



Safe and Sound Above the Storm Surge

Full Mitigation Best Practice Story

Santa Rosa County, Florida



Pensacola, FL - When Hurricane Ivan struck Florida's Panhandle in September 2004, many bayside homes in Milton sustained substantial damage, but the home of Pat and David Rosser was relatively unharmed.

The house was built on Blackwater Bay in 1999 after a lot of dreaming, research, and planning. The Rossers chose architect William H. Phillips because his designs matched their idea of a dream house. Phillips, who lived on a barrier island in Alabama, said to the Rossers, "Bring me your dreams...I've learned some things about hurricanes that I'll put into your house."

The Rossers' home is located in a V-Zone within a Special Flood Hazard Area, as designated by the National Flood Insurance Program. V-Zones are coastal areas subject to the additional hazard associated with storm-induced velocity wave action. The house was built on wood pilings and installed with hurricane-resistant windows, doors, and shutters. The bottom of the main floor beams were elevated to 12 feet 6 inches above mean sea level, which is 18 inches above the Base Flood Elevation (BFE), the average floodwater depth for a flood event that has an estimated one percent chance of occurring during any given year. Buildings constructed to this standard are expected to sit above the floodwater and avoid damage during all but the most severe inundations.

Hurricane Ivan struck the shores of the Florida Panhandle with 130-mph winds and storm surge of more than 13 feet. The Rossers' house stood in the powerful hurricane's path, but the couple had evacuated to safer ground.

The Rossers were unable to return to their home until the following Sunday, because the debris-packed roads were impassable after the hurricane. When they arrived, they found their home high and dry, but their property was littered with debris. Of the five homes across the street, only one was left substantially intact. Ivan's storm surge had rushed through walls and windows, carrying away household belongings. The area beneath the Rossers' elevated house was crammed with a variety of debris, such as clothing, five television sets, and dining room chairs. Their four-foot-tall dog kennel was also filled with debris. Two boats had landed in their front yard.

The Rossers discovered that their wooden deck, designed to break away, had indeed been washed away. Most of the lattice enclosing the five-foot crawl space below the house, also built to break away, was dismantled by storm surge. Storm surge also knocked out the doors of their detached garage. Several beloved oak trees were uprooted and toppled in the front yard, but the house itself remained dry and livable.

The Rossers made a wise decision to build their home to exceed code requirements. Elevating the house 18 inches above the BFE prevented it from being destroyed by the forceful storm surge. The wave action had pushed through the space under the house, but none of the first-floor contents were touched by the water. "It would have cost us at least \$175,000 to make the repairs had our home flooded," said Pat Rosser. The Rossers estimated that the shutters and hurricane-resistant windows and doors added \$17,000 to the construction costs, but they feel that the protection against wind, rain, and flying debris was well worth it.

"There was no extra charge for the added elevation. The piles are driven to the correct depth and any excess is then cut off. We removed only what was needed to give us the added elevation. We did have more pilings and closer piling spacing than we have seen in other homes," explained David Rosser.

In a neighborhood devastated by Hurricane Ivan, the Rossers' house was one of only a few livable houses left standing, and they offered it as shelter to neighbors who could not stay in their own homes. Pat Rosser spoke of how she and her husband fed volunteers and neighbors during clean-up after the hurricane: "We and another house down the street became the only ones with normalcy. We made sandwiches for everyone, had potluck dinners here and fed 23 people at a time for about two weeks."

On August 10, 2005, the eye of Hurricane Dennis passed near the Rossers' home. The only damage to the house from the Category 3 hurricane was from wind, which loosened some courses of vinyl siding. This event proved again that the extra effort

put into the construction of the Rossers' house was worth it.

Activity/Project Location

Geographical Area: **Single County in a State**

FEMA Region: **Region IV**

State: **Florida**

County: **Santa Rosa County**

Key Activity/Project Information

Sector: **Private**

Hazard Type: **Hurricane/Tropical Storm**

Activity/Project Type: **Building Codes**

Activity/Project Start Date: **01/1999**

Activity/Project End Date: **01/2000**

Funding Source: **Private funds**

Activity/Project Economic Analysis

Cost: **\$17,000.00 (Actual)**

Activity/Project Disaster Information

Mitigation Resulted From Federal
Disaster? **Unknown**

Value Tested By Disaster? **Yes**

Tested By Federal Disaster #: **No Federal Disaster specified**

Year First Tested: **2004**

Repetitive Loss Property? **Unknown**

Reference URLs

Reference URL 1: http://www.fema.gov/rebuild/mat/mat_fema499.shtm

Reference URL 2: <http://www.escambia-emergency.com/>

Main Points

- The Rossers' home was built on wood pilings and installed with hurricane-resistant windows, doors, and shutters.
- The Rossers' home was relatively unharmed, while neighboring homes were destroyed by Hurricane Ivan.
- Mitigation measures against wind, rain, and flying debris increased the construction costs, but were well worth it because they saved the Rossers from having to make expensive repairs after the storm.



The Rossers' house withstood Hurricane Dennis with very little damage.



This house was severely damaged by Hurricane Ivan.