Seismic Design Competition

Structural Design

- Modeled as a 8 DOF system (8 applied load locations)
- Triangular framing system
- Continuous members wherever possible
- Many redundant connections – provides ductility
- Period predicted to be 0.06 seconds

Architectural Design

- Unique exterior design that highlights structural system
- 29 Stories – maximum height
- 3.0 m Total Rentable Floor Area

Construction

Our 4 person construction team (Josh, Sarah, Beth, and Joe) finished the tower over 3 weekends.

Performance

There is a lot of uncertainty in this project due to the nature of using balsa wood, the inexact modeling, and the methods used to approximate the seismic performance.

The following charts show our performance predictions:

Project Team

Joseph Henry is a Junior in Civil Engineering at Oregon State University. He has been involved in helping with the construction of this project. He will be interning this summer with Shimmick Construction in Southern California. Joe enjoys running, snowboarding, wakeboarding and other outdoor activities.

Josh Lehr graduated from high school a semester early and joined the United States Marine Corps gaining experience, which will guide his future professional career. Josh is currently a Senior in the Civil Engineering department at Oregon State University. He has a special interest in soil-structure interaction, particularly during a seismic event. He enjoyed being a part of the 2006 PEER Scholars Course where he was introduced to cutting edge issues on the topic of seismic design. After graduation this year he hopes to stay in Portland, but is currently entertaining opportunities that would take him away from the Northwest.

Joseph Henry is a Junior in Civil Engineering at Oregon State University. He has been involved in helping with the construction of this project. He will be interning this summer with Shimmick Construction in Southern California. Joe enjoys running, snowboarding, wakeboarding and other outdoor activities.

Sarah Martin is a Junior in the Civil Engineering Program at Oregon State University. Currently she a NCO in the Oregon Army National Guard with two years left of service. Next year she will be applying for Graduate School, either in Geotechnical or Structural engineering. When she retires she plans to teach math to elementary students.

Beth McNair is a Junior, double majoring in Civil and Forest Engineering at Oregon State University. She has been actively involved in Engineers Without Borders. She was in charge of the construction of our balsawood model for this project.

Jeremy Mikkelsen is a Senior in Civil Engineering at Oregon State University. He has been involved in the structural design of this project in addition to being the team captain. He and his wife Carri will be staying in Oregon after he graduates and he will be working for a bridge and highway firm, Quincy Engineering located in Salem. Outside of structural engineering he enjoys photography and computer related hobbies.