

FINAL PROGRAM



AEI 2019 CONFERENCE

April 3 – 6, 2019 | Tysons, VA



PennState
College of Engineering

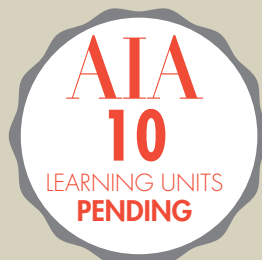
**ARCHITECTURAL
ENGINEERING**

Integrated Building Solutions – The National Agenda



Photo courtesy of Jeff Goldberg

Photo courtesy of Turner Construction Company



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Schedule-At-A-Glance

(Subject to Change)

Thursday, April 4

7:00 am – 7:00 pm	Registration Fairfax Ballroom Foyer
7:00 am – 5:00 pm	Exhibit Open Fairfax Ballroom Foyer
7:30 am – 8:30 am	Continental Breakfast Fairfax Ballroom Foyer
8:00 am – 3:20 pm	Student Design Competition Ash Grove Ballroom
8:30 am – 10:00 am	Opening Plenary Fairfax Ballroom
10:00 am – 10:30 am	Morning Network Break Fairfax Ballroom Foyer
10:30 am – 12:00 pm	Concurrent Sessions Great Falls Room – 1st Floor Potomac Room – 1st Floor McLean Room – 2nd Floor Vienna Room – 2nd Floor Falls Church Room – 2nd Floor
12:00 pm – 1:30 pm	Keynote Luncheon Fairfax Ballroom
1:30 pm – 3:00 pm	Concurrent Sessions
3:00 pm – 3:30 pm	Afternoon Networking Break Fairfax Ballroom Foyer
3:30 pm – 5:00 pm	Concurrent Sessions
5:30 pm – 7:00 pm	DPR Tailgate Party Offsite
8:00 pm – 10:00 pm	Monuments by Moonlight Walking Tour Offsite

Friday, April 5

7:00 am – 6:00 pm	Registration Fairfax Ballroom Foyer
7:30 am – 8:00 am	Continental Breakfast Fairfax Ballroom Foyer
7:30 am – 3:30 pm	Exhibit Hours
8:00 am – 9:30 am	Concurrent Sessions
9:30 am – 10:00 am	Morning Network Break Fairfax Ballroom Foyer
10:00 am – 11:30 am	Concurrent Sessions
11:30 am – 1:00 pm	Keynote Luncheon Fairfax Ballroom
1:00 pm – 2:30 pm	Concurrent Sessions
2:30 pm – 2:45 pm	Afternoon Networking Break Fairfax Ballroom Foyer
3:00 pm – 4:30 pm	Concurrent Sessions
4:15 pm – 5:15 pm	AEI Professional Project Awards Presentations Ash Grove Ballroom
6:30 pm – 9:00 pm	AEI Awards Banquet and Bandstand Featuring HGA Engineers Band TRAINWRECK Fairfax Ballroom Foyer

Saturday, April 6

8:00 am – 1:00 pm	JAE Editorial Board Meeting
8:00 am – 2:30 pm	USGBC Technical Tour and Museum of the Bible Tour

Welcome to AEI Conference 2019



Welcome to the nation's capital. Washington is the center for history and governance. America has a proud heritage of being in the forefront of social and economic issues. "We the people" have declared, from the start, the initiatives to form, establish, insure, provide, promote, secure, and ordain ourselves for the common good. It is my sincere hope that, through this conference experience, we are rededicated and energized to these proactive principles in our daily practice of architectural engineering, meeting the aspiration set forth by the first Virginia delegate to Congress.

This conference declares that integrated building solution is the national agenda. For the community gathered, we understand our responsibilities to form a better union between all stakeholder in order to promote the welfare and secure prosperity for the people who spend 87 percent of their lives working, playing, and resting in the structures we create.

"Integrated Building Solutions", the AEI motto framed by former Board of Governor Mark Sarkisian captures the mission of architectural engineering. In the next few days, it is my wish that participants will discover new ideas and find new ways to exercise this principle. To promote integrative design, the conference is featuring a full track of case studies. The presenters include designers, constructors, and owners. Keynote speakers are invited to discuss the Federal Government's efforts in creating high performance and sustainable assets, creating sport venues by integrating data and design, and employing digital solutions to create better options for the built environment.

A concerted effort is being launched to gather like-minded professionals and students into eight "AEI Build" communities. (Deliver, Enclose, Learn, Modular, Perform, Resilient, Secure, and Sustain). The Technical sessions are so identified. At the end of these sessions, thought-leaders will lead short discussions and promote networking opportunities for the specific AEI Build focus areas. Everyone is encouraged to actively engage in these communities. Together, the AEI Build communities share in the vision of advancing the design and construction of integrated buildings.

I hope you will participate in the social activities and tours. Friday night after the award banquet, we are pleased to showcase Train Wreck, the HGA office band. Let's show everyone how architectural engineers can celebrate and enjoy life.

Please take time to thank our many sponsors and Penn State Architectural Engineering for their support, without which the conference would not be possible.

I am looking forward to meeting everyone. Enjoy the conference and the community that we are.

All the best,

Moses D. F. Ling, P.E.

Chair, AEI Conference 2019

Associate Teaching Professor of Architectural Engineering

Penn State University

Local Planning Committee

Conference Chair

Moses D. F. Ling, P.E., M.ASCE

The Pennsylvania State University, University Park, PA

Technical Program Co-Chairs

Ryan Solnosky, Ph.D., P.E.

The Pennsylvania State University, University Park, PA

Robert Leicht, Ph.D., The Pennsylvania State University, University Park, PA

National Conference Steering Committee

Jeffery S. Volz, Ph.D., P.E., S.E., M.ASCE

University of Oklahoma | Chair, Conference Steering Committee

Stephanie J. Guy, P.E., LEED AP

Alvine Engineering, Omaha, NE

Amy L. Hackney, P.E., LEED AP, M.ASCE

Simpson Gumpertz & Heger, Inc., Los Angeles, CA

Moses D. F. Ling, P.E., M.ASCE

The Pennsylvania State University, University Park, PA

Ali Memari, Ph.D., P.E., F.ASCE

The Pennsylvania State University, University Park, PA

Christopher H. Raebel, P.E., S.E., M.ASCE

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Committee Meetings

Wednesday, April 3

AEI Board of Governors Meeting

8:00 am. – 12:00 pm, Premier Board Room

2:30 – 5:00 pm Premier Board Room

Academic Council Meeting

10:00 am. – 12:00 pm, Great Falls

2:00 – 5:00 pm Great Falls

Workshop For Student Chapter Leaders

12:00 – 5:00 pm, McLean

Sponsored by **JACOBS**

Student Design Competition Rehearsal

12:00 pm, Ash Grove Ballroom

Joint Meeting: AEI Board of Governors and Academic Council

12:30 – 2:00 pm, Great Falls

Student Design Competition Committee Meeting

8:00 – 10:00 pm, Premier Board Room

Thursday, April 4

AEI Build Resilience Committee Meeting

3:30 – 5:30 pm Rappahannock

Saturday, April 6

JAE Editorial Board Meeting

Special Events

Wednesday, April 3, 2019

Welcome Reception

6:00 – 7:00 pm | Fairfax Ballroom Foyer

Kick off the AEI 2019 Conference experience at the Welcome Reception. Enjoy local culinary flavors and drinks while catching up with your industry colleagues, NextGen AE leaders and networking with our exhibitors and sponsors!

Sponsored by 

ABET Forum

7:00 – 9:00 pm | Great Falls

The ABET Forum will provide an opportunity for participants to discuss the ABET AE re-accreditation process. Changes in ABET Student Outcomes, among other changes, will be launched during the 2019-20 re-accreditation cycle. The forum will give those involved with their university's re-accreditation efforts a venue to share ideas regarding the changes. Discussions will be led by several faculty that have either recently completed their re-accreditation or are about to begin the re-accreditation process. The Forum is open to any conference attendees interested or involved in the re-accreditation process.

Virtuoso in Training – Architectural Engineering (VITAE) Graduate and Undergraduate Research Showcase

7:00 – 9:00 pm | TBD

This session is envisioned as an interactive networking opportunity for graduate and undergraduate students to showcase their research, academicians and professionals to discuss and mentor. Students will present with their posters to engage the conference participants.

Thursday, April 4

DPR Tailgate Party (Ticketed Event)

5:00 – 7:30 pm

A new event at the AEI conference for students and young professionals. An evening of fun and food truck fare at DPR Construction. Buses will depart the Sheraton at 5:00 pm on rotation. The last bus will depart DPR Construction for the Sheraton at 7:30 pm

Sponsored by 

Monuments by Moonlight Walking Tour

(Ticketed Event) Tour limited. Sign up at the Penn State exhibit table.

8:00 – 10:00 pm

Experience the sights of Washington D.C. by night! The Monuments by Moonlight Self-Guided Walking Tour will take you on a guided tour of the city's most popular monuments. The tour will begin at the World War II Memorial wind around the tidal basin ending at the Jefferson Memorial. Transportation to the downtown area will be provided. Buses will depart the Sheraton at 8:00 pm and will return for the Sheraton at 10:00 pm

Friday, April 5

Getting a PhD in Architectural Engineering: A Panel Discussion

1:00 – 2:30 pm | Ash Grove Ballroom

There are currently five Architectural Engineering (AE) programs in the nation that provide a specific PhD degree in Architectural Engineering. This discussion will help participants understand the opportunities and the challenges associated with earning a unique degree, i.e. PhD in AE.

Ece Erdogmus, Ph.D., P.E., *University of Nebraska–Lincoln*

Ryan Solnosky, P.E., Ph.D., *Penn State*

Wil V. Srubar III, Ph.D., LEED AP, *University of Colorado Boulder*

AEI Awards Banquet and Bandstand Featuring HGA Engineering Band TRAINWRECK

Sponsored by  

A longtime favorite of the AEI Conference attendee - this event honors the Student Design Competition and Professional project Award winners! This year the celebration will continue with HGA Engineers' band TRAINWRECK!

Saturday, April 6

USGBC Technical Tour and Museum of the Bible Tour (Ticketed Event)

8:00 am – 2:30 pm

Visit the headquarters of USGBC and learn firsthand the green construction method employed. Members of the education committee will host a guided tour and discuss their working environment.

Then join us for a tour of one of DC's newest museums with the leaders from the design team at SmithGroup who oversaw the renovation of the historic 1922 building.

Dedicated to one of the world's oldest texts, the 8-level, 430,000 square foot museum is resolutely modern, incorporating striking architectural forms and cutting-edge technologies. The finished project is a built equivalent of a manuscript that bears traces of several versions of text added and erased over time. The Museum of the Bible opened on November 17, 2017, its strategic location at the cultural axis along 4th Street connects the National Mall and major cultural landmarks to Southwest Washington, further invigorating the urban revival of a fascinating, historic and rapidly transforming part of the city.

Sponsored by 

8:00 am: Departure from the Sheraton

9:00 am – 10:00 am: Guided tour of the USGBC headquarters office led by USGBC education staff.

10:00 am - 12:30 pm: The group will walk a few blocks the SmithGroup (21st and L to 17th and New York).for a briefing and then walk to the Museum of the Bible for the tour

12:30 pm - 2:30 pm: Museum of the Bible Tour

2:30 pm: The bus will depart Washington DC for the Sheraton

8:00 am. – 1:00 pm, Great Falls

KEYNOTE PRESENTATIONS

Addressing Future Federal Facility Priorities

Opening Plenary, Thursday, April 4
8:30 - 10:00 am. | Fairfax Ballroom

1 AIA Unit



Kevin Kampschroer, *Chief Sustainability Officer, and the Director, Office of Federal High-Performance Buildings, U.S. General Services Administration*

In this presentation you will be introduced to integrated design approaches that bring together disciplines that are often otherwise considered separately. The process and benefits of the project delivery systems will be explained and you will be given real world examples of their successes. Kevin Kampschroer, Chief Sustainability Officer at the U.S. General Service Administration (GSA), will offer insight into how GSA has benefited from integrated design, the knowledge that was gained from the process, and the opportunities that integrated design has yet to offer to the world.

Integrating Data and Design: The Future Stadium

Keynote Luncheon, Thursday, April 4
12:00 - 1:30 pm | Fairfax Ballroom

1 AIA Unit



Scott Radecic, *LEED AP, Populous*

Architecture is more than just the design of beautiful buildings. At Populous, we are designers known for creating places that draw people together, like Yankee Stadium, the London Olympics and the Super Bowl, but we didn't become one of the largest firms of our kind by shying away from the business side of the equation. We owe our success to it. In our 35 years, we've designed thousands of spaces that not only delight fans but empower clients with sustainable business models. This approach sets us apart. So how do we continue to create amazing experiences for fans and create new sustainable revenues for our clients? Enter data-driven design.

To drive home this point, we formalized a strategic, long-term partnership with Nielsen Sports in 2017. The primary research, our most comprehensive to date, illustrates a growing desire by fans to connect in new ways at live sporting events. Populous designers used the data to create venue concepts that draw people together with equal parts ROI and OMG. Through a series of case studies, see how Populous creates the venues of the futures by integrating both data and design.

What If? Design Attitude in the Age of Digital Disruption

Keynote Luncheon, Friday, April 5
11:30 - 1:00 pm | Fairfax Ballroom

1 AIA Unit



Heather Wishart-Smith, P.E., PMP, LEED AP BD+C, F.ASCE, *Jacobs*

Commoditization of design and digital technologies have created the perfect storm for the A/E industry, particularly when we have market disrupters entering the facilities and infrastructure industry. We can continue to cling to our old ways as we sink to the bottom, with non-traditional competitors nipping at our heels, or we can use digital disruption to find a better way. Challenging the status quo, and shifting from a decision attitude to a design attitude starts by asking the question, "What if?" We will explore the possibilities that result when the architecture engineering industry employs digital solutions to provide safer, high quality, more comprehensive, and better options for the built environment.

CASE STUDIES

SESSION 1.1

Minnesota State Capitol Restoration

.5 AIA Unit

Sarah Bersth, P.E., HGA

The Minnesota State Capitol was ill-equipped for today's workplace and in dire need of a full renovation. The improvements to the Capitol cost roughly \$310M and touched the building's entire 375,000 square feet. The Restoration of the Minnesota State Capitol project is an example of integrated architecture and engineering. Building owners, facility managers and A/E professionals will benefit from this case study. The audience will learn specific challenges of renovating a historic masonry building and the integration of systems while preserving architectural fabric.

SESSION 1.1

New Life for Timeless Buildings

Andrea Reynolds, SE, PE, LEED AP, SmithGroup

.5 AIA Unit

It is frequently said that "they don't build things like they used to". This statement applies to significant structures or those buildings that find themselves on historic registers. Recreating the classic and often ornate architectural systems is often cost prohibitive and the impact that re-use of existing structures can have from a sustainable standpoint is also important. As a result the renovation and re-purpose of existing buildings can provide opportunities to preserve history while infusing new life into an existing building.

SESSION 2.1

Alvine Engineering - River Point or Northwestern Mutual

Stephanie Guy, MAE, PE, LEED AP, *Alvine Engineering*

.5 AIA Unit

Alvine Engineering, headquartered in Omaha, Nebraska, is a 130 person mechanical, electrical, plumbing, and technology consultant engineering firm. In 2017, Alvine began design on a new building in North downtown. During the brainstorming and design of the new building, it was determined that Alvine would pursue WELL certification using the WELL Building Standard offered through the International WELL Building Institute (IWBI). The WELL Building Standard is a leading global rating system and the first to focus exclusively on the ways that buildings, and everything in them, can improve comfort, drive better choices, and generally enhance the building occupants' health and wellness. It explores how design, operations and behaviors in buildings can be optimized to advance human health and well-being. With only 1500+ registered projects, this project was an opportunity to be on the leading edge of the WELL movement. This case study will provide a general overview of the WELL Building Standard and then go into details about the features that Alvine Engineering is pursuing through the WELL certification process. The case study will focus on the mechanical, electrical, and plumbing design elements that were most impacted by the decision to pursue WELL certification.

SESSION 2.1

DC Water Headquarters

Sven Shockey, AIA, LEED, *SmithGroup*

.5 AIA Unit

DC Water's new headquarters will be the new public face of DC Water and a world class exemplar of integrated sustainable design. While the facility incorporates innovations with its urban design, massing, skin design, structural solution, and other aspects of the project, its mechanical systems are particularly innovative.

SESSION 4.1

Shenzhen Shum-Yip: New Super Tall Systems Through A-E Collaboration

.5 AIA Unit

Preetam Biswas, P.E., *Skidmore, Owings & Merrill LLP*

Georgi Petrov, P.E., AIA, LEED, *Skidmore, Owings & Merrill LLP*

The Ladder-Core System demonstrates an integrated building solution offering uncompromised architectural flexibility, structural performance, and MEP clarity. Unlike conventional legacy systems in the design of supertall towers, Shenzhen Shum-Yip Tower One does not rely on belt trusses, outriggers, or perimeter bracing to achieve tower performance requirements. The Ladder-Core System improves ductility, redundancy, and uniformity of structural stiffness without conceding open architecture or efficient mechanical routing.

SESSION 7.1

The U.S. Air Force Academy Center for Character and Leadership Development: A New Beacon with Seamless A-E Interface

.5 AIA Unit

Raymond Sweeney, P.E., *Skidmore, Owings & Merrill LLP*

Preetam Biswas, P.E., *Skidmore, Owings & Merrill LLP*

Reaching LEED®-NC Gold certification, the CCLD sets a new standard for green technology and building practices on the U.S. Air Force Academy campus. To meet this sustainability goal, SOM developed integrated building systems that influence all aspects of the building's design, construction, and operation. The CCLD features an energy efficient approach to climate control that utilizes high-efficiency air handling units, displacement ventilation, radiant heating and cooling, and a solar chimney effect within the skylight structure that expels heated air. The topic is geared towards design professionals that are interested in an interdisciplinary delivery method for projects with a high degree of collaboration between engineers, architects, material fabricators, and educators.

PANEL DISCUSSIONS

SESSION 4.5

ASCE Forensics Division: Lesson Learned from Building Failures,

1.5 AIA Units

Michael J. Drerup, P.E., *CTL Group*

M. Kevin Parfitt, P.E., *FAEI, Penn State*

Terrence M. McShane, Esq., *McShane PC*

Architects, Engineers, and other design professionals face a daunting array of professional risks. We navigate the risk landscape by carefully defining scope, performing work in a manner that is consistent with the standard of care, and by practicing effective coordination and communication. Moreover, the lifelong study of engineering failures can help design professionals be more aware of those aspects of the design process where failures have historically been most likely to originate.

SESSION 6.5

Multi-Hazard Prescriptive Residential Design Solutions for Single-Family Homes in the USVI and Puerto Rico

1.5 AIA Units

David Conrad, P.E., *Atkins North America*

Matthew Holland, P.E., *Stantec Consulting Services Inc.*

Jonathan Westcott, P.E., *FEMA*

In September 2017 Hurricanes Irma and Maria impacted the US Virgin Islands (USVI) and Puerto Rico with devastating impacts to residential buildings; specifically, to one- and two-family homes. The Federal Emergency Management Agency (FEMA) lead the response to these disasters and continues to provide on-going support to the disaster response and reconstruction activities in these two US territories.

This presentation will talk about collaboration between federal, territory, and consultants as partners in post-disaster reconstruction. The reconstruction focused not only on codes and standards for new construction, but improving the performing of existing buildings exposed to flood, wind, and seismic hazards through mitigation retrofit opportunities.

Thursday, April 4

8:30 – 10:00 am. Opening Plenary Keynote Presentation, <i>Fairfax Ballroom</i> Addressing Future Federal Facility Priorities Kevin Kampschroer, <i>Director of the Office of Federal High-Performance Green Buildings and GSA Chief Sustainability Officer</i>				
10:00 – 10:30 am. Networking Break, <i>Fairfax Ballroom Foyer</i>				
10:30 am. – 12:00 pm Technical Sessions				
<i>Great Falls Room</i>	<i>Potomac Room</i>	<i>McLean Room</i>	<i>Falls Church Room</i>	<i>Vienna Room</i>
SESSION 1.1 Case Study	SESSION 1.2 Deliver	SESSION 1.3 Enclose	SESSION 1.4 Sustain	SESSION 1.5 Panel Discussion
Minnesota State Capitol Restoration Sarah Bersth, P.E., HGA New Life for Timeless Buildings Andrea Reynolds, SE, PE, LEED AP, SmithGroup	Standardizing Virtual Design and Construction Performance Metrics and Project Key Performance Indicators , Calvin Kam, Ph.D., P.E., AIA, LEED, AP, Stanford University Quantitative Assessment of Construction Site Pollutant Emission and Dispersion , Yi Chen, Chongqing Jiaotong University Best Practices for BIM Requirements, LOD, and Ensuring Compliance , T.J. Meehan, AIA, LEED AP, CADD Microsystems, Inc. Interactions of Multidisciplinary Indoor Comfort Factors Over Time in K-12 Classrooms , Kieren Smith, B.M., University of Nebraska-Lincoln	Significance of Impact and Need for Modeling of Thermal Bridges in Energy Simulations of Net Zero Office Buildings , Georg Reichard, Ph.D., Virginia Tech, Registered Architect, University of Cincinnati Considerations for Shotcrete and Blindsided Waterproofing Applications , Kenrick Hartman, P.E., RBEC, RRC, RWC, REWC, LEED AP BD+C, Wiss, Janney, Elstner Associates, Inc. Strength of Unclipped Cold-Formed Knee-walls Under Uniform Lateral Loading , Deanna Engelmeyer, M.S., Milwaukee School of Engineering Facades, Fires and Failures – An International Problem with International Solutions , Robert Solomon, P.E., NFPA	The Solar Architecture Taxonomy: A Historical Analysis , Anthony Denzer, Ph.D., University of Wyoming Virtual Reality Takes Over: Assessing the Impacts of VR on Architecture and the AEC Industry , Jon Gardzelewski, University of Wyoming Advances in Transparent Wood Composites for Application in Large Office and Mid-Rise Apartment Buildings , Jay Arehart, S.M.ASCE, University of Colorado Boulder Review of Building Science Application in Selected DOE's Race to Zero Student Design Competition Projects , Ehsan Kamel, Ph.D., New York Institute of Technology	The Commission Process: All Stakeholders' Roles and Responsibilities Liz Fischer, Building Commissioning Association
12:00 – 1:30 pm Keynote Luncheon, <i>Fairfax Ballroom</i> Integrating Data and Design: The Future Stadium , Scott Radevic, LEED®AP, Senior Principal, Populous				
1:30 – 3:00 pm Technical Sessions				
<i>Great Falls Room</i>	<i>Potomac Room</i>	<i>McLean Room</i>	<i>Falls Church Room</i>	<i>Vienna Room</i>
SESSION 2.1 Case Study	SESSION 2.2 Deliver	SESSION 2.3 Perform	SESSION 2.4 Panel Discussion Deliver	SESSION 2.5 Panel Discussion Resilience
WELL Building Case Study: Alvine Engineering Corporate Headquarters , Stephanie Guy, MAE, PE, LEED AP, Alvine Engineering DC Water Headquarters , Sven Shockey, AIA, LEED, SmithGroup	Bridging the Generational Chasm: Innovative vs. Tried and True , Lisa Anderson, P.E., M. ASCE, LEED AP, Bechtel National, Inc. South Atlantic Architects Validation of the Construction Decision Making Inventory (CDMI) , Tulio Sulbaran, Ph.D., The University of Texas at San Antonio Futuristic Design of Pedestrian Bridges , Rupa Garai, S.E., Skidmore, Owings & Merrill LLP	Building Commissioning: Do Cost Benefits Outweigh The Initial Investment For U.S. Army Corp of Engineers? , Scott Kramer, Ph.D., Auburn University Best Management Practices in Design, Construction, and Maintenance of Mechanical Systems in Data Centers , Scott Kramer, Ph.D., Auburn University A Structural and Architectural Review of the Ancient Persian Domes and Arches , Shideh Shadravan, Ph.D., College of Architecture, University of Oklahoma	Lean Construction Institute: Introduction to Lean Practices Erin Miller, P.E., Lean Construction Institute Philip Thomas, CM-Lean, Linbeck	AEI Build Resilience Panel Discussion Caroline Field, BEng(Hons) MSc CEng MICE PE RSES, Principal Consultant, Head of Resilience, Europe, Thornton Tomasetti Scott Campbell, PhD, PE, Senior Vice-President, National Ready Mixed Concrete Association Emily McCarthy, Ph.D., P.E., M.ASCE, Senior Staff I, Simpson Gumpertz & Heger Paul Summers, S.E. (CA), P.E. (TX), CPEng (Aust), F.ASCE, Senior Principal, Simpson Gumpertz & Heger Stephen Szoke, PE, IOM, LEED-AP, F.ACI, F.ASCE, F.SEI, Code Advocacy Engineer, American Concrete Institute
3:00 – 3:30 pm Networking Break, <i>Fairfax Ballroom Foyer</i>				

Technical Program *(continued)*

Thursday, April 4 *(continued)*

3:30 – 5:00 pm				
Technical Sessions				
Great Falls Room	Potomac Room	McLean Room	Falls Church Room	Vienna Room
SESSION 3.1 Case Studies	SESSION 3.2 Secure	SESSION 3.3 Perform	SESSION 3.4 Sustain	SESSION 3.5 Resilience
<p>San Diego Central Courthouse – A Civic Landmark Clifford Ham, AIA, Judicial Council of California Steven Sobel, AIA, Skidmore, Owings & Merrill LLP Peter Lee, S.E., Skidmore, Owings & Merrill LLP</p> <p>Denver Union Station: A Dynamic Landmark in Transit Architecture and Engineering Peter Glasson, AIA, Skidmore, Owings & Merrill LLP</p>	<p>Integrating Early-Stage Pedestrian Comfort Modeling, Stephen Ray, Ph.D., P.E., LEED AP, Ph.D., P.E., LEED AP</p> <p>Inserting Blast Resistance, Andrea Reynolds, SE, PE, LEED AP, SmithGroup</p> <p>In-Plane Static Response of Dry-Joint Masonry Arch-Pier Structures, Bora Pulatsu, MSc, University of Nebraska-Lincoln, Architectural Engineering</p> <hr/> <p>Resilience</p> <p>Integrating Resilient, Efficient Electrical Systems on a Campus, William Faucette, PE, LEED AP-BD+C, SmithGroup</p>	<p>Characteristics of Glazing Layers of Double-Skin Facades and Energy Consumption: A Case Study in Arid Climate of Tehran, Mohammadmehdi Danesh, MS ARCH, Texas A&M University</p> <p>Non-Destructive Testing Technologies for Evaluating the Conditions of Buildings, Zhengqi Li, Ph.D., LEED AP, AM, ASCE, Terracon Consultants, Inc.</p> <p>Chiller Assisted Cooling Chilled Water Plant for Data Centers, Stephen Spinazzola, BS A/E Penn State, PE, LEED AP, ASHRAE BEAP, Gannett Fleming</p> <p>An Investigation of Building Resilience in Hurricanes Case Study: Harvey and Irma 2017, Shideh Shadravan, Ph.D., College of Architecture, University of Oklahoma</p>	<p>Bank of Beijing Headquarters: Example of Integrated High Performance Design, Marzia Sedino, P.E., LEED AP, Skidmore, Owings & Merrill LLP</p> <p>Indicators of Effective Design for Maintainability in Conceptual Design, Imad Khalek, Arizona State University</p> <p>Alternative Cements: Recent Developments and Future Directions, Juan Pablo Gevaudan, University of Colorado Boulder</p> <p>Mass-Timber Structures – Increased Ductility through Friction Mechanism, Rupa Garai, PE, SE, LEED AP BD+C, Skidmore, Owings & Merrill LLP</p>	<p>The Evolution of Earthquake Load Provisions, Ryan Solonosky, Ph.D., P.E., Penn State University</p> <p>Design and Construction of Resilient Facilities in Hospitality Industry, Sandeep Langar, Ph.D., LEED AP, The University of Texas at San Antonio</p> <p>Vulnerability of Societies in Coastal Cities, Through Human Development Patterns in Galveston, TX, Angela Lombardi, Ph.D., The University of Texas at San Antonio</p>

Friday, April 5

8:00 – 9:30 am				
Technical Sessions				
Great Falls Room	Potomac Room	McLean Room	Falls Church Room	Vienna Room
SESSION 4.1 Case Studies	SESSION 4.2 Case Studies	SESSION 4.3 Deliver	SESSION 4.4 Learn	SESSION 4.5 Panel Discussion Perform
<p>Shenzhen Shum-Yip: New Super Tall Systems Through A-E Collaboration Preetam Biswas, P.E., Skidmore, Owings & Merrill LLP Georgi Petrov, P.E., AIA, LEED, Skidmore, Owings & Merrill LLP</p> <p>111 Main – Hat Truss Suspended Office Tower: A Case Study Illustrating Vision, Integration and Collaboration Mark Sarkisian, PE, SE, LEED AP, Skidmore, Owings & Merrill LLP</p>	<p>Leveraging Cloud-Based BIM for Facilities Management Alan Todd, AIA, LEED AP BD+C, Barton Malow Company</p> <p>Utilization of Lean and IPD Techniques - Industry-Focused Chuck Brawley, MBA, Barton Malow Company</p> <p>Engaging and Training a Field-based VDC-Enabled Workforce Alan Todd, AIA, LEED AP BD+C, Barton Malow Company</p>	<p>Technical Design Integration for Complex AEC Projects, Alex Kunz, P.E., A.G. KUNZ LLC</p> <p>The Effects of Indoor Environmental Factors on Students' Academic Achievement, Adel Kabirikopaei, University of Nebraska-Lincoln</p> <p>Review of Article 15 within the AIA A201 General Conditions – 2007, Caroline Clevenger, Ph.D., P.E., AIA, M.ASCE, University of Colorado Denver</p> <p>Illustration of Time Limitations Related to Construction Tort Claims in the State of Colorado, Yinkai Wang, University of Colorado Denver</p>	<p>Virtual Reality for Design and Construction Education Environment, Sepehr Alizadehsalehi, Northwestern University</p> <p>Elevating Architectural Engineering Education through Cloud Computing, John Judd, Ph.D., S.E., University of Wyoming</p> <p>Mixed Reality to Enable Construction Design Comprehension for Digital Natives, Justin Hartless, Arizona State University</p> <p>BIM as a Pedagogical Tool for Teaching HVAC Systems to Architecture Students, Ahmed Mokhtar, Ph.D., American University of Sharjah</p>	<p>ASCE Forensics Division: Lesson Learned from Building Failures Michael J. Drerup, P.E., CTL Group M. Kevin Parfitt, P.E., FAEI, Penn State; Terrence M. McShane, Esq., McShane PC</p>
9:30 – 10:00 am. Networking Break, Fairfax Ballroom Foyer				

Friday, April 5 *(continued)*

10:00 – 11:30 am.		Technical Sessions				
Great Falls Room		Potomac Room	McLean Room	Falls Church Room	Vienna Room	
SESSION 5.1 Case Study		SESSION 5.2 Case Study	SESSION 5.3 Enclose	SESSION 5.4 Learn	SESSION 5.5 Workshop	
<p>Museum of The Bible - Building Team Collaboration Yields Project Success Ionel Petrus, P.E., The George Washington University</p>		<p>Winning Strategies for Facilities Operation - Sands Macao Syed Mubarak</p>	<p>Impact Behavior of Sustainable Sandwich Panels with Flax FRP Faces and Cardboard Cores, Pedram Sadeghian, Ph.D., P.Eng., M.ASCE, Dalhousie University</p> <p>Parametric Study of Phase Change Materials (PCM) – Enhanced Building Walls Under Space Cooling Conditions, Xiaoqin Sun, Ph.D., Changsha University of Science & Technology</p> <p>Creative Solutions with Custom Curtain Wall Design, Brienna Rust, P.E., Simpson, Gumpertz, & Heger</p> <p>Parapet Predicaments and Roof Edge Conundrums, Jennifer Keegan, GAF</p>	<p>Increased Global Awareness in Architectural Engineering Students through International Research Experiences, Ece Erdogmus, Ph.D., P.E., M.ASCE, University of Nebraska-Lincoln</p> <p>Seismic Design Provisions Updates by Building Seismic Safety Council, Jiqiu Yuan, Ph.D., P.E., PMP, National Institute of Building Sciences</p> <p>State of the Art of Architectural Engineering Education as a Contribution to the Foundation for the National Agenda: A Snapshot of Four Programs, Christopher Raebel, Ph.D., P.E., S.E., Milwaukee School of Engineering</p>	<p>Defining, Enabling, and Evaluating Adaptability, Brandon Ross, Ph.D., Clemson University</p>	
11:30 am. – 1:00 pm		<p>Keynote Luncheon, Fairfax Ballroom What If? Design Attitude in the Age of Digital Disruption, Heather Wishart-Smith, P.E., PMP, LEED AP BD+C, F.ASCE, <i>Vice President, Jacobs</i></p>				
1:00 – 2:30 pm		Technical Sessions				
Great Falls Room		Potomac Room	McLean Room	Falls Church Room	Vienna Room	
SESSION 6.1 Panel Discussion Sustain		SESSION 6.2 Case Study Perform	SESSION 6.3 Perform	SESSION 6.4 Enclose	SESSION 6.5 Panel Discussion Resilience	
<p>Continued and Sustainable Evolution of Sustainability: A Panel Discussion Moderator: Nicholas Piteo, P.E., Senior Project Manager, Simpson Gumpertz & Heger, Inc Sidney Griffin, AIA, Director of Digital Design, VMDO Architects, Brandon Ross, Ph.D., P.E., Associate Professor of Civil Engineering, Clemson University, Christopher Gorthy, Project Executive, DPR Construction Steve Willmann, CCM, Vice President, MGAC</p>		<p>Work Smarter Not Harder, Heather Wishart-Smith, P.E., PMP, LEED AP BD+C, F.ASCE, Jacobs</p>	<p>Towards Real-Time Water- and Carbon-Responsive Buildings, Sameera Guddadana, University of Colorado Boulder</p> <p>Impact of Meteorological Data Composition on Cost-Optimal Retrofitting Strategy for a Residential Building in a Hot Climate, Ahmed Mokhtar, Ph.D., American University of Sharjah</p> <p>Approaching Net Zero in an 1834 Farm House Through Integrating Multiple Energy Strategies, Anton Harfmann, M.ARCH, Registered Architect, University of Cincinnati</p> <p>Design Technology: Architects' Early Impact on Indoor Air Quality, Shideh Shadravan, Ph.D., College of Architecture, University of Oklahoma</p>	<p>Use of Infrared Thermography Method for In-Situ Measurement of Thermal Properties of Building Envelope Systems, Xinrui Lu, Penn State University</p> <p>Daylighting and Visual Comfort Performance of Integrated Dynamic Roller Shades and Lighting Controls, Niraj Kunwar, Iowa State University</p> <p>Building Enclosure Design for Water Vapor Diffusion Control in the US Mid-Atlantic Region, Anthony Nicasro, P.E., Simpson Gumpertz & Heger</p> <p>Building Enclosure Commissioning, Adam Ugliuzza, MS, Intertek</p>	<p>Multi-Hazard Prescriptive Residential Design Solutions for Single-Family Homes in the USVI and Puerto Rico David Conrad, P.E., Atkins North America Matthew Holland, P.E., Stantec Consulting Services Inc. Jonathan Westcott, P.E., FEMA</p>	
2:30 – 3:00 pm		<p>Networking Break, Fairfax Ballroom Foyer</p>				

Friday, April 5 *(continued)*

3:00 – 4:30 pm				
Technical Sessions				
<i>Great Falls Room</i>	<i>Potomac Room</i>	<i>McLean Room</i>	<i>Falls Church Room</i>	<i>Vienna Room</i>
SESSION 7.1 Case Studies	SESSION 7.2 Perform	SESSION 7.3 Learn	SESSION 7.4 Enclose	SESSION 7.5 Panel Learn
<p>The National Air & Space Museum – A Case Study of Building Enclosure Coordination Anthony Nicastro, P.E., Simpson Gumpertz & Heger</p> <p>The U.S. Air Force Academy Center for Character and Leadership Development: A New Beacon for Optimized Design with Seamless A-E Interface Raymond Sweeney, P.E., Skidmore, Owings & Merrill LLP Preetam Biswas, P.E., Skidmore, Owings & Merrill LLP</p>	<p>Net Zero Neighborhood: A Nexus of Food, Energy, and Water for Smart Cities, Mohamad Farzinmoghadam, Ph.D., Worcester Polytechnic Institute</p> <p>Analysis of HVAC Systems for Deep Energy Savings at the Urban District Level, Amy Allen, P.E., University of Colorado, Boulder</p> <p>Structural Foam Sheathing Test Program, Shideh Shadravan, Ph.D., College of Architecture, University of Oklahoma</p>	<p>Collaborative Architecture Education Through Net-Zero Design Competition on Modular Container School Design, Laura Battaglia, AIA, LEED AP, Hampton University</p> <p>Enhancing Sustainability Education within an Architectural Engineering Curriculum, Deborah Jackman, Ph.D., P.E., LEED AP, Milwaukee School of Engineering</p> <p>Student Collaboration in Comprehensive Design: Towards an Increasingly Realistic Design Experience, John Phillips, P.E., Oklahoma State University</p> <p>Integration of Virtual Reality (VR) in Architectural Design Education: Exploring Student Experience Fatemeh Orooji, Ph.D., Western Kentucky University</p>	<p>Modeling the Impact of Climate Change on Building Energy Use, Arfa Aijazi, University of California, Berkeley</p> <p>Building Enclosure Condensation Moisture Control from Air Transport in Cold Weather Climates, William O'Brien, P.E., Wiss, Janney, Elstner, Associates Inc.</p>	<p>Young Professional Council: Transitioning from Theory to Practice Mary Taylor, SmithGroup, YPC Member</p> <p>Greg Lisowski, Project Engineer at CD Smith Construction, YPC Member</p> <p>Jennifer Mitarotonda, P.E., LEED AP, Senior Associate, WSP</p> <p>Heather Wishart-Smith, P.E., PMP, LEED AP BD C, Vice President Jacobs Connected Enterprise</p>
4:30 – 5:30 pm				
AEI Professional Project Awards Presentations, <i>Ash Grove Ballroom</i>				

Museum of the Bible

Credit: Alan Karchmer for Museum of the Bible, courtesy of SmithGroup



General Information

ADA Compliance

The Sheraton Tysons is barrier-free in compliance with the Americans with Disabilities Act (ADA). ASCE/AEI will make every reasonable effort to accommodate your needs. If you require special assistance, please contact us no later than 20 business days prior to the event. ASCE/AEI cannot ensure the availability of appropriate accommodations without prior notification.

Attendee Packets

The packet you will receive at the on-site registration desk includes your name badge, this final program, a lanyard, tickets for events you have ordered, PDH information, and general announcements.

Attire

The dress code for the Conference is business casual (i.e. slacks, casual dresses) to business attire (i.e., neckties, business suits). Meeting room temperatures will vary, so wear layered clothing to ensure your personal comfort. We also recommend attendees wear comfortable shoes. Please note that certain events may have specific details on attire and you should refer to the event for more information.

Badge Policy and Ribbons

Your Conference registration name badge is your admission to the educational sessions. Please wear your badge at all times. Tickets are required for the special events, meals, and tours. Please be sure to bring your tickets with you to each event as you will not be admitted without a ticket. Ribbons will be available at the Registration Desk. ASCE/AEI does recommend you remove your badge when leaving the hotel.

Cancellations/Refunds

Cancellations must be received by ASCE in writing. A refund will be issued, minus a \$75 processing fee, if the cancellation notice is received by ASCE by March 29, 2017. No refunds will be made for cancellations received after March 20, 2019. Send cancellations to registrations@asce.org or fax to 703-295-6144.

Conference Proceedings

The Conference proceedings will be available as a thumb drive. One copy is included with each full registration. To pick up your copy, present the ticket you received in your registration packet to an AEI staff member at the Registration Desk. You must claim your thumb drive by 6:00 pm Friday, April 5. To purchase a copy after the Conference, call ASCE at (800) 548-ASCE (2723), or send a fax to (703) 295-6211; or order online at www.pubs.asce.org.

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A survey will be e-mailed to all attendees every day and at the conclusion of the conference.

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You may earn PDHs, which are nationally recognized units of record, by attending conference technical sessions and short courses. Please note there are differences from state to state in continuing education requirements for professional engineering licensure. ASCE follows NCEES guidelines on continuing professional competency. Get details on your state's requirements by going to www.ncees.org/about.

Within 30 days of the end of the Conference, the session information will be uploaded into the MyLearning system. You will receive an email from the Conference registration system with a link and detailed instructions on how to access MyLearning and to update your session attendance. By accessing the MyLearning system for this Conference, you automatically Agree and Certify you attended the selected sessions.

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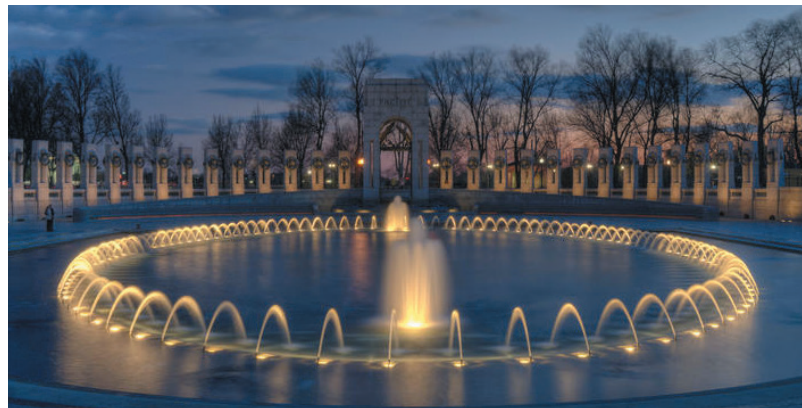
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Please help ASCE stay green by returning your badge holder at the end of the Conference in the receptacles provided by the Registration Desk.

Registration Hours

Wednesday, April 3	12:00 pm – 7:00 pm
Thursday, April 4	7:00 am. – 7:00 pm
Friday, April 5	7:00 am. – 6:00 pm



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