



SEAU NEWS

The Newsletter of the Structural Engineers Association of Utah

Volume III- Issue VIII May 1999

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.

If you wish to submit articles for publication, please contact: Scott Adan, the Editor at (801) 486-3883 or

E-mail sadan@reaveley.com



The Broadway Centre Parking Garage, Downtown Salt Lake City, Utah., Structural Design By Brickey Design Associates.

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MAY EVENT

SEAU Presents:
***“Errors and Omissions:
Case Histories For Structural
Engineers”***

Meeting Date:
Thursday, May 20, 1999
5:30 p.m. Social
6:00 p.m. Meeting & Presentation

Presented By:
Dan Bradshaw, American
Insurance and Investment Corp.

Location:
University of Utah
Engineering and Mines Bldg.
Room: 102
Salt Lake City, Utah

MESSAGE FROM THE BOARD

PRESIDENT’S MESSAGE



By Kelly Calder, SEAU President

Wow, its amazing how fast a year goes by. I look back and it seems almost like yesterday when I was sweating about goals, programs, committees, etc., and now the years gone. And as is usually the case, expectations are not totally met, many objectives embarked upon but unfinished, and a scattering of goals, thankfully, accomplished. I had several ideas about final topics for my last newsletter article for the SEAU year but I decided to avoid discussing any specific topics of immediate concern and simply make a few observations.

SEAU is a great organization with a fine group of people involved in its activities. I feel very fortunate I got to interact with so many of you this year. There are many important functions the organization does for all members of the association as well as all other practicing structural engineers, and it is important that each of us gets involved and lend a hand.

My observation is that a typical individual spends more of their time working in their profession than any other single activity. And I'll submit that participation in SEAU is the most effective way to have a personal and lasting impact on your profession; and therefore it's a no-brainer it seems to me – we should all get involved. And of course many of you do. I think the activity in the organizations committees has stepped up a notch this year, and I thank those of you who offered your time and effort to assist. Let's keep the momentum going.

And thanks for giving me the opportunity to serve as president this year; I've enjoyed it thoroughly. Have a good summer, and we'll see you next fall. And here's a few closing thoughts to consider this summer - - -
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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:

ARW Engineers

ARW Engineers is a Structural Engineering Firm located in Ogden, Utah. They were originally founded in 1969 as Adamson Engineering by George Adamson. In 1972, Kent Rich joined with George. Then, in 1987, when Brent White became a partner, the name was changed to ARW Engineers. ARW currently has a staff of 11 Engineers.

ARW provides services for a wide spectrum of building types. They have designed several food processing facilities, dairies, and other large industrial complexes. ARW is also involved in large retrofit projects that include seismic upgrades. In addition to the normal work of office buildings, housing projects and commercial centers, they also design specialty structures such as roller coasters and testing machines for rocket motors. Several recent ARW projects include:

Brigham Apartments (pictured in the April SEAU newsletter)

This apartment building on South Temple is aptly named, as it is located within a stones throw of Brigham Young's grave. The structure consists of 2 separate buildings connected by elevated walkways, 8 stories of apartments

(post-tensioned), and over 2 levels of parking (cast-in-place conventional concrete). Some shear walls were discontinued at the parking levels, requiring large columns to resist amplified axial loads at the boundary elements. The foundation system is spread footings.

Malt-O-Meal Production Facility



This new cereal manufacturing facility is located in Tremonton, Utah. It consists of a large production building, a warehouse,

maintenance building, office building and other miscellaneous structures, including a bin farm. This facility is being constructed with the intent of expansion in several directions. This required assumptions and engineering judgement in order to allow expansion without disruption of the existing functions. The owner requested the use of pre-cast concrete structural elements because of deadline issues. In addition to seismic concerns, the structure is subject to severe heat processes (for treatment of bacteria and pests), which require detailing that allows the building to expand and contract, yet still provides adequate lateral resistance.

Weber County Convention Center and Egyptian Theatre Remodel



ARW was responsible for the complete investigation and detailing of the seismic upgrade for the existing concrete building and the addition of a theatrical production stage. The theater is part of the 140,000 square foot David Eccles Conference Center in downtown Ogden. Because of the historic nature of the building, the seismic upgrade had to be basically invisible. That included the stabilization of 40 ft. tall unreinforced clay tile walls that could not be altered. The structural unreinforced concrete

walls and stone foundations required a lot of epoxy and gunite.

Santee Dairies



This dairy was the largest dairy process facility in the country when it was finished in 1998. Located in Zone 4, in the City of Industry in California, this was a very

complex tilt-up building. The structural layout and systems were dictated by the process function and equipment. Adding to the difficulty, the structural shell had to be complete long before the final process and mechanical/plumbing drawings were complete. Close coordination with the contractor (including weekly visits to the job site for nearly a year) allowed

the use of the concrete tilt-up panels while maintaining structural integrity as well as providing the clean finished surface desired by the owner.

Kent Rich, President of ARW, and Brent White, Vice President, have both served as President of SEAU, as well as serving on the Board. David Pierson, a principal with the firm, has served as Technical Committee Chairman since 1994. Barry Arnold, a principal with the firm, has served in the past on the Technical Committee.

MESSAGE FROM THE BOARD (continued from page 1)

Dear ladies and gentlemen of the SEAU class of '99: WEAR SUNGLASSES! - - - If I could offer you only one tip for the summer "sunglasses" would be it! The social benefits of wearing sunglasses can be convincingly demonstrated by catching any Don Johnson or Tom Cruise action flick, where as the rest of my advice has no basis more reliable than my own miserable existence - I mean meandering experience. I will dispense this advice NOW.

Enjoy a relaxing summer - - or never mind, you won't have a chance to relax this summer until its over - too many ridiculous deadlines - an exasperating result of the indecisiveness of others during the spring forcing panic design schedules all summer. But trust me, in 4 months you'll look back in a exhausted funk you can't imagine now, with envy at the opportunities lost and mild contempt for those who have taken them.

- - You are NOT as overwhelmed as you think. Don't worry about deadlines, or worry but know that

worrying is about as effective as trying solve that nonlinear pushover analysis using your father's slide rule (actually its your slide rule but you hate admitting you own one). The real troubles in your life are apt to be some unfortunate design omission that never crosses your weary mind until the project is well under construction - the kind that rocks you at 4:00 am on some restless Tuesday, jolting you from your slumber in an electrified panic.

- - Spellcheck. Accept certain inalienable truths - fees are invariably too low, clients are incessantly demanding, and you too will luckily, someday retire. And when you do, you will fantasize that fees were reasonable, clients were satisfied, and you too had a commanding grasp of the Code.

- - Defrag. DANCE - - even if it's only in your imagination. Dancing to most engineers is as fundamentally foreign as honesty is to politicians - a good idea but effectively impossible to achieve. Strive to be an exception.

DO NOT read computer science magazines - they will only make you feel stupid. DO NOT read software manuals - they are exhaustingly confusing, contradictory, and utterly useless.

- - Fish. Forget about Y2K. It's only a software industry conspiracy to sell you a new program. Travel to southern Utah once, but leave before it gets too hot. Travel to the Vegas strip, but leave before your hand gets too cold.

VOTE - your SEAU ballot has been mailed. Be kind to your CADD operators. They're undoubtedly saving your bacon more often than you are willing to admit. Get to know your contractor - he too may save your bacon. You never know when that errant specification for 1- 1/2" diameter bolt slips by everyone when it should have been 1 1/2".

- - - - But trust me on the sunglasses!!!..

BULLETIN BOARD

NEW SEAU MEMBERSHIP APPLICANTS

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

Mark Johnson, Associate
Fraser Macphee, Affiliate

SEAU ELECTIONS

Before May 1 all PROFESIONAL grade members received a ballot listing the nominees for the various SEAU offices. The signed ballot shall be sealed and returned to the Association office before noon of the day of the regular meeting in May. The ballot shall then be

counted and those receiving the highest votes shall be declared elected at the May meeting. Remember to vote!

CLASSIFIED

STRUCTURAL ENGINEER

Established architectural firm with in house structural engineering department seeking engineer with minimum 8 years experience in structural design of buildings in seismic zones 3 and 4. Bachelor's degree in architectural or civil engineering and professional registration preferred. Work includes framing concept, engineering calculations, and

supervision of engineering and drafting staff through design and construction. Competitive salary and benefit package, friendly office environment bayside in San Diego's Gaslamp District. Reply in confidence to SLA, Attention: M. Romanowski, 363 5th Ave, #300, San Diego, CA 92101

CLASSIFIED

STRUCTURAL DESIGN ENGINEER

Reaveley Engineers & Associates seeks structural engineers to be part of our consulting team. If you enjoy challenges, are self-motivated, have excellent verbal, writing and computer skills, and would like to work on large scale,

high profile projects. We would like to talk to you. Three years or more building experience in structural engineering is preferred. Salary commensurate with qualifications. Send resume to:
Reaveley Engineers & Associates
1515 South 1100 East
Salt Lake City, Utah 84105
attn: Parry Brown FAX: 485-0911,
E-mail pbrown@reaveley.com

NEWLETTER MILESTONE

The newsletter committee is pleased to announce the final newsletter of the 1998-1999 year. Thanks for all your input and support! The next

issue will be printed in late August early September.

A special thanks goes out to Kevin Wright of Brickey Design Associates for supplying the wonderful newsletter cartoons over the year.

NEWLETTER 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 very 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.

Please have advertisements delivered to 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.

August Deadline: August 27, 1999

MAY EVENT

MAY MEETING & SEMINAR

Title: "Errors and Omissions: Case Histories for Structural Engineers"

Presented By:
Dan Bradshaw of American Insurance and Investment Corp.

Thursday May 20, 1999
5:30 p.m. Social
6:00 p.m. Membership Meeting & Presentation

Location:
University of Utah
Engineering and Mines Classroom Bldg.
Room: 102

Dan Bradshaw of American Insurance and Investment Corp. will be making a short presentation documenting case histories of litigation involving the structural engineering profession.

In addition at the general membership meeting the new SEAU officers for 1999-2000 will be announced!

PROFESSIONAL PRACTICES AND ETHICS COMMITTEE UPDATE

REPORT FROM THE PROFESSIONAL PRACTICES AND ETHICS COMMITTEE

by: **Jonathan W. Richards S.E., Chairperson**

This month we have included the following chart which outlines some "average" square footage costs for different types of buildings. This information was obtained from the International Conference of Building Officials publication of **Building Standards**, January-February 1999 publication. Please refer to that article for more specific information. These unit

costs, and many more listed in the article, were developed to comply with the definition of "valuation" as listed in the Uniform Building Code for determining permit/plan review costs.

The committee thought this information might be helpful to SEAU members when considering their next fee proposal. Often times it seems that our clients provide us with unreasonable (low), or inadequate budget information for determining a percentage of construction fee. Obtaining information such as this may help in determining what the actual value is and what potential liability we take on when designing these projects.

In the future we hope to provide more information such as this to help inform our SEAU members. If anyone has similar information they would like to share, please contact one of the committee members.

APPROXIMATE BUILDING COSTS

BUILDING TYPE	AVERAGE COST PER SQUARE FOOT ¹
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Apartment Houses	\$ 66 - 58
Churches	\$ 74 - 65
Hotels, Motels	\$ 79 - 68
Office Buildings	\$ 70 - 62
Public Buildings	\$ 95 - 83
Public Garages	\$ 34 - 26
Retail Buildings	\$ 56 - 44
Warehouses	\$ 31 - 25

¹These figures will vary depending on location, type, and occupancy of construction.

UPCOMING EVENTS

COMPOSITE MATERIALS DESIGN SEMINAR

Master Builders, Inc. along with Structural Preservation Systems and the University of Missouri at Rolla are pleased to announce a design seminar for composite materials (Carbon Fiber and E-Glass) used for strengthening and re-enforcement of Structural Concrete.

The Seminar will be held on June 9, 1999 at the Marriott University Park Hotel, Salt Lake City, Utah. A Continental Breakfast will be served at 8:00 a.m.; the Seminar will begin at 9:00 a.m. and finish at 12:00 noon. Continuing Education Credits will be given through the University of Missouri at Rolla, Civil Engineering Department.

The primary goal of the seminar is to educate the structural engineering community on the principles of composite design and the introduction of the MBrace "System" by Master Builders, Inc. Engineers will be

given design guides with a number of design examples from actual projects completed over the past few years. Please Call Tom McNamee P.E. at 801-556-2819 to RSVP or if you have any questions. We look forward to seeing you on the ninth.

DESIGN OF CONCRETE BUILDINGS FOR EARTHQUAKE AND WIND FORCES SEMINAR

The Portland Cement Association and the Rocky Mountain Concrete Promotion Council will sponsor "Design of Concrete Buildings for Earthquake and Wind Forces." The one-day seminar will focus on the proper design and detailing of concrete buildings for earthquake and wind forces based on the provisions of the 1997 UBC. Major changes in the seismic design provisions of the code pertaining to concrete structures will be presented. Also, a summary of seismic detailing requirements for buildings located in our region. Mark October 7, 1999 if you would like to attend. For more information contact Vernal Jeppson at (801)254-6191.

SEAU MEMBERSHIP SURVEY

Many of us have seen salary surveys for structural engineers on a notional level but not on a local level. We thought it might be advantageous for SEAU to do a survey on a local level. Could you please take a few minutes and anonymously complete the following survey about yourself. Then mail back to STRUCTURAL ENGINEERS ASSOCIATION OF UTAH, P.O. BOX 58628, SALT LAKE CITY, UTAH 84158-0628 or fax to (801)-467-2495. If desired you can bring this survey to the next SEAU meeting:

What was your annual salary for 1998? _____
 Additional 1998 income (bonuses, OT, etc.) _____
 What is your level of education? _____
 Registration? (EIT, PE, CSE) _____
 Years of Experience? _____
 How big of a raise did you receive in 1998? _____

How many employees are in your firm? _____
 What is your position? (Staff/Design Engineer, Project Manager, Owner/Principal) _____
 What is your desired salary? _____
 Do you feel you are making the median salary for those in your field? _____

What are three things that you feel is right with our profession?
 What are three things your feel is wrong with our profession?
 The following is for owners/principals only. Please only have one owner/principal in each firm complete the following.

If you are a principle in a firm, would you be kind of enough to fill in the following survey.

ENGINEER
 Experience Hourly Billing Rate
 0 to 2 years _____
 2 to 4 years _____
 4 to 6 years _____
 6 to 8 years _____
 8 to 10 years _____
 10 plus years _____

Principle _____
 CADD OPERATOR
 Experience Hourly Billing Rate
 0 to 2 years _____
 2 to 4 years _____
 4 to 6 years _____
 6 to 8 years _____
 8 to 10 years _____

10 plus years _____

What do you pay an engineer right out of school with a BS? _____ with a MS?

What percentage of work does your firm do on an hourly rate? _____

What percentage of work does your firm do based upon cost of construction? _____

What other methods does your firm use to determine project proposals?

What percent of your billings is for the following?

Architects _____ Owners _____ Designers (Unlicensed) _____

Contractors _____ Developers _____

Fabricators, manufacturers equipment suppliers _____ Other (specify) _____

Are you ever the Prime Consultant? _____ If so, how often? _____

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For additional questions call:
Newland Malmquist (801) 972-2634

STRUCTURAL ENGINEERS ASSOCIATION OF UTAH

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