



CONNECTIONS

February 2010 Volume 10 Issue 5

Newsletter of the
Structural Engineers
Association of Oregon

ANNUAL SCHOLARSHIP TRADESHOW AND AFTERNOON SEMINARS

We are excited to be back at the Monarch Hotel this year as we have had many successful trade shows at their venue in the past. Please note that the event will be held on a Thursday. This year's show will include five afternoon seminars, and promises to be very informative and entertaining.

The tradeshow continues to be a great benefit to both vendors and the association. Although information can be found on the internet these days, nothing beats talking face to face with the vendors to discuss problems and ideas as well as viewing a variety of products. This year is a good time to catch up on your knowledge of the latest products, technologies and processes available, become better acquainted with computer programs, and network with other engineers. The show provides an excellent opportunity for new SEAO members to see what materials and products are available and currently in use in the field.

The afternoon seminars will run from 1:30 until 5:00, allowing the vendors to go more in depth and offer more information to the members than might be available at the Trade Show alone.

Thanks to donations from some generous firms, we will be raffling off great prizes including a golf certificate at Stone Creek, a one-night stay at Embassy Suites Washington Square, a drill from Hilti, a wheelbarrow from Mason's Supply, and Blazer tickets courtesy of Miller Engineering. This year, all trade show attendees will receive one free raffle ticket. You can increase your chances of winning prizes by purchasing additional tickets for \$1 each at the show.

Funds raised by this event go directly to the Scholarship Foundation and help to meet our scholarship award goal of keeping pace with the rising costs of education. As always, donations no matter how big or small are very much appreciated. The trade show is free to all SEAO members and includes a meal and two beverages after visiting the vendors. We look forward to seeing you at this year's trade show!

Date:
Thursday, February 25, 2010

Location:
Monarch Hotel
12566 S.E. 93rd Ave.
Clackamas, OR

Time:
Mini Seminars 1:30 PM to 5:00 PM
(see schedule on page 7)
Trade Show 5:00 PM to 8:00 PM
Dinner served at 6:00 PM

Cost: Complimentary dinner and
beverages for SEAO members
\$30.00 per person for non-members

Reservations:
Please RSVP to Jane Ellsworth by 5 PM on Monday, February 22, 2010 so we can get an accurate meal count.

A reservation is only required for the Tradeshow. No reservations required for attending the mini seminars.

Phone (503) 753-3075. Fax (503) 214-8142 Email at: jane@seao.org

PDH Credit:
SEAO recommends a maximum of 4 total hours of PDH's (Professional Development Hours) for the event. This includes one-hour for each seminar attended, and one-hour to those who register their attendance for documentation at the trade show. See Jane Ellsworth to sign up specifically for that documentation.

SEAO

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PRESIDENT'S MESSAGE

By: Jennifer Carlson



Late last Thursday evening I got a phone call from my oldest daughter. She is in graduate school at Virginia Tech in Blacksburg, VA. She was excitedly relaying details from the seismology lecture she had attended earlier that evening where she had learned about the potential for a subduction zone earthquake off the coast of Oregon. She was amazed she had never heard of this before, having grown up in the Northwest. We talked for quite awhile about different seismic events and designing for them. She is a geotech and therefore has a bit different perspective so we enjoy these discussions. How many mothers and daughters can discuss OLE's, CLE's and SSI? OK- probably not many would even want to, but her keen interest in these things fascinates me. This is probably my main motivation for encouraging our younger members to get involved with a committee or lend a hand with any organization tasks. Actively taking part in running this association or preparing recommendations to be incorporated into future building codes are challenging and educational experiences. It will keep your professional outlook fresh and keep you on the cutting edge of new regulations and technology.

The new year started out busy for SEAO and I am happy to report that several members, including young members, stepped up to lend their time and expertise for all our benefit. Late in December, we were notified that the State of Oregon Building Codes Division (BCD) was preparing a statewide Solar Energy Code that will govern the installation of solar photovoltaic systems, including solar panels installed on roofs, and was requesting input from SEAO. Unfortunately, the deadline for input was the end of January. The call went out for volunteers to review the proposed code and recommend revisions in December. The holidays delayed immediate response, but early in January, an ad

hoc committee of volunteers came together on their own time and performed heroically. Dale Diloretto, WDY; Eric Hammerstrom, Miller Consulting Engineers; and Jim Riemenschneider, PACE Engineers; Justin Elliot, VLMK; Aaron Burkhardt and Josh Richards, KPFF; and David Nilles, City of Portland; met on multiple occasions to craft a letter presenting recommendations for the code on behalf of SEAO. David Nilles is the committee chair. On behalf of the board, I want to express our deep appreciation for these efforts. This is the type of dedication that makes our organization strong. There will be an article in an upcoming newsletter explaining the details of the letter and the State's response to the recommendations.

Another committee that has been busy lately and has a long history of dedicated participation is the snow load committee. Another upcoming article will explain the latest activities of this committee, but I would like to take this opportunity to recognize Doug Meltzer, Dominic Webber, Tonya Halog, Greg Munsell, Cameron Swearengin, Kevin McCormick and chair Andy Stember for their outstanding and selfless performance over the years.

The January lunch meeting was very well attended and proved to be an informative event. Thanks again to Sue Frey for presenting all the latest updates on the Structural Licensing exams. Further thanks to those in attendance for their patience with the delay as we worked the bugs out of our first webcast to a remote location. In the end we were successful and shared Sue's presentation in real time via the internet and phone conference to two offices. Kudos to Trent Nagele, and Sterling Rose who worked hard to bring this together. I am very excited with our success and hope to implement this for upcoming meetings. If you are in a location remote to Portland and interested in joining a webcast for a future meeting, please contact me or Trent Nagele.

I hope to see many of you at the Trade Show on February 25th. Yes, it is a Thursday, instead of the usual Wednesday. We are back at the Monarch this year, so mark your calendar. Come take advantage of those free PDH's, talk to all the vendors there to answer your questions, and get up to date on the latest technology in our business.

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.

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Wind Committee

ASCE 7 Chapter 6 "Wind Loads" is going to have a major reorganization and expansion. Please, don't lose any sleep over this just yet as these changes will not be making it into our standards until the 2012 IBC and subsequent OSSC. Driving these changes will be the future ASCE 7-10 and applying it will yield wind forces at a Strength Design Level. And as a result, Allowable Stress design will require reducing results by a factor of 0.6. In addition, design wind speeds will be increasing and will be determined using four different maps, each of which will be adjusted for occupancy use. With these changes, Chapter 6 will be expanding into multiple chapters. Luckily, as in this summer's upcoming 2009 IBC and upcoming 2010 OSSC, the new simplified "Alternate all-heights method" will carry over to the 2012 IBC. Lastly, the future ASCE 7-10 changes will incorporate a brand new simplified method. With these two simplified methods, we'll all have more options to calculate wind loads than ever.

Special Inspection Committee

The SEAO Special Inspection/Testing/Structural Observation Task Group is again working on the Matrix For the new OSSC 2010 requirements. The first meeting was held on Jan. 12, 2010 at the offices of Miller Consulting Engineers. The next meeting is scheduled for Feb. 23, 2010, 5:00 pm, at the offices of Miller Consulting engineers at which time the Task Group will start going thru the code changes. The Task Group is open to any member or interested party which would like to participate in the making of the new matrix.

Code Committee

The 2006 International Building Code (IBC-06) references ACI 318-05 Appendix D for the determination of anchor bolt capacity (in single-shear) when attaching wood sill plates to concrete foundations. Many practicing engineers and building officials are frustrated by the low anchor bolt capacities obtained from the application of Appendix D equations for wood framed construction in seismic design categories D, E and F. So members of the 2008-2009 SEAO Seismology Committee tested typical anchor bolt connections to establish a basis for design capacities and to better understand the behavior of this connection.

The SEAO test data shows that the yield strength of the wood sill plate connection governs over the strength of the concrete in the subject connections. Furthermore, SEAO testing results show that Appendix D, as referenced by the OSSC, is conservative by the application of several factors. Two assumptions that affect the ACI Appendix D calculation are: 1) the ductility parameter and 2) the cracked concrete parameter. The test program showed that the wood sill plate to concrete connection using cast-in-place steel anchor bolts is ductile and that design capacities, both past and present, are conservative.

SEAO became aware of the SEAO testing well after Building Code Division (BCD) had commenced with the 2010 OSSC code development process. However, in testimony before the public hearings officer, Ron Vandehey representing SEAO spoke to the testing conducted by SEAO on the anchorage of bolts in concrete supporting wood plate sills/walls.

The State of Oregon Building Codes Division has the background information, proposed amendment language, and a copy of the SEAO testing on their website at the following link. http://www.cbs.state.or.us/external/bcd/boards/bcsb/board_pack/2010/20100203/BCSB_020310_VIIa.pdf
A final determination regarding this proposed change is still pending BCD review.

COMMITTEE UPDATES

(continued from page 4)

Emergency Response Committee

As you may know, SEAO's Emergency Response Committee continues to be active. The following is information regarding committee efforts currently in progress:

Haiti Volunteer Request Information - As requested by NCSEA, an email was sent to all SEAO members soliciting names of interested volunteers for relief efforts in Haiti. The names of interested people have been forwarded to NCSEA. While it is unknown exactly how volunteers will assist in this effort, and in what capacity, it is anticipated to include assessment of damaged buildings. As soon as additional information is available from NCSEA regarding how SEAO ER volunteers can assist, we will share it. If you are interested in potentially volunteering in Haiti, please feel free to contact the ER committee at emergencyresponse@seao.org.

Coordination with other Emergency Response Entities, Groups, and Jurisdictions, The SEAO ER Committee is actively working on creating relationships and open dialogue with other similar entities, groups, and jurisdictions. Some of these are the NCSEA, the State of Oregon Office of Emergency Management (OEM), ER committees from neighboring states such as SEAW and SEANC, and AIA. Teaming with other groups will help in applying lessons learned and to prevent spending time on tasks or hurdles that have already been done or encountered by other entities and for being prepared after an event. In addition, the committee is discussing the opportunity for other Structural Engineers Emergency Response (SEER's) committees to meet at upcoming NW Conferences.

Website Updates - The Emergency Response Committee is actively working with SEAO's Website Committee to make necessary changes to the SEAO website to facilitate the distribution of information after an event, as well as general ER contact information. Website updates will continue to evolve, but the committee is hopeful that strides can be made towards updating the website as it relates to the ER committee in the near future.

If you are interested in participating in this committee and/or have ideas, input or questions, please feel free to contact the ER committee at emergencyresponse@seao.org.

Snow Load Committee

The SEAO Snow Load Committee in conjunction with the SEAO Board is in negotiations with the State of Oregon Building Codes Division for funding to allow us to post an electronic form of the Snow Load Map. We are working with the Oregon State University Climate Service to provide the technical assistance in the development of this electronic version and then hosting the site where it can be accessed.

In addition, the committee has been assessing the winter 2007-2008 snowfall data to see if it has any impact on the current map data. Through this process, we have been looking at stations that have unusual readings so any adjustments can be incorporated into the online version.

JOB OPPORTUNITIES

Intel Corporation is seeking a Tool Install Design Structural Engineer within Intel's Corporate Services Construction group in Oregon. They are responsible for the structural and architectural design of Intel's semiconductor process equipment (tool) installations to be used locally and worldwide via a "Copy Exact" philosophy.

- Registered Professional Engineer or Registered Structural Engineer (preferred).
- Minimum 3 years experience in structural engineering.
- Must have a strong working knowledge of the IBC, AISC, ACI codes and other national standards.
- Strong knowledge of structural analysis programs used in the industry is required.
- Emphasis in seismic analysis and design of concrete and steel structures and nonstructural components is essential.
- Understanding of vibration theory and control is desired.
- Must have permanent right to work in the U.S. without Sponsorship

For more details contact: Leon.hammer@intel.com

The University of Portland Department of Civil Engineering seeks applicants for an adjunct faculty member to assist the teaching of a construction materials laboratory course in Fall 2010. All applicants must have materials testing laboratory experience and must hold a B.S. or associates degree in civil engineering or civil engineering technology. Applicants with an M.S. will be preferred. The adjunct faculty is expected to start in Fall 2010. Applications should be received by April 1, 2010. Send applications to Dr. Matthew R. Kuhn, University of Portland, School of Engineering, 5000 N. Willamette Blvd., MSC: 145, Portland, OR 97203. Email address is kuhn@up.edu.

JANUARY MEETING RECAP

Sue Frey served as SEAO's president in 1998 and currently serves as SEAO's delegate to the Northwest Conference Council (NWCC), the Western Council of Structural Engineers Association (WCSEA), and as an alternate delegate to the National Council of Structural Engineers Associations (NCSEA). When it comes to issues facing structural engineers, she is uniquely qualified to address the topic. Which is just what she did for the January lunch meeting in Portland that was attended by over 70 people. Her talk focused on three main areas: The importance and relationship of Structural Engineering Associations, upcoming changes in the SE licensing exam formats and offerings, and the state of SE practice acts across the country. If you work as a structural engineer, this was information you didn't want to miss. But if you did, read on and we'll try to hit the highlights.

SEAO, your state wide structural engineering association is not alone in the world of structural engineering resources. First, there is the NWCC that includes the Structural Engineers Associations of Oregon, Washington (all chapters) and Idaho, and exists to share resources, responsibilities and locations in hosting a regional northwest conference every two out of three years. Then, there's the WCSEA. This larger cousin includes the SEA's of OR, WA, AZ, HI, ID, UT, BC, and most recently MT. Every third year these states combine to hold a "Roundup" Convention. Hosting organizations for the next several annual conventions are shown below. Delegates to the WCSEA meet once a year to share ideas and discuss mutual issues affecting the western states.

Year	Annual Conference Host
2009	SEAW—Southwest chapter held the convention in Tacoma –Don't worry, you already missed it.
2010	Roundup in British Columbia (yes, Canada, aye!) – Watch for announcements soon, you don't want to miss this one.
2011	SEAW— Spokane and South Central Washington Chapters
2012	SEAO – Planned for Kah-Nee-Ta in central Oregon, SEAO attendance will be required, volunteers welcome.
2013	Roundup—hosted by the SEA of Hawaii.

And, then there's the NCSEA, which is a relatively new organization, founded in 1991, to represent the interests of the member SEA's nationally. Currently, about 42 states have an SEA, and are members of NCSEA.

Next, Sue discussed the new 16-hour structural exam that will be offered by NCEES beginning in 2011. An extensive survey and study were completed by a special task force to determine the new exam format and areas of testing. In the end, 1,019 structural engineers provided survey input from 54 of the 70 U.S. States and Canadian Territories that received surveys. Of these respondents, 75% were practicing structural engineers working in private practice, and represented a wide range of experience levels.

Currently, most states that offer an SE license use the NCEES Structural I and II exams. OR, WA, and CA, however, use the NCEES Structural II exam and a seismic featured Part III exam written by the states. The new NCEES 16-hour exam is expected to replace all of these but a final determination has not yet been made in California. As this transition approaches, however, exam candidates need to be aware of what exams will be offered in the future. Unless you've already begun the exam sequence, it's recommended that you not start until the new 16-hour exam become available in 2011 which will provide more uniform reciprocity. For more information on the new exam and format, see the article in the December 2009 SEAO Newsletter.

Finally, Sue discussed the current NCSEA recommendation to have additional states adopt Structural Engineering Practice "Acts" or "Restrictions". At present, only HI, IL, OR, WA, CA, and UT have full or partial practice acts that restrict the practice of structural engineering, either for all structures or a defined group of structures. NV has a practice "rule" that requires special expertise for radio towers and buildings over 45 feet or 3 stories. AZ, ID, NE and VT have "Title Acts" that recognize the Structural Engineering title, but don't necessarily limit the practice. But, not to be outdone, FL, CA, MI, OH, GA, TX, NY, MN and AK are all currently considering title or practice acts that will limit structural engineering and/or require separate structural engineering licensure.

If you're feeling a bit overwhelmed, and wish that there was more uniformity in the licensing requirements, you have an advocate. One of those acronym groups—NCSEA—has a Licensing Committee that is seeking to, "influence states, in the interest of public safety, to adopt consistent licensing laws, especially concerning state licensing of structural engineers." NCSEA is also advocating for more consistency in continuing education requirements.

SEAO SUCESSFULLY TESTS WEBCAST

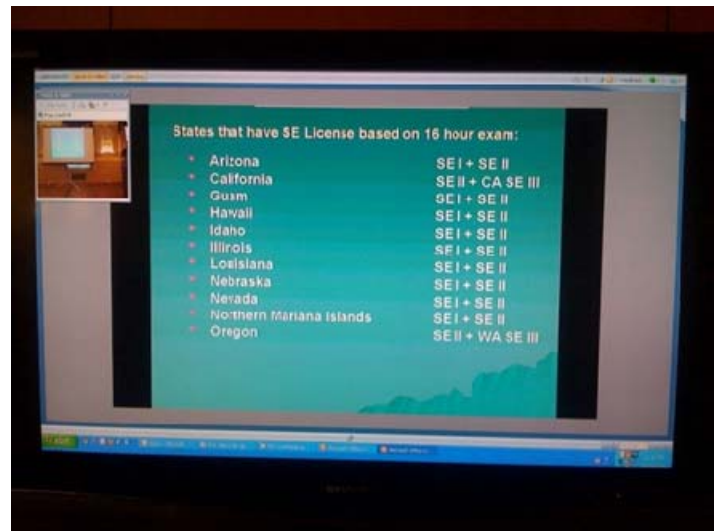
By Trent Nagele, PE

On January 28th, Sue Frey's lunch meeting presentation for SEAO was successfully webcast live from Portland's Governor Hotel to two offices setup as test sites—my office here in Portland, and Sue's office in Corvallis. As with any first time trials with technology, it wasn't clear if our first attempt would meet with victory or defeat. So, when the meeting presentation finally started and word came back from our test sites that there was sound, and then a picture, it was welcome news.

Most significantly, this webcast showed that it is feasible for us to provide low cost webcasts that we hope will make it possible to share meetings and other events with our members across the state. Previously, estimates for professionally hosted webcasts ranged from \$1,500 to \$2,500 per event. This high cost was due in part to the cost of securing an internet connection with guaranteed bandwidth for broadcast. Our approach this past month was little more low tech—which is really to say that readily available technologies have become pretty high tech.

Using Microsoft's Live Meeting, we were able to broadcast video, with the power point slides and a picture of the room and speaker, over the hotel's wi-fi internet connection. Then, to make sure there wouldn't be any disruptions in the audio if someone in the room next door decided to download a movie over the internet, we used a phone and a conference calling service to carry the audio portion of the presentation. Our test sites then called in to the conference call and listened to the presentation over their phone while watching the video of the slides and presenter.

The specific formats and ways that the webcast will be made available are still being discussed. However, the goal of the webcasts, like our monthly meetings, will be to try and bring our membership together for both social and educational opportunities. Early discussions have been to look at having host sites in various cities around the state where engineers from the local area can gather, maybe enjoy a lunch or dinner together, and then view the meeting presentation live. To make this become a reality, though, we'll need your help and input. If you would be interested in helping coordinate a site for engineers in your area, or have some thoughts on the format, etc., we'd like to hear from you. Please feel free to email me at trent@vlmk.com or contact our program committee chair at julie.hays@kpff.com. The main requirements for hosting sites will be to have a high-speed internet connection with a video projector or large screen monitor, and a speaker phone or sound system appropriate for the size of the expected group. Large conference rooms, local community centers, or restaurant banquet facilities might all be possible venues for hosting a meeting in your area. So give it some thought and let us know. We'd like to have a meeting in your area soon!



CORRECTION: The SEAO Seminar: Transitioning from the 2006 IBC to the 2009 IBC – Structural Provisions Scheduled for April 15, 2010. The flyer that was emailed out last week had an old form from SK Ghosh to order books. The new order form and flyer are attached at the end of this newsletter. Thanks and sorry for the confusion.

**MINI SEMINARS
SEAO TRADESHOW
THURSDAY, FEB 25, 2010
MONARCH HOTEL**

1:30 - 2:30 PM

NW Soil Stabilization

Micro Pile Applications for Structural Engineers

The seminar will cover basic micro pile applications, design, and installation. Design will be based on the latest AASHTO guidance. Applications discussed will include new and existing foundation support, seismic retrofit applications, retaining wall support and shoring. Detailed discussions regarding load transfer of micropiles along the soil bond zone and the applicability and conservatism of tension testing will also be discussed in light of field load testing.

1:30 - 2:30 PM

iLevel/TrusJoist

iLevel/Trus Joist Update & Tall-Wall Design with Engineered Wood Products

iLevel's Northwest Division Engineer Jim Anderson and local Structural Frame Specialist Mike Bair will be conducting an iLevel/Trus Joist Engineered Products seminar on Thursday, Feb. 25th at the SEAO Tradeshow. A brief update on the current state of affairs regarding Trus Joist branded Engineered Wood Products manufactured by iLevel will start the seminar followed by a presentation on developing tall-wall design solutions for wood-framed structures utilizing iLevel's Trus Joist® Engineered Wood Products including, TimberStrand® LSL, Parallam® PSL, Microllam® LVL, and iLevel Shear Brace. The presentation will cover current framing and design techniques, areas of opportunities with improved suggestions and software solutions.

2:45 - 3:45 PM

Contech Services & Fyfe Co.

State of the Art Design and Detailing of Fiber Reinforced Polymer (FRP) Structural Rehabilitation

Scott Arnold, P.E. & Vice President of the Fyfe Co. in conjunction with Don Ellsworth of Contech Services will be presenting this seminar. Scott graduated from UC San Diego with a Bachelor of Science degree in Structural Engineering. He spent three-years working in the Charles Lee Powell Structures Laboratory at UCSD. He is a licensed civil engineer in the state of California and has been working with the Fyfe Company on the design and development of FRP strengthening systems for the last fifteen years. Don and Contech Services has over 300 successful installations since 1995.

4:00- 5:00 PM

QuakeWrap

Strengthening & rehabilitation of building & Infrastructure using fiber reinforced polymer (FRP) technology

The use of FRP technology to strengthen or rehabilitate existing buildings and infrastructure has recently gained worldwide acceptance among structural engineers. FRP composite materials have been used to provide seismic upgrading, blast hardening, corrosion repair, gravity load strengthening, among other applications, in thousands of projects around the world. The conceptual framework along with completed project applications on buildings, bridges, pipelines, tunnels, tanks and tall chimneys will be presented. Also, a new generation FRP composite material, called Superlaminat will be discussed.

4:00 - 5:00 PM

RISA Technology

Streamlined Structural Analysis using RISA and Revit Structure

Why build two separate models? Save time by synchronizing your Revit Structure model with your RISAFloor or RISA-3D model. With bi-directional capabilities, you can start in either program and rely on the robust RISA™-Revit link to preserve both your geometric and design information. The innovative two-way nature of the link allows you to move seamlessly between RISA and Revit without losing valuable information. This class will demonstrate the best methods to tackle real-life challenges using the RISA-Revit link. Learn tips and techniques that will allow you to get the most out of your software and eliminate redundancy in the design/drafting process. The class will also focus on the multitude of new features in our new link for Revit Structure 2010.