

FRIEDMAN FAMILY VISITING PROFESIONALS PROGRAM



Visit to University of Illinois at Urbana Champaign: April 09, 2021

This report summarizes the visit of John Thornley from Golder Associates Inc. that took place at the University of Illinois at Urbana Champaign on April 09, 2021.

ITINERARY OR AGENDA

TIME:	ACTIVITY:
10:00 AM – 10:30 AM	Student Chapter Board meets & welcomes John Thornley and hosts a short presentation about the campus and its sights.
11:00 AM – 12:00 PM	Guest lecture by Visiting Professional
12:00 PM – 1:00 PM	Break/Lunch
1:00 PM – 2:00 PM	Q&A Session with GESO and EERI members
2:00 PM – 3:00 PM	One-on-one meetings with Faculty members as a group or with selected individuals

STUDENT CHAPTER VISIT PLANNING COMMITTEE

LEAD ORGANIZER(S): Karl Eid, Woongchan Bang, Kevin Chen, Mandy Zhong, Shannon Chen

- Professor Hashash, Faculty Advisor, hashash@illinois.edu
- Professor Andrawes, Faculty Advisor, andrawes@illinois.edu
- Karl Eid, Graduate Advisor, karleid2@illinois.edu
- Woongchan Bang, Outreach, wbang3@illinois.edu
- Kevin Chen, President, kevinc7@illinois.edu
- Mandy Zhong, Vice-president, mz14@illinois.edu
- Shannon Chen, SDC Captain, sc14@illinois.edu
- Geotech Seminars
- GESO

VISITING PROFESSIONAL LECTURE OVERVIEW

John Thornley gave a lecture on some interesting aspects of earthquake engineering, challenges of permafrost engineering, and how climate change is integrated in policy and design. There were around 30 attendees, a mix from EERI, GESO, and the Geotech seminar. The flyer used to advertise for this event is included at the end of the report.

Lecture Abstract

With over 49,000 earthquakes recorded in 2020 alone, Alaska is the most seismically active state in the US. However, the earthquake hazard maps for Alaska have not been updated since 2007. Background related to the process of a seismic hazard analysis and a highlight of some of the areas of growth since 2007 will be provided. The presentation will utilize a project that required an analysis of seismic hazards from the north end

of the state, extending over 800 miles to the southcentral portion of the state, covering several mountain ranges and different tectonic regions. Comparisons to the current seismic hazard model used in building codes will be provided and a case will be made for the need to regularly update seismic hazard maps to reduce our risk related to seismic hazards. We will even touch on some interesting side aspects of earthquakes, permafrost regions, climate change, and some of the unique aspects of engineering in Alaska.

Professional Bio

John Thornley, PE is an Associate and Senior Geotechnical Engineer at Golder Associates Inc. in Anchorage, Alaska. He has over 15 years of geotechnical and earthquake engineering experience. Recently John was a co-lead for the EERI Learning from Earthquakes Reconnaissance effort for the November 30, 2018 M7.1 Anchorage, Alaska Earthquake. John is currently the chair of the Municipality of Anchorage Geotechnical Advisory Commission. He has served as field manager of geotechnical studies and prepared recommendations for a variety of infrastructure projects including buildings, roads and airports, large liquefied natural gas and water storage tanks, pipelines, wind and cellular towers, and utilities. As part of John's work, he has been involved in seismic hazard studies, seismic site response analyses, studies for large infrastructure buildouts, and cold regions and permafrost engineering. His design work includes ground improvement in liquefiable soils, deep and shallow foundations, slope stabilization, retaining structures, and embankments.

SUPPLEMENTAL ACTIVITIES

Meet and Greet

For this event, the Board of EERI was in attendance to welcome Mr. Thornley. We started off by introducing ourselves and talked a bit about his work. Afterwards, Woongchan gave a presentation (attached at the end) about the Civil and Environmental Engineering department, notable sights on campus, our student chapter and previous SDC designs. Then we gave Mr. Thornley 30 minutes to prepare for the presentation at 11.

Q&A Session

After the break, we hosted a Q&A session inviting GESO and EERI members to talk about all topics. We covered ideas of climate change, continuous changes in permafrost engineering, obtaining and advantages of licensure, and other topics. A picture of the Q&A session is attached at the end of the document.

One-on-one Meetings

For the Q&A meetings, Mr. Thornley was able to meet one-on-one with Professor Tugce Baser and Professor Roman Makhnenko to discuss a variety of topics.

RESULTS, FEEDBACK AND LESSONS LEARNED

It was very difficult to organize the whole event and make sure that the timings of all members would match. Luckily, we were able to start early and had a wonderful outreach team to coordinate everything. It would seem that all the members who participated were very excited about the topics presented. In the past we were able to invite Annie Kammerer to speak on structural engineering topics. In the future, we would love to expand and reach other disciplines that were not included in the past.

ACKNOWLEDGEMENTS

The University of Illinois at Urbana Champaign EERI Student Chapter gratefully acknowledges the support of the Friedman Family for sponsoring the travel of John Thornley through their Friedman Family Visiting Professional

Program endowment.

Thank you to the Geotech Seminar and GESO as well for their participation in this wonderful event!

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:

- Flyer advertising Mr. Thornley's lecture
- Meet & Greet Presentation
- Picture of EERI and GESO Q&A

CEE 595F – Geotechnical Seminar – ONLINE

Friday, April 9, 2021 | 11:00am Central Time



Seismic Hazard Across Alaska

John Thornley, PE

Golder Associates Inc.

Abstract: With over 49,000 earthquakes recorded in 2020 alone, Alaska is the most seismically active state in the US. However, the earthquake hazard maps for Alaska have not been updated since 2007. Background related to the process of a seismic hazard analysis and a highlight of some of the areas of growth since 2007 will be provided. The presentation will utilize a project that required an analysis of seismic hazards from the north end of the state, extending over 800 miles to the southcentral portion of the state, covering several mountain ranges and different tectonic regions. Comparisons to the current seismic hazard model used in building codes will be provided and a case will be made for the need to regularly update seismic hazard maps to reduce our risk related to seismic hazards. We will even touch on some interesting side aspects of earthquakes, permafrost regions, climate change, and some of the unique aspects of engineering in Alaska.

Speaker Bio: John Thornley, PE is an Associate and Senior Geotechnical Engineer at Golder Associates Inc. in Anchorage, Alaska. He has over 15 years of geotechnical and earthquake engineering experience. Recently John was a co-lead for the EERI Learning from Earthquakes Reconnaissance effort for the November 30, 2018 M7.1 Anchorage, Alaska Earthquake. John is currently the chair of the Municipality of Anchorage Geotechnical Advisory Commission. He has served as field manager of geotechnical studies and prepared recommendations for a variety of infrastructure projects including buildings, roads and airports, large liquefied natural gas and water storage tanks, pipelines, wind and cellular towers, and utilities. As part of John's work, he has been involved in seismic hazard studies, seismic site response analyses, studies for large infrastructure buildouts, and cold regions and permafrost engineering. His design work includes ground improvement in liquefiable soils, deep and shallow foundations, slope stabilization, retaining structures, and embankments.

This seminar is hosted in collaboration with the EERI UIUC Student Chapter.

Registration is required. Please register at: <https://eeri.swoogo.com/2021ffvp>

Friedman Family Visiting Professionals Program

Guest Lecturer: Mr. John Thornley

Presented By: EERI @ UIUC

About UIUC

The University of Illinois at Urbana-Champaign (UIUC) is a public land-grant university that was found in 1867.

- **Location:** Champaign & Urbana
- **Number of Students:** 52,331 (Year: 2020)
- **Number of Degrees:** 135
 - 92 majors within 26 broad fields of study
- **Rankings (2021):**
 - University: #47
 - Undergraduate CEE: #6
 - Graduate CEE: #2

Newmark CEE Lab

The Newmark Civil Engineering laboratory was built in 1967, and it was named after the CEE department head, Nathan Newmark.

- **Noticeable Facilities:**

- **Crane Bay:** Structural lab testings are conducted
- **Yeh Student Center:** Classrooms & Student study spaces
- **Hydrosystems Lab(C.S):** Water resources

labs/classrooms







Altgeld Hall

The Altgeld hall was built in 1896. It was designed by architects Nathan Ricker and James White. The building shows off its beautiful Romanesque style architecture, and it is the home to our Mathematics department.

- **Noticeable Facilities:**

- **The Alma Mater:** Bronze Statue, serves as a symbol of UIUC
- **Altgeld Chimes:** 15 Bell Chimes that marks each hour





Foellinger Auditorium

The Foellinger Auditorium was built in 1907. It was designed by an architect named Clarence Blackall. The building serves as a concert hall and lecture rooms. The Foellinger Auditorium is characterized by its dome-shaped rooftop.

- **Noticeable Features:**

- **Metal Dome:** Characterized by Beaux-arts design
- **Sitting Capacity:** A total of 1361 people can stay in the room
- **Balcony:** Second Floor of the building with 638 seats.





Board Members

President: Kevin Chen

Vice President: Mandy Zhong

SDC Captain: Shannon Chen

Outreach: Karl Eid, Woongchan Bang

Secretary: Patricia Wendy

Treasurer: Karla Sanchez

Advisors (Profs.): Dr. Hashash, Dr. Andrawes, Dr. Tom (GESO)

Graduate Advisor: Karl Eid



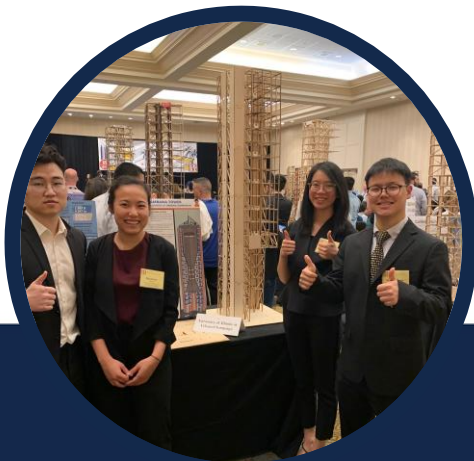
EERI Student Chapter

- Seismic Design Competition
- Learn about previous projects industry practices
- Host lectures on earthquake engineering



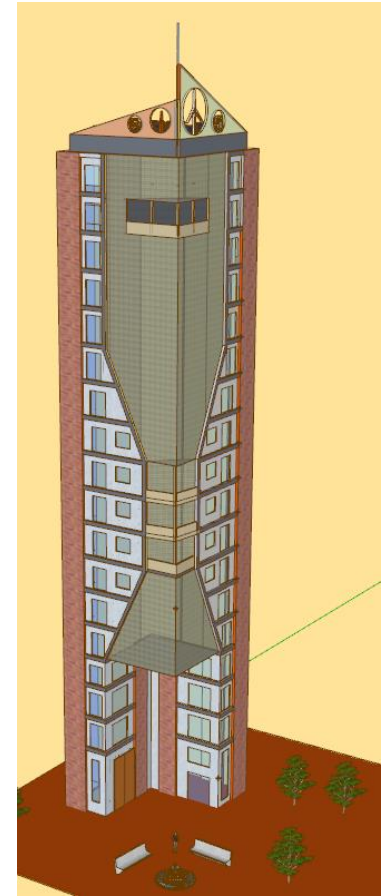
Undergraduate Seismic Design Competition (SDC)

- Design and construct a cost-effective high-rise building frame from balsa wood
 - Learn about earthquake engineering and perform basic seismic design
 - Gain hands-on project design and construction management experience
 - Implement engineering economics
- Compete with teams across the globe!



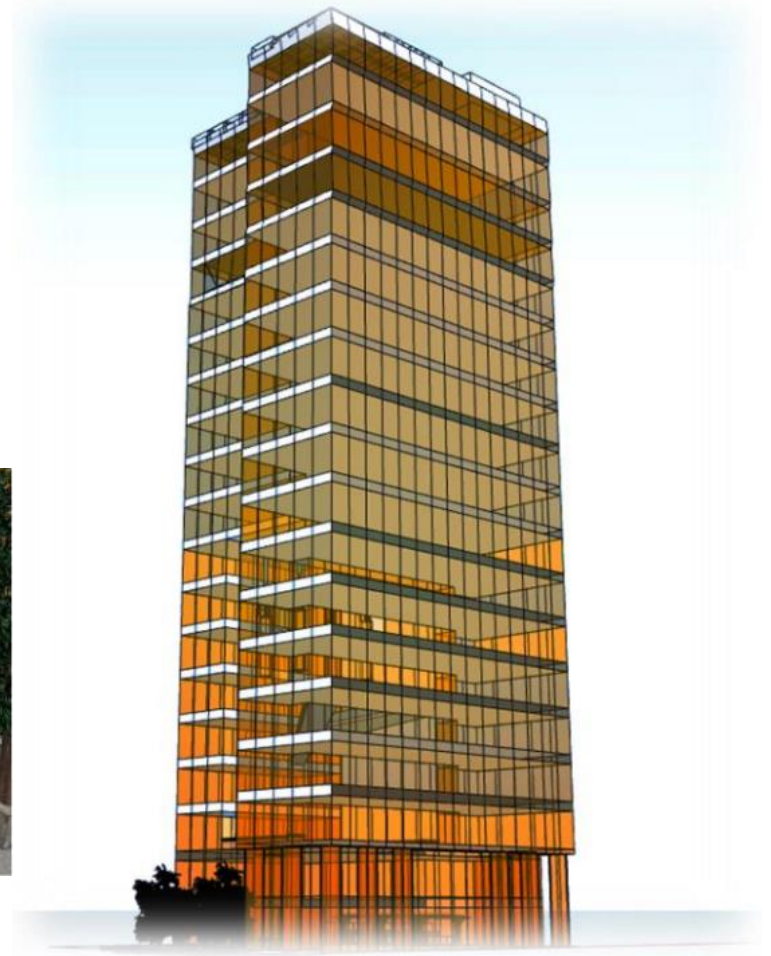
Chambana Tower

- 2020 SDC
- Competition in San Diego
- Combination of braced frames and shear walls



Boreas Tower

- 2019 SDC
- Completed design of the model
- Assembly



Ironwood Oasis

- 2018 SDC
- Competition at Los Angeles
- Workshops, tours, receptions





THANK YOU!

Guest Lecturer: Mr. John Thornley

Presented By: EERI @ UIUC

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