

FRIEDMAN FAMILY VISITING PROFESIONALS PROGRAM



Visit to North Carolina State University: April 24, 2015

This report summarizes the visit of **Dr. Nathan Gould** from ABS Consulting that took place at the North Carolina State University on April 24, 2015.

AGENDA

TIME:	ACTIVITY:
7:00 PM(April 23)	Dinner with Dr. Mervyn Kowalsky, Dr. James Nau, and Dr. Rudolf Seracino
9:00 AM – 10:00 AM	Student Chapter President and Vice President meet and welcome the Visiting Professional and give a tour to the Constructed Facilities Laboratory.
10:30 AM – 11:30 AM	Tour to Centennial Campus and Hunt Library
11:30 AM – 12:40 PM	Lunch with EERI officers
1:00 PM – 2:00 PM	Dr. Gould's presentation
2:15 PM – 2:45 PM	Meeting with Dr. Tasnim Hassan and students
3:00 PM – 4:00 PM	Earthquake engineering research presentations by EERI Officers

STUDENT CHAPTER VISIT PLANNING COMMITTEE

LEAD ORGANIZER(S):

- Diego Aguirre ,President, daaguirr@ncsu.edu
- Emrah Tasdemir, Vice President, etasdem@ncsu.edu
- David Overby, Treasurer, dtoverby@ncsu.edu
- Ana Gabriela Haro, Secretary, agharo@ncsu.edu
- Nihar Gogoi, Secretary, ngogoi@ncsu.edu
- Cuiyan Kong, Secretary, ckong2@ncsu.edu

VISITING PROFESSIONAL LECTURE OVERVIEW

The presentation started with a brief introduction about the EERI and the programs it has. The speaker then gave a short introduction to performance based seismic design. The speaker showed two examples of retrofit projects in which performance based seismic criteria were employed. There were several questions from the audience which was composed by several faculty members, graduate students and some undergraduate students as well.

Lecture Abstract

This presentation highlighted the seismic mitigation program that was undertaken by Anheuser-Busch Companies at their Los Angeles and St. Louis Breweries. Details of the seismic retrofit of key buildings were examined as well as the considerations that led to the implementation of the overall seismic program for the Breweries.

The seismic retrofit of the Anheuser-Busch facilities was completed prior to the adoption of the current Performance Based Design criteria for seismic retrofit which are detailed in the new ASCE Standard, "Seismic

Evaluation and Retrofit of Existing Buildings” (ASCE 41-13). Potential changes in the seismic retrofit strategy for the Breweries if the current seismic PBD criteria would have been utilized was also discussed.

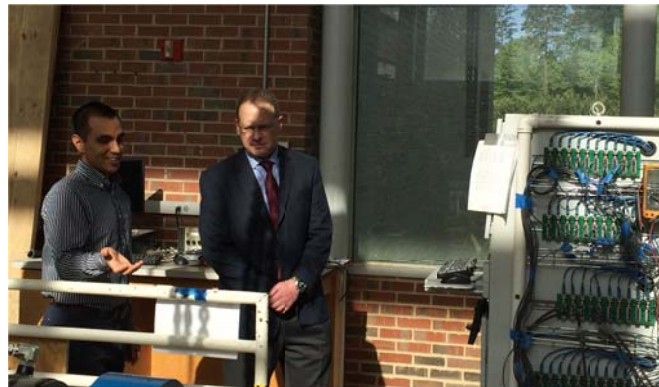
Professional Biography

Dr. Nathan Gould is the Chief of Technology for the ABS Consulting Advanced Engineering Division, also serves as the General Manager of the St. Louis office of ABS Consulting. He is a practicing structural engineer with over 23 years of experience in the design, construction and rehabilitation of major structures in all regions of the United States. Dr. Gould is active in the utilization of performance based seismic design criteria and methodology for the design of new buildings, and the retrofit of existing structures.

Dr. Gould is the author of numerous technical papers including articles on Performance Based Seismic Design, Progressive Collapse of Structures, Managing Extreme Wind Losses, and Terrorism risk. He currently serves on several technical committees and organizations related to seismic analysis and design, including the NEHRP Advisory Committee on Earthquake Hazards reduction. He has been a member of several post-earthquake reconnaissance groups, including teams that investigated damage following the 2010 Haitian and 2011 Christchurch events. Dr. Gould is a licensed Professional and Structural Engineer in several states.

Tour to the Constructed Facilities Laboratory

The objective of this tour was to show the structural laboratory at NC State University to the visitor as well as to show the different ongoing research projects. The EERI officers gave the tour in which everyone explained their corresponding project. In addition the visitor interacted with other students currently conducting research in the lab. Some photos of this activity can be seen below.



Tour to Centennial Campus and Hunt Library

The objective of this tour was to show part of the NC State campus. The EERI officers gave the tour and showed the different facilities in Centennial campus. Some photos of this activity are presented below.



Earthquake engineering research presentations

The goal of this activity was to formally present the different ongoing research projects at NC State related with earthquake engineering. A total of 5 presentations were given by the EERI officers to the visitor. A photo of the group at the end of this session is presented below.



RESULTS, FEEDBACK AND LESSONS LEARNED

The original date of the event had to be changed due to weather conditions causing airports to be closed. As a consequence of that, the event was held during the last day of classes, thus only few undergraduate students were able to attend. However, the reception of the program and the Visiting Professional was very good since several students and faculty are interested in performance based design.

Regarding the lecture, our Student Chapter believes that it would be better to show more technical details. Overall the presentation was very good, but it lacked of photos showing technical details about the examples presented.

Our Student Chapter considers the following topics important for future visits:

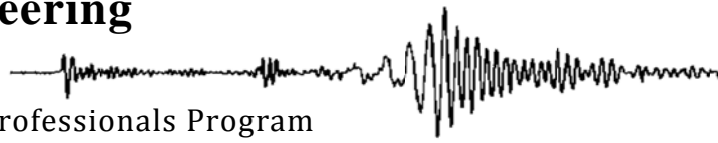
- Displacement-based design
- Soil-structure interaction
- Probabilistic seismic hazard analysis

ACKNOWLEDGEMENTS

The NC State University EERI Student Chapter gratefully acknowledges the support of the Friedman Family for sponsoring the travel of Dr. Nathan Gould through their Friedman Family Visiting Professional Program endowment.

LIST OF ATTACHMENTS

Included at the end of this report is attached the flyer to supplement the information included above.



Seminar Announcement

Performance Based Seismic Retrofitting



Speaker

Nathan C. Gould, D.Sc., P.E., S.E.

Chief of Technology, Advanced Engineering

ABS Consulting

Friday, April 24, 2015

1:00PM – 2:00PM

Monteith Engineering Research Center (MRC)

Auditorium

Centennial Campus – 2410 Campus Shore Drive

Abstract

This presentation will highlight the seismic mitigation program that was undertaken by Anheuser-Busch Companies at their Los Angeles and St. Louis Breweries. Details of the seismic retrofit of key buildings will be examined as well as the considerations that led to the implementation of the overall seismic program for the Breweries.

The seismic retrofit of the Anheuser-Busch facilities was completed prior to the adoption of the current Performance Based Design criteria for seismic retrofit which are detailed in the new ASCE Standard, "*Seismic Evaluation and Retrofit of Existing Buildings*" (ASCE 41-13). Potential changes in the seismic retrofit strategy for the Breweries if the current seismic PBD criteria were utilized will also be discussed.

Biography

Dr. Nathan Gould is the Chief of Technology for the ABS Consulting Advanced Engineering Division, also serves as the General Manager of the St. Louis office of ABS Consulting. He is a practicing structural engineer with over 23 years of experience in the design, construction and rehabilitation of major structures in all regions of the United States. Dr. Gould is active in the utilization of performance based seismic design criteria and methodology for the design of new buildings, and the retrofit of existing structures.

Dr. Gould is the author of numerous technical papers including articles on Performance Based Seismic Design, Progressive Collapse of Structures, Managing Extreme Wind Losses, and Terrorism risk. He currently serves on several technical committees and organizations related to seismic analysis and design, including the NEHRP Advisory Committee on Earthquake Hazards reduction. He has been a member of several post-earthquake reconnaissance groups, including teams that investigated damage following the 2010 Haitian and 2011 Christchurch events. Dr. Gould is a licensed Professional and Structural Engineer in several states.