



SEAU NEWS

The Newsletter of the Structural Engineers Association of Utah

Volume VI- Issue V February 2002

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.

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Millisecond Catalytic Cracker at the Flying J North Salt Lake Refinery by Thomas Engineering Company, Bountiful, Utah.

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MARCH EVENT

(There is no General Membership meeting in February.)

TOPIC:

Structural Welding Program

SEAU Meeting

Thursday March 21, 2002

5:30 p.m. – 7:30 p.m.

Presented by:

Robert E. Shaw Jr., P.E.

Location:

University of Utah
Engineering and Mines Classroom
Building Room 103 or 104

MESSAGE FROM THE BOARD

CONTINUING PROFESSIONAL COMPETENCY



By Dr. Lawrence Reaveley,
SEAU Vice President/
President Elect

Why does state registration of engineers exist? Some people support the elimination of licensure for engineers – they claim that it is restrictive and becomes a burden on free trade, and that it allows

engineers to have a semi-closed club where they are able to charge high fees. The bottom line is that a state license is only justified if there exists a need to safeguard the public. Clearly, engineers that are executing designs using technologies that they do not understand are putting the public at risk for economic loss and of personal safety.

I have spent the last 40 plus years trying to stay abreast of the advances and changes in structural engineering. It is a daunting task. Every material and its associated design code continuously evolves. Every significant earthquake, wind/snow storm, or blast over pressure event immediately triggers new investigations that lead to change.

The over-riding technological changes have come about due to the integration of computers into everyday analysis procedures. A working knowledge of computer applications of structural

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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:

D. George Hansen, Inc.

D. George Hansen, Inc., was founded in 1978 with the acquisition of Ralph L. Wadsworth Consulting Structural Engineers. Since then, the firm has gained experience and quality in the design of diverse types of projects. As well as numerous buildings, our experience includes construction engineering, bridge engineering, and design of components used in computer manufacturing.

George Hansen graduated from the University of Utah in 1973, was licensed in Utah in 1978. He is also licensed several of the surrounding Western states. He is a founding member of SEAU, has served on the Board of Directors of SEAU for many years, and has served as president of the association.

BUILDING DESIGN

The firm has been involved in some very notable buildings over the past years including the Bountiful LDS Temple, Brickyard, Woodlands, American Towers Offices and Condominiums, and Wadsworth Park office park developments. The American Towers Condominiums was, when it was constructed, the tallest concrete ductile moment frame of its kind in the western U.S. It includes a post tensioned flat slab design coupled with a perimeter ductile moment frame making use of upturned beams to also form the perimeter walls of the units. Glass window frames were installed between the beams, reducing the amount of nonstructural exterior surfaces.

The firm has also had extensive experience designing educational facilities, including the Spencer W. Kimball Tower at BYU, and high schools in Jordan, Alpine, and Provo School District. These designs have usually been steel open web joists and masonry bearing shear walls.

CONSTRUCTION ENGINEERING

D. George Hansen Inc. provides engineering services to contractors performing heavy construction, usually for highway bridge projects, providing erection design for long span girders and arches.

One of the most notable projects was the erection design of a 450-foot span steel arch bridge over Eagle Canyon on I-70 in Southern Utah. The project involved design of head frames, cabling, rock anchors, and motorized winches to support each segment of the steel arch and position it accurately. Each arch had twelve segments, and each segment had cabling, with its own exact load and independent movement, attached to a head frame which was also able to rotate about a vertical axis at the base. All of this movement provided for exact positioning of the arch when the steel key pin was placed at the top of the arch.

Other construction engineering projects the firm has done recently are the replacement of the bridges over the railroad tracks at Riverdale in Odgen, Utah, and the erection of the steel framed roof for hockey arena in San Jose, California.

BRIDGE ENGINEERING

Our company has also been involved in the design of highway and pedestrian/skier bridges. During the development of the Deer Valley Ski Resort, near Park City, we designed two skier bridges over the roads through the resort. These bridges are unique in that they are constructed of treated heavy glulam beams, purlins, and decking, which are exposed to the harsh elements. These bridges support several feet of snow plus skiers on 150-foot spans. We have also designed some of the vehicular bridges in the new Deer Crest Development in the Park City area. Other bridges of note are the railroad bridges at South Mountain, which have involved both a heavy structural, and a necessary aesthetic aspect to the design.

COMPUTER MANUFACTURING FACILITIES

Beginning about 15 years ago, D. George Hansen Inc. began providing designs of specialized structural elements used in the construction of self contained clean rooms, which are used to produce items for the computer industry. Building components are constructed of cast aluminum and are used to construct floors, walls, and ceilings. This has given our firm experience in working with materials outside the usual structural engineering design world. Also, the design involved extensive optimal size and shape selection, and computer analysis. Major computer manufacturers use these elements all around the world.

MESSAGE FROM THE BOARD (continued from page 1)

dynamics is absolutely required to adequately analyze a building of modest height. This is especially true for structures with horizontal or vertical configuration variations.

It is incumbent upon professional engineers that they honestly acknowledge the need for continuous education. Once there is recognition of the need, there exists a professional responsibility to act accordingly. There are three options available. They are:

- Ignore the need for continuous education
- Require evidence of continuing education
- Require periodic re-examination (a case could be made for this option)

Many states now require proof of continuing education efforts. The laws of the state of Utah allow for the implementation of such requirements. It is interesting to note that there is an aggressive requirement in the state of Utah for

continuing education for professional land surveyors (R 156-22-501), but there is currently no rule for professional engineers.

It is time that a full and open debate is entered into to air the various positions concerning this issue. This writer believes that the need to enter into and demonstrate continuous education is critical. Anyone that is professionally responsible for structural engineering projects should embrace the concept.



BULLETIN BOARD**BULLETIN BOARD OLYMPIC FEATURE**

With the 2002 Winter Games underway, SEAU News is presenting its last Olympic venue highlight. This month's feature is the following:

THE OLYMPIC VILLAGE

Village Center

Submitted by Bsumek Mu & Associates

The University of Utah Housing Project was designed as a living/learning center located at the historic Fort Douglas site. These buildings have been designated as housing for members of the 2002 International Olympic teams.

This complex is comprised of 14 buildings used as housing for first and second year students, upper division students, graduate students, married students, guests and a Student Center. The project consists of the 14 new buildings as well as relocation of several existing historical buildings.

The construction types are wood frames, steel frames with concrete composite floors, steel braced framing and masonry shear walls.

The challenges of this project were to meet the very aggressive construction schedule, make the architectural design and vision a reality, meet the budget, minimize the confusion of a multiple contractor construction site, keep track of the endless paper work and accomplish the most efficient structural design.

It has been a great experience to be part of the "Design West" and "Hanbury Evans Newill Vlattas & Company" design team and to be able to contribute in part to the 2002 Winter Olympic Games.

This project concludes the Olympic Venue Highlight for the SEAU Newsletter. The newsletter committee would like to thank all of the firms and individuals who provided photos and project descriptions during the last year as each venue was

featured. Hopefully, the general membership of SEAU has gained a better understanding of the structural aspects of each venue in addition to an appreciation of the important role that structural engineers in Utah have played in preparation for the 2002 Winter Olympic Games.

In place of the Olympic Venue Highlight, future editions of the SEAU Newsletter will be spotlighting educators at Utah's universities who have played an important role in preparing many of us for our careers and who continue to advance the profession through the research they conduct. If you know of an educator who is particularly worthy of this spotlight, please contact the SEAU Newsletter committee.

EDITORIAL

It is enlightening to see how involved we as structural engineers have been in such a high profile event as the 2002 Winter Olympic Games. The Olympic venue highlights in this newsletter over the past several months show how visible our efforts are. The athletes are the focus of the games, however, we as structural engineers, along with the builders and other engineering disciplines, have put together the physical facilities the athletes require to reach the highest pinnacle of their sport. As we watch the performances on television or in person, let us all be proud of our skills that contribute to the realization of the lofty goals of the athletes and of the Olympic ideal itself.



BULLETIN BOARD**ANNOUNCEMENTS FROM SEAU**

- Any SEAU member or associate member who has not yet received his or her membership directory should contact Chris Barker at Dunn and Associates, 801-575-8877.
- The SEAOC 71st Annual Convention will be held Sept 26-28 in Santa Barbara, Ca. "Real World Structural Engineering." For call for papers, see SEAOC website, www.seaint.org/seaocconvention/convention2002
- SEAU is in the process of forming a new committee, "Structural Engineers Emergency Response Plan and Services." Individuals who are interested in serving on this committee, and or serving as the committee chair should contact a member of the SEAU board.

PROFESSIONAL SURVEY

Dear SEAU Members,

As the chief editor for CE News magazine, I'd like to invite you to participate in the fourth annual CE News salary survey! Your answers are completely confidential, and your response will help us prepare accurate information to help you determine what you should be making.

The results of the survey will be published in the May 2002 issue of CE News. The link to the survey is <http://www.cenews.com/salariesurvey.html>.

Thanks in advance for helping us to help you! The deadline is March 1, 2002 – so please complete the survey today!

Cordially,
Shanon Fauerbach, P.E.
Chief Editor
CE News and Structural Engineer

SEAU MEMBERSHIP APPLICANTS

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

Larry Rasmussen – Professional
Tim Nordstrom – Associate
Matt Jackson – Associate
Warren Lucas – Associate

CONTACT SEAU

For any information concerning the Structural Engineers Association of Utah or association activities, contact:



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MARCH 2002 GENERAL MEMBERSHIP MEETING

SEAU PRESENTS:

STRUCTURAL WELDING PROGRAM

Presented by:

Robert E. Shaw Jr., P.E.

President

Steel Structures Technology Center

Thursday March 21, 2002

5:30 p.m. Social

6:00 p.m. – 7:30 p.m. Meeting and Presentation

University of Utah

Engineering and Mines Classroom Bldg. Room 103 or 104

(There is no meeting in February)

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