

# FRIEDMAN FAMILY VISITING PROFESSIONALS PROGRAM

Visit to Cal Poly SLO: April 13-14<sup>th</sup>, 2022



CAL POLY



This report summarizes the visit of **David Friedman** from Forell | Elsesser Engineers that took place at California Polytechnic State University, San Luis Obispo on April 13<sup>th</sup>-14<sup>th</sup>, 2022.

## ITINERARY OR AGENDA

Wednesday, April 13, 2022	
Time	Activity
6:30 PM – 8:00 PM	Dinner with EERI Board & Faculty
Thursday, April 14, 2022	
Time	Activity
7:30 AM – 9:00 AM	Breakfast with Architectural Engineering Department Head, Al Estes
9:00 AM – 11:00 AM	Tour High Bay Lab, Seismic Lab, Digital Fabrication Lab, Wood Shop, and Metal Shop with EERI Board; meet with project/research graduate and undergraduate students
11:10 AM – 12:00 PM	Presentation at SEAOC student chapter meeting
12:00 PM – 1:00 PM	Lunch/discussion with EERI SDC team and graduate students
1:00 PM – 2:30 PM	Tour outdoor Poly Canyon Architectural/ Structural Experimental Facility; visit the newly built Tensegrity Structure with student designers
2:30 PM – 3:00 PM	Meet with Christine Theodoropoulos, Dean of Cal Poly's College of Architecture and Environmental Design

## STUDENT CHAPTER VISIT PLANNING COMMITTEE

### LEAD ORGANIZER(S):

- Garrett Barker, EERI Student Chapter President, [gabarker@calpoly.edu](mailto:gabarker@calpoly.edu)
- Jay Skaff, SEAOC Student Chapter President, [jskaff@calpoly.edu](mailto:jskaff@calpoly.edu)
- Anahid Behrouzi, EERI Student Chapter Faculty Advisor, [behrouzi@calpoly.edu](mailto:behrouzi@calpoly.edu)

## VISITING PROFESSIONAL LECTURE OVERVIEW

### Lecture Abstract – “The Practice of Structural & Earthquake Engineering Today”

The practicing structural engineer today must not only have a broad understanding of not just structural engineering, but must be knowledgeable about architecture, M/E/P systems, construction delivery methodologies, and the construction process. All projects come with their own litany of challenges and constraints, and the structural engineer is one of the key players in achieving the optimal solution. The project's budget, the selected performance and design criteria, the architectural form, and the operating systems all affect the selection of the appropriate structural materials and lateral force resisting system. Then the analysis must get translated into a design, and the design must clearly and carefully be delineated into construction documents including plans, details, sections, and technical specifications, with appropriate attention to sequencing, phasing, and constructability. This all gives rise to the notion of today's structural engineer as a

“Master Builder,” one who can articulate their way through a complex labyrinth of form finding, criteria setting, risk evaluation, design and documentation, and construction (and hopefully not litigation). Some current projects that highlight these issues include:

**San Francisco City Hall:** Complete repair and base isolation seismic upgrade of the 550,000 sq.ft., 4-story City Hall which contains both Superior and Municipal Courts for the City and County of San Francisco. The structural solution consisted of 530 isolators, concrete shear walls, steel collectors, reinforcement of rotunda tower walls and installation of steel braces and shotcrete walls were used at various levels of the dome.

**UCSF Parnassus Ray & Dagmar Dolby Regeneration Medicine Building:** The structure is steel framed with special friction pendulum isolators that protect the structure and the sensitive equipment and research it houses from the effects of a major seismic event.

**UC Berkeley California Memorial Stadium:** The project included seismic strengthening and modernization of this non-ductile concrete frame structure with a seating capacity of 72,000-seats.

### Professional Bio

David was a Senior Principal, Emeritus Chair of the Board of Directors President, and CEO of Forell | Elsesser Engineers with over 45 years of professional practice (40 years at F | E!) in structural and earthquake engineering. His strength, gained over the breadth and depth of his career, is a holistic perspective of a projects' planning, design, and construction as well as the collaborative integration of creative structural solutions with architects, engineers, and builders. With a specialty in seismic engineering and retrofitting of existing structures, particularly those with historic designation, David has solved numerous structural and earthquake engineering challenges during his career with Forell | Elsesser Engineers. Principal examples of his projects include the base isolation retrofits of San Francisco City Hall and the Asian Art Museum, the adaptive reuse and retrofit for the San Francisco Conservatory of Music, and the seismic safety corrections and remodeling of UC Berkeley's California Memorial Stadium. David is devoted to world-wide seismic risk reduction and is a past President of the Earthquake Engineering Research Institute, dedicated to learning and disseminating the lessons learned from earthquakes around the world. He is also deeply involved in many civic, philanthropic, and not-for-profit Boards including The San Francisco Foundation, SPUR, UC Berkeley Foundation, and the Jewish Home of San Francisco.

### SUPPLEMENTAL ACTIVITIES

#### Dinner with Mr. Friedman

Seven members of the Cal Poly EERI Student Chapter, the Cal Poly EERI Student Chapter faculty advisor, and the Architectural Engineering (ARCE) Department Head went to dinner with Mr. Friedman. Mr. Friedman was introduced to the ARCE program and culture. He provided insight into his background as well as his current, post-retirement activities.

#### Tour of ARCE Facilities

Six members of the Cal Poly EERI Student Chapter showed Mr. Friedman the various facilities that the Cal Poly ARCE program offers including the High Bay Lab, Seismic Lab, Digital Fabrication Lab, Wood Shop, and Metal Shop. Students were present in each lab to discuss their undergraduate or graduate research that utilized that respective lab space.

## SEAOC Student Chapter Meeting

David Friedman lectured to forty students at the weekly Cal Poly SEAOC Student Chapter Meeting. He presented on the history and current advancements in earthquake engineering.

## Lunch Discussion

During lunch, Mr. Friedman and eight students (six EERI chapter members, two graduate students), discussed Mr. Friedman's presentation and the structural industry in general. The graduate students presented their thesis work and listened to feedback from Mr. Friedman.

## Poly Canyon Architectural/Structural Experimental Facility

Mr. Friedman and six students (five EERI chapter members, one graduate student) toured the Poly Canyon Architectural/Structural Experimental Facility, the home of twenty-six student designed and built structures dating back to 1964. A graduate student showed and discussed a recently completed structure "Tensegrity" that he had completed for his undergraduate senior project.

## Meeting with the Dean of the College of Architecture and Environmental Design

Mr. Friedman had a discussion with the Dean responsible for the Architectural Engineering Program (among other programs) Christine Theodoropoulos. They discussed the state of the department and its continuing mission to prepare graduates for industry through close connections with industry leaders.

## RESULTS, FEEDBACK AND LESSONS LEARNED

### Results/Feedback:

- David Friedman's **involvement with earthquake engineering** from its early applications in California provided an excellent perspective for students in the ARCE program.
- David's wholehearted interest in **equity in education as well as the built environment** showed students a progressive mindset for the future of our field, a future where everyone has something to contribute.
- **Insights into David's career path** were particularly of interest to the students who are just beginning their own career paths.

### Lessons Learned:

- **Involve more faculty.** Only a couple faculty got to meet David, and it is always good for faculty to discuss their course content and its applicability to the structural industry with someone like David.
- **Encourage underclassmen participation.** Not many underclassmen felt comfortable attending the smaller activities though they would have learned quite a bit. Next time, try to ensure that underclassmen come to as many activities as they can.
- **Ensure lots of graduate students are prepared to discuss their research.** The only graduate students that talked with David had NDAs on their research and therefore could not discuss it very much. It is far more rewarding if there are no barriers to the discussions and feedback.
- **Notify faculty administrators of visitor's arrival early.** Often, Deans and other faculty administrators like to talk with the visiting professional, but they usually have busy schedules. Notify these members of the faculty early to ensure they can schedule a time to talk with the visitor.

## ACKNOWLEDGEMENTS

The Cal Poly SLO EERI Student Chapter gratefully acknowledges the support of the Friedman Family for sponsoring the travel of David Friedman through their Friedman Family Visiting Professional Program endowment. They would also like to thank the Cal Poly SLO SEAOC Student Chapter for funding the student lunch with David Friedman. Lastly, they extend their gratitude to the ARCE department for funding the student/faculty dinner with David Friedman.

## LIST OF ATTACHMENTS

Included at the end of this report are various attachments to supplement the information included above. A list of the attachments is included below:

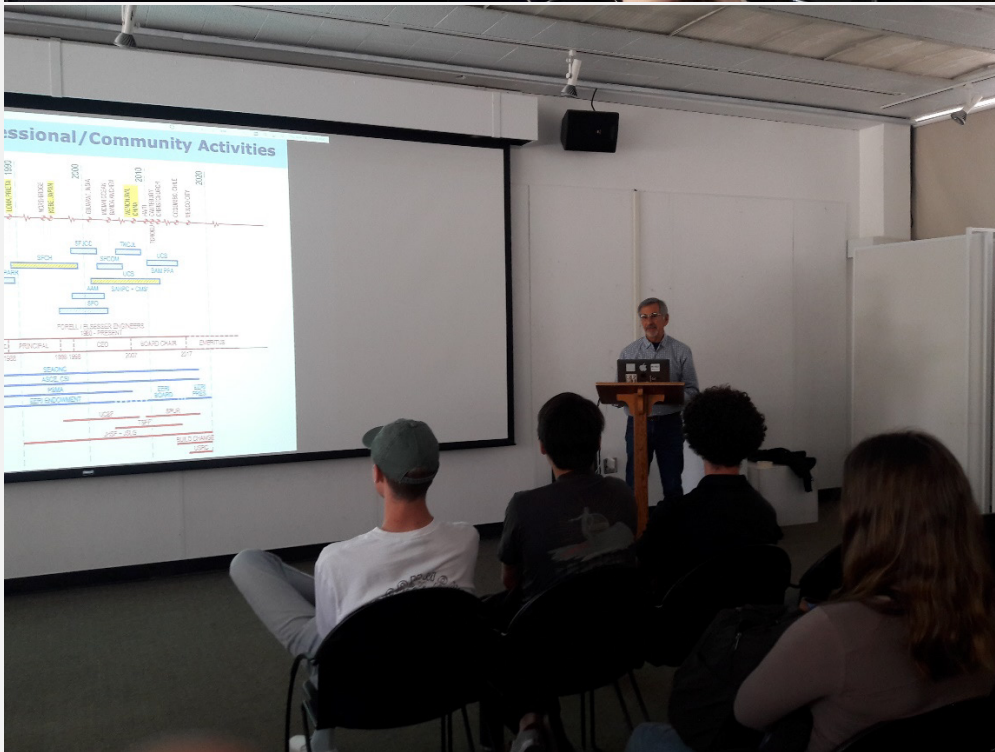
- Item 1, Pictures of Dinner with David Friedman
- Item 2, Pictures of SEAOC Student Chapter meeting
- Item 3, Picture of Lunch Discussion
- Item 4, Pictures of tour of Poly Canyon



Item 1



## Item 2





### Item 3





Item 4

