



Embassy Suites by Hilton  
Charleston Airport & Convention Center  
5505 International Blvd  
North Charleston, SC 29418

Thursday, June 9 – Saturday, June 11, 2022

**The SC Engineering Conference & Trade Show will be celebrating its 15th year.**

The mission of the SC Engineering Conference is “timely presentations on various engineering subjects, keynote presentations and enough professional development hours to substantially meet the annual requirement.” Additionally, the conference offers a trade show where products and services engineers use directly or specify are offered with knowledgeable representatives to assist participants.

Conferences are always about more than technical programs and trade shows; the 2022 SC Engineering Conference & Trade Show also realizes the importance of opportunities to meet and converse with fellow professionals. An exhibitor reception on Thursday evening serves as a networking opportunity between engineers and exhibitors. Session breaks, lunches and the banquet are also great times for meeting and talking with fellow professionals.

## **Thursday, June 9, 2022**

8:00 – 10:00 AM – SCSPE Annual Meeting

10:00 AM – 12:00 PM – ACEC-SC Annual Meeting

Track: General Track

1 – 1:50

***SC State Board of Registration for Professional Engineers and Surveyors Update***

2:00 – 2:50

***SCDOT Update***

John Boylston, PE, CPM, DBIA, Director of Preconstruction, SCDOT

3:00 – 3:50

***SCDHEC State Revolving Fund***

4:00 – 4:50

***Legislative Update Panel***

Leslie Clark, Carolinas AGC, Chair, SC Coalition for Lawsuit Reform

Earl Hunter, The Southern Group, Lobbyist for Rural Water Association, Water for SC

Adam Jones, Executive Director and Lobbyist, ACEC-SC and SCSPE

Jennifer Patterson, Executive Director, SC Alliance to Fix our Roads

**5:00 – 6:00 PM – Exhibitors Reception**

## 6:00 – 7:30 – ACEC-SC Future Leaders Derby Competition

### Friday, June 10, 2022

Track: 1

8:00 - 8:50

#### ***Passing Down Institutional Knowledge***

Tricia Hatley, Freese and Nichols, Inc.

As people retire, transfer, etc, having someone who knows the Institutional Knowledge of a firm, project, or relationship is important. Hatley will help attendees know what is important to pass down and how. Friday, June 10

Track: 1

9:00 - 9:50

#### ***The Agility of Employee Engagement and Retention in Hybrid Work Environments***

Becky Rehorn, Johnson, Mirmiran & Thompson

Organizations are experiencing change at an unprecedented rate due to the increasing volatile, uncertain, complex, and ambiguous (VUCA) nature of recent global events. Research reveals organizations are struggling to adapt, increasing pressure for financial performance and workforce development. Organizations in the US are aggressively working to find, hire, and retain employees using tactics related to increasing employer benefits such as tuition reimbursement, retirement planning, service awards, wellness programs and short-term incentives. Since the pandemic's arrival, there has been a decrease in available human resources within the engineering industry resulting in a tight labor market (PSMJ, 2021). Deltek (2020) research revealed three correlated trends affecting organizations within our industry – financial health, employee retention, and best practices – naming employee retention as the connector between growth and best practices. During this session, we will discuss how you as both practitioner and employee can help your organization to move forward in our VUCA world.

Track: 1

10:00 - 10:50

#### ***How to Accelerate Digital Transformation by Preparing Your People, Processes and Technology***

Beth Garrett, Life Cycle Engineering

The constant buzz about Industry 4.0, digital transformation, and smart manufacturing promises significant benefits so there's tremendous pressure to implement new technologies in order to remain competitive. If the promised benefits are so strong, why are so many people just getting started? This session will focus on how to prepare your people, processes and technology so that your pilot projects can demonstrate the ROI of enabling technologies.

In this session participants will learn:

- The obstacles holding some organizations back and how to combat them
- A roadmap for planning a successful transformation
- How to help an organization prepare for the people side of transformation

Friday, June 10

Track: 1

11:00 - 11:50

#### ***Floodplain Design, Construction, and Impacts on Flood Insurance***

J. Paul Abrams, FloodProofing.com

This course provides insight into the importance of proper foundation flood vents and dry floodproofing techniques for buildings located in a flood zone. It will identify FEMA Technical Bulletins 1, 2, and 3, the National Flood Insurance Program, ASCE 24, ICC, and Building Code regulations and standards as they relate to sustaining foundations and overall business continuity in flood hazard areas. The course will also analyze the role of building compliance in securing lowering flood insurance rates and what mitigation solutions are available for both residential and non residential structures.

After the course, participants will have a thorough understanding of floodproofing options and the important role they play in designing a sustainable structure. Friday, June 10

Lunch: 12 – 2 PM

Keynote

12:30 - 1:30

***The Inclusive Leader***

Frank Mundy, PLS, Stewart

Keynote: “The Inclusive Leader” - and highlight the behavioral tendencies as well as emotional and cultural intelligence required to be a success in today’s business world. This presentation goes into detail on each of the characteristics required for business success in a diverse, equitable and inclusive world using the acronym BELONG (Bravery, Empathy, Leadership, Operations, vision and Growth).

Track: 1

2:00 - 2:50

***7 Deadly Sins***

McCabe Karen, IMCI

Track: 1

3:00 - 3:50

***Engineering Ethics***

Mulliken Jeff, STV

Track: 1

4:00 - 4:50

***The benefits of a Subsurface Utility Engineering (SUE) Investigation CI/ASCE 38-02***

Tony DiMarino, T2 Utility Engineers

Utility impacts continue to challenge project deadlines and budgets. CI/ASCE 38-02 defines the proper way to complete a Subsurface Utility Engineering (SUE) investigation complete with varying levels of certainty pertinent to different project variables. CI/ASCE 38-02 is the standard of care in the A/E industry. The completion of a proper SUE investigation enhances the ability to manage and minimize these risks. This presentation will discuss CI/ASCE 38-02, the performance of a proper SUE investigation and the mitigation of the exposed utility risks. Friday, June 10

Track: 2

8:00 - 8:50

***LEGO, More than a Toy:***

***Practical Tips for Parents and Grandparents  
on Inspiring the Next Generation of Engineers***

Mark Lorah

As a professional structural engineer, Mark has developed a practical talent for designing real-life buildings. LEGO has been a great medium to take his design vision to a new level and Mark views the buildings and associated LEGO structures to be an extension of his real-life design practice. Over the last 10 years Mark has been sharing his creations at Fairs, Conventions and Civic Organizations as a means of inspiring children to find their passion and develop their own creativity. Parents and Grandparents often ask how they can work and play with their young ones to aid in the development those important fundamentals on which ultimately all engineering and design principals are based. The presentation will address issues such as the importance of reading, understanding and following directions. It will also address the importance of free building, being creative and designing your own creations. Mark will cover practical issues such as the required space and cost of LEGO and how you can maximize the effect while working within practical limitations.

Track: 2

9:00 - 9:50

***Burned Out Buildings: Case Studies-Structural Evaluation of Fire-Damaged Buildings***

Mark Lorah, Mark W. Lorah, P.E.

Evaluating the building structure is an important part of determining what to do with buildings that have burned. Mark brings 30 years of experience evaluating a wide variety of burned-out structures. This presentation will feature several case studies that include steel, concrete, block and wood structures; some where the fire protection systems worked as designed and some where they were either ineffective or non-existent. The presentation will also cover damage caused by all aspects of fires including, char, heat, smoke, quenching, and water exposure. Friday, June 10

Track: 2

10:00 - 10:50

Nick Amico, PE, HDR, Inc.

Wando post-tensioning assessment and repairs

Track: 2

11:00 - 11:50

***Design Considerations for Air Barriers and Building Waterproofing Assemblies***

Phillip Massa Richard Berry, ECS Southeast, LLP

Design Considerations for Air Barriers and Building Waterproofing Assemblies Air Barriers and Waterproofing Assemblies are extremely important components of a high performance building enclosure system. To ensure a performing system, proper design, detailing and ultimately the proper installation of these systems is extremely important. Learn about important design considerations, ways to detail critical interfaces, key items to include in your specs, and common mistakes to be avoided to eliminate potential problems. Friday, June 10

Keynote

Lunch: 12 – 2 PM

12:30 - 1:30

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Track: 2

2:00 - 2:50

***Automated Geostructural Monitoring: Reducing Risk Through Real Time Data Acquisition***

Joseph Preistner, Duncan-Parnell

Automated monitoring systems use a group of sensors, dataloggers, communication equipment, and software operating together to autonomously monitor critical data at the project site. This information is used to protect contractors and owners from risk to life and property arising from construction activities. This presentation will begin with an overview of the automated monitoring products available, describing the common sensors used, and focusing on how they operate, their benefits, and their limitations. Next will be a brief description of how the observations flow from the field and how the observations are presented in the data management system. The remainder of the presentation will focus on identifying the challenges encountered during the planning, installation, configuration, and operation of a long-term monitoring project and ways to overcome them. The challenges discussed during the presentation are all based on “lessons learned” during thirteen years working on automated monitoring projects throughout the US. Friday, June 10

Track: 2

3:00 - 3:50

John Bergman, TranSystems

The course will review the history of Asset Management project starting with selection criteria, team composition, routine maintenance and Potential Services (out of scope work) performed over 12 years.

Track: 2

4:00 - 4:50

***Advances in Assessing the Effect of Diagenesis on Soil Liquefaction***

Barnabas Bwambale, ECS Southeast, LLP

This presentation discusses the current state-of-the-art in assessing the effect of diagenetic processes (commonly referred to as aging) on liquefaction resistance of sandy soil deposits. It includes a summary of twelve case histories indicating liquefaction of old soil deposits, a discussion of mechanisms that contribute to soil aging with time, and relationships for estimating diagenesis correction factors. Relationships based on measured shear wave velocity to estimated shear wave velocity are recommended Friday, June 10

Track: 3

8:00 - 8:50

***Resilient and Sustainable Transportation Infrastructure***

***Managing Geohazards, Extreme Weather Events and Climate Change Impact for a Resilient Transportation Infrastructure***

Khalid Mohamed, DOT/FHWA

Impacts from geohazards on transportation infrastructure could be significant. These geohazards are generally defined as geological and climatic conditions that have the potential to cause damage to property, infrastructure, and the environment; loss of life; and economic losses. Types of geohazards include landslides, rockfall, debris flows, mine subsidence, sinkholes, expansive/collapsible soils, scour, and earthquake related phenomena. Understanding impact of geohazards is important for development of mitigation and adaptation methods for a resilient transportation system.

Track: 3

9:00 - 9:50

***Building Equity into a Major Infrastructure Project***

Joy Riley, SCDOT

Significant infrastructure investments are being planned to upgrade our aging highway system in SC. SCDOT and the Federal Highway Administration (FHWA) are finalizing an Environmental Impact Statement for the I-526 Lowcountry Corridor Project in the Charleston Region of SC. This project will be the largest infrastructure project in SCDOT's history. Near I-526's interchange with I-26, the project is set in a densely developed area including four low-income, minority neighborhoods that have been historically impacted by multiple modes of transportation in the region. Learn about the challenges, meaningful engagements and innovative solutions encountered in the process of building equity into this major interstate improvement project.

Track: 3

10:00 - 10:50

***Asphalt Pavement Maintenance and Repair Techniques***

Kimberly Lyons, SCAPA

This presentation discusses the importance of a pavement preservation (and maintenance) program to maintain and enhance pavement performance by using a timely, cost-effective practices to extend the life of the pavement. This presentation also discusses the different types of asphalt pavement repair techniques.

Track: 3

11:00 - 11:50

***GFRP Reinforced Concrete: A Sustainable Solution For Corrosion Prone Environments***

Brett Eisenhauer, JMT

This presentation will highlight the use of Glass Fiber Reinforced Polymer (GFRP) reinforcing in two Charleston, SC based infrastructure projects: The Low Battery Seawall Restoration and the Beresford Creek Bridge Replacement. Despite not being a new material, GFRP has not seen widespread use in public infrastructure projects. With raised awareness for sustainable and economical solutions, the use of GFRP is growing. GFRP reinforcing was chosen to provide

a sustainable and economic solution to the challenging corrosive environment that surrounds both projects. The designs incorporate the provisions of ACI 440, as well as collaboration with a GFRP manufacturer to optimize rebar detailing and related constructability. Low Battery construction is under way, making it the first all-GFRP reinforced public infrastructure construction project in South Carolina. The Baresford Creek Bridge will be bid in Spring of 2022, making it the first GFRP public bridge to be constructed in South Carolina. Friday, June 10

Lunch: 12 – 2 PM

Keynote

12:30 - 1:30

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Track: 3

2:00 - 2:50

***Overview of SCDOT's Bridge Load Rating Program***

Petrina Butler, Michael Baker International

Nearly 10,000 public bridges throughout the State required load rating within 2 years to meet FHWA mandates. This presentation will provide an overview of SCDOT's Bridge Load Rating Program, along with a discussion of the various bridge types in the inventory and their condition. Friday, June 10

Track: 3

3:00 - 3:50

***SCDOT Transportation Specifications Update***

Kimberly Lyons, SCAPA

This presentation is an overview of all the updates to the technical specs in the transportation track since the summer of 2021. Friday, June 10

Track: 3

4:00 - 4:50

***Right of Way Acquisitions, Negotiations, Imminent Domain/Condemnations,***

Henry "Bert" Shumpert, PLS, SCDOT

Track: 4

8:00 - 8:50

***What Could Go Wrong?***

Foster Ralph, Foster Engineering

What Could Go Wrong? Fire and Life Safety is important after the design is completed. This presentation shows what can and does go wrong during construction when a Fire Protection Engineer is not present during construction. Friday, June 10

Track: 4

9:00 - 9:50

***Hazardous Occupancies –Fundamentals and what you should know.***

Jack Smeck, Foster Engineering

Manufacturing and storage have numerous challenges when it comes to safe storage or handling. This course will focus on the requirements and special provisions surrounding hazardous occupancies as discussed in the International Building Code (IBC) and International Fire Code (IFC). We will cover why they’re different, the initial steps in designing these areas, and some general considerations for ensuring these areas fit in to the overall property protection and life safety strategy for the building.

Track: 4

10:00- 10:50

***Combustible Dust and 3D Printing***

Robert O'Neill

Track: 4

11:00-11:50

***Fire Protection Underground Piping***

Ralph Foster, Foster Engineering

Fire Protection Underground Piping - We will discuss how an engineer can be dragged back into a project months after their work is completed. We will cover when plans need to be submitted to the State Fire Marshal, what must be on these plans to get approval, and other state forms needed. Friday,

Lunch 12 – 2 PM

Keynote

12:30 - 1:30

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Track: 4

2:00 - 2:50

Kaela Bailey, HDR, Inc.

Track: 4

3:00 - 3:50

***SC State Guard Update***

Byron Briese, SC State Guard

Track:

4:00 - 4:50

TBD

6:00 – 6:30 PM – Cocktails with a Cash Bar

7:00 – 9:30 PM – Awards Banquet

## **Saturday, June 11, 2022**

8 - Noon

***The Pull of Purpose***

Lester Mel, BizEdge

To Win the Talent War, Engineering Firms Must First Define Their Work's True Value: 1. The growing evidence that purpose drives today's winning workplaces. 2. How engineers unwittingly devalue their work (and what to do about it) 3. Proven strategies for attracting and retaining top talent Friday, June 10