Weekly News for CCE STUDENTS / STAFF / FACULTY

June 2013 – Week 2

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Contact Us

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http://cce.oregonstate.edu/

Graduation | Jobs

Calendar

June 13, Thu – Please join us for a reception, honoring **Nancy Brickman** for her 31 years of service to the School of Civil & Construction Engineering. Kearney Hall Atrium, 11am-12pm.

Seminars

June 10, Mon – "Effects of subduction zone earthquakes on SDOF bridge models" presented by Mr. **Yicheng Long** in defense of the Masters of Science Degree. 124 Kearney Hall, 2pm. Advisor: André Barbosa. Read abstract here.

June 18, Tue - "Designing a strand orientation pattern for improved shear properties of oriented strand board" presented by Mr. **Kenton Alldritt** in defense of a dual Masters of Science Degree in Civil Engineering and Wood Science. 115 Richardson Hall, 1pm. Advisors: Profs. Tom Miller and Arijit Sinha. Read abstract here.

June 18, Tue – "Roughness and Geometry Effects of Engineered Log Jams on 1-D Flow Characteristics" presented by Ms. **Rachelle Valverde** in defense of the Masters of Science Degree. 205 Women's Building, 2pm. Advisor: Prof. Desirée Tullos. Read abstract here.

Opportunities

NEW CEM polo's have arrived! They are white, Nike polo's with both the CEM and AGC logos. They are $40 each; cash or check accepted. Make checks payable to: AGC Student Chapter of OSU. Swing by Kearney 101A today to get your new polo!

Congratulations!

Congratulations to our AGC Education and Research Foundation 2013 scholarship recipients.

Jeffrey Brinks – Connie and Lee Kearney Scholarship
Jeffrey Nakashima – Larry and Beatrice Ching Memorial Scholarship
Jason Powell – Harold Pritchett Scholarship
Levi Warriner – Connie and Lee Kearney Scholarship
Brady Webster – Consulting Constructors Council Scholarship

The 2013 ASCE Student Chapter Teacher of the Year award goes to **Kenny Martin**. Congratulations, Kenny!

Advising

Next year's CE Seniors – **CE 420 is offered both Fall and Winter.** If you can't get into CE 481 or CE 491 (both split Fall/Spring), and/or the tech electives you want are not offered Fall term, then you should consider taking CE 420 Fall term.

Next year's CEM Seniors – **BA 453 is now MGMT 453**.

Graduation

June 14, Fri - **CCE Graduation Celebration**, register online to attend before June 4.

June 15, Sat - **OSU Commencement**. All candidates must wear traditional cap and gown. No tickets required.

Attention 2013 **CEM graduates**! June 3rd–12th you are welcome to swing by Kearney 101A to pick up your **FREE CEM hardhat** for graduation! Budget 10 to 15 minutes, as you will need to complete a brief survey. Congratulations!

Jobs

All jobs will also be posted at: http://cce.oregonstate.edu/civil-construction-jobs

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OSU Associate Civil Engineer
Oregon State University (Corvallis, OR)

The civil engineering group at OSU Campus Operations has a rare opportunity to fill a position working on campus in Corvallis. The immediate position will be a 6-month appointment, with the potential to be permanent. OSU is similar to a small City with respect to owning and managing its own streets, utilities, and infrastructure.

Qualifications for this position require a B.S. in civil engineering and an E.I.T. certification (or achieve certification within 6 months). It requires excellent computer skills, including working knowledge in Microsoft Word, Excel, AutoCAD, and GIS. The position requires the ability to access difficult spaces that can be physically challenging, such as climbing vertical ladders to access roofs, accessing tunnels, and periodic need to enter confined spaces. More information here.

For those interested, please email a cover letter and brief resume in Microsoft Word to mike.blair@oregonstate.edu.

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Staff Engineer (Job ID 23749)
RH2 Engineering, Inc. (Central Point, OR)

RH2 Engineering, Inc., (www.rh2.com) is a multi-disciplinary, employee-owned consulting

firm headquartered in Bothell, Washington with offices throughout Washington and Oregon. We provide high-quality engineering and scientific services primarily to municipal clients. Services include project conceptualization, planning, design, permitting, construction management and administration and we are primarily focused on the water, wastewater and transportation fields.

RH2 is seeking a staff engineer with a CIVIL engineering degree and 0-3 years of experience to join the team in our Central Point Oregon office. Work includes design and review of a variety of projects, including water systems, wastewater systems, stormwater systems and transportation facilities. The chosen candidate must be a team player, a flexible self-starter and willing to take on challenging assignments. BS in CIVIL engineering required. Knowledge of AutoCAD and Excel software is preferred.

BS degree, Senior or Fifth Year Senior
Civil Engineering Major

Please submit cover letter, resume and copy of transcripts to careers@rh2.com.

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Full-time Field/Office Engineer
R&R Construction (Salem, OR)

Responsibilities are as follows:

1. Provide support to the Project Manager and Project Superintendent-Assist with RFI's, Tracking Quantities on the project site, Submittals, Assist in Managing Subcontractors, Daily Reports.
2. Provide Support to the Estimating Team - Quantity Take-offs, Material Pricing Solicitation, Sub-contractor pricing solicitation, Distribution of Plans and Specifications.
3. Office Engineer Duties include - Material Procurement, Subcontractor Billings, Meeting Minutes, tracking Submittals from the owner, tracking RFI's from the owner, Sending Correspondence to the owner.

In summary, they are looking for a young, energetic engineer (CE or CEM) to assist in managing projects ranging from $1 Million to $5 Million in the public works sector. They offer very competitive salaries and great benefits.

They will conduct on-campus interviews on June 12. Please bring your resume and sign up for an interview in Kearney 101A today!

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Project Engineer Intern
Charter Construction (Portland, OR)

A medium sized, award winning general contractor has an immediate opening in our Portland office for an Intern specializing in entry level project management support. Our business model is built on long-term client relationships and consistent client satisfaction. As an integral member of our team, you will be connected to a business renowned for standards in excellence and in turn contribute to our ongoing success. Working as part of our team means being a part of a company culture of respect, teamwork and customer dedication that transcends the organization from top to bottom. We are seeking a positive, mature and enthusiastic person with exceptional customer service, attention to detail and organizational skills.

Job Scope: The Project Engineer Intern reports to the Project Manager and/or Team

Leader. The Project Engineer Intern has a utility role and is focused primarily on tasks. Responsibilities include assisting the Project Manager (PM) with estimating, contacting subs, processing paperwork, and project management. In addition, the Project Engineer Intern supports the Superintendent and assists as needed in the field.

For more information, see the posting here.

If you meet our qualifications, we would like to hear from you. Please email your resume in Word format to: jcrouch@chartercon.com. **DEADLINE is June 14.**

Abstract – Long

Current bridge design codes do not account for the effects of duration of mega-thrust subduction zone earthquakes. Furthermore, codes and even recent performance-based design methodologies only make use of the peak response quantities (forces, displacements, and ductility demands) and do not account for the increased number of inelastic cycles that the structure is expected to experience due to the mega-thrust long-duration subduction zone earthquake ground motions.

The main goal of this research is to investigate the effect of subduction zone earthquake ground motions on bridge structures as a first step towards providing basic information for adapting current codes and performance-based design guidelines. To achieve this goal, eighty (80) subduction zone earthquake ground motions are processed and motions from shallow crustal earthquakes with similar spectral shapes are selected. Three simple nonlinear single-degree of freedom (SDOF) models are subjected to the 160 (80 x 2) ground motions and seismic demands are estimated. The SDOF models analyzed include an elasto-plastic with hardening model, a Takeda model, and a model with isolation bearings. The models are representative of the behavior of recent bridges in California and the Pacific Northwest. Effects of varying the parameters that describe these models are studied. Effects of P-Delta are also investigated. Four measures of seismic demand are assumed to be correlated to damage that will be sustained by a bridge The seismic demands monitored in these analyses are ductility, energy dissipated (yielding and damping), number of inelastic excursions, and normalized cumulative absolute inelastic displacements. Statistical correlation coefficients between ground motion intensity measures that are sensitive to duration (cumulative absolute velocity, significant duration, and arias intensity) and the four measures of seismic demand described above provide for new insight on the effects of duration on bridge structures.

Abstract – Alldritt

As oriented strand board (OSB) increases in use as an engineered wood product, improving the in-plane shear properties will allow more efficient use of the material as well as open up other possibilities for OSB to be utilized in high shear products. Based on classical laminated plate theory, composite laminates with ±45° laminate alignment patterns produce higher in-plane shear modulus and strength when compared to typical 0°/90°/0° laminate alignment. This research consisted of manufacturing OSB with 0°/+45°/-45°/-45°/+45°/0° and 0°/90°/0° alignment patterns and comparing the in-plane shear, bending, nail connection, and small-scale shear wall properties with typical commercial OSB. The results showed an increase of 24% in measured average shear modulus for 0°/+45°/-45°/-45°/+45°/0° alignment when compared to 0°/90°/0° alignment using a method similar to the ASTM D2719 Method C in-plane shear test. The results show a 10% reduction in measured bending modulus of elasticity in the parallel direction. The small-scale shear wall tests were insensitive to changes in in-plane shear properties. The nail connection tests showed no reduction in yield load of the connection, implying that these panels can be used in similar applications as OSB without affecting the connection

properties.

Abstract - Valverde

The re-introduction of large woody debris (LWD) into streams and rivers for stream restoration purposes is rapidly growing. Engineered log jams (ELJs) are man-made structures intended to mimic natural LWD structures, designed and installed to protect stream banks from erosion while increasing habitat diversity. Several studies have evaluated the flow resistance of single cylinder wooden objects; however, limited information is available on complex ELJs. Design guidelines recommend using hydraulic models to evaluate the flooding impact of proposed ELJ designs and one-dimensional (1-D) hydraulic models are often used in the design of ELJs. However, while 1-D models have contributed some new knowledge, their application in the design of ELJs is still underdeveloped. For example, ELJs are often represented in practice as high ground or increased roughness in one-dimensional hydraulic models, but the accuracy and influence of adjusting channel geometry or roughness to represent ELJs has not been evaluated. This study thus evaluates the performance and characterizes the hydraulic impacts of different ELJ representations in a 1-D hydraulic model. The objective of this study is to investigate how representation of ELJs in a 1-D hydraulic model influences a) accuracy of water surface elevation predictions, and b) 1-D flow characteristics of velocity, area, and hydraulic depth. The analysis is conducted for a case study of an ELJ at which channel geometry and hydraulic flow properties were measured and calibrated in a 1-D hydraulic model. We also present a sensitivity analysis of roughness and geometry at high flows. Calibration results suggest that geometry is the calibration parameter that has the greatest effect on model results. Results suggest that increasing the roughness associated with an ELJ is simulated as a backwater effect, increasing water surface elevations upstream of the ELJ. Increasing ELJ roughness also causes a reduced velocity upstream of and at the ELJ. In contrast, the effect of adding ELJ geometry reduces the hydraulic depth and increases the velocity at the ELJ cross section. When combined, the effects of ELJ geometry and roughness combine to lower the water surface elevation and raise velocities at the ELJ and raise water surface elevation and lower velocities upstream of the ELJ, and geometry appears to dominate effects of adding roughness. Designers may choose to represent an ELJ as a modified geometry or increased roughness depending on whether upstream flood risk or localized scour adjacent to the ELJ is of concern.