

Students to Test 'Tsunami Shelters'

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Their tsunami shelters are only made out of small wooden blocks and held together by toothpaste used for glue, but they also incorporate months of study with computer-aided design, learning about engineering principles, applying skills to real world problems and the simple ingenuity of hundreds of middle school students from Oregon coastal and rural areas.

And now, it's crunch time. Or maybe collapse time. This Thursday and Friday, about 350 students will travel to the Hinsdale Wave Research Laboratory at Oregon State University to see how their one-fiftieth scale models stand up to real wave tests.

This "Tsunami Shelter Challenge" is part of a two-year effort to increase student science and technology skills, using issues that seem relevant – in this case, building a vertical-escape tsunami shelter that could help save lives if such an event hit the Pacific Northwest.

"These students have worked the past year learning about tsunami science, the engineering of structures, and how computational modeling is used to design and test structures," said Rozeanne Steckler, creator of the project and director of the Northwest Alliance for Computational Science and Engineering at OSU.

"They then used a custom-built tsunami shelter simulator to design and test their structures on a computer," she added. "Now in the wave basin we're going to simulate waves that would mimic the 2004 East Asian tsunami. And the big question is: Which structures will be left standing?"

Working in small teams, the students learned about how tsunamis and storm surges happen, the forces they generate, and the types of structural design it would take to withstand them. Testing of their creations will take place in OSU's Tsunami Wave Basin, the largest facility of its type in the world.

A vertical-escape shelter tries to save lives by helping people get above, rather than away from an incoming wave, in the very short time frame of a few minutes that may be available. The structure needs to be high enough to be above the wave, and strong enough not to collapse from its forces. Most of the Pacific Northwest is now believed to be vulnerable to potentially devastating tsunamis, due mostly to potential future massive earthquakes on the Cascadia Subduction Zone.

The initiative has been funded in part by a \$75,000 grant from Symantec Corporation, as part of a corporate goal to encourage more young students to pursue careers in science and technology. It included support for Oregon teachers to be trained with the program, and encourage gender equity in its implementation.

Source: Oregon State University

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