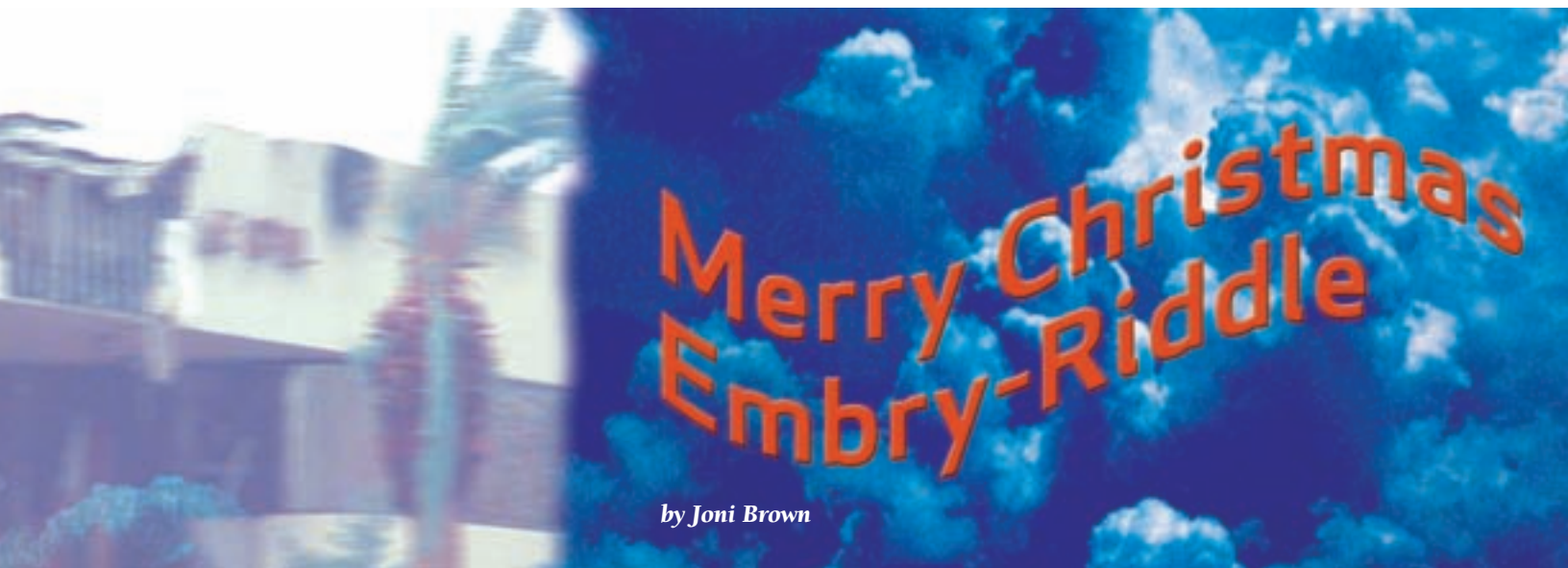


- Riddle:** *What's the difference between a Hurricane and a Tornado?*
- Answer:** Three DAYS vs. three MINUTES to prepare!
- EMBRY Riddle:** *What did Santa bring your campus for Christmas 2006?*
- Answer:** An F2 Tornado!

Over the years, the facilities management department has prepared the Daytona Beach campus for hurricanes, most notably for the three that blew through the campus in 2004. However, no one had thought much about preparing for a tornado. That is, until an F2 tornado ripped through our campus at 120 MPH on Christmas Day last year.

were totaled). It continued its path through the center of the campus damaging nine buildings, and destroying two. It leveled the first building, the fleet maintenance hangar that housed three planes that day. One of the aircraft that was sent careening through the campus hit the maintenance technology building with such force it broke through the exterior block wall and exploded, starting a fire.

The tornado proceeded through the center of the campus destroying trees and pole lights in its path. It lifted the roofs off most of the nine buildings it passed over. It pelted them with debris. It shattered windows and embedded aircraft parts and other building fragments into the exterior walls. One building's roof system was torn completely off and became a projectile. This section of roof breached the exterior wall of the library's second floor, damaging approximately 2,000 books. All but 800 books have since been restored.



On a positive note, the tornado could not have had better timing. The tornado touched down at 1:20 p.m. on Christmas Day—the *only* day of the year that the campus is officially closed. Had it been any other day, including all other holidays, the Flight Line would have been open for flight training along with support departments. Only three safety personnel were on campus, and they made it to safety. The damage assessment results indicated there would have been serious injury or death had the campus been open.

The tornado approached the campus from the west, hitting the Flight Line first. The Flight Line is our campus airfield and home to our university-owned aircraft. It made “aircraft tumbleweeds” out of most of the fleet (49 of the 65 aircraft

Joni Brown is the systems manager in the facilities management department at Embry-Riddle Aeronautical University, Daytona Beach Campus in Florida. E-mail her at brownjon@erau.edu. This is her first article for Facilities Manager.

The final two buildings in the tornado's path suffered the most damage after its initial touch down. The main administration building, , 45,000 sq. ft. Spruance Hall was damaged to the point of no recovery. The storm then crossed the main boulevard and wreaked havoc on the field house. It tore back approximately 2,400 sq. ft. of roofing and exposed the basketball court to water damage. In addition, it damaged the athletic fields that had just recently been built.

In the end, the damage was estimated between \$50 million and \$60 million. For those that were first on the scene, the campus looked like a battlefield. Thanks to the solid leadership of the university president and the Daytona Beach Campus chancellor, a plan was quickly formulated. Becky Griffith, manager of operations and maintenance, was among those first to arrive on site. She contacted Dan Young, director of facilities, who was with family in Ohio for the holidays. He immediately packed and headed for Florida, driving through the night to be there first thing in the morning.

An “all hands on deck” call was put out to maintenance personnel on Christmas night to report to work at 7:00 a.m. the next morning. Foremen of each trade contacted their regular contractors and asked that they be ready to respond.

A command center was established at the facilities management building, which was untouched by the tornado. All emergency calls and contractors were directed to this point. Our reliable contractors responded, as well as other disaster recovery contractors that had heard the news.

Dan was now on site, ready with a battle plan. He matched managers and foremen up with contractors and assigned us to buildings where we were to assess the damage and develop a restoration plan. The grounds and transportation departments were in full swing, pulling vehicles out of creeks and cutting away trees and debris from campus roadways. Hazardous

could overcome this. Within two weeks of the disaster, our president said, “We never doubted for a moment that we’d be able to return to our mission of providing the best education in aviation and aerospace. The best way to describe the spirit on campus is onward and upward.” He further stated that “we (ERAU) have the best facilities management team in the country.” What a morale booster for our team.

Where Are We Now?

About 95 percent of the work on the salvageable buildings is complete. The majority of roof systems have been restored. Although the enormous quantity of broken windows has now been replaced, there wasn’t enough glass in the state of Florida to meet the entire need. We are currently waiting on new skylights for the library to replace those that were damaged.

ERAU Christmas 2006 Tornado Pictures



Former Fleet Maintenance Operations Center (FMOC) Hangar. The tornado leveled the building and destroyed the three aircraft inside.



Aircraft flattened by the tornado



Maintenance Tech building WITH aircraft that caused explosion and fire.

waste companies were coordinating the removal of fuel from the damaged aircraft and other hazards from the demolished hangar.

A large number of photos were taken to document the full extent of the damage. When the insurance carrier arrived two days later, the condition of the campus had significantly improved! The insurance carrier had to view the photographs taken earlier to gain a true perspective of the damages. They deemed our facilities group to be “*the most responsive group we’ve dealt with.*” Never underestimate the power of those facilities warriors (a term of endearment penned by one of our employees, Letitia Kolb, who staffed the command center during the emergency response process.)

With the exception of the first day when everyone was dealing with the shock of seeing the campus in such a wounded state, there were smiles as people worked. Our risk manager said it best: “Buildings can be replaced. People cannot.” As long as there were no injuries or death, we knew we

Spruance Hall remains boarded up, waiting on an insurance resolution. It has been affectionately renamed the “Plywood Palace” by the students. Needless to say, we look forward to the rumble of bulldozers, indicating the demolition of the building.

The 120-plus staff members that were displaced are currently housed in four modular facilities, or have taken up residence in former dining rooms, student lounges, and other available space. It is estimated that it will be a minimum of two years until their new facility is built and ready for occupancy.

The fieldhouse was reopened *the day* of the president’s State of the University address. Paint crews were literally exiting the back of the building as the staff and faculty arrived through the front doors. The “sweet” smell of paint served to remind all of those present how far we’d actually come in the last eight months.

The aircraft maintenance operation is temporarily housed in a hangar on the Daytona Beach airport property. Plans for a new hangar are being developed.

In some ways, we are better off than before the storm. Buildings that would soon be due for repair and replacement projects were now fast-tracked, and those issues were handled due to the damage. Granted, it was inconvenient at best, but we're in good shape right now.

What We've Learned

1. We prefer hurricanes to tornados!

2. Never underestimate the power of good leadership. From the president on down, good leadership guided us through this disaster.
3. Nothing binds a group of people together like adversity—or the trip back from adversity! Through it all, we heard very few complaints. The administration set the standard for the rest of the campus. Our chancellor and his staff moved into a conference room until their modular facility was ready. There they were facing into the walls, backs to each other, no dividers, sitting on conference room chairs for weeks. No complaints. Just glad to have a roof over their heads.
4. Although you can't predict a tornado, you can predict which building systems have a lesser chance of survival. We are reviewing our standards to determine if more “storm worthy” buildings are in order.
5. Timing is everything. As mentioned in the beginning, the campus was closed. Had it been any other day, the human toll could have been enormous. Granted, we have no control over timing, but . . .
6. To that end, the campus emergency notification system has been updated. Should an emergency occur, be it another tornado or other disaster, the campus will be informed through the use of the following:
 - “Code Red Reverse 911” an opt-in system
 - Campus Siren—Federal Warning System (will include an exterior audible alert tone with voice capability for specific messages and instructions)
 - ERAU Web Page Emergency Notification Box
 - Patrol Vehicle Public Announcement Systems
 - Weather Radios throughout the campus buildings
 - Pop-Up Emergency Notification message system for computers
 - Campus E-mail System

The tornado must have had a sense of humor. Not only were we spared human casualties, but ironically:

Exactly 20 years ago, the construction workers on the Spruance Hall project spray painted “Merry Christmas” across a steel beam on the front of the building for the holidays. Twenty years later—on Christmas day—the tornado ripped the exterior facade off that portion of the building to reveal those very words. Yes, Merry Christmas, Embry-Riddle. ¶

More ERAU Christmas 2006 Tornado Pictures



“Legacy Walk” through the center of the campus looking East. The tornado followed this path. Spruance Hall is directly in its path from this point.



Sim Center – West Side.



Miller Center hallway. This was typical interior damage.



Athletic Fields—behind the Fieldhouse. These were fairly new fields.