A Home Owner's Guide to

Rain Barrels

How to construct and maintain rain barrels for your residence

Cobb County
Water System

About Us

Cobb's Watershed Stewardship Program (WSP) provides free ecological education programs for classrooms, community groups and businesses within Cobb County. These hands-on programs teach community members about the sources and impacts of water pollution and what individuals can do to protect rivers, lakes, and streams. We also coordinate community service projects, facilitate teacher workshops and create educational resources for checkout and distribution.

WSP is housed in the Water Quality Laboratory of the Cobb County Water System in the Office of Environmental Compliance. We work closely with staff from Cobb's Watershed Monitoring Program and Stormwater Management Water Quality Unit to ensure our outreach education programs are accurate and fulfill the needs of the community.

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Introduction






What Is A Rain Barrel?

Cisterns that hold rain water have been around for thousands of years. Some local hardware stores offer pre-assembled rain catchment systems for sale. Do-it-yourself rain barrels offer homeowners an affordable alternative. A typical rain barrel setup consists of a 55 gallon food grade drum that has been fitted with hardware to divert runoff from roofs. This stored water can be used to supplement natural rainfall and other sources of irrigation.

How Are Rain Barrels Beneficial?

In the summer, watering lawns and plants account for 40% of household water use – a large percentage, especially when Atlanta's historic struggle with water supply and demand is taken into account. While a single rain barrel may not provide enough water to sustain your entire yard, it can be a valuable supplement to your watering regimen. During a drought, it is recommended that trees take precedence in watering since they are the most expensive plants to remove or maintain. Also, planter beds, container gardens, and indoor potted plants can easily be sustained with water from your barrel.

Using collected rainwater rather than treated potable water to irrigate your landscape saves money and helps protect the environment. Diverting water from impervious surfaces such as rooftops reduces the flow of water into stormdrains. Stormdrains lead directly into creeks and streams. There are two major water quality issues to consider. First, the sudden influx of water from a heavy rain event can cause scouring and bank erosion. Second, urban runoff picks up non-point source pollutants, including bacteria, which impact our waterways. By collecting rainwater, the volume of water transported to our streams and the amount of potential pollutants are reduced. The collected water can then be used to sustain plants during dry conditions.

Getting Started

Rain Barrel Placement

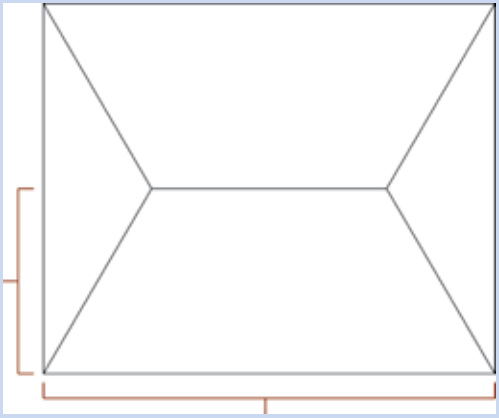
Before constructing your rain barrel, you should determine where it will be placed. Choose an area that is convenient for watering and easily accessible. The location can affect where your spigot and overflow holes will be drilled. For safety, the ground under your barrel should be firm and level. You can create a platform for your barrel by stacking cinder blocks or building one out of wood or other materials. Raising the elevation of your barrel will increase the water pressure and also provide clearance for attaching a hose or filling a water can. However, a 55-gallon drum will weigh almost 500 pounds when full. If you have children or pets and are concerned that the barrel could tip over, you can strap it to a nearby wall or other stable surface. If the barrel is placed on a level and stable platform, tipping should not be a problem.

Make sure that any water that overflows out of your barrel will not run against the foundation of your home. Also, be aware of the aesthetics of your barrel. Often, it is possible to hide the barrel behind existing shrubs or trees so that it is less visible.

How Much Water Can I Collect?

Although any impervious surface can be used as a catchment area, roofs are the most common and adaptable. The slope of your roof and placement of your existing gutters allows for efficient transport for rainwater into your barrel with little expense. Even a light rainfall yields a surprising amount of water flowing into your gutters.

Determine which portions of your roof drain into the gutter downspouts where you will be placing your barrel. Measure the area of this portion of your roof. Generally, you can collect about half a gallon of water per square foot during a 1-inch rainfall. For example, a 2,000 square foot roof can collect about 1,000 gallons of water during a 1-inch rain. Even if your rain barrel is collecting from a small portion of your roof, it is still a substantial amount of water.



Materials & Equipment

7/8" Paddle Bit

#1 or #2
Rubber Plug
(optional)

90° PVC
Elbow

5/8" Paddle Bit
(optional)

3/4" Flat
Steel Washer

#12 O-Ring

6" Round Plastic
Drain Cover

Long Handled
Channel Lock Pliers

1/2" PVC
Sink Faucet

24" Zip Tie

Mesh Screen

Downspout Extension Elbow

55 Gallon Food Grade Drum

The 55 Gallon Food Grade Drums (pictured above), used to make Cobb County Water System rain barrels, were acquired from Advance Drum Service, Inc Mableton, Georgia (404) 699.7048.

Jig Saw
(with wide-toothed blade)

Drill

Other Materials:
Scissors
Permanent Marker

* Some local hardware stores offer pre-assembled rain catchment systems for sale.

Rain Barrel Construction

1. Trace a circle on the top of the barrel using the drain cover as a guide. Be sure to trace the drain cover on the flat portion of the barrel, not over the existing plugs. Place your circle a few inches away from the edge of the barrel so the jig saw will have room to cut.

2. Use the paddle bit to drill two holes on the inside of your circle. Use these holes as starting points for the jig saw to cut out the traced circle.

3. Cut a piece of mesh slightly larger than the drain cover. Secure the mesh screen to the drain cover with the zip tie. Insert the drain cover into the opening at the top of the barrel.

4. Using the $^{7}/_{8}$" paddle bit, drill a hole for the faucet approximately 6 inches from the bottom of the barrel. Be sure to drill the hole on the flat portion of the barrel, at least 1 inch away from the raised band.

5. Place the steel washer and O-ring over the threads of the faucet. Insert the faucet into the hole at the bottom of the barrel.

6. Use the channel lock pliers to hold the PVC elbow inside the barrel, aligned with the hole. From the outside of the barrel, screw the faucet assembly onto the elbow.

7. Cut the gutter downspout just above the rain barrel. Attach the downspout extension elbow to the downspout and position it so that the opening rests against the drain cover

Optional Steps:

- Drill an overflow hole near the top of the barrel facing away from your home. Use caulk to glue a piece of mesh over the hole to prevent mosquitoes and other insects from entering.
- Use the $^{5}/_{8}$" paddle bit to drill a hole near the bottom of the barrel. Plug the hole with a #1 or #2 rubber stopper. This will be helpful if you ever plan on completely emptying your barrel; however, the seal around the plug may leak.

Connecting Serial Barrels

You can connect two or more barrels to increase your storage capacity. Here, we present two options for connecting your barrels, depending on if you want to be able to shut off the flow to the second barrel.

(2) $^{3}/_{4}$" (threaded end) MIP Adapter

(2) 1" Flat Steel Washer

(2) #18 O-Ring

$^{3}/_{4}$" Ball Valve

1" Paddle Bit

$^{3}/_{4}$" Barbed Insert Male Adapter

$^{3}/_{4}$" Barbed Insert Female Adapter

$^{3}/_{4}$" Vinyl Tubing

Essential Steps

1. Using the 1" paddle bit, drill a hole in each barrel, about six inches from the bottom. Place the steel washer and o-ring over the threads of the MIP adapter.

2. Use the channel lock pliers to place the assembly on the inside of the barrel with the threaded end extending through the hole.

Option 1: A simple connection

3. Screw the barbed female insert adapter onto the assembly on the outside of the barrel. Push the nylon tubing over the barbed end of the adapter.

4. Repeat steps 1 through 3 for the second barrel, using the nylon tubing to attach the barbed adapters.

Option 2: Using a ball valve to restrict flow

3. Screw the ball valve onto the assembly on the outside of the barrel.

4. Screw the barbed male insert adapter into the open end of the ball valve. Push the nylon tubing over the barbed end of the adapter.

5. Because it is unneccesary to have a ball valve on both barrels, follow the instructions for the simple connection on your second barrel. Use the nylon hose to attach the barbed adapters on the barrels.

Decorating Your Rain Barrel

If you don't like the aesthetic appeal of your rain barrel, you can paint it to match your house, or even turn it into a piece of art! You're only limited by your imagination. Painting rain barrels is a great activity for children and can introduce them to important concepts about water quality and conservation. It also has the added benefit of protecting the surface of the barrel from breaking down due to the harsh effects of the sun.

You can use any type of paint on your rain barrel, but if you're using spray paint, one formulated for plastic application will work best. Although one can of spray paint will cover your barrel, a second can will give it a more "finished" look. Darker colors also require more paint. For a longer lasting paint job, the barrel should be primed first to help the paint adhere to the surface. After you've painted your barrel, it is a good idea to apply one or two coats of polyurethane to protect it.

To prime your barrel (optional):

Thoroughly clean the exterior surface with a 1:1 vinegar and water solution to remove excess dirt.

Using a fine to medium grit sandpaper, “rough up” the surface of the plastic. This will help the paint adhere. Use a dry cloth to remove any plastic shavings.

Apply one coat of outdoor primer. You can tint the primer to match the final color of the barrel. Allow the primer to dry before painting.

Now you can paint your barrel any way you like! Allow the paint to dry completely before applying polyurethane. Make sure that you work in a well ventilated area.

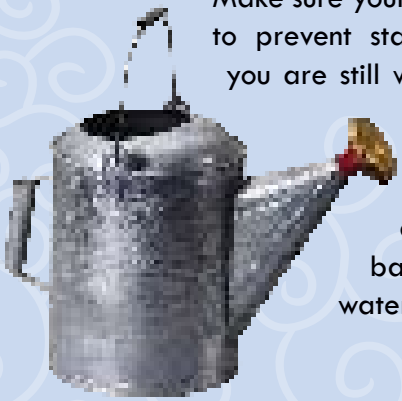
Rain Barrel Maintenance

If your rain barrel is properly installed, it will require very little maintenance. Periodically inspect your barrel for cracks or debris buildup. Light colored barrels that are in direct sunlight may become brittle over time. They can be painted to make them last longer.

If there is debris in your barrel, a simple rinse will ensure good water flow. Also inspect your screen opening and your downspout pipes for dirt and leaves.

During cold weather, the barrel can be drained to prevent ice damage.

A common concern is that rain barrels are an ideal breeding spot for mosquitoes. Insects are attracted to standing water; however, if your drain cover is tightly fitted on your barrel, mosquitoes should not be able to get in. The screen over the drain cover will also ensure that egg laying females can't access the water. Small holes or gaps in your barrel can be filled with caulk or covered with window screen. Make sure your gutters are sloped and free of debris to prevent standing water from accumulating. If you are still worried about mosquitoes, tablets are available at hardware and landscape supply stores that will prevent them from breeding. You can also add a tablespoon of cooking oil in your barrel to break the surface tension of the water, preventing egg laying.



Uses For Collected Water

Using collected water is a great alternative during times of restricted water use. If you currently have a standard irrigation system, you can turn off the sprinkler zones that are in planter beds and use your stored rainwater instead. A standard hose will be able to fit onto the spigot on your rain barrel – however, the pressure may not be adequate to operate a portable sprinkler system. In this case, you can invest in a low-volume submersible pump that can fit through the opening at the top of the barrel. Of course, a hand held watering can is always an option.

Your rain barrel water can also be used to moisten your compost bin or to rinse gardening tools. Some people choose to wash their cars with collected rainwater. If you do, be sure to wash your car on your lawn so that the soapy runoff can infiltrate through the soil rather than wash directly into the stormdrain.

Rain barrel water is non-potable and should not in any way be connected to your in-house plumbing or used for drinking, bathing, pets, or recreation. We recommend that you clearly label your barrel as "non-potable" water. Or, you can contact the Watershed Stewardship office to obtain a "non-potable" label for your barrel. Due to contaminants that may be present on your roof, we also caution against using rain barrel water for vegetable gardens or other food plants.

How-To Video

Cobb County Water System has created a how-to video outlining how to assemble your own rain barrel. This step-by-step guide will take you through the process. To view the video, visit:

http://watershed.cobbcountyga.gov/files/rainbarrels.htm

To obtain a DVD of the instructional video, please contact the Watershed Stewardship Program.
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