



# FEMA

## Public Library Stands Read All About It

**Sanibel, FL** - On August 12, 2004, Library Director Pat Allen and her staff readied the 10,000 square-foot expansion of the library for an official opening. That morning, staff guided the delivery crew as they moved equipment and shelving into the new addition. By late afternoon the next day, Hurricane Charley brought fierce winds to Sanibel Island that tested the engineering of both the new expansion and the original building.

Built in 1994, less than three miles from the Gulf of Mexico, Sanibel's Public Library has the distinction of being Florida's first library constructed to withstand 155 mph winds. Knowing the risks of being so close to the hurricane-prone Gulf of Mexico, library administrators hired engineers to calculate the wind loads and document design specifications to withstand those loads. When library officials decided to expand the original structure in 2003, they maintained proactive engineering for the addition and used the same architectural firm to match the Category 5 standards of the original design.

To achieve the high-wind rating, the architects designed a poured concrete skeleton fortified with reinforced steel rods that tied the roofing system to the foundation, and secured the metal roof with hurricane straps to counteract uplift.

Concrete pilings not only provided a secure foundation, but also flood control. The pilings raised the building above Base Flood Elevation (BFE), a requirement since Sanibel flood maps show all property on the island to be in a Special Flood Hazard Area (SFHA). Local regulations mandated a height of 10 feet above BFE, but the library added an additional 3 feet of freeboard to better counteract flooding and provide covered parking.

The original building's pilings were driven into bedrock and, because the depths varied with each column, the engineers improved stability with reinforcing metal sleeves around the concrete. They used a different technique when building the expansion. To address differences in rock depth and to avoid structural damage to neighboring buildings from pile driving, they used augers to dig holes allowing pilings to be cast in place.

Library officials also chose to retrofit the original building with the same hurricane-resistant windows they used for the expansion.

As a precautionary measure, the library board added a generator to operate essential services, although electricity service usually returns quickly after the loss of power from a storm event because of the library's proximity to the Sanibel City Hall. The library staff discovered the importance of having working electricity when residents came back to the island after Hurricane Charley. Not only did people use the library as a familiar place to visit, read, or use the Internet, but they drew on its resources to contact relatives, file insurance claims, and register with the Federal Emergency Management Agency (FEMA).

Before residents could return to normal, Hurricane Wilma brought 100 mph winds to Sanibel on October 24, 2005. Again the library suffered no damage and stood ready to welcome residents back to the island.



Lee County,  
Florida



### Quick Facts

- Sector:  
**Public**
- Cost:  
**\$5,306,680.00 (Estimated)**
- Primary Activity/Project:  
**Elevation, Structural**
- Primary Funding:  
**Non-profit organization (NPO)**