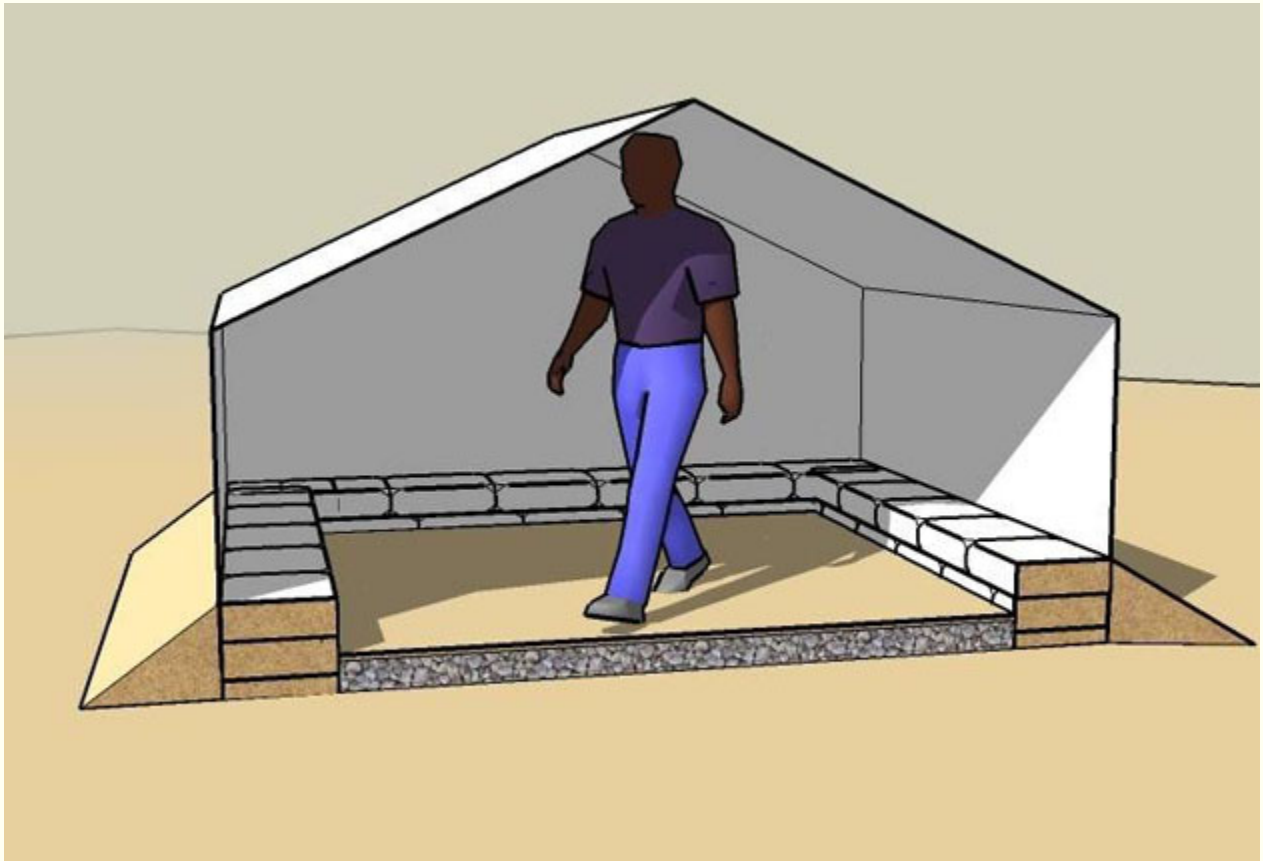
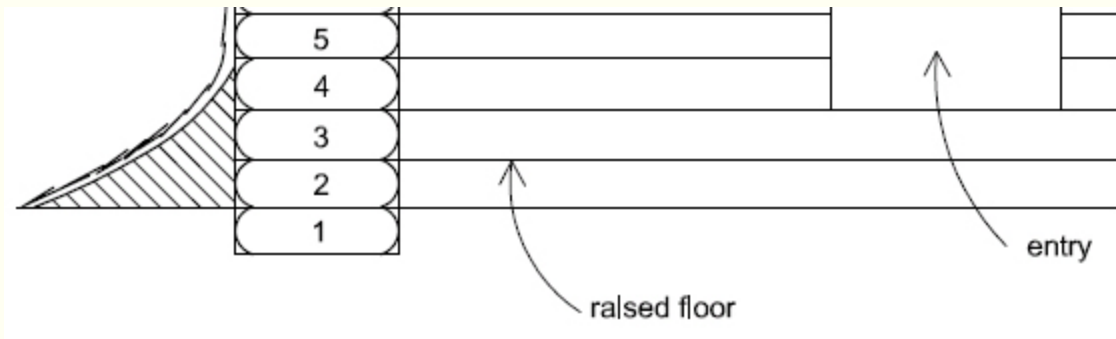


Raised Floors for Shelters

It's standard building practice to raise shelter floors about 6" above existing grade, or even higher in flood-prone areas, to prevent water from entering the structure. Earthbags make this simpler and also can keep wind-driven rain out of shelters, brace walls against storm winds, and provide raised seating or beds that will stay dry.

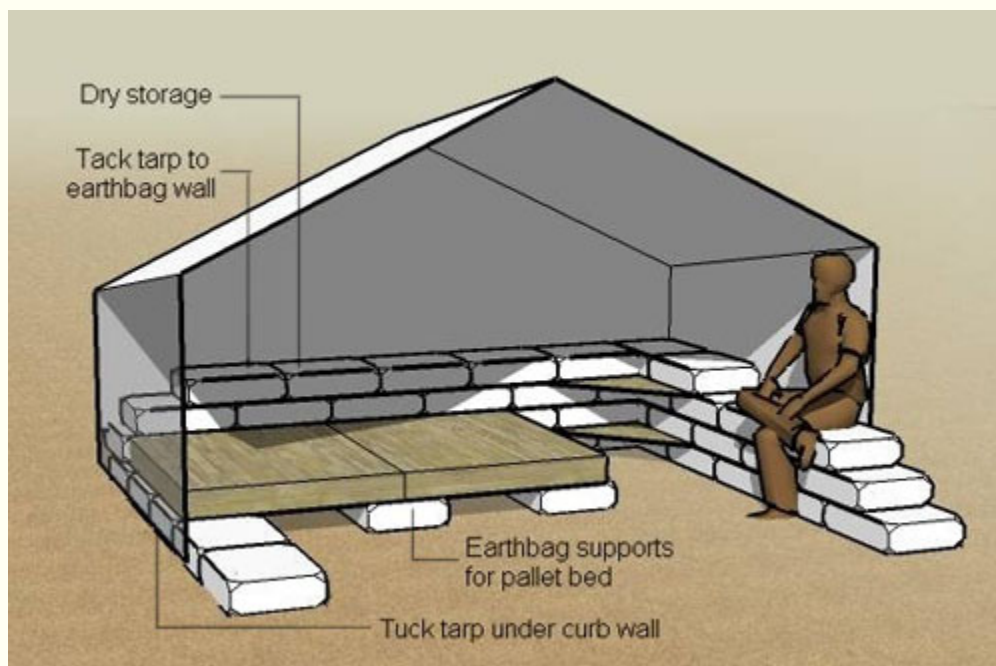


The drawing below shows the location of a raised floor for an emergency shelter. There are two continuous courses of earthbags below the door threshold for strength. The floor could be flush with the threshold. In this case the floor is about 6" above grade to save labor. The floor is built up with a layer of crushed rubble, gravel, sand or a combination of these materials to prevent wicking of moisture. This base layer of aggregates can be capped with tamped earth, soil cement or concrete to create the finished floor. One option is to add the finished floor later.



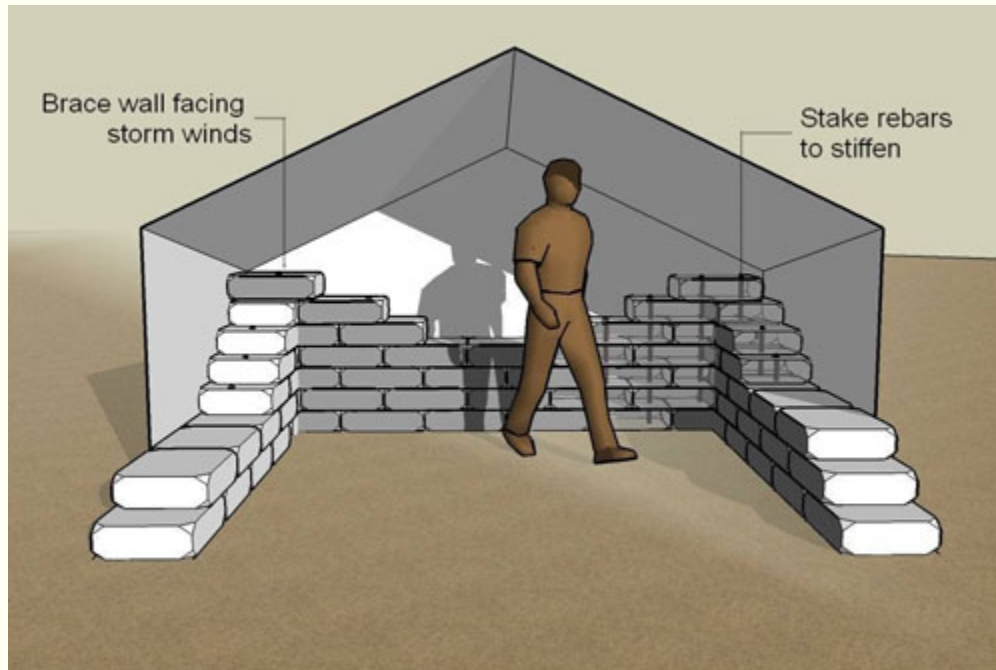
Miscellaneous details: Note how the first course of earthbags is set in a trench to help lock walls in place to resist sideways movement in the event of seismic shocks or strong flood currents. Also note how earth is bermed against walls to improve drainage.

When separate tarps are used for shelter instead of a pre-fabricated tent, it is very hard to keep rain from blowing in. A curb wall of earthbag can help to anchor tarp ends as well as keep storm runoff from entering under the ends of tarps.



It may be critical to have dry clothing or blankets during a rainy season to keep the elderly and young children healthy. Earthbags can be used to form beds or seats or to act as supports for platforms made of discarded wooden pallets.

Earthbags can also be used to reinforce light weight shelters to withstand hurricanes. If rebar is available, they can be ramped up to brace corner supports on the wall or walls that will be subjected to the most wind. Bedding for the most frail family members can be placed next to the earthbag bracing if it is built strongly.



Earthbags can be stacked up to 42" (a little more than a meter) without the need for a ring beam or bond beam to unite them. For this height of bracing 1/2" diameter (12 mm) rebar should be hammered into each bag, extending all the way to the bottom course. Individual bags must have their joints well overlapped. Barbed wire must also be used between each layer to be stable in an area subject to earthquakes. The corners must be interwoven, and straight walls should not extend more than 9' (2.7 m) without a corner or an interwoven platform to half the height, or a buttress to brace it. Any earthbag is more stable if keyed into the existing ground level as shown in the detail above.

Source : <http://www.earthbagstructures.com/articles/tentfloor.htm>