



CONNECTIONS

In Brief

March 2013 Volume 13 Issue 6

Newsletter of the
Structural Engineers
Association of Oregon

SEAO

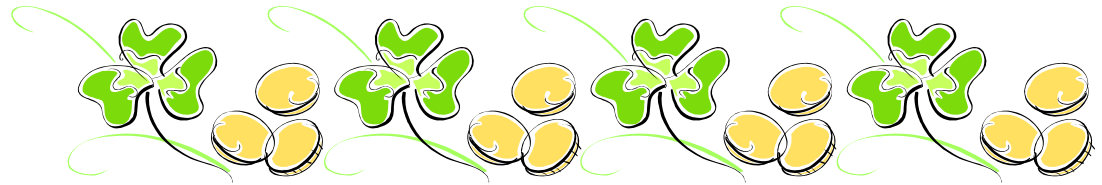
9220 SW Barbur Blvd.
No. 119
PMB #336
Portland, OR 97219

Phone: (503) 753-3075

Fax: (503) 214-8142

E-Mail: jane@seao.org

Web site: www.seao.org



Upcoming SEAO Meetings and Events:

Tuesday, April 2, 2013: SEAO Spring Seminar

Topic: ATC-20 Procedures for Post Earthquake Safety Evaluation of Buildings

Speakers: Ed Huston, PE, SE, Principal, Smith & Huston, and Andy Stember, PE, SE, JAS Engineering

Location: The Abernethy Center, 606 15th Street, Oregon City, Oregon

Time: Registration opens at 7:30 am, Seminar from 8:30 am to 4:45 pm (lunch is included)

PDH Credits: 6 PDHs

See Pages 7 and 8 for additional information and sign-up forms.

Thursday, April 4, 2013: SEAO YMF Happy Hour

Location: The Green Dragon Bistro & Brew Pub, 928 SE 9th Avenue, Portland, Oregon

Time: 5:30 to 7:30 pm

See Page 5 for additional information.

Wednesday, April 24, 2013: SEAO Dinner Meeting

Speaker: Kimberley Robinson, S.E., Chief Engineer, Star Seismic

Topic: Advances in Buckling Restrained Braced Frame Design

Location: Governor Hotel, Second Floor, Portland, Oregon

Time: 5:30 pm check-in & social, 6:15 pm dinner, 6:30 program

Sponsored by: American Institute of Steel Construction (AISC)

Wednesday, May 29, 2013: SEAO Dinner Meeting

Speakers: Trent Nagele, PE, SE Principal, VLMK Consulting Engineers & Ed Quesenberry, PE, SE, Principal, Equilibrium Engineers, LLC

Topic: Oregon Seismic Resiliency Plan

Location: Governor Hotel, Second Floor, Portland, Oregon

Time: 5:30 pm check-in & social, 6:15 pm dinner, 6:30 program

Sponsored by: Contech Services, Inc.

Wednesday, June 26, 2013: SEAO Dinner Meeting

Speaker: Ed Wortman, Semi-Retired, Multnomah County Bridge Section

Topic: Sellwood Bridge Move

Location: Governor Hotel, Second Floor, Portland, Oregon

Time: 5:30 pm check-in & social, 6:15 pm dinner, 6:30 pm program

Sponsored by: Basalite Concrete Products, LLC

IN THIS ISSUE: PAGE

- A Snapshot of the 49th Annual Portland Engineer's Week 2
- SEAOSF Tradeshow Recap & Upcoming Seismic Events 3
- IBC Q & A 4
- Young Member Forum Activities & Job Opportunities 5
- Board Retreat Recap 6
- Spring Seminar Info 7-8

CONNECTIONS is a monthly publication of the Structural Engineers Association of Oregon, published to disseminate current news to our membership and others involved in the profession of structural engineering. The opinions expressed reflect those of the author and, except where noted, do not represent a position of SEAO.

Send membership inquiries to:

9220 SW Barbur Blvd.
No. 119
PMB #336
Portland, OR 97219

BOARD OF DIRECTORS

President

Aaron Burkhardt
KPFF Consulting Engineers
Ph: 503.227.3251
Aaron.burkhardt@kpff.com

Vice President

Amit Kumar
Bureau of Development Services
City of Portland
503.823.7561
Amit.Kumar@portlandoregon.gov

Secretary

Jennifer Eggers
Degenkolb Engineers
Ph: 503.223.9932
jegg@degenkolb.com

Treasurer

Shelly Duquette
City of Portland
Ph: 503.823.4961
Shelly.Duquette@portlandoregon.gov

Director

Don Ellsworth
Contech Services, Inc.
Ph: 503.223.9817
Don@Contechservices.com

Director

Jason Thompson
KPFF Consulting Engineers
Ph: 503.277.3521
Jason.Thompson@kpff.com

Past President

Ed Quesenberry
Equilibrium Engineers LLC
Ph: 503.636.8388
edq@equilibriumllc.com

Executive Secretary

Jane Ellsworth
SEAO Staff
Ph: 503.753.3075
Fax: 503.214.8142
jane@seao.org

A SNAPSHOT OF THE 49TH ANNUAL PORTLAND ENGINEER'S WEEK

By: Michelle Chavez



SEAO endorses Engineer's Week as an opportunity to encourage, invigorate, and inspire the younger generation to seek engineering as a profession, while providing them the resources to make higher education a reality. This year, over 200 local engineers who sponsored more than 340 Portland-metropolitan area high school students attended the 49th Annual Engineer's Week High School Banquet on February 20th at the Lloyd Center Doubletree Hotel.

Students attended field trips around the area, viewed college and professional engineering displays, and participated in the evening banquet, which included exciting exchanges of questions and answers about the engineering profession with a host of engineers.

SEAO hosted a booth at the exhibit hall to educate students on structural engineering topics. Various props displayed materials that structural engineers regularly use as part of their professional calling, along with a range of pictures from projects designed by local chapter members. Students had the opportunity to embrace (literally) the characteristics of wood products, wide-flange sections, concrete core samples, light-gage steel truss models, panelized systems, reinforcing steel, as well as various connectors and fasteners.

This year's booth was attended by two SEAO members, Michael Johnson, an engineer in training, and CJ Marquardt, an associate engineer, of Miller Consulting Engineers. The interaction with the students went beyond single questions, as they lingered around the table to ask more probing questions of how structural engineers differ

from architects, how much math we truly rely upon in our designs, and how to learn more about job shadowing to get an even closer look at the structural engineering profession.

A highlight of the evening banquet came when the keynote speaker, Dr. Owen McCarty, Associate Professor of Biomedical Engineering at Oregon Health & Science University, reflected on how he utilizes his skill set as a chemical engineer in collaboration with other professionals in the medical field to advance knowledge of the human cardiovascular system as it relates to cancer markers.

SEAO hopes for a continued increase in membership participation in the years' coming events so as to further the multifaceted profession of structural engineering.

Thank you to all of the SEAO members for making this year's event a big success. We hope SEAO encouraged at least one young student to explore the many opportunities available in the intriguing world of structural engineering.

**Engineers
Week
2013**

SEAO Committees

Technical

Doug Meltzer
dougmb@bmgengineers.com

Seismic

Jason Thompson
jason.thompson@kpff.com

Wind

Jim Riemenschneider
jimr@vlmk.com

Snow Load

Andy Stember
andy@jasenginc.com

Code

Eric Watson
eric@miller-se.com

Vintage Building

Wade Younie
wyounie@dc-engineers.com

Emergency Response

Shelly Duquette
emergencyresponse@seao.org

Legislative

Paul Kluvers
pkluvers@gmail.com

Website

Aaron Stoeck
aaron.stoeck@kpff.com

Newsletter

JoMarie Farrell
jomarie@equilibriumllc.com

Monthly Meetings / Programs

David Gilroy
dgilroy@strongtie.com

Golf Tournament

Melissa McFeron
melissa@miller-se.com

Conferences

Kevin McCormick
kevin@miller-se.com

Young Member Forum

Seth Thomas & Phil Davis
stthomas@degenkolb.com
pdavis@degenkolb.com

Seminars

Andy Stember
andy@jasenginc.com

Engineers Week

Michelle Chavez
michelle@miller-se.com

NCSEA

Sue Frey
sfrey@ch2m.com

WCSEA/NWCC

Sue Frey
sfrey@ch2m.com

MASER, OBOA

Ron Vandehey
ron@miller-se.com

SEAO SCHOLARSHIP FOUNDATION ANNUAL TRADESHOW RECAP

This year's show was another great success. Thank you to all the participating vendors and attendees. This event provides a good deal of income to the scholarship fund in large part due to the continued support and participation of the vendors. This year's participating vendors included the following 28 vendors:



ASC Steel Deck
Boise Cascade
Commings Manufacturing
Contech Services
CoreBrace
D&R Masonry
Fabreeka International
Five Star Products
Galvanizers Company
Hardy Frames
Hilti
Knife River
LP Corp
Mason Supply Company

Powers Fasteners
Ram Jack
RedBuilt
RISA Technologies
Scafco Steel Stud
Simpson Strong Tie
SR Contractors
Star Seismic
TerraFirma Foundation
Ultrablock
Verco
Web Joist
Western Wood Structures
Weyerhaeuser Trus Joist

SEAO SCHOLARSHIP FOUNDATION

Please consider making a donation to the SEAO Scholarship Foundation. Each contribution, no matter how big or how small, helps to fund our annual awards. For the 2013-2014 year, the Board has approved awards up to a total of \$8,000 plus the annual award of \$500 added to the top scoring applicant to create the Don Kramer Memorial Scholarship. This additional amount was made possible entirely through contributions in memory of Don. SEAO SF is a 501(c)(3) charitable organization so your entire donation is tax deductible. A good guide to giving is one dollar for each year of practice. In some years, the foundation has received contributions from over 100 members. Contributions may be sent to:

SEAO Scholarship Foundation
9220 SW Barbur Blvd. #119, PMB#336
Portland, OR 97219

UPCOMING SEISMIC EVENTS

[ASCE Webinars \(www.asce.org\)](http://www.asce.org)
Friday April 12, 2013, 8:30 – 10:00 AM PST.
[Moment-Resisting Connections in Steel Structures](#)

[ATC Webinar \(https://www.atccouncil.org\)](https://www.atccouncil.org)
Wednesday April 3, 2013, 12:00 – 1:30 PM PST.
[Training Webinar on FEMA P-807, Seismic Evaluation and Retrofit of Multi-Unit Wood-Frame Buildings.](#)

2009 IBC STRUCTURAL Q & A—SECTION 1807.2 RETAINING WALLS

By: ICC Staff.

1807.2 Retaining walls. Retaining walls shall be designed in accordance with Sections 1807.2.1 through 1807.2.3.

1807.2.1 General. Retaining walls shall be designed to ensure stability against overturning, sliding, excessive foundation pressure and water uplift. Where a keyway is extended below the wall base with the intent to engage passive pressure and enhance sliding stability, lateral soil pressures on both sides of the keyway shall be considered in the sliding analysis.

Q: There has been a significant change in the retaining wall provisions of the 2009 IBC, and we have had difficulty in interpreting the keyway requirements in this section. If a keyway is used to enhance sliding resistance (increase passive pressure), the code now requires consideration of pressures on both sides of the keyway. And our interpretation of this change is that there is a need now to consider active pressure on the keyway side. Can you please clarify how we consider the active pressure? Does the active pressure triangle start at grade and extend all the way down to the bottom of the keyway, or are there two active pressure triangles, one from grade to the bottom of the footing and then another extending from the bottom of the footing to the base of the keyway?

A: The intent of Section 1807.2.1 is to require the designer to consider the active as well as passive pressure on both sides of the keyway. The active pressure is triangular and extends from grade to the bottom of the key. In addition to the passive pressure, the resistance to sliding can also include the frictional resistance provided by the dead weight of the wall and the soil overlying the base, which may also include the soil located on the toe side of the keyway. Design pressures may be calculated based on:

- 1) Lateral pressure values given in Table 1610.1 and resistance values given in Table 1806.2, or
- 2) The specific recommendations of an approved geotechnical report.

In the case of a geotechnical report, the following design considerations raised by the proponent may be considered for approval by the building official, when recommended by a geotechnical engineer:

- 1) Omitting the driving pressure on the keyway when located in rock.
- 2) Allowing an increase in active and passive pressures based on the vertical pressure imposed on the bottom of the wall base.
- 3) Omitting or reducing the driving force on the keyway when placed some distance back from the heel.

For a sloped condition, the active pressure for sliding (and overturning) is taken at the vertical plane extending from the bottom of keyway to grade and located at the heel of the wall. [18-23]

This question and answer are from the *2009 IBC Q&A Structural Provisions*. The question is a commonly asked question which arises in the application of code provisions during design and plan review. The IBC section is reprinted for easy reference, followed by the question and answer pertaining to that section. The *2009 IBC Q&A Structural Provisions* is available at iccsafe.org/store. Use ID # 4003S09.



The applications and illustrations published herein are those of the ICC staff and are not binding on the authority having jurisdiction. The authority having jurisdiction has the ultimate responsibility for rendering interpretations of the code.

YOUNG MEMBER FORUM ACTIVITIES

By: Phil Davis & Seth Thomas

Thursday April 4th - Happy hour from 5:30 to 7:30 pm at The Green Dragon Bistro and Brew Pub at 928 SE 9th Ave. Bring a friend, co-worker, or both and come enjoy a beer and some food while getting to know some other young professionals in our area.

Galvanizers Tour a Success: The YMF had a very interesting and informative tour of the Galvanizers Company on February 21st. Thanks to everyone who was able to attend and to the Galvanizers Company for allowing us the opportunity to tour their facility. Check back soon for additional tours the YMF will be hosting.

YMF Website Info: YMF now has an updated website and the address is <http://www.seao.org/committees/youngmembers/>. Please visit our website for more information on YMF events and information.

EMPLOYMENT OPPORTUNITIES

Consulting firm seeks Structural Engineer with at least 4-6 years of experience in commercial design. P.E. required, S.E. preferred. Competitive salary and benefits package, including 401k and profit sharing. Send resume to T.M. Rippey Consulting Engineers, 7650 SW Beveland St., Tigard, OR 97223, or email to admin@tmrippey.com.

Founded in 2012, **Lund Wright Opsahl** provides a balance of innovative structural design with tried and true engineering that gives clients the constructible, cost-effective structural solutions to meet or exceed their needs. We have assembled a team of professionals with a shared commitment to excellence in structural engineering and client satisfaction, and are currently looking for a new addition to the team.

We are looking for a **Senior Structural Engineer**. The ideal candidate will be an SE, will have ten to fifteen years of engineering experience and will have a demonstrated ability to manage project and staff. Excellent communication skills are a must; you will be providing guidance to staff engineers, as well interacting with clients. Salary DOE. This is a permanent, full-time position.

Please send your resume, salary requirements, and references to: Lund Wright Opsahl LLC, 1201 1st Avenue South, Suite 310, Seattle, WA 98134 or email to: info@lwo-se.com.

EMPLOYMENT OPPORTUNITIES (CONT.)

VLMK Consulting Engineers is seeking a **structural engineer** with 3 to 7 years of structural engineering experience in the design of wood, concrete, masonry, and steel structures. Candidate should be articulate and self-motivated, have good verbal and written communication skills, be organized, and be able to adequately prioritize multiple projects simultaneously. Proficiency in AutoCAD is required. PE license and proficiency with BIM/Revit is preferred, but not required.

VLMK is a well established civil/structural firm with broad project experience and client base located in Portland, Oregon. In addition to competitive salaries, we offer excellent medical, dental, and vision insurance with flexible benefits/cafeteria plan and health reimbursement arrangement. Our compensation package includes generous incentive bonuses, profit sharing and 401k plans, paid holidays and sick leave, free on-site parking, and company funded SEAO membership and professional development education opportunities/seminars.

Submit resume, summary of project experience, references, and salary requirements to Kevin M. Kaplan (see below).

VLMK Consulting Engineers is seeking a **senior level CAD drafter** with structural engineering experience in wood, concrete, masonry, and steel structures. Architectural and civil engineering experience is preferred, but not required. Candidate should be articulate and self-motivated, have good verbal and written communication skills, be organized, and be able to adequately prioritize multiple projects simultaneously. Proficiency in AutoCAD is required. Proficiency with BIM/Revit is preferred, but not required.

VLMK is a well established civil/structural firm with broad project experience and client base located in Portland, Oregon. In addition to competitive salaries, we offer excellent medical, dental, and vision insurance with flexible benefits/cafeteria plan and health reimbursement arrangement. Our compensation package includes generous incentive bonuses, profit sharing and 401k plans as well as paid holidays and sick leave and free on-site parking.

Submit resume, summary of project experience, references, and salary requirements to:

Kevin M. Kaplan, P.E., S.E.
Principal
VLMK Consulting Engineers
3933 SW Kelly Avenue
Portland, Oregon 97239-4393

SEAO BOARD RETREAT “FISHCAMP”

By: Jennifer Eggers, Secretary

On a beautiful weekend in early October, the 2011-2012 outgoing SEAO board and the 2012-2013 incoming SEAO board held a retreat at “Fishcamp”. Hosted, at no cost to SEAO, by Mike Bair, a fellow SEAO member, and Bill Voss, the retreat was an opportunity for the outgoing board to educate the incoming board and to discuss the board activities for the year ahead. There were five of us that were able to attend the wonderful



fishing retreat: Ed Quesenberry, Amit Kumar, Kevin Kaplan, Michelle Chavez, and Jennifer Eggers.

Fishcamp, as the name suggests, is a camp oasis tucked alongside the Rogue River owned by Bill Voss and his wife, Dede. It is a long stretch of land alongside the river that contains Bill and Dede’s new home, their old one-room home (their home while building their current house), 3 to 4 cabins with bunk beds and a bath house. There is also a trailer set up to serve as the outdoor kitchen area for the guests staying in the older home and cabins.

The board members were welcomed to the Fishcamp Thursday evening and treated to a sumptuous dinner prepared by Bill and his wife, Dede. This was followed by a get to know each other session with our hosts and the board members by a roaring campfire.

Early next morning we were paired up in small boats called “drift boats”, each pair with a guide. After some Fishing 101 lessons from our guides, as most of us were novices or had never held a fishing pole in their hands before, we set off on the beautiful Rogue River on our quest to catch some steelhead. Almost immediately our skills were put to the test as we



practiced our newly acquired “bug and bubble” method of fishing skills. After spending all day on the river with moderate success, Jennifer and Mike Bair being the most successful in hauling in a

couple of decent fish, we returned exhausted early in the evening. We were again treated to a wonderful dinner followed by a campfire retreat and discussion of SEAO activities and brainstorming ideas to provide more value to members. Things discussed included ideas to encourage more participation by members, providing additional opportunities to earn PDH’s, and partnering with other SEA’s on certain activities like emergency management, code development, and research to name a few.

After a lively discussion, reluctant but excited we went to bed at the prospect of another day of fishing on the Rogue the next day. Saturday morning was another cold one. It didn’t take long for us to hone our new skills and start catching some fish.



Another day on the river went by fast. Amit (aka “Big Fish”) and Jennifer were paired up in a boat and won the biggest fish award for both Friday and Saturday! We got back to camp early enough on Saturday to play a little darts and Fishcamp Putt Putt (putt putt in the rough). Saturday was topped off with yet another wonderful meal, a warm fire, some wine, clogging, hula hooping, and yes some lively discussion and conversation!

As the cliché goes, all good things must come to an end and end it did. We packed up and left early Sunday morning to head back to our daily routines.

Fishcamp was an amazing retreat and a great bonding, educational and learning experience for the members of the board past and present. The members of the past and present board would like to thank Mike Bair, Bill Voss, and Dede for being such gracious and wonderful hosts. We appreciate and thank you for your continued support of SEAO.

ATC-20 Procedures for Post Earthquake Safety Evaluation of Buildings

Presented by the Structural Engineers Association of Oregon (SEAO)

Date: **Tuesday, April 2, 2013 – 8:30 AM to 4:45 PM**
Registration Opens at 7:30 AM (Lunch Included)

Cost: \$175 SEAO Member (Includes Class Notes) \$225 Non-member
\$25 Late Fee (if registration received after March 26, 2013)
Students \$55 (Includes Notes) – Must show current student ID
No refunds after 12:00 noon Tuesday, March 26, 2013

Register early; Maximum 100 people

**Program to be Taped
by Limelight Video**

Location: **The Abernethy Center**
606 15th Street
Oregon City, Oregon 97045
(503) 722-9400

Continuing Education: SEAO has recommended this seminar for 6 PDHs
(4 PDHs for Viewing Video)

Speakers: **Ed Huston, PE, SE, Principal, Smith & Huston** Graduate of the University of Washington, President of NCSEA Board of Directors, Chair of the Code Advisory Committee. The program will cover the methodology for the Post-Earthquake evaluation and posting of buildings. Mr. Huston is experienced in evaluating buildings after earthquakes, and has full knowledge of the ATC-20 methods.

Andy Stember, PE, SE, JAS Engineering

Mr. Stember will moderate the field exercise in the afternoon where teams will evaluate and post-earthquake “mocked-up” damage to some of the buildings on site and close by and the return for a final summary/analysis of the outcome.

Speakers are from the Structural Engineers Association of Washington and Oregon (SEAW & SEAO)

Questions: Andy Stember (503) 657-9800

ATC-20 Procedures for Post-Earthquake Safety Evaluation of Buildings Seminar

Registration Form

Register Online at www.seao.org or

Send to: SEAO
9220 SW Barbur Blvd #119
PMB #336
Portland, OR 97219
(503) 753-3075

Make Checks Payable to:
SEAO

(503) 214-8142 (fax) SEAO

Firm Name: _____

Firm Address: _____

Phone _____

Name of Attendee(s) _____

of Attendee(s) _____ @ \$175.00 / each = \$ _____

(Nonmember \$225.00)

of Late Fees _____ @ \$25.00 / each = \$ _____

of Students _____ @ \$55.00 / each = \$ _____

ATC 20/ATC 20-1 _____ @ \$34.00 / each = \$ _____

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