



# Actions for Flood Resilient Homes: Pumping Guidance

If dry floodproofing methods fail during a large storm or you've chosen wet floodproofing, you may end up with a significant amount of water in your basement. Though your impulse may be to remove the water as soon as possible, it's important to remember that moving too quickly may cause structural damage to your home. Even though flood waters may have receded, there is still water in the ground that may be exerting force against your basement walls. If that force is greater than the force of water inside your basement, the foundation, basement walls, or floors may rupture or crack.



✗ Before flood action

✗ During flood action

✓ After flood action

## Pumping procedure—when and how much to pump

If you need to pump water out of your basement or house, the Federal Emergency Management Agency (FEMA) recommends taking the following steps to avoid serious damage to your home.

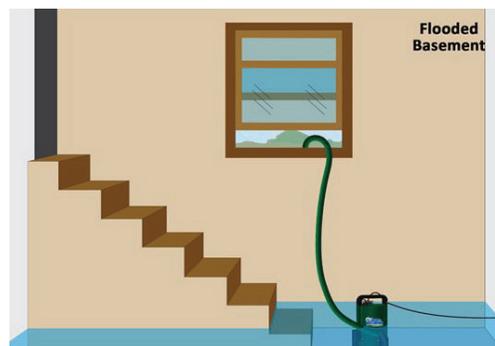
1. Begin pumping only when floodwaters are no longer covering the ground outside.
2. Pump out 1 foot of water; mark the water level, and wait overnight.
3. Check the water level the next day. If the level rose to the previous mark, it is still too early to drain the basement.
4. Wait 24 hours, pump the water down 1 foot, and mark the water level. Check the level the next day.
5. When the water level stops returning to your mark, pump out 2 to 3 feet and wait overnight. Repeat this process daily until all of the water is out of the basement.

### Safety first!

Remember that water conducts electricity. Before walking into a flooded basement make certain the power is turned off and wear heavy rubber boots and rubber gloves that do not leak.

#### **COST:VARIES<sup>1</sup>**

- ✗ Reduces exposure
- ✗ Reduces vulnerability



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

<sup>1</sup>Costs rely on a number of factors—including the amount of water and whether you choose to do the pumping yourself. You can contract with a water-removal service, but you may have to wait several days for assistance.



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## Other considerations

- A second pump should be considered to provide increased capacity and act as a backup.
- Strainers should be used to protect pumps from large debris.
- Use clean, fresh fuel in your pump or generator and make sure you have enough available to act in a flood.
- Be careful around floodwater that may have been contaminated by sewage. Tetanus shots are recommended when cleaning flooded areas.

## Pumping procedure—equipment

A submersible pump is needed to remove water from a flooded basement. You can rent this type of equipment from a construction rental store or a hardware store; this will be less expensive than purchasing professional pumping equipment. The pump is encased in a waterproof shell with a sealed electrical cord; it connects to a regular garden hose or a sump hose. The power source for the pump will depend on whether you have electricity.

**If you don't have electricity** you will need to connect to a generator. Be careful! Do not use gasoline-powered pumps or generators indoors; these can produce deadly carbon monoxide exhaust fumes. Note: opening doors and windows does not provide sufficient ventilation. Another option is a pump that runs on a 12-volt marine or car battery or a petrol/diesel driven pump.

**If you do have power**, you can use a heavy-duty extension cord to run the pump on standard electricity—provided you have a place to plug it in. If your fuse box isolates your basement and you are absolutely sure you can disable the power in the basement, you can use electricity on the ground floor or higher. No matter what energy source you use, you will need to be careful to keep the connection between the extension cord and the pump cord away from water. You can do this by looping the cords around a ceiling joist or another heavy object.

## Pumping procedure—pumping out the water

To pump water, a garden or sump hose should be attached to the fitting on the top of the pump. The end of the hose is then pointed away from the house to drain away to the street or storm sewer. If the water is low enough, you can place the pump in the lowest part of the basement, making sure to wear rubber boots. In the event of very high water, you can lower the pump into the basement using rope. Once the pump is in place, start the generator; plug the extension cord in, and turn the pump on. If you're using electricity, plug the extension cord into an upstairs wall socket.

If your water is less than an inch deep, a wet-dry vacuum can be used. These work well, but can be very labor intensive; the tank on a wet-dry vacuum generally holds only 4 to 5 gallons of water and will need to be emptied frequently. One inch of water in a 1,500–2,000 square foot home would be 1,000–1,200 gallons and would require approximately 250 empties!



*image courtesy of <https://www.forconstructionpros.com/equipment/worksite/pumps/article/11477112/pick-the-right-submersible-pump-for-dewatering-applications>*