



SHELTERING FROM

SEVERE WEATHER THREATS

Safe Zones, Safe Rooms & Freestanding Storm Shelters

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THE THREAT OF TORNADES IS VERY REAL FOR MANY PEOPLE IN THE UNITED STATES. HOWEVER, THERE ARE THINGS YOU CAN DO TO PROTECT YOUR FAMILY FROM SEVERE STORMS.

Oklahoma residents are still picking up the pieces from the deadly tornado that struck Oklahoma City in May 2013, causing 20 fatalities. At 2.6 miles, the EF5 tornado was the widest ever recorded.

As of July, there were 43 tornado-related fatalities in the US during 2013. In 2012, 62 fatalities were linked to tornadoes. The year 2011 was particularly deadly for tornadoes with April 25-28 producing 358 tornadoes stretching from Texas all the way up into southern Canada. Alabama – and especially Tuscaloosa – witnessed much of the destruction. During that three-day period, 348 people were killed and damages totaled nearly \$11 billion.

A month later, Joplin, Mo. experienced the deadliest single tornado since 1947. The tornado leveled the town, killing 158

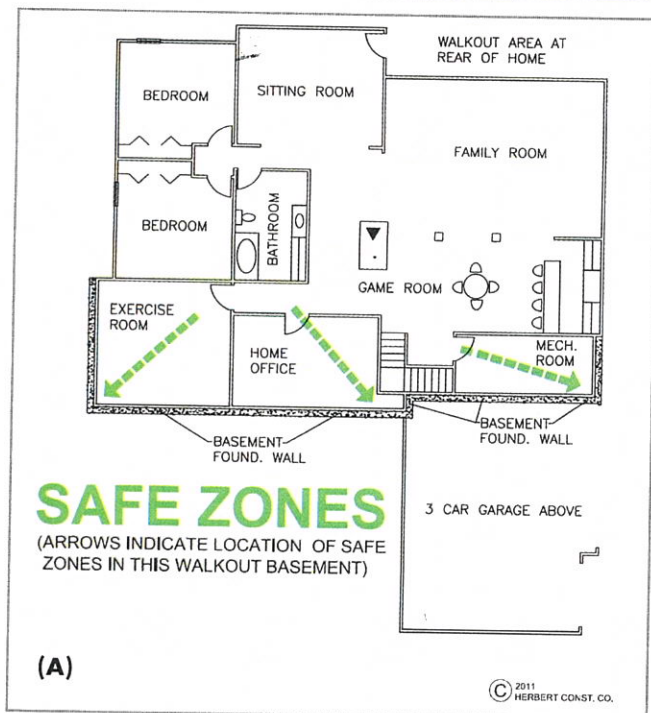
people, injuring 1,150, and causing close to \$2.2 billion worth of damages. It ranks as the costliest single tornado in U.S. history.

Tornado alley isn't the only place to witness deadly tornadoes. In fact, tornadoes have occurred in all 50 states. Surprisingly, tornadoes are more common in Florida than Oklahoma, though they tend to be weaker.

SAFE ZONES IN BASEMENTS

For homes that have basement foundations, there are built-in “safe zones” that a family can move into in case of a severe thunderstorm or tornado warning. These are locations where tall concrete walls create a corner in the basement.

The arrows in the illustration show the natural safe zones in a walkout basement foundation. (See Illustration A.) These are the areas where you and your family are the safest during a tornado or severe thunderstorm. The goal should be to get as far away from exterior walls and windows as possible, since this is where shattered glass and flying debris will come from.



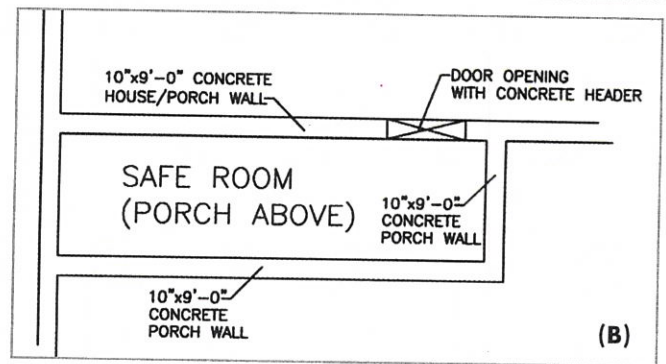
SAFE ROOMS IN BASEMENTS

Most people don't realize that a safe room can be constructed for a very reasonable cost at the same time as a new basement foundation. A safe room is a four-sided concrete room integrated into a basement wall that has a concrete top, or ceiling. Underneath the front porch is a popular location. (See Illustration B.) This type of safe room becomes a fireproof and disaster-proof room.

Multipurpose safe rooms can be used for many things, including a refuge during a home invasion. A few examples include:

- Cigar room (humidor)
- Food storage room
- Gun display room
- Panic room for refuge
- Wine tasting and storage cellar

Safe Rooms can store your family's valuables, such as important paper documents, antiques, jewelry, photographs, guns and ammunition and computer backups. Keep in mind that basements have the risk of a water pipe in your home leaking or bursting - causing flooding - than you do of getting a direct hit from a tornado. For this reason, you should always elevate storage for valuables at least 4" above the floor in your safe room. Depending on your use of the space, you can store items in large, inexpensive plastic containers. These work well for protecting valuables and don't have to be elevated from the floor. Larger items can be raised off the floor with wood blocks, pedestals, or even concrete blocks. Gun safes or document safes should be raised up on blocking and bolted to the vertical concrete wall behind the safe for added security and safety.



SAFE ROOMS FOR SLAB-ON-GRADE FOUNDATIONS

Homes built on a slab-on-grade foundation don't have the luxury of a basement for safety. However, a four-sided room with concrete walls and a concrete top can be constructed on the concrete slab to serve as a safe room above-grade. It is constructed immediately after the concrete slab, before framing begins. The rest of the wood framed house is then constructed around the concrete structure. Integrating a safe room into the walk-in closet of the master bedroom works well. (See Illustration C.) The interior of the closet is framed and finished as if the concrete walls weren't there. If a wood framed home is demolished by a direct hit from a tornado, a safe room such as this will be left standing with its occupants safe and sound. This type of safe room can also double as a panic room for a home invasion threat.

FREESTANDING TORNADO SHELTERS

For families happy with their existing home who want better protection from severe storms, detached tornado shelters are becoming increasingly popular. These concrete structures can be constructed near an existing home, close enough for a family to retreat to in case of a tornado warning. They are often built into the side of a hill or buried underground.

DOOR SELECTION

For safe rooms in basements and on slab-on-grade foundations, the door selection is important. There are many options available, from simple, hollow core wood doors, all the way up to actual safe doors that are similar to those used by banks. The most secure doors have their jambs cast into the concrete wall during the wall construction. Some people prefer to conceal their safe room with a hidden door built into a bookcase. The biggest challenge in choosing the right door is balancing security with aesthetics.

CONCRETE HOMES

A concrete home provides the ultimate shelter from storms. When the above-grade walls are constructed with concrete, your entire home becomes a safe room. From the inside and outside, a concrete home can look just like any other home in a neighborhood. The significant benefits of an above-grade concrete home include reduced heating and cooling costs, mildew resistance, improved indoor air quality,

