



The Natural Hazards Engineering Research Infrastructure (NHERI) at the University of California San Diego provides access to the world's largest outdoor earthquake simulator. The Large High-Performance Outdoor Shake Table, LHPOST6, simulates realistic earthquake motions with 6 degrees of freedom, moving north-south, east-west, up and down, back and forth, as well as in roll, pitch, and yaw rotations.



**RESEARCH SUCCESS**

- 39 large-scale structures constructed in real-world conditions and tested
- Data gleaned informs building codes and standards, helps validate computer models
- Shake table operations and enhancements supported by NSF
- Projects leverage university-industry research partnerships

**MAKING INFRASTRUCTURE SAFE FROM EARTHQUAKES**

- 10 stories and higher
- 2,000-ton capacity
- Powered by 5,000 PSI of hydraulic pressure

**SHARED-USE MODULAR TESTING PLATFORM** →

Reconfigurable, reusable resource for low-cost testing at large to full-scale

73 undergraduate, graduate students involved in construction, testing, analysis

**SHAKE TABLE EARTHQUAKE SIMULATOR**

**FULL-SCALE STRUCTURE TESTING CAPACITY**



**TRAINING THE NEXT GENERATION OF ENGINEERS**

**SETTING STANDARDS IN PERFORMANCE-BASED DESIGN**

Local and national building design codes  
Coastal and port codes  
Material codes: timber, steel, concrete, masonry

**CAPACITY TO SECURE THE ENERGY SECTOR**

Electrical substations, transformers, transmission poles and lines, nuclear structures and waste, hydroelectric dams, wind turbines, solar arrays

**EDUCATING STUDENTS & PROFESSIONALS**

Student training and mentoring  
Academia-industry and user-training workshops  
Professional videos & media

**INFORMING, ENGAGING THE GENERAL PUBLIC**

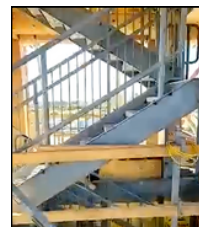
Outreach to 18,000 local elementary & middle-schoolers  
1.3M YouTube views  
Featured on major TV networks, in the New York Times, and more

**Making impact: NHERI at UC San Diego**



**SAFE SOFT-STORY BUILDINGS**

Thanks to full-scale testing of retrofit systems, approximately 6,000 soft-story, wood-frame buildings in Los Angeles and San Francisco have been retrofitted to withstand earthquakes.



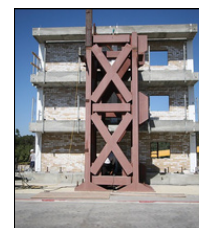
**SECURE NON-STRUCTURAL COMPONENTS**

Improvements to the seismic safety of non-structural building components, which have led to building code changes for elevators, stairs, ceilings, facades and fire suppression systems.



**EARTHQUAKE-PROOF PARKING GARAGES**

New recommendations for building precast concrete floors into parking garages will prevent the deadly "pancake" collapse, which occurred during the 1994 Northridge earthquake.



**SEISMICALLY SAFE REINFORCED MASONRY**

Improvements in the seismic safety of reinforced brick and block buildings in the U.S. Dozens of tests have validated computer simulations, and findings from multiple research projects have been incorporated into a variety of state, local, and national building code protocols.



**RESILIENT TALL BUILDINGS**

Full scale tests on 10-story timber and 10-story formed-steel structures validated computer models and are leading to new, codified designs for seismically safe structures up to 20 stories.

**More info about the NHERI at UC San Diego shake table simulator facility**

