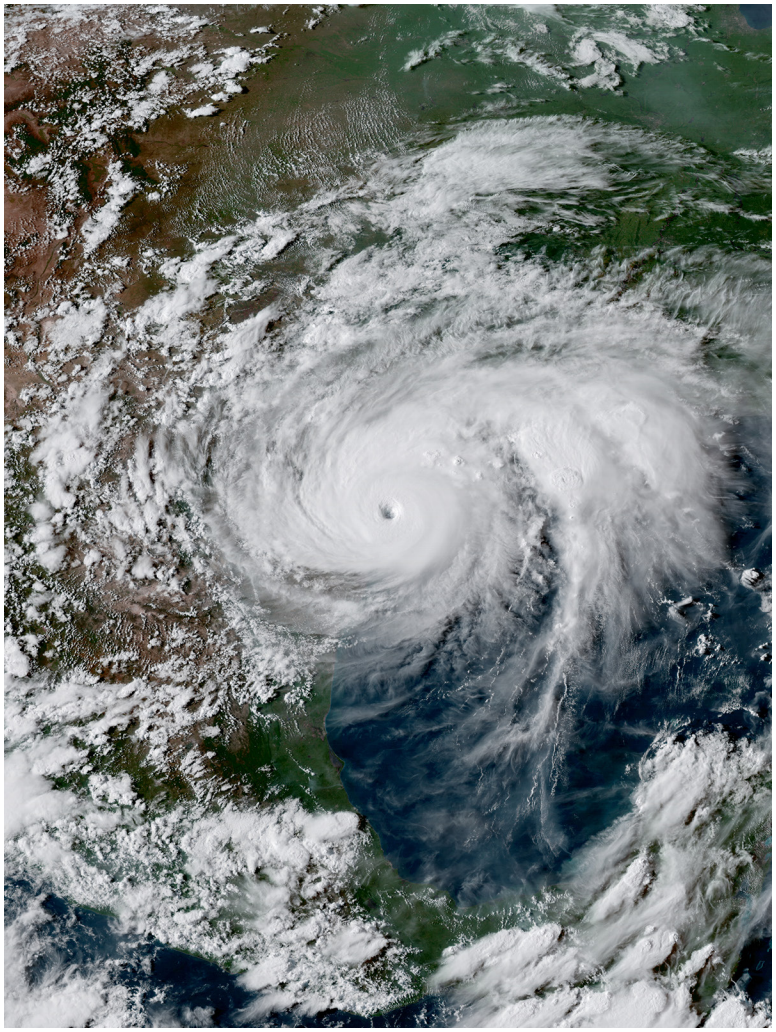
Special-Lite®

Case Study

Rockport-Fulton Middle School (Hurricane Survivor)



Hurricane Harvey makes landfall on the southeast Texas coast.

Building

Rockport-Fulton Middle School,
Aransas County ISD

Location

Rockport, Texas

Special-Lite Products

- SL-17 doors
- Aluminum Tube Framing

> "Eighteen years of student abuse and Hurricane Harvey survivors. What a great testament to Special-Lite products!"
>
> (Sam Haggard, Southwest Architectural Sales, an authorized Special-Lite manufacturer's representative)

The Storm

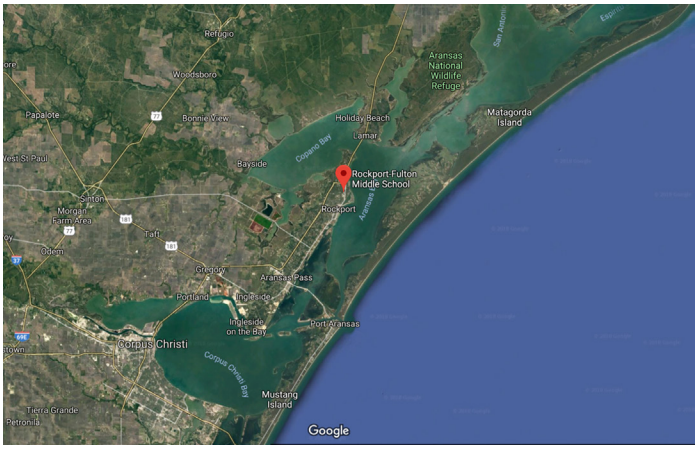
During the overnight hours of August 25th and 26th, 2017, Hurricane Harvey made landfall on the southeast Texas coast , about 30 miles (48.3 km) northeast of Corpus Christi. By this time the former tropical depression had strengthened to a category 4 storm. It packed wind speeds of 130 miles per hour (215 km/h) and an atmospheric pressure of 937 mbar (27.7 inHg).[1]

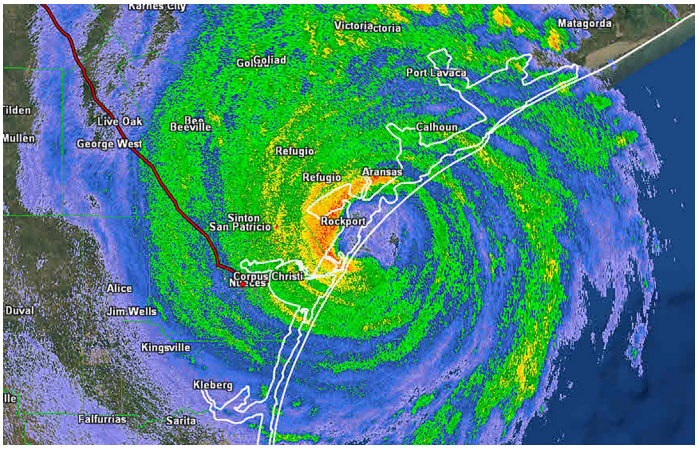
In its wake, Hurricane Harvey tied with Hurricane Katrina of 2005 as the costliest tropical cyclone on record, inflicting $125 billion in damage, primarily from catastrophic flooding in the Houston metropolitan area and Southeast Texas.[2] In a four-day period, many areas received more than 40 inches (1,000 mm) of rain as the system slowly meandered over eastern Texas and adjacent waters, causing unprecedented flooding. With peak accumulations of 60.58 in, (1,539 mm) in Nederland, Texas, Harvey was the wettest tropical cyclone on record in the United States.[3] The resulting floods inundated hundreds of thousands of homes, which displaced more than 30,000 people and prompted more than 17,000 rescues. Harvey also caused 106 confirmed deaths in the United States.

The Communities and School

Shortly after making landfall Harvey took aim on the twin communities of Rockport and Fulton. These small communities are often referred to in the singular sense of Rockport-Fulton. The towns overlook the picturesque Aransas Bay, a typically relaxing place to visit and to live. However, the slow moving and massive storm caused significant damage here.

Directly in the path of the storm was Rockport-Fulton Middle School. Primary entrances to the school are clustered on the totally exposed south side of the building. These include the main entrance, gym entrance, and music hall entrance. All three of the entrances are normally under extensive heavy traffic with a standard amount of student abuse.





Left: Location of Rockport-Fulton Middle School (©2018 Landsat);

Right: Hurricane Harvey at peak intensity striking the Rockport-Fulton area (image courtesy of the National Weather Service)

In 2000, the school was retrofitted with new entrance doors including two pairs for the main entrance, a pair for the gym entrance, and a pair for the music hall entrance. Special-Lite SL-17 doors were chosen for the retrofit. For the gym entrance and music hall entrance economical hollow metal frames were chosen. For the main entrance pairs, Special-Lite aluminum framing was used.

Today, the SL-17, with particular hardware configurations, is hurricane rated with approvals for Florida's HVHZ (High Velocity Hurricane Zone) as well as with the Texas Department of Insurance (TDI). The model had no such rating in 2000 when the doors were installed.

However, the doors continue to use identical construction. This construction begins with an extruded aluminum casing where stiles and rails are joined with mitered corners and angle blocks and secured by 3/8 in. diameter (9.5mm) full-width, galvanized steel tie rods. Resilient FRP (fiber reinforced polymer) face sheets are then added and integrated into the casing via reglets (precision grooves cut into the mating surfaces of the FRP to create a flush surface). The assembly is then filled with a poured-in-place and dense polyurethane foam core.

This construction creates an unprecedented level of flexural strength. This characteristic enables the plane of the door to flex slightly with windstorm pressure changes yet maintain a sealed and taut position, assuming proper hardware is used of course. Contrast this capability with hollow metal doors which, once bent, never return to a parallel plane. Flexural strength was precisely what was required to meet the brunt force of Hurricane Harvey.

In early 2018, Brandon Sligar of Architectural Division 8, an authorized Special-Lite product distributor, conducted a walk-through inspection of the school. While noting some cosmetic issues with the doors, common for 18 years of student use, he was told that all the doors have performed flawlessly (zero reported issues) including both before and after the hurricane. "I observed that all of the Special-Lite doors were still in great shape and fully functional," Brandon says.

The main entrance of the school features the Special-Lite SL-17 doors and Special-Lite aluminum tube framing.

SL-17 doors in hollow metal frames lead active students in and out of the gymnasium.

For the musically talented student body SL-17 doors and hollow metal frames greet them at the entrance to the music hall.

References

[1] Berg / Brennan. “Hurricane HARVEY”. National Hurricane Center. NOAA. Retrieved 14 July 2018

[2] Costliest U.S. tropical cyclones tables update (PDF) (Report). United States National Hurricane Center. January 12, 2018. Archived (PDF) from the original on January 26, 2018.

[3] Blake. “Hurricane HARVEY”. National Hurricane Center. NOAA. Retrieved 14 July 2018.

For more information or to locate the Special-Lite representative for your area, visit www.special-lite.com.

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