

# FRIEDMAN FAMILY VISITING PROFESIONALS PROGRAM



## Visit to University of California, Los Angeles: Month 04, 2023

This report summarizes the visit of **David Friedman** from Forell | Elsesser Engineers that took place at the University of California, Los Angeles on Month 04, 2023.

### ITINERARY OR AGENDA

Provide the itinerary of the visit. For example:

TIME:	ACTIVITY:
8:45 AM – 9:00 AM	Student Chapter Officers welcome David Friedman at the Luskin Conference Center
9:00 AM – 10:00 AM	Breakfast at Plateia with EERI-SEAOSC Officers & David Friedman
10:00 AM – 11:00 AM	Tour of UCLA's campus with David Friedman
11:00 AM – 11:45 AM	Coffee Chat with David Friedman & UCLA Samueli School of Engineering Professors
11:45 AM – 12:00 PM	Break & Set-up for Lecture at UCLA Engineering VI Room 134
12:00 PM – 1:50 PM	David Friedman's Friedman Family Lecture + Q&A Session
1:50 PM – 2:30 PM	Lunch + Meet & Greet with EERI-SEAOSC Officers

### STUDENT CHAPTER VISIT PLANNING COMMITTEE

#### LEAD ORGANIZER(S):

- Tara Char, President, [tara.mchar@gmail.com](mailto:tara.mchar@gmail.com)
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### VISITING PROFESSIONAL LECTURE OVERVIEW

David Friedman presented on the present-day field of structural engineering, in which engineers are required to possess a comprehensive understanding that extends beyond their core discipline. Today's structural engineers must be knowledgeable not only in the intricacies of structural engineering but also in areas such as architecture, mechanical/electrical/plumbing systems, construction methodologies, and the overall construction process. They play a crucial role in overcoming the diverse challenges and constraints encountered in every project, contributing significantly to achieving optimal solutions. Various factors, including project budgets, performance and design criteria, architectural forms, and operational systems, influence the selection of appropriate materials and systems to withstand lateral forces. The engineer's analysis is then transformed into a well-defined design, meticulously captured in construction documents comprising plans, details, sections, and technical specifications, with appropriate attention to sequencing, phasing, and

constructability. Mr. Friedman also talked about the stages of his career and what he learned from each of the jobs he held, and how to navigate being a young professional in the field of structural engineering.

## Lecture Abstract

Today's structural engineer is known 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, UCSF Parnassus Ray & Dagmar Dolby Regeneration Medicine Building, and the UC Berkeley California Memorial Stadium.

### 1. **San Francisco City Hall**

Forell | Elsesser served as Prime Engineer for the 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. This "essential facility" is a classic steel framed structure with a 310-foot high dome clad with perimeter granite walls and with hollow clay tile interior walls. Base isolation was selected because it is cost-effective, allowed for minimum disruption to the ornate historic building, and provided maximum protection. 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.

### 2. **UCSF Parnassus Ray & Dagmar Dolby Regeneration Medicine Building**

The construction of this 80,000 SF stem cell research building utilized the design/build delivery system. The program included wet laboratories, laboratory support, offices, an auditorium, and "green roofs." This unique building, designed by the renowned and international architect, Rafael Viñoly, is situated on a steeply sloped site and terraces vertically through a series of steps along the building length. 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.

### 3. **UC Berkeley California Memorial Stadium**

This historic concrete football stadium was originally built in 1923 and was designed by John Galen Howard. The project included seismic strengthening and modernization of this non-ductile concrete frame structure with a seating capacity of 72,000-seats. The west bowl retrofit saved the perimeter historic wall of the stadium; provided a new seating bowl, press box, and 200,000 SF of game-day and programmatic improvements. The unusual aspect of the project was created by the challenge posed by the Stadium sitting atop the northern segment of the Hayward Fault, which runs approximately from end zone to end zone. The retrofit of the fault rupture segments includes "blocks," separated from the adjacent building portions, and free to move independently when the fault ruptures and displaces. The West Bowl was an interesting challenge as well, and utilized vertically-post-tensioned rocking concrete walls and passive viscous dampers.

## Professional Bio

David Friedman, a highly experienced Senior Principal and CEO at Forell/Elsesser Engineers, has dedicated over 45 years to the field of structural and earthquake engineering. His comprehensive understanding of project planning, design, and construction allows for effective collaboration with architects, engineers, and builders. With expertise in seismic engineering and retrofitting, David has successfully tackled numerous challenges throughout his career, including notable projects like the San Francisco City Hall and Asian Art Museum base isolation retrofits. He has also played a crucial role in enhancing the seismic safety of UC Berkeley's California Memorial Stadium. As the President of the Earthquake Engineering Research Institute, David is committed to reducing seismic risks worldwide. Additionally, he actively participates in various civic and philanthropic

organizations, including The San Francisco Foundation, SPUR, UC Berkeley Foundation, and the Jewish Home of San Francisco.

## SUPPLEMENTAL ACTIVITIES

### Breakfast at Plateia with EERI-SEAOSC Officers & David Friedman

EERI-SEAOSC Officers Tara Char, Alexcia Herrera, and Sebastian Galicia Madero along with Visiting Professional David Friedman started off the day with Breakfast at Plateia in Westwood. The gathering was a vibrant atmosphere where David Friedman talked to us about his undergraduate experience, the early stages of his career, his involvement with EERI and how he was able to network with other industry professionals and learn valuable information from seasoned structural engineers. David, with extensive practical expertise, imparted invaluable insights into the industry, as well as information about fascinating projects, with a particular focus on buildings San Francisco City Hall. The student chapter officers sought guidance on career paths, internship opportunities, and the latest advancements in the field. This event served as a platform for mentorship.

### Tour of UCLA's Campus with David Friedman, led by UCLA EERI-SEAOSC President Tara Char

The tour of UCLA's campus was led by the student chapter President of EERI-SEAOSC, Tara Char, accompanied by David Friedman, creating a dynamic and informative experience. As they explored the campus, Tara showcased notable architectural and engineering feats like Powell Library and Royce Hall, highlighting the structural considerations and seismic design elements of various buildings. Engaging discussions ensued, allowing the participants to delve into the practical applications of structural engineering principles and gain insights into the real-world challenges faced in constructing and maintaining a campus renowned for its blend of modern and historic structures.

### Coffee Chat at Plateia with David Friedman & UCLA Engineering Professors

An hour before the lecture, a number of esteemed UCLA Civil Engineering Professors came out to Plateia to have a Coffee Chat with David Friedman about their recent work in the Civil Engineering field, recent advancements and research findings in their respective areas of expertise, industry collaborations, and more. The Professors in attendance included Professor Sriram Narasimhan, Professor Henry Burton, Professor Thomas Sabol, Professor Jian Zhang, Professor Yousef Bozorgnia, and Professor John Wallace.

## RESULTS, FEEDBACK AND LESSONS LEARNED

One challenge that was faced was making sure all reservations and classrooms were booked accordingly, and having to go drive and bring lunch back so that it was ready right after the lecture. I also did not get a chance to take any pictures during the day, because the day was packed with different events with not much of a break between them.

For years to come, UCLA's EERI-SEAOSC Chapter aims to broaden our knowledge and insights by engaging with industry professionals in various disciplines. In future visits, we might consider exploring topics such as advanced structural analysis and design techniques, innovative seismic-resistant systems and technologies, sustainable and resilient infrastructure solutions, emerging trends in structural materials and their applications, and the intersection of structural engineering with architecture and urban planning for cohesive and integrated design approaches. These interactions will provide valuable exposure to diverse perspectives and cutting-edge practices, which would further enrich the students' understanding of the field.

## ACKNOWLEDGEMENTS

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