MIT and Harvard researchers design "tsunami-safe(r)" homes
By Associated Press
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CAMBRIDGE, Mass. - A month after the tsunami that devastated Sri Lanka, a team of structural engineers from London visited the island nation and noticed a trend as they surveyed destroyed homes: Walls facing the sea were leveled, while those perpendicular to it were standing.

That inspired a group of researchers from the Massachusetts Institute of Technology and Harvard University to design what they call a "tsunami-safe(r) house" that is less likely to collapse under wind and pounding surf.

Instead of four solid walls, the tsunami-resistant houses have thick concrete block corners and exterior walls made of bamboo. The houses, about 80 of which have already been built, also are designed to be built on top of blocks of concrete or wood, one or two feet above the ground.

The design allows waves to wash through the homes instead of knocking them over, said Carlo Ratti, director of MIT's SENSEable City urban planning laboratory.

"Of course, you would have water in the house, and there is no way to avoid that, but the houses will be much more resilient," Ratti said.

Buro Happold, a London-based engineering firm, used computer models to show the houses would be five times more resistant to a tsunami than Sri Lanka's traditional homes.

"When the wave comes through, the water flushes everything out, but the walls remain standing," said Domenico del Re, a structural engineer at Buro Happold.

The design is for a home measuring about 400 square feet, and costing roughly $1,200 to build. It was designed to be made from materials readily available in Sri Lanka.

"These house are high-tech in the conception but low-cost in the construction," Ratti said.

Tenzin Priyadarshi, a Buddhist chaplain at MIT who has helped coordinate the project, already has raised more than $100,000 to fund the construction of the houses. He hopes to build up to 1,000 of them.

"We asked people (in Sri Lanka) what they wanted," he said. "They said they had plenty of clothing, plenty of medicine, a lot of temporary shelter. Permanent housing was the next concern."

Relief agencies are also building houses for families whose homes were destroyed by the Dec. 26 tsunami. Habitat for Humanity hopes to build or repair homes for 25,000 families in India, Indonesia, Thailand and Sri Lanka over the next two years. About 600 already are under construction in those four countries, said Mario Flores, director of the Georgia-based group's disaster response office.

Flores said Habitat for Humanity also has looked at ways to protect the homes from ocean waves, such as elevating them or reinforcing the connection between the foundation and walls.

"If you have a mega-tsunami like this one, there is really very little you can do (to prevent damage)," he added.

Hawaii already has a "strong tradition" of building wave-resistant homes, del Re said.

"It's a concept that exists in other forms of architecture, but it's not necessarily local to Sri Lanka," he said.
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