

Best Practice: Montgomery County post-storm home replacements stand the tests of time, weather hazards

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AUSTIN, Texas – A new life has literally been built for 54 residents of Montgomery County, Texas — residents whose mobile homes were damaged by the winds and rain of Hurricane Ike in 2008. Little did they know just how much that hurricane would change their lives.

Montgomery County, once a mostly rural area, is now one of the fastest growing in the nation. And like many such changing counties around the United States, the availability of affordable housing presents a challenge.

That didn't deter Dr. Joanne Ducharme, director of Montgomery County Community Development, from seeking a unique solution for those in need after Hurricane Ike. Once federal funding was secured through the state for a program that served low-to moderate-income residents and proposals were narrowed down for construction, she moved forward to gather applications.

"We prioritized our housing assistance for the elderly and ill," Ducharme said. "And, we needed to house them quickly and efficiently." These residents also had to own the land where their damaged structure sat.

And, there was another requirement. They had to build stronger and safer homes to better withstand or mitigate the effects of subsequent storms.



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Though Montgomery County sits about 40 miles north of downtown Houston, it's not unusual for wind and rain events that hit Houston to also pummel this largely rural area to its north. Also, the east and west forks of the San Jacinto River wind through Montgomery County, creating a watershed that exacerbates flooding.

A solution was proposed and implemented by the county to meet the challenges of time, logistics efficiency and storm mitigation.

While affected structures were being demolished and new slabs were installed on-site in Montgomery County, modular units were built to the appropriate housing code at a factory in Fort Worth, about 200 miles away.

"In this way, the house was under construction in Fort Worth while the demo and foundation work were underway on-site," Ducharme said. "Families were generally displaced from their property four to five weeks [during the process]. Most were able to stay with relatives for that amount of time but would not have been able to do so for months on end."

Because they owned their land, other arrangements could be made so individuals and families were not away long.

"We placed pods on-site to store belongings. Since we are a rural county, some were able to stay on the old property while we constructed an alternate location on their land, at a higher elevation," Ducharme explained. "The cost savings were enormous and enabled us to replace more houses." The temporary storage pods were removed after a family settled into their new home.



The two- three- or four-bedroom modular units, which arrived in two pieces from the factory, were built to withstand 120 mph winds. Additionally, they were constructed with strong, cement-infused Hardiplank fiber siding and feature a homey cottage look with a six-foot wide porch of treated wood.

Specifications called for a long list of other items to strengthen or mitigate the structures: engineered roof trusses with spacing at 24 inches on-center, i.e., wall studs installed at the center of one frame member to the center of the next; hurricane clips to reinforce roof stability in high winds, insulated doors, durable vinyl flooring, a 4/12 roof pitch—a roof that rises 4 inches in height for every 12 inches — and water shut-off valves.

“We didn’t want to replace a mobile home with another mobile home,” said Autumn Edge, senior case manager for Montgomery County Community Development. “And, we wanted to harden the housing stock ... to take the weather factor out.”

Part of that hardening or mitigation included elevations.

“Nearly every home was elevated approximately the same height, exceeding the county base flood elevation requirements by about 2 feet,” Edge said. All the modular structures were built on concrete beams except for two that were elevated 8-10 feet on wood piers in particularly flood-prone areas.

Edge said residents were able to select interior and exterior colors, carpeting and some style accents — something they had never been able to do at any time in their lives. From signing the application to completing each home, residents could



expect a wait from three to five months before moving into their new, dream-come-true homes.

Not a long wait considering the tests of time and weather the structures have been through since construction. The last one was built in 2012 and all have stood up well through “the Memorial Day 2015 flood, Hurricane Harvey and Tropical Storm Imelda,” Ducharme recounted.

Part of the mission of Montgomery County Community Development is to develop decent housing and a suitable living environment. With Dr. Ducharme at the helm that happens with the use of innovation to improve people’s lives, build hopes and strengthen the community.

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