



# CUMBERLAND COUNTY CONSERVATION DISTRICT

## Water Harvesting with Rain Barrels: Why & How

During a thunderstorm, hundreds of gallons of rain water can runoff the roof of an average home. One inch of rain on a 1000 square foot roof produces over 600 gallons of rain water. This water typically ends up running onto streets or other impervious areas, and enters storm sewers and is discharged to streams. Collecting and delaying this water can help in controlling peak storm water runoff during rain events. A simple and inexpensive way to help do this is through the use of a rain barrel.

A rain barrel is a device that collects and stores rain water for later use. Rain barrels can be constructed using a used 55 gallon food grade barrel or something similar, like a plastic trash can or a wooden whiskey barrel. The components of a rain barrel can include; a bottom drain, a spigot, an overflow hose, a screen to keep debris and insects out, and a downspout diverter to carry the water into the rain barrel.



The water harvested by a rain barrel is typically used for flower and vegetable gardening, washing your hands after working outside and potentially washing your car. Using a rain barrel is a great way to conserve your municipal or well water.

**Getting Started – Gather parts and tools** (for detailed parts and price information, refer to Cumberland County Conservation District - Rain Barrel Parts List Sheet)



### Recommended parts

Food grade barrel or similar  
Flexible downspout adapter  
Overflow elbow  
~ 5 feet of sump drain hose  
(2)  $\frac{3}{4}$ " bulkhead fittings  
 $\frac{3}{4}$ " brass hose bibb  
 $\frac{3}{4}$ " MPT x  $\frac{3}{4}$ " male hose adapter  
 $\frac{3}{4}$ " brass shutoff coupling

### Recommended tools

Drill  
 $1\frac{1}{2}$ " hole saw  
Channel locks  
Adjustable wrench  
File  
Hacksaw  
Jigsaw (if using a barrel w/non-removeable lid)

# Rain Barrel Construction & Installation Instructions

## Prepare the Barrel

Remove the barrel lid and rinse out your barrel to remove any debris or food product from its previous use. Avoid using bleach as a cleaner. For an environmentally safe solution, use 2 teaspoons of castile soap and 2 teaspoons of vinegar or lemon juice for every gallon of water used to clean your barrel. If you use a barrel without a removable lid, cut out the end that has the 2 bung openings to create your open end. Then use the screen to cover this open end.



## Rain Barrel Construction

### 1) Drill and Cut holes

Use a 1½" hole saw to cut the hole for the spigot assembly, bottom drain and the overflow. Make the spigot assembly hole (B) about 12" (all distances to center of holes) up from the bottom of the barrel and the overflow hole (C) about 4" down from the top. Next, use the same hole saw to make the hole for the drain (A). This hole should be about 4" up from the bottom. If the lid is two pieces, remove the center part of the lid, but keep the lid ring, this will hold the screen in place when reinstalled. If the lid is one piece, use a jigsaw to cut a 2½" by 3½" rectangle in the lid, near the outside edge of the lid.

### 2) Install Plumbing Parts



**A - Bottom Drain Installation:** Disassemble the bulkhead fitting. (Optional - Wrap Teflon tape around the long end of the brass hose adapter fitting) screw this into

one of the bulkhead fittings. Once this is threaded into the fitting, thread on the brass shut off coupling until snug. This seals with a rubber gasket.

Next, lay the barrel on its side, from the outside, insert the male end of the fitting through the 1½" hole at the bottom of the barrel, reach into the barrel and hold the female end of the bulkhead fitting and have another person thread in the other end of the fitting from the outside of the barrel (the rubber washer should be located on the outside of the barrel). Make sure the drain valve is situated properly when the bulkhead fitting is tightened.



**B - Spigot Installation:** Disassemble the bulkhead fitting. (Optional - Wrap Teflon tape around the threads of the hose bibb) and thread it into the bulkhead fitting until tight. Insert the fitting through the 1½" hole 12" up the barrel. Reassemble the bulkhead fitting, making sure the rubber washer is on the outside of the barrel. It is important that this fitting is very tight, use an adjustable wrench and channellocks if you need to. Make sure the spigot is situated properly when the bulkhead fitting is tightened.



**C - Overflow Installation:** Thread in the overflow elbow into the 1½" hole near the top of the barrel. This is a tight fit, so it will require some elbow grease to get the threads started. You may need to use a file to open up the hole a little bit. Thread this all the way in, and stop when the barbed side of the elbow is pointing toward the ground, slip a five foot section of the sump drain kit hose onto the elbow.

### 3) Install Screen

Use a 2 foot by 2 foot section of fiberglass screen and place it across the top of your barrel. Carefully, reinstall the lid ring making sure the screen stays in place. NOTE: If the lid is one piece with the cutout, make sure you reinstall the lid with the cutout where it needs to be to adapt to your downspout.



### Rain Barrel Installation



Prepare a level area to place the barrel. Some stone or cinder blocks work well



Cut your existing downspout about 6" to 12" above the top of the barrel



Slip the downspout adapter onto your downspout and direct the other end onto the top of the barrel

If using a lid with the area you cut out, insert the other end of the downspout adapter into the rectangular cutout in the lid. The downspout adapter may need to be secured to your downspout with some screws.

Check the weather for the next expected rain event and enjoy your rain barrel!

### Miscellaneous tips for using your rain barrel:

- Do not use collected water for drinking, cooking or bathing.
- Keep the lid secure so children or animals cannot fall into the barrel.
- Disconnect the barrel during the winter to avoid freezing and breaking of the barrel and its valves. The piece of downspout you cut off to install the rain barrel can be reinstalled using the downspout diverter (see picture to right).
- If a moss killer has been used on the roof let a few rainfalls occur before collecting the roof runoff.
- Divert the overflow hose toward a grassy area. This will allow the water to infiltrate the ground.
- The installed screen will prevent mosquitoes from breeding in your barrel. Keep in mind...you may see mosquitos in your rain barrel because eggs possibly were carried in from your spouting. They will die and not create a breeding concern.
- Consider joining multiple barrels for additional capacity! (see picture to right)
- Add a pump to create water pressure



For more information: Brooke Weary 717-240-5358  
bsweary@cumberlandcountypa.gov  
Cumberland County Conservation District



# Cumberland County Conservation District

## Rain Barrel Parts List

- |   |                                    |                   |
|---|------------------------------------|-------------------|
| 1 | Clean food grade barrel            | Various Suppliers |
| 1 | Flex-elbow-white                   | Hardware Store    |
| 1 | 2' x 2' piece of fiberglass screen | Hardware Store    |

### Overflow

- |     |                                     |                |
|-----|-------------------------------------|----------------|
| 1   | Hose Barb EL 1 1/4" (HB125-90)      | GVM Inc        |
| 58" | Hose drain kit 1 1/4" (24' @ 10.48) | Hardware Store |

### Spigot Assembly

- |   |                            |                |
|---|----------------------------|----------------|
| 1 | 3/4" MPT brass hose bibb   | Hardware Store |
| 1 | Bulkhead Fitting tank 3/4" | GVM Inc        |

### Drain

- |   |                                   |                |
|---|-----------------------------------|----------------|
| 1 | Zinc/Brass shutoff coupling       | Hardware Store |
| 1 | Adapter 3/4" male hose X 3/4" MPT | Hardware Store |
| 1 | Bulkhead Fitting tank 3/4"        | GVM Inc        |

### Recommended tools:

Drill, 1 1/2" hole saw, channel locks, adjustable wrench, file, jigsaw, hacksaw

