

# How To Use Sandbags For Survival

*Sandbags, sand, polyethylene sheeting and tools to fill and tamp sandbags are good to have on hand in case of emergency.*

They enable you to adapt to change by constructing a flood barrier, erecting some ballistic cover, a windbreak or even build an expedient [fallout shelter](#). Sometimes sandbags even get used to provide ballistic protection to vehicles or to provide traction to rear-wheel drive vehicles in foul weather. If the vehicle gets stuck, sandbags can be removed and placed on the road surface to provide traction.

Because sandbags are inexpensive and don't take up much room empty, so they are easy to cache onsite at a bugout location or recreational property. If you end up living in a tent for a while, a windbreak constructed of sandbags can keep blown snow from building up and caving it in.

Projects constructed with sandbags are generally for short term use because modern sandbags are made of polypropylene and sunlight causes them to start falling apart within a couple of years. However, for projects where a more durable, longer-life building material is needed, mix ten parts sand or soil with one-part cement. If burlap sandbags are used, the cement/sand mixture can be mixed and placed dry and then sprinkled lightly with water. Sandbag structures can also be painted with cement slurry to protect them against UV light, rot and abrasion.

Another option is to sheathe sandbag construction to reinforce it and protect it from direct sunlight and abrasion which eventually compromise sandbags, allowing sand to spill out. Concrete-impregnated fabrics are another option that enables a rapidly constructed flood barrier, fighting position or shelter to be reinforced very quickly. The concrete-

impregnated fabric is wetted and then dries solid, containing the sandbags and enabling them to withstand considerable punishment.

When the pioneers arrived out West, the first permanent shelters they built were often dugouts. Concrete sandbags can be used like masonry to construct a solid dugout shelter that makes use of passive solar design features to keep itself warm in winter and cool in summer, in much the same way that earthbag homes are constructed. Most of the building material can typically be gathered from the building site or nearby, cutting both cost and environmental impact. And the structure stops bullets, so that's a plus!

## **Filling Sandbags**

Most of my sandbag and flood prevention training has come from FEMA through the CERT program, so that's where this is coming from if you'd like to follow up or receive hands-on training. Filling sandbags is an operation best carried out by two or three people. While filling sandbags is a straightforward process, large numbers of are typically needed, so the process must proceed both quickly and efficiently.

The equipment required to construct a barrier is sand, sandbags, a shovel, poly sheeting and any PPE (Personal Protective Equipment) worn, such as work gloves, work boots, eye protection and hard hats. If you have a tamping bar, it can help tamp sandbags in place. If you have access to a couple of pickups, ladder, a knife and some old traffic cones, you can construct funnels, which can speed the process considerably.

Lay the ladder horizontally, supported by the tailgates of the two trucks. Cut off the traffic cones about halfway up, turn them upside down and place them in the ladder to create a row of supported funnels. An improvised sandbag filler will make sure that the sand goes in the bags instead of on the ground.

Many counties and cities have automated sandbag filling machines, bag holding racks and large funnels that mount on the backs of vehicles that speed the process greatly and save labor, but these are a luxury that the typical survivalist is unlikely to have.

Ideally, the fill for sandbags should be clean, washed sand. If good sand is unavailable, gravel or soil can be used in a pinch, but they will diminish effectiveness somewhat.

To fill sandbags, one person should hold the sandbag open on the ground, while a second individual deposits sand into the sandbag. Where most sandbagging efforts go wrong is that they overfill sandbags. For sandbags to create an effective barrier, they must be between  $\frac{1}{2}$  and  $\frac{2}{3}$  full. If they are filled beyond  $\frac{2}{3}$ 's, they will compromise the integrity of the barrier. A third party stacks the filled sandbags.

The sandbags do not need to be tied, in fact, they'll form a tighter seal when stacked in a barrier if they are not. Nevertheless, they can be tied if the sandbags are going to be transported or stored for some reason.

# Body Mechanics & Safety



- A sandbag weighs 30-40Lbs so lift with your knees, not your back
- Keep your elbows close to your sides when filing sandbags
- Wear gloves to prevent your hands from blistering or getting worn raw
- Move sandbags by forming a passing line
- When using a passing line to construct a barrier on an incline, place taller personnel at the end farthest from the barrier

## Passing Line

Arrange the people in the passing line so that they are staggered and facing each other to reduce physical exertion. To form a passing line, have your team form a line, then count down the line, "One, two, one, two ..." until you reach the end. Have the "one's" take a step back and then have the

“two’s” turn and face the “one’s.” Your staggered passing line is formed.

## **Constructing a Sandbag Flood Barrier**

1. Determine placement of the barrier.
2. Remove any debris or objects from the area where the barrier will be built. If necessary, also trim back brush or branches to prevent injury while constructing the barrier.
3. Dig a trench two sandbags wide and 4"-6" deep where the sandbags will be placed.
4. Lay poly sheeting flat in the trench with the long tail of the sheeting in the direction of the water.
5. Lay a row of sandbags over the poly sheeting to hold it in place.
  1. Sandbags must be laid both lengthwise and parallel to the direction of flow of the water.
  2. Sandbags must overlap each other, once again paralleling the flow of the water.
  3. The filled part of each sandbag should be laid atop the unfilled part of the bag that preceded it.
6. Lay a second row of sandbags perpendicular to the first layer, staggered like brickwork, to eliminate gaps. Successive rows of sandbags should be laid over the seams of the sandbags beneath them.
7. Fold the poly sheeting back over the row of sandbags anchoring it and anchor it again with another row.
8. Fold the poly sheeting back over the second row of sandbags anchoring it and out of the way so you can build them barrier.
9. Lay additional layer of sandbags with the openings in alternating directions. Offset each row of sandbags by one half bag length.

10. Stack the sandbags in a pyramidal wall in a 3-to-1 ratio of width to height which provides optimal structural integrity.
11. Once each sandbag is placed, tamp it in place to eliminate gaps and to form a tight seal against other sandbags. If you don't have a tamping bar, this can be accomplished by walking back and forth on the sandbag and the ends of the sandbags it butts up against. Remember to stagger the sandbags and to tuck bag ends underneath the next bag.
12. Once the barrier has achieved the needed height, fold the poly sheeting back over the top of the barrier and anchor it with a row of sandbags.

The pyramidal structure of the resulting flood barrier can contain fast-moving water and water carrying debris. A sandbag/poly barrier will not keep 100% of the water out, but leakage is often manageable with some pumping.

Sandbags should not be placed on top of manhole covers. Instead, ring manhole covers with sandbags and allow the water to seek its own height.

Sand boils should be only partially ringed to reduce the flow of water and movement of soil. Do not attempt to dam the flow of water from a sand boil.