



## Report of Activities and Observations from the 2017 NCSEA Structural Engineering Summit

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<b>Table of Contents</b>	<b>Page</b>
Executive Summary	2
Daily Activities – Wed. Oct. 11	3
Daily Activities – Thu. Oct. 12	7
Daily Activities – Fri. Oct. 13	19
NCSEA Awards Banquet	30
Daily Activities – Sat. Oct. 14	34

Acknowledgement to SEAoO & Tim Gilbert for much format, research and content of this document.



Three SEAMi Board members attended part or all of the 2017 NCSEA Structural Engineering Summit in Washington D.C. Delegate Bill Thayer and Alternate Delegate Pamela Brink represented SEAMi and Bill Kussro attended the Code Committee meetings and subsequently the rest of the educational portion of the summit. Brian Quinn, a long time SEAMi member also attended.

### Executive Summary

The conference successfully provided an opportunity for SEAMi attendees to learn about the following from NCSEA and the Member Organizations (MOs):

- NCSEA update on communications, grants & MO engagement;
- NCSEA Structural Licensing Committee activity;
- Creation of new NCSEA committees on equity and finance
- MO committee organization and activities;
- Educational sessions presented on a variety of topics including an array of significant non-technical topics;
- Collaboration and reception events to build relationships with other delegates.

NCSEA MOs are growing. SEAMi continues to be in a strong position within NCSEA:

- Membership has grown as with many other MOs<sup>1</sup>;
- Membership dues are among the lowest<sup>2</sup>;
- Committee activity is high both at many MOs and at NCSEA;
- Our annual conference is longer than many and highly rated;
- Web page is clear and updated;
- Our treasury is well funded.

Opportunities to extend SEAMi's position and match pace with other MOs include:

- Engaging a wider range of structural engineers by considering establishment of engagement and equity committee similar to that started by NCSEA;
- Keep the Young Members Group strong;
- Look for opportunities to positively influence the perception of our profession;
- Engage influential groups in the Structural Licensure discussion;
- Support our Awards Program and get input from NCSEA as needed;
- Reach out and support MO in bordering states or MOs with common cause;
- Build a stronger presence on various media – print and electronic.

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<sup>1</sup> MO membership numbers were not as widely available this year as in the past. 58% of MOs report membership increases.

<sup>2</sup> The average MO dues are \$120



## Daily Activities

Wednesday October 11

### Structural Licensure Committee

The NCSEA Licensure Committee meeting was chaired by Alan Kirkpatrick & Kristin Kilgore. The meeting included representatives from, California, Connecticut, Florida, Idaho, Minnesota, Missouri, Ohio, Oklahoma, and South Carolina.

Susie Jorgensen presented the latest updates from the Structural engineering Licensure Coalition (SELC). The organization is working with other engineering licensure stakeholders to clarify areas of common ground and hopefully more details will be available in the near future. This clarification will facilitate better coordination on a path forward that offers the fewest impediments to legislative action. One key item is that SELC is taking the position that SE licensure is a post-PE credential. Individual state implementation would have flexibility to determine the timing for obtaining the SE credential – particularly if an individual obtains PE licensure by passing the 16-hour SE Exam.

Randall Bernhardt shared efforts by the ASCE-SEI Professional Activities Committee to draft a recommendation for consideration by NCEES. Items of note include:

- IBC Risk Categories 3 and 4 are considered good starting points, provided the descriptions could be written without direct reference to IBC (to avoid incorporating copyrighted material into a model law).
- Carl Josephson is leading discussion efforts within NCEES on the topics of structural licensure in general and significant structures in particular. At the August 2017, attendees were:
  - Presented a history of the 16-hour SE Exam
  - Provided comparison matrix for which structures require SE in jurisdictions with partial practice acts.
  - Presented information about SELC

Attendees discussed potential articles for publication. The Oregon case discussed will focus on the nexus of professional licensure restrictions and free speech rights.

Attendees shared the status of structural licensure efforts in their MO:

- **Most notable – Oklahoma – Successfully passed a partial practice act.** The law takes effect Nov. 1, 2017 and includes a 5-year transition period for current licensees.
- Florida – FSEA is holding on reintroducing a SE licensure bill that was vetoed by the governor in 2015 until a new governor is elected.



### Daily Activities - Wednesday October 11 (continued)

- Ohio – SEAO released a position statement in favor of structural licensure.
- South Carolina – SEA of SC is working to block efforts by some companies to abbreviate their non-licensed project engineering as P.E.s as it can lead clientele to incorrect inferences.
- Several states are seeking to build support for SE licensure amongst the various stakeholders. Also, they are closely observing SELC led discussions with the national level stakeholders, as a consensus nationally could have a strong influence at the state levels.

Alan and Kristin shared the Committee goals for the upcoming year (2017-2018):

- Continue assisting MO's seeking Licensure
- Work with SELC & ASCE to promote consistent messaging
- Encourage more MO's to begin process toward Structural Licensure
- Encourage MO's to become active with their State Legislation
- Visit at least two MO's that are making initial steps toward licensure

### Communication Committee

This committee is a reconfiguration of the former Advocacy Committee. In the new structure, under the co-chairs Emily Guglielmo and Ed Quesenberry, it has two main branches:

- Internal Communications is tasked with ensuring effective communication between NCSEA and the member organizations;
- External communications focuses on building public awareness of the profession and the profession's standing within the community.

Chad O'Donnell leads the subcommittee charged with being the liaison to MOs.

Basecamp is a useful tool for the delegates and it has several very active users. The team discussed possibly widening the list of invitees to the forums to improve the level of interaction. Most likely, MO Board members will be invited to the NCSEA Delegate Basecamp forums. One area of interest to NCSEA is how delegates convey, or are expected to convey by their MO, information from the SES. Attendees suggested that NCSEA consider preparing a checklist of items or duties that MOs could use at their discretion. NCSEA is sensitive to maintaining respect for MO autonomy and this idea will be considered in further committee meetings.

Also, the committee is considering development of a Basecamp forum for each NCSEA committee and inviting the corresponding MO committee chairs to participate.



Daily Activities - Wednesday October 11 (continued)

Structural Engineering Engagement and Equity (SE3) Committee

NCSEA’s newest committee seeks to study and promote engagement and equity in the structural engineering profession. A 2014 AIA study called Equity by Design (EQxD) inspired the formation of the SEAONC SE3 Committee and eventually the NCSEA SE3 Committee.

In 2016, the SEAONC SE3 project team undertook a survey to examine levels of engagement and equity within the structural engineering community. The report revealed that respondents report general satisfaction with their work and also observe notable degrees of inequity:

- 81% of respondents were either satisfied or very satisfied with their career choice
- 56% of respondents had considered leaving the profession
- There is a gender pay gap, especially at the principal level
- There are stigmas against people who have children

The SE3 Committee advocates the following practices to help address the issue:

- Provide management training to engineers.
- Align daily tasks with career goals.
- Encourage all engineers to seek and receive mentorship.
- Curb the culture of long hours. When long hours are required, find ways to improve engagement and ensure the high workload is temporary.
- Perform a pay equity audit.
- Provide a robust, transparent flexibility program (with input from employees) and empower employees to use it.
- Provide comprehensive support to employees with children.

The committee is developing a “Best Practices Resource Guide,” establishing a mentorship task group and conducting follow-up interviews for selected participants in the 2016 survey. Several state MOs have already started SE3 efforts: Illinois, New York, Minnesota, and Washington.

Several attendees expressed interest in learning how to begin SE3 initiative with their MO.

Various Items

NCSEA announced that the 2018 Structural Engineering Summit will be Oct. 23-26, in Chicago, IL. Additionally, the 2019 Structural Engineering Summit will be Nov. 12-15, in Anaheim, CA.



Daily Activities - Wednesday October 11 (continued)

Young Member Reception

While SEAMi did not have representation at the Young Member Reception, it is notable that young member attendance at the SES was higher than ever before. Roughly 70 young members were in attendance.



*Figure 1 – This year's SES had the best attendance ever from young members*

Welcome Reception

The evening closed with a welcome reception for those in attendance (this was the best year yet with over 500 registrants). NCSEA President, Tom Grogan, made a point to recognize the outstanding young member groups and all the volunteers who serve as officers or committee members. It was a good way for attendees to share information and build relationships.



*Figure 2 – This year's Young Member Group of the Year Finalists (no order: Colorado, Georgia, Minnesota, Oklahoma & Washington)*



*Figure 3 – President T. Grogan recognizes NCSEA past & present officers and committee members for building the organization*

*End of Wednesday October 11 activities*



### Daily Activities - Thursday October 12

Thursday began with an early delegate interaction breakfast. Unlike past years, seating and teams were preselected based on geography. Michigan delegates sat with delegates from Ohio, Wisconsin and Minnesota. For the challenge Bill & Pam teamed with Frank & Tim of Ohio.

This year's challenge provided a structural puzzle with some unusual materials:

- 2-feet of string
- 3-feet of masking tape
- A paper cup
- A ruler
- Scissors
- Hole-punch
- Twenty (20) drinking straws (with flexible section about 3/4 along its length)

The task was to use only the provided materials and build a tower capable of suspending the cup at least 12-inches above the tower base. Neither the ruler, nor, scissors, nor hole-punch were allowed to be part of the structure. All of this was to be done in 20- minutes.

Our team built a 3-sided braced frame to hold the cup. The straw flex joints served as nodes and column straws were connected by slitting the short bendable end for insertion into the adjoining straw. To make the most of the limited number of straws, we slit some into several pieces and connected them to serve as tension-only braces. Bill, Pam, Frank & Tim shared the work and completed the design just in time.

Each tower was tested by adding pennies until failure and the winning structure was the one which supported the greatest weight before failure. Some towers failed with as few as 5 pennies; some supported over 50 cents. The Michigan-Ohio team won the day with a structure holding 97 cents before failing in torsional buckling under number 98.



*Figure 4 – The SEAMi-SEAO tower under construction*



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**Daily Activities - Thursday October 12 (continued)**

Photos from the delegate interaction breakfast



*Figure 5 – Several teams built 3-sided towers*



*Figure 7 – The Georgia and South Carolina team set the bar high with an early test.*

*Figure 6 – The testing gets under way.*



*Figure 8 – California had a strong showing early*





Daily Activities - Thursday October 12 (continued)

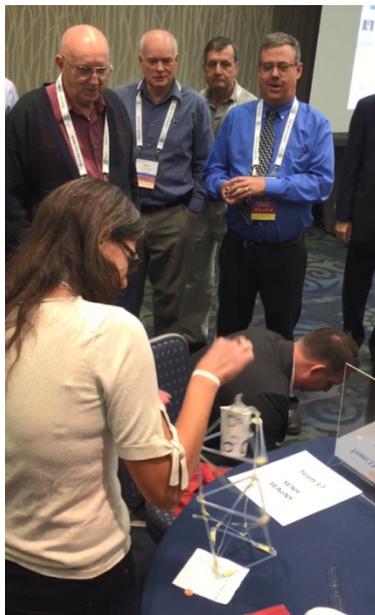
Photos from the delegate interaction breakfast



**Figure 9** – The Connecticut tower is just about to fail



**Figure 10**– Washington’s effort needed some judiciary interpretation (the team sought to use objects as ballast)



**Figure 11** – The winner’s test caught just at the moment of failure. [Link to full video](#) (it’s a big file).



**Figure 12** – The winning team showing off their structure



**Daily Activities - Thursday October 12 (continued)**

The remainder of the day was a full of educational presentations. The table below highlights notable items discussed. It also provides links to presentation slides if available.

Topic	Presenter	Notes
<p>Keynote: Shaking Up D.C. - The Insiders' Story</p> <p><a href="#">Link to video</a></p>	<p>Martina Driscoll, P.E. &amp; Terrence Paret Wiss, Janney, Elstner Associates</p>	<ul style="list-style-type: none"> <li>• Many homes and buildings were damaged in the 2011 Mineral City earthquake, some significantly.</li> <li>• Most structures designed to newer codes performed better</li> </ul> <p><u>Washington Monument</u></p> <ul style="list-style-type: none"> <li>• Ground motions at the site exceeded code MCE event</li> <li>• Review and repair approach at the monument               <ol style="list-style-type: none"> <li>1. Make repairs necessary to make the area safe for assessments;</li> <li>2. Clean up so assessments can be made;</li> <li>3. Conduct a full survey of damage;</li> <li>4. Analyze findings and develop long term repairs.</li> </ol> </li> <li>• Damage included shifted blocks, mortar loss and cracked panels</li> <li>• Using SAP finite element analysis with MCE ground motions, the predicted damage closely matched the observed conditions. This allowed for development of an accurate repair method</li> </ul> <div style="display: flex; justify-content: space-around; align-items: flex-start;"> <div data-bbox="776 1178 1143 1465" data-label="Image">  </div> <div data-bbox="1149 1192 1445 1289" data-label="Caption"> <p><i>Figure 13 – Cracks in the monument pyramid bricks from the earthquake</i></p> </div> <div data-bbox="1192 1432 1487 1724" data-label="Image">  </div> <div data-bbox="906 1612 1182 1675" data-label="Caption"> <p><i>Figure 14 – Some cracks were rather significant</i></p> </div> </div>



Daily Activities - Thursday October 12 (continued)

Topic	Presenter	Notes
<p>Keynote: Shaking Up D.C. - The Insiders' Story (Continued)</p> <p><a href="#">Link to video</a></p>	<p>Martina Driscoll, P.E. &amp; Terrence Paret</p> <p>Wiss, Janney, Eltner Associates</p>	<p><u>National Cathedral</u></p> <ul style="list-style-type: none"> <li>• Very large historic structure: over 500-ft. long and over 300-ft tall with numerous, turrets, pinnacles, and buttresses.</li> <li>• Very complex dynamic response to earthquake</li> <li>• Pinnacles have mortar free joints - some displaced to brink of failure</li> <li>• Repairs must not worsen condition. Adding mortar to a joint might do this by increasing dynamic mass (loose joint allow some rocking in seismic events)</li> </ul> <div data-bbox="756 835 1203 1136" data-label="Image">  </div> <p data-bbox="1219 842 1446 961"><i>Figure 15 – The cathedral is a rather substantial &amp; irregular structure</i></p> <div data-bbox="1049 1161 1482 1446" data-label="Image">  </div> <p data-bbox="846 1192 1036 1339"><i>Figure 16 –Some pinnavle were precariously positioned by the quake</i></p> <div data-bbox="756 1480 1248 1759" data-label="Image">  </div> <p data-bbox="1263 1623 1422 1713"><i>Figure 17 – Debris strewn about the roof</i></p>



**NCSEA Summit Delegate Report** **2017 – NCSEA Conference**

**Daily Activities - Thursday October 12 (continued)**

Topic	Presenter	Notes
<p>ASCE Panel on How to Improve ASCE 7</p> <p><a href="#">Link to video</a></p>	<p>Ron Hamburger, P.E., S.E., SECB;</p> <p>John Hooper, P.E., S.E.</p> <p>Don Scott, S.E.</p> <p>Members of the ASCE/SEI 7 committee</p>	<ul style="list-style-type: none"> <li>• First meeting of the ASCE 7-22 Steering Committee is in roughly 2-weeks [from mid Oct. 2017]</li> <li>• ASCE 7-16 includes revised title: <i>Minimum Loads and Associated Criteria for Buildings and Other Structures</i>. The "...and Associated Criteria" caused much debate.</li> <li>• First developed in 1958 as ANSI A58.1. Not quickly adopted by codes</li> <li>• ASCE took over in 1985 and released 1<sup>st</sup> version of ASCE7 in 1988. Later editions in 1993, 1995, 1998, 2002, 2005, 2010 and 2016</li> <li>• Steering Committee leads 7 subcommittees:             <ul style="list-style-type: none"> <li>○ General;</li> <li>○ Ice; Seismic;</li> <li>○ Dead &amp; Live Loads;</li> <li>○ Wind; and</li> <li>○ Load Combinations;</li> <li>○ Tsunami</li> <li>○ Floods; Snow &amp; Rain;</li> </ul> </li> <li>• ASCE 7 is developed through consensus process. Subcommittees develop proposals, ballot members, resolve comments &amp; repeat as required</li> <li>• Entire revised standard is open 45 days for public comments, which must be responded to</li> <li>• Published standard is balance between:             <ul style="list-style-type: none"> <li>○ Safe and reliable</li> <li>○ Easy to use.</li> <li>○ Economical</li> </ul> </li> <li>• Standard seeks to: use latest knowledge; have necessary sophistication for complex structures; be comprehensible &amp; useable; plus permit design of routine structures without undue complexity</li> <li>• ASCE 7-16 content structure is similar to 2010 edition</li> <li>• Considering options for separating the 2022 edition into two volumes or other options             <ul style="list-style-type: none"> <li>○ One for basic routine procedures (low heights, low wind, &amp; SDC A,B or C) &amp; one for special cases</li> <li>○ One for all buildings without limit and a simplified procedure with limited application (SDC A or B)</li> <li>○ One for building structures &amp; one for non-buildings</li> <li>○ A customizable electronic version that only shows provisions applicable to a project based on user selections</li> </ul> </li> </ul>

**Daily Activities - Thursday October 12 (continued)**

Topic	Presenter	Notes
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NCSEA Summit Delegate Report 2017 – NCSEA Conference

<p>NEHRP Recommended Seismic Provisions  (Two presentations)</p>	<p>Kevin Moore, C.E., P.E., S.E.  Senior Principal, Simpson Gumpertz &amp; Heger Inc.  <a href="#">Link to video</a></p>	<p><u>Simplified Seismic Design Procedures for SDC B Buildings</u></p> <ul style="list-style-type: none"> <li>• Early CA earthquakes (1906 San Francisco, , 1923 Kanto, 1925 Santa Barbara) led to 1927 Uniform Building Code</li> <li>• 1933 Long Beach &amp; 1940 El Centro EQ, helped lead to creation of Applied Technology Council &amp; development of response modification coefficient approach</li> <li>• Growing knowledge of US seismic activity demanded nationally consistent methods → NIBS, FEMA, BSSC, NEHRP, &amp; CRSC contribute to ASCE 7 by developing recommended provisions</li> <li>• Suggested development of simple options for SDC A &amp; SDC B (SDC is half way between low and high seismic &amp; compromise is <u>very</u> difficult). Not adopted for ASCE 7-16</li> <li>• <u>If Code Official agrees</u>, FEMA P1091 Ch. 24 can be substituted for ASCE 7</li> <li>• ASCE took over in 1985 and released 1<sup>st</sup> version of ASCE7 in 1988. Later editions in 1993, 1995, 1998, 2002, 2005, 2010 and 2016</li> <li>• Working to develop design guide and encourage inclusion of simplified options in ASCE 7-22</li> </ul>
	<p>Charles A. Kircher, Ph.D., P.E.  ASCE 7 Seismic Subcommittee, &amp; Building Seismic Safety Council Provisions Update Committee  <a href="#">Link to video</a></p>	<p><u>New Site-Specific Ground Motion Requirements of ASCE 7-16</u></p> <ul style="list-style-type: none"> <li>• 2016 changes: Site Class coefficients, ground motion parameter values, site specific procedures, vertical ground motions nonlinear RHA ground motions</li> <li>• New codes better reflect significant ground motion amplification of soft soils. Soft soils can increase seismic loads up to 70% compared to older codes</li> <li>• Coefficients <math>F_a</math> and <math>F_v</math> increase substantially</li> <li>• ELF procedure can be non-conservative</li> <li>• ASCE 7-16 design response spectrum better addresses the soft soil seismic amplification effect.</li> </ul>



**NCSEA Summit Delegate Report** **2017 – NCSEA Conference**

**Daily Activities - Thursday October 12 (continued)**

Topic	Presenter	Notes
<p>SEAOC Wind Design Manual - An Overview</p> <p><a href="#">Link to video</a></p>	<p>Emily Guglielmo, P.E., S.E., F.SEI</p> <p>Principal, Martin/Martin, Inc.</p>	<ul style="list-style-type: none"> <li>• SEAOC is developing wind design manual similar to Seismic Design manual first released in 1997</li> <li>• General outline (slides show images of examples)               <ul style="list-style-type: none"> <li>○ General topics 4 examples: Encl. class.; topographic effects; exposure cat., &amp; gust effect factor</li> <li>○ Special topics 2 examples: Tornado shelter &amp; high wind</li> <li>○ Buildings 3 examples: Simple diaphragm, 3-story L-shaped bldg.; &amp; 14-story office bldg.</li> <li>○ Solar PV systems 7 examples: Several examples including flat and pitched roofs</li> </ul> </li> <li>• Publication is expected in early 2018</li> </ul>
<p>Deferred Submittals – The Buck Stops Here!</p> <p><a href="#">Link to video</a></p>	<p>Ben Nelson, P.E.</p> <p>Structural Division Manager Martin/Martin, Inc.</p>	<ul style="list-style-type: none"> <li>• Denver Building Dept 2016-18 data:               <ul style="list-style-type: none"> <li>○ 95%, at least one deferred submittal</li> <li>○ 91%, at least two deferred submittals</li> <li>○ 72%, at least three deferred submittals</li> <li>○ 51%, four or more deferred submittals</li> </ul> </li> <li>• Why so common:               <ul style="list-style-type: none"> <li>○ Too busy, required to meet schedule</li> <li>○ Allow focus on specialty</li> <li>○ Enhance productivity</li> </ul> </li> <li>• IBC 2015 defines deferred submittals <i>Those portions of the design that are not submitted at the time of the application and that are to be submitted to the building official within a specified period.</i></li> <li>• IBC 2015, 107.3.4.1 requires deferred submittals have prior approval of building official and that they are listed on construction documents</li> <li>• Common problems: delays; incomplete or poor specialty design; improper connection to structure; assumptions by specialty engineer; licensure of specialty engineer; catalog “engineering”; EOR specifications; and conflicts in construction documents.</li> </ul>



**Daily Activities - Thursday October 12 (continued)**

Topic	Presenter	Notes
<p>Deferred Submittals – The Buck Stops Here! (Continued) <a href="#">Link to video</a></p>	<p>Ben Nelson, P.E.  Structural Division Manager Martin/Martin, Inc.</p>	<p><u>Deferred submittal suggestions</u></p> <ul style="list-style-type: none"> <li>• Steel               <ul style="list-style-type: none"> <li>○ Specify reactions on plans</li> <li>○ Specify brace forces</li> <li>○ Consider proving loads for each case (Excel file)</li> <li>○ Note is seismic detailing is required</li> <li>○ Stairs &amp; railing: in clued connection in deferred sub.</li> <li>○ Specify joist loading, camber &amp; special loading</li> </ul> </li> <li>• Metal buildings               <ul style="list-style-type: none"> <li>○ Specify governing code, collateral loads</li> <li>○ Indicate required geometry &amp; possible brace locations</li> <li>○ Specify desired column fixity</li> <li>○ Whether below grade tension ties are allowed</li> </ul> </li> <li>• Concrete               <ul style="list-style-type: none"> <li>○ Precast interface requirements</li> <li>○ Loading requirements</li> <li>○ Tolerances</li> <li>○ Post-tensioned restraint considerations &amp; pour strips</li> </ul> </li> <li>• Foundations               <ul style="list-style-type: none"> <li>○ Define limits on shoring</li> <li>○ Tolerances for helical anchors / screw piles</li> <li>○ Proprietary system submittal requirements</li> </ul> </li> <li>• Wood               <ul style="list-style-type: none"> <li>○ Truss loads and load cases</li> <li>○ Require truss erection drawings with bracing details &amp; have truss to truss connections included if applicable</li> <li>○ Required sealed drawings</li> <li>○ Define heavy timber connection requirements</li> </ul> </li> <li>• Light gage metal               <ul style="list-style-type: none"> <li>○ Require truss erection drawings with bracing details</li> <li>○ Specify required stiffness</li> <li>○ Define connection point to main structure</li> </ul> </li> <li>• Other: Define submittal requirements for MEP anchorage, blast doors, light poles &amp; foundations, seismic restraint of components</li> <li>• EOR: Coordinate with building official EARLY and shift as much as possible to drawings rather than specification</li> </ul>



**NCSEA Summit Delegate Report** **2017 – NCSEA Conference**

**Daily Activities - Thursday October 12 (continued)**

Thursday’s educational presentations offered several concurrent sessions. SEAOO delegates did not attend the sessions below. Links to the available presentation slides are in the table below.

Topic	Presenter	Notes and Links
Young Member Mentor Roundtable	Moderated by Seth Thomas, P.E., S.E., NCSEA Young Member Group Support. Committee Chair	This session was restricted to Young Engineer attendees, and facilitated interaction between young engineers and leaders in the field with an interactive “speed-dating” format. <i>No video available</i>
Seismic Design of Diaphragms by the Provisions of ASCE 7-16	S. K. Ghosh, Ph.D, President of S.K. Ghosh Associates, Inc.	This presentation explained two significant new provisions in ASCE 7-16, an alternative diaphragm design force different from the ASCE 7-10 design force, which is retained in ASCE 7-16 and a precast diaphragm procedure to go with the alternative design force level. <a href="#">Link to video</a>
Solar Photovoltaic Systems in ASCE 7-16	Joseph H. Cain, P.E., Director of Codes & Standards, Solar Energy Industries Association	ASCE 7-16 includes solar-specific provisions. The presentation introduced common types of solar mounting systems, and discussed how to apply the methods in ASCE 7-16. <a href="#">Link to video</a>
Wind Design Considerations for Joist/Joist Girder Structures	Tim Holtermann, P.E., Canam-Buildings Keith Juedemann, P.E., Mid-Atlantic Regional Sales Mgr, Canam-Steel Corp.	This session highlighted key points in the rewritten Technical Digest No 6 <i>Design of Steel Joist Roofs to Resist Uplift Loads</i> , and explained how to effectively communicate wind provision design requirements for open web steel joists and joist girders. <a href="#">Link to video</a>
Basics of Shear Wall Design	Seth Thomas, P.E., S.E., NCSEA Young Member Group Support Committee Chair	This session covered shear wall design including Wood, CMU/Masonry, and Concrete/Tilt Up, addressing multiple materials and the coinciding codes with emphasis on developing these skills for young engineers. <a href="#">Link to video</a>
Assessment of Performance-Based Seismic Design Methods in ASCE 41 for New Steel Buildings	John Harris, Ph.D., P.E., S.E. Research Structural Engineer, NEHRP of National Institute of Standards and Technology	This session highlighted results of a study investigating the correlation between the seismic performance of an ASCE 7 code-compliant steel building and its performance as quantified using ASCE 41 analysis procedures and structural performance metrics. <a href="#">Link to video</a>

A Celebration of Structural Engineering at the National Building Museum





Ashraf Habibullah, the CEO of Computers & Structures, hosted a thank you dinner at the National Building Museum. The dinner included not only festivities but Ashraf's words of encouragement to structural engineers. His speeches clearly and passionately convey the significance of structural engineering to the world. He shared his dream for our community:

*"I have a dream...that in the not so distant future...*

*Structural engineers are broadly recognized and admired by the public for saving lives, protecting property, preserving the past, and building the future.*

*Structural engineers are sought out as policy leaders and problem solvers in all matters of the community.*

*Structural engineers initiate and lead the development of emerging and exponential technologies.*

*Structural engineers celebrate their profession with high-profile events where they cultivate passion and enthusiasm for what they do.*

*Structural engineering education includes public speaking, marketing, human psychology, and the arts.*

*Structural engineering attracts the most talented and brightest students from leading institutions.*

*Structural engineering fees and compensation reflect the profession's immeasurable contributions to humanity.*

*Structural engineers appear as inspiring characters in popular culture.*

*Ashraf Habibullah*

### Daily Activities - Thursday October 12 (continued)

#### A Celebration of Structural Engineering at the National Building Museum (continued)



**NCSEA Summit Delegate Report** **2017 – NCSEA Conference**

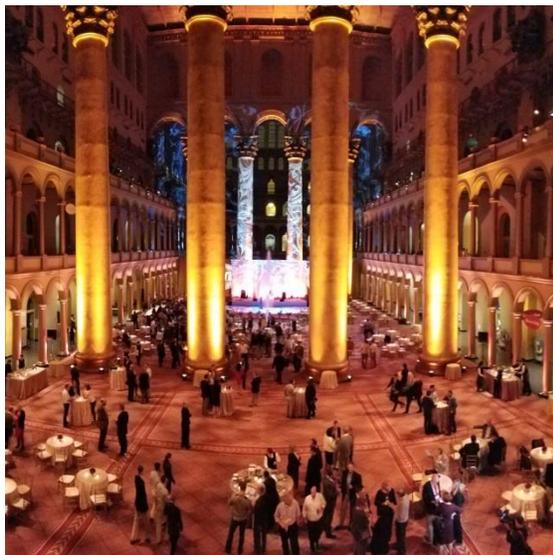
Ashraf’s events are also famous for audience participation. This evening was no different. This year, the standout performance was a rendition of Johnny Cash’s *Wreck of the Old 97* by Norm Scheel (SEAOC, California).



*Figure 18 – California’s Norm Scheel entertains the crowd with his accapela rendition of “Wreck of the Old 97”*



*Figure 19 – Our host enticed several party goers to take a shot at entertaining the crowd – successfully so*



*Figure 20 – The National Building Museum presented an astounding structural backdrop to the celebration.*

*End of Thursday October 12 activities.*



### Daily Activities - Friday October 13

Friday began with a delegate collaboration session. The session included presentation regarding the some general information for the 44 MOs:

- Delegates have served for as few as 1 year and as many as 21 (SEAoP). Alternate delegates have served for as many as 13 years.
- Initial membership dues: Average = \$120; Maximum = \$315 (Southern Cal.); Minimum = \$40 (MI and OH)
- 22 of the 39 responding MOs report have an executive director
- 58% of the MOs have had membership increase this past year
- 13% of MOs have increased dues
- Dues is the primary source of MO revenue, followed by annual meetings/conferences, then other continuing education
- MO meetings are as often as 12 times per year (12 MOs) and as infrequent as once per year (1 MO).
- Most MOs (87%) conduct full or half day seminars
- Most MOs (55%) have an awards program of some type.
- Use of the NCSE MO Toolbox is increasing. 19 MOS report finding it useful, while only 8 did so last year. [Link to the toolbox.](#)
- Most MOs have not used the free webinar; only 8 MOs have used it.
- Reported MO collaboration has declined. This year 14 report collaborating with another MO, while last year 24 reported so.
- Most MOs (23) are not involved in legislative or licensure efforts. Those that are involved have pursued:
  - Advocated for the historic tax credit.
  - Testified before their state legislature.
  - Worked on SE licensure
  - Revisions to state “Good Samaritan” law

### Daily Activities - Friday October 13 (continued)



The NCSEA led portion of the presentation closed with a recap of what assistance the MOs report needing from NCSEA:

- What is NCSEA doing well per the MO reports?
  - Providing guidance for encouraging member participation and volunteer recruitment and retention.
  - Helping with event planning.
  - Supporting and resources for SE licensure.
  - Sharing best practices in continuing education.
  - Provides a list of potential speakers.
  - Webinars for MOs on NCSEA membership benefits.
  - Assisting with development of a strategic plan.
  - Assisting with an executive director search.
  - Helping with newsletter materials and MO-to-MO connections.
  - Helping to increase student and young member involvement.
  - Communication between NCSEA Committees and MOs.
  - Continued support and guidance for local SEER committee.

The final presentations were from other MOs who shared success stories:

- Establishing SE Licensure, OSEA (Oklahoma)
  - Took a survey
  - Formed a task force
  - Developed a white paper
  - Met with parties of interest
  - Stayed diligent & looked for opportunity to act
  - Know the effort is political
  - OK State board was an ally
  - 2016 – bill shot down in committee
  - 2017 – HB 1282 was signed by governor



**Daily Activities - Friday October 13 (continued)**

MO success stories continued:

- Launching Diversity, Equity and Engagement Initiatives, SEAONC, SEAOI, SEAoNY (Northern California, Illinois & New York)
  - SEAONC: Identified reasons women leave the profession; raised awareness of the concern; and established “best practices” for firms.
  - Women in Structural Engineering (WiSE) at SEAOI: Provided networking & mentorship opportunities; provided training in selected topics; promoted STEM; and organized cross disciplinary conference.
  - SEAoNY Diversity Committee: Launched in 2016; created mission and vision statements; held first event( presentation of SE3 project) in 2017; and next event is planned for 2018
- NCSEA & SEA Collaboration, TNSEA (Tennessee)
  - Leaned on NCSEA resources to help plan Seismic Hazard Workshop similar to one held in CA
  - NCSEA helps obtain concurrence from BSSC
  - NCSEA assisted with advertising, registration, and processing payments
  - Attracted over 50 participants from TN and neighboring states.
- Neighboring States Coming Together, SEAMT & SEAI (Montana & Idaho)
  - NWSEA started in 1987 to help smaller regions coordinate larger events
  - Now includes 5 states with 8 chapters
  - Event rotates between regions on 7 year cycle – minimizes perception of “burnout”
  - States/Regions share and pool resources to make event better
  - Larger event attracts more exhibitors
  - Builds relationship with neighboring members

Following the presentation, delegates gathered into two of four possible “breakout” sessions, each providing an opportunity to interact and question the MO success story presenters:

1. The Quest for SE Licensure
2. Neighboring States Coming Together
3. Launching Diversity, Equity and Engagement Initiatives
4. NCSEA & SEA Collaboration

**Daily Activities - Friday October 13 (continued)**



**NCSEA Summit Delegate Report** **2017 – NCSEA Conference**

Topic	Notes
<p>Launching Diversity, Equity and Engagement Initiatives</p>	<ul style="list-style-type: none"> <li>• NCSEA SE3 Committee is creating start-up guide to assist MOs</li> <li>• Be as inclusive as possible to engage the widest audience (include women and other members of a diverse population)</li> <li>• Focus on diversity, not a single group</li> <li>• Learn from AIA and other groups undertaking similar efforts</li> <li>• SE3 raised over \$26,000 from corporate sponsors of events</li> </ul>
<p>The Quest for SE Licensure</p>	<ul style="list-style-type: none"> <li>• The OK State Board was a driving force behind the effort. The board wanted to control use of “SE” term and practice</li> <li>• Include a transition clause – OK bill transition period is 3 years</li> <li>• Write “white papers”</li> <li>• Strive to be ready to act, an opportunity might arise without notice and action cannot wait.</li> </ul>

Topic	Presenter	Notes
<p>Structural Engineering Engagement and Equity (SE3)</p> <p><i>(no video available)</i></p>	<p>Nick Sherrow-Groves Senior Engineer, Arup,</p> <p>Angie Sommer Associate, ZFA Structural Engineers</p>	<ul style="list-style-type: none"> <li>• Began in SEAONC with 20-30 people.</li> <li>• Conducted survey of SE practitioners.</li> <li>• Only 29% of practicing SE are women (approx.. 51% of population are women)</li> <li>• Significant portion leave the profession – poor management is a significant causal factor</li> <li>• Better reported career satisfaction aligns with: equitable job titles; having tasks align with career objectives; and having a family.</li> <li>• Most SE are satisfied or very satisfied with their career</li> <li>• Management appears to have different perception of advancement opportunities than other staff</li> <li>• Mentorship strongly correlated with career satisfaction</li> <li>• Overtime “burnout” appears to be real. Amount of overtime expected (encouraged) inversely correlated with career satisfaction</li> <li>• Substantial gender pay gap at higher levels:             <ul style="list-style-type: none"> <li>○ \$52,000/yr at the Principal/Owner level or</li> <li>○ \$47,00/yr for those with 30-34 years of experience</li> </ul> </li> </ul>

*This presentation’s notes continued on next page*

**Daily Activities - Friday October 13 (continued)**

Friday continued with a partial day of educational presentations. The table below provides the topic, presenter and notable items.





NCSEA Summit Delegate Report 2017 – NCSEA Conference

Topic	Presenter	Notes
<p>Structural Engineering Engagement and Equity (SE3)</p> <p><i>(no video available)</i></p>	<p>Nick Sherrow-Groves</p> <p>Senior Engineer, Arup,</p> <p>Angie Sommer Associate, ZFA Structural Engineers</p>	<ul style="list-style-type: none"> <li>• Appears to be a stigma for having children: employees without children feel they do more work and those with children advance more slowly</li> </ul> <p><u>Best practices</u></p> <ul style="list-style-type: none"> <li>• Provide business management training to managers and employees</li> <li>• Align regular tasks with career goals</li> <li>• Build a mentoring program (<i>don't assign mentors</i> – this doesn't work. Assigning a mentor is just giving the employee another "boss")</li> <li>• Curb culture of long hours</li> <li>• Perform annual pay audits to verify pay equity</li> <li>• Create a work flexibility program</li> <li>• Provide support to employees with dependents</li> </ul> <p><u>Ongoing work by SE3 Committee</u></p> <ul style="list-style-type: none"> <li>• Developing a "best practices guide"</li> <li>• Conducting follow-up interviews from the initial survey to gain more in-depth knowledge</li> <li>• Starting a mentorship group or subcommittee</li> <li>• Conducting a second survey in the future to learn what changes are being made</li> <li>• Outreach to other organizations:               <ul style="list-style-type: none"> <li>○ Webinars</li> <li>○ Presentations</li> <li>○ NCSEA Committee activity</li> <li>○ Working to spread the message</li> </ul> </li> </ul>



**Daily Activities - Friday October 13 (continued)**

Topic	Presenter	Notes
<p>Tall Wood Buildings in the U.S. – A Codes and Standards Update</p> <p><a href="#">Link to video</a></p>	<p>Lori Koch, P.E. Manager of Educational Outreach, American Wood Council</p>	<ul style="list-style-type: none"> <li>• Heavy timber (Type IV construction) has no prescribed fire resistance</li> <li>• “Mass Timber” is proposed term for wood members meeting Heavy timber provisions AND having specific fire resistance. It is not light frame construction.</li> <li>• CLT is form of Mass Timber as with other composite lumber members (e.g. LVL or Glue-Laminated timber)</li> <li>• Nail laminated timer –form of composite, 1st referenced in 1967 UBC. Very prescriptive construction method.</li> <li>• Composite timber can be left exposed &amp; provide open layout preferred by some</li> <li>• CLT made with alternating layers of “2x” material.</li> <li>• CLT: First patented in 1985, Europe was early user; can be carbon neutral; over 500 CLT buildings in UK</li> <li>• Tall wood building can be built using Alternate Means provisions of IBC               <ul style="list-style-type: none"> <li>○ 12-story wood building permitted in Portland, OR</li> <li>○ 18-story wood building under const. in Vancouver BC</li> </ul> </li> <li>• 2015 IBC refers to 2015 NDS               <ul style="list-style-type: none"> <li>○ NDS Chapter 10 addresses CLT</li> <li>○ ANSI/APA PRG-320 is CLT production standard</li> </ul> </li> <li>• CLT handbook: (<a href="#">Link</a> to free download source) information on issues not yet covered in NDS or IBC               <ul style="list-style-type: none"> <li>○ Energy                      ○ Sound                      ○ Handling</li> <li>○ Vibration                      ○ Enclosures</li> </ul> </li> <li>• CLT is not recognized seismic system in ASCE 7. Three options available for design               <ul style="list-style-type: none"> <li>○ Performance based design</li> <li>○ Demonstrate equivalence to existing system (not practical)</li> <li>○ ASCE 7-10, FEMA P695 &amp; FEMA P795 quantification method</li> </ul> </li> <li>• Guidelines exist for CLT diaphragm design</li> <li>• IBC 703 provides 7 methods to establish fire resistance. ASTM E119 Fire Endurance Testing is underway. First results show good performance</li> </ul>

**Daily Activities - Friday October 13 (continued)**



**NCSEA Summit Delegate Report** **2017 – NCSEA Conference**

Topic	Presenter	Notes
<p>Tall Wood Buildings in the U.S. – A Codes and Standards Update (Continued)</p> <p><a href="#">Link to video</a></p>	<p>Lori Koch, P.E.</p> <p>Manager of Educational Outreach, American Wood Council</p>	<ul style="list-style-type: none"> <li>• ICC created Tall Wood Ad Hoc Committee to address design issues related to tall wood structures. Discussed 3 new variations of Type IV construction               <ul style="list-style-type: none"> <li>○ Type IV-A (fully protected), 2 and 3 hour ratings</li> <li>○ Type IV-B (partially protected), 2 hour ratings</li> <li>○ Type IV-C (fully exposed), 2 hour ratings</li> </ul> </li> </ul>
<p>Shhh...It's No Secret! Ideas to Help Grow Your Firms Clientele &amp; Advance Your Career</p> <p><a href="#">Link to video</a></p>	<p>Jana Monforte</p> <p>Associate and Director of Marketing / Business Development, Wallace Engineering</p> <p>Sarah Appleton, P.E., S.E.</p> <p>Principal, Wallace Engineering</p>	<ul style="list-style-type: none"> <li>• Business development is relationship building</li> <li>• To implement a plan, get “buy-in” from the top of the organization</li> <li>• Engage on clients a personal level               <ul style="list-style-type: none"> <li>○ Cultivate genuine friendships</li> <li>○ Learn from &amp; about them (passions and strengths)</li> <li>○ Share your experiences with them</li> <li>○ Spend one-on-one time with them</li> </ul> </li> <li>• How you use your time defines your priorities</li> <li>• Speakers advocate relationship building &amp; communicating differently with different generations (<i>TMG Editorial – Evidence has shown that this is a bad idea, it is much better to treat people as individuals</i>)</li> <li>• Strategic planning must precede business development</li> <li>• Include SWOT analysis (Strengths, Weaknesses, Opportunities, Threats)</li> <li>• Put plan into action and monitor it. Meet regularly to review progress.</li> <li>• Build incentives into plan</li> <li>• Get involved with professional organizations or charities. Consider one that client(s) participate in.</li> <li>• Invest in CRM system &amp; train users</li> <li>• Engage in content marketing: publish informative/useful content in blogs, articles, webinars, social media, &amp; presentations</li> </ul>



Daily Activities - Friday October 13 (continued)

<p>The Structural Innovations of the New Mercedes Benz Stadium</p> <p><a href="#">Link to video</a></p>	<p>Erleen Hatfield, P.E., S.E., AIA</p> <p>Partner, Buro Happold</p>	<ul style="list-style-type: none"> <li>• Many challenges in this unique stadium”             <ul style="list-style-type: none"> <li>○ First retractable roof of its kind (like camera aperture)</li> <li>○ Largest scoreboard in sports</li> <li>○ First LEED platinum stadium</li> <li>○ First ETFE single-skin facades in the US</li> <li>○ 360° scoreboard at perimeter of roof aperture: 60 feet tall and 1100 feet long with 5 levels of catwalk</li> </ul> </li> <li>• 19 mega-columns support roof structure, made with 8,000psi concrete. Some over twenty feet each direction of a trapezoidal cross section. Each mega column has a different cross section.</li> <li>• Design goal was iconic structure suitable for Super Bowl and/or FIFA World Cup</li> <li>• Concrete used for bowl structure (CIP) and seating (Precast)</li> <li>• Façade structure uses ETFE &amp; metals panels to give a view of downtown Atlanta from within. This required some façade support columns to span over 100-ft.</li> <li>• Roof truss chords as big as W14x873             <ul style="list-style-type: none"> <li>○ 4 primary trusses</li> <li>○ 4 “B” trusses to frame “octagon”</li> <li>○ 8 uplift trusses due to cantilevered roof “petals”</li> <li>○ Each of 8 roof “petals” is over 200-ft long &amp; include several trusses</li> </ul> </li> <li>• Close coordination with fabricator and erector</li> <li>• Analysis required 1,000s of load combinations due to the wide array of possible roof configurations</li> <li>• Over 16,000 joints, over 15,000 members in trusses &amp; roughly 30,000 members total</li> <li>• Sliding and guided bearing required at truss supports to account for roof thermal growth &amp; deformations (up to 9-inches of movement)</li> <li>• 3D Tekla model was contract deliverable for steel design (PDF drawings for general notes, specifications &amp; typical details)</li> <li>• Conducted shop 3D drawing review</li> <li>• Up to 60 engineers working at once on project</li> </ul>
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Daily Activities - Friday October 13 (continued)

<p>Evaluation and Retrofit of Existing Structures for Mitigation of Progressive Collapse</p> <p><a href="#">Link to video</a></p>	<p>Aldo McKay, P.E.</p> <p>Senior Engineer &amp; Principal, Protection Engineering Consultants</p>	<ul style="list-style-type: none"> <li>• Focusing on concrete structures (steel structures have more apparent options)</li> <li>• ASCE 7-10 defines progressive collapse as “the spread of an initial local failure from element to element, resulting eventually in the collapse of an entire structure or a disproportionately large part of it.”</li> <li>• Historic examples:             <ul style="list-style-type: none"> <li>○ 1968 - Ronan Point</li> <li>○ 1987 – L’Ambiance Plaza</li> <li>○ 1995- Oklahoma City Federal Building</li> <li>○ 2001 - World Trade Center</li> </ul> </li> <li>• GSA Guidelines offers 3 design approaches             <ul style="list-style-type: none"> <li>○ Threat dependent approach (not allowed by DoD)</li> <li>○ Alternate path method (UFC 4-023-03)</li> <li>○ Added redundancy</li> </ul> </li> <li>• GSA guidelines assign “score” to existing buildings</li> <li>• Veterans Affairs (VA) criteria: <i>Physical Security Design Manual for VA Life-Safety Protected or Mission Critical Facilities</i>, January 2015</li> <li>• Dept. of Defense criteria: UFC 4-023-03 <i>Design of Buildings to Resist Progressive Collapse with Change 3</i> <ul style="list-style-type: none"> <li>○ Applies to buildings with 3 or more stories</li> <li>○ Initiating event is unknown</li> </ul> </li> <li>• ASCE-SEI is developing a progressive collapse standard</li> <li>• Current Design Procedures             <ul style="list-style-type: none"> <li>○ Tie Forces: Indirect design method</li> <li>○ Alternate Path: Direct design method</li> <li>○ Local Hardening: Threat-dependent</li> <li>○ Enhanced Local Resistance (ELR): Ensure ductile response of critical members</li> </ul> </li> <li>• Tie forces method: when column “removed”, floor acts like a membrane in tension. Large deformations must occur for this system.</li> <li>• ELR: Critical load bearing elements must be designed for ductile failure (similar to some seismic design)</li> <li>• Alternate path: use nonlinear analysis to show an alternate path exists</li> </ul>
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Daily Activities - Friday October 13 (continued)

<p>Evaluation and Retrofit of Existing Structures for Mitigation of Progressive Collapse <i>(Continued)</i></p> <p><a href="#">Link to video</a></p>	<p>Aldo McKay, P.E.</p> <p>Senior Engineer &amp; Principal, Protection Engineering Consultants</p>	<ul style="list-style-type: none"> <li>• Concrete design should consider reinforcing requirements for moment reversal or tension anchoring required to resist collapse</li> <li>• For steel, it's good practice to use FEMA 350 moment connections</li> <li>• Historic designs with lower material strength and often limited reinforcing bar continuity can present significant challenges (bottom bars frequently discontinuous at column lines)</li> <li>• In concrete, watch punching shear closely, it can limit allowed joint rotation</li> <li>• Alternate path analysis is often best choice, and at that a nonlinear dynamic analysis is usually required to produce cost effective designs (linear static method has much conservatism)</li> <li>• Common upgrades to improve continuity and development             <ul style="list-style-type: none"> <li>○ Plate reinforcement</li> <li>○ FRP</li> </ul> </li> <li>• Common upgrades to increase strengths (Flexural and Shear)             <ul style="list-style-type: none"> <li>○ Plate reinforcement</li> <li>○ Supplemental framing</li> </ul> </li> <li>• Punching shear</li> </ul>
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**NCSEA Summit Delegate Report** **2017 – NCSEA Conference**

**Daily Activities - Friday October 13 (continued)**

Friday’s educational presentations offered additional concurrent sessions. Links to the available presentation slides and recordings are in the table below.

<b>Topic</b>	<b>Presenter</b>	<b>Links</b>
Cracking Within Existing Concrete Masonry Walls: When are Calculations Required?	William Bracken, P.E. CEO, Bracken Engineering, Inc.	This session reviewed analysis methods for evaluating concrete masonry walls affected by cracking. It discussed when calculations are required to evaluate structural integrity and provided examples <a href="#">Link to video</a>
Networking Strategies: Even Introverted Engineers Can Network Effectively!	Jennifer Anderson who has over 20 years experience in talent retention	This session identified comfortable and effective ways to network and connect with other professionals in a non-“used-car salesman” kind of way. <a href="#">Link to video</a>
State of the Practice: Blast Design of Building Facades and Structural Systems	Cliff Jones, P.E., S.E. Project Engineer, Protection Engineering Consultants	This presentation summarized the state of the practice of blast design of facades & structural systems. It identified criteria, standards to define blast loads; considered blast design & analysis approaches for typical façade / structural components. It also discussed design efficiency & overall project cost savings. <a href="#">Link to video</a>
Contract Negotiation as a Tool for Managing Project Risk	Gail Kelley, P.E., Esq., LEED AP Author <i>Construction Law: An Introduction for Engineers, Architects, and Contractors</i>	This presentation examined some of the provisions in a design agreement that an engineer should review carefully to avoid taking on unreasonable risk. <a href="#">Link to video</a>
Applied Business Mechanics: Understanding Your Accounting & Financial Systems	John Tawresey, S.E., F.TMS, F.SEI Former Chief Financial Officer, KPFF Consulting Engineers	The seminar discussed the influence business systems have on your organization’s culture. <a href="#">Link to video</a>

The 2017 NCSEA Awards Banquet was held Friday evening



**NCSEA Summit Delegate Report** **2017 – NCSEA Conference**

- Michael O'Rourke, Ph.D., P.E. was presented the James M. Delahay Award in recognition of his outstanding contributions to the code development process. It is given in the spirit of its namesake, a person who made a long and lasting contribution to the code development process.



- James O. Malley, P.E., S.E. was presented with the NCSEA Service award in recognition of his work for the betterment of NCSEA to a degree that is beyond the norm of volunteerism. It is given to someone who has made a clear and indisputable contribution to the organization.



- Theodore E. (Ted) Smith, P.E., S.E. was awarded the Robert C. Cornforth Award in recognition of exceptional dedication and exemplary service to a member organization and the profession.



- Edwin T. Huston, P.E., S.E. was presented the Susan M. Frey NCSEA Educator Award for exhibiting a genuine interest in, and extraordinary talent for, effective instruction for practicing structural engineers.



- Each year NCSEA awards Young Member Scholarships to attend the SES. This year, eight were selected based on their essay or video submissions: ([Link to submissions](#))
  - James Foreman (Colorado),
  - Lori Koch (Virginia)
  - David Nauheimer (Illinois)
  - Mary Shinnars (Georgia)
  - Isabella Horton (Oklahoma)
  - Eric McElrath (Minnesota)
  - Kyle Palagi (Montana)
  - Rajesh Vuddandam (Texas)

Friday October 13, 2017 NCSEA Awards Banquet (continued)





**NCSEA Summit Delegate Report** **2017 – NCSEA Conference**

- Outstanding Project Awards and recognition awards were presented in seven categories. The awards highlighted the depth, breadth, creativity and skill demonstrated by firms of all sizes. Winners will be featured in upcoming issues of STRUCTURE magazine.

Category	Outstanding Project	Award Winners
New Buildings < \$20 Million	The Exchange at 100 Federal Street, Boston, MA McNamara·Salvia Structural Engineers	1908 Shattuck - Berkeley, CA Tipping Structural Engineers
		The Collegiate Center at Edison - Tulsa, OK Wallace Engineering - Structural Consultants, Inc.
New Buildings \$20 Million to \$100 Million	Center for Character and Leadership Development - Colorado Springs, CO Skidmore, Owings & Merrill, LLP	Cal Poly Pomona, Student Recreation Center - Pomona, CA LPA, Inc.
		Tallwood House at Brock Commons - Vancouver, BC Fast + Epp
		University of Massachusetts Design Building - Amherst, MA Simpson Gumpertz & Heger Inc.
New Buildings > \$100 Million	Mercedes-Benz Stadium - Atlanta, GA BuroHappold Engineering	Hanking Tower (Rolansburg) - Shenzhen, China WSP
		JTI Headquarters - Geneva, Switzerland Skidmore, Owings & Merrill LLP
		Sutter Health, California Pacific Medical Center, Viscous Wall Damper - San Francisco, CA Degenkolb Engineers
		Torre Reforma - Mexico City, Mexico Arup
New Bridges or Transportation Structures	Sellwood Bridge Replacement - Portland, OR T.Y.Lin International	SR 520 Floating Bridge and Landings - Seattle, WA KPF Consulting Engineers
		The New Dresbach Bridge – La Crescent, MN and La Crosse, WI FIGG Bridge Engineers, Inc.



**NCSEA Summit Delegate Report** **2017 – NCSEA Conference**

Friday October 13, 2017 NCSEA Awards Banquet (continued)

Award winners (continued)

Category	Outstanding Project	Award Winners
New Bridges or Transportation Structures	Sellwood Bridge Replacement - Portland, OR T.Y.Lin International	SR 520 Floating Bridge and Landings - Seattle, WA KPF Consulting Engineers
		The New Dresbach Bridge – La Crescent, MN and La Crosse, WI FIGG Bridge Engineers, Inc.
Forensic / Renovation / Retrofit / Rehabilitation Structures up to \$20 Million	The Desmond Building - Los Angeles, CA Skidmore, Owings & Merrill LLP	Freemark Abbey Winery - St. Helena, CA ZFA Structural Engineers
		Duke University Chapel: Investigation and Restoration of Cracked Stone Arches - Durham, NC Wiss, Janney, Elstner Associates, Inc.
Forensic / Renovation / Retrofit / Rehabilitation Structures over \$20 Million	Bay Area Metro Center - San Francisco, CA Holmes Structures	Empire Stores - Brooklyn, NY Silman
		UC Berkeley Bowles Hall Seismic Retrofit and Renewal - Berkley, CA Maffei Structural Engineering
Other Structures	Broad Museum Veil - Los Angeles, CA John A Martin & Associates, Inc.	Black Rock Lighthouse Service - Black Rock City, NV Holmes Structures
		Chicago Riverwalk - Chicago, IL Alfred Benesch & Company





**NCSEA Summit Delegate Report** **2017 – NCSEA Conference**

Friday October 13 - 2017 NCSEA Awards Banquet (continued)

- The banquet also presented the incoming 2017-2018 NCSEA Board of Directors:

President Williston "Bill" Warren IV, (SEAO)



Vice President Jon Schmidt, (SEAKM)



Past President Thomas Grogan, (FSEA)



Secretary Emily Guglielmo, (SEAO)



Treasurer Susan Jorgensen, (SEAC)



Directors Chun Lau (SEAW)



David Horos (SEAOI)



Ed Quesenberry (SEAO)



Stephanie Young (MnSEA)



*End of Friday October 13 activities.*





**Daily Activities - Saturday October 14**

The Annual Business Meeting is the only item this day. It includes messages from the NCSEA Board, committee reports and interaction with the delegates. The table below provides the topic, presenter, notable items and links to download relevant material.

Topic	Presenter	Notes																																								
Roll call and minutes from last meeting	Jon Schmidt	<ul style="list-style-type: none"> <li>Delegates from 35 of the 44 MOs attended (9 MO absent: AK, IN, IA, LA, MS, NV, RI, VT, and WY)</li> <li>Approved minutes of Sept. 17, 2016 meeting</li> </ul>																																								
President’s message	Tom Grogan	<ul style="list-style-type: none"> <li>Good progress has been made with the hard work of MOs and their members               <ul style="list-style-type: none"> <li>We have a robust second responder database to help address disasters like the recent hurricanes</li> <li>A Finance Committee is being created to better ensure NCSEA’s long term financial stability</li> <li>Creation of the SE3 Committee to address a serious concern within the profession</li> <li>Oklahoma’s passage of a partial practice act</li> </ul> </li> <li>This is the biggest SES yet, over 500 attendees!</li> <li>As Exec. Dir, Al Spada is helping both NCSEA and MOs along with all the NCSEA staff</li> </ul>																																								
Treasurer’s Report	Susie Jorgensen	<ul style="list-style-type: none"> <li>From 2008 to 2016 both revenue &amp; expenses are increasing</li> <li>2016: \$1,197,301 income; \$1,188,565 expenses</li> </ul> <p style="text-align: center;"><b>NCSEA Financials: 2008 to 2016</b></p> <table border="1"> <caption>NCSEA Financials: 2008 to 2016</caption> <thead> <tr> <th>Year</th> <th>Total Income</th> <th>Net Income</th> <th>Total Expense</th> </tr> </thead> <tbody> <tr> <td>2008</td> <td>\$922,110</td> <td>\$60,515</td> <td>(\$861,776)</td> </tr> <tr> <td>2009</td> <td>\$796,436</td> <td>(\$27,452)</td> <td>(\$823,888)</td> </tr> <tr> <td>2010</td> <td>\$930,391</td> <td>\$79,991</td> <td>(\$866,400)</td> </tr> <tr> <td>2011</td> <td>\$1,076,730</td> <td>\$224,869</td> <td>(\$855,927)</td> </tr> <tr> <td>2012</td> <td>\$969,769</td> <td>\$96,097</td> <td>(\$882,420.00)</td> </tr> <tr> <td>2013</td> <td>\$1,053,935</td> <td>\$64,036</td> <td>(\$996,334)</td> </tr> <tr> <td>2014</td> <td>\$1,081,936</td> <td>(\$43,258)</td> <td>(\$1,138,518)</td> </tr> <tr> <td>2015</td> <td>\$1,185,418</td> <td>(\$16,928)</td> <td>(\$1,167,020)</td> </tr> <tr> <td>2016</td> <td>\$1,197,301</td> <td>\$6,089</td> <td>(\$1,188,565)</td> </tr> </tbody> </table> <p style="text-align: center;"><i>Continued on next page</i></p>	Year	Total Income	Net Income	Total Expense	2008	\$922,110	\$60,515	(\$861,776)	2009	\$796,436	(\$27,452)	(\$823,888)	2010	\$930,391	\$79,991	(\$866,400)	2011	\$1,076,730	\$224,869	(\$855,927)	2012	\$969,769	\$96,097	(\$882,420.00)	2013	\$1,053,935	\$64,036	(\$996,334)	2014	\$1,081,936	(\$43,258)	(\$1,138,518)	2015	\$1,185,418	(\$16,928)	(\$1,167,020)	2016	\$1,197,301	\$6,089	(\$1,188,565)
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Daily Activities - Saturday October 14 (continued)

Topic	Presenter	Notes
Treasurer’s Report <i>(continued)</i>	Susie Jorgensen	<ul style="list-style-type: none"> <li>• Continuing education largest source of income, 24%, followed closely by the Annual Conference (SES) at 23% and Publications at 21%</li> <li>• Board and Committee activities, such as visiting MOs and staffing NCSEA are the largest expenses, 39%, followed by the Annual Conference at 31%</li> <li>• Board &amp; staff visited 16 MOs in 2017, up 23% vs. 2016</li> <li>• The NCSEA Grant Program is growing. It has awarded over \$40,000 over the past 3 years</li> <li>• Investing to communicate better with MOs: visits, communication webinars, support staff &amp; tool kits</li> <li>• Finance &amp; Investment Committee established               <ul style="list-style-type: none"> <li>○ Mission: The NCSEA Finance Committee oversees the financial position of the organization, assists the Executive Director in developing strategies and long-term goals for financial growth, and makes recommendations to the Board of Directors</li> <li>○ Members:–                   <ul style="list-style-type: none"> <li>▪ NCSEA Treasurer: Susie Jorgensen</li> <li>▪ NCSEA Past Presidents: Greg Robinson, Bill Bast, Carrie Johnson, Brian Dekker</li> <li>▪ NCSES Executive Director: Al Spada</li> </ul> </li> <li>○ Goals: Establish plan for long term stability and to regularly review NCSE financial strategy</li> </ul> </li> </ul>
Executive Director’s Report	Al Spada	<p><u>Vision:</u> NCSEA will be recognized as the leading advocate for the practice of structural engineering</p> <p><u>Mission:</u> NCSEA advances the practice of structural engineering by representing and strengthening its Member Organizations</p> <ul style="list-style-type: none"> <li>• Visiting MOS has been important effort</li> <li>• Surveyed MOs to get good feedback</li> <li>• Possibly expanding Basecamp user base</li> <li>• Newly reconfigured Communications Committee</li> <li>• Excited about future (<a href="#">Link to tweeted video clip</a>)</li> </ul>



**Daily Activities - Saturday October 14 (continued)**

Topic	Presenter	Notes
NCSEA Grant Program	Brian Dekker	<ul style="list-style-type: none"> <li>• Grants were given to 6 MOs. Winners:               <ul style="list-style-type: none"> <li>○ Georgia (SEAOG): funding to promote the profession’s visibility</li> <li>○ Hawaii (SEAOH): funding for a shake table for youth events</li> <li>○ Illinois (SEAOD): funding to host a Young Engineers Symposium</li> <li>○ Massachusetts (SEAMass): funding to host an ACE Mentor Program</li> <li>○ New York (SEAO NY): funding for a diversity launch party with the SE3 committee and to host networking skills events</li> <li>○ Ohio (SEAOO): funding to enhance existing student mentoring program</li> </ul> </li> </ul>
Structural Engineering Certification Board (SECB)	Craig Barnes	<ul style="list-style-type: none"> <li>• SECB is working to create an education credential that would indicate certification holders have had the appropriate education to become certified as a structural engineer</li> </ul>
Basic Education Committee	Kevin Dong	<ul style="list-style-type: none"> <li>• Building on results of the 2016 engineering curriculum survey.</li> <li>• Reviewing NCSEA recommended curriculum               <ul style="list-style-type: none"> <li>○ Should it be modified</li> <li>○ Are there regional trends</li> <li>○ What role does computing have</li> <li>○ How should timber be addressed: 95% practitioners agree timber education is worthy</li> </ul> </li> <li>• 2017-2018 Committee goals               <ul style="list-style-type: none"> <li>○ Initiate 2019 survey process</li> <li>○ Structure Magazine articles to outline second survey</li> <li>○ Collaborate w/ ASCE/SEI Wood Education Committee</li> <li>○ Conduct student survey: Why interested, when did you decide, etc.</li> </ul> </li> </ul>





Daily Activities - Saturday October 17 (continued)

Topic	Presenter	Notes
Communications Committee	Emily Guglielmo	<ul style="list-style-type: none"> <li>• Two main functions               <ul style="list-style-type: none"> <li>○ Internal communications (Emily): strengthen communications between NCSEA &amp; MOs                   <ul style="list-style-type: none"> <li>▪ Delegate communications</li> <li>▪ MO Liaison communications</li> <li>▪ Committee communications</li> <li>▪ Conducted MO survey</li> <li>▪ Shared successes of other MOs</li> </ul> </li> <li>○ External communications (Ed Quesenberry)                   <ul style="list-style-type: none"> <li>▪ Mission: Promote and elevate the Structural Engineering profession through engaging with students, code and government officials, general public and media.</li> <li>▪ Merged with Advocacy Committee</li> <li>▪ Gathering resources from MOs</li> </ul> </li> </ul> </li> <li>• Committee goals (Internal Comm.)               <ul style="list-style-type: none"> <li>○ Strengthen interaction with NCSEA</li> <li>○ Monthly MO webinars</li> <li>○ Improve delegate collaboration</li> <li>○ Add members</li> </ul> </li> <li>• Committee goals (External Comm.)               <ul style="list-style-type: none"> <li>○ Develop media &amp; public outreach plan</li> <li>○ Expand students &amp; educators outreach</li> <li>○ Expand code &amp; Gov't officials outreach</li> <li>○ Produce promotional videos</li> <li>○ Add members</li> </ul> </li> </ul>
Young Member Group Support Committee	Seth Thomas	<ul style="list-style-type: none"> <li>• Committee successes:               <ul style="list-style-type: none"> <li>○ NY has new YMG</li> <li>○ PA, SC &amp; TX looking into starting a YMG</li> <li>○ Offered 8 scholarships to attend SES</li> <li>○ NCSEA lowered registration fee for YMs</li> <li>○ YMG events in Southern CA</li> <li>○ YMG sessions at SES</li> </ul> </li> <li>• Goals for next year are same as last (support YMGs) plus to Reach out to SEA's President/Board to gauge interest in starting a YMG</li> </ul>



**Daily Activities - Saturday October 14 (continued)**

Topic	Presenter	Notes
Structural Engineering Engagement & Equity Committee  (a.k.a. SE3)	Angie Sommer and Nick Sherrow-Groves	<ul style="list-style-type: none"> <li>• Began as group of 20-30 SEAONC (Northern CA) members inspired by similar work in other groups</li> <li>• Data shows lack of engagement &amp; lack of equity are real concerns in structural engineering</li> <li>• Committee Goals:               <ul style="list-style-type: none"> <li>○ Conduct biennial surveys to research engagement &amp; equity in the practice</li> <li>○ Create a resource guide to assist other interested MOs in creating SE3 Committees.</li> <li>○ Facilitate a discussion forum for engineers to seek out &amp; provide mentorship, support, plus share stories.</li> </ul> </li> <li>• Currently preparing for 2018 survey and creating the resource guide</li> </ul>
Structural Engineering Summit Committee	Carrie Johnson	<ul style="list-style-type: none"> <li>• Develops educational programming for NCSEA SES</li> <li>• Awards subcommittee organizes entries and judging for the NCSEA Excellence in Structural Engineering Awards</li> <li>• Successes:               <ul style="list-style-type: none"> <li>○ Increased both number of submitted abstracts &amp; presentations</li> <li>○ Increased number of award entries</li> </ul> </li> <li>• Committee goals               <ul style="list-style-type: none"> <li>○ High quality keynote speaker</li> <li>○ Maintain high quality of speakers</li> <li>○ Update awards judging process</li> </ul> </li> <li>• Opportunities to help MOs set up award programs and share speakers</li> </ul>
Code Advisory Committee	Tom DiBlasi	<ul style="list-style-type: none"> <li>• Subcommittees               <ul style="list-style-type: none"> <li>○ General Requirements (includes IRC Task Group)</li> <li>○ Resilience</li> <li>○ Seismic Provisions</li> <li>○ Special Inspections / Quality Assurance</li> <li>○ Wind Engineering</li> <li>○ Evaluation Service Advisory</li> <li>○ Existing Buildings / Structural Retrofit</li> </ul> </li> </ul> <p><i>(continued next page)</i></p>





**Daily Activities - Saturday October 14 (continued)**

Topic	Presenter	Notes
Code Advisory Committee  <i>(continued)</i>	Tom DiBlasi	<ul style="list-style-type: none"> <li>○ Subcommittee organization: Chair, Recording Secretary, Voting Members, Corresponding Members, Observers</li> <li>○ Voting membership is balanced among 4 regions plus chairs can add up to 2 at—large voting members</li> <li>● NCSEA strives to be voice of the structural engineer</li> <li>● Encourage MOs to develop &amp; propose code changes through NCSEA</li> <li>● Each subcommittee can have a Corresponding Member and Alternate Corresponding Member from each MO without a Voting Member on that subcommittee. These are appointed by their MO</li> <li>● Completed 2018 I-code cycle: online voting overturned many public comment motions</li> <li>● Currently in 2021 I-code cycle: non-structural changes in 2018 and other changes in 2019</li> <li>● Committee also reviews &amp; develops STRUCTURE articles; conducts webinars &amp; is active in code related bodies</li> <li>● Working to improve relationships with both MOs and building officials</li> </ul>
Structural Licensure Committee	Alan Kirk Patrick & Kristin Kilgore	<ul style="list-style-type: none"> <li>● Visited MOs in D.C &amp; KY to promote licensure</li> <li>● Licensure is gaining attention in AZ, GA, NY, SC &amp; TX</li> <li>● Oklahoma passed partial practice act</li> <li>● Committee goals               <ul style="list-style-type: none"> <li>○ Continue supporting MOs seeking structural licensure &amp; visit at least 2 MOs</li> <li>○ Coordinate with ASCE &amp; SELC to have a consistent message</li> <li>○ Update website information</li> </ul> </li> </ul>
Continuing Education Committee	Mike Tylk & Carrie Johnson	<ul style="list-style-type: none"> <li>● Committee targets the production of 20 webinars / year</li> <li>● SE review course is now completely associated with NCSEA (Kaplan is no longer involved)</li> <li>● Administer Diamond Review Program initiated by NCSEA to evaluate &amp; approve continuing education courses and providers relevant to structural engineering</li> <li>● Share continuing ed. Information with MOs</li> </ul>



Daily Activities - Saturday October 14 (continued)

Topic	Presenter	Notes
Publications Committee	Chun Lau	<ul style="list-style-type: none"> <li>• Published <i>Guide to the Design for Common Irregularities in Buildings –In Accordance with the 2012/2015 IBC and ASCE/SEI 7-10</i></li> <li>• Courses on the guide will be offered to MOs</li> <li>• Completed final draft of <i>Engineering Structural Glass Design Guide</i>. Working to get it published</li> <li>• Final draft of the <i>Excavation Shoring Design Guide</i> is under review</li> <li>• Committee goals               <ul style="list-style-type: none"> <li>○ Finish Guide to the Design of Building Foundations in Accordance with the 2015 IBC and ASCE/SEI 7-10</li> <li>○ Develop more publication topics</li> <li>○ Coordinate with MOS to provide courses &amp; presenters for publication content</li> </ul> </li> </ul>
SEER Committee	Bill Bracken	<p><u>Mission:</u> To develop, manage and deploy professional 2ndresponders (Damage/ Safety Assessment Professionals) who are properly trained and certified both domestically and internationally</p> <ul style="list-style-type: none"> <li>• Facilitates 2<sup>nd</sup> responder training; maintains 2<sup>nd</sup> responder roster; coordinates 2<sup>nd</sup> responder assistance ; and advocates to authorities for value of 2<sup>nd</sup> responders</li> <li>• Roughly 10% of MO members have understanding of SEER program</li> <li>• In 2016, approx. 100,000 people were adversely impacted by disaster. It will be much higher in 2017</li> <li>• Within 48-hour of Hurricane Harvey:               <ul style="list-style-type: none"> <li>○ 51 second responders were deployed to the area</li> <li>○ Responded to 3 specific requests</li> <li>○ Supported 7 municipalities</li> <li>○ Assessed 13,878 structures</li> <li>○ Deployed for 12 days</li> </ul> </li> <li>• Within 48-hour of Hurricane Irma               <ul style="list-style-type: none"> <li>○ 24 second responders were deployed to the area</li> <li>○ Responded to 3 specific requests</li> <li>○ Supported 4 municipalities</li> <li>○ Assessed 5,032 structures</li> <li>○ Deployed for 12 days</li> </ul> </li> </ul>



**NCSEA Summit Delegate Report** **2017 – NCSEA Conference**

**Daily Activities - Saturday October 14 (continued)**

<b>Topic</b>	<b>Presenter</b>	<b>Notes</b>
Presentation of Four MO Success stories  Brief reviews of presentations from Friday's delegate collaboration session	Kristin Kilgore  SE licensure in Oklahoma	<ul style="list-style-type: none"> <li>• Passage required close collaboration with the state board of registration. The boards was an ally in the process</li> <li>• Required much patience and the will to act at a moment's notice if the opportunity arose – eventually the opportunity did arise</li> </ul>
	Matt Trammel  TN Coordination with NCSEA	<ul style="list-style-type: none"> <li>• NCSEA helped organize &amp; administer Seismic Workshop for Central US</li> <li>• NCSEA: Online promotion, registration; &amp; payments</li> <li>• Over 50 attended – 100% increase over expectations</li> <li>• Attracted attendees from outside TN</li> </ul>
	Sara McClendon  NWSEA	<ul style="list-style-type: none"> <li>• Conference that rotates location among 8 western chapters in 5 states</li> <li>• Share duties among various section help prevent "overload"</li> <li>• Great opportunity for groups from remote regions to interact</li> <li>• Better for exhibitors (who support the conference)</li> </ul>
	Nick Sharrow-Groves  Diversity	<ul style="list-style-type: none"> <li>• Worked to identify some leave profession</li> <li>• Women in Structural Engineering (WiSE) at SEA/OI provides networking, training, promotes STEM</li> <li>• SEAoNY Diversity Committee advocates for inclusion &amp; advancement of women and minorities in the profession               <ul style="list-style-type: none"> <li>○ Started in 2016; First event in June 2107; Next event is Oct. 30, 2018</li> </ul> </li> </ul>
Presentation of 2017-2018 NCSEA Board of Directors By new President Bill Warren	President	Williston "Bill" Warren IV, P.E., S.E., SECB, F. SEAOC
	Vice President	Jon Schmidt, P.E., SECB
	Secretary	Emily Guglielmo, S.E., P.E.
	Treasurer	Susan Jorgensen, P.E., SECB, LEED
	Past President	Thomas A. Grogan Jr., P.E., S.E., F.ASCE
	Directors	David Horos Chun C. Lau, P.E., S.E., P.Eng. Ed Quesenberry, S.E. Stephanie Young

**END OF REPORT**