



## Firehouse No. 1 Sets a New Standard in Charlotte County

### Full Mitigation Best Practice Story

#### *Charlotte County, Florida*



**Port Charlotte, FL** - On August 13, 2004, Hurricane Charley intensified, veered from its predicted course, and smashed into Charlotte County at the mouth of the Peace River. This unanticipated change left residents and emergency response personnel with an approximately one-hour warning to prepare for wind speeds that Florida had not experienced since Hurricane Andrew over a decade earlier.

Reacting to Charley's new path and increased severity, Charlotte County Fire Chief, Dennis Didio, a 20-year resident and veteran of the department, assigned response personnel to key posts to respond to the new storm information.

One such post, located north of the river on US 41, was Firehouse No.1. The station serves a highly populated and economically vital 2.5-square mile area of the county, and its crew responds to the majority of medical emergencies in the area. The 40-year-old structure seemed strong, having weathered many previous storms.

With equipment and personnel in place, crews stationed around the county awaited the storm. Hurricane Charley made landfall shortly after 4:15 p.m. In Firehouse No. 1, the crew of 14 crowded together in four shower stalls with mattresses over their heads, as fierce winds and flying debris assaulted the building. Winds in excess of 140 miles per hour (mph), with gusts up to 180 mph, tore bay doors from their rails and ripped the roof from its rafters. Dumpsters were airborne and sheared the air conditioning compressors and generators from their pedestals. There was also a power failure.

After about 15 minutes, the worst of the storm passed and the winds died down. The veteran crew emerged from the battered building, surveyed the damage, readied their equipment for response, and set off to perform their duties to ensure the safety of residents. The building itself suffered more than a 75-percent loss.

Reflecting on the \$17.8 million in damages to the County's public facilities and lost equipment, Chief Didio vowed, "We won't let this much devastation happen to us again."

The Board of County Commissioners agreed with the Chief's resolve to rebuild stronger. Encouraged by its team of designers, facility and project managers, and consultants, the Board voted to exceed the 130 mph codes required in Charlotte County when rebuilding all critical facilities.

Before Charley struck, the County budgeted \$1.5 million to construct a new facility for Firehouse No. 1. With the new dedication to implement above-code construction, the Board added \$449,500 for hardening measures. "Because Firehouse No. 1 was so important to the County, the commissioners decided to rebuild it ... to 170 mph standards," noted Andrew Baker, the County's facilities director.

The project team, commissioners, and county residents watched excitedly as the new station rose from the rubble. Construction workers removed wreckage and poured the foundation. Oversized steel support beams seated eight-feet deep in concrete footings frame the building. Solid concrete blocks form the lower half of the building, with concrete walls poured on top. A seamless metal roof with rafters set 12-inches on center, instead of the standard 16-inches, crowns the structure. The women's locker room was designed to also serve as a saferoom, and features solid concrete block walls and an 8-inch-thick poured concrete ceiling.

To strengthen the building envelope, workers installed high-impact glass in windows and doors and provided Kevlar® screens for the bay doors. The design also called for installing hurricane shutters on the windows.

Outside, the compressors and generator were protected with debris fences, and containment walls were built around the generator and dumpster.

Florida is the lightning capital of the nation, so the building was also fitted with rods to dissipate possible lightning discharges.

Because much of Charlotte County lies at or below sea level, buildings are also threatened by flooding and storm surge. According to Chief Didio, "If Charley had brought a storm surge, it would have wiped us out."

The County's building codes require new construction to meet Base Flood Elevation (BFE) requirements; critical areas of the new Firehouse No.1, the living space, the kitchen, and locker and radio rooms were elevated three feet above the BFE. The BFE is 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. Outside, the air conditioning compressors and generators were raised on elevated pads.

Mitigating storm damage protects lives and property, and saves money in the long run. "The [strengthening] protects the County's investment of over \$3 million in buildings and contents. That makes it cost effective."

Director Baker added, "Firehouse No. 1 is a blueprint for the future of how we want to build our critical facilities – fire stations, police stations, public works buildings. It will take more than what Charley dished out to take this building down."

#### Activity/Project Location

Geographical Area: **Single County (County-wide)**

FEMA Region: **Region IV**

State: **Florida**

County: **Charlotte County**

#### Key Activity/Project Information

Sector: **Public**

Hazard Type: **Flooding; Hurricane/Tropical Storm**

Activity/Project Type: **Elevation, Structural; Safe Rooms/Community Shelters; Elevation, Utilities**

Structure Type: **Steel Frame; Masonry, Reinforced**

Activity/Project Start Date: **02/2005**

Activity/Project End Date: **02/2006**

Funding Source: **Local Sources**

Funding Recipient: **Critical Facility - Police/Fire**

Funding Recipient Name: **Charlotte County**

#### Activity/Project Economic Analysis

Cost: **Amount Not Available**

Non FEMA Cost: **0**

## Activity/Project Disaster Information

Mitigation Resulted From Federal  
Disaster? **Yes**

Federal Disaster #: **1539 , 08/13/2004**

Federal Disaster Year: **2004**

Value Tested By Disaster? **No**

Repetitive Loss Property? **No**

## Reference URLs

Reference URL 1: <http://www.floridadisaster.org/>

## Main Points

- Charlotte county lost \$17.8 million in damages to public facilities and lost equipment as a result of Hurricane Charley
- The County's Board of Comissioners voted to exceed the 130 mph codes required in Charlotte County when rebuilding all critical facilities.
- Mitigating storm damage protects lives and property, and saves money in the long run. "The [strengthening] protects the County's investment of over \$3 million in buildings and contents. That makes it cost effective."



Chief Dennis Didio.



Charlotte County Firehouse No. 1