

A full-sized California-style home made of bamboo

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This is a demonstration five-bedroom 3.5 bath house constructed of bamboo material on Hunan University campus in Changsha, China. Credit: USC Viterbi School of Engineering

A new type of eco-friendly residential house made of bamboo now stands in Changsha, Hunan Province, China.

A team led by Yan Xiao, a professor at the USC Viterbi School of Engineering and also a founding director of the Institute of Modern [Bamboo](#), Timber and Composite Structures of the Hunan University, China designed and constructed the house, among the first of its kind in the world.

It uses the GluBam® technology invented by Xiao, a technology named by *Popular Science* magazine in its "Best of What's New in 2008"

feature. Xiao, of the Viterbi School's Astani Department of Civil and Environmental Engineering, and his team built the world's first modern bamboo truck-loaded roadway bridge in 2007.

According to Xiao, the structure is a milestone in the use of bamboo for modern construction both in China and the world. Due to the extensive logging in last century, Chinese government has put strict constraints on domestic timber usage and has launched significant programs to encourage re-growing forests.

Meanwhile, China is one of the major bamboo growing regions in the world and has a tradition of using bamboo. Xiao's GluBam® technology utilizes the modern processing procedures to integrate the round, non-dimensional bamboo into bamboo fiber reinforced composites, like plywood, which can be designed, sized and suitable for modern construction.

The structural design of the demonstration house followed US design codes for timber structures. The wall panels were made with GluBam® two-by-four studs, capable of resisting severe earthquakes. All the beams, columns and trusses were assembled by bolts and nails, similar to timber buildings.

"Construction was much easier than conventional reinforced concrete structures or masonry structures in China," said Xiao: "the whole house took a crew of eight workers in an estimated equivalent construction period of three months."

He added that, in terms of cost, the new bamboo house is also very competitive compared with the conventional concrete structures in the local market.

Situated on the historical campus of the Hunan University, the so-called

California style house has the appearance of a typical residential house in California. This demonstration house has two stories and offers over 260 sqm with 5 bedrooms, 3.5 baths, a living room with a fireplace, family dining room and formal dining area, in-house patio overlooking the living room, and a two-car attached garage.

Besides of demonstrating his bamboo technology, Xiao, a California resident for almost twenty years said he "would like to show the Chinese consumers the way of comfort but efficient living style of California homes."

Since the completion of the demonstration house, Xiao says he has been contacted by numerous developers and potential customers. He has already have a contract for building another demonstration house in a famous public park in Beijing.

Xiao also hopes to use the bamboo technology to help the people in Sichuan devastated by the last year's deadly earthquake to rebuild their homes.

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