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The Aftermath of Charley Picking Up the Pieces by Libby Walters

In the wake of a torrid hurricane season, Charley left its mark on southwest Florida. How did building components fare in the storm?



Hurricane Charley blew through 25 counties in Southwest Florida on August 13, yet Jim Swain was not daunted by its Category 4 impact. Charley's eye hit the city of Punta Gorda in Charlotte County, just 30 miles north of Carpenter Contractors of America (the company Swain works for) in Fort Myers, Lee County. He wasted no time in communicating with fellow Southwest Florida Truss Manufacturers Association (SWFTMA) members, despite a multi-day power outage.

As SWFTMA president, Swain swung into action by contacting his peers and relaying damage assessment updates to WTCA-National daily. "Once I had phone access, the first order of business was to email WTCA-National. It was important for me to get their perspective on the situation because they've dealt with disaster management more than we have locally." Swain said that to his surprise, he received a call from staff within minutes of sending the email.

Swain's early communication with WTCA-National allowed staff to pull together resources and create an update on behalf of the Florida Executive Committee asking chapters to offer damage assessment assistance to any government officials or building department contacts. The update also asked members to send digital photos of disaster sites showing evidence of truss performance in "weathering the storm." Finally, a list of hurricane relief resources and aid sites were listed.

Swain also found time to survey the worst damage firsthand (without getting in the way of rescue efforts) and sought out to capture evidence of truss performance with a digital camera. "There is no substitute for witnessing the wreckage directly," he remembered. "What struck me the most was the mobile home damage caused by attached carports."

According to a hurricane damage analysis by the Charlotte Herald-Tribune, more than one in three buildings that sustained major damage were mobile homes, even though such homes make up just 11 percent of the buildings in Charlotte County. When you move past the initial shock of Charley's carnage, one thing is indisputably clear in Swain's photos: wood and steel building components fared much better in Charley than they did in its famous predecessor, Hurricane Andrew (1992). The Herald-Tribune's report found that homes and businesses built before Andrew were eight times more likely to be destroyed than newer buildings.

By the grace of God, Swain's residence was virtually untouched by Charley. "I had just installed new laminated windows and a hurricane-approved door. He said there was no tree damage because he had removed the only large tree on the property a few months prior to Charley's arrival. Like some two million other Florida residents, Swain and his family suffered through one hardship: no power for nearly a week.

The photos show Charley's monstrous impact. Shots illustrate rooftops badly damaged with roof trusses still intact, held together perfectly by metal plates and hangers. Experts say that most structures damaged in the storm were either very old or not built according to the new Florida Building Code. Photo evidence also indicates that lack of proper permanent bracing was responsible at least in part for buildings containing roof trusses that sustained irreparable roof damage. "Fortunately the newer building codes have helped, and even the older codes seemed sufficient since they were enforced by our very competent building departments," Swain noted.

John Meeks, P.E., noted that the new Florida Building Code, implemented in large part because of Hurricane Andrew's widespread destruction to structures, has enforced more restrictive construction requirements that seem to have prevented similar failures from occurring during Charley. Meeks concurred with Swain's assessment that mobile homes parks appeared to have sustained the worst damage of all structures in the storm.

THE REINHOLD CONNECTION

Swain tracked down Dr. Tim Reinhold, VP of Engineering at the Institute of Business and Home Safety (IBHS) to discuss his observations during the group's damage assessment. Reinhold's report confirmed what Swain captured on camera: "The structural damage to mobile homes was significant and while there were isolated cases of other residential housing damage, most homes built post-Hurricane Andrew fared reasonably well," he said.

Reinhold explained why Florida's building code history plays a role in the structural damage a building is susceptible to during hurricane winds. "Homes built prior to 1976 were not built to any standard at all. At that time, HUD [Housing and Urban Development] stepped in and provided basic manufactured housing code requirements," he said. He explained that homes built under the HUD codes were only designed to resist 70-80 mph winds, offering little

protection against stronger hurricane winds. He said that manufactured housing was devastated in Hurricane Andrew, and as a result, the new Florida Building Code outlined three categories of wind zones. "Zone 1 manufactured homes were reserved for structures to be built outside of hurricane zones. Zones 2 and 3 were designated for homes in hurricane zones, depending on the wind rate of the location," he explained.

In the IBHS assessment, Reinhold reported that pre-1976 homes were largely wiped out and opened up to the floor. He noted that homes designed to the HUD codes sustained some structural damage, but they fared reasonably well. And the post-Andrew homes were largely unharmed by Charley. "The common denominator in all the homes was damage to porches, overhangs and add-on structures that weren't built to code," Reinhold reported.

AF&PA reported in Impact that Reinhold and his team of inspectors witnessed older manufacturing housing failures (near Punta Gorda) that may not have been designed or built to withstand hurricane force winds. The report noted that "newer houses and apartment buildings of wood-frame construction and of concrete/masonry construction withstood the ravages of the storm with little or no damage." Reinhold's group witnessed several multistory wood frame apartment buildings with little or no damage, including one under construction that was untouched in the storm.

TRUSS GUY DOES PR

Swain's ongoing PR effort would include a Florida Senator. After reading an article on Senator Nelson's proposed legislation to pool funds for research to make buildings more resilient to hurricane winds, he contacted WTCA staff. With the direction of the Florida Executive Committee, it was decided that staff should contact Senator Nelson's office directly to pledge support for the legislation and financial assistance for the research. Senator Nelson remembered Florida WTCA members from their visit in May during the Legislative Conference. When contacted, his staff was very receptive to WTCA's offer to help as legislation is developed, work on research projects designed to improve construction performance and in general was thankful for the call of support.

Although finding success in a situation that caused so much destruction isn't easy, Swain urged the industry to focus on the positives. "We need to be positive about what Charley showed us; trusses performed very well against a tough tropical storm. At least it proved that we're doing our jobs, as are the building departments," he noted.

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