Shake, Rattle, Roll Tape

'This Old House' Features Stockton Firm's Quake Simulator In Segment

Reed Fujii, Stockton Record, 12-9-10

STOCKTON -- Norm Abram of "This Old House" and "The New Yankee Workshop" came to town Wednesday.

But rather than applause, the home-improvement guru was greeted by a loud rumble and sharp crack - the sound of nails and wood fibers giving way under the stress of a simulated Northridge Earthquake.

Abram visited Simpson Strong-Tie's $12 million structural testing lab to film a segment related to the latest "This Old House" renovation project, a Spanish Colonial revival in the hillside Los Angeles neighborhood of Silver Lake. Upgrading the home to meet today's building codes was required, and Simpson agreed to show how different types of construction react under stress.

Simpson produces a variety of metal connectors, straps and anchors. Company engineers use the lab to help develop and test new products and to understand better how buildings react under various stresses, said Kristin Lincoln, senior vice president of marketing.

"The whole goal of the company is about building stronger and safer housing," she said.

Steven Pryor, who oversees the lab, said its showcase test equipment is an in-line shake table made of 5 million pounds of steel firmly bolted to a 3-foot-thick, reinforced concrete floor containing 10 million pounds of concrete.

There is also a separate, cyclic test rig, which can subject shear walls to calibrated back-and-forth motion.

"It's the largest private structural research lab in the U.S.," he said.

While the lab is not open to the public, it has been featured in a number of print articles and once on a History Channel program.

Outside that, Simpson customers are given demonstrations - much like the one mounted Wednesday - of how different connectors perform.

"Our user base gets to see how we reinvest our success to make our products better and better," Pryor said.

Deborah Hood, senior series producer for This Old House Productions, said the show's first Los Angeles renovation project will use a number of Simpson products.

"It's the first time we've ever filmed a shaker table," she said.

The table is more of a long beam of solid steel connected to a large hydraulic ram.

On Wednesday, two three-story-high wood-frame wall segments were mounted on the beam and, while able to move, were secured to a steel structure to prevent a collapse.

The hydraulic ram drives the rig, said Jeff Ellis, Simpson engineering manager, who appeared on camera with Abram.

"We use the computer to tell the shake table to move it a certain distance at a certain speed to match an earthquake record," Ellis explained.

In an initial test, the table rattled and rolled to the tune set by the 1994 Northridge Earthquake, only at 60 percent of full force. Then the computer was dialed up to 100 percent of the magnitude 6.7 temblor, which was blamed for the deaths of about 60 people and more than 9,000 injuries.

One wall segment was secured only by connectors at the roof and the foundation, while the other was secured at those points as well as at each floor segment.

After witnessing the demonstration, Abram turned to the camera and said he'd be sure the Silver Lake renovation had earthquake reinforcement at every floor level.

Later, he said Simpson had dramatically shown the effectiveness of proper reinforcement.

"You don't get to see a building collapse, but you get a pretty good idea of how it will come apart," he said as the production crew prepared to leave.

The 10 "This Old House" segments featuring the Los Angeles project are due to begin airing nationwide in late January. KVIE in Sacramento broadcasts "The This Old House Hour" at 7 p.m. Thursdays. Check listings for details.