

FRIEDMAN FAMILY VISITING PROFESIONALS PROGRAM



Visit to Stanford University: February 18, 2020

This report summarizes the visit of Maryann Phipps from Estructure that took place at Stanford University on February 18th, 2020.

ITINERARY OR AGENDA

TIME:	ACTIVITY:
11:15 am	Arrival on campus.
11:30 am – 11:45 am	Tour of Blume Earthquake Engineering Center. <i>Lead: Corinne Bowers</i>
12:00 pm – 12:45 pm	Lunch at the Faculty Club. <i>Lead: Professor Eduardo Miranda</i>
1:00 pm – 2:30 pm	Mock interviews with structural engineering graduate students. <i>Location: Blume Library</i>
2:40 pm – 3:40 pm	Round table discussion with structural engineering graduate students. <i>Location: Blume Library</i> <i>Lead: Armando Messina</i>
3:40 pm – 4:20 pm	Mini campus tour, walk to seminar location. <i>Lead: Armando Messina</i>
4:30 pm – 6:00 pm	Seminar: "Protecting Nonstructural Components from Earthquake Damage." <i>Location: Shriram 104</i>
6:30 pm – 7:30 pm	Dinner with faculty and students. <i>Location: Vina Enoteca, Palo Alto</i>

STUDENT CHAPTER VISIT PLANNING COMMITTEE

LEAD ORGANIZERS:

- Corinne Bowers (President), cbowers@stanford.edu
- Armando Messina (Vice President), messina3@stanford.edu
- Yijie (Andrea) Gao (Secretary), yijiegao@stanford.edu

FACULTY PARTICIPANTS:

- Professor Eduardo Miranda, emiranda@stanford.edu
- Professor Greg Deierlein, ggd@stanford.edu

VISITING PROFESSIONAL LECTURE OVERVIEW

Maryann Phipps drove to Stanford campus and arrived midmorning on the day of her visit. Corinne Bowers met her at the parking garage and walked her to the Blume Earthquake Engineering Center, where they did a tour of the building and the structural testing lab. They met up with Professor Eduardo Miranda and a few other students and attended lunch at the Faculty Club. After lunch, Armando Messina walked Maryann back to the Blume Center for a series of short mock interviews with structural engineering graduate students. Students were offered the opportunity to sign up for these mock interviews a week before her visit, and we were able to accommodate six students from both the masters and PhD programs to talk about internships and postgraduate job opportunities. Maryann spoke with each student for about fifteen minutes. After these mock interviews, Maryann led an informal round table discussion with about eight to ten structural engineering graduate students who were performing research related to earthquake engineering and/or nonstructural components. Armando and Yijie then walked Maryann from the Blume Center to Shiram, the building where her lecture was going to occur, and were able to take some time to point out campus features along the way. At 4:30pm, Maryann presented her lecture "Protecting Nonstructural Components from Earthquake Damage" to about fifty structural engineering graduate students and was very well received. We concluded the visit with dinner at Vino Enoteca, an Italian restaurant off campus.



Picture: Maryann Phipps having dinner with structural engineering faculty and students. From left to right: Armando Messina, Corinne Bowers, Prof. Gregory Deierlein, Maryann Phipps, Yijie Gao, and Andrés Acosta.

Lecture Abstract

Protecting Nonstructural Components from Earthquake Damage

The nonstructural universe contains a myriad of components and systems that enable structures to function for their intended purpose. It includes the architectural components that enclose buildings and create usable interior space; mechanical, electrical and plumbing systems that provide the basic services needed for occupancy, and contents needed for occupants to function the space.

Nonstructural components account for the majority of direct property losses due to earthquake damage. While significant structural damage to modern buildings has generally been rare in moderately strong earthquakes,

costly and disruptive nonstructural damage is much more widespread, and can result in additional economic losses from functionality and business interruptions. It has been estimated that up to 80 percent of earthquake property losses are the result of nonstructural damage.

This presentation will explain how nonstructural components respond to earthquake, present examples of nonstructural earthquake damage and explain the basics of designing to protect nonstructural components from damage.

Professional Bio

Maryann Phipps is a practicing Structural Engineer with over 30 years' experience evaluating, designing and renovating buildings. Designing for post-earthquake resilience, as required in hospitals and critical laboratory facilities, represents the mainstay of her practice. She is a recognized expert in the seismic protection of nonstructural components and was the lead technical consultant for FEMA E-74 "Reducing the Risks of Nonstructural Earthquake Damage," which received a 2012 Award of Excellence from the Structural Engineers Association of California. Maryann has "chased" many earthquakes and was co-leader for a FEMA-sponsored data collection effort following the South Napa Earthquake. Maryann was also the lead technical director for ATC-120 providing recommendations for the future of nonstructural seismic design. Maryann is a Fellow and Past President of the Structural Engineers Association of California, a member of the California Hospital Safety Board and a member of the California State University Seismic Review Board.

SUPPLEMENTAL ACTIVITIES

Tour of Blume Earthquake Engineering Center

Corinne Bowers led Maryann on a tour of the Blume Earthquake Engineering Center. The tour started with the lab, where they talked about the main research projects currently going through experimental testing. They also discussed the posters hanging in the lab that showcased some of the previous projects. They concluded the tour by visiting some graduate student offices on the second floor of the building.

Mock Interviews

After lunch, Maryann met with six students individually for short mock interviews. The six students were:

- Prateek Arora (arorap@stanford.edu)
- Carlos Villegas (carlosvr@stanford.edu)
- Kai Ling Liang (kliang05@stanford.edu)
- Yijie Gao (yjiegao@stanford.edu)
- Chuanjing Hu (chuanjhu@stanford.edu)
- Amory Martin (amorym@stanford.edu)

Maryann spoke with each person about where they were in their academic career and what they were looking for professionally. She then talked through a few common interview questions; for example, she used a simple structural model she had brought to talk about load path. The students thought that these discussions were extremely productive and useful, and Maryann enjoyed the opportunity to interact with students one-on-one.

Round Table Discussion

The last activity before the lecture was an informal roundtable discussion with eight to ten structural engineering graduate students. Most of the students present were PhD candidates conducting research

related to earthquake engineering, and some had projects related to Maryann's expertise of nonstructural components. There were also a handful of masters students and postdocs presents. The attendees spoke for an hour on a variety of topics, including Maryann's experiences on earthquake reconnaissance missions and future directions for the field of earthquake engineering.

RESULTS, FEEDBACK AND LESSONS LEARNED

One of the lessons learned from last year that we were able to implement this year was to start planning well in advance of Maryann's visit. Corinne and Armando in particular started laying out a tentative schedule about two weeks in advance. Laying out this tentative schedule was very helpful in organizing our priorities and showing us who we needed to contact. We invited the students and the EERI executive board to lunch and dinner, and we invited all structural engineering graduate students to sign up for mock interviews and to join the roundtable discussion. The mock interviews were Maryann's suggestion, and those went over very well. Her lecture was also very well received, and the feedback from students was that she was an excellent and engaging speaker.

One thing we would change in the future was to build in a few more breaks in the day. The mini campus tour ended up being a nice breather for Maryann before her lecture, so in future years we could extend the length of that activity slightly.

ACKNOWLEDGEMENTS

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