Defying the disaster: Researcher explores resilient housing

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Researchers at North Carolina State University are determining ways to speed the return of residents to their homes in the wake of natural disasters.

The first step is providing better, more accessible information about available tools and technologies to homeowners, builders, architects and others says Dr. Dave Tilotta, associate professor of wood products at NC State.

In the first part of a multi-phase study examining the resilience of homes in the southeastern United States, Tilotta and his collaborators spent more than a year surveying and interviewing homeowners, home industry professionals, inspectors and other stakeholders to determine the greatest needs in constructing a natural disaster resilient home.

"We then compared those needs to resources and technologies that already exist to determine the research and education gaps," Tilotta says.

The study showed four key research or education areas where homeowner needs are currently unmet:

• Assessing, responding to and mitigating mold-related problems;
• Providing new materials and retrofitting homes to make them resilient;
• Providing homeowners and builders incentives - tax breaks, insurance premium discounts, etc. - to build or retrofit homes or build resilient homes;

• Providing education and outreach for new and existing resilient technologies.

"One example of an education and outreach gap we found is that many people want more information on the prevention of housing damage from natural disasters," Tilotta says. "The Federal Emergency Management Agency and American Red Cross, for example, have tons of prevention materials. So, where is the disconnect? Is it the way the materials are packaged? The next stage of our study is to figure out what avenues we can use to reach more homeowners - especially young homeowners - so that they know what they can do to prepare their homes for natural disasters."

NC State researchers are currently working on a public-access, Web-based portal that contains various resources for making a home natural disaster resilient.

"People will be able to search for information, like they do in a bibliographic database, and find all sorts of resources, e.g., wall boards and flooring treatments that resist and prevent mold, mold-resistant insulation and housing construction materials that prevent mold or rot," Tilotta says. "Having all these resources in one location will be a major timesaver to homebuilders and homeowners."

A group of extension faculty at NC State is also fabricating how-to videos that will walk people through how to retrofit their homes to make them resistant to natural disasters. Viewers will be able to access the videos via YouTube, Facebook and other social networking sites.

Tilotta is part of the Resilient Home Program, which launched out of the Southeast Region Research Initiative. The program is composed of members from NC State, the Department of Homeland Security, Savannah River National Laboratory, the U.S. Army Corps of Engineers

and Clemson University.

"In another part of our program, we're doing lab studies for the development of a 'self-healing' home - one that can monitor and potentially heal itself," Tilotta says. "We already have this sort of active technology for cars - anti-lock brakes, for example. It took time for that technology to get into automobiles, but now that it's there, people don't even think about it. We think the technology is there to do something similar in houses, so we're exploring how to do that and make it a standard for construction projects."

Source: North Carolina State University