

What is a cistern?

Simply put, a cistern is a water storage device. These date back millennia. If you want safe drinking water, then they are generally a plastic tank that is specifically rated for drinking water.

Do I need one?

A cistern can provide a source of water when the district water supply is unavailable. If you don't have problems with freezing, you still might want to keep some 5-gallon jugs filled with water. This will give you the ability to flush your toilet when the water is temporarily out. Filling your toilet tank manually will allow you to flush.

If you absolutely must have water, then you might want to invest in a cistern. The down side is that they are not cheap and they take up a lot of space. You also need to have a source of water to fill/refill the cistern. Fill options range from a garden hose from a neighbor's house to a delivery service.

How do I build one?

This description is based on my system which has a borrowed tank (See Figure 1) and parts I bought at Home Depot. Lowes has comparable parts. It is also designed to be taken apart when not needed – in other words, it is not permanently plumbed into my house. My house plumbing has a garden hose spigot above the water meter that is for draining the lines to winterize the house (See Figure 3). I attached the garden hose to that and opened the spigot valve. If you don't have a drain spigot, then you will have to add one. That's likely a job for a plumber.

What You'll Need:

- A Tank (See Figure 1) - Cost and space generally determine the size of the tank. Mine is 275 gallons, which is a reasonable compromise between cost and size. For a family of 2, that's about 5-7 days of water.
- A Pump (See Figure 2) - The pump I bought is an Everbilt SKU# 1001187540 (Figure 2). That's a ½ horse power shallow well jet pump. It includes a pressure switch that shuts the pump off when the pressure reaches 50PSI and turns it back on when the pressure drops to 30PSI. It also includes a built-in pressure tank, which you need. The tank stores water under pressure so that the pump isn't turning off and on constantly. The pump provides plenty of pressure and volume to take a shower and run the washing machine at the same time. While both Lowes and Home Depot carry these kinds of pumps, they do not carry them in the stores. You have to order them online.
- 14 gauge extension cord (long enough to get from your pump to your receptacle.)
- Garden Hoses
 - You'll need a short hose to get from the tank to the pump. These are generally used to connect a hose reel to the outside hose bib (spigot). Mine is 6 foot.
 - You'll need a likely longer hose to get from the pump to your house's plumbing.
- Fittings
 - You might need plumbing parts to get from the valve at the bottom of the tank to a male garden hose fitting (See Insert A).

- Check valve – to keep the water from being pushed backed into the tank when the pump is not running.
- 2" long, 1" diameter nipple to connect the pump inlet to the check valve.
- 2 - 1" male to 3/4" female adapters to connect the pump to both garden hoses.
- 2 - 3/4" male to a female garden hose adapters to connect the garden hoses to both sides of the pump.
- Teflon tape to keep all of the fittings leakproof.

Setting Things Up

- **Getting Power to Your Pump** - The pump does not come with a cord. I bought a 14 gauge extension cord of the appropriate length and then cut off the female end and wired it to the pump.
 - The pressure switch (See Insert B – the black box on the left) has a black gromet on the side to push the wire through. Connect the white wire in the extension cord to the screw where the white wire is on the pressure switch, black wire to black wire, green wire to the green screw.
 - The pump can be wired to 110V or 220V. The box next to the pressure switch has a switch that is labeled 110 and 220; Move it to 110 (See Insert B – the black box on the right).
- **Connect the Tank to the Pump** - The pump I bought has a 1 inch female inlet (See Figure 2). If the pump you buy has a different size inlet fitting, you will need to buy different adapter fittings. The inlet to the pump is in the front.
 - Screw the 1" diameter nipple into the pump inlet port.
 - Next install the check valve. The check valve must be installed in the correct direction. If you look in the ends of the valve, one end will have a little spring-loaded flapper. That ends goes towards the tank. Both ends of the check valve are 1" female. Connect the check valve to the nipple.
 - Screw the 1" male to 3/4" female fitting into the check valve.
 - Screw the 3/4" male to a female garden hose adapter into the 3/4" female fitting (See Insert C).
 - Connect the short garden hose from the tank to the pump.
- **Connecting the Pump to Your House's Plumbing** - The output fitting on this pump is also 1 inch female. It is on top of the pump (See Insert D).
 - Connect the 1" male to 3/4" fitting to the 1" female outlet fitting on the pump.
 - Connect the 3/4" male to female garden hose adapter to the 3/4" female fitting.
 - Connect the garden hose from the pump to the drain spigot in your house plumbing.
Note: If you don't have a drain spigot, then you will have to add one. That's likely a job for a plumber

Tips:

- Make sure that you use plenty of Teflon tape on all the parts that you connect, except the garden hose connections which have a rubber gasket in the female ends. I admit to having some slow drips on some of my joints.
- The manual that comes with the pump has some of these same instructions, but are designed for someone permanently connecting to a well.
- Don't be afraid to ask the people who work at Home Depot/Lowes for help to get the right stuff.

If you have questions, or want to look at my system, let me know.

Bruce Hohne

267-246-7349 (a text is better than a call)

brucehohne@gmail.com

Figure 1



