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## Earthquake Test: Building Better Homes

*Reported January 2007*

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BUFFALO, N.Y. (Ivanhoe Broadcast News) -- Homes are made to withstand the test of time. But the ultimate test is one that can survive a large-scale earthquake. And simulating an earthquake in a lab helps improve homes in real quake zones.

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Most people don't ever want to experience an earthquake.

"I experienced a very strong earthquake in 1997 in Athens," Ioannis Christovasilis, an Earthquake Structures Graduate Student at University at Buffalo in N.Y., tells Ivanhoe. "I was a little bit frightened, yes."

University at Buffalo Structural Engineer Andre Filiatrault, Ph.D., says, "We had an aftershock, maybe a magnitude five ... That was pretty dicey. You felt the shaking work up."

But today, Filiatrault is eager to watch an earthquake simulator shake this house to a magnitude 6.7 quake. The full-scale, fully furnished home is built like many in earthquake zones, but prone to damage. The test shows how much shaking a wood home can endure.

Filiatrault says, "We shook this building past its so-called design level. We shook it to an extreme event." The house sits on two adjacent shake tables designed to move in three directions, creating realistic earthquake motions. Cameras and sensors called accelerometers measure the rate of movement.

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The test reproduced California's 1994 Northridge Quake that killed 51 people and caused \$44 billion in damage. The structure fared better than researchers thought, but they warn it's still unsafe.

"If I was a homeowner, right now, and this was my home, it'd be borderline for me to go back in," Filiatrault says.

Results from the test will help builders design homes ready to survive earthquakes and retrofit solutions for older homes. Filiatrault says, "All this data is important to improve the way we do things in the future" ... future improvements to help homeowners prepare for future earthquakes.

Next, a six-story, wood-frame structure will be built and shipped to Japan to be tested on the world's largest shake table in 2009.

*The American Society of Civil Engineers and the Incorporated Research Institutions for Seismology, Inc., contributed to the information contained in the TV portion of this report.*

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