Clemson faculty explore how to convert shipping containers into emergency housing

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Resources to solve the housing crisis in Haiti may already be on hand. Some Clemson University researchers have been experimenting with ways to convert shipping containers into emergency housing in the hurricane-prone Caribbean, where a surplus of the sturdy boxes often sits in port yards.

Pernille Christensen, a research associate in the Richard H. Pennell Center for Real Estate and Ph.D. student in planning, design and the built environment; associate professor Doug Hecker; and assistant professor Martha Skinner of Clemson's School of Architecture, collaborated on the SEED Project, working to develop a method to convert the shipping containers into homes.

The original idea was inspired by housing crises that have followed large hurricanes in the Caribbean and United States. However, Hecker said shipping containers would meet those needs in an earthquake zone, too.

"Because of the shipping container's 'unibody' construction they are also very good in seismic zones and exceed structural code in the United States and any country in the world," Hecker said. "They have also been used in other countries as emergency shelters in the case of earthquakes. As the SEED Project develops this will certainly be an area that we incorporate. With a few simple cuts at the port, a storage container can be turned into something that is livable and opens to the site."

Faculty and students sought a way to put displaced people in emergency

housing that could be sturdy and safe on a permanent site. Putting families back on their own land quickly is key to the idea. Families displaced by disaster often do not return to their permanent homes for years, if ever, but the Clemson researchers are looking for strategies to implement the SEED Project as quickly as possible, ideally having a modified container on site within three weeks.

"You get people back in their communities and it strengthens those communities," Christensen said. "They work on their home, not a temporary shelter, and then they work with their neighbors to rebuild the neighborhood. It leads to a healthier and safer community. And these are places often in dire need of better housing."

Many Caribbean countries import more containers than they export, which leads to the surplus of containers in those nations.

"The project has a double mission: to address the local need of providing adequate housing for people in need while solving a global problem of recycling - giving purpose to empty containers that would otherwise be discarded," Skinner said.

As part of this research, the group is studying the cycles of natural disasters by looking at the larger picture through mapping and logistics to understand how containers move, available surpluses and ultimately coordinating the cycles of natural disasters with the ebb and flow of container supplies worldwide.

The SEED Project also includes plans for using another surplus item, 55-gallon steel drums, as a way to create a starter garden - from seed - on the roof of the container homes as a way to get food crops started when the ground may be contaminated by stormwater. Water also would be filtered through the drums before being used in a water pod comprised of shower, sink and composting toilet.

Provided by Clemson University