



protecting
life with
concrete
saferooms

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HOW to ensure that your safe room doubles as a functional area that is used daily.

WHAT factors will determine the cost of building a safe room?

HOW to best construct the safe room appropriate for your needs.



Alabama Concrete
Industries Association
334.265.0501
www.alconcrete.org



CONCRETE PLANS

Concrete Masonry Units (CMU)
or Insulated Concrete Forms (ICF)

FEMA recognizes both the ICF and the CMU types of construction as suitable for building safe rooms in Taking Shelter From the Storm. It provides typical plans for a minimum 8'x8' room using both types of construction.

You will find that both the CMU and ICF, when properly installed, provide features of strength and durability that are important when designing and building a safe room. Your choice as to which method of construction to use will more likely come down to the familiarity of your builder and his/her subcontractors with either the CMU or ICF.

If your builder is not familiar with using the concrete forms or the concrete masonry, you can depend on the Alabama Concrete Industries Association to provide the information needed to make the appropriate choice.



EVERYDAY USES

For Concrete Safe Rooms

Your safe room can be built to a minimal square foot design for use only in the event of a bad storm or tornado. Or, it can be built to fit your personal need with modest adjustments for a heavy door and windowless construction. Larger-sized, custom designed rooms can be built to accommodate:

- Bathrooms
- Master bedroom closets
- Entertainment rooms
- Laundry rooms

The safe room definitely does not have to be a damp hole in the ground that you leave the safety of your home to research during a storm. Nor does it have to be a room within your home used only for storm emergencies. The options for creativity are limitless. Naturally, the amount of customization and the size of the project will be factors in determining the construction budget.



safe rooms

save lives



FUJITA SCALE

Tornado Category/Typical Damage

F0 Light: Chimneys are damaged, tree branches are broken, shallow-rooted trees are toppled.

F1 Moderate: Roof surfaces are peeled off, windows are broken, some tree trunks are snapped, unanchored mobile homes are overturned, attached garages may be destroyed.

F2 Considerable: Roof structures are damaged, mobile homes are destroyed, debris becomes airborne (missiles are generated), large trees are snapped or uprooted.

F3 Severe: Roofs and some walls are torn from structures, some small buildings are destroyed, non-reinforced masonry buildings are destroyed, most trees in forest are uprooted.

F4 Devastating: Well-constructed houses are destroyed, some structures are lifted from foundations and blown some distance, cars are blown some distance, large debris becomes airborne.

F5 Incredible: Strong frame houses are lifted from foundations, reinforced concrete structures are damaged, automobile-sized missiles become airborne, trees are completely debarked.

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Concrete Masonry Units (CMU)
or Insulated Concrete Forms (ICF)

Construction of a concrete safe room is dependent on many variables to include:

- the type of foundation on which your home is built.
- your location within the United States (because of regional variations in labor and material costs.)
- whether you are building a safe room into a new home or retrofitting an existing home.

The table below shows the average costs for building two types of safe rooms (above-ground [AG] and in-ground [IG]) in new homes on basement, slab-on-grade, and crawlspace foundations according to the design plans in the FEMA “Taking Shelter From the Storm”. These costs are for safe rooms with a floor area of 8 feet by 8 feet and 14 feet by 14 feet.

Average costs for both 8-foot by 8-foot and 14-foot by 14-foot safe rooms in new homes or buildings.

Size	Safe Room Type ^{1,2,3,4}	Average Cost ^{1,3,4}
8-foot x 8-foot x 8-foot Safe Rooms	Concrete Masonry Units (CMU) Walls	\$8,200
	Concrete Walls	\$8,100
	Insulating Concrete Form	\$8,300
	Reinforced Concrete Box (2)	\$7,000
14-foot x 14-foot x 8-foot Safe Rooms	CMU Walls	\$13,500
	Concrete Walls	\$13,100
	Insulated Concrete Form	\$13,400

1. All safe room types shown in this table are above-ground (AG) types for slab-on-grade foundations. Safe rooms constructed in basements or on crawlspaces will differ slightly in price based on the foundations used.

2. Below-ground safe rooms were estimated for a 5-foot by 5-foot by 8-foot (deep) safe room. The cost included a cast-in-place footing and safe room top, but the safe room walls were a pre-cast unit. The costs for these types of safe rooms are very dependent on site - specific soil conditions and the build materials used.

3. See drawings in the FEMA Staking Shelter From the Storm for specific materials used, sizes, and other values needed for estimating purposes.

4. Costs provided are only costs estimates.

The costs of retrofitting an existing homes to add a safe room will vary with the size of the home and its construction type. In general, safe room costs for existing homes will be approximately twenty percent higher that those shown in the table above.

Disclaimer: Information in this brochure is to aid you in your research of constructing a future safe room. Information has been pulled from FEMA 320 and the ACIA nor its member firms warrant any of this literature. If you plan to build a safe room at your residence or business, you are advised to consult with qualified contractors or engineers.

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