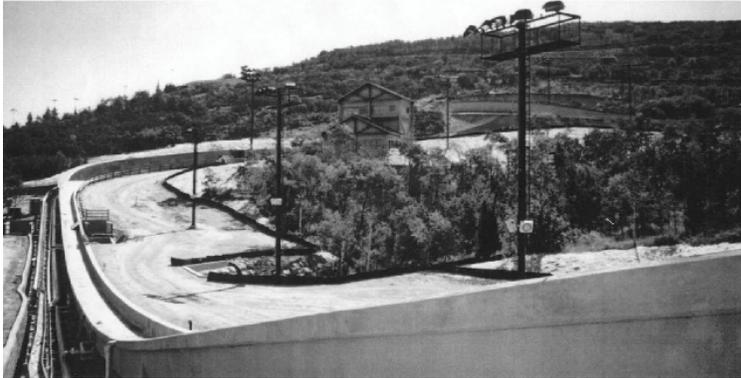
UPCOMING SEAU PROGRAMS

Newland Malmquist heads this year's SEAU programs committee. Assisting Newland is Brent Maxfield and Julie Ott. If there is anyone who would like to help out with the program committee, or if you just have a great idea for a program, please do not hesitate to call Newland, Brent, or Julie. Your input/help will be greatly appreciated. The following is a tentative program schedule for 2000-2001:

April: Program TBA
May: Program TBA/Officer Elections
▼

BULLETIN BOARD**BULLETIN BOARD OLYMPIC FEATURE**

Each month from this issue to the 2002 Winter Games, the SEAU News will be highlighting an Olympic venue, particularly with respect to the structural engineering aspects of the venue. This month's feature is the following:

The Bobsled/Luge at the Utah Winter Sports Park

The Bobsled/Luge run is described as perhaps the most difficult feat of engineering and construction at the Utah Winter Sports Park. Dropping 400 vertical feet over a length of 6000 feet, the run has roughly the same vertical measurement as a 40-story building.

Because of very limited tolerance levels on the inside of the run, placement of concrete to exacting specifications was very labor intensive. Each pour averaged 40 to 45 cubic yards and required a crew of 21 men approximately 12 hours. In total, approximately 2000 cubic yards of shotcrete were required for the completed run.

Among the engineering disciplines for the project careful coordination was required to incorporate the nearly 256,000 feet of pipe that carries the ammonia refrigerant to and from the 65 individual evaporator sections of the run. The pipes were located and held in place using jigs specifically dimensioned and fabricated for each 2.5 meter segment of track. Electrical considerations also proved to be very challenging as state-of-the-art timing and electronic devices were incorporated into the track design.

The Bobsled/Luge run at the Utah Winter Sports Park will receive worldwide attention as it becomes a venue for events during 2002 Olympic Winter Games.

THIS SPACE FOR RENT

The newsletter can be an excellent forum to advertise and target a very select group of professionals. To find out more contact:

Mike Buehner, c/o Reaveley Engineers & Associates, Inc., 1515 South 1100 East, SLC, UT 84105, Phone 486-3883, Fax 485-0911
Email: mbuehner@reaveley.com

**UTAH ENGINEERS COUNCIL
ENGINEER OF THE YEAR 2000**

Congratulations to Mr. Ronald R. Reaveley, P.E., S.E., President of Reaveley Engineers & Associates. Mr. Reaveley has been an active consulting engineer for the past 37 years and founded Reaveley Engineer & Associates in 1972. His consulting firm has become one of the largest and most respected consulting engineering firms in the Intermountain West. He was the founding president of the Structural Engineers Association of Utah.

**UTAH ENGINEERS COUNCIL
ENGINEERING EDUCATOR OF
THE YEAR 2000**

Congratulations to Dr. JoAnn Lighty, Associate Dean for Academic Affairs, College of Engineering, University of Utah. Dr. Lighty, Professor, Department of Chemical and Fuels Engineering, University of Utah; and Special Assistant to the Sr. Vice President, University of Utah, has been on the faculty since 1988.

CLASSIFIED

STRUCTURAL ENGINEER

Basic Precast Company a leading precast/prestress concrete manufacturer has an immediate opening for a Structural Engineer, PE. Job duties include: structural design, analysis, project management, supervision of engineering and drafting. Excellent communication, organization and time management skills are preferred. Minimum qualifications: B.S. Civil Engineering, 5+ years experience, Auto Cad, PE certification required, knowledge of precast/prestress concrete and GFRC. Send fax or resume to:

Basic Precast Company
 Fax: 801-955-5454
 Attn: Jared Morgan.

NEWSLETTER SUBMITALS

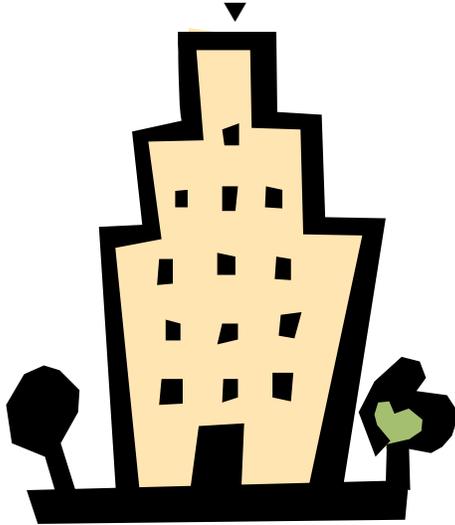
This SEAU Newsletter is designed to keep you informed of events and activities that affect our association and your involvement with SEAU. In addition, the newsletter can be a forum for you to share your views with your fellow engineers, post advertisements, or target a select group of professionals.

Please have articles delivered to Scott Adan, c/o Reaveley Engineers & Associates, Inc., 1515 East 1100 East, SLC, UT 84105, Phone 486-3883, Fax 485-0911, Email: sadan@reaveley.com.

April Deadline: April 5, 2001
 May Deadline: May 3, 2001

MARCH MEETING

Geotechnical Engineering Concepts and Deep Foundation Design



Sponsored By:
 SEAU

Presented By:
 James W. Niehoff, P.E.
 Chief Engineer & Senior Vice President of Professional Service Industries (PSI) in Denver CO

Thursday March 15, 2001
 5:30 p.m. Social
 6:00 p.m. Meeting and Program

Location:
 University of Utah
 Engineering and Mines Classroom Building
 Room 104

The presentation will present and overview of geotechnical engineering including services which can be conducted during site selection, planning, and construction.

In addition, the presentation will focus on deep foundations used for the support of buildings, sport facilities, cell towers and other structures.

SEAU PROFESSIONAL PRACTICES AND ETHICS COMMITTEE UPDATE

REPORT FROM THE PROFESSIONAL PRACTICES AND ETHICS COMMITTEE

By: Jonathan W. Richards P.E., S.E., Chairperson

This year the committee has been active in attempting to develop ways in which local Building Departments, Owners, Developers, Etc., can discern what constitutes quality structural engineering

practice versus substandard practice. It is our hope that this may help in enforcing the need for adequate fees for quality design services. In other words, you get what you pay for.

One area we have concentrated on is to provide the local building departments with a guideline on what constitutes an acceptable level of practice in submitting structural calculations and plans. Our reasoning is that if an individual submits substandard structural plans for permit, the permitting process may take more time and thus cost the owner, architect, or contractor additional time and money.

Hopefully this will send a message that low budget, substandard levels of service cost the client more time and money!

Also, developing this standard guideline will provide the building official with “ammunition” in determining substandard practice and/or negligence in order to alert the Department of Professional Licensing, (DOPL), for possible investigation. I should note that DOPL has a full time investigator that has been specifically assigned to investigate matters such as this.

Presently we are developing this guideline and the committee welcomes any input that the SEAU members might have. Once this is complete we will provide this information to all building departments throughout the state, in particular the less sophisticated, rural areas. We also plan to prepare a position letter urging the building official to provide comprehensive structural plan checks or subcontract a peer review, prior to issuing permits on all substantial projects.

As a side note, Section 107 of the Uniform Building Code addresses the allocated cost of plan review fees. Typically the required fees for plan reviews are 65 percent of the building permit fee. Based on UBC Table 1-A-Building Permit Fees, for a \$1,000,000.00 project the permit fee would be approximately \$5,600.00 excluding special fees and inspections. The plan review fee for the project is approximately \$3,600.00 which is almost 0.4 percent of the project value and may be as high as 67% of the structural engineer's fee for providing the complete design!

As a committee we ask the membership to help in our efforts. If you have the opportunity to perform a structural peer review for a local municipality, provide a quality service by performing a comprehensive but unbiased review. All plan reviews must be performed by a licensed engineer or an ICBO certified plan reviewer. Also, when submitting plans for permit, ask that a structural plan review be performed. The owner is paying for this through permit fees and in the best interest of the project a review should be done. If the local municipality does not have the expertise or resources to perform this review, recommend that an independent structural engineer be retained to perform the review.

We as an organization must take charge in developing, policing, and enforcing the standards of our profession. The local building officials and the State of Utah will not do this without our input. Establishing the standards for acceptable levels of service is an important step in achieving adequate fees for quality design services.



SEAU BY-LAWS COMMITTEE UPDATE

REPORT FROM THE SEAU BY-LAWS COMMITTEE

By Brent Maxfield, Committee Chair

In the January Newsletter, I asked your opinion about a change in the way the SEAU officers are elected. I have received the following from Dave Pierson.

What do you think? Is it a good or a bad idea? I want to have some good debate on this issue in the next newsletter. Please send me your comments. My e-mail address is maxfieldba@ldschurch.org.

Why the Election Procedure for SEAU Officers Should Be Changed

By David Pierson

SEAU currently elects officers with a standard election procedure, using two nominees per office. The nominees are selected by a nominating committee, which is elected by those voting grade members present at the March Monthly meeting.

An alternative method of elections is used by several other professional societies, including CECU. This method gives more power to the nominating committee. They select one candidate for each office, and the ballot then gives the opportunity to vote yes or no or write-in for another person.

I believe it would be a good idea for SEAU to adopt this method for officer elections. I would propose that there be a more formal procedure to election of the nominating committee, and that the nominating committee include at least two of the current board members, i.e. the President-Elect and the Past-President. The board members are most closely acquainted with who is involved in SEAU and what level of commitment they have to the organization. The nominating committee should be elected at least one month earlier, but since we generally don't meet in February, it should be at the January Monthly Meeting. The procedure for selecting the nominating committee should be as follows: Members verbally nominate voting grade members, and there must be a second for them. That person's name is then recorded, and additional nominees are accepted up to at least 6, but not more than 8 nominees. These names

are posted (i.e. on the chalkboard) and the voting grade members are given a blank ballot. On that ballot, they write the names of the 3 additional members they want on the nominating committee. The votes are then tallied during the meeting, and the nominating committee is announced at the end of the meeting.

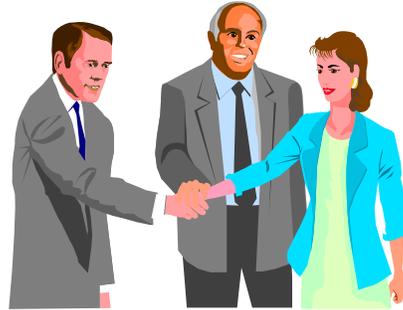
The nominating committee would then nominate one candidate for each office. Nominations from the general membership would be accepted at the April Monthly meeting as presently allowed - such nominees would be treated as write-in candidates, but would be listed on the ballot. The ballot would indicate that if a person votes no on the primary candidate, they must vote for a write-in candidate, or their vote will not be counted for that race. The winner would be the person with the most votes, and the president would break any ties.

The time schedule would then be:

- January Mtg.: Nominating Committee Selected (by ballot, not by hand raising)
- February: Nominating Committee meets and selects candidates
- March: Candidates are notified and accept or decline nomination
- April 1: Deadline for candidates to submit resume for publication in newsletter

- April Mtg.: Nominations accepted from the general membership as presently allowed (these would be treated as write-in candidates)
- April 22: Ballots mailed out
- May Mtg.: Results announced

The reasons for this change are obvious to anyone who has been on the nominating committee recently. At the very least, the nominating committee needs more time. Since politics really don't come into play here, I think that the wisdom of a nominating committee as I have outlined can be trusted to get candidates who will serve the best interests of SEAU. The bottom line is, board membership, though it is rewarding, is not so coveted that people campaign for it. This will, I think, provide a way for qualified people, who participate in SEAU, to serve.



SEAU Presents:

Geotechnical Engineering Concepts and Deep Foundation Design

Presented By:

James W. Niehoff, P.E.

Chief Engineer & Senior Vice President of Professional Service Industries (PSI) in Denver CO



Thursday March 15, 2001

5:30 p.m. Social

6:00 p.m. Meeting and Program



Location:

University of Utah

Engineering and Mines Classroom Building

Room 104



STRUCTURAL ENGINEERS ASSOCIATION OF UTAH

P.O. Box 58628

Salt Lake City, Utah 84158-0628



Board of Directors

Stephen Cohen, *President*

James M. Williams, *Vice Pres./Pres. Elect*

A. Parry Brown, *Past President*

David Pierson, *Secretary/Treasurer*

David Alter, *Member of the Board/UEC Delegate*

Wm. Chris Barker, *Member of the Board/Historian*

David P. Brown, *Member of the Board/UEC Delegate Elect*