

# CSU One-Story Woodframe House Seismic Testing and Analysis Program

**Project Team:** John W. van de Lindt, Hongyan Liu, Shiling Pei and Carter Mast.

**Project Sponsor:** Colorado State University

For information contact Professor J.W. van de Lindt at [jwv@engr.colostate.edu](mailto:jwv@engr.colostate.edu)

Woodframe construction represents the majority of modern residential structures in the United States. Currently, a performance-based seismic design philosophy does not exist for woodframe structures. Some preliminary work in North America has begun the process of developing this new methodology with much of the work focusing on drift based criteria. This testing and analysis program focuses on the performance-based seismic design, construction, analysis, and testing of a one story woodframe house designed to reliability levels for different damage and collapse prevention criteria. The final task for this project will be to test the one-story woodframe house designed using this new PBSO philosophy on a uni-directional seismic simulator located in the CSU structures laboratory under the direction of the project PI, Professor John W. van de Lindt. The footprint of the one-story house is approximately 9'x17' and its height is about 11'. Gluelam I-beams (TJI 110) were used for the floor system and the roof consists of 2x4 trusses.



The testing objectives are to:

- 1.) If designing this structure using performance-based seismic design, i.e. FEMA drift limits, reasonable.
- 2.) Gather detailed damage data from the test caused by moderate to strong earthquakes.
- 3 Investigate the effects of torsion due to openings for windows and doors.
4. Determine the effect of shearwall dampers on the response to strong ground motion.

