SEAU *NEWS*

The Newsletter of the Structural Engineers Association of Utah

Volume VII- Issue VI March 2003

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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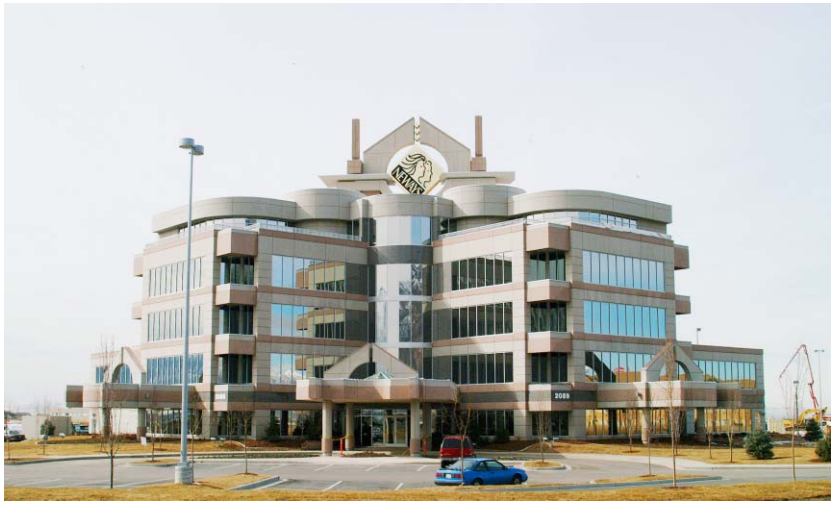

New Ways Executive Office Building, Springville, Utah. Structural steel design and fabrication by Gem Buildings.

IN THIS ISSUE

MARCH EVENT

CMU Design Seminar

Presented by:
Dale Yarborough P.E.

Program Date:
Wednesday, March 12, 2003
8:00 a.m.-5:00 p.m. Program

Location:
Residence Inn
Marriott-City Center
285 W. Broadway (3rd South),
Salt Lake City, Utah

Registration:
FREE!

MESSAGE FROM THE BOARD

STAYING ON TOP OF THE BUILDING CODE

By Carl Eriksson,
SEAU UEC Delegate Elect

In the January Issue of the Newsletter, Barry Arnold covered the issue of peer review from the design engineer's point of view. In February, Jeff Miller discussed the need for a consciousness and awareness of the state amendments to the *International Building Code*®. Both of these topics are close to home for me, as my daily work centers around peer review and the building code. On a daily basis, I am reviewing work done by many of you, and finding that most of the structural engineering work being done is very responsible and thorough. Although I usually find a few items that need correction or at least an explanation, it is rare that I come across work that raises concern about the competence of the design professional.

Most engineers seem to welcome a problem being drawn to their attention – I certainly would! And Barry's article reminded me of the responsibility that I have as a peer reviewer to not impose my design preferences on the designer. The corrections or questions that I raise must be meaningful, that is, they should result in the correction of a

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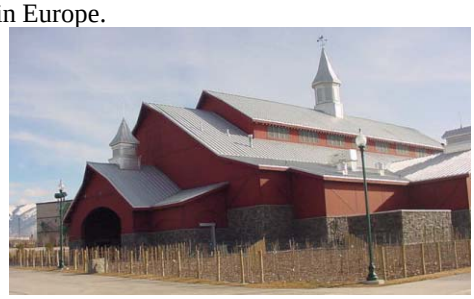
MEMBER FORUM

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:

Mountain View Engineering, Inc.

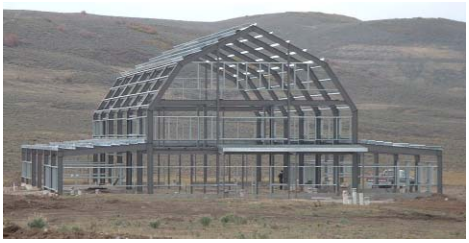
Mountain View Engineering, Inc. was incorporated in 1993 by James Moore and is located in Brigham City. It has grown over the past ten years from a one-man operation to 3 engineers, 6 draftsmen and several clerical personnel. The engineers, James Moore, S.E., Brad Wallace, P.E., and James Knight, EIT, are all members of SEAU. Mountain View Engineering's projects are primarily industrial and commercial with some residential design. The company does work in all western states, including Alaska and Hawaii, Samoa, Guam, western Canada and a few projects in Europe.



Thanksgiving Point "Barn"

This building is a 35,000 square foot theater, which includes 120' clear span steel scissor truss moment frames and a clerestory area above the main frames. The building includes a 50' bay between two of the scissor truss frames to accommodate the stage area. Due to the varying roof slopes and directions, it was necessary to use steel framing overbuild areas. Joists in these areas bear on or hang from the joists running in the opposite direction.

Ed Rogers Barn is a summer home located east of Park City in Summit County. The design roof snow load is 90 psf. The home is 50 feet wide by 120 feet long with 20-foot by 120-foot lean-tos on each side. The home has a second floor with lofts above at each end. The owner wanted a "barn" look and clear spans with no interior



Ed Rogers Barn

columns on the upper floor of the home, so gambrel shaped steel moment frames were used.

Spudnik Manufacturing Plant Addition and Office

Spudnik is located in Blackfoot, Idaho. They manufacture equipment for planting, harvesting and handling potatoes. Recently Spudnik merged with Grimme, a German company, which is the largest manufacturer of food processing equipment in the world. The plant addition is 150 feet wide by 340 feet long. To accommodate the under-hung crane system required in the building, single-slope Vulcraft joist-girders were used in the two span steel moment frames. The addition is designed to accommodate future expansion at one side. At the connection of the new addition to the existing building, the manufacturing operations required 50' wide openings through the existing wall. Since standard metal building frames were used at 25 feet on center, it was necessary to design portal frames which would support the rafters and allow the existing sidewall columns to be removed.

Russbourough Home

This is a three story, 20,400 square-foot home located in Bountiful. The lower story walls are concrete tilt-up panels and the floor framing is composite steel open web joists. The upper story walls and roof are wood framing. There are 30 tons of steel joists used in the home.

MESSAGE FROM THE BOARD (continued from page 1)

substantive error that could have lead to personal injury or death, or unnecessary loss of property, if uncorrected. Otherwise my credibility as a peer reviewer is diminished, and the welcome mat that is usually extended could be withdrawn.

I like to make a thorough review of the special inspection requirements that should be imposed. Sometimes the special inspections recommended by the design professional go a little farther than is necessary, and sometimes they fall short, and I will usually make some suggestions to the building official. But the most difficult area is to adequately communicate the special inspection requirements to the contractor. The IBC has included a new section (that some of us have never seen before) to deal with this issue. It is Section 1705, Quality Assurance for Seismic Resistance. In Section 1705.2 it specifically requires the preparation of a Quality Assurance Plan by the design professional. It should "identify the following:

1. The designated seismic systems and seismic-force-resisting systems that are subject to quality assurance in accordance with Section 1705.1.
2. The special inspections and testing to be provided as required by Sections 1704 and 1708 and other applicable sections of this code, including the applicable reference standards referred to by this code.
3. The type and frequency of testing required.
4. The type and frequency of special inspections required.
5. The required frequency and distribution of testing and special inspection reports.
6. The structural observations to be performed.
7. The required frequency and distribution of structural observation reports."

This kind of a plan can usually be prepared in about one or two pages, and probably can be "boiler-plated" to allow for minor adjustments from project to project. The implementation of this simple code requirement could lead to substantial improvements in the quality of work on the structures we design.

Another code requirement that is useful for this purpose is the next section, Section 1705.3, which requires the contractor to submit a Statement of Contractor Responsibility indicating that he/she is aware of the special requirements in the quality assurance plan, that he/she will exercise control to conform to the requirements, that he/she has established procedures to implement these requirements, and identifying, by name, qualification and position, who is responsible to make it all happen. These requirements came about through a national code change process that leads to better and more useful and usable codes.

SEAU has grown to a large enough size that we should be able to make our presence felt in the national code development process. While the time for submitting code changes in the current cycle ends on March 24, you will find a number of submittals from the ICC chapters here in Utah. Over the next few months we (SEAU) should have two objectives in this area:

1. Review the structural code changes that are submitted, and be prepared to support or defeat them, as appropriate.
2. Look at what changes should be made in the codes, and work with the Association to develop and submit code changes on a national basis.

We have the expertise, and we can develop the power to have a significant influence in the national code change process.

There is also a continuing need for us to be involved in the statewide process, but very few of us are. As mentioned by Jeff Miller in his article, many of our own engineers are not aware of the state amendments to the IBC. Our April membership meeting will include a discussion of these amendments. There are actually at least 38 different changes to the IBC that affect us as structural engineers. That number may seem higher than what you see on the state website, and that is because the state has also adopted the changes to Chapter 16 that appear in the 2001 Supplement to the IBC.

R156-56-701. Specific Editions of Uniform Building Standards.

(1) In accordance with Subsection 58-56-4(3), and subject to the limitations contained in Subsection (6), (7), and (8), the following codes are hereby incorporated by reference and adopted as the construction standards to be applied to building construction, alteration, remodeling and repair and in the regulation of building construction, alteration, remodeling and repair in the state:

(a) the 2000 edition of the International Building Code (IBC) as modified by

Chapter 11 *and Chapter 16 of the 2001 edition of the Supplement to the International Building Code*, promulgated by the International Code Council, and amendments adopted under these rules together with standards incorporated into the IBC by reference, including but not limited to, the 2000 edition of the International Energy Conservation Code (IECC) promulgated by the International Code Council and the 2000 edition of the International Residential Code (IRC) promulgated by the International Code Council shall become effective on January 1, 2002; (see http://www.dopl.utah.gov/licensing/statutes_and_rules/R156-56.pdf, emphasis added).

This supplement, published by the International Code Council, seems to be out of print, but it includes changes in definitions, changes in wind design, changes in alterations and additions to existing buildings, and changes in seismic design criteria, including Table 1617.6. I have contacted ICC to get approval to reproduce the applicable portions of the supplement, and hope that it will soon be available to all of us. All of these changes, along with the 2002 supplement, will be included in the 2003 edition of the IBC, which should be available as of this publication date. The state is currently targeting January 1, 2004 as the effective date of the 2003 IBC, but that will depend on many factors, including our involvement with review and recommendations. When that code is adopted, many of the state amendments will go away, and we will have a more readily available document to use to carry out the important services that we provide.

BULLETIN BOARD

SEAU MEMBERSHIP APPLICANTS

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

1. David H. Fotheringham - Professional
2. Ming Ming Jaing - Professional
3. Kent Reimschussel - Professional
4. Oliver Wood - Professional

THIS SPACE FOR RENT

The newsletter is an excellent forum to target a very select group of professionals for advertising. To find out more, contact:

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Salt Lake City, UT 84105
Phone: (801) 486-3883 Fax: (801) 485-0911
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UPCOMING EVENTS

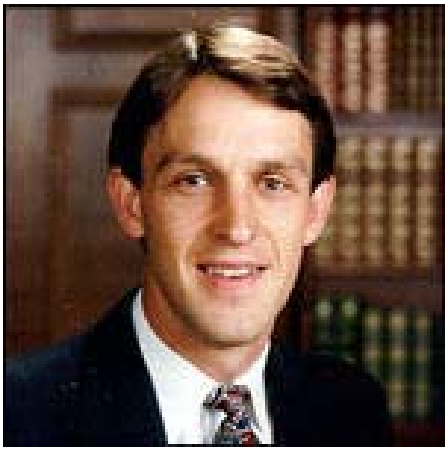
The Intermountain Chapter of ACI
45th Annual Concrete Conference
March 7, 2003
Eccles Conference Center
Utah State University
Logan, Utah
Featured Speaker is:
Terence C. Holland, President of ACI
Registration Fee: $45.00
Call 1-800-538-2663 or 435-797-0423 for more information and to register.

Simpson Strong-Tie Company Inc.
2003 Connector Workshop
March 18, 2003
Hilton Salt Lake City Center
255 South West Temple
Salt Lake City, Utah
Registration is Free
Call 1-800-99-5099 for more information and to register.

BULLETIN BOARD

BULLETIN BOARD EDUCATOR FEATURE

Each month for the next several months, SEAU NEWS will highlight a Structural Engineering educator from one of Utah's engineering schools. This month's feature is on:



DR. KYLE M. ROLLINS

Dr. Kyle M. Rollins has been a professor of Civil and Environmental Engineering at Brigham Young University since 1987. Although Dr. Rollins' expertise lies primarily with geotechnical engineering, his contribution to the work we do as structural engineers has been significant. Dr. Rollins is involved in soil hazards research related to earthquake shaking and collapsible soils. In the area of earthquake hazards, he has investigated soil amplification of earthquake shaking and the ability of existing computer codes to predict seismic response of soft soil sites in the San Francisco Bay area subjected to the 1989 Loma Prieta earthquake. The knowledge gained from ground response studies in California was then applied to earthquake shaking investigations in Utah. Generalized maps showing the potential for building damage were recently prepared for the Salt Lake Valley. Dr. Rollins has also been instrumental in the preparation of collapsible soil hazard maps, particularly in southern Utah. He has played a key role in the development of damage potential index mapping for the Salt Lake Valley. Many geotechnical engineers in Utah reference his work and research in preparation of geotechnical reports that we as structural engineers use in design.

Professor Rollins received his B.S. from Brigham Young University in 1982. He graduated Summa Cum Laude with the highest GPA in the history of the Civil Engineering Department (3.99 on 4.0 scale). He received his M.S. from BYU in 1983 and later received his Ph.D at U.C. Berkeley (1987).

Dr. Rollins has taught graduate and undergraduate courses in Geotechnical engineering receiving excellent teacher ratings. He has performed research with 42 graduate students related to geotechnical earthquake engineering, deep foundation capacity, and collapsible soil hazard identification and mitigation. His research projects are many and the publications to his credit are too numerous to list.

Professor Rollins is actively engaged in his profession and participates in many noteworthy societies including: Universities Council on Geotechnical Engineering Research-Board Member/Treasurer, American Society of Civil Engineers (ASCE), Member of ASCE Specialty Committee on Soil Improvement and Geosynthetics, Earthquake Engineering Research Institute (EERI), International Society of Soil Mechanics and Foundation Engineering (ISSMFE), International Association of Engineering Geology (IAEG), Tau Beta Pi & Phi Kappa Phi

Dr. Rollins' contributions as a researcher and an educator are noteworthy. Honors to his credit include: Utah Engineers Council Engineering Educator of the Year 2000, ASCE Walter Huber Research Prize in 1999, ASCE Utah Engineering Educator of the Year 1999, ASCE Arthur M. Wellington Prize in 1996 for his paper in the Journal of Geotechnical Engineering (Society-wide Prize), two papers listed among top ten in the ASCE Journal of Geotechnical Engineering during 1993-1994 and 1994-1995, ASEE-DOW Chemical Outstanding Young Faculty Award in 1991, and ASEE-Navy Fellowship 1990.

SEAU News is proud to feature Dr. Rollins in this month's newsletter and offers its gratitude to him for having such a positive influence over structural engineers educated at Brigham Young University.

If you had an engineering professor at BYU, the U of U, or USU that you believe should be recognized in *SEAU NEWS*, please contact the SEAU Newsletter committee or send and email to jjohnson@reaveley.com.

SEAU Presents in conjunction with the Utah Masonry Council:

EFFECTIVE & EFFICIENT MASONRY DESIGN

Wednesday, March 12, 2003

Presented by:
Dale Yarbrough P.E.

Morning Session: 8:00 a.m. – 12:00 p.m.
Effective and efficient masonry design including IBC code issues
Afternoon Session: 1:00 – 5:00 p.m.
Architectural detailing, movement and control joints

- The morning session focuses on engineering issues while the afternoon session is geared more toward architectural issues, but with enough crossover information to be of interest to both engineers and architects.
- Lunch will be provided 12:00 – 1:00 p.m. for registrants who attend both the morning and afternoon sessions.

Location:
Residence Inn by Marriott-City Center, 285 W. Broadway (3rd South), Salt Lake City, Utah 84101, 801-355-3300.

Registration is FREE!
Call the Utah Masonry Council (801)-486-7200 or email aleta@utahmasonrycouncil.com to reserve your place.

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