**Blast Simulator**

The non-explosive blast simulator is used to perform controlled blast load simulations on critical structural elements such as columns, walls, and floors. The simulator is used to characterize blast effects on structural systems and to develop hardening technologies to protect structures from terrorist bomb attacks. Simulator test results compare favorably with field test results and are being used in analytical model validation. Standardized test protocols for product validation are being developed.

**Funding Agency:** Technical Support Working Group (TSWG)

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**Soil Foundation-Structure Interaction Facility (SFSI)**

With its refillable soil pit, laminar soil shear box, and reaction wall, this is the nation’s largest facility for testing soil-structure reactions to earthquakes and other natural disasters. The SFSI is located adjacent to the UCSD-NEES outdoor shake table, which allows for full-scale testing of systems such as bridge abutments and pile foundations. Researchers tailor soil properties to simulate conditions in specific geographic regions and analyze phenomena caused by earthquakes such as liquefaction and lateral spreading.

**Funding Agency:** California Department of Transportation

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**UCSD-NEES Outdoor Shake Table**

At 25 ft. by 40 ft., the world’s first outdoor shake table is also the largest shake table in the United States — able to handle structures weighing up to 2,200 tons and as tall as 100 feet. With its powerful hydraulic actuators capable of shaking at speeds up to 6 ft. per second, the shake table produces accurate near-fault ground motions, creating realistic simulations of the most devastating earthquakes ever recorded. The shake table is part of the Network for Earthquake Engineering Simulation (NEES) initiative which includes research facilities at more than 15 U.S. universities, providing an unprecedented, networked infrastructure for earthquake engineering research and education.

**Funding Agency:** National Science Foundation (NSF)
The Jacobs School of Engineering’s Board of Advisors for the Englekirk Structural Engineering Research Center is comprised of members of the construction and structural engineering industries. The board provides both financial support and professional expertise to advance the research program.

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