



## Purpose of a Rain Barrel

A rain barrel is used to collect and hold rain water from rooftops. Normally, this water is directed to downspouts and is lost either to the ground or as runoff. A rain barrel lets you collect this water and save it for a dry day when you need it most.

Also, by collecting your rooftop runoff, you prevent it from flowing over surfaces where it might pick up pollutants, such as oil and fertilizer, before entering surface waters.

## Benefits

- 🌧 According to the U.S. Environmental Protection Agency (EPA), lawn care accounts for about 32 percent of the total residential outdoor water use in the U.S. Rain barrels conserve water by reducing the amount of treated potable water needed for landscaping.
- 🌧 Rain barrels reduce stormwater runoff by capturing the rain water from your roof and allowing you to use it where you need it. This is especially beneficial if your downspouts discharge to an impervious surface, such as a driveway or sidewalk.
- 🌧 Rain water is an ideal, chlorine-free water source for your plants, trees, and water gardens.
- 🌧 You can assemble and install a rain barrel yourself or buy a ready-made kit.

## Before you Begin

- 🌧 Choose an appropriate location. It should be on level ground close to the area where you want to use the water.
- 🌧 Unless you are using a pump, your rain barrel depends on gravity to create adequate water pressure. Set up cinder blocks or another sturdy material to raise the barrel. You can also have two barrels drain into a single hose to increase the flow.
- 🌧 Estimate the surface area of the roof to determine how much runoff you will capture, to size your barrel appropriately, and to ensure that you install a suitable overflow feature.



Consider that one half inch of rain falling on a 1,000 ft<sup>2</sup> roof will yield more than 300 gallons of water.

1. Convert the dimensions of the footprint of your roof to square inches. For example:

$$\left(50 \text{ ft} \times \frac{12 \text{ in}}{1 \text{ ft}}\right) \times \left(20 \text{ ft} \times \frac{12 \text{ in}}{1 \text{ ft}}\right) = 600 \text{ in} \times 240 \text{ in} = 144,000 \text{ square inches}$$






2. Multiply the roof dimensions by the number of inches of rainfall. For example:

$$144,000 \text{ in}^2 \times 0.5 \text{ in} = 72,000 \text{ in}^3$$

3. Convert to cubic inches to gallons (1 gallon = 231 cubic inches). For example:

$$72,000 \text{ in}^3 \times \frac{1 \text{ gallon}}{231 \text{ in}^3} = 311.69 \text{ gallons}$$

## Things you need to decide before you get started

-  Decide how you are going to get the water into the barrel. Do you want the downspout to empty into the barrel directly? In this case you need a screened opening to prevent insect infestation. Or do you want a hose to deliver the water in a closed barrel system?
-  How do you want the overflow to work? The barrel or barrels will fill up faster than you think. Do you want the barrel to have an overflow or the downspout to have a bypass?
-  Do you want to purchase a pump?
-  How much water is enough?
-  Do you want a single barrel or multi-barrel system?

## Materials

- A rainspout diverter. You can purchase kits that include the diverter and hose or you can do-it-yourself.
- A spigot and plumbing adaptors.
- A clean barrel. If you purchase a rain barrel, it should be equipped with holes for the downspout or hose.
- A base, such as cinder blocks, that can support the weight of water. (Remember: every gallon of water weighs a little over 8 pounds.)
- A hose.
- A pump, if desired.

For this demonstration, we used the following materials:

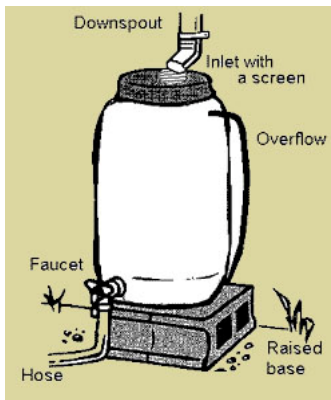
- RainReserve<sup>®</sup> Rain Barrel Basic Rain Diverter (You can also search the Web for other kits or assemble your own.) <http://www.amazon.com/Rainreserve-2012309-Barrel-Diverter-Included/dp/B002XUL4Y6>

# Rain Barrels



- ☑ Closed Head Poly Drum courtesy of U.S. Plastic Corporation:  
<http://www.usplastic.com/catalog/item.aspx?itemid=24131&catid=459>
- ☑ RainPerfect<sup>®</sup> Solar Powered Rain Barrel Pump: <http://www.amazon.com/RainPerfect-Solar-Powered-Barrell/dp/B004MISL7K>
- ☑ Hose clamp, cinder blocks, sealant, paddle bits, and hole saws courtesy of your local hardware store

## Assembly Instructions



1. Select the barrel location.
2. Level the ground and install the base.
3. Set your empty barrel in place to ensure it is level and stable in this location.
4. Measure where you need to cut the downspout. If you are using a diverter hose, make sure to put it high enough so gravity can efficiently deliver the water to the barrel. Play with the hose a bit and measure again. Mark the downspout where you want to cut it.
5. Next mark where you plan to put the spigot (faucet). Is there enough room under the spigot to place a watering can or attach a hose? Make sure the spigot is not too low on the barrel. Sediment may collect in the barrel and you don't want to clog the flow. Also, the spigot must be installed on a flat portion of the barrel in order to make a good seal.
6. If you are drilling your own holes, mark the location for the spigot on your barrel.
7. If you need to add a hole for the drain hole, overflow, or pump, mark that on the barrel. Then put the equipment in place where you made the marks to ensure it all fits without interference. If you are installing a pump, make sure the hose is clear and kink-free. If you have an overflow hose, make sure it drains to area that allows infiltration.
8. Drill the hole for the spigot. If you need to drill holes for a drain hose or pump, this is a good time to do it. Make sure you use the same care in placement. Always measure twice to ensure you have left enough room to connect everything without interference.
9. Connect the spigot. If everything fits well, then attach the spigot using Teflon tape and seal with PVC cement or a similar sealant intended for water-tight connections. Allow the sealant to cure as directed.
10. Once the spigot has cured, fill the barrel with enough water to ensure the seal on the spigot doesn't leak.
11. Cut the downspout using a saw or other appropriate tool for cutting aluminum.



12. If you are using a diverter, attach it to the downspout and connect all the hoses and adaptors to ensure a good connection that won't leak.
13. Put the rain barrel in place and make sure the barrel is level and well supported.
14. Check it to make sure everything is connected properly and in a position so you can access the taps.

## Additional Resources

- 🌱 The RainReserve Website has a barrel locator tool: <http://rainreserve.com/locate.php>.
- 🌱 GSFC Environmental Bulletin "Rain Barrels: A Tool to Harvest Rain Water"  
<http://code250.gsfc.nasa.gov/environmental/outreach.cfm>
- 🌱 Anne Arundel County: Arlington Echo Outdoor Education Center in Millersville, MD sells rain barrels. <http://www.arlingtonecho.org/restoration-projects/rain-barrels.html>
- 🌱 Howard County's Live Green site provides information on rain barrel workshops and instructions for building your own rain barrel:  
<http://livegreenhoward.com/water/rain-gardens-rain-barrels/>
- 🌱 Montgomery County's RainScapes Program offers rebates for residents:  
<http://www.montgomerycountymd.gov/dectmpl.asp?url=/content/dep/water/rainscapes.asp>
- 🌱 Prince George's County:
  1. Search for rain barrel workshops at  
<http://www.princegeorgeva.org/Index.aspx?page=1>
  2. Low Impact Development resources -  
<http://www.princegeorgescountymd.gov/Government/AgencyIndex/DER/ESG/low-impact.asp>
  3. Bowie Rain Barrel Program -  
[http://www.cityofbowie.org/GreenBowie/rain\\_barrels.asp](http://www.cityofbowie.org/GreenBowie/rain_barrels.asp)