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Built like a rock

By JANE MCBRIDE , The Enterprise

NEDERLAND - If Scott and Tess Anderson were the heroes of a popular children's fairy tale, they would laugh as the Big Bad Wolf huffed and puffed to blow their house down.

In this grown-up rendition, the malevolent force would be a hurricane with 200 mph winds, and their concrete house would best even the third little piggy's sturdy brick abode.

Learning a lesson about emergency preparation, the Andersons are among several Southeast Texans who have chosen to build their homes of concrete - or more specifically, insulating concrete forms or ICFs, which are large, hollow blocks filled with reinforcing bar and concrete, joined together to make a solid, insulated



Above: County Judge Carl Griffith and his wife, Pat, relax in their concrete home. The thickness of the concrete walls creates wide windowsills. Jennifer Reynolds/The Enterprise concrete wall.

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"I'm happy. I think it was a smart decision," Scott Anderson said about his 3,000 square foot home, which looks like any other brick veneer home, with the exception of one-foot thick window ledges.

Properly built concrete homes are capable of standing up to 200-mph winds, according to tests at the Wind Engineering Research Center at Tech Texas University at Lubbock - considerably more than Hurricane Rita's 130 to 140 mph winds.

With the 2006 hurricane season five weeks away and after 2005's historic destruction via Rita, insuring the structural integrity of a home is a moral all Southeast Texans can understand.

Indeed: About 10,000 ICF residential homes have been built in Texas thus far, said Robert V. Lopez, executive director of the Hurst-based Cement Council of Texas.

"We're in a vulnerable area for storms. In my mind, from an emergency management standpoint, building concrete homes is the safest way to construct a home," said Carl Griffith. "Nothing comes close to the security and safety concrete provides for your family and your investment."

His Hamshire home was the first of nine concrete houses in the past three years with walls built by Sam Alexander and Bobby Smitherman, owners of Alex.Smith, a PolySteel distributor, based in Beaumont. (Contractors complete the homes.)

The business partners chose PolySteel because the 11-inch by 4-foot-by-2-foot forms are reinforced with steel.

"The big draw for us was the energy savings," Sam Alexander said, "up until the hurricane." Now, the number one reason clients tell them they are interested in an ICF home is storm resistance.

As Jefferson County Judge, Griffith oversaw Hurricane Rita storm preparations and relief. While he rode out the storm at the Entergy Corp. building in Beaumont with other first responders, his ranch foreman, Zeke Hill, and Hill's family stayed in the Griffiths' 4,300 square-foot mountain lodge-style ICF home, built on land that has been in his family since 1926.

Hill slept right through the storm in the safe room in the center of the home, Griffith said, the fierce winds blunted by poured-in-place 17½ inch thick exterior walls: 11 inches of concrete, 6 inches of limestone and a half inch of sheetrock.

Griffith said he wouldn't hesitate to ride out any future mid-level hurricanes in his home, completed in December of 2005.

"We have a roof guaranteed to withstand 110 mph winds. We have a water well and septic system and with a generator, there is no reason to leave in a category 3 hurricane," Griffith said, which is what Rita was at landfall.

At the time Stacy Devillier and his wife, Denise, built their 3,200 square foot home in late 1999, it was only the second concrete home in Winnie, Stacy Devillier said.

"I liked the idea of the energy savings," said Devillier, a 36-year-old Southwest Airline pilot, "but without a question, I wouldn't have a problem staying here during a hurricane, as far as safety is concerned."

Devillier did not stay during Rita, he said, because of concerns for his four children, ages 9 and younger.

His home fared well.

"We lost one or two shingles, not enough to even file a claim. We had water blow through a window that wasn't sealed good on the north side."

It took a lot of talking for Tess Anderson to convince her husband they ought to build their new home of concrete.

"I tried to talk her out of it a couple of times," Scott Anderson said. "I'd talked to contractors, and nobody knew anything about it."

"I had a feeling we'd get hit by a hurricane sooner or later and I thought, better safe than sorry," Tess Anderson said.

Scott Anderson, who works for Dynasource Records Management, kept crunching the numbers, knowing that the concrete construction would add about 10 percent to his home's cost.

He's now glad he decided to go with concrete.

"Our electricity bill is comparable to our old house, which had 1,300 square feet. This house (with PolySteel walls by Alexander and Smitherman) is 3,000 square feet. It doesn't take long to cool it off, and it stays a constant temperature. And it's quiet. We're near the airport and outside, the planes are really loud. Inside, you can't hear them unless everything else is very quiet," Scott said.

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How concrete stacks up against the competition

If a wall will withstand a tornado, a hurricane should be a breeze.

That's the short version of the research done on how well different types of construction hold up to wind.

"Something that is designed for tornado criteria will be adequate for hurricanes because the debris problem is worse in a tornado than a hurricane," said Ernst Kiesling, professor of civil engineering at Texas Tech Wind Engineering Research Center and executive director for the National Storm Shelter Association, both in Lubbock.

The Texas Tech Wind Engineering Research Center had its beginnings when, in 1970, a tornado killed 23 people and caused major destruction in Lubbock. Since then, it has focused on testing wind speed resistance in relation to storm shelters.

The center uses a 15-pound 2-by-4 board traveling at 100 mph to "determine adequacy" for withstanding a 200 mph wind. The 2-by-4s are shot like projectiles at building materials such as wood studs, steel studs and insulated concrete forms.

"In order to provide occupant protection, the shelter must have the ability to resist perforation by windborne debris," he said in a telephone interview. "It must have the structural integrity to withstand wind pressures in an extreme wind. The standards reflect that worse-case tornadoes are 250 mph winds."

While some recently published stories have quoted the research center as saying concrete houses are "much-more storm

resistant than houses constructed of wood and steel," that's blatant misuse of information, Kiesling said.

"It's a pass-fail criterion," Kiesling said. "We don't rate or say one does better than another."

That said, concrete homes fared exceedingly well, as good as or better than other materials at the highest speeds.

While construction is driven primarily by cost, therefore making the relatively economical wood king, "In recent years, insulated concrete forms have gained market share. Certainly, it is a viable concept for construction," Kiesling said.

Concrete homes also fare well with insurance premiums.

Residential property falls into four rating classifications: frame construction, stucco, brick veneer and masonry or brick, according to Richard Baker, loss control manager with the Texas Department of Insurance in Austin.

"That's from the worst to the best," Baker said in a phone interview.

ICF falls under the masonry/brick category.

Add a non-combustible roof to that, and you'll get an even better insurance rate.

"It would fall into the classification of fire resistive. Those homes would receive a lower rate - about a 30 percent to 40 percent reduction from the brick rate. They will also receive a lower rate for windstorm coverage," Baker said.

