



Structural Engineers Association of Utah

5th Annual Education Conference

February 21 & 22, 2017

Utah Valley Conference Center
Provo, UT

The SEAU Board of Directors would like to invite you to the **SEAU 5th Annual Education Conference** to be held at the Utah Valley Conference Center in Provo, Utah on February 21st & 22nd, 2017.

Topics to be presented include:

- ASCE 41 Hands-On Approach
- Clarifying Wind Loads
- Clarifying Frequently Misunderstood Seismic Provisions
- Welding Design -The Good, The Bad, and the Ugly
- Welding Seismically Resistant Connections
- ASCE 7 and 41 Performance Comparison
- Resilient Design using FEMA p-58 Method
- Practical Uses of Non-linear push-over analysis
- Practical Design of Earth Retention Systems
- Wood Shear Wall Design

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

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

In an effort to keep the cost of the conference lower, class notes will NOT be printed, but will be posted on the SEAU website for electronic download starting February 14, 2017.

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

Conference Location:

Utah Valley Conference Center
220 West Center Street
Provo, Utah 84601

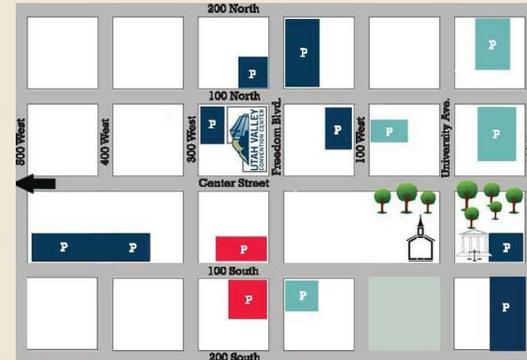
From Salt Lake City

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:



- Free Public Parking**
- Paid Parking / Event Parking**
- Parking after 6:00 pm and weekends**

Lodging Information:

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 \$109.00 a night for those attending the conference. This discounted room rate is available for hotel stays on February 20th and 21st. 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 February 3, 2017; after that date, rates are subject to change.

Class Descriptions

ASCE 41 Hands-On Approach

Instructor: Bob Pekelnicky

Most engineers are aware of the seismic hazards throughout the state of Utah. Many have likely been retained to evaluate the seismic resistance of an existing building or many buildings. There are two options to do so, both recognized by the International Building Code. One is to apply the new building design standards to the building and the other is to use the national consensus standard specifically for the purpose, ASCE 41-13. ASCE 41-13 Seismic Evaluation and Retrofit of Existing Buildings provides a performance-based approach to evaluate and retrofit existing buildings. Unlike new building design standards, ASCE 41 provides procedures to address construction of varying levels of seismic resistance, even within the same structure, along with archaic and nonconforming construction. This seminar will cover the following topics: An overview of the performance based methodology of ASCE 41; An explanation of the analysis procedures found in ASCE 41 and how they differ from ASCE 7; A discussion of what is the appropriate analysis procedure for various buildings; Presentation of the steel building provisions with high level examples of applications to older steel-frame and braced frame buildings; Presentation of the concrete provisions with high level examples of applications to an older concrete shear wall building; Presentation of the masonry provisions with high level examples of applications to an unreinforced masonry building; Presentation of the Wood Provisions with high level examples of applications to an various common conditions found in older wood construction (6 PDHs)

Wood Shear Wall Design

Instructor: Doug Thompson

Presentation will cover all types of wood light-framed shear wall designs (segmented, perforated and Force-Transfer-Around-Openings). Design assumptions and design examples will be presented for the three types of shear walls including multi-story shear walls. Comparative step-by-step design examples will be presented for both the SEAOC/Thompson method used the Structural Seismic Design Manual published by ICC and the Diekmann Method. Changes in shear wall designs related to the new 2015 IBC/2015 SDPWS will also be discussed. (3 PDHs)

Clarifying Wind Loads

Instructor: Emily Guglielmo

This session will focus on wind provisions of ASCE 7/ IBC that are frequently misunderstood or incorrectly applied, including building enclosure classification, torsional wind design, and wind load analysis methods. It will also highlight areas where the code does not offer guidance on frequently encountered situations, including solar/ PV and canopy wind loads. Lastly, this webinar will focus on ASCE 7-10 and look to the future of wind design. (1.5 PDHs)

Clarifying Frequently Misunderstood Seismic Provisions

Instructor: Emily Guglielmo

This session will focus on ASCE 7/ IBC seismic provisions that are often misunderstood or incorrectly applied by the practicing structural engineer. Key topics will include: Redundancy (ρ), R, Cd and Ω_0 , and horizontal and vertical lateral force resisting system combinations. Each topic will include references to code provisions, suggestions to simplify, and sample problems. (1.5 PDHs)

Welding Wisdom (aka Welded Connections: the good, the bad and the ugly)

Instructor: Duane Miller

What makes for a good welded connection? Or, one that is bad, or ugly? In this seminar, 12 principles of welded connection design are presented that answer these questions. Each principle is identified, explained and illustrated with examples of good and bad. The seminar concludes with a review of a notable failure and identification of how the application of the 12 principles to these situations could have avoided these problems. (1.5 PDHs)

Welding Seismically Resistant Connections: a review of Northridge (with a twist no one is commenting upon)

Instructor: Duane Miller

Why do pre-qualified moment connections work? The requirements of the AWS D1.8 Seismic Welding Supplement are reviewed with a specific focus on the requirements that must be specified by the Engineer, what compliance to these requirements looks like, and why such provisions are in the Code. (1.5 PDHs)

NIST Research ASCE 7 and 41 Performance Comparison

Instructor: Jay Harris

A few years ago, NIST started a research program to compare the standards for designing new code buildings (with ASCE-7) and assessing existing buildings (with ASCE-41) to determine if they provide consistent levels of performance. A suite of 4-, 8-, and 16-story steel buildings (SMF, SCBF, and EBF) were designed using both the Equivalent Lateral Force (ELF) Procedure and Modal Response Spectrum Analysis (RSA). Then, they performed the seismic performance assessment of the building suite using both linear and nonlinear analysis procedures prescribed in ASCE 41. Come to this presentation to see how they compare. (3 PDHs)

Resilient Design Using FEMA P-58

Instructor: Curt Haselton

In this course, participants will learn about resilient design using the new FEMA P-58 (ATC-58) method and the enabling new Seismic Performance Prediction Program (SP3) software. The course will cover the fundamentals of the FEMA P-58 Methodology, which enables the prediction of seismically induced repair costs, repair times, and safety (fatalities and injuries), and then cover the SP3 software implementation to show how SP3

makes FEMA P-58 now feasible at the rapid pace of a design office. Case-study applications will then be presented to show how FEMA P-58 and SP3 are now being used on many projects including new resilient design, building retrofit (for cases where more than life safety is desired), advanced seismic risk assessments (for mortgage due-diligence, insurance, and high-value assets), and building ratings (using the USRC and REDi methods). The course will close with a description of recent additional technical methods that have been created and added to SP3 (primarily to expand the applicability of the method and software). (3 PDHs)

Practical Design of Earth Retention Systems

Instructors: Mike Robison, Mark Goodsell

This presentation will focus on designing an earth retention system from a contractor's perspective. Our goal is to provide insight into a contractor's thought process, and show different design and construction methods that are used to construct common earth retention systems. From design guides to case studies, this presentation will be useful to anyone designing for earth retention and/or for anyone who wants to know how a contractor approaches many engineering challenges. (1.5 PDHs)

Practical Uses of Non-linear push-over analysis

Instructor: Jerod Johnson

Elastic design methods have been the basis of for most engineered structures for many years. However, it has long been understood that actual behavior in significant seismic events involves nonlinear behavior that is not explicitly captured in elastic models. This session will present practical nonlinear analysis methods and will demonstrate how nonlinear pushover analysis can explicitly corroborate many design provisions found in current codes. This session will also promote the use of nonlinear pushover analysis as a rational intermediate between conventional elastic methods and the highly robust nonlinear response history analysis method. It will also present nonlinear pushover analysis as an essential 'first step' for engineers hoping to go beyond the commonly used equivalent lateral force method. (1.5 PDHs)

Presenters:



Bob Pekelnicky, joined Degenkolb in 2001 and has worked on numerous seismic evaluation and rehabilitation projects. Bob specializes in making community and business infrastructure resilient against earthquakes, explosions, and other natural hazards. He has applied his multi-hazard mitigation knowledge to various projects in high technology, government, and healthcare sectors. His career has focused on taking new, innovative structural engineering concepts from research and applying them to practice to better meet clients' needs. Bob has been instrumental in developing recommendations and guidelines that promote disaster resilient communities and is very active in developing better performance based earthquake engineering methodologies, building codes and standards. Bob is a leader in numerous professional societies, leading or serving on volunteer committees to help advance the state of the practice and having organized technical sessions at conferences, written and presented papers.



Doug Thompson Doug received his Bachelor's degree from Cal Poly-San Luis Obispo and is president of STB Structural Engineers, Inc. in Lake Forest and he is also the 2013-2014 president of the Structural Engineers Association of Southern California. He is a registered PE, SE in 6 states. He has authored several articles and publications, including the light-frame design examples in the Seismic Design Manuals, the Guide to the Design of Diaphragms, Chords and Collectors and Four-story/Five-story Wood-frame Structure over Podium Slab. He has been involved with code changes to the UBC and IBC for over 25 years. Doug is a Fellow in the Structural Engineers Association of California.



Emily Guglielmo, earned her Bachelor's Degree in Civil Engineering from UCLA, and her Master's Degree in Structural Engineering from UC Berkeley. She has over a decade of structural engineering experience, all with Martin/Martin, Inc. She began her career in their Denver, CO area office, and is currently a Principal with the firm, managing their San Francisco Bay Area office. She has lectured on wind and seismic provisions across the nation. Emily is the secretary of the NCSEA Wind Engineering Committee and serves on the ASCE 7 seismic committee. A licensed SE, Emily has received a number of awards, including SEI Fellow and the Susan M. Frey NCSEA Educator Award, for effective instruction for practicing structural engineers.



Duane Miller, Sc.D., P.E., is the "Who's Who" of welding in the industry, a recognized authority on the design and performance of welded connections. He is a popular speaker on the subject and has lectured around the world. Dr. Miller publishes frequently and on three occasions, has been awarded the Silver Quill Award of the American Welding Society (AWS) for the excellence of his published work. In 2001, he received the American Institute of Steel Construction's T. R. Higgins Lectureship Award, in 2005, the AISC Lifetime Achievement Award, and in

2015 was named an AWS Fellow. He became the 8th recipient of the AISC Robert P. Stupp Award for Leadership Excellence in 2015. He has authored and co-authored texts and chapters of many handbooks, including the AISC Design Guide on Welding and the Mark's Handbook of Engineering, 11th Edition. He has appeared as a subject expert on the History Channel and Discovery Channel.

Dr. Miller earned a B.S. degree in Welding Engineering from LeTourneau University in Longview, Texas, an M.S. in Materials Engineering from the University of Wisconsin - Milwaukee, and was awarded an honorary Doctor of Science degree from LeTourneau University in 1997. He is the immediate past Chair of the AWS D1 Structural Welding Code Committee. He was the first Chair of the Seismic Welding Subcommittee and is a former co-chair of the AASHTO-AWS D1.5 Bridge Welding Code Committee. His current technical involvement includes membership on the AWS D1 committee, the AWS Technical Activities Committee, and the AISC Specification Committee. He is a Professional Engineer, Certified Welding Inspector and Qualified Welder.



Jay Harris, Dr. John (Jay) L. Harris, III is a research structural engineer in the National Earthquake Hazards Reduction Program of the Engineering Laboratory (EL) at the National Institute of Standards and Technology (NIST). His research interests include earthquake engineering, performance-based seismic engineering, seismic design of structural systems, alternative seismic

engineering philosophies, structural steel structures, base isolation, and development of building code seismic provisions. Prior to joining NIST, Dr. Harris was an Associate with WSP Cantor Seinuk in New York City. He has over 10 years of practicing experience. While a practicing structural engineer, he specialized in analysis and design of tall buildings for wind and earthquake effects. He was also an adjunct professor at Columbia University and Manhattan College teaching graduate-level steel design. He has authored numerous papers in the area of earthquake engineering. Dr. Harris is a member of the ASCE 7 Seismic Subcommittee (General Provisions, TC-2), ASCE Methods of Design committee, the CTBUH Working Group on Seismic Design, corresponding member of AISC Seismic Provisions committee (TC-9) and AISC Committee on Manuals and Textbooks, and SSRC Committee on 2nd Order Inelastic Analysis (TG-4). He is a member of EERI, SEAOC, NZSEE, ASCE, ACI, AISC, SSRC, and ICC. He is a licensed structural and professional engineer in several states.



Curt Haselton, Ph.D., P.E., Professor of Civil Engineering at California State University, Chico, and Co-Founder of Haselton Baker Risk Group (hbrisk.com) and the Seismic Performance Prediction Program (SP3); SP3 is a commercial tool to implement FEMA P-58 analyses, with the goal of making broad use of FEMA P-58 feasible in practice. Dr. Haselton's research is in the area of performance-based earthquake engineering, with

focuses on building code development, collapse safety assessment, ground motion selection and scaling, damage and loss estimation, and the treatment of uncertainties. Dr. Haselton was recently the chair of the Building Seismic Safety Council team to rewriting Chapter 16 of ASCE 7.



Dr. Jerod Johnson, is a principal with Salt Lake City based Reaveley Engineers + Associates and has over 22 years of design and construction experience. He received all of his degrees at the University of Utah where he is currently an adjunct professor. He teaches courses in concrete, masonry and timber design and also serves as a guest lecturer and member of multiple graduate student committees. Dr. Johnson's continuing research

is focused toward structural dynamics and earthquake engineering where he has been principal investigator for analytical studies of the effectiveness of nonlinear tuned mass dampers for improving building resilience. Dr. Johnson has also undertaken major research projects investigating the effect of aging and stability on base isolation system performance. With Reaveley Engineers he has played a key role in some of the most significant projects of the region including the Salt Palace Expansion, South Towne Exposition Center and the Utah State Capitol Renovation and Base Isolation. Dr. Johnson is well known in the Intermountain Region structural engineering community and has served as a regularly featured technical author for the monthly newsletter of the Structural Engineers Association of Utah. He has also served as a regularly featured author in Structure Magazine, the official monthly publication of the National Council of Structural Engineers Associations. He served on the board of directors as past president of the Structural Engineers Association of Utah and has served as a member of the board for the Utah Chapter of the Earthquake Engineering Research Institute. Dr. Johnson is currently the chair of the Salt Lake City and County Building Conservancy and Use Committee.



Mike Robison, P.E.: Project Manager for Hayward Baker holds a B.S. in Civil Engineering from Utah State University and is a licensed professional engineer in Utah and Colorado. His areas of expertise include estimating, bidding, designing, monitoring, and managing the construction of temporary and permanent anchored, soil nailed, braced, and underpinned earth

retaining projects.



Mark Goodsell P.E., D.GE: Senior Engineer with Hayward Baker, Inc. with over 16 years of experience in the design and project management of geotechnical construction. Mark has designed and managed over 100 complex earth retention and geotechnical projects ranging in cost from \$50,000 to over \$4 Million. He is a registered professional engineer in

fourteen states, is a Diplomate of Geotechnical Engineering, and holds a Utah Contractor's License. He has a proven track record in structural and geotechnical design, safety, bidding work, contract negotiation, budgeting, project management and overall project profitability. Mark received a Bachelors and Master's degree from Utah State University. He is currently working on his Ph.D. in Civil Engineering at the University of Utah.

Schedule

	Tuesday, February 21 st		Wednesday, February 22 nd	
7:30 AM	Registration & Breakfast Snacks		Registration & Breakfast Snacks	
	<u>Conf. Room 1</u>	<u>Conf. Room 2</u>	<u>Conf. Room 1</u>	<u>Conf. Room 2</u>
8:30 AM	ASCE 41, Intro to Performance Based Design and General Provisions Bob Pekelnicky	Wood Shear Wall Design (Part 1) Doug Thompson	Welding Wisdom (The Good, The Bad, & The Ugly) Duane Miller	Resilient Design Using FEMA P-58 Curt Haselton
10:00 AM	Break		Break	
10:30 AM	ASCE 41, Analysis Procedure Bob Pekelnicky	Wood Shear Wall Design (Part 2) Doug Thompson	Welding Seismically Resistant Connections Duane Miller	Resilient Design Using FEMA P-58 Curt Haselton
12:00 PM	Lunch & Committee Short Reports		Lunch & Raffle Drawing	
1:30 PM	ASCE 41, Steel and Timber Provisions Bob Pekelnicky	Clarifying Wind Loads Emily Guglielmo	NIST Research - ASCE 7 and 41 Performance Comparison Jay Harris	Practical Uses of Non-linear push-over analysis Jerod Johnson
3:00 PM	Break		Break	
3:30 PM	ASCE 41, Reinforced Concrete and Masonry Provisions Bob Pekelnicky	Clarifying Frequently Misunderstood Seismic Provisions Emily Guglielmo	NIST Research - ASCE 7 and 41 Performance Comparison Jay Harris	Practical Design of Earth Retention Systems Mike Robison, Mark Goodsell
5:00 PM	Classes Conclude		Classes Conclude	

Conference Registration

Registration Deadlines:

Early registration is available until 5PM MST on January 23, 2017. Late registration for the conference **at an increased fee** will be available thereafter through February 13, 2017.

Registration Fees:

GENERAL REGISTRATION (before January 23, 2017)		LATE REGISTRATION (Jan 24 thru Feb 13, 2017)	
GENERAL¹			
1 DAY ONLY	BOTH DAYS	1 DAY ONLY	BOTH DAYS
\$110	\$195	\$130	\$230
STUDENT²			
BLOCK (4 HOURS)	ALL DAY	BLOCK (4 HOURS)	ALL DAY
\$20	\$70	\$25	\$80

¹ General conference fees include continental breakfast, snack breaks, and lunch.

² Discounted student fees include one snack break per class block. Lunch ONLY included with "ALL DAY" purchase. Student defined as "current and full time".

Cancellation Policy:

All cancellations will be subject to a \$10.00 cancellation fee.

- Cancellations received prior to January 1, 2017 will receive a 100% refund, minus the \$10.00 cancellation fee.
- Cancellations received from January 1, 2017 through February 9, 2017 will receive an 80% refund, minus the \$10.00 cancellation fee.
- Beginning February 10, 2017, no refunds will be issued; however, you may transfer your registration to another person at no cost.

Please contact Gloria Dearden at executivedirector@seau.org for any cancellation and transfer requests.

Online Registration and Payment:

To register and pay for the Conference, click on the attendance link below that best fits your schedule - CHOOSE ONLY ONE. 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 801-558-6370 or executivedirector@seau.org or Zach Hansen at 801-782-6008 ext. 8231 or zachh@arwengineers.com

GENERAL REGISTRATION: For professionals

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 CLASSES AT THE CONFERENCE (register for one or more)

[Days 1 or 2 ALL DAY \(8:30 AM – 5:00 PM\)](#)

[Day 1 Morning \(8:30 AM – Noon\) or Afternoon \(1:30 PM – 5:00 PM\)](#)

[Day 2 Morning \(8:30 AM – Noon\) or Afternoon \(1:30 PM – 5:00 PM\)](#)

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

CODES PURCHASED SEPARATELY (AVAILABLE THROUGH JANUARY 23):

NDS 2015	ASCE 41-13	AWS D1.1-15	AWS D1.8-16
\$140 (\$150*)	\$125 (\$220*)	\$395 (\$548*)	\$115 (\$156*)
2015 NDS	ASCE 41-13	AWS D1.1	AWS D1.8

*Pricing in parenthesis indicates full pricing cost before SEAU discount.



Partial funding for this training program has been provided by the **Division of Occupational & Professional Licensing (DOPL)** from the 1% Surcharge Funds on all building permits. We wish to thank DOPL for their support!