



FEMA

Home Elevation Proved Successful After Tropical Storm Isabel

Hoopers Island, MD - Ray and Caroline Warehime bought their waterfront property in the early 1990s with the plan of building a home for relaxation and future retirement. As they spent more time on the property and began to develop their building plans, they became acquainted with Nick Lyons, the Building Codes Administrator for Dorchester County. Through Lyons, they learned about the hazards that the location was at high risk for, notably hurricanes and flood. As a result, they made the informed decision to build to FEMA hurricane standards.

Building of the house began in 1993 and was completed in 1998. Ray Warehime designed the building, and together with Lyons monitored the building process step by step to insure that recommended codes and standards were incorporated correctly. The footer was sunk into the ground and the building was elevated 4 feet up (six cinderblocks above ground) above the base flood elevation (BFE). The foundation is bolted to the footer, threaded rods are through each block, fastened to steel plates, fastened to studs and the roof trusses secured with hurricane ties and clips. Warehime chose to use plywood for the siding rather than particleboard. The siding is nailed every twelve inches, which creates a stronger resistance to wind and pressure. Additionally, the roof is strapped to the foundation at all corners.

When the hurricane watch and warnings were issued, the Warehimes, whose primary residence is in Taneytown, Maryland, came down to the island only to tape the windows and secure exterior items. They returned to Taneytown with the peace of mind that their home was structurally prepared to withstand the upcoming hurricane.

When they returned to Hoopers Island after the storm, their home was high and dry. The ground-level garage sustained minor damage with the low panels on the garage doors ruptured, allowing some floodwater to enter. The Warehime's neighbors were not as lucky as they describe, "The home next door had water above the radiators and 8 to 12 inches of water in the living quarters, on the other side, they had little to no water; the fourth house down flooded; half a mile away, a house is off the foundation. Hurricane Isabel (2003) deposited 12 inches of new sand out there, and moved about a ton of gravel from the driveway to the end of the garage. We built up, so we didn't have any damage. The flowerbed and walk washed out, we lost the food after the power went out. But we didn't have any damage."

The cost of building was approximately \$150,000 in 1993. In 2003, their home is valued at approximately \$300,000. Although the cost of incorporating mitigation measures into the cost of building materials was not documented separately, Warehime is convinced that damages, which would have been incurred as a result of Hurricane Isabel, would have exceeded the initial expense. "Isabel taught me a good lesson," states Warehime. "The glass in the windows is tested to withstand 110 miles per hour winds but will not withstand projectiles. I am now having custom built plywood covers made for the windows. We will have them readily available to install during a hurricane watch."



Dorchester County, Maryland



Quick Facts

- Sector: **Private**
- Cost: **\$150,000.00 (Estimated)**
- Primary Activity/Project: **Building Codes**
- Primary Funding: **Homeowner**