Heavy-Duty Safe Room Provides Tornado Relief For Homeowners, Pets

Full Mitigation Best Practice Story

Oklahoma County, Oklahoma

Oklahoma City, OK– When Karen and her husband built their retirement home in 2002, they were determined to build a protective safe room equipped with the necessary amenities and materials in the event of a devastating tornado. Instead of building the room inside their home like most people, they decided to construct it 20 feet away from the house, and build it large enough for their extended family. “I believe my pets are part of my family,” Karen said, referring to her three dogs – two Airedales and a Blue Heller – and bird – a Scarlet Macaw. “I wasn’t going to run three dogs through the house. Because of weather conditions, I couldn’t see running three dogs over the carpet.”

Another reason for building a safe room beyond the confines of their new house was their refusal to alter their floor-plan design. The house was intended to be their last and they wanted it to be a certain way.

“It would have been too much structural change,” Karen said. “I didn’t want to change my basic plans of the house … the floor plan I liked. I didn’t want to modify it to accommodate everyone.”

While the main house is mostly handicapped accessible, it still would have been difficult to construct a safe room inside the house and have someone in a wheelchair enter it without requiring assistance down the stairs. The safe room has a ramp, making it easily accessible for anyone confined to a wheelchair.

“It is a retirement home for my husband and I and one of us could end up in a wheelchair someday, [whether] permanently or temporarily,” Karen said. “Based on Murphy’s Law, that’s when a tornado would hit. We just decided to have everything handicapped accessible.”

Karen and her husband based their safe room model on FEMA regulations and added a few additional measures of their own. The room is a concrete and steel structure with French drains. The concrete was poured 10 feet thick with reinforced steel throughout. The front of the cellar faces north and wings are extended on the sides and top to hold back the clay. Four feet of Earth also cover the roof of the cellar. Stucco, paint and water sealer was applied to the concrete and a metal porch was built on top of Hickory beams to prevent rain from pouring inside whenever the door was opened. No moisture is likely to leak into the cellar. Karen said she intended to build it that way because she strongly despises a “damp, musty basement.”

The project probably cost more than what it normally would have if they had built it inside their home and without all the added weather protection, but Karen was willing to make the sacrifice. She also wanted the room – measured at 10 by 12 feet – to be large enough for her, her husband and their pets. “I just wanted to take FEMA’s requirements and enhance them,” she said. “I probably have exceeded their requirements … [so] yes, there was an added expense to have it bigger. But it really didn’t add that much. It was worth it to me. That was a personal call. Everybody has to make them.”

Activity/Project Location	
Geographical Area:	**Single County in a State**
FEMA Region:	**Region VI**
State:	**Oklahoma**
County:	**Oklahoma County**
City/Community:	**Oklahoma City**

Key Activity/Project Information

Sector:	**Private**
Hazard Type:	**Tornado**
Activity/Project Type:	**Safe Rooms/Community Shelters**
Structure Type:	**Concrete, Reinforced; Safe Room/Community Shelter**
Activity/Project Start Date:	**12/2002**
Activity/Project End Date:	**Ongoing**
Funding Source:	**Homeowner**

Activity/Project Economic Analysis

Cost:	**Amount Not Available**
Non FEMA Cost:	

Activity/Project Disaster Information

Mitigation Resulted From Federal Disaster?	**Unknown**
Value Tested By Disaster?	**Unknown**
Repetitive Loss Property?	**Unknown**

Reference URLs

Reference URL 1:	**http://www.fema.gov/business/guide/section3e.shtm**
Reference URL 2:	**http://www.ok.gov/oem/**

Main Points

- Karen and her husband based their safe room model on FEMA regulations and just added a few additional measures of their own.
- The project probably cost more than what it normally would have if they had built it inside their home and without all the added weather protection, but Karen was willing to make the sacrifice.
- She also wanted the room – measured at 10 by 12 feet – to be large enough for her, her husband and their pets.

Tornado Safe Room