CONNECTIONS

November 2012 Volume 13 Issue 3

Newsletter of the Structural Engineers Association of Oregon

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Upcoming SEAO Meetings and Events:

Wednesday, January 30, 2013: SEAO Lunch Meeting
Speakers: Dieter Bohrmann, Communication Manager, and Dan McDonald, Tank Waste Disposal Project Manager, both from the Washington Dept. of Ecology's Nuclear Waste Program
Topic: Hanford Tank Waste Treatment Project.
Location/Time: Governor Hotel, Second Floor, Portland / 11:30 am check-in; 12:00 pm lunch; 12:15 pm program.
Sponsors: Available for sponsorship.

Thursday, February 28, 2013: SEAOSF Tradeshow
Location: Monarch Hotel & Conference Center, 12566 SE 93rd Avenue, Clackamas, OR.
Time: 5:00 pm to 8:00 pm – Seminar times to be determined.

OSSC CODE AMENDMENT PROCESS

On November 17, the State of Oregon Building Codes Division (BCD) issued a bulletin indicating that the 2012 International Building Code is scheduled for adoption on April 1, 2014. This same bulletin requested that any code amendment proposals be issued to the BCD for their consideration by December 17, 2012. SEAO has always taken a leading role in the code amendment process. Accordingly, and in very short order, the SEAO Code, Seismic, Wind and Snow committees will be reviewing the 2012 IBC and preparing code amendment proposals for Board review and consideration. We encourage you to participate in this process!

Please visit www.cbs.state.or.us/bcd/programs/structural/notices/OSSC_Code_Amendment_Process.pdf to learn more.

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 inquires to:

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PRESIDENT'S MESSAGE:
SEAO & VOLUNTEERISM

By: Aaron Burkhardt, P.E.

Last month I attended the National Council of Structural Engineers Associations (NCSEA) conference in St. Louis as a delegate representing SEAO. Seeing the vast amount of work that NCSEA does on behalf of our industry got me thinking about SEAO and our Oregon engineering community and volunteerism in general. In the broadest sense, volunteerism teaches citizens to look beyond themselves and understand the role they can play in their community; giving their time without financial gain with the sole purpose of helping others. In the case of structural engineers, this service can take many forms. It could be responding to a community need by inspecting buildings after a devastating earthquake or other natural disaster. It could be teaching 4th graders about structures and forces using gumdrops and toothpicks. It could be working on a house for Habitat for Humanity. It could be providing design services to a school to help them build a shelter over their playground. I could go on, but in that short list SEAO and its members do all of those and much more.

For those of us that have not been on the Board or entrenched in committee work, I can see how you may ask yourself: What does SEAO do? Even broader than that: What is the purpose of SEAO? Well, I'm going to answer those questions.

The primary purpose of SEAO is to encourage, develop, and maintain the integrity of our profession and to educate. This includes further educating our members, the engineering community, and the general public about structural engineering. What many don't see is all of the behind the scenes work we do on behalf of our members and the engineering community. Currently, there are many items that we are working on. These include:

- Code Amendment: Five SEAO committees are working to get amendments complete for the next OSSC (April 2014). We will be working the next month to get amendments to the State Building Codes Division prior to their deadline of December 17. This is not new to SEAO. Each code cycle we go through this effort on behalf our members to amend the code so that it is appropriate to the work we do here in Oregon.
- Snow Code: We are responsible for developing the snow code for the State of Oregon. Our Snow Committee has been working very hard over the last 6 years to collect data and develop the code we are all designing with. In the coming months, we will be launching a website to provide ground snow loads anywhere in Oregon. Also, we will be issuing a new 2013 version of the snow code with all the updated information.
- Monthly Meetings: We are always looking for relevant and interesting speakers and topics for our monthly meetings. Already this year we have had great speakers talking about topics like code updates, new technologies in steel moment frames, and full scale seismic testing. In the months to come we will continue with some more great speakers.
- Seminars: We typically provide a seminar in the spring and in the fall. Just this November, we invited SK Ghosh to speak to us about ACI 318 Anchorage provisions and updates to that code. In the spring, we are looking to provide training for post-earthquake hazard inspectors.
- Young Member Forum: We have committed to building this committee into one of our more active groups. This committee is a mixture of college students and younger professionals. They plan to provide presentations to high school students about structural engineering, develop free tours of jobsites, fabrication plants, or other interesting projects, getting a group together to volunteer for Habitat for Humanity, and offer social opportunities for these younger professionals and students to interact and network.

This is just some of the work we are doing right now and represents hundreds of volunteer hours over the next few months. SEAO was formed in 1949 making it one of the oldest SEAs in the United States. Currently, we represent over 500 members making us also one of the largest SEAs. Taking all of this into account, it doesn't take much to understand the staggering amount of volunteer work that has been done over the last 63 years and that will continue in the future. SEAO, in every sense of word, is a volunteer organization. I call on all of our members to get involved, participate in our organization and in our community. The SEAO website outlines all of our committees. Please contact any of the committee heads, board members, or our executive secretary Jane (jane@seao.org) to get involved.

On a personal note, may you all have a safe and happy holiday season!

All the Best, Aaron

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OCTOBER LUNCH MEETING RECAP

By: David Tarries, P.E.

Topic: Steel Moment Resisting Frame Systems for Wood Frame Construction
Speaker: Steven Pryor, S.E., Simpson Strong-Tie

Steven Pryor is the International Director of Building Systems with Simpson Strong-Tie. He started with Simpson in 1997 and has 15 years experience in research and development. He has also been involved in the development of a shake table facility in Stockton, California for Simpson research.

Typical single-family homes are wood shear wall construction that do not require more advanced lateral systems; however, higher density housing and multiple-use structures are becoming more popular. Open spaces, particularly in retail areas at the ground level, are desired and shear walls are limited. These open areas often result in soft stories. The most obvious solution to provide an open bay lateral system is a moment frame. Steel is the most likely material to be compatible with wood construction. Steven's presentation was on one such steel product currently under development at Simpson Strong-Tie.

Problem

Design of steel moment frames are covered in AISC 341-10, Chapter E. The information is similar to that found in the older AISC 341-05, but there are some changes in organization. Special moment frames now have a Response Modification Coefficient, R, of 8. This suggests a significant amount of ductility and yielding in the system to absorb energy. Bracing of the beam in a frame is critical in order for it to resist forces up to its yielding. The design force required for moment frame beam bracing per AISC is a function of its plastic modulus, yield strength, and over-strength factor divided by the depth of the beam from flange to flange. The result is a tremendous force couple at the top and bottom flanges and 6% of that must be braced orthogonally. Not only does this force need to be resisted, but it needs to be resisted at the spacing indicated in 341-10 Chapter D and maintain the stiffness requirements indicated in Appendix 6 of the AISC Standard Specifications (AISC 360-10). The stiffness equation requires modification when a member is not orthogonal to an applied force, such as at a diagonal brace on a bottom flange. The stiffness is divided by cosine squared of the angle of the brace resulting in a larger value required. Considering the forces and stiffness required, designing beam bracing for a steel special moment frame within a wood structure is very difficult.

Using an ordinary moment frame is an option because the beam does not require full bracing per AISC 341, just typical bracing per the Standard Specification. The drawback to using an ordinary moment frame is that the Response Modification Coefficient is only 3.5, resulting in larger lateral force design requirements to account for less ductility and energy dissipation in the system.

Another option is to use a partial strength (semi-rigid) connection to limit the moment capacity and ultimately the bracing requirements for the beam in a special moment frame. Traditional partial strength connections are allowed in ordinary moment frames, but are not listed for special moment frames in AISC. The connections are complicated to analyze and must be designed not to yield under gravity loads.

Solution

Simpson developed a new moment frame connection around the semi-rigid design incorporating parts of the Reinforced Beam Section (RBS), Buckling Restrained Brace (BRB), T-stub, and modified shear tab ideas. The Simpson option is a field-bolted top and bottom plate connection that avoids field welding to minimize field erection complications. The connection consists of a T-stub top and bottom plate welded to the column for the flange connections. The top and bottom plates (link plates) are necked down similar to an RBS to create a “fuse” to limit the capacity of the connection. The fuse is restrained by side and top plates in much the same way a BRB is restrained. The modified shear tab connection at the web uses slotted holes to prohibit it from resisting moment in the connection so all rotational force can be directed to the link plates.

(Continued on page 5)

COMMITTEE UPDATES

WIND COMMITTEE

"April fools!" The 1st of April, 2014 is currently proposed as the first day we adopt our new 2014 Oregon Structural Specialty Code. With it, our code will employ updated masonry, concrete, steel, wood, and probably a litany of other material standards. Additionally, we'll be following an updated ASCE 7 design standard and within it, Chapter 6 "WIND LOADS", is swelling into six chapters. One large change is that design wind speeds have increased roughly 30%. Yes, 30%!

QUESTION: Who would support Oregon and the OSSC modifying its Wind Speed Map(s) to maintain mostly familiar wind speeds to those currently used?

The take is that code officials want wind design loads to be at ultimate-strength levels, like seismic loads. So, the IBC and ASCE-7 have basically increased mapped design wind speeds by the square root of 1.6. Telling your client that you need to design their project for 120 mph winds here in the Willamette Valley might cause some eyebrows to rise. I can hear it now: "Are you nuts?" Try telling them about 140 mph winds at the coast! There are a growing number of engineers that would like to avoid frightening their clients with such "super-storm" wind speeds.

Please contact me to simply affirm support for a the creation of a formal proposal to put forward to the Oregon Building Codes Division to have 2014 OSSC Wind Speed Maps somehow have similar speeds to what is currently standard. **Input is welcome and please, time is of the essence, so please respond ASAP.** The idea is to have our wind speed maps, Figure 1609 in the OSSC, conform with updated design standards and, without being confusing, maintain the use of reasonable and lower wind speeds. The current thought is to have pairings of wind speeds indicated on the map(s) with subscripts clarifying "ultimate" and/or "allowable".

Do you have other wind design related issues you feel the OSSC needs to address? Please, do tell.

Thank you,
Jim Riemenschneider – Wind Committee Chair
(mailto:jimr@vlmk.com)

DUES REMINDER

Annual dues for SEAO membership were due on October 31, 2012.

Renew online using a credit card by going to: www.seao.org

Or you can make checks payable to SEAO and mail to:

9220 SW Barbur Blvd, No. 119
Portland, OR 97219

Renewals:

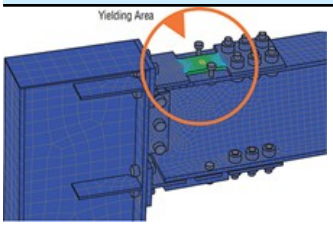
Member (licensed PE in Oregon): $102
Affiliate Member (unlicensed): $95
Student Member (full-time student in Civil or Structural Engineering): $16.50

Membership must be current (dues paid) to have your name included in our annual roster.

To update our records, please be sure that we have your correct address, name of your company, current phone numbers, and your email address. This will guarantee that you are receiving all correspondence and information from SEAO. You can update your information online or if you have any questions contact jane@seao.org.

OCTOBER MEETING RECAP
(CONTINUED FROM PAGE 3)

By: David Tarries, P.E.



Design of the joint is based on link plate axial capacity at the reduced area section. Ultimate moment from the connection, dependent on the link plate, is used to design the moment frame instead of the beam capacity. This reduced moment is particularly useful when calculating required beam lateral bracing to a wood structure. The full member capacity with over-strength factor is no longer the controlling design parameter; instead, the capacity of the joint is tailored to the distributed lateral load in the frame. Non-linear finite element analysis was completed and field tests were performed on the connection. All testing was completed on assemblies with snug-tight bolts and realistic field conditions.

Testing

Steven started working with full scale testing of Simpson products at the University of British Columbia on a one-dimensional shake table. Since then he has helped develop the Tyrell T. Gilb laboratory in Stockton, California with a new style of one-dimensional table. It is capable of testing an orthogonal two-dimensional wall assembly by employing a mass at each floor level of a single wall elevation to simulate floor loads. The lumped mass at each floor is free to move in the direction of base acceleration. The system has a 150,000 lb actuator with 32" of stroke. This lab was used to test individual moment frames but a larger full-scale test was desired.

Steven and Simpson teamed with the NEESWood Capstone Test project in Miki, Japan. The Earth-Defense research laboratory with its three-dimensional shake table was the site of the testing. It is located west of Kobe, Japan, and is billed as the largest shake table research facility in the world. It was commissioned by the Japanese government in direct response to the devastating Kobe (Great Hanshin) Earthquake of 1995.

The Simpson special moment frames were installed below a 6-story wood framed structure. The doors to the shake table facility were only 6 stories tall so the 7-story building could not be built outside the facility and moved into position as was the norm at the lab. The structure had to be erected inside the shake table building and moved onto the table with overhead cranes. In order to complete testing on both the wood structure and steel moment frames as part of the same assembly the moment frames were fitted with diagonal braces to "lock" them into position. Phase 1 of the testing was a test of the moment frames with the wood building above and Phase 2 was with the moment frames locked by the braces. Bracing the frames allowed the steel to act as an extension of the shake table so the wood shear walls could be tested to NEESWood specifications.

The steel members were assembled below the wood framing as a 40'x60' space frame. The structure was modeled in SAP 2000 to determine if the entire structure with wood framing above could be lifted in one pick by the facilities two bridge cranes. The design proved to be adequate and the massive lift from the erection space to the shake table was accomplished. The lab cranes were designed to shift tremendous loads as suggested by the 5" diameter steel pins in the rigging shackles.

All thread rods were used for the bracing to allow for adjustment should the Phase 1 testing of the moment frames result in residual drift of the frames. The rods were installed for the lift and their tight locations marked. After placement on the table the rods were loosened to allow joint movement for the Phase 1 testing.

Testing took place in the summer of 2009. Phase 1 was completed with the special moment frames performing as anticipated and residual drift was minimal. The rod braces were tightened and Phase 2 testing was completed. Laser lights and specially calibrated cameras were used to measure movements of the structure. The lights and cameras were mounted to stationary points outside of the test structure and the cameras recorded the movement of the light at different points on the frames and shear walls. The results revealed the interstory drift was an average of 2% during Phase 2 testing. The largest average drift was about 1.88" on the 5th floor with one instance of 3% due to torsion in one of the walls.

Other discoveries of the testing included that multiple 2x lumber assemblies are acceptable for shear wall boundaries with hold-downs. Using solid sawn lumber members at these locations did not prove to be a critical requirement. There was a need to use shrinkage compensating devices, like the ATS rod system, at the floor levels in this multi-story construction. Load cells were installed on the tie-downs to capture tension forces. Some rods saw unexpectedly high forces, such as 123 kips on a single rod and 173 kips on a two rod group. These values suggest that using omega level design loads on tie-downs is appropriate. Most nailing of the shear walls was 2" spacing at the sheet perimeters and 12" spacing in the field. Some double sided sheathing nailing was 3" and 12". This spacing proved effective, and also suggested that the R factor of 3 used for wood-framed construction may not be conservative enough as the value assumes a larger contribution of interior finishes then these tests revealed.

Applications

The primary purpose of this connection is to provide a lateral system alternative to a podium design for wood-framed structures with open bays. An example would be a 5 over 1 mixed-use building with retail on the ground floor and housing units above. Another possible use is to retrofit existing wood framed structures. FEMA P-807 is being developed to focus a fix on only the soft story in a building without adversely affecting the unretrofitted floors above by over-stiffening the soft story. Simpson's special moment frames could be used for this purpose by tailoring the capacity of the retrofit frame with appropriately sized link plates. The Simpson steel special moment frame has not yet been released for use by designers and contractors. The final stages of testing and standards are being completed. An ICC ESR report is pending on the product that includes testing up to a 5% interstory drift. Coordination and testing with AISC is in progress to make the connection a prequalified connection option. Simpson may eventually license the design to other manufacturers as part of agreements with AISC. AISC 358 Chapter 13 will likely be the future specification for this style of moment frame. A supplement for this special moment frame connection could be on the AISC website as early as spring 2013.

Conclusion

The Simpson special moment frame system provides a field-bolted assembly with special moment frame ductility and capacity-based design. It is simple to erect, is resilient, and can be rapidly repaired in the field. Its ease of installation could be attractive to engineers and contractors with tight construction schedules. It will soon have ICC approval, be included in AISC 358, and be available for mainstream use. The supplement in AISC 358 will provide limits on beam and link plate sizes in addition to product literature produced by Simpson. The members will be made of common materials with wide flanges of A992 and plates of 50 ksi ASTM A572. Beams will be limited to a maximum of W16 and columns W18. The protected zone will be reduced to the locations of the link plate connections. These properties could make the frames popular in the industry. Keep an eye out for this new product to enter the market in 2013.

UPCOMING SEISMIC WEBINARS, WEBCASTS, & MEETINGS

ASCE Webinars (www.asce.org)

Fri Dec 07, 2012.
Changes to the Nonbuilding Structures Provisions in ASCE 7-10

Fri Dec 21, 2012.
Design of Wood Diaphragms and Shear Walls

Mon Jan 14, 2013.
Design of Masonry Shear Walls

Wed Jan 16, 2013.
Introduction to the Seismic Design of Nonbuilding Structures to ASCE 7-10

Wed Jan 23, 2013.
Advanced Topics in the Seismic Design of Nonbuilding Structures and Nonstructural Components to ASCE 7-10

MCEER Free Webcast (http://mceer.buffalo.edu/)

Mon November 26, 2012.
Recorded Performance of Tall Buildings during the 2011 Great East Japan Earthquake

EERI at UNR Free Webcast (http://nees.org/)

Thur November 29, 2012.
EERI@UNR Joyner Memorial Lecture 2012: Building Near Faults

YOUNG MEMBER FORUM ACTIVITIES

By: Laine Stambaugh, P.E.

While attending the NCSEA Annual Conference last year, our past SEAO president Ed Quesenberry learned about an outreach program educating high school and middle school students about structural engineering. The program, still in its infancy, was put together by the Boston chapter of SEA and consists of a 20-minute PowerPoint presentation followed by a hands-on activity. As structural engineers, we all love to sit in a room and design, but it's so important for us to share what it is we do with the up-and-coming generation with the hope of sparking an interest in our field. Upon his return from the conference, Ed met with the Young Members Forum (YMF) to discuss how to turn the program into a reality here in Portland.

In the spring of 2012, several members of YMF gave the presentation to two classes of high school students at the Sabin Schellenberg Professional Technical Center in Clackamas. The PowerPoint presentation went well, but the students clearly had a better time building gumdrop and toothpick towers! This spring, we hope to get more of the SEAO members involved so we can get out to more high schools and middle schools in our area, and so that we can plan some fun group activities or trips.

If you are interested in helping out, please contact Seth Thomas at sthomas@degenkolb.com or Phil Davis pdavis@degenkolb.com and get signed up. Also, watch the newsletter and website for YMF activity announcements and meeting information. To be included in SEAO's YMF email list for activities, you can also send you email address to Seth and Phil to ensure you are included in our electronic email distributions for YMF.

2012 NCSEA ANNUAL CONFERENCE SUMMARY

By: Aaron Burkhardt, P.E.

The 2012 NCSEA Annual Conference was held October 3rd through October 6th in St. Louis Missouri at the Hilton Frontenac Hotel. The conference opened on Wednesday, October 3rd with NCSEA Board and Committee meetings, vendor presentations, and International Code Council Evaluation Services (ICC-ES) Structural Hearings, prior to a reception hosted by Kaplan Education and SECB. In addition, ICC-ES held non-structural hearings onsite on Monday and Tuesday.

This year the conference technical sessions were expanded to two full days. The general theme of the conference was "Design Trends for the Future". Sessions were organized around many of the key loading elements that structural engineers face in their daily practice. Approximately 200 were in attendance for the opening session focusing on upcoming code developments. NCSEA Code Advisory Committee (CAC) Chair Ron Hamburger began the session by presenting an overview of the topic, followed with more specific presentations by CAC subcommittee chairs on ASCE 7 Wind Provisions by Don Scott, seismic anchorage using ACI Appendix D by Kevin Moore, strength design of masonry by Ed Huston, and a summary of the ICC-ES process by Bill Warren, along with Jim Collins of ICC-ES. These presentations highlighted recently completed or upcoming changes to the Standards documents that will impact practice.

The Thursday morning session wrapped up with a keynote session by Larry Griffis, Senior Principal and President of the Structures Group at Walter P. Moore. The title of Larry's presentation was "*Structural Engineering Practice – Instilling a Culture of Discipline"*. Larry's presentation was simulcast live on the web by NCSEA through equipment graciously provided by ICC-ES. Larry's presentation focused on sixteen recommendations that engineers should follow to help avoid problems in design. The video of Larry's presentation is available from the link under NCSEA Conferences and Institutes on the NCSEA homepage (www.ncsea.com).

The Thursday afternoon session turned to snow and tornado loadings. Professor Mike O'Rourke of RPI provided an excellent presentation on the basis for the snow loading requirements in ASCE 7, followed by a very interesting talk by Joe Zona of SGH on observations related to the numerous roof collapses that occurred during the epic New England snow storms during the winter of 2010-2011. The day closed with a fascinating discussion of the effects of the tragic Joplin Tornado by SEAKM members Randall Bernhardt and Malcolm Carter. The SEAKM task force team generated a list long list of recommendations that will help to limit the effects of future tornadoes. These recommendations can be found online.

Conference attendees had access to forty-two exhibitors throughout the duration of the conference, exposing them to the latest products, software, and tools for structural engineering practice. Attendees were encouraged to visit all exhibitors during breaks and the Thursday evening reception, making them eligible to win raffle prizes at the end of the conference.

Friday's conference session opened with reports by the State Member Organization delegates. Each report highlighted ongoing activities and areas where the states could share information that would be mutually beneficial. After these reports, the session turned to the latest developments in seismic design. Jon Heintz of the Applied Technology Council summarized the important takeaways from five ATC projects that addressed system qualification, weak ground story wood frame structures, nonlinear analysis modeling techniques, ground motion selection and scaling, and soil-foundation structure interaction. Ron Hamburger then provided a more detailed description of the ATC 58 project which is establishing the next generation of tools for Performance Based Seismic Engineering. This theoretically rigorous approach recognizes the inherent uncertainty of all facets of earthquake engineering, and provides the framework and mechanism for a tool that should serve our profession for decades to come.

The final portion of the technical conference, presented by NCSEA Publications Committee chair Tim Mays, summarized the contents of two existing (Diaphragms and Wall Anchorage) and two soon to be completed (Serviceability and Foundation Design) NCSEA publications. Tim presented selected example problems from each of the documents to highlight the practical approach followed in all NCSEA documents, which are written in a manner that will make them immediately useful to the practicing engineer. (Attendees of the conference will soon receive information on how to access presentations made during the conference.)

Following completion of the technical sessions, the conference dinner celebrated the best and brightest of our profession. NCSEA Service Awards were presented to Emile Troup and Mike Tylk for their longstanding contributions to the organization. Jim Robinson was presented the James M. Delahay Award in recognition of his years of service to the profession as the S.E. member of the ICC Code Committee. Ron Milmed was presented with the Robert C. Cornforth Award for his contributions to the growth and success of the Florida SEA. New to the awards banquet this year were three conference scholarships and recognition of the winners: Heather Anesta of FSEA, Emily Gulielmo of SEAC and Dallin Pedersen of SEAU. A total of 16 Awards of Merit and 8 Outstanding Project Awards were presented in eight categories, as part of the NCSEA annual Excellence in Structural Engineering Awards Program. These awards highlighted the amazing depth, breadth, creativity and technical skill demonstrated by firms of all sizes from across the country. (Details and a PowerPoint presentation of all the winners can be found at these links and on the NCSEA website home page.) After the awards, the banquet turned to the changing of the guard of the NCSEA Board of Directors. Outgoing President Tom DiBlasi of SEA-CT summarized the numerous accomplishments made by the organization during the year, followed by incoming President Ben Nelson of SEAC who surprised the crowd with a brief on-key serenade to President DiBlasi, prior to his acceptance speech, which drew an analogy between his two passions of music and structural engineering. Ben then introduced the 2012-2013 NCSEA Board of Directors:

Williston Warren, Director (SEAOC)	Thomas Grogan, Director (FSEA)	Brian Dekker, Director (SEAOI)
Mark D'Amato, Director (SEAW)	Joe Luke, Secretary, (SEAOT)	Barry Arnold, Treasurer (SEAU)
Carrie Johnson, Vice President, (OSEA)	Ben Nelson, President (SEAC)	Thomas DiBlasi, Immediate Past President (SEA-CT)

The final session of the conference was the annual business meeting of NCSEA and the Member Organizations which took place on Saturday morning. Each of the NCSEA Committee Chairs briefly summarized their activities during the year (presentations of each are posted on the committee pages on the NCSEA website), followed by reports by NCSEA Executive Director Jeanne Vogelzang, which focused on how NCSEA measures up to the most successful professional organizations, and the Treasurer's report by Barry Arnold which summarized the existing financial state of the organization. The highlight of the morning was the presentation by young member Heather Anesta who summarized a new document on how to establish Young Member Groups. Heather's enthusiasm and passion were infectious to all in attendance. Immediate Past President Jim Malley wrapped up the meeting by summarizing the results of the year-long Ad Hoc effort on Communication and Collaboration, listing a number of recommendations that will soon be delivered in a final report to the 2012-2013 NCSEA Board of Directors.

Overall, the 2012 Annual Conference could be considered a success on a number of levels. The new format provided for two days of outstanding technical presentations, allowed greater interaction between Member Organization Delegates, and brought the Conference Awards Banquet into the middle of the conference proceedings. Hopefully, this success will set the stage for continued growth of the conference in future years, including the 2013 meeting in Atlanta, Georgia from September 18-21st. We hope to see you there!

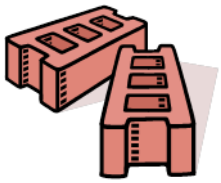
Oregon State University Design Courses

CLASSES

PRESTRESSED CONCRETE DESIGN CLASS
SPONSORED BY KNIFERIVER, RB JOHNSON COMPANY, AND OREGON PRECAST CONCRETE INSTITUTE

CE 408/508 or CE 808 - Prestressed Concrete (3 credits)
Prerequisite: course in reinforced concrete design
Instructor: Dr. Keith Kaufman of Kniferiver
Winter Term: 6 to 9 PM on Mondays starting January 8th in Kearney Hall 312 at OSU.
Course is also available as a regular university course (CE 486/586) if you are pursuing a degree.

MASONRY DESIGN CLASS
SPONSORED BY MASONRY INSTITUTE OF OREGON



CE 408/508 or CE 808 - Masonry Design (3 credits)
Prerequisite: course in reinforced concrete design
Instructor: Sue Frey of CH2M-Hill
Winter Term: 6 to 9 PM on Thursdays starting January 10th in Kearney Hall 205 at OSU.
Course is also available as a regular university course (CE 482/582) if you are pursuing a degree.
Also, note that the masonry design course is available on-line in the e-campus version (CE 408/508 or CE 808) including videos, and does not need to be an on-site attendance class.

NOTE: CE 408/508 are undergraduate and graduate workshops. CE 808 is the least expensive option and is a professional workshop, not applicable to a degree. Cost for CE 808 is $175 for each 10 week course for continuing education students. PDH credits can be earned.

Admission information: http://ecampus.oregonstate.edu/services/admissions/
Registration information:
http://ecampus.oregonstate.edu/services/registration/register.htm
Students need to apply for admission and register before the start of the term to avoid late fees.
CRN for CE 808 (Masonry) = 36362
CRN for CE 808 (Pres. Conc.) = 36460

Questions? Please contact Prof. Tom Miller at OSU at (541) 737-3322 or thomas.miller@oregonstate.edu.

MODIFICATIONS TO ACI 318 – PLAIN CONCRETE

SECTION 1908 MODIFICATIONS TO ACI 318

1908.1.8 ACI 318, Section 22.10. Delete ACI 318, Section 22.10, and replace with the following:

22.10 – Plain concrete in structures assigned to Seismic Design Category C, D, E or F.

22.10.1 – Structures assigned to Seismic Design Category C, D, E or F shall not have elements of structural plain concrete, except as follows:

(a) Structural plain concrete basement, foundation or other walls below the base are permitted in detached one- and two-family dwellings three stories or less in height constructed with stud-bearing walls.

In dwellings assigned to Seismic Design Category D or E, the height of the wall shall not exceed 8 feet (2438 mm), the thickness shall not be less than 71/2 inches (190 mm), and the wall shall retain no more than 4 feet (1219 mm) of unbalanced fill. Walls shall have reinforcement in accordance with 22.6.6.5.

Q: An office building assigned to Seismic Design Category C that has some concrete foundation walls is being proposed. These foundation walls are supporting shear walls. The applicant does not want to have these walls engineered or reinforced and has used Table 1807.1.6.2, "Concrete Foundation Walls," to specify the construction requirements. The plan reviewer has objected to this and is requiring an engineered design citing Section 1908.1.8, which prohibits plain concrete walls in Seismic Design Category C and higher. What is the intent of the code?

A: The plan reviewer is correct. Section 1807.1.6.2.1, item 2, indicates that the tables should not be used and Section 1908.1.8 should be consulted for plain concrete requirements. Section 1908.1.8 prohibits the use of structural plain concrete walls in Seismic Design Category C and higher unless the exception in item (a) applies. In your case the exception in item (a) does not apply because the structure is an office building. [19-43a]

Q: Section 1908.1.8 [22.10.1(a)] states that structural plain concrete walls are permitted in detached one and two-family dwellings constructed with stud-bearing walls. However, the exception goes on to specify required reinforcement. This seems to be a conflict. If the walls have reinforcement, how can they be plain concrete?

A: The following definitions are provided in Chapter 2 of ACI 318-08:

Plain Concrete: Structural concrete with no reinforcement or with less reinforcement than the minimum amount specified for reinforced concrete.

Reinforced Concrete: Structural concrete reinforced with no less than the minimum amounts of prestressing steel or non-prestressed reinforcement specified in Chapters 1 through 21 and Appendices A through C.

Section 22.6.6.5 of ACI 318 requires only a minimum of two No. 5 bars around window and door openings. This minimal reinforcement requirement is much less than the minimum reinforcement requirements in Section 14.3 of ACI 318 for walls. Hence, the walls described in item (a) are considered plain concrete in accordance with the definition. [19-43b]

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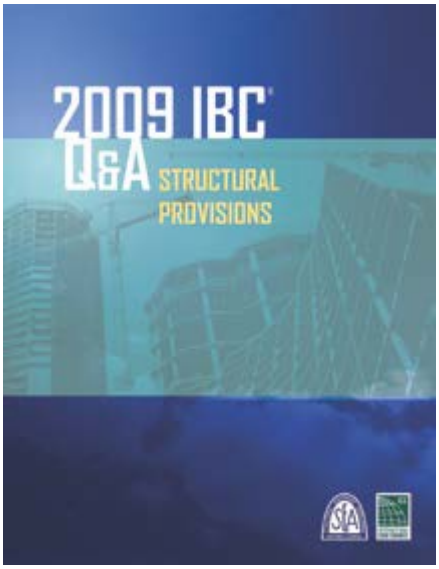
The questions and answers are from the 2009 IBC Q&A Structural Provisions. The questions are commonly asked questions which arise in the application of code provisions during design and plan review. The IBC section is reprinted for easy reference, followed by the questions and answers pertaining to that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



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