



Ridin' Out the Storm

BY JACKIE KAMPHAUS

NEARLY A DECADE AGO, Eric Stolfi, Butler Electric Cooperative member, his wife and three kids found themselves taking shelter from a tornado in a cold, damp, weedy culvert close to their rural slab home.

The day after the storm, Stolfi's mother sent him an article about an Arkansas business that installs underground garage safe rooms. After experiencing the frightening event the night before, he immediately knew starting a business installing safe rooms would fulfill a need for Kansas communities. After shadowing a mentor in the industry, he started his own business installing shelters: Storm Defense Shelters.

Tornadoes in Kansas

There's truly no place like home, but when home is situated in the heart of tornado alley, tornadoes are a real concern for Kansas residents. In 2017 alone, the National Weather Service (NWS) recorded 74 tornadoes in the state of Kansas, with a record 185 tornadoes reported in 2008.

Ready.gov, a national public service campaign designed to promote emergency and natural disaster preparedness, reports that winds from tornadoes can reach more than 200 mph, and damage paths can be more than 1 mile wide and 50 miles long. In Kansas, we have seen first-hand the damage tornadoes can cause in our communities.

In 2007, 95 percent of Greensburg was leveled by the first tornado to be rated EF5 on the new Enhanced Fujita Scale. The 1¾ mile-wide tornado reached windspeeds of up to 205 mph. And on April 26, 1991, 50 tornadoes were reported, including a devastating tornado that touched down south of Clearwater and traveled 46 miles across Sedgwick and Butler counties before dissipating near El Dorado Lake. The tornado topped out at F5 on the original Fujita scale, taking the lives of 17 people, injuring 225 and causing \$300 million in damage.

Media reports from across the country documented Greensburg survivors' stories, many of whom recalled having to escape their shelters after the storm passed by clawing through piles of debris, only to discover nothing—their home, their town—everything was destroyed, left in rubble.

Taking Shelter

With potential wind speeds of more than 200 mph, where is the safest place to be? When planning ahead with your family to determine where to shelter in place when the sirens sound, include the places you spend the most time—your home, work, school, church, etc. Discuss how to choose a location at the lowest level of the structure and find a small, interior room without windows.

Once you have found protection, kneel into a ball and cover your head with your arms and when possible cover yourself with a blanket, coat, cushions or sleeping bag to avoid injury from debris. Stress that if you are outside or unable to find an enclosed shelter, it's imperative to locate the lowest area nearby, such as a ditch or ravine.

Despite the early 1990s video showing a TV news crew and others seeking refuge under a highway overpass for protection from a weak tornado, these are dangerous places to be. Mythbusters.com reports that the structure can actually concentrate the winds in the confined space, increasing the chances of being struck by debris and getting swept away by powerful winds.

Do You Need a Safe Room?

Taking shelter in a basement or interior room is standard practice, but when a tornado strikes, is that really the best practice? Like in Greensburg, a devastating storm can wreak havoc on the spaces we commonly seek for safety.

Most buildings will be destroyed if hit directly by an EF3, EF4 or EF5 tornado, and can sustain significant damage from a lower level tornado, according to Ready.gov.

Safe rooms designed and installed to Federal Emergency Management Agency (FEMA) guidelines provide “near-absolute protection for you and your family or employees from injury or death caused by the dangerous forces of extreme wind.”

People install safe rooms for a variety of reasons. To evaluate the need for a safe room in your home, FEMA recommends homeowners consider the level of risk of tornadoes in your area, your existing shelter options, the level of safety you are comfortable with, and if you have the funds and a location available to construct a safe home.

FEMA divided the United States into four zones (zone I through IV) to reflect the number and strength of recorded extreme windstorms, based on data collected from 60 years of tornado history and more than 150 years of hurricane history. Kansas is located in wind zone III and IV—the majority of western Kansas is in zone III while most of central and eastern Kansas is in zone IV.

FEMA reports that zone III has experienced significant tornado activity and zone IV has experienced some of the strongest tornado activity recorded, so the risk of experiencing a damaging storm is high in our home state.

Like Stolfi, many install safe rooms after evalu-



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ating their existing options for shelter and seeing the need for an option with increased protection or to fill a void of protection in their current residence.

Tim Marshall, who evaluates wind damage to structures as meteorologist principal engineer with Haag Engineering in Texas, says that more people are opting for safe rooms and more companies are building them. He stresses it's critical to pick the right one.

"Safe rooms are like pizza," Marshall said. "There's thin crust, medium and deep dish."

Marshall suggests those considering a safe room make sure it meets the National Storm Shelter Association standards and ICC-500 code. "For example, you'd want a solid steel door, not a hollow one. The door must be anchored with three, formidable hinges as well as three locks," he said.

Nick Williams, Flint Hills RECA member, recently had Stolfi and his crew install an outdoor underground concrete slope front safe room. "My wife is from California. She didn't grow up with tornadoes, so they really make her nervous," Williams said "Our home doesn't have a basement, so we looked at a few different options, and we decided this model offered what we needed."

Others choose to install a safe room on the main level of their residence to accommodate their health or physical abilities. "I've put in a lot of shelters for people who can finally afford a shelter," Stolfi said. They've been living with tornadoes their whole life, but they are 70 and want to preserve their life for as long as they can."

Depending on your space, you could install a basement safe room, safe room on the main level of your home (such as an above or below ground garage unit), or an above or below ground outdoor shelter. If you decide a safe room is right for your home, a good place to start your research is FEMA's "Taking Shelter from the Storm: Building a Safe Room for Your Home or Small Business" or contact a retailer in your area.



Eric Stolfi and Jesse Kutleck install a storm shelter for Flint Hills Electric Cooperative member Nick Williams.

Be Prepared Year-Round

While tornadoes can strike in any season, the NWS reports that they are most prevalent in the spring and summer months, especially in May and June. The NWS cautions, however, that there is a "secondary minor peak in tornado activity between October and November, when the onset of winter battles with the relatively mild fall air mass still in place across the region." A 2016 ustornadoes.com report notes that Kansas averages 13.2 tornadoes in April, 37.4 tornadoes in May and 19.6 tornadoes in June. October and November average 2.6 and 1.6 tornadoes, respectively.

Some research has shown that we could have a more active severe weather season, but there are many factors that make predicting the upcoming weather season difficult.

"Our ability to predict storm seasons in advance is very low," Andy Kleinsasser, Wichita NWS forecaster, said. "We are coming out of La Nina, which could indicate a more active severe weather season in the central and southern plains, but there have also been La Nina years where the tornado season has been less active," he added. "We've also been incredibly dry. You need the rich moisture from the Gulf of Mexico to build thunderstorms, and because it's been so dry, the ground tends to steal that moisture, so there's not enough moisture in the air for a thunderstorm."

Tornadoes can happen any time, and it's important to be prepared. "As we approach storm season, we always tell people to have a plan so they're not caught off guard when those tornado warnings are issued," Kleinsasser encouraged. **KCL**

KANSAS-BASED STORM SHELTER PROVIDERS

- ▶ Mauzey Construction, Arkansas City, mauzeyconstruction.com
- ▶ Protection Shelters, Wichita, protectionshelters.com
- ▶ Storm Defense Shelters, Benton, www.stormdefenseshelters.com