EQUILIBRIUM

Newsletter of the Seattle Chapter
Structural Engineers Association of Washington

June 2013

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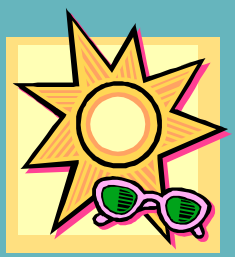
www.seaw.org

In this issue



Happy Summer from SEAW!

Seattle Chapter's Annual Spring Social and Awards Event

Tuesday, June 11, 2013

Lake Union Café

3119 Eastlake Avenue East , Seattle, WA 98102

5:30 pm	Social Hour ~ no host bar (cash or check only)
6:30 pm	Buffet Dinner
7:15 pm	Life Member and Scholarship Awards
7:30 pm	Keynote Speaker **Helen Thayer, Adventurer**
8:15 pm	President's Awards Presentation, 2013 Engineer of the Year, **Howard S. Burton**

About Helen Thayer

In the scope and significance of accomplishments achieved by women, Helen Thayer stands alone. She travels without guides or support teams. At times she has overcome incredible obstacles to reach her goals through dedicated planning and problem solving. In a career that spans the planet north to south and east to west, her diversity and experience are without compare. Named one of the Great Explorers of the Twentieth Century by National Geographic and honored in a ceremony at the White House, Helen is truly "one-of-a-kind." She uses her vast experience to convince young and old that all great triumphs are realized by total commitment to a goal, to planning for success and finally determination to reach the top. She explains, "I've been there and here's how I did it."

Reservations and Prepayment Required!

Make your reservation by Thursday, June 6
Register online, by email to seaw@seaw.org, or phone 206/682-6026

Cost (Prepayment required):

SEAW Members and Guests:	$50.00
Students:	$20.00
Life Members	Free

Ten Ways to Specify a Greener Concrete

-by Kyle Steuck with Adam Slivers, Amanda Schweickert, and Blake Doepker

Recently, the SEAW sustainability committee conducted a series of interviews with industry professionals and local concrete suppliers to understand what's typical in the local practice of specifying and supplying more sustainable concrete. Here are ten things we've learned:

1. It's not all about fly ash. Blast furnace slag is also a popular cement replacement, due to local availability and the final product. Ternary mixes that include cement, fly ash, and slag are also becoming more common.
2. Fly ash is also becoming more difficult to get, especially from local sources. Multiple suppliers expressed concern over the quality of the fly ash from Canadian suppliers, likely due to the variety of coals being burned.
3. For now, supplementary cementitious materials (SCMs*) are cheaper than cement, which means that ready-mix suppliers are perfectly happy to use more SCMs and less concrete, and still provide concrete that meets performance specifications. Much of the resistance appears to come from general contractors facing schedule issues who are hesitant to use mixes that might delay setting.
4. Replacement of up to about 20% of the cement in a mix with SCMs is zero- or low-cost for almost any job. Some local suppliers have done maximum replacements of about 50%, although there may be cost or schedule impacts above the 20% level.
5. Most engineers are specifying at least some SCMs in their concrete mixes in addition to cement, and are using performance specifications. Others may still be using the same prescriptive mix they've always used and are reluctant to change it for a variety of reasons. The industry is trending towards performance specifications, and suppliers clearly prefer them for efficiency and flexibility. Cement is the most expensive ingredient and has the most environmental impact. Performance specifications allow the supplier to improve both of these metrics.
6. There's no consistent practice in specifying upper bounds for SCMs. Some engineers unnecessarily cap the percentage of SCMs for all concrete mixes according to ACI 318-08/-11 Table 4.4.2. This table is only for concrete exposed to very severe attack environments with deicing salts.
7. Specifying a percent replacement for cement for all concrete mixes may not be the most effective and efficient way to reduce cement. Since some elements, like foundations, are less sensitive to finishing and set times than elevated elements or slabs, it's a good idea to specify a percent replacement as an average across an entire project.
8. Several suppliers have DPD continuously approved mixes with SCMs, which are popular since there is less risk and time required to deliver a mix. DPD will accept 1:1 slag for cement replacement up to 50% maximum for continuously approved mixes.
9. Schedule may drive everything. SCMs generally cause concrete to set more slowly and gain strength more slowly. This can be an advantage in mass concrete, but limits the upper range of percent replacements for most concrete work. Schedule may also drive contractors to use more cement to get higher early strengths.
10. More education is needed about proper specifications and product availability. The sustainability committee is working on further research into local practice, so stay tuned. If you have an experience with fly ash or slag that you'd like to share with the sustainability committee, contact Kyle Steuck at ksteuck@degenkolb.com or 206-262-9240.

*For more information about SCMs and their local availability, see the May 2010 issue of Equilibrium at http://www.seaw.org/documents/EquilibriumMAY10.pdf .

SEFW Film Premiere

On May 7 the Structural Engineers Foundation of Washington premiered its documentary, *Structural Engineers of the 1962 Seattle World's Fair*, to an audience of 125 in the Center House Theater in the Seattle Center Armory Building.

The 43-minute film, a compilation of interviews gathered in May of last year, highlights the experiences of nine structural engineers who worked on the Seattle Center structures for the World's Fair.

Engineers Dick Chauner, Jack Christiansen, Gary Curtis, Norm Jacobsen, Bob Mast, Fred Pneuman, and Einar Svensson attended the premiere event as SEFW's guests of honor. Attendees were able to engage the engineers during a reception before the film, and also during a Q&A session after the film. Mr. Svensson even told an exciting story during the Q&A about entertaining British royalty with a few Big Macs and a tour of the Monorail!

Seattle-based writer Knute Berger listens as World's Fair engineer Einar Svensson describes his experience working on the Seattle Center Monorail project.

Everyone in attendance had a terrific, enlightening time.

Special thanks are in order to Mark D'Amato of DCI Engineers and his wife, Linda D'Amato, who chaired the documentary project effort, and to Howard Burton of Seattle Structural, who directed the taping event last May. Historians involved in the project include Marga Rose Hancock and Don Northey, and interviews were conducted by Howard Burton, Tyler Sprague of the University of Washington, and Clair Enlow, a freelance journalist.

SEFW has plans to post the film online during the summer, and in the coming months forge partnerships with local organizations that could help with distribution, such as local school districts, MOHAI, etc.

Donations to SEFW are being accepted to fund this and other exciting projects. SEFW will be providing a DVD copy of *Structural Engineers of the 1962 Seattle World's Fair* to individuals as well as public and private agencies for a nominal donation. The DVDs tentatively will be available in June. Please contact the SEFW Administrator, Angela Gottula, at admin@sefw.org for more information.

YMF Corner

-by Jennifer Ahlport, President, (jahlport@gmail.com)

As the year wraps up, it's impossible to not look back and see where this year has taken both me and this organization. Leading this group has exposed me to many aspects of the industry that I may not have seen otherwise. I'm excited about the upcoming candidates for next year's YMF leadership and eager to see where they will take YMF in the future. Below you'll find short biographies for next year's candidates. I know you'll all be in great hands with them.

President:
Tyler Kurz, DCI Engineers

I have been involved with the SEAW and YMF from the onset of my career, attending monthly dinner meetings, happy hours and various volunteer events. For the past year I have been serving as the YMF Vice President, planning volunteer events such as the Habitat for Humanity build and SEAW booth at the PSEC Engineering Fair. This experience has prepared me for the role of President. I look forward to serving as the YMF President and continuing to facilitate other young engineers to be able to network and be active within the structural engineering community.

Vice-President:
Kyle Holman, DCI Engineers

I have been a member of SEAW for the past two years. During this time I have regularly attended SEAW dinner meetings, participated in Habitat for Humanity, and attended other YMF social events. During my time at Washington State University, I was very involved with our school's chapter of ASCE where I held several leadership positions including President. I believe this has helped prepare me for the Vice-President position for SEAW YMF.

Social Chair:
Chelsea Snodgrass, Jacobs Associates

As a member of SEAW since moving to Seattle almost two years ago, I have been an active participant at a variety of SEAW events, particularly with YMF. I've attended most all of the happy hours and summer picnics, trying to learn more about the industry in Seattle through the more experienced members while at the same time trying to captivate the newer members. I have also attended several chapter meetings and am getting more involved within the Sustainability Committee. I would appreciate this position to allow me to get even more involved within the society as well as be able to give back to the society, The assets that I think would be advantageous in this position would include handling a budget, finding out unique opportunities and happenings in the city, and reliability.

Outreach Representative:
Cal Bearman, Wiss, Janney, Elstner Associates

I am interested in being the SEAW YMF Outreach Chair. I have always had an interest in reaching out to students and promoting engineering. At Purdue, I was a member of the Purdue Student Engineering Foundation. This organization promoted engineering at Purdue to prospective students and their families. We worked hand in hand with Purdue's Engineering Recruitment department to attract prospective students and give them a feel for what engineering is all about. I really enjoyed giving tours and talking to the next generation of engineers. As the Chi Epsilon chapter president at Purdue, I upheld the organization's goal of "maintaining and promoting the status of civil engineering as an ideal profession." Since I have been in Washington, I haven't been as involved in promoting engineering. Being the Outreach Chair will give me the opportunity to develop connections in SEAW while promoting a profession that I love.

Upcoming YMF Events

Happy Hours on June 18, July 9, and July 17. See the SEAW Calendar on page 6 for times and locations.

Employment Opportunities

Structural Engineer

Fisher & Sons, Inc. is a design/build construction firm with offices in Burlington, WA and Seattle, WA, specializing in industrial and commercial projects in the food industry. In addition to construction project managers and project architects, Fisher also employees a team of mechanical engineers, with the goal of providing food clients with a comprehensive group of professionals and their services. Fisher intends to bring its structural engineering services in-house, and is seeking a qualified individual to spearhead that effort. The successful candidate will have the opportunity to build his/her own team, along with an opportunity for achieving elevation to shareholder.

The ideal candidate will have a Bachelor of Science degree in Engineering, and at least five years of experience with advanced knowledge in structural engineering, obtainable usually through a combination of experience and continuing education. Licensure as a Structural Engineer in the State of Washington is preferred; however, Fisher works in Oregon and California as well. Salary is DOE. This is a full-time permanent position.

Please send your resume either via e-mail: sw@fishersons.com, via fax at 360-757-3159, or via regular mail to Stephanie Wood, HR Manager, Fisher & Sons, Inc. 625 Fisher Lane, Burlington, WA 98233. Phone: 360-757-4094.

Civil/Structural Engineer

Casper, Phillips, and Associates (CP&A), a Tacoma WA, multi-discipline engineering firm has an opening for a MS or PhD in civil or structural engineering. CP&A specializes in industrial buildings and international machinery design such as container cranes and construction equipment. Most of our industrial building seismic design utilizes performance based non-linear-time-history procedures. Machinery design requires consideration of weight, cost, and durability under numerous applications of actual loads. The successful candidate should be familiar with IBC, ASCE, ACI, and AISC structural engineering standards. Good communication skills are important, especially listening as well as speaking and writing. International travel is required for many of our projects. Salary is competitive and benefits include professional dues reimbursement, continuing education reimbursement, and medical insurance. Please provide college transcripts, employment history, work product examples, cover letter, and any questions you may have to Jeff Hubbell at jeff@casperphillips.com.

Senior Engineer

Opening Date: 05/08/13, Closing Date: 06/28/13 05:00 PM. Annual Salary Range: $79,456.00 - $101,857.60

The City of Tacoma Planning and Development Services Department seeks to fill a Senior Engineer position to perform advanced-level review of building permits for conformance with the International Building Code, International Residential Code, Uniform Plumbing Code, International Mechanical Code, International Fuel Gas Code and International Existing Building Code. The position also provides customer service for building code questions.

Requirements include:

- Bachelor's degree in engineering or architecture or related field and five years experience as a Professional Engineer, or ten years experience with building codes and reviewing building plans in lieu of the P.E. license.
- Experience with the structural and non-structural portions of the building code and other construction codes.
- Comprehensive knowledge of building construction.
- Valid driver's license for travel to job sites

Interested individuals should apply online and attach a detailed resume and cover letter describing your responsibilities as it relates to the responsibilities of this position. You must apply on the City of Tacoma's web site to be considered. www.cityoftacoma.org/jobs

Should you have any questions about this position please call Human Resources at (253) 591-5400 before the closing date.

Meetings, Seminars and Announcements

Coming in Fall of 2013!

Wind Design Using the 2012 IBC and ASCE 7-10

Recent trial designs of wind and seismic provisions have shown that practicing engineers have great difficulty applying the wind provisions of ASCE 7 and that they often get unconservative answers. The SEAOC, SEAO, and SEAW Wind Committees, in cooperation with NCSEA, have developed a much faster, simpler method for wind design of typical buildings, which has been published in the IBC.
Trial designs of this method indicate that it improves accuracy and greatly reduces the time it takes to calculate the wind forces. This seminar will present the history of wind storms in Western Washington followed by an overview of the wind provisions in ASCE 7-10 and the 2012 IBC, including the new "Alternate Method of All-Heights" provisions. Detailed example problems for both the main wind force resisting system and for components and cladding will be shown. The seminar will end with a presentation on recent observed high-wind damage from Midwest storms, and is intended for both recent graduates and experienced practicing engineers.

Tenth U.S. National Conference on Earthquake Engineering

Call for Papers and Special Sessions

The Tenth U.S. National Conference on Earthquake Engineering, on the 50th Anniversary of the Great Alaska Earthquake and Tsunami, will provide an opportunity for researchers and practitioners to share the latest knowledge and techniques to mitigate the damaging effects of earthquakes and tsunamis.

Call for Papers

Prospective authors are invited to submit abstracts of no more than 500 words for the Tenth National Conference on Earthquake Engineering. The abstract submission deadline is June 15, 2013. Abstracts can be submitted online at http//:submissions.miracd.com/10NCEE/login.aspx .

More Information

For more information view the First Announcement and Call for Papers at:
http://10ncee.org/wp-content/uploads/2012/12/10NCEE_Call-for-Papers.pdf
or visit the conference website: http://www.10ncee.org.

Marine Foundations Seminar

The Marine Foundations Committee of the Deep Foundations Institute (DFI) will host its specialty seminar, Current Topics in Marine Foundations, Thursday, August 1 and Friday, August 2, 2013, in Seattle, Washington. The seminar venue will be announced soon.

This two-day event will highlight recent and future projects, including challenging marine foundations. Perspectives of owners as well as contractors and engineers will present new or recent techniques, designs, and case histories. These presentations will highlight technical and economic advantages as well as long term performance. Abstracts are now being accepted covering the following topics:

- Coastal and overwater roadways: remedial and new projects
- Flood protection projects
- Renewable energy in the USA
- Modern caisson construction of large foundations
- Modern uses and trends for submerged tunnels
- Noise mitigation and measurement of marine pile driving

In addition, the Ben C. Gerwick Award for Innovation in Design and Construction of Marine Foundations will be presented in recognition of a professional whose innovative body of work has impacted the industry in a great way. All dinner sponsorships and a portion of attendee registration fees will be donated to the DFI Educational Trust.

Visit www.dfi.org for updates. For more information, contact Lauren Nance, Event Coordinator, at DFI at lnance@dfi.org.

Public Information Committee

"Like" our Facebook Page!

The Public Information Committee is pleased to announce our SEAW Facebook Page is now active. We invite you to join and participate!

1. To check out our SEAW Facebook Page, follow the link below: http://www.facebook.com/pages/Structural-Engineers-Association-of-Washington/148377318650886
   Once you are on the page, just click the "LIKE" button.
2. Take a few minutes to 'Invite' other members, your friends, and the general public to use and participate in our SEAW Page.
3. Connect with others in the structural engineering community, find learning opportunities, and share your ideas and experiences.

Recently on Facebook

Photo by ASCE. April 24, 2013—The Concrete Canoe in action! Closest to the camera is the UW Co-ed sprint team, who would go on to place first in this race.

WABO/SEAW Liaison Committee releases White Paper 9-2013: Threaded Rod Hold-down Systems in Wood Frame Buildings

This white paper establishes guidelines for specifications for building officials, design professionals, contractors and building owners relating to threaded rod hold-down systems and associated anchorage of shear walls in wood-frame buildings.

Modern wood framed multi-story buildings often employ continuous threaded rod hold-down systems to resist overturning forces in shear walls. The design of such systems is governed by IBC and ACI 318. This white paper will provide recommendations and guidelines for specifying threaded rod systems including the hold-down anchor design in concrete.

The WABO/SEAW Liaison Committee meets monthly to pursue the following aims:

- *Improve communications between the public jurisdictions that administer building codes and the engineering design community that prepares construction documents.*
- *Improve consistency and quality of engineering submittals and project reviews.*
- *Build consensus between the engineering design community and building officials with regard to code interpretation and submittal requirements.*

For further information, contact SEAW Liaison chair Charlie Griffes at charlie@ctengineering.com

SEAW Committee Corner (Visit www.seaw.org for updates)

The SEAW Committee Corner is dedicated to promoting greater communication between the membership and committees, and to encourage all SEAW members to become active participants in the committee(s) of their choice. Many committees are now using GoToMeeting web-conferencing software to facilitate remote attendance at meetings. Ask the committee chair for details.

Committee Name	Meeting Information	Topic(s)	Contact Information
Building Engineering	No information available.		Scott Beard, 253.591.5019 sbeard@cityoftacoma.com
Disaster Preparedness & Response	Meets every third Tuesday. Next meeting 6/18, 12:00-1:00 (bring your lunch) Quantum Consulting Engrs., 1511 3rd Ave, #323, Seattle	SEAW database for Post-disaster volunteer assistance to WABO	Joyce Lem, 425.450.6345 Joyce.lem@hdrinc.com for remote access via GoToMeeting contact John Riley at jriley@quantumce.com
Earthquake Engineering	Date to be announced	Invited speaker will present steel fiber reinforced concrete and stud rails for slab punching shear resistance.	Tom Xia, 206.332.1900 txia@dci-engineers.com Andy Taylor, 206.622.5822 andyt@kpff.com
Education	Thursday, June 6, 12—1:00pm at Seattle Municipal Tower, Rm 2170 Phone conferencing available.	Continuing education planning	Ardel Jala, 206.684.0573 ardel.jala@seattle.gov Adam Theiss, 206.292.1200 atheiss@mka.com
Existing Buildings	Watch website for schedule		Bryan Zagers, 206.343.0460 bryanz@cplinc.com
Legislative	No summer meetings scheduled		Tim Nordstrom, 206.707.3980 timn@starseismic.net
Professional Practices	Summer meeting dates TBA		John Tawresey, 206.622.5822 johntaw@aol.com
Public Information	On or about June 15 (subject to results of Doodle Poll) 5:00-6:00 pm via GoToMeeting only	Improvements to PIC	Darrell Staaleson, 253.520.0388 dstaal@staaleng.com
Seattle Users of BIM Structural (SUBS)	To be announced		Irina Wong, chair 206.262.9240 iwong@degenkolb.com
Snow Load	No scheduled meetings.	Stay tuned!	John Tate, 509.972.3079 Jatce@charter.net
Sustainability	No scheduled meetings.	Visit the committee blog at http://seawsustainability.blogspot.com/	Adam Slivers, 206.622.5822 Adam.slivers@kpff.com
Technology	To be scheduled.	Work is progressing on database side of SEAW website. Meetings will be scheduled for design.	Steve Dill/Lynnell Brunswig 206.622.5822/206.682.6026 steve.dill@kpff.com seaw@seaw.org
Wind Engineering	No information available.	Chair needed!	OPEN
WABO/SEAW Liaison	To be announced		Charlie Griffes, 206.285.4512 Charlie@ctengineering.com

STRUCTURAL ENGINEERS ASSOCIATION of WASHINGTON • Seattle Chapter
PO Box 44 • Olympia WA 98507 • 206/682-6026 • www.seaw.org

SEAW Calendar

JUNE, 2013

Tuesday	11th	SEAW Spring Social and Awards Event Lake Union Café, Seattle
Tuesday	18th	YMF Happy Hour, 5:00–7:00 PM Sazerac, 1101 Fourth Avenue, Seattle
TBD		Seattle Chapter Board Meeting Noon meeting

JULY, 2013

*******		OPEN nominations for Lifetime Service Award, deadline November 1
Tuesday	9th	YMF Happy Hour, 5:00–7:00 PM Boca, 1000 1st Ave, Seattle
Wed	17th	Eastside YMF Happy Hour, 5:00–7:00 PM Wild Ginger, 11020 NE 6th St, Bellevue

The SEAW Seattle Chapter *Equilibrium* is published monthly from September through May and is available online at www.seaw.org.

Articles, letters, and announcements are accepted by e-mail to seaw@seaw.org.

Advertising rates (prepaid) Help Wanted/Job wanted, max 200 words, $65; Display ads: Quarter page, $115; Half Page, $150; Full Page $190. 10% discount for ads running two or more months. Deadline is the 20th of the month. Contact SEAW for an advertising order form.

Membership

Membership Postings

In accordance with SEAW bylaws, membership applications are vetted by the Executive Director, granted probationary status by the chapter board, and posted for membership comment. Membership is considered accepted 30 days after posting if current year dues are paid and no member objections have been received.

New Members:

Ryan W. Bell
Collins Engineers Inc
BSCE North Carolina State University
Class: Associate

Anjing Bi
CivilTech Engineering Inc
BSCD 2000, Zhejiang University, China
MSCE 2004, PhD 2006, Texas Tech, Lubbock TX
Licensed PE, WA
Class: Member PE

Joanne Bayuga
Integrated Design Engineers
BSCE 2001, University of Washington
Licensed PE, WA
Class: Member PE

Casey Held
BSCE 2004, MSCE 2005, University of Washington
Licensed EIT, WA
Class: Associate

Ryan Hester
AHBL, Inc
BS 2002, NY State University Raleigh
Licensed PE, WA
Class: Member PE

Andrew Kracht
DCI Engineers Inc
MS 2009, MS 2010, Washington State University
EIT WA
Class: Associate

Jingjuan Li
KPFF Consulting Engineers
MS 2005, Washington State University
PhD, 2010, Univeristy of Washington
Licensed SE, WA
Class: Member SE

Yan Liu
CivilTech Engineering Inc
BSCE 1989, S. China University of Technology
MSCE 1993, University of Washington

Dylan Menes
CivilTech Engineering Inc
BSCE 1998, University of Nevada, Reno
Licensed PE, WA
Class: Member PE

Member Changes:

Theodore E. Smith
Member SE to Life Member