



# CONNECTIONS

October 2011 Volume 12 Issue 2

Newsletter of the  
Structural Engineers  
Association of Oregon

## SEAO

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## Upcoming SEAO Meetings and Events:

### October 20th: AISC Seminar

Topic: The new 14th Edition Steel Manual

Time: 8 am to 5 pm

Location: Double Tree Hotel - 1000 NE Multnomah St., Portland, OR 97232

SEAO members are eligible for AISC member pricing - put "SEAO" in AISC member number box.

Register online at [www.aisc.org/seminars](http://www.aisc.org/seminars).

### October 26th: SEAO Dinner Meeting

Speaker: Daniel A. Cuoco, Editor-in-Chief of Structural Engineer magazine

Topic: Issues Facing Our Profession

Location: Governor Hotel, Portland / 5:30 pm social, 6:15 pm dinner, 6:45 pm program.

See page 3 for additional information.

### November 16th: SEAO Lunch Meeting

Speaker: Ashraf Habibullah, S.E., Founder, President and CEO of Computers and Structures, Inc. (CSI)

Topic: Structural Engineering - The Profession, the Grandeur and the Glory.

Location: Governor Hotel, Portland / 11:30 am social, 12:00 pm lunch and program.

### November 29th, December 6th and 8<sup>th</sup>: Structural Masonry Design Webinar

Topic: A three-session webinar focusing on the design of reinforced concrete masonry construction.

See page 7 for more information.

### February 23, 2012: Save this date for the SEAO Tradeshow.

### July 25-28, 2012: SEA NW Conference

Location: Kah-Nee-Ta Resort & Casino, Warm Springs, OR.



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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## PRESIDENT'S MESSAGE: "OH, SO YOU'RE AN ARCHITECT!"

By: *Ed Quesenberry, P.E., S.E.*



You have all experienced it before, I am sure . . . the glazed look of confusion followed quickly by, "Oh, so you are an Architect!" At this point you usually wish you would have responded to their inquiry about your profession with something more recognizable like "teacher" or "garbage man", just so that you wouldn't have to attempt to explain what it is that you do as a Structural Engineer to someone who is not in the construction industry.

Over the years, I have used phrases like "I make buildings stand up" or "I design the skeleton of the building, while the architect designs the shape and skin" to attempt to differentiate what I do from what Architects do. If I am still faced with the dazed look, I just say that I am the guy that gets blamed when something falls down. That usually works, or the conversation has degenerated so far so quickly, that we each go our separate ways wondering how we could get the last 5 minutes of our life back.

So, why is it that so many people have no idea what we do? We are in a profession that most take for granted--that is, until something goes wrong. Most of us to some degree take the environment in which we live for granted. We know that the sun rises in the east, sets in the west, the day is 24 hours long, and that birds chirp, so we rarely think about those things. People tend to have the same attitude towards the every day built environment as well. Other than pyramids, skyscrapers and Renaissance churches, most buildings do not cause people to say, "Gee, I wonder how they built that?" At the risk of generalizing, I would venture to say many people enter and exit their homes and places of work every day without giving a thought to what the building is made of, or how it would fare in an earthquake or major snowstorm. They take it for granted that, since it looks nice, it must be safe. They have no idea what went into creating the spaces where they spend the majority of their lives. This indifference may be hard for us Structural Engineers to understand, but it is human nature.

I am sure most of you have noticed significant spikes in interest about our profession after natural disasters. In an effort to comprehend the devastation, people outside our industry start actively seeking answers that might help them understand why the building collapsed, why the

roof came off, or what caused the devastating tsunami. While Structural Engineers do a great job of aiding in post disaster reconnaissance and recovery, we historically have not capitalized on these opportunities to engage with the public in a discussion about structural risks in our own communities. We gather data on structural performance and observed failures, dispatch code committees to update or refine the building code, and go back to the business of engineering. In doing this, we lose a valuable opportunity to build public knowledge about our profession and to apply our expertise to solving complex, widespread problems right in our own backyards.

The most recent of these opportunities came in the wake of the earthquake and devastating tsunami in Japan. Nathan Gibson of Skanska Oregon summed it up well in his guest column in the September 30 edition of [The Business Journal](#), "Although local government officials have long realized the need for making our public buildings safe, an incident of this magnitude brings about a sense of immediacy". It is our choice as structural engineers whether we act on this sense of immediacy and take action or we opt for the status quo and resume our position in the back seat.

With all of its specialized committees, diverse membership, and internal resources, SEAO is primed to serve as a platform for action. As Kurt Haapala explained about advocacy at last month's meeting, ". . . if we don't speak up, others will on our behalf and we will have to live with the consequences." After the meeting, many members approached me asking for ways to get involved or expressing an interest in some aspect of SEAO work, so I know Kurt's words struck a chord. To that end, SEAO intends to harness this interest and direct it toward efforts that advocate more actively for both our profession and the safety of the built environment in Oregon. Our immediate needs are volunteers to assist Jason Thompson in the Seismic Committee's work on codes and advocacy, Aaron Rudis in setting the course for Young Member Forum this year, and Kevin McCormick in planning the NW Conference. If any of these are of interest to you, reach out to them and you will get plugged in. If something else interests you, make yourself heard by contacting any Board member and telling us about it.

We will know we are on the right track when, instead of asking us what a Structural Engineer does, people start saying, "Wow! You're a Structural Engineer?" Isn't that change we are *all* ready for?

## SEAO Committees

### Technical

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# OCTOBER DINNER MEETING ANNOUNCEMENT

## Wednesday, October 26, 2011

### Topic: Issues Facing Our Profession

Some of the issues facing our profession have become exacerbated as a result of the sluggish economy. These range from onerous contract provisions that put firms – and sometimes their employees – at high risk, to pressures on firm owners to be engulfed by the global megafirms in order to survive. Another issue is the need for emergency responder legislation to protect structural engineering firms from the types of misguided lawsuits that they were (and still are) subjected to in connection with their work at the World Trade Center disaster site after the terrorist attacks of September 11, 2001.

#### Location and Times:

Governor Hotel, 2<sup>nd</sup> Floor, Billiard Room

614 SW 11th Ave, Portland OR

*The MAX Light Rail System stops just a block away from the hotel (The Galleria stop) and Portland's Streetcar stops right outside the hotel. Smart Park is located at SW 10<sup>th</sup> and Yamhill about two blocks from the hotel.*

**Check-in and Social Hour:** 5:30pm

**Dinner:** 6:15 pm

**Program:** 6:45 pm

**Cost:**

#### Dinner & Program

\$32 – Pre-paid Members

\$40 – Pre-paid Non-members

\$18 – Students

**Cost for Videocast Locations:** \$20 – Members

\$33 – Non-members

\$13 – Students

#### Videocast Venues:

**Corvallis:** CH2M Hill, 1100 NE Circle Blvd., Suite 300, (541)752-4271

**Bend:** Eclipse Engineering, 155 NE Revere Avenue, Suite A, (541)389-9659

**Eugene:** Artisan Engineering, 325 West 13th Avenue, (541)338-9488

#### Reservations:

Pre-registration required. **You can register and pay online at [www.seao.org](http://www.seao.org) before noon, Friday, October 21.** You can also register with Jane Ellsworth via phone at (503) 753-3075 or via Email: [jane@seao.org](mailto:jane@seao.org). Note: No-shows will be billed.

**PDH Credit:** One PDH has been recommended for this program

**About the Speaker:** Daniel A. Cuoco, P.E., F.ASCE is Editor-in-Chief of *Structural Engineer* magazine, a ZweigWhite monthly publication. In June 2011, he retired as President & CEO of Thornton Tomasetti, a 600-person international engineering and design firm, and currently serves as a Consultant to the firm. Mr. Cuoco has extensive experience in both the design of major projects as well as the investigation of structural failures, and is licensed as a professional engineer in eight states. He holds Bachelor's and Master's degrees in Civil Engineering from the City College of New York and New York University, respectively, and a Master of Business Administration degree from Adelphi University.

# SEPTEMBER MEETING RECAP

By: David Tarries, P.E

## Looking Beyond Your Desk: Collaborative Opportunities for Architects and Engineers

By Kurt Haapala, AIA

Kurt is the current president of the American Institute of Architects (AIA) Portland chapter. He is an associate principal with 16 years of experience at Mahlum Architects. His presentation at the September dinner meeting focused on how Architects and Structural Engineers can leverage their existing relationship to further our respective professions as well as to improve the safety of our own communities. The discussion was framed in the context of the potential for collaboration between the AIA and SEAO organizations.

Below are some of the key points of his presentation:


Kurt was quick to point out some of the differences between architects and engineers, as seen in his slides below. He was also quick to mention that despite being a breed apart, together we accomplish great works.

**the architect**



- right brain dominant
- thinks iteratively & often irrationally
- consumed with the aesthetic
- can't put the pencil down – EVER !!
- prefers monochromatic clothing
- brooding personality
- terribly interesting at parties
- dirt poor – but you wouldn't know it

**the engineer**



- left brain dominant
- thinks linear & rationally
- straight is always good
- why not draw it once ????
- not terribly interested in appearance
- boring personality
- standing in corner at parties
- well off – but you wouldn't know it

### **Mission:**

The mission and vision of AIA is similar and complimentary to the mission of SEAO. The AIA is the voice of the architectural profession and a resource for its members in service to society.

AIA works on the premise of the following four pillars:

- Knowledge
- Advocacy
- Communication
- Collaboration

These pillars are also critical to SEAO.

### **Organization:**

AIA as an organization is made up of 16 regions and 300 chapters. The Portland chapter is the 15<sup>th</sup> largest in the nation. Comparatively, SEAO is the 5<sup>th</sup> largest SEA in the nation. Together these two groups have access to considerable resources.

- knowledge**  
Create, promote, and disseminate interdisciplinary study and research ensuring the AIA's members are leaders in the profession, the industry, and their communities.
- advocacy**  
Advance policies about design through political outreach, education, and engagement that are responsive to the public and the profession.
- communication**  
Elevate the voice of architects to promote the value of design and to enhance the public's understanding of the importance of architecture.
- collaboration**  
Align resources and empower networks of members, components, and allied professionals to build teamwork.

### **Events:**

Each year AIA Portland has a long-range retreat where they prepare goals for the year and create a blueprint for success. They also send a delegation to Washington D.C. to push for legislation important to our industry as part of an AIA Grassroots Conference. Recent efforts have included an emphasis on sustainability and job creation.

AIA Portland is working on a new program this year called Design Excellence Oregon. ex<sup>2</sup>, as it is also known, was created to develop a state-wide culture of design excellence.

Last year the AIA Pacific Northwest Region Conference was held in Eugene. This year it will be held in Tokyo, Japan. After the conference the attendees will have a chance to tour and discuss the devastation in eastern Honshu, Japan.

Each year the chapter puts on the Portland Architecture and Design Festival. It is a month long celebration throughout October consisting of many educational and social events for the industry. This year's celebration also marks the 100th anniversary of the AIA in Oregon. There is even an iPhone application available this year.

(Continued on page 5)

# SEPTEMBER MEETING RECAP

(Continued from Page 4)

## **Pillars in Action:**

The following are some of the activities that AIA promotes in conjunction with the 4 pillars. In addition are ideas for ways for structural engineers and SEAO to get involved.

### Knowledge:

- Continuing education programs and sessions, such as FRED, or Friday Education Series.
- Architectural Registration Examination (ARE) training, with sections presented by structural engineers.
- Seismic Symposium – *Preparing for Seismic Certainty* in June of 2011, with participation by structural engineers on an expert panel.
- ATC 20 Post-Earthquake Safety Evaluation of Buildings training could be put on for architects and engineers to be better prepared to help our neighboring cities should tragedy strike.
- A seismic/tsunami presentation is another topic of interest to architects and engineers.

### Advocacy:

- Design Professionals Day - 2012
- Government Relations/Legislative issues, such as the defeat of the wood only bill in the state legislature.
- SRGP, Seismic Rehabilitation Grant Program. Governor Kitzhaber had planned to end the SRGP but recommendations by AIA members convinced him to keep the program alive for at least one more year. That means \$15 million for school seismic retrofits and \$7.5 million for emergency services. Next year is a new battle. If we are not at the table to fight for our industry, we will lose by default.

### Communication:

- Portland Public School Bond Campaign. AIA wrote a letter for the voter information pamphlet defending the program.
- We should work on programs that communicate the importance of seismic preparedness in both businesses and residences.

### Collaboration:

- AIA Allied Membership Program
- Emerging Professional network, including current social networking media like Facebook.
- SEAO could hold a board meeting at the AIA Center for Architecture at NE 11<sup>th</sup> and Flanders.
- AIA and SEAO could hold a joint board meeting.
- AIA could present at this year's SEA NW Conference at Kah-Nee-Ta in July.

## **Additional Ideas and Comments from the Audience:**

- It is important to remind the public that many schools need to be upgraded to prevent collapse during an earthquake. Getting the media to help instead of hinder the process is key. The effort needs a positive spin to gain public support.
- The national infrastructure is in disrepair and frequently Washington forgets that the infrastructure is made of up more than just roads and bridges. Buildings and structures are also in need of help. A push for more legislation needs to start at the grassroots level, for example with members of SEAO. When enough people band together, the political machine will take notice of voter influence. We need to get involved.
- The 100<sup>th</sup> anniversary of AIA in Oregon is going on this month. Log on to AIA's website for a list of events and collaborate with architects in their celebration.
- The ACE mentorship program is going on in high schools across Portland to raise levels of awareness of building design and construction. AIA is involved, but SEAO is not participating at the same level. If engineering firms are going to hire employees in the future, they should work to ensure that there is a base of educated graduates to choose from. AIA also has a program called Architects in Schools that works with kids in elementary schools.
- There are approximately 500 members in SEAO and perhaps only 50 at any given general meeting. We should try to encourage others to become involved and participate in the organization. SEAO will have more power to collaborate with architects and reach out to the community if we increase member participation in general. SEAO members interested in any of the topics or programs mentioned in this presentation should contact a member of the SEAO Board for more information (contact info can be found at [www.seao.or](http://www.seao.or)).

Kurt's presentation was very entertaining and provoked many thoughts about directions SEAO could take in the effort to advocate for our profession as well as to become more involved in the community around us.



## SEISMIC QUIZ

This seismic quiz has been put together by the Seismic Subcommittee of SEAO. Questions and answers are based on ASCE 7-05 or ASCE 7-10. Enjoy!

- 1) What is the importance factor ( $I_p$ ) for egress stairways?
- 2) True or False? A structure assigned to Seismic Design Category E or F shall not be located where there is a known potential for an active fault to cause rupture of the ground surface at the structure.
- 3) Which of the following irregularities are prohibited in Seismic Design Category D buildings under ASCE 7-05?
  - a. Horizontal Irregularity Type 1b, Extreme Torsional Irregularity
  - b. Horizontal Irregularity Type 3, Diaphragm Discontinuity Irregularity
  - c. Vertical Irregularity Type 1b, Stiffness-Extreme Soft Story Irregularity
  - d. Vertical Irregularity Type 5b, Discontinuity in Lateral Strength-Extreme Weak Story Irregularity
- 4) Which of the following structures would be classified as Seismic Design Category E under ASCE 7-05?
  - a. 20-story office building on site underlain by soft clay soil,  $S_s = 1.25g$ ,  $S_1 = 0.66g$
  - b. Police station underlain by stiff soil,  $S_s = 1.50g$ ,  $S_1 = 0.81g$
  - c. Elementary school underlain by hard rock,  $S_s = 1.33g$ ,  $S_1 = 0.78g$
  - d. 30-story condominium tower underlain by soft soil,  $S_s = 1.75g$ ,  $S_1 = 0.72g$
- 5) In structures assigned to Seismic Design Categories C through F, what is the maximum length-to-width ratio of the structural subdiaphragm?



See Page 8 for answers.

## OSU CLASSES

### PRESTRESSED CONCRETE DESIGN CLASS

#### SPONSORED BY KNIFERIVER 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 Tuesdays starting January 3rd 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 5th 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/>

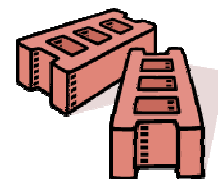
Registration information:

<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) = 36966

CRN for CE 808 (Pres. Conc.) = 37077



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

## MEMBERS OF THE MONTH

For their tireless efforts on the SEAO Newsletter, the Board has named both David Tarries and Todd Nagele members of the month for October. Between the two of them, they provide the necessary behind the scenes duties that help ensure the quality and consistency of the publication of our newsletter from month to month.

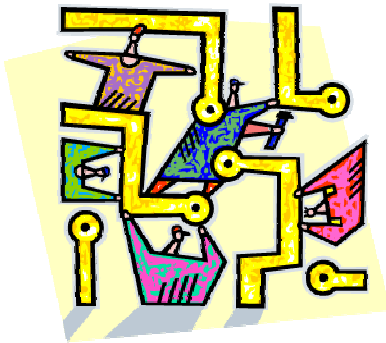
David attends all monthly meetings and prepares an article for the newsletter that summarizes each meeting program. This not only provides attendees with a summary of what was presented but informs the membership who did not attend of what was discussed—keeping all members up to date with the topic at hand. He has been an integral part of making the monthly newsletter an informative piece of information for the membership and we appreciate his efforts.

David Tarries holds Master and Bachelor's degree in Civil Engineering from Iowa State University and joined KPFF Consulting Engineers in 2002 as a structural engineer and project manager. He is a world traveler, and while in Haiti, he volunteered his professional services to provide building assessments after the 2010 earthquake. David is an avid cyclist, skier and scuba diver.

Todd does an extraordinary job with the layout of the newsletter. He not only does the entire layout, fitting all newsletter items into a readable format, but he creates the monthly cartoon Skyhooks that we all enjoy. He also receives the newsletter items and has only a day or two to create the layout and return for final edits. His creativity, speed and patience with the last minutes edits have resulted in a team effort that produces invaluable information to our members.

Todd grew up in the Portland area and went to grade school in Boring, Oregon. Todd worked for Bechtel on Hanford projects before joining Froelich Consulting Engineers in 2001. Todd is a graduate of Walla Walla University in Washington. Sources close to Todd report that he is quite accomplished at making precast concrete planters for his yard and that he has quite an artistic bent.

Thanks to David and Todd for everything you do for SEAO every month! Keep up the great work!



## STRUCTURAL MASONRY DESIGN WEBINAR

The Northwest Concrete Masonry Association will be conducting a three-session webinar focusing on the design of reinforced concrete masonry construction. Both working stress and strength design methods of the 2009 IBC and 2008 MSJC codes will be covered.

The updated webinar will cover design examples of masonry building elements by manual and automated methods. It is aimed at practicing engineers who want to learn how to design masonry in a practical and efficient manner.

Continuing education credit (up to 7.5 PDH) can be earned. Certificates of attendance will be issued.

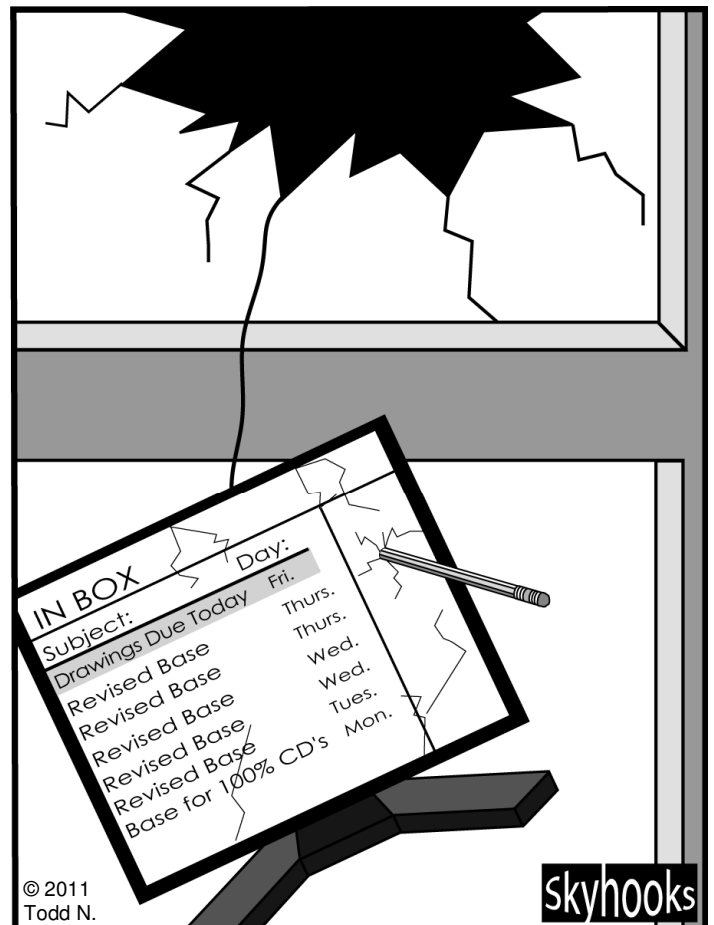
The webinar dates are:

**November 29th, December 6th and December 8<sup>th</sup>, 2011**

Each session will run from 4:00 - 6:00 pm Pacific Time

See attached brochure for additional information.

Also, additional information can be obtained from the Northwest Concrete Masonry Association at 425.697.5298 or [www.nwcma.org](http://www.nwcma.org).



Some weeks are better than others.

## EMPLOYMENT OPPORTUNITY

### Civil / Structural Engineer

Opening for a professional civil/structural engineer. Job responsibilities include residential and commercial structural design, site observation, client contact and project management.

**Qualifications:** 10+ years minimum experience in related field. Civil/structural engineering required. Knowledge/experience in construction preferred. Valid driver's license required.

To Apply: Applicants should submit a cover letter and CV in PDF format. Email to: [Helen@wcfare.com](mailto:Helen@wcfare.com)

## INSTRUCTOR IN ENGINEERING WANTED

The Donald P. Shiley School of Engineering at the University of Portland invites applications for a renewable, full-time, non-tenure-track, nine-month teaching position. The selected candidate will teach eight courses/sections per year and advise undergraduate engineering students. There are no scholarship expectations. The position requires a minimum of a Master's degree in Engineering, with a Ph.D. preferred, and strong English language skills.

All materials should be submitted electronically (PDF format preferred) to [engineering\\_job@up.edu](mailto:engineering_job@up.edu). Review of applications will begin immediately and continue until qualified candidates are identified. Only electronic applications will be considered.

### **ANSWERS TO SEISMIC QUIZ ON PAGE 6**

- 1)1.5 (ASCE 7-10 Section 13.1.3 (1)—new to ASCE 7-10)
- 2)True (ASCE 7-10 Section 11.8.1. Same section ASCE 7-05)
- 3)d
- 4)c
- 5)2.5 to 1 (ASCE 7-05 Section 12.11.2.2.1)





# NORTHWEST CONCRETE MASONRY ASSOCIATION PRESENTS

## STRUCTURAL MASONRY DESIGN WEBINAR

This three-session webinar will focus on the requirements of 2009 IBC Chapter 21 and the referenced material standard TMS 402/ACI 530/ASCE 5. Both working stress and strength design of reinforced concrete masonry will be covered. Learn how to use and interpret the building code through masonry building element design examples. Seminar participants can earn continuing education credit. (7.5 PDH credit available) Certificates of attendance will be issued.

### Webinar Details:

Dates:	November 29, December 6, 8, 2011
Time:	4 - 6:30 pm Pacific Time
Cost:	\$125 per session per internet connection or \$325 for all three sessions.
Connection:	The webinar will be conducted using Go To Meeting. Each connection site will receive one workbook which includes a bound set of course notes. Additional workbooks are available for \$20 each plus shipping and handling.

### Webinar Content:

Nov. 29:	Masonry Materials, Code Overview, Beam Design, Seismic Testing
Dec. 6:	Columns, Out-of-Plane Walls, Quality Assurance, Constructability
Dec. 8:	Anchor Bolts, In-Plane Walls, Direct Design

### Instructors:

Ray Miller, P.E.,	Miller Consulting Engineers, Portland, OR - Nov. 29th
Sue Frey, P.E.,	CH2M Hill, Corvallis, OR - Dec. 6th
Ed Huston, P.E.,	Smith and Huston Consulting Engineers, Seattle, WA - Dec. 8th
Tom Young, P.E.,	Northwest Concrete Masonry Association, Mill Creek, WA



# NORTHWEST CONCRETE MASONRY ASSOCIATION STRUCTURAL MASONRY DESIGN WEBINAR

Please plan to participate. Seminar participants can earn continuing education credit. You can register on-line at [www.nwcma.org](http://www.nwcma.org), by calling NWCMA at 425.697.5298, or by faxing this completed form to 425.697.2679.

Name: \_\_\_\_\_

Company: \_\_\_\_\_

Address: \_\_\_\_\_

City/State: \_\_\_\_\_ Phone: \_\_\_\_\_ Fax: \_\_\_\_\_

Email: \_\_\_\_\_

Register me for the sessions marked below:

Nov. 29, 2011 \$ 125.00

Dec. 6, 2011 \$ 125.00

Dec. 8, 2011 \$ 125.00

All three sessions \$ 325.00

\_\_\_\_\_ Extra workbooks @ \$20/ea plus \$10.00 s/h \$ \_\_\_\_\_

Total Due \$ \_\_\_\_\_

## Payments:

Check or Money Order (payable to Northwest Concrete Masonry Association)

Credit Card (Check one)  Visa  Mastercard  Discover  American Express

Card Number \_\_\_\_\_ Name on Card \_\_\_\_\_

Billing Address: \_\_\_\_\_

Exp. Date \_\_\_\_\_ CCV # (last 3 digits on back of card) \_\_\_\_\_

## Confirmation:

You will receive confirmation of your registration, including detailed information regarding Go To Meeting requirements.

Please send completed registrations and payment to:

NWCMA • 16300 Mill Creek Blvd, Ste 208-C • Mill Creek, WA • 98012 or fax to 425.697.2679

Questions? 425.697.5298