



# Actions for Flood Resilient Homes: Sandbags

Under severe flood conditions, it may be necessary to build a sandbag dike to protect your home from water damage. Sandbags that are properly filled and placed can successfully divert water—moving it around buildings rather than allowing it to flow through them. The information below outlines the materials and steps necessary to build a sandbag dike.

## City-provided sandbags

Public Works delivers sand bags to residents when requested and will leave sand bag pallets at the end of the property driveway. Requests are typically fulfilled within 24 hours. Residents must place the sand bags themselves—Public Works staff does not place sandbags.

When sandbags are no longer needed, residents may keep the sandbags or place them back on the pallet and call Public Works for pickup.

## How to make a request

- During regular business hours, requests can be made by calling in to the Public Works utility line (952-826-0375).
- On weekends, requests can be made by calling in to the non-emergency police (952-826-1600) to get routed to the on-call person.
- Leave name, address, and the quantity of sandbags desired. If you're unsure, describe the size of the area and Public Works can help determine how many are needed.

✓ Before flood action	✗ During flood action	✗ After flood action
<h3>Sandbag materials</h3> <p>Sandbags themselves are generally made of treated burlap or woven polypropylene and measure approximately 24 inches by 14 inches. A sandy soil is best for filling sandbags, but other available materials (silt, clay, gravels, or a mixture) may be used. Sandbags can be found online and in hardware stores. The City does not endorse any specific company but some local sources of sand or gravel include:</p> <ul style="list-style-type: none"> <li>• Bjorklund &amp; Companies, 763-444-9301</li> <li>• Hedberg Supply, Landscape &amp; Masonry, 763-545-4400</li> <li>• Marshall Concrete Products, 612-789-4303</li> <li>• Plaisted Companies, 763-441-1100</li> </ul> <h3>Filling a sandbag</h3> <p>Filling and deploying sandbags is usually a three-person job: one person to hold the bag open, one person to shovel sand, and a third person to position the bag. The use of gloves is advised, as well as safety goggles.</p> <p>Bags should be filled about one-half to two-thirds full and will weigh approximately 35–40 pounds. Untied bags are recommended for most applications.</p>	<h3>Placing sandbags</h3> <p>Remove any debris from the area before placing sandbags. To avoid placing stress on walls, you should leave at least 8 feet between the dike and the building you want to protect.</p> <p>Place the first layer of bags lengthwise, parallel to the direction of the water flow. The bags should be “lapped” so that the filled portion of one bag lies on the unfilled portion of the next. The untied end should be facing downstream. Similar to brick laying, offset adjacent rows or layers by one-half bag length to eliminate continuous joints. To form a tight seal, walk on the bags as they are placed and continue walking on them as succeeding layers are added. Because bags may remain untied, make certain to fold under all loose ends.</p>  <p><small>image: <a href="https://www.disaster.qld.gov.au/dmp/sandbagging/Pages/default.aspx">https://www.disaster.qld.gov.au/dmp/sandbagging/Pages/default.aspx</a></small></p>	<p><b>COST: VARIES<sup>1</sup></b></p> <ul style="list-style-type: none"> <li>✓ Reduces exposure</li> <li>✗ Reduces vulnerability</li> </ul>

For more information on flood resilience, contact the Engineering Department at 952-826-0371.

<sup>1</sup>Costs vary depending on the size of the area to be protected.



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## Other considerations

- Sandbags can become contaminated with bacteria and other pathogens from polluted flood waters. The sand from these bags should never be used in children's sandboxes.
- Full sandbags may be stored for short periods of time and reused for same-season flood fighting. However, prolonged storage can lead to mold. According to the Minnesota Pollution Control Agency, the safest place to dispose of full sandbags is a sanitary landfill. Sandbags may also be disposed in a demolition landfill. Be aware, however, that not all landfills will accept sandbags, so call first.
- Even when properly installed, water can leak and rain may fall inside the barrier. Be prepared with a pump to remove water from inside the barrier.

## How high and how wide should my dike be?

The U.S. Army Corps of Engineers recommends that your dike should have a base three times wider than its height, although a ratio of 2:1 is also commonly recommended. A triangular pyramid shape should be used for a dike that is higher than 1 foot. For heights less than a foot, support the wall of sandbags every 5 feet with clusters of bags; this will stabilize the structure.

## How many bags will I need?

The North Dakota State Extension Service offers the following estimates for the number of sandbags needed per 100 linear feet of dike.

Dike Height	3:1 base to height	2:1 base to height
2 foot	2,100 bags	1,700 bags
3 foot	4,500 bags	3,000 bags
4 foot	7,800 bags	5,500 bags
5 foot	12,000 bags	9,000 bags

## Sealing the dike

To improve water tightness, your finished dike should be sealed with a sheet of plastic at least 6 mils thick. First, spread a loose layer of soil or sand about 1 inch deep and 1 foot wide along the bottom of the dike on the water side. Then, lay the plastic sheeting so the upper edge extends over the top of the dike and the bottom extends 1 foot beyond the bottom of the dike (over the layer of soil and sand). Be careful not to stretch the plastic too tight; this could lead to puncturing. Finally, put a row of sandbags on the bottom and top edges of the plastic to form a watertight seal and hold it in place. Be careful to avoid puncturing the plastic by walking on it.

## Sandbag alternatives

Alternatives to sandbags include "sandless" sandbags and Hydrabarriers, which can be purchased online or at some hardware stores. The sandless bags are made of an absorbent polymer that swells on contact with water—basically self-inflating the bags to form a water barrier. The Hydrabarrier is a tube (available in different sizes) that you fill with water to form a barrier. The advantage of these systems is that they are lighter weight, reusable, and do not pose a disposal problem. The disadvantage is that these systems can be expensive to purchase.

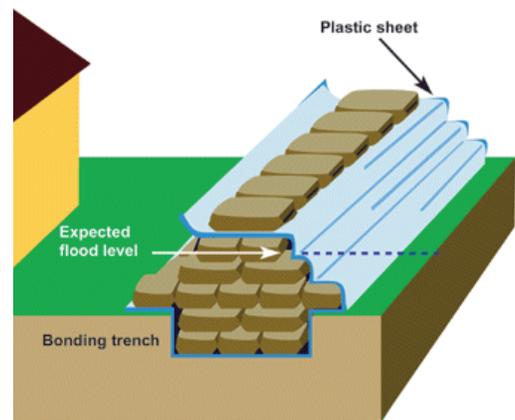


image: <http://goldenlake.co/>

