



Newsletter of the
Structural Engineers
Association of Oregon

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SEAO has a twitter
account and can be
followed at
[@SEAOOregon](https://twitter.com/SEAOOregon).



CONNECTIONS

October 2016 Volume 17 Issue 1

Upcoming SEAO Meetings and Events:

Wednesday, October 28, 2016: SEAO Lunch Meeting

Topic: Seismic Renovation of an Historic Building Using Viscous Fluid Dampers
Speaker: Mark Tobin, PE, SE, KPFF Consulting Engineers
Location: Portland City Grill, 111 SW 5th Ave. 30th Floor, Portland, OR
Time: 11:30am Check-In and Lunch, 12:00pm Presentation
PDH Credit: 1 hour
See Page 3 for additional information.

Thursday, February 23, 2017: 53rd Annual Engineers Week High School Banquet

Location: Lloyd Center Double Tree by Hilton Hotel, Portland, OR
Time: 6:30pm to 8:30pm
Look for additional information in upcoming newsletters.

DUES REMINDER

Annual dues for SEAO membership are due on **October 31, 2016**. You can make checks payable to SEAO and mail to: 9220 SW Barbur Blvd, No. 119
Portland, OR 97219

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

Renewals: Member (licensed PE in Oregon): \$102
Affiliate Member: \$95
Student Member: \$16.50
Retired Members: \$25

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.

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

Send membership inquiries to:
9220 SW Barbur Blvd.
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PRESIDENT'S MESSAGE:

A NEW YEAR

BY: KEVIN MCCORMICK, S.E.



Welcome to the beginning of another new year for SEAO! As your new president I am honored and humbled to be representing you,

the members of such a valuable professional organization. When I accepted the gavel from Gary Lewis last month, I looked out over the sea of professionals and saw an assortment of young, new faces mixed with some old, familiar ones (and some who look way older than I remember!).

But a lot of us have changed over the last 25 years, and as I look back on the past lineage of presidents, I notice a long inventory of some of the greatest engineers in the area. These were the engineers that you went to sit down with to pick their brain about engineering. And through their experiences, have made our organization better.

So, I would like to encourage and challenge each of the younger members to take a moment to sit down at a lunch or dinner meeting this year with some of the older "grey-haired guys" to discuss how engineering has evolved; there is a tremendous wealth of information locked in their heads. And, I want to challenge the engineering elders to mentor and pass along some of the knowledge you've learned over the years. I am not asking you to give up trade secrets, but talk about your successes as well as your not-so-successful projects. Sometimes it's the project that is the most challenging that offers the most learning potential.

A great story I think of that serves as an example of opening up to the opportunity of a challenge is the story of the Hanshin Highway in Osaka, Japan. It passes through three floors of an office building so that a fly-over could be built. The engineers were definitely thinking "outside the box" on that one. All I'm saying is strive to learn something new each day and be open to new ideas and possibilities. It may lead to challenges, but, in the end, what worthy endeavor isn't challenging?

Finally, I would be remiss if I did not say how happy I was to see the turn-out for the September meeting. The awards ceremony was fantastic and an enormous note of gratitude goes out to the awards committee for their time and energy making it such a success. And to piggy-back on what Gary said in his outgoing message, I would like to say "thank you" to the board members that are leaving us. It has been great working with you. And to the new incoming and returning board members, I look forward to working with you.

To all of the engineers out there, start thinking of projects you have coming up that might be an inspiring project for next year's competition that will keep the field of engineering moving forward. You never know when the next challenge will come along that will inspire the whole of the engineering profession.

— Kevin McCormick

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OCTOBER LUNCH MEETING ANNOUNCEMENT WEDNESDAY, OCTOBER 26, 2016

Topic: Seismic Renovation of an Historic Building Using Fluid Viscous Dampers

This presentation will focus on a case study of the historic Galleria Building, originally constructed circa 1910, in downtown Portland. The seismic upgrade for this steel framed building consisted of adding fluid viscous dampers in order to provide additional energy dissipation. Additional seismic upgrade scope included local diaphragm strengthening and foundation work. The design methodology for the damper system as well as the advantages and disadvantages of this system will be discussed.

Speaker: Mark Tobin, PE, SE, KPFF Consulting Engineers



Mark has been the lead designer and project manager on a multitude of KPFF's most innovative seismic renovation projects. Many of these projects have utilized performance-based seismic design along with advanced analysis techniques to implement highly technical solutions such as fluid viscous dampers and steel plate shear walls. Many of these designs also met enhanced seismic performance objectives such as Immediate Occupancy for critical buildings. Mark was asked by the Oregon Seismic Safety Policy Advisory Commission to join a task force created to assess critical buildings within the state of Oregon. The task

force presented the findings to Oregon Legislature for seismic improvement funding of critical buildings in anticipation of the Cascadia Subduction Zone 2500-year earthquake. Mark is among the first group of structural engineers approved as a Certified Rating Professional for the US Resiliency Council. The US Resiliency Council establishes and implements performance rating systems for buildings during earthquakes and other natural hazard events.

Details:

Location: Portland City Grill, 111 SW 5th Ave. 30th Floor, Portland, OR

Time: 11:30 am — Check in and lunch
12:00 pm — Presentation

Cost: \$32 — Prepaid Members
\$20 — Prepaid YMF Members
\$42 — Prepaid Non-Members
Free — Students

Reservations: Pre-registration is required for all. You can register and pay online at 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. Note: No-shows will be billed.

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

SEPTEMBER MEETING RECAP

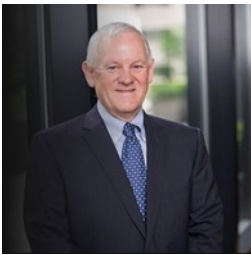
BY: LAUREN DIPALMA

Scholarship Awards:

Scholarship chair, Shelly Duquette presented the following awards. All recipients were in attendance.

- **Diana Avila**, Oregon State University
 - Susan M. Frey Memorial Scholarship
- **Aaron Schmalz**, Portland State University
 - Don Kramer Memorial Scholarship
- **Kolton Mahr**, Oregon State University
 - SEAO Scholarship

SEAO Life Member Award:



Shirley Chalupa presented the Life Member Award to **Wade Younie**, PE, SE, from DCI Engineers. Wade has been an SEAO member since 1981. He served as SEAO president from 1996-1997. He currently serves on the organization's Seismic Committee

and is chairman of the Vintage Building Committee. In 2014, he was on the panel of judges for the NCSEA Annual Awards Program to select projects for recognition in structural engineering excellence.

Keynote – “Cities of the Future”:



Paddy Tillet, ZGF Architects, gave us a peek into what cities of the future may look like. Most cities that will exist in the future already exist today. And many cities are moving towards more urban neighborhoods, with jobs and amenities located more closely

together. People in urban areas, particularly younger individuals, are becoming less car dependent and moving away from car ownership to short-term car rental (Zipcar, Car2Go), car sharing (Uber, Lyft), or having one car per family. This trend is likely to continue and increase as self-driving cars become a reality in the near future.

Excellence in Structural Engineering Awards:

2016 was the 2nd year SEAO has given project awards for outstanding achievement. Projects were nominated in July and judged by an independent panel of judges, including: Dr. Thomas Miller, Oregon State University; Stephanie Basalyga, Daily Journal of Commerce; and Angela Nepa, Hilti North America. Lauren DiPalma and JoMarie Farrell presented awards to the following projects:

- **University of Oregon Student Recreation Center**
DCI Engineers
Renovation / Retrofit
- **Jane Sanders Softball Stadium**
KPFF Consulting Engineers
Special Use Structures
- **Albina Yard**
KPFF Consulting Engineers
New Building Under \$10M
- **Daimler Parking Garage**
Miller Consulting Engineers, Inc
New Building Over \$10M
- **Schnitzer Center for Art and Design**
KPFF Consulting Engineers
Juror's Favorite

See the following pages for additional information and project photos.

Passing of the Gavel:

Outgoing President Gary Lewis introduced Incoming President Kevin McCormick. Other New Board Members include Seth Thomas (Vice President), Lindsey Weisgerber (Secretary), Phil Davis (Treasurer), JoMarie Farrell (Director), and Pat Merriman (Director).

SECOND ANNUAL SEA0 EXCELLENCE IN STRUCTURAL ENGINEERING AWARDS

BY: BRYNN ADKINS, LAUREN DiPALMA, AND JOMARIE FARRELL

Congratulations to the 2016 Excellence in Structural Engineering Awards Winners!

Renovation / Retrofit

University of Oregon Student Recreation Center
DCI Engineers



This \$50 million project involved a structural overhaul of an existing 40,000 square foot building built in 1959, as well as 110,000 square feet of new construction that ties together three existing buildings to create a state of the art campus recreation center. The spacious U of O student facility hosts 4,500-6,500 visitors per day and is the third college recreation center in the country to be LEED Platinum certified.

New Buildings Over \$10M

Daimler Parking Garage
Miller Consulting Engineers



This five-level, 330,000 square foot parking garage is one of the largest capacity parking structures in Portland. It hosts 1,254 parking spaces along with roof solar panels to provide shade and renewable power for rechargeable cars. Hydrostatic check valves in the basement permitted construction below the floodplain. Post-tensioned concrete slabs provided a crack-free slab while allowing for a nearly column-free structure.

New Buildings Under \$10M

Albina Yard
KPFF Consulting Engineers



This 4-story, 16,000 square foot office building utilizes glulam beams and columns with locally-fabricated CLT floor and roof panels. A clean and modern timber aesthetic was achieved through the carefully-designed timber-to-timber connections. During the design process, CLT was approved by the State of Oregon to be utilized as a seismic force-resisting element, and therefore was able to act as the horizontal diaphragms.

Special Use Structures

Jane Sanders Stadium
KPFF Consulting Engineers



The U of O women's softball stadium underwent major improvements by the construction of a new stadium along with brand new practice facilities. The project was restricted by a tight budget and strict construction timeline. The 150-foot wide winged steel roof of the stadium was built on the ground and lifted into place. Nearly every construction material was utilized in the overall design of the stadium and its facilities.

SECOND ANNUAL SEA0 EXCELLENCE IN STRUCTURAL ENGINEERING AWARDS (CONT.)

Jurors' Favorite

This year the jurors believed there was one project which stood out among all the rest. Congratulations to KPFF Consulting Engineers for winning the award of *Jurors' Favorite* with their work on the **Schnitzer Center for Art and Design**



The Pacific Northwest College of Art project consists of a partial/phased seismic upgrade and interior renovation of a historic building built in 1915. The dark space was opened up by bringing light into the public areas, and a grand atrium was created for large events. A partial mezzanine was added to create additional floor space. The two-phase seismic upgrade consisted of the installation of fluid viscous dampers. The flexibility of the dampers allowed the use of the existing partially rigid moment frames as the seismic force resisting system with local strengthening of certain members. The new mezzanine was built on an 8" flat reinforced concrete slab and was supported along the cantilever by a series of cables.

Thank You to the Other 2016 Excellence in Structural Engineering Awards Finalists

Hassalo on Eighth Mixed Use



KPFF Consulting Engineers

Fire Station 76



Nishkian Dean

Western Oregon University
Richard Woodcock Education Center



Equilibrium Engineers LLC

YARD



KPFF Consulting Engineers

The Awards Committee is looking for new members! If you or someone you know is interested, contact Brynn at brynn@wdyi.com for more information

SEISMIC COMMITTEE UPDATE

BY: REID ZIMMERMAN, COMMITTEE CHAIR

SEAO Seismic Committee Statement Residential Strengthening of Wood-Frame Dwellings

The SEAO Seismic Committee has been working diligently over the last nine months on several endeavors, one of which we would like to share with the greater SEAO community. One of the Seismic Committee's goals for this year was to review the City of Portland's and other jurisdictions' prescriptive methods for seismic strengthening of wood-frame dwellings. Prescriptive methods are intended to be used by a homeowner or contractor to provide a retrofit solution for cripple wall strengthening and sill bolt anchoring without the assistance of an engineer.

Through the committee's deliberation, we have generally agreed that a newer document released by FEMA after the 2014 South Napa Earthquake is more suitable, with modification, than current prescriptive methods such as the City of Portland's. The Seismic Committee has written a statement recommending this FEMA document and outlining modifications to be considered by Oregon jurisdictions before adoption. We hope that this statement will encourage jurisdictions to provide the FEMA document to homeowners, and thus promote the seismic retrofit of homes in Oregon.

A copy of the committee statement, in draft form, can be found on page 13. The committee statement lists the Seismic Committee members supporting the statement as well as the one who is opposed. We welcome your feedback. Please direct any questions or comments to reid.zimmerman@kpff.com.

SEISMIC EVENTS

[ASCE Webinars](#)

Friday, October 28, 2016, 9:00 AM – 10:00 AM PST.
[Introduction to the Seismic Design of Nonbuilding Structures to ASCE 7-16.](#)

Thursday, November 3, 2016, 9:00 AM – 10:00 AM PST.
[Seismic Assessment and Design of Water and Sewer Pipelines.](#)

Friday, November 18, 2016, 8:30 AM – 10:00 AM PST.
[Practical Seismic Evaluation of Existing Buildings Using ASCE 41-13 Tier 1 Screening Procedure with a Case Study.](#)

[ATC Webinars](#)

Wednesday, November 30, 2016. [NIST Technical Brief No. 11, Seismic Design of Steel Buckling-Restrained Brace Frames, A Guide for Practicing Engineers.](#)

ASK A QUESTION, GET AN ANSWER

Do you have a code question you would like to ask the Wind Committee or Snow Committee? SEAO is pleased to announce a simple way for Q&A's with technical committees. Email questions to jane@seao.org, and SEAO will direct your question to the appropriate committee chair for a response. Questions and their answers will be made anonymous and available to the membership on the website www.seao.org.

Committees include: Seismic, Wind, Snow, Code, Vintage Building, and Special Inspections.

MEMBER OF THE MONTH
DEANNA KUHLMAN
By: DAVID LINTON, MACKENZIE



The Board of Directors of the Structural Engineers Association of Oregon takes great pleasure in honoring and recognizing Deanna Kuhlman for her contributions to SEAO. Deanna has been writing the monthly meeting recaps for the newsletter since 2015. She is also an active member of the YMF, and has participated in presentations to middle school and high school classes on structural engineering.

Deanna is a structural designer at Mackenzie, where she has worked since completing her Masters of Science degree in Civil Engineering at Oregon State University in the fall of 2014. While at Oregon State, Deanna performed research on reinforcing bridge girders with high strength titanium rods. She was also an active participant in the ASCE student chapter and concrete canoe team.

While at Mackenzie, she has worked on a variety of project types including the design of a heavy timber office building, which is now Mackenzie's new office for their Vancouver branch. Recently, she has been busy with the engineering of a couple fire station seismic upgrades as part of Oregon's Seismic Rehabilitation Grant Program, as well as preparing grant applications for the next round of grant funding.

Fun facts about Deanna:

- She is a bright engineer with a keen attention to detail that allows her to identify problems before they arise.
- Project managers enjoy having her on their team, because she enjoys working with Mackenzie's integrated design teams to deliver the best solutions possible.
- Deanna is planning to get her PE this fall.
- If Deanna was not an engineer, she would have been an architect....GASP!
- During her lunch hour, she often goes for a run around the East Bank Esplanade.
- As a Grants Pass native, she enjoys rafting on the Rogue River with her family in the summers.
- In addition to rafting, she enjoys hiking and camping on her days off.
- She is a newlywed, so if you see her make sure to give her well wishes.
- She brings in delicious cookies and other baked goods to the office on occasion.

It has been a great joy to be Deanna's mentor for the past two years. She has the ability to maintain a positive attitude even during the most stressful situations. Deanna has a very bright future, and I will not be surprised to see her as a future leader of SEAO.

VENDOR ADVERTISING

SEAO is now accepting vendor advertising!

Cost of a full page ad running for one month:

\$250 - Members
\$350 - Non Members

For more information, contact Jane Ellsworth at jane@seao.org.

ACI CALL FOR PAPERS

Performance-Based Seismic Design of Concrete Buildings: State of the Practice

Meeting: Sessions on “Performance-Based Seismic Design of Concrete Buildings: State of the Practice” at The ACI Concrete Convention and Exposition – Fall 2017, October 15-19, 2017, in Anaheim, CA; Sponsored by ACI Committee 374, Performance-Based Seismic Design of Concrete Buildings.

Solicited: The sessions and associated ACI Special Publication (SP) available at the Fall 2017 Concrete Convention and Exposition will present the state of practice for the Performance-Based Seismic Design (PBSD) of Concrete Buildings. The SP is intended to be a reference resource for the implementation of PBSD. Selected SP papers by the editorial committee will be invited to present at The ACI Concrete Convention and Exposition – Fall 2017 in Anaheim. Potential topics for consideration include: PBSD design guidelines, case studies, numerical modeling, the economics of PBSD, research needs, use of experimental data for component modeling, use of high-strength reinforcement and concrete, diaphragm design, force controlled element design, international application of PBSD, observed earthquake performance of buildings designed using PBSD, experimental research for nonlinear modeling parameters and acceptance criteria, PBSD of tall buildings, and innovative techniques of PBSD.

Requirements: 1) presentation title; 2) author/speaker name(s), title, organization, and contact information; and 3) an abstract not exceeding 300 words in length. The submitted final papers should adhere to the ACI SP style and format guidelines, available at <https://www.concrete.org/Portals/0/Files/PDF/SPManuscriptGuidelines.pdf>.

Deadlines: Abstracts are due by October 17, 2016. Authors will be notified regarding acceptance of their abstract for presentation and/or publication by November 17, 2016. Papers are due by March 1, 2017 for manuscript review. Final papers are due July 1, 2017.

Send to: Editorial Committee, PBSDAnaheim@gmail.com

STRUCTURAL MASONRY DESIGN SEMINAR

The Northwest Concrete Masonry Association will be conducting a full-day seminar focusing on the design of reinforced concrete masonry construction. Both working stress and strength design methods of the new 2015 IBC and 2013 TMS 402/ACI 530 masonry codes will be covered.

The seminar will include the explanation of new code provisions and step-by-step 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. It will be presented by two professional engineers at each location. The seminar will consist of 7.5 hours of continuing education. Certificates of attendance will be issued.

Seminar dates and locations include:

December 7, 2016 - Spokane, WA

December 15, 2016 - Seattle, WA

February 8, 2017 - Oregon City, OR

Additional information can be obtained from the Northwest Concrete Masonry Association at 425.697.5298 or www.nwcma.org.

SEANW CONFERENCE RECAP

BY: SETH THOMAS, SEAO NCSEA/SEANW DELEGATE

This summer the structural engineers association of Montana hosted the SEANW conference (August 3-5th) in Bozeman, Montana. This year was also a Western States Council year (more on this later). Amit Kumar and myself attended the conference on behalf of SEAO as the Delegate and Alternate Delegate, respectively. I was also able to attend a young member meeting and give a presentation to all of the young members in attendance about the resources available to their YMG's by NCSEA's Young Member Support Committee (which I am a member of - <http://www.ncsea.com/committees/young-membergroupsupportcommittee/>). This was a great opportunity to have some productive discussions with the YM's in attendance (mostly from Montana's YMG, which is very new) about some of the experiences of SEAO's YMG, which has been around for years.

Both Amit and myself attended the SEANW Council and Western States Council (WSC) meetings. One of the main points of discussion was the need for a Western States Council. Here's a little background. Before NCSEA was created in the early 90's, the SEA's of several western states (including Oregon) collaborated to create the WSC to have more influence on code development and other items. As a part of this, the Council gained seats on committees including (at the time) 2 seats on the ATC Council board of directions, which rotates to members within the WSC (currently SEAO's Kent Yu). Over time, the WSC lost several states including California and Texas leaving WA/OR/ID/MT/HI/AZ. When NCSEA was created, one of the ATC seats became an NCSEA nominated position, but the WSC retained the other. Then for years the SEANW (WA/OR/ID/MT/BC) states hosted a conference each summer rotating between the states with each 3rd year (2013/2016....) being a "Western States Roundup" year. Since there are only 2 states in the WSC that are not in the SEANW Council, the only time there is a conference outside our normal 5 organizations is twice every 21 years. Both of these states (AZ/HI) have their own annual conferences, and typically don't have very strong attendance at these conferences when they are out of state (there was 1 representative from Arizona, none from Hawaii). The two "non SEANW states" also do not necessarily have aligning structural engineering issues (e.g. less seismic, less wood design....).

Having said all of this, there was extensive discussion at the meeting about why we needed to have the WSC. It was proposed that the delegates take back the following proposal to their SEA's to vote on later this year. Drop the Western States Council in regards to actual conferences, and keep the summer conference as a SEANW conference only (i.e. setting up a 5 year rotation) between the 5 member organizations. The delegates for each WSC state will have an annual meeting at the NCSEA conference each year (which is what is done on 2 of 3 years when it is not a "roundup" year). The SEAO board will be discussing this at the next their next board meeting, and we would appreciate any input the membership has. In addition, the delegates discussed other items such as ideas for membership meetings, future SEANW conference locations, and more.

Amit and I also had the chance to attend a 2 day technical seminar, the highlights of which were presentations on the new AISC provisions, earthquake resilience, brace frame design, masonry shear walls, and a panel on working better together (architects, engineers, contractors, and fabricators/detailers). Overall, this was a great conference with a lot of valuable technical and non-technical presentations. The SEANW conference is always a great event, and we hope you can join us next year when the conference is hosted by SEAOBC (British Columbia) in Vancouver, BC in September 2017. The 2018 conference will be hosted by SEAW (South Central Chapter), and the 2019 conference will be hosted by SEAO.

Please feel free to contact me with any questions or comments: seth.thomas@kpff.com.

SEAO SEER SURVEY

The SEAO SEER (Structural Engineering Emergency Response) Committee recently completed an audit of the post-disaster response volunteer lists for both SEAO and the Oregon Building Codes Division. Both lists were found to be badly outdated, and in many cases, had obsolete contact information. The committee is in the process of revamping the database to collect current contact and training information from volunteers around the state.

If you received a call from a SEER volunteer over the last year or so and have not yet seen a survey email in your inbox or have not had a chance to update your information, please go to the following address and complete the survey.

IMPORTANT: To be added to the new SEAO SEER post-disaster assessment volunteer database YOU MUST COMPLETE THE DATA FORM.

<https://www.surveymonkey.com/r/SEER>

Sincerely,
SEAO SEER Committee

NEW MEMBERS

The newest members to join SEAO are:

Tyler Baker – WDY
Sanjeewa Nagulendran – Student
Aaron Schmalz – Student

Welcome New Members!!

JUDGES NEEDED!!

Judges Needed for AISC/ASCE National Steel Bridge Contest at OSU

Oregon State University has the honor of hosting the 2017 National Student Steel Bridge Competition (NSSBC). Help us to make the 2017 NSSBC "a resounding success!" No prior experience necessary! Complete the information in the form at the link below to sign up to be a judge.

<http://goo.gl/forms/trXa37mWridEr0Bc2>

This form will be available until October 31, 2016, but please complete it as soon as possible if you'd like to be on our roster of judges. Priority will be given to the earliest responses. Partial travel support is expected to be available for judges who reside outside of Oregon.

For more information about the NSSBC, including the video announcing Oregon State as the host school for the 2017 NSSBC, go to <http://www.aisc.org/steelbridge>.

Feel free to contact us with any questions!
(thomas.miller@oregonstate.edu or
judy.liu@oregonstate.edu)

EMPLOYMENT OPPORTUNITIES

CATENA CONSULTING ENGINEERS

Structural Engineer
Portland, OR

catena consulting engineers provides the personal environment of a small firm while providing the opportunity to work on a variety of projects. Our projects vary in size from a single day's effort to large projects with construction values in excess of \$300 million. You will gain design experience in concrete, steel, timber, and masonry buildings and will work on a wide variety of project types including buildings created for healing, learning, living, and interacting. Due to the technical complexity and challenge of many of our projects, we seek engineers that hold a Master's degree, and that have a desire to learn, grow, and be challenged. U.S. citizenship is preferred. We are currently seeking engineers with 0-6 years of experience in structural engineering for buildings. For a detailed advertisement and to submit your resume, visit our website <http://www.catenaengineers.com/opportunities.php>.

HOLMES CULLEY

Structural Engineer
San Francisco and Los Angeles, CA

Holmes Culley is a California based structural engineering firm dedicated to providing quality service and creative design solutions. As part of the New Zealand based Holmes Group, we are an international practice with over 300 professionals in six offices, providing engineering expertise to clients along the West Coast and throughout the Pacific Region. We are seeking structural engineers with 5+ years design experience for both our San Francisco and Los Angeles offices; M.S. degree in Structural Engineering and PE license are preferred.

Check us out at www.holmesculley.com and send your resume with cover letter to hr@holmesculley.com.

SUMMIT ENGINEERING

Structural Engineer
Portland, OR

Summit Engineering a Portland-based engineering company is seeking a qualified PE or EIT for structural engineering position. This is a production position, meaning a large volume but small variety of similar structures that need to be analyzed and designed, with the complete permit package delivered as the finished product. Must have an ability to look at a set of drawings or potential addition/remodel and determine engineering feasibility in terms of construction, design and complexity. Must have knowledge of current building codes and methods of analysis. Must have ability to communicate efficiently and prepare calculation packages and design sketches for permitting. This is a part time position, working remotely, and may expand to full time work based on abilities and company work load.

Please submit resume to: info@summitengineeringLLC.com

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August 15, 2016

Structural Engineers Association of Oregon
Seismic Committee

Re: Residential Seismic Strengthening of Wood-Frame Dwellings
Committee Statement Recommending Adoption of FEMA DR-4193-RA2

To whom it may concern:

On behalf of the Seismic Committee of the Structural Engineers Association of Oregon I am writing this committee statement recommending the adoption of FEMA DR-4193-RA2 *Earthquake Strengthening of Cripple Walls in Wood-Frame Dwellings* to replace existing prescriptive methods for residential seismic strengthening. A full list of members supporting this committee statement, as well as the one opposing, can be found at the bottom of this letter.

For background, existing prescriptive methods (i.e., procedures which do not require engineering analysis) are available for residential seismic strengthening in the State of Oregon, depending on jurisdiction. The most widely used prescriptive method is currently provided by the City of Portland Bureau of Development Services and can be found at <https://www.portlandoregon.gov/bds/53562>. To date, this prescriptive method has been used by contractors and homeowners for voluntary seismic strengthening. While they have served an important purpose, it is time for the City of Portland's and other jurisdictions' existing prescriptive methods to be replaced by the improved, standardized procedure available in FEMA DR-4193-RA2 *Earthquake Strengthening of Cripple Walls in Wood-Frame Dwellings*.

The procedure contained in FEMA DR-4193-RA2, hereafter simply referred to as the FEMA plan set, was motivated by the damage to cripple walls in wood-frame residential buildings during the South Napa Earthquake of August 2014. The FEMA plan set can be found at <https://www.fema.gov/media-library-data/1439242021425-3b4c44f900c8893449327f0e764ef849/FEMAP-1024RA2.pdf>. The FEMA plan set represents a technically robust, tailorable and straightforward approach to cripple wall and anchor bolt strengthening. Similar to existing prescriptive methods, it is intended for use by non-engineers (e.g., homeowners, contractors, etc.). However, unlike existing prescriptive methods, it has a strong, documented technical basis and allows for the use of an extensive array of connections and existing details. For these reasons, we recommend the adoption of the FEMA plan set and phasing out of the existing prescriptive methods.

In reviewing the FEMA plan set, we agreed that several points required clarification prior to adoption by an Authority Having Jurisdiction. These include:

1. *Waiving Special Inspection* – Special inspection of post-installed anchors and other hardware, as often required by ICC-ESR reports, should not be required for designs utilizing the FEMA plan set. The reasoning behind waiving special inspection is that it would be cost prohibitive to require it for the scale of projects typically employing the FEMA plan set. Note that this waiver recommendation should not be construed as referring to inspection provided by the Authority Having Jurisdiction nor to the testing required for tie-downs in the FEMA plan set.

2. *Equivalent Anchors* – Although the FEMA plan set provides for the use of an extensive list of proprietary and non-proprietary connectors, we recommend that connectors not listed be permitted so long as they can be shown to be equivalent to a connector included in the FEMA plan set. This would allow connectors which come on the market in the future to be integrated into the FEMA plan set.
3. *Eligibility for Use Clarifications* – Item #1 on “Eligibility for Use” on Sheet S0 of the FEMA plan set, should also include townhouses in addition to duplexes and single family residences. Item #2 should clarify that the home must be two stories or less except that the basement story need not be counted so long as it is below ground on all sides. Item #6 should be revised to permit wood-frame dwellings with one story basements in addition to those with crawlspaces.
4. *Site Seismicity* – It should be recognized that the seismicity parameters (i.e., S_s and S_1) used to develop the FEMA plan set can be much higher than those expected in jurisdictions in the State of Oregon. See Item #11 of the “Eligibility for Use” on Sheet S0. While it may be advisable to adjust the required strengthening based on lower realized seismicity parameters, this can complicate the use of the FEMA plan set and make it more difficult for non-engineers (e.g., homeowners and contractors) to implement it.
5. *Recommendation for Post Caps* – Although not addressed in the FEMA plan set, we recommend that connections between wood posts and beams be reinforced with post caps or some other positive connection (e.g., steel tees or plywood gussets). This reduces the tendency for the beam to fall off the post during earthquake shaking and can be achieved with minimal additional cost to the homeowner when the other retrofit work is being completed.

In conclusion, the Seismic Committee of the Structural Engineers Association of Oregon believes the FEMA plan set represents the best available procedure for prescriptive seismic strengthening of wood-frame cripple walls and anchor bolts. With the clarifications and modifications listed above, the Seismic Committee recommends the adoption of the FEMA plan set as a replacement for existing prescriptive methods for jurisdictions in the State of Oregon.



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Members Supporting This Statement

Lisa Buellesbach
Andrew Conrad
Trevor Currie
Adam Jongeward
Chad Kilian
Amit Kumar
Eric Pfau
Mike Poulos
Spencer Straub
Wade Younie

Members Opposing This Statement

James Bela