FRIEDMAN FAMILY VISITING PROFESIONALS PROGRAM

Civil and Environmental Engineering
Molinaroli College of Engineering and Computing
UNIVERSITY OF SOUTH CAROLINA

Visit to University of South Carolina: Month 04, 2025

This report summarizes the visit of Mr. John Hooper from Magnusson Klemencic Associates that took place at the University of South Carolina on April 16th 2025,

ITINERARY OR AGENDA

TIME:	ACTIVITY:
9:30-9:45 am	Introduction meeting with Dr. Sasanakul and Brennan Gedney
9:45-10:45 am	Tours of geotechnical and structures lab Dr. Sasanakul, B.L. Gedney
10:45-11:15 am	Meeting with EERI student chapter president and vice president
11:15-11:45 am	Individual meetings with faculty
11:45 am-1:00 pm	Working lunch with faculty Drs. Caicedo, Sasanakul, Rizos, Ziehl, Frost
1:00-2:00 pm	**Seminar** *Performance-Based Seismic Design: Current Approaches and Future Trends*
2:00-3:00 pm	Q&A after Seminar
3:00-4:00 pm	Campus tour
5:00-6:30 pm	Dinner with EERI students

STUDENT CHAPTER VISIT PLANNING COMMITTEE

LEAD ORGANIZER: Brennan L. Gedney, President, bgedney@email.sc.edu

- Valorie Sims, Vice President, vs9@email.sc.edu
- Dr. Juan Caicedo, Advisor, caicedo@cec.sc.edu
- Dr. Inthuorn Sasanakul, Advisor, sasanaku@cec.sc.ed

VISITING PROFESSIONAL LECTURE OVERVIEW

The lecture was advertised to the student body and attracted students from civil engineering, mechanical engineering, and the school of earth, ocean & environment, as well as several faculty members. The start of the seminar began with the introduction of Mr. Hooper and a short discussion of the role and goals of EERI. This was followed by Mr. Hooper's discussion, which was very interactive with the audience. Finally, there was a Q&A portion with quite a few questions that generated good dialogue.

Lecture Abstract

Today's Performance-Based Seismic Design (PBSD) approaches focus on providing Life Safety for Design Earthquake (DE) ground shaking and Collapse Prevention for Maximum Considered Earthquake (MCE) ground shaking for the design of new buildings. An overview of this process will be presented.

A FEMA-sponsored, Applied Technology Council-managed research effort has been underway for over 20 years developing a new approach to PBSD. The results of this effort have been published in FEMA P-58 Seismic Performance Assessment of Buildings. This portion of the presentation will focus on this new approach, which allows engineers to estimate the following loss information for their buildings:

- Repair costs
- Repair time
- Unsafe placards
- Embodied energy and carbon
- Casualties

Finally, the FEMA P-58 methodology has been extended to evaluate the time frame to achieve Functional Recovery, a new performance objective that is currently under development, which will also be discussed.

Professional Bio

John Hooper is a Senior Principal and the Director of Earthquake Engineering at Magnusson Klemencic Associates, a consulting structural and civil engineering firm in Seattle, Washington. He received his Bachelor of Civil Engineering from Seattle University and a Master of Science from the University of California at Berkeley.

John has over 40 years of engineering experience in the fields of renovation and earthquake engineering and has been involved in the majority of MKA's Performance-Based Seismic designs over the past 25 years.

He is Past Chair of the American Society of Civil Engineer (ASCE 7's) Seismic Subcommittee, a member of ASCE 7's Main Committee, and Chair of the Building Seismic Safety Council (BSSC) NEHRP Provisions Update Committee. John has been a Member of EERI for nearly 30 years.

SUPPLEMENTAL ACTIVITES

Geotechnical lab tour

A tour of the geotechnical lab was provided by Dr. Sasanakul and several geotechnical PhD students who participate in the EERI student chapter. This included touring the centrifuge and testing areas, and prompted a discussion on the current research efforts of the geotechnical group.

Structures lab tour

A tour of the structures and railway lab was provided by Brennan Gedney. This included several unique capabilities, including a large scale triaxial testing machine capable of testing railway ballast materials, an indoor full scale railway track testing facility and instrumented rail carts are used for laboratory and field data collection and testing activities. The discussion shifted towards current projects in the structural dynamics field and specifically soil-structure interaction analysis.

Meeting with EERI student chapter

After the lecture, several students from the chapter met with Mr. Hooper to discuss the status of the chapter. Since this is the first year of the chapter, the discussion was focused on how to increase visibility and effectiveness of the chapter.

RESULTS, FEEDBACK AND LESSONS LEARNED

The visit from Mr. Hooper was an overwhelmingly positive experience for everyone involved. Feedback from students, faculty, and EERI officers highlighted how impactful the program was. Mr. Hooper shared valuable insights into career development and helped the officers begin building important connections within the industry.

Moving forward, the University of South Carolina EERI student chapter is eager to host additional seminars featuring professionals with expertise in multi-hazard mitigation, community resilience, and the shift toward performance-based design practices. The chapter's broader goals include:

- Strengthening undergraduate engagement and attending the annual meeting or other conferences
- Coordinating a trip to Charleston to visit historical sights with a history of seismic activity
- Expanding the chapter's resources by seeking industry sponsorships and organizing fundraising activities to support more robust programming.

ACKNOWLEDGEMENTS

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