



## Elevated House Attracts Local Attention

### Full Mitigation Best Practice Story

#### *Harrison County, Mississippi*

**Biloxi, MS** – Passers-by often ask Harry and Clarice Shoemake about their elevated house. The couple noticed the new interest in their property after Hurricane Katrina struck on August 29, 2005, destroying large portions of many Gulf Coast communities. The couple's elevated home remained standing during the storm.



When the Shoemakes bought their home in a former fishing camp community, they knew it had been empty for a year and had been plagued more than once by six feet of floodwater. It was the only house built on a slab-on-grade foundation in the neighborhood. All other homes in the community were elevated.

"Nobody would buy [the house] because it was on the ground," Harry Shoemake explained. He also added that some elderly residents said the community did not flood in the past. They believe the flooding started as the county began to grow, bringing major construction to the area. "Normally when it floods it's in the spring when heavy rains fall within a couple of days. We had two to three feet of water in the yard several times, but it never got in the house. We were fortunate," Harry Shoemake said. "Before elevating the house, we always worried about our property getting flooded. I always guarded the family pictures, gathering them up each time we had heavy rains or threatening storms. That got very old," Clarice Shoemake recalled.

The Shoemakes knew that they needed to elevate the house, whose backyard is adjacent to the Tchoutacabouffa River. The river flows into Biloxi Bay, a large inlet of the Gulf of Mexico less than five miles away. Despite the threat of flooding, the couple lived in the house for more than two years before they decided to elevate it. During those two years, the couple evacuated the property at least once a year when it was threatened by flooding.

The couple eventually decided to elevate and retrofit their home. The elevation, completed in 2004, was funded with a \$98,000 grant from FEMA's Hazard Mitigation Grant Program (HMGP), administered by the Mississippi Emergency Management Agency. Following a major disaster declaration, the HMGP funds up to 75 percent of the eligible costs of a project that will reduce or eliminate damages from future natural hazard events. The Shoemakes supplemented the grant with personal funds and made additional enhancements, such as a wider staircase.

The couple's 2,100 square-foot home is elevated 11 feet 11 inches above the original slab-on-grade foundation and sits on an open concrete column system with embedded anchor plates for added structural support. The open space beneath the house is utilized for parking. Harry Shoemake noted that the elevation includes an additional three feet (freeboard) that is higher than Harrison County's minimum code requirement. "I wanted to be on the safe side, elevate higher, and never have to worry about it again," Harry Shoemake explained.

Another mitigation measure implemented by the Shoemakes was to replace the original shingle roof with a metal roof. They also installed windows with wind-resistant glass rated to withstand gusts of up to 175 mile per hour.

When Hurricane Katrina slammed their community, the couple and several of their neighbors waited out the storm at a local hotel. The Shoemakes returned to their home after the storm and found nine feet of floodwater beneath the house. "If this house had been on the ground we would have had nine feet of water in the house. If we had not raised the house we would have had a total loss," Harry Shoemake said with a deep sigh.

The 17-foot storm surge brought water into the house after forcing open the French doors in the rear of the structure. Although there was no substantial standing water within the house, salt water from the surge did cause some damage. The drywall and portions of the floors required repairs, but there was no structural damage. Although the house escaped serious flooding, the powerful winds, in excess of 112 miles per hour, caused some minor damage to the metal roof. "The wind and the storm surge caused the flooding, not the rain," explained Harry Shoemake.

Even though their community did not have power for eight days, the Shoemakes proceeded with the clean-up and repair process. They returned to living in their home in less than four weeks after the storm. "Compared to many people in the city, we came out good after the storm," noted Harry Shoemake. "We toured some of the damaged areas after Katrina and seeing it

made [us] cry,” Clarice Shoemake added.

To prepare for future storms, the Shoemakes are considering adding storm shutters to their windows on the rear of the house to protect them from flying debris.

Harry Shoemake noted that although most elevated homes in their community suffered some degree of damage from Hurricane Katrina, the homes remained intact and residents moved back relatively quickly. “Our neighborhood is probably one of the most fortunate neighborhoods down here,” he said.

The couple is proud that their elevated home survived Hurricane Katrina and they are quick to share mitigation techniques with others. “Even people I don’t know approach me with questions about our elevation, once they discover I live here,” Clarice Shoemake said. When asked if her home provides improved security and a nicer appearance since elevating, Clarice Shoemake answered, “absolutely!”

#### Activity/Project Location

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

FEMA Region: **Region IV**

State: **Mississippi**

County: **Harrison County**

City/Community: **Biloxi**

#### Key Activity/Project Information

Sector: **Private**

Hazard Type: **Hurricane/Tropical Storm**

Activity/Project Type: **Elevation, Structural**

Structure Type: **Masonry, Reinforced**

Activity/Project Start Date: **05/2003**

Activity/Project End Date: **03/2004**

Funding Source: **Hazard Mitigation Grant Program (HMGP); Homeowner**

Funding Recipient: **Property Owner - Residential**

Application/Project Number: **9999**

#### Activity/Project Economic Analysis

Cost: **\$98,000.00 (Estimated)**

## Activity/Project Disaster Information

Mitigation Resulted From Federal Disaster? **No**

Value Tested By Disaster? **Yes**

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

Year First Tested: **2005**

Repetitive Loss Property? **Yes**

## Reference URLs

Reference URL 1: <http://www.fema.gov/government/grant/hmgrp/index.shtm>

Reference URL 2: <http://www.msema.org>

## Main Points

- The Shoemakes' house was the only one in their Gulf Coast community that was not elevated.
- The couple decided to elevate their home using HMGP and personal funds.
- They elevated their home 11 feet 11 inches above the original slab-on-grade foundation on an open concrete column system with embedded anchor plates for added structural support.
- They also replaced the original shingle roof with a metal roof and installed windows with wind-resistant glass rated to withstand gusts of up to 175 mile per hour.
- The couple's home received minor wind and water damage from the storm surge during Hurricane Katrina, but remained intact and liveable.



The Shoemakes' elevated house in Biloxi, Mississippi.



The Shoemakes at the front entrance to their elevated home.



The Tchoutacabouffa River flows behind the Shoemakes' house.