The SEAU Board of Directors would like to invite you to the SEAU 3rd Annual Education Conference to be held at the Utah Valley Conference Center in Provo, Utah on February 24th & 25th, 2015.

Topics to be presented include:
- Cold-Formed Steel
- Structural Effects of Vibratory Screens
- Earthquake Ground Failure & Liquefaction
- Special Inspections
- Engineered Wood Design
- Buckling Restrained Braced Frames
- Building Cladding Design
- Post-tensioned Concrete
- Ground Motion
- Concrete Walls Lessons from Chile Earthquake
- Open Web Steel Joists
- Special Geotechnical Design
- Weld Specification Mistakes
- Concrete Slab Crack Control

Two classes will be going on concurrently, as shown on the enclosed Conference schedule. Attendees will be able to freely choose which classes to attend throughout the day while at the Conference.

Each conference attendee will have the opportunity to receive a total of 12 Professional Development Hours (PDH) over the two-day event.

Conference attendees will receive copies of the discussion notes for each class they attend.

For Conference registration, see the last page of this flyer.

Conference Location:
Utah Valley Conference Center
220 West Center Street
Provo, UT 84601

Directions:
From Salt Lake City
Take I-15 South, take Center Street Exit 265 toward Provo, and stay straight to go onto Center Street. The Convention Center will be on the left.

From St. George
Take I-15 North toward Salt Lake, take Center Street Exit 265 toward Provo and stay straight to go onto Center Street. The Convention Center will be on the left.

Parking:

Lodging:
Lodging is available in the Springhill Suites at:
1580 North Freedom Blvd., Provo, UT. 84604
Phone: (801) 373-0073

A limited number of rooms are available at a discounted rate of $95.00 a night for those attending the conference. This discounted room rate is available for hotel stays on February 23rd and 24th. Contact the hotel directly to make reservations and be sure to mention the Structural Engineers Association of Utah or SEAU to ensure that you receive the discounted rate. Note: The discounted rate is only guaranteed for reservations made prior to January 15, 2015; after that date, rates are subject to change.
**Midrise Construction using Cold-Formed Steel Framing**  
**Instructor:** Nabil Rahman  
This presentation will introduce the latest design specification and standards from the American Iron and Steel Institute (AISI) for Cold Formed Steel (CFS) construction. These standards, as well as product innovations, have helped make CFS framing an ideal structural solution for mid-rise construction markets. The presentation will discuss design and detailing of CFS gravity systems (load bearing walls), curtain wall and opening framing, shear wall design and the needs for lateral bracing for wall studs. Discussion will extend to methods of temporary construction bracing and framing techniques. Examples of mid-rise building projects will be presented and discussed. (1.5 PDHs)

**Building Cladding Design & Its Impact on the Primary Structure**  
**Instructor:** Steven Judd  
Frequently, by default or coercion, the Engineer of Record (EOR) is involved in the design of the exterior envelope of a structure. As such, the EOR should be fully aware of the relevant design issues and conditions so that the building envelope will perform per expectation and per code. This presentation will discuss the following design parameters for the primary structure, as well as design concepts for the exterior wall envelope - loads and displacement limitations, tributary area versus effective area, minimum movement accommodation, calculations of story drift, wind deflections, seismic design for cladding elements, and connection and fasteners. The presentation will also cover what to discuss with the owner/client, seismic performance of the cladding, joints, and examples of design problems. (1.5 PDHs)

**Engineered Wood: Design, Performance, & Challenges**  
**Instructor:** Jeff Olson  
This presentation will discuss building design using engineered wood products in both single family and multi-family applications including, but not limited to: 1.) Deflection vs vibration in I-joists floors, 2.) Designing for success/avoiding problems at the design stage 3.) Holes in engineered wood products 4.) Design considerations of engineered wood beams 5.) Fire! Designing for fire resistance with engineered wood products (1.5 PDHs)

**Earthquake Ground Failure & Liquefaction**  
**Instructor:** T. Leslie Youd  
This seminar will focus on case histories of ground failure damage to buildings during earthquakes and the influence of soil softening and liquefaction on spectral acceleration. (1.5 PDHs)

**Effects of Vibratory Screens on Supporting Frame Structures**  
**Instructor:** Esra Hasanbas  
The consideration of the dynamic effects of vibrating mineral separators on the supporting structure is crucial to designing a reliable structural support system. This presentation discusses the dynamic response of steel frame structures subjected to harmonic vibrations caused by vibrating machinery. The goals of the presentation are to demonstrate the parameters controlling the structural response of the supporting system, and to provide practical methods to reduce the vibrations on the steel frames at the design stage. A brief introduction to structural dynamics will also be covered. (1.5 PDHs)

**Special Inspection**  
**Instructor:** Chris Kimball  
This presentation will focus on the requirements of IBC Chapter 17 for design professionals, special inspection agencies, contractors, and code officials. Specific criteria for Statements of Special Inspection (SSI) will be dissected and several project examples will be used to help determine what is required in an SSI. The specific requirements for high-wind and seismic regions will be broken-down, as well as the requirements for structural observations. (1.5 PDHs)

**Post Tensioned Concrete Design**  
**Instructor:** Michael Buehner  
This seminar will cover the basics of post-tensioning (PT), including: PT history, compression enhancement, the use of bonded/unbonded tendons, and PT pros and cons. PT design aids and codes will be identified. Common applications of PT will be discussed along with code requirements for designing PT. (1.5 PDHs)

**Lessons for Concrete Wall Design from the 2010 Chile Earthquake**  
**Instructor:** Karl Telleen  
The 2010 Maule Chile Earthquake caused damage to several mid-rise and high-rise concrete wall buildings, many of which are considered to have performed well compared to past earthquakes with similar magnitude. However, some buildings, which had been designed to modern building codes, suffered damage including buckling of longitudinal reinforcement, concrete crushing, out-of-plane buckling of walls, damage from coupling of walls through slabs and other elements, damage concentrated at discontinuities, and others. Studies of the observed damage offer lessons about seismic behavior that are also applicable to U.S. seismic design practice. This presentation will examine behaviors including buckling of wall longitudinal reinforcement, overall buckling of wall sections, and unintended structural coupling. The presentation will address related aspects of concrete wall design and detailing, drawing on design examples. (1.5 PDHs)
Class Descriptions (Day 2)

Open Web Steel Joist Design Considerations
Instructors: Larry Boyer & Wesley Frampton
Selecting the appropriate Open-Web Steel Joist can present challenges for special situations. This presentation will cover a variety of topics beginning with a brief overview of steel joist design and selection. Other topics to be covered include: serviceability; wind and seismic design; lateral load transfer; special framing connections; joist extensions and cantilevers; vibration; and mechanical penetration. (1.5 PDHs)

Weld Misconceptions & Specification Mistakes
Instructor: William Komlos
This seminar will be a sophisticated presentation of structural welding to the experienced Engineer. Strength of materials will be considered and the effects of varying degrees of joint restraint will be illustrated and discussed. IBC requirements for Special Inspection will be explained in detail in light of AISC 360 Chapter N and the Seismic Design Manual requirements. Engineering review of welding documentation will be examined to better acquaint participants with variables essential to quality welding. Finally, the seminar will explore various welding myths. Their inherent limits will be examined while at the same time, the actual opportunities these myths may provide will be considered for those responsible for effective and economical welded designs. (1.5 PDHs)

BRB Blurb! Update on the Hottest BRB Topics
Instructor: Kimberley Robinson
Although buckling restrained braces (BRBs) are one of the simplest systems to design with, there is always new research and ideas coming out on the topic. This presentation will explore some of the latest ideas and research information regarding connections, frame configurations, and BRB design parameters. In addition to covering a snapshot of the status of the industry, the newly proposed procedure for multi-tiered braced frame design will also be unveiled. (1.5 PDHs)

Navigating the BRB Submittal Roadmap
Instructor: Brandt Saxey
This presentation will discuss how to navigate a BRB submittal. Information will be presented that will assist the practicing engineer in reviewing BRB submittals for thoroughness and correctness. The presentation will highlight the requirements of AISC 341 Chapter F4 for BRBF, as well as Chapter K3 for BRB prequalification test requirements. (1.5 PDHs)

Recent Advances in Specialty Geotechnical Design & Construction
Instructors: Jeffrey Hill & Mark Goodsell
The presentation will focus on the various subgrade and soil concerns that are faced by Geotechnical and Structural engineers in Utah. The presentation will utilize case histories to illustrate how to resolve these issues. Techniques will include ground improvement, earth retention, micropiles, and grouted solutions. (1.5 PDHs)

Ground Motions 101
Instructor: Kevin Franke
Do you ever wonder what kind of voodoo your geotechnical engineer is using to develop ground motions for your site? This presentation will focus on some of the basics of seismic hazard analysis and estimation of ground motions for use in seismic engineering design. Some of the recent changes observed in the 2008 and 2014 iterations of the seismic hazard maps will be discussed. The role of performance-based earthquake engineering in seismic hazard analysis will be identified. The importance of site response analysis and site-specific probabilistic seismic hazard analysis will be discussed, and some general recommendations will be provided when each should be considered. Development of time histories will be briefly discussed, and the issue of spectral matching versus time history scaling will be addressed. (1.5 PDHs)

Crack Control for Concrete Slabs
Instructor: Kim Basham
This presentation will help you understand why slabs on grade crack and how to minimize cracking. Learn about crack control options that include mitigation in design, concrete, and construction. Learn how to design and install control joints and steel reinforcement to control cracking. Discussion will include: root causes of random or uncontrolled slab on grade cracking; crack control strategies; joints or reinforcement; how to reduce concrete shrinkage and slab restraints; design and installation of joints; and reinforcement options and concerns. (3 PDHs)
<table>
<thead>
<tr>
<th>Time</th>
<th>Tuesday, February 24th</th>
<th>Wednesday, February 25th</th>
</tr>
</thead>
<tbody>
<tr>
<td>7:30 AM</td>
<td>Registration &amp; Breakfast Snacks</td>
<td>Registration &amp; Breakfast Snacks</td>
</tr>
<tr>
<td></td>
<td>Classroom A</td>
<td>Classroom A</td>
</tr>
<tr>
<td></td>
<td>Classroom B</td>
<td>Classroom B</td>
</tr>
<tr>
<td>8:30 AM</td>
<td>Midrise Construction using Cold-Formed Steel Framing (Nabil Rahman)</td>
<td>Open Web Steel Joist Design Considerations (Larry Boyer &amp; Wesley Frampton)</td>
</tr>
<tr>
<td></td>
<td>Effects of Vibratory Screens on Supporting Frame Structures (Esra Hasanbas)</td>
<td>Recent Advances in Specialty Geotech Design &amp; Construction (Jeffrey Hill &amp; Mark Goodsell)</td>
</tr>
<tr>
<td>10:00 AM</td>
<td>Break</td>
<td>Break</td>
</tr>
<tr>
<td>10:30 AM</td>
<td>Building Cladding Design &amp; Its Impact on the Primary Structure (Steven Judd)</td>
<td>Weld Misconceptions &amp; Specification Mistakes (William Komlos)</td>
</tr>
<tr>
<td></td>
<td>Special Inspections (Chris Kimball)</td>
<td>Ground Motions 101 (Kevin Franke)</td>
</tr>
<tr>
<td>12:00 PM</td>
<td>Lunch &amp; Committee Short Reports</td>
<td>Lunch &amp; Raffle Drawing</td>
</tr>
<tr>
<td>1:30 PM</td>
<td>Engineered Wood: Design, Performance, and Challenges (Jeff Olson)</td>
<td>BRB Blurb! Update on the Hottest BRB Topics (Kim Robinson)</td>
</tr>
<tr>
<td></td>
<td>Post Tensioned Concrete Design (Michael Buehner)</td>
<td>Crack Control for Concrete Slabs (Kim Basham)</td>
</tr>
<tr>
<td>3:00 PM</td>
<td>Break</td>
<td>Break</td>
</tr>
<tr>
<td>3:30 PM</td>
<td>Earthquake Ground Failure &amp; Liquefaction (T. Leslie Youd)</td>
<td>Navigating the BRB Submittal Roadmap (Brandt Saxey)</td>
</tr>
<tr>
<td></td>
<td>Lessons for Concrete Wall Design from the 2010 Chile Earthquake (Karl Telleen)</td>
<td>Concrete Slabs cont’d</td>
</tr>
<tr>
<td>5:00 PM</td>
<td>Classes Conclude</td>
<td>Classes Conclude</td>
</tr>
</tbody>
</table>
Presenter Bios:

Kim Basham, PhD, P.E. specializes in structural analysis, concrete design, mix designs, formwork and shoring, mass concrete placements, concrete forensic investigations, structural evaluations, condition surveys, nondestructive testing, concrete repair, concrete construction techniques, concrete technology, and research. He is a member of ASCE, The Concrete Society, American Society of Concrete Contractors, and the International Concrete Repair Institute. He serves on several ACI committees and is a certified Trainer and Examiner for the Concrete Field Testing Technician, Concrete Flatwork Technician & Flatwork Finisher, and Concrete Lab I programs sponsored by ACI. Dr. Basham has taught structural analysis, concrete and masonry design, and concrete material courses at multiple universities. He has also served as an expert witness in numerous litigation and arbitration cases concerning concrete construction, materials, and engineering.

Larry Boyer, P.E., S.E. has over 33 years of experience in the design, detailing, and modification of Open-Web Steel Joists and Joist Girders. A graduate of the University of Minnesota in Civil Engineering, he is currently working as a Sales Engineer for Nucor-Vulcraft in Brigham City, UT. He consults with and assists the design community on preliminary design of projects utilizing open-web members; does pricing of projects out for bid; provides direction on field issues for new and existing open-web systems; and provides presentations to design firms and associations. He is a member of SEAU and is registered in UT, OR, WA and WY.

Michael Buehner, S.E. is a Salt Lake City native, a licensed professional structural engineer in the state of Utah, and Principal with Reaveley Engineers + Associates. He received a BUS degree in Asian Studies from the University of Utah in 1988 and worked in Tokyo, Japan, for 5 years before returning to Utah to earn a second degree from the U in Civil and Environmental Engineering in 1997. Mike has been a board member of the Structural Engineers Association of Utah, is a past Chairman of the Utah Engineers Council, and currently serves on the Structural Advisory Board to the Uniform Building Code Commission for the State of Utah.

Wesley Frampton, P.E., S.E. is a design engineer with Nucor-Vulcraft in Brigham City, Utah. He received his Bachelor of Science degree in Civil Engineering from Utah State University. He has worked in the steel joist industry for over 25 years - 10 years as a detailer and 15 years as a design engineer. He is a member of the SEAU and is a registered Professional Engineer in eight states.

Kevin Franke, Ph.D., P.E. is an Assistant Professor in the Department of Civil and Environmental Engineering at Brigham Young University. Kevin’s principal research focus is geotechnical/earthquake engineering. Kevin is currently developing performance-based methods for dealing with soil liquefaction and its associated hazards. Kevin is also an investigator in the Center for Unmanned Aircraft Systems, focusing on new and improved applications of small unmanned aerial vehicles in monitoring infrastructure and performing post-disaster reconnaissance. Prior to his current position at BYU, Kevin worked for 6 years as a professional civil engineering consultant. Kevin received his BSCE from Utah State University, his MSCE from University of Washington, and his Ph.D. from BYU.

Mark Goodsell, P.E. is a Senior Engineer with Hayward Baker, Inc. He earned a M.S. in Civil Engineering from Utah State University and has over 14 years of progressive experience in the design and project management of geotechnical construction. He has successfully designed and managed over 100 complex earth retention and geotechnical projects and has a proven track record in structural design, safety, bidding, contract negotiation, budgeting, construction management, project management, and overall project profitability.

Esra Hasanbas holds a M.S. degree in Civil Engineering from the University of Utah. She studied the effect of vibrating screens on supporting frame structures for her thesis. She is currently working at Millcreek Engineering as a Structural Engineer, EIT. She specializes in vibration analysis and control on structural systems supporting vibrating screens.

Jeffrey Hill, P.E. is a Sr. Engineer with Hayward Baker, Inc. with 15 years of experience in specialty geotechnical construction and engineering. Jeff is responsible for development of specialty projects throughout 20 states in the U.S. central region. He has experience in the structural and geotechnical design of micropiles, earth retaining structures, and specialty grouting. His projects have included heavy industrial, dams, bridges, and roadways. Jeff is involved with ASCE Geotechnical Committee, ADSC, DFI, and AREMA Committee member Chapter 1, Subgrade and 8, Foundations & Concrete Structures. Jeff is author/co-author of 15 technical papers.

Steven Judd, P.E., S.E. is the Director of Engineering at KEPCO+ in Salt Lake City. Steven worked as a Consulting Structural Engineer for 24 years with experience designing commercial, educational, judicial, and residential facilities, rollercoasters, flume rides, and steel cable hoisting systems, with a particular focus on façade design. He is now
working as a Specialty Structural Engineer full time in the façade design niche, and has accumulated over 30 years of façade design experience with projects ranging from California to New York.

**Chris Kimball, P.E., S.E.** has more than 16 years of experience in the design, construction and building safety industries. He is a Registered Structural Engineer in addition to being an ICC Certified Plans Examiner and Commercial Building Inspector. He has performed structural plan reviews for hundreds of projects throughout Utah, Wyoming, Nevada, California, Arizona, and Texas. Chris has also provided numerous training classes to help design professionals, building officials, and contractors understand the structural requirements of the adopted building codes.

**William Komlos** has directed many large scale welding projects including those involving the Space Shuttle, Hoover Dam and the Large-Blast Thermal Simulator. He has served within AWS as District Director and on national level committees as Chair of the Governing Board of the ANBCC and Chair of the Methods of Weld Inspection Technical Activities Committee for AWS. Bill provides continued contributions to training and education of welding personnel both formally as an Instructor at Salt Lake Community College for 15 years and informally through seminars and invited lectures. He is also co-inventor of a cryogenic process to mitigate residual welding stresses in thick, highly-restrained structures.

**Jeff Olson**, P.E. is the Manager of Technical Services for Boise Cascade Engineered Wood Products and works from his office in White City, Oregon. He received his MS in Civil Engineering (Structural and Wood Emphasis) from Washington State University, and has 20 years of experience in the Engineered Wood Products industry. He maintains PE registration in seven Western states.

**Nabil Rahman**, Ph.D., P.E. is the Director of Engineering and R&D for The Steel Network, Inc. in Durham, NC, and past chairman of the Cold-Formed Steel Engineers Institute (CFSEI). Dr. Rahman has more than 20 years of experience in CFS engineering, product development, design software development, as well as analysis and protection of CFS structures against extreme loads (progressive collapse, blast, Impact). Dr. Rahman currently serves as the chairman of the ASCE Cold-Formed Steel Committee, member of the AISI Committee on Specification and Committee on Framing, and member of ASCE Disproportionate Collapse Technical Committee.

**Kimberley Robinson**, S.E. is the Chief Engineer for Star Seismic. She works closely with engineers on the design of buckling-restrained brace frame (BRBF) seismic systems and specializes in complex permitting processes. Kim is a past AISC Regional Engineer, a current member of the TC-9 Seismic Committee, and past contributor to two AISC Seismic Manuals. She has served on the Board and on various committees for SEAU. She currently serves on the Industrial Advisory Board for the U of U Civil Engineering Dept. Kim was the 2014 Utah Engineers Council Engineer of the Year.

**Brandt Saxey, S.E., LEED** is the Chief Engineer for CoreBrace, where he is responsible for the testing and implementation of new brace designs. He participates as a corresponding member of the AISC 341 TC9 Seismic Provisions and M5 Seismic Manual Committees and recently participated in the writing of the example problems in the AISC 341 Seismic Manual for the BRBF, the SCBF and the SPSW lateral systems. He works on a day-to-day basis with engineers, fabricators and erectors, assisting in the design and installation of BRBs into structural projects.

**Karl Telleen**, S.E. is a Senior Engineer with Maffei Structural Engineering in Oakland, CA. He has 10 years of professional experience including seismic evaluation and retrofit design of existing concrete wall buildings, design of new concrete structures, and seismic peer review of high-rise concrete wall buildings. He completed a Fulbright Fellowship studying high-performance concrete materials in Switzerland in 2010, and he performed post-earthquake reconnaissance work studying concrete buildings in Haiti following the January 2010 earthquake. He participated in the ATC-94 project studying the performance of reinforced concrete buildings in the 2010 Chile Earthquake. Karl co-authored the reinforced concrete wall design examples of the 2006, 2009, and 2012 IBC Structural/Seismic Design Manuals.

**T. Leslie Youd**, PhD is Professor Emeritus of Civil and Environmental Engineering at Brigham Young University. From 1967 to 1984, Dr Youd was a Research Civil Engineer with U.S. Geological Survey where he conducted studies in earthquake engineering with emphasis on liquefaction and ground failure. In 1984, Dr. Youd joined the faculty of Civil and Environmental Engineering at Brigham Young University where he taught courses in geotechnical and earthquake engineering and continued his research on liquefaction and ground failure. Dr. Youd has conducted post-earthquake reconnaissance investigations following 20 major earthquakes on 5 continents. He has performed subsurface investigations at many sites affected by liquefaction and has instrumented several sites likely to liquefy during future earthquakes. He has developed widely used procedures for mapping liquefaction hazard, evaluating liquefaction resistance and estimating lateral spread displacement potential. Dr. Youd has authored or coauthored more than 160 papers published in the geotechnical literature. Dr. Youd retired from BYU in 2003, but continues: Research and writing on liquefaction, Expert consultant on projects involving liquefaction hazard, Professional activities including serving on committees and providing peer reviews for papers and research proposals.
Conference Registration

Registration Deadlines:
Early registration is available until 11PM MST on January 16, 2015. Late registration for the conference will be available thereafter until February 17, 2015 for an increased fee. So register early to get the best deal!

Registration Fees:

<table>
<thead>
<tr>
<th>EARLY REGISTRATION</th>
<th>LATE REGISTRATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>(payment before January 16, 2015)</td>
<td>(January 17 thru February 17, 2015)</td>
</tr>
<tr>
<td>GENERAL ¹</td>
<td></td>
</tr>
<tr>
<td>$110 (1 day only)</td>
<td>$130 (1 day only)</td>
</tr>
<tr>
<td>$195 (Both days)</td>
<td>$230 (Both days)</td>
</tr>
<tr>
<td>STUDENT ²</td>
<td></td>
</tr>
<tr>
<td>(current, fulltime students only)</td>
<td></td>
</tr>
<tr>
<td>$37 (per block)</td>
<td>$42 (per block)</td>
</tr>
</tbody>
</table>

¹ General conference fees include continental breakfast, snack breaks, and lunch.
² Discounted student fees include one snack break per class block; lunch is not included.

Online Registration and Payment:
To register and pay for the Conference, click on the attendance link below that your status and schedule. The link will take you to the appropriate registration page where you can book your seat at the Conference and pay online. Note: The online registration system allows for multiple registrations with a single transaction for each attendance type.

For registration questions, contact Gloria Dearden at 801-333-7676 or send email to programs@seau.org.

GENERAL REGISTRATION:
For all professionals and practicing engineers, architects, contractors, building officials, etc.

- ATTEND BOTH DAYS OF THE CONFERENCE
  - Days 1 & 2
- OR ATTEND ONLY ONE DAY OF THE CONFERENCE
  - Day 1
  - Day 2

STUDENT REGISTRATION:
For current, fulltime students only

- ATTEND ONE BLOCK OF CLASSES AT THE CONFERENCE (does not include lunch)
  - Day 1 Morning block (8:30 AM – Noon)
  - Day 1 Afternoon block (1:30 PM – 5:00 PM)
  - Day 2 Morning block (8:30 AM – Noon)
  - Day 2 Afternoon block (1:30 PM – 5:00 PM)

Registration links are also available through the Event Calendar at www.seau.org; go to February and click on the Conference description.