Venting Breakaway Walls Saves Homeowner Thousands

Full Mitigation Best Practice Story

Okaloosa County, Florida

Okaloosa County, FL - Dan Sluka and his wife, Dottie, moved from Detroit, Michigan, to the Gulf Coast of Florida in 2001 after building their dream home in a Special Flood Hazard Area a few miles east of Pensacola, with a view of the Santa Rosa Sound and the Gulf of Mexico beyond.

“We wanted to exceed the building code that was administered by the county at the time and asked our builder to use the most recent edition of the code issued by the International Code Council,” says Dan. “We wanted to take precautions because we knew about the possibility of hurricanes.”

The Sluka’s property is located in Zone AE. However, because they are only 1,000 feet from the water, they decided to build to the more rigorous V Zone standards. Their builder used wooden pilings to strengthen the structure of the house against storm surge and to raise the main part of the house several feet higher than the minimum height required by the county.

The code for their county allows areas under elevated homes to be enclosed and used for storage and parking. The Sluka’s builder surrounded the area under the home with breakaway walls—walls designed to detach during a powerful surge so the home remains structurally sound. To improve wind resistance, the house is built with 2”x 6” studs, hurricane straps, wind-resistant shingles, and hurricane shutters on all doors and windows. The outside air-conditioning unit is installed on a platform several feet above the ground.

In the years before 2004, when Hurricane Ivan hit the Florida Panhandle, Dan stored his tools, sporting equipment, tapes of past music concerts, and filing cabinets with several years of archived work and personal papers in the enclosed area under the home.

“There isn’t a lot of storage in the main living area. This is where we put things we didn’t have room for,” says Dan. During hurricane seasons, he made sure everything was moved so it stood at least 4 feet off the floor.

The Sluka’s home performed as designed during Hurricane Ivan, but not quite the way they’d hoped. The storm surge associated with Ivan delivered floodwaters considerably higher than the “100-year” (1-percent-annual-chance) level, causing widespread damage throughout the area.

Although the Sluka’s main living area was undamaged, when the breakaway walls failed as designed, everything inside the storage area—tools, tapes, personal papers—was washed away. In terms of damage to the building, high winds caused minor siding damage. Dan estimates it cost about $24,000 to repair the flood damage. His NFIP flood insurance policy covered some flood damage to the building, but not to the stored belongings, the latter of which Dan estimated were worth about $20,000.

“It was a mess. A lot of stuff was never found. I never anticipated a storm surge that would take everything away, and much of it was irreplaceable,” says Dan. But the Slukas fared better than most. Many of their neighbors had significant water damage, and several homes were completely destroyed—leaving families homeless and some facing repair bills higher than $250,000.

Dan decided he wanted to do something different when repairing so the breakaway walls wouldn’t fail so easily in future storms. He researched hydrostatic pressure and discovered a manufacturer making engineered and certified flood vents, which could help limit future damage while still protecting the primary structure from wave and surge forces.

Dan then had his builder install the flood vents when replacing the breakaway walls. The vents are insulated to allow the storage space to be air conditioned to minimize mold growth in the humid months in the Gulf. Float devices automatically open the vents during a flood to equalize pressure from floodwater so the walls shouldn’t break away until the water gets deep enough for significant wave action.

Knowing the enclosure will flood during future hurricanes, Dan decided to take another precaution to better protect their stored property. He built a loft space in the garage adjacent to the storage room. Now, when a hurricane moves into the Gulf, he relocates the stored items to the loft until the threat passes.

Dan’s idea to install flood vents in the breakaway walls was tested in 2005 when Hurricane Dennis flooded the neighborhood. Although 2.5 feet of water entered the storage area through the flood vents, instead of a large bill to repair the breakaway walls, says Dan, “I just had to power wash the walls. We didn’t have any damage.”

Addendum:

The Standard Flood Insurance Policy (SFIP) covers damage to the foundation elements required to support the building. It does not pay to repair walls around enclosures under elevated buildings (unless the walls are shear walls). However, the policy does cover some building property items and personal property items in those enclosures. Items covered, if installed in their functioning locations and connected to a power source, include central air conditioning units, furnaces and water heaters, water softeners, fuel tanks, electrical junction boxes and circuit breaker boxes, and clothes washers and dryers. For complete lists of items covered, see SFIP provisions III.A.8 and III.B.3.

Activity/Project Location

Geographical Area:	**Single County in a State**
FEMA Region:	**Region IV**
State:	**Florida**
County:	**Okaloosa County**
City/Community:	**Mary Esther**

Key Activity/Project Information

Sector:	**Private**
Hazard Type:	**Flooding; Hurricane/Tropical Storm; Coastal Storm**
Activity/Project Type:	**Building Codes; Elevation, Structural; Flood Insurance**
Structure Type:	**Wood Frame**
Activity/Project Start Date:	**05/2000**
Activity/Project End Date:	**04/2005**
Funding Source:	**Homeowner; National Flood Insurance Program (NFIP); Property Owner, Residential**
Funding Recipient:	**Property Owner - Residential**

Activity/Project Economic Analysis

Cost:	**$801.00 (Actual)**

Activity/Project Disaster Information

Mitigation Resulted From Federal Disaster?	**No**
Value Tested By Disaster?	**Yes**
Tested By Federal Disaster #:	**1551 , 09/16/2004**
Repetitive Loss Property?	**Unknown**

Reference URLs

Reference URL 1:	**http://www.floodsmart.gov**
Reference URL 2:	**http://www.smartvent.com**

Main Points

- Due to the threat of hurricanes, Dan and Dottie Sluka wanted to exceed the building code that was administered by the county at the time and asked their builder to use the most recent edition of the code issued by the International Code Council.
- The Sluka's property is located in Zone AE. However, because they are only 1,000 feet from the water, they decided to build to the more rigorous V Zone standards.
- Their builder used wooden pilings to strengthen the structure of the house against storm surge and to raise the main part of the house several feet higher than the minimum height required by the county.
- The Sluka's builder surrounded the area under the home with breakaway walls—walls designed to detach during a powerful surge so the home remains structurally sound.
- To improve wind resistance, the house is built with 2"x 6" studs, hurricane straps, wind-resistant shingles, and hurricane shutters on all doors and windows.
- The outside air-conditioning unit is installed on a platform several feet above the ground.
- The Sluka's home performed as designed during Hurricane Ivan, but not quite the way they'd hoped - Although the Sluka's main living area was undamaged, when the breakaway walls failed as designed, everything inside the storage area—tools, tapes, personal papers—was washed away.
- Dan decided he wanted to do something different when repairing so the breakaway walls wouldn't fail so easily in future storms.
- Dan researched hydrostatic pressure and discovered a manufacturer making engineered and certified flood vents, which could help limit future damage while still protecting the primary structure from wave and surge forces.
- Dan then had his builder install the flood vents when replacing the breakaway walls and when Hurricane Dennis hit, the property had little to no damage.

Damage from Hurrican Ivan: Dan Sluka lost many irreplacable personal items when his breakaway walls broke away.

Vents Helped Prevent Damage during Hurricane Dennis