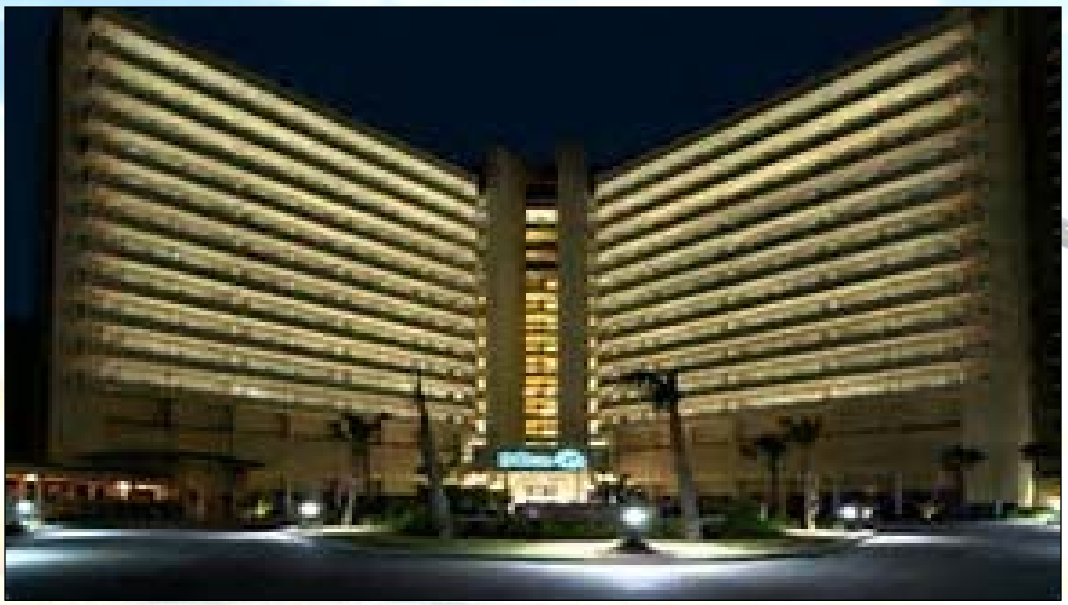
SC ENGINEERING
CONFERENCE & TRADE SHOW

Hilton Myrtle Beach Resort
Myrtle Beach, South Carolina
June 8-10, 2017



The SC Engineering Conference is in its tenth year as a combined effort of three key engineering organizations. Its mission remains "timely presentations on various engineering subjects, keynote presentations and enough professional development hours to substantially meet the state's annual requirements." Additionally, the conference offers a trade show where products and services engineers use directly or specify are offered with knowledgeable representatives to assist you.

Conferences are always about more than technical programs and trade shows; the 2017 SC Conference also realizes the importance of opportunities to meet and converse with fellow professionals. An exhibitor reception Thursday evening serves as networking opportunity between engineers and exhibitors. Networking is encouraged during the sessions, breaks, lunch and the Banquet.

Engineers attending the conference June 8-10 at the Hilton Myrtle Beach Resort may gain up to 15 PDHs and choose from a variety of more than 40 programs.

ACEC
American Council of Engineering Companies
of South Carolina

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Professional Engineers and Surveyors

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SC ENGINEERING CONFERENCE & TRADE SHOW

The 2017 SC Engineering Conference is offering 15 PDHs. For attending a program in every time slot you can accumulate 15 PDHs of the 15 required annually.

THURSDAY - June 8, 2017

4 PDHs Available for the Day

8:00 AM – 5:00 PM ..... Registration

8:30 AM – 10:15 AM ..... ACEC-SC Board & Annual Meetings

10:20 AM – 12:15 PM ..... SCSPE Board & Annual Meetings

10:30 AM – 12:00 PM ..... ASCE-SC Board Meeting

11:30 AM-1:00 PM ..... Lunch

12:00 PM – 6:00 PM ..... Trade Show

12:30 PM – 2:00 PM (1.5 PDHs)
Engineers Registration Board Panel Discussion and Registration Board Updates
SC Board of Professional Engineers and Land Surveyors

2:00 PM – 2:30 PM (.5 PDH)
SCDHEC Update
Myra Reece, Director of Environmental Affairs, SCDHEC

2:40 PM – 3:40 PM (1 PDH)
SCDOT Update
Russell "Randy" Young, Chief Engineer for Project Delivery, SCDOT

3:50 PM – 4:50 PM (1 PDH)
Columbia Canal Update
John Walsh, Michael Baker

5:00 PM – 6:00 PM ..... Trade Show Reception

6:00 PM ..... Trade Show Ends

6:30 PM – 8:30 PM ..... ASCE-SC Reception

Dinner on Your Own

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FRIDAY - June 9, 2017

7 PDHs Available for the Day

7:30 AM – 5:00 PM .....Registration

8:00 AM – 4:00 PM .....Trade Show

8:00 - 8:50 AM (1 PDH) ..... CONCURRENT SESSIONS

CIVIL/STRUCTURAL TRACK

Floodplain Design, Construction and Impacts on Flood Insurance

Zach Falkner, Smartvent

Floods are the #1 natural disaster in the United States. All 50 states have experienced floods or flash floods. Due to climate change and other factors, flood events are increasing in number and intensity. To protect the health, safety, and welfare of homes and their occupants during a flood event, homes must be built into compliance with local, state, and federal codes and regulations. This course describes floodplains and the potential hazards to buildings. Unless there are flood openings that allow floodwaters to flow into and out of enclosures below the Base Flood Elevation, hydrostatic pressure builds up on the foundation walls and can cause major damage. The course also defines the differences in engineered and non-engineered flood openings and their ability to ensure resilient structures. It explains the differences between wet floodproofing and dry floodproofing techniques, and when they are applicable. It also clarifies the regulations, codes, and standards as they relate to sustaining foundations in flood hazard areas. This course analyzes the role of building compliance in lowering flood insurance rates and what mitigation solutions are available to existing structures.

FIRE, LIFE AND SAFETY TRACK

Overview of Seismic Protection for Sprinkler Systems

Ralph Foster

NFPA 13 contains all of the requirements needed to comply with the seismic requirements of ASCE 07 and the International Building Code. NFPA 13 has a simplified approach that is easy to follow and apply. Most of South Carolina is subject to seismic requirements and knowing the requirements can save you a lot of heartaches! This class will provide a high level overview of things an engineer need to know to prepare design drawings or review shop drawings.

GENERAL/BUSINESS TRACK

Planning to Exit Your Business? Finding the Right Value for Your Firm

Matthew K. Fultz, Matheson Financial Advisors

This program will focus on the impact of exit strategies on engineering firm valuations above and beyond the effect on revenue, profits, backlog, and staff size. Specifically, we will review the impact on the different valuation methodologies, including market and income approaches. This presentation will help owners and managers understand firm valuation and the issues associated with transition. An awareness of these issues is key to the ongoing success and continued vitality of an engineering firm. We will make the connection between what has been occurring in the general market and its impact on the valuation process. The focus will be from the perspective of an industry firm appraiser showing attendees how to increase the attractiveness of their firms and how to maximize shareholder value.

GEOTECHNICAL TRACK

Using Structural Lightweight Aggregate for Geotechnical Applications

Imani Brodie Surratt, Stalite

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MECHANICAL/FORENSIC TRACK

BIM & THE MEP World

Mike Bronson and Brian Bates, DWG, Inc.

- *What is BIM?*
- *How can it help me in my business?*
- *What are it's advantages over traditional 2D drafting?*
- *What are the benefits of a virtual 3D model?*
- *How BIM is being used in the MEP world.*
- *What are the current market trends in the BIM industry?*
- *Q & A - Examples, demonstrations*

TRANSPORTATION TRACK

Inland Port in Pee Dee

Matt Gehman, TranSystems

8:00 AM - 9:50 AM ..... (2 PDH)

ENVIRONMENTAL TRACK

NEPA – A Case Study

M.K. Bladwin, PE

This presentation delves into the National Environmental Policy Act (NEPA) and its application to a real-world event. The event was the relocation of Marine Corps aviation assets due to the 1993 and 1995 Base Realignment and Closure Commissions recommendations pursuant to Public Law 101-510. The presenter was involved with the process for approximately two years. The location was in Southern California.

9:00 AM – 9:50 AM (1 PDH) .....CONCURRENT SESSIONS

CIVIL/STRUCTURAL TRACK

Introduction to Design of Reinforced Concrete Structures for Blast Loads

D. Baren Talukdar, PhD, PE, M.SEI, F.ACI, F.ASCE, F.IE

The design of concrete structures for blast resistant has been of great interest to the Army and other federal agencies for several decades. In addition, certain specialized segments within the engineering community have also had to consider blast loads on structures as a result of potential accidents, e.g. Petrochemical Industry. Even though there is considerable history in the design of structures to resist blast effects resulting from accidents or intentional acts, it is only recently that the general structural engineering community has shown strong interest in the response of structures subjected to explosions and other high-rate loading phenomena, such as impact.

Following the attacks on World Trade Center, the vulnerability of nation's infrastructures to terrorism became a top priority for many state and federal governments, as well as private consulting engineers.

At that time, American Concrete Institute (ACI) did not have any Standard/Code to address Blast Loads for structural Concrete design. In 2014, ACI published a Report (ACI-370)

FIRE, LIFE AND SAFETY TRACK

Challenges of Fire Alarm System Installation for the USS Yorktown

George McCall, McCall & Son, and Scott Golly, PE, Jensen Hughes

This presentation delves into the challenges of designing a replacement fire alarm system for the USS Yorktown, Charleston Harbor. The collaboration of two firms to provide a design for the fire alarm system. Working within the South Carolina Procurement Procedures. Architectural preservation ... don't stand out. Provide a multi-function mass communication tool as well as interconnection with phones. Provide a robust brand that is reliable and supported by multiple vendors. Keeping the old system limping along until the end. Challenging installation issues and conditions. The presenters were involved with the process for approximately five years.

TRADESHOW PARTICIPANTS

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GENERAL/BUSINESS TRACK

Back to Basics
Karen McCabe, IMCI

GEOTECHNICAL TRACK

PaveXpress: A Simplified Pavement Design Tool
Jayson Jordon, PE, SC Asphalt Pavement Association

MECHANICAL/FORENSIC TRACK

AMERICAN Flow Control ALPHA Hydrants & Valves
Mike George, Territory Manager, American Flow Control

TRANSPORTATION TRACK

BrIM
Rob McKenna, HDR

10:00 AM – 10:50 AM (1 PDH) ..... CONCURRENT SESSIONS

CIVIL/STRUCTURAL TRACK

Port Access Project
Michael Ulmer, S&ME

The new Port Access Road will provide a direct connection from I-26 to the Hugh Leatherman Container Terminal under construction on the former Charleston Navy Complex in North Charleston, South Carolina. The project is exposed to a high seismic hazard, and it will construct some eight miles of large bridge structures and associated roadway embankments through highly variable subsurface conditions that include significant uncontrolled fill deposits, liquefying sand strata, and highly compressible clay strata. The geotechnical and bridge designers collaborated closely to develop cost effective foundations that meet the stringent SCDOT performance requirements in very adverse soil conditions with a large seismic hazard. The presentation will present the site conditions, geotechnical and structural challenges, and how they were addressed.

ENVIRONMENTAL TRACK

Beyond Your Fenceline: Air Quality and Risk
Asheluy Sapyta and Mike Marcus, S&ME

Personal air quality sensor technology is advancing rapidly and sensors capable of accurately measuring fence line data are becoming more economical. As this data becomes readily available, the general public will likely be less interested in whether or not a manufacturing facility meets its regulatory limits than whether the emissions from that facility, either alone or combined with those around it, result in concentrations in air that are potentially harmful to those living near the facility. Owners and operators of manufacturing facilities should be proactive in addressing potential issues. This session will demonstrate how a facility can predict their impact on the surrounding community through a combination of the current environmental practices of air dispersion modeling and human health risk assessment.

TRADESHOW PARTICIPANTS

Foth

IMCI
Insurance Management Consultants Inc.

IMC INDEPENDENT MAPPING CONSULTANTS

Lindsay PRECAST

FIRE, LIFE AND SAFETY TRACK

Fire Protection Engineering's Amazing Founder
Robert O'Neill, PE, Savannah River Site

The presentation examines the life and work the primary founder of fire protection engineering. Very few in the industry are even aware of this individual and the astonishing life that he led. His modest beginnings belie the profound nature of his capabilities, boundless energy and enthusiasm for nearly every field that he entered. His solution for a minor problem in his business lead to the founding of three major new industries and transformed the economy nationwide. His lineage traces back to the pilgrims and his wife's family was of significant influence in the revolutionary war. He overcame several personal tragedies in his life and went on to become one of the most highly esteemed men of his day. His ideas continue to challenge industry today at all levels.

GENERAL/BUSINESS TRACK

How to Choose the Best Survey Methods for Different Engineering Needs
Dustin Manning, Stewart

GEOTECHNICAL TRACK

Big Slow Movers: Design Methodologies and Construction Case Studies in Remediation of the Deep-Seated, Slow Moving landslides in North and South Carolina
Doug Chappell, PE, Wurster Engineering

MECHANICAL/FORENSIC TRACK

Industrial Control Values
Brad Laing and Jim Benkert, Fluor

On/off and modulating automated control valves are critical for control in industrial plants for process and utility systems. This presentation will provide an overview of industrial control valves to provide attendees with a general foundation of knowledge of control valves.

TRANSPORTATION TRACK

Study of I-85 Corridor and Park and Ride
Emily Swearigen, AECOM

11:00 AM – 11:50 AM (1 PDH) .....CONCURRENT SESSIONS

CIVIL/STRUCTURAL TRACK

The Volvo Design Build Project
Jim O'Connor, PE, JMT

ENVIRONMENTAL TRACK

Converting Clemson University WWTP Digesters from Anaerobic to Aerobic
Keith Overstreet, PE, Design South Professionals

Clemson University undertook the conversion of one of the digesters at their wastewater treatment plant from the anaerobic process to an aerobic digestion process. The plan was to later convert the second anaerobic digester to aerobic operation. From the time it was commissioned, Digester 1 did not perform as expected. This presentation summarizes the causes of the poor performance, the evaluation process used, the short term solution as well as the design and commissioning of the project that fully converted the University's sludge digestion from anaerobic to aerobic operation.

TRADESHOW PARTICIPANTS

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FIRE, LIFE AND SAFETY TRACK

Sprinkler System Corrosion

Robert O'Neill, PE, Savannah River Site

The presentation explores the emergence of fire sprinkler system corrosion and the serious implications it presents to the fire sprinkler industry. The presenter has engaged in research and consulting on various aspects of the issue for most of his career. The problem has been fraught with confusion, dissension and disputes over its cause, presence and scope. Even corrosion engineers acknowledge the complexity of the phenomena. Due to these technical and practical obstacles, engineers struggle to find lasting solutions to the persistent problems that it causes to clients worldwide. The presenter discusses lessons he has learned and successes he has had in addressing the problem.

GENERAL/BUSINESS TRACK

Large Project Planning

Brian Bonds, Glenn Associates Surveying, Inc.

GEOTECHNICAL TRACK

Ground Improvement – Opening the Black Box

Doug Chappell, Wurster Engineering

The acceptance and use of ground improvement for foundation support and liquefaction mitigation are growing by the day. However, conflicting design theories and guarded proprietary techniques can often create confusion for designers, owners, and general contractors when approaching projects involving ground improvement. This presentation is intended to shed light on the design and field application of these techniques. Starting with the origin of vibrocompaction in the 1930's, the history of both the theory and construction of these techniques will be discussed, with a primary focus on liquefaction mitigation techniques and foundation settlement control. A mixture of history, technical theory, and practical construction case studies, this presentation aims to open the "black box" that is ground improvement and provide the listener not only with tools better navigating projects with techniques of this sort, but to provide a true theoretical understanding of them as well.

MECHANICAL/FORENSIC TRACK

Designing Roof and Decks to Avoid Ponding

Scott Coffman, PE, SECB, Construction Science Engineering

For decades the building code has required a minimum roof slope of ¼ inch per foot to provide positive drainage. However, this slope is significantly reduced along the valley of two (2) intersecting roof areas and for members optimized for deflection. Manufacturers will warrant roofs with lower roof slopes, which violates the referenced code minimum. HVAC units, solar panels and other roof loads serve to cause deflection of wood roof framing, reducing (or completely eliminating) the positive drainage required by the building code. This presentation will offer design solutions to provide long-term positive drainage for minimum slope assemblies supported by wood framing.

Learning Objectives

- Describe the minimum building code requirements for roof slope and positive drainage.
- Understand the properties of wood that contribute to long-term deflection.
- Discuss the mechanisms that can cause initial roof slopes to be reduced during the service life of a typical wood frame building.
- Understand the design details that will help avoid ponding of water on roofs, decks, water intrusion and/or roof collapse.

TRANSPORTATION TRACK

Thin Is In: Thin Overlays for Pavement Preservation

Jayson Jordan, SCAPA

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All Rocks Are NOT Created Equal...
STALITE
STRUCTURAL
Lightweight Aggregate

12:15 PM – 1:45 PM (1 PDH) ..... Lunch/Keynote Address

Engineering Innovation and Entrepreneurship in South Carolina
Tony Ambler

2:00 PM – 2:50 PM (1 PDH) .....CONCURRENT SESSIONS

CIVIL/STRUCTURAL TRACK

Bridge Culvert Rehabilitation
Paul Detray, Contech

When drainage infrastructure reaches the end of a useful service life, the decision to excavate and replace is commonplace. Rehabilitation or relining of culverts, storm sewers and small bridges can be faster and less expensive option that imparts little to no impact on traffic maintenance. In this technical presentation we will cover the following topics: What if? – Advantages of Reline, Real World Savings, Products Available in our Industry, Design Considerations, Projects of Interest.

ENVIRONMENTAL TRACK

An Investigation into the Scientific Engineering Rationale for Wider Riparian Buffer Widths for Orange County, NC
John Dorney, Jan Gay, Michael Harvey, Michael Calhoun and Jerry McCrain, Vaughn & Melton

FIRE, LIFE AND SAFETY TRACK

3D Printing, Code & Safety - Design Considerations
Rob Plonski, PE, Savannah River Site

GENERAL/BUSINESS TRACK

Project Management for High Tech Projects
Keith Plemmons, IEEE

GEOTECHNICAL TRACK

How Can Rocks with Holes Make Durable (Lightweight) Concrete
Ken Harmon, Stalite

Many engineers are reluctant to use lightweight concrete in bridge and marine projects because they are skeptical about the durability of lightweight concrete. However, laboratory and field experience demonstrate that lightweight concrete can provide excellent durability for bridges and marine structures.
This presentation discusses the process used to manufacture lightweight aggregate from shale, clay and slate raw materials. Factors that contribute to making the durability of lightweight concrete equal to or better than normal weight concrete will then be discussed, including internal curing, elastic compatibility of lightweight aggregates with the paste, a lower modulus of elasticity, a lower coefficient of thermal expansion, resistance to freezing and thawing, and reduced permeability of concrete. Several bridges and marine structures, including a few ships built during the World Wars, will be described as examples of the good long-term performance of lightweight concrete.

MECHANICAL/FORENSIC TRACK

Liability Issues Affecting Design Professionals
Robert Lyles, Attorney, Lyles & Lyles, LLC

TRADESHOW PARTICIPANTS

Subsurface

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TRANSPORTATION TRACK

PennDOT Rapid Bridge Replacement Project

Scott Gallagher, PG, TRC

This Public Private Partnership (P3) project was recently awarded by the Pennsylvania Department of Transportation (PennDOT) to the PWKP consortium. The Commonwealth is taking advantage of the new P3 tool signed into law in 2012 to begin a new initiative to address the state's nearly 4,500 Structurally Deficient (SD) bridges. With the P3 approach, we can replace hundreds of these bridges more quickly; save money; and minimize the impact on the traveling public.

Project Goals:

- *Plenary Walsh Keystone Partners (PWKP) will replace 558 aging bridges in just three years, completing construction by the end of 2017. The bridges are primarily crossings on smaller state highways, many in rural areas, rather than interstate bridges or large river crossings. The team's proposal was selected based on scoring that considered cost, financial capability to carry out the project, background and experience in managing comparable projects, and understanding the project.*
- *The majority of design, construction, financing, and maintenance risks over the 28 year term are the responsibility of PWKP, who will deliver the replacement bridges for an average cost for design, construction and maintenance per bridge of $1.6 million. PennDOT has estimated that if the work had been performed under PennDOT's standard contracting process, the cost to design, construct and maintain a bridge for 28 years would average more than $2 million.*

3:00 PM – 3:50 PM (1 PDH) ..... CONCURRENT SESSIONS

CIVIL/STRUCTURAL TRACK

Structural Health Monitoring for Effective and Efficient Bridge Management

Richard "Lee" Floyd, PE, SCDOT

ENVIRONMENTAL TRACK

Main Street Deep Water Ocean Outfall - A Solution to Reducing Pollution - Part 2

Travis E. Dupree, PE, Public Works Engineering Manager,
City of North Myrtle Beach

FIRE, LIFE AND SAFETY TRACK

How Risks are Quantified in the Building Code

David Bhuta and Adam Edwards, Jensen Hughes

GENERAL/BUSINESS TRACK

Internet of Things

Lee Stogner, IEEE

GEOTECHNICAL TRACK

The Importance of Full Scale and Accelerated Pavement Testing of Geogrids in Pavement Applications

Jack Moore, Tensar

Considerable rigor is necessary to properly test and evaluate in-ground performance of geogrids. The interaction between geogrid and aggregate in a pavement structure is very complex and is influenced by many factors. Therefore, properly quantifying the benefit of geogrid can only be accomplished by full scale and accelerated pavement testing performed to relevant and appropriate industry standards. This presentation will reinforce the importance of this type of testing to establish performance criteria for geogrids in pavement designs. Additionally, we'll briefly explore the common use of geogrids for subgrade stabilization along with the potential use in pavement enhancement (increased ESAL's) applications. The subjects covered will include a review of pertinent reinforcement mechanisms identified by the USCOE with video demonstrations of these concepts. We'll also discuss the geogrid market today along with tools available to geotechnical engineers to craft sound geogrid solutions.

TRADESHOW PARTICIPANTS

T·H·C

Wurster Engineering & Construction, Inc.

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MECHANICAL/FORENSIC TRACK

Design Professionals & Contractors: Up Against the Wall
Jason Smith, AIA, Construction Science Engineering

Discuss construction details that cause design professionals and contractors to be brought into construction litigation. The presenter highlights building code requirements, industry standards, and manufacturer instructions related to roofing, exterior walls, windows and other issues common to construction litigation. Conclude with a series of case studies of the alleged defects, the consequence and/or damage and the parties responsible for the repair costs.

Learning Objectives

- *Identify the contractor instructions used to establish defects in construction litigation.*
- *Correctly interpret prescriptive and performance-based building code requirements and industry standards for alleged construction defects.*
- *Evaluate alleged construction defects to determine the need for repairs.*
- *Effectively formulate reasonable details and scope requirements for the repair of construction defects.*

TRANSPORTATION TRACK

Transportation Submission
John Walsh, Michael Baker

4:00 PM ..... Trade Show Closes

6:30 PM – Dunes Ballroom ..... Reception

6:50 PM - Dunes Ballroom ..... Awards Banquet

SATURDAY - June 10, 2017

4 PDHs Available for the Day

7:30 AM – 12:00 PM ..... Registration

8:00 AM – 12:00 PM (4 PDH)

Military Engineering
Marquerite McClam, SC State Guard

8:00 AM – 12:00 PM (4 PDH)

Bridging Applications at the Intersection of Science, Engineering and Societal Needs
Paul T. Gayes, Coastal Carolina University
Director, Burroughs and Chapin Center for Marine and Wetland Studies
Palmetto Professor of Coastal and Marine Systems Science

REGISTRATION INFORMATION

Registration Fees

Thursday Only	$108.00
Full Conference	$350.00
Thursday/Friday	$265.00
Friday/Saturday	$288.00
Friday Only	$175.00
Saturday Only	$96.00
Spouse/Guest	$150.00
Banquet Only	$85.00

REGISTRATION DEADLINE - JUNE 2

To Register for the Conference click on the link below:

Conference Registration

HOTEL INFORMATION

The Hilton block for the SC Engineering Conference is full. They will still sell rooms, but not at our group rate. If you still wish to stay at the Hilton, please click below.

Hilton Myrtle Beach Resort
10000 Beach Club Drive
Myrtle Beach, SC 29572-5304
Phone: 843.449.5000

Hilton Registration

Alternate Hotel

Marriott Courtyard Barefoot Landing
1000 Commons Boulevard
Myrtle Beach, SC 29572
843-361-1730

Marriott Registration

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