How to Build a Rain Barrel for Your Home



Where Can You Get a Barrel?

Barrel Resources
Richmond, Virginia
http://www.barrelresources.com/
804-437-4505

Eagle Peak Containers, Inc. http://epcontainers.net/id10.html 1-877-868-1195

Green Goat Barrels
Richmond, Virginia
http://greengoatbarrels.com/default.aspx
804-543-6904

Stu Barrels
Richmond, Virginia
http://www.stubarrels.blogspot.com/
StuBarrels@gmail.com

Other Resources:

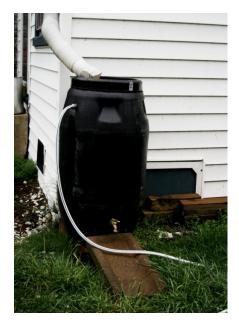
Agri Supply*
3001 N Normandy Drive
Petersburg, Virginia 23805
804-861-9000
1-800-551-0415

Clean Virginia Waterways
Farmville, Virginia
http://www.longwood.edu/CLEANVA/rainbarrels.htm
434-395-2602
cleanva@longwood.edu

Search the website Craigslist.org

- Choose a state and city, then enter your search word or phases.
- The Hampton Roads region in Virginia has been a good source of pickle, olive and other food-grade barrels.

*Vertical and horizontal water tanks can be modified to capture rain water. Always be sure to level the ground beneath your barrel to prevent possible tipping. Prevent mosquito breeding by covering barrel openings with screen and/or other means to keep insects out of standing water.



Virginia receives an average of 45.22 inches of rain a year. Rain that runs off your roof can flow into a sewer pipe, stream or groundwater. Why not put it to another use? A rain barrel can capture some of that rainfall for later use on your property. Capturing and reusing rainwater from your roof surfaces also reduces demand on the sewer system and protects the quality of streams and groundwater.

What is a rain barrel?

A rain barrel is a simple rainwater collector that captures and stores a portion of the runoff from a roof downspout for non-potable, exterior uses, such as irrigation. Rain barrels come in a wide variety of materials, designs, and colors. Common sizes for residential use are 55 gallons and 90 gallons. They are usually installed on the ground

next to buildings. A rain barrel is not a storm water disposal method, but is a way to capture a small fraction of the rainwater that flows off your roof. The rest of the runoff will still need to go to an approved storm water discharge location.

Rain Barrel Benefits

Using rain barrels to temporarily store and reuse rainwater can conserve drinking water by providing a water source for gardens. This can also reduce the water use charge on your utility bill. Keeping the water on your lawn prevents it from running into the driveway, sidewalk, and streets, and reduces the amount of pollution that goes into streams and creeks.



Evaluate Your Site

To determine if a rain barrel is appropriate for your property, the first step is to identify the drainage conditions of your site. Answer the questions below as you walk around your property.

Where does the water from your roof go now?

Sketch a site plan or map of your house and yard. Mark the locations of downspouts and roof lines, estimate the square footage of your roof and paved areas, and show where all these areas drain.

Where would you like to locate your rain barrel?

Install your rain barrel based on where you will use the water in your yard. Keep in mind that it may be possible to move the gutter and downspout to a more desirable location. A rain barrel must be located at the base of one of the downspouts draining your roof gutter.

Where does that downspout currently drain?

The downspout you will divert to your rain barrel probably drains into a standpipe or to your yard or driveway. This is the storm water *discharge* point and is the same location where the rain barrel should overflow.

Plan Your Rain Barrel

Rainwater collection for residential, external, non-potable uses such as irrigation, does not require a special permit, but there are design considerations to follow.

Overflow

All rainwater collection systems must have an overflow to a safe disposal location. The average residential roof (2,400 square feet) generates about 52,000 gallons of rainfall runoff every year, and an average 55 gallon rain barrel captures only a fraction of that. Whether you have one or multiple rain barrels, your barrels must have an overflow to a safe discharge point — this could be a hose leading to a garden, yard or other area away from the foundation of your house. The installation of an overflow is describe in the "Putting Your Rain Barrel Together" section, but there are alternatives to this particular method. See page seven for more information.

If your rain barrel overflows into the standpipe, be sure the overflow pipe is attached and sealed to the standpipe opening.

Safety Considerations

Your rain barrel must be secured on a firm, level surface. A full 55-gallon rain barrel weighs over 400 pounds (one gallon of water weights approximately 8.34 pounds) and tipping is a risk if the barrel is not secured or on uneven ground.

The barrel must be structurally sound and should be a food-grade container made to hold liquid. Containers such as trash cans are not designed to withstand the pressure of the water. The barrel must have a lid and a sturdy fine mesh covering all openings to prevent mosquitoes and debris from getting inside.

The water from the rain barrel should **not** be used for drinking, cooking or other potable uses.

If you use a moss-control product on your roof, use a product that is garden-safe.

Construction

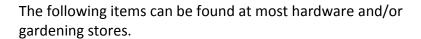
Many plant nurseries, home improvement stores and some grocery stores sell fully assembled rain barrels, but you can build one yourself following the easy-to-follow steps on the following pages.

Tools



Supplies

One 55 to 90-gallon <u>food grade</u> barrel. JRA uses barrels with a two-part lid that can be screwed back into place for easy maintenance.





Hose bib supplies

Hose bib with 3/4" threaded inlet and 3/4" male hose end One 3/4" galvanized conduit locknut Two 1-inch opening, 3/4" washers





Overflow Supplies

One 3/4" male brass hose adapter
One 3/4" reducing washer
One 3/4" conduit locknut
3/4" pipe cap
Optional: 3/4" insert adapter for plastic hose

Downspout supplies

Downspout elbow 1/4" #6 sheet metal screws for downspout Downspout straps 3/4" screws for downspout strap





Other supplies

Teflon tape

Plumbers caulk (JRA recommends clear)

Mosquito-proof window screen

Two 8" X 8" X 12" wooden blocks for rain barrel platform (cinder blocks, pavers, and/or bricks will also work)

Alternative Overflow Options

There are a variety of rain water diverters that can be used with your rain barrel. Visit your local home improvement store or search for these products on the internet. Once your rain barrel is full, these devices divert the flow of rain water from the barrel back to the downspout. If you install one of these diverter devices, you do not need to install overflow components to your barrel as described in the "Putting Your Rain Barrel Together" section of this document.

In-Line Downspout Diverter



Rain Gutter Diverter Kits





Putting Your Rain Barrel Together

Hose bib:

Drill a hole near the bottom of the empty barrel. Wrap a layer of Teflon tape around the threads of the hose bib, place a washer around the base of the hose bib, then screw the hose bib clockwise into the barrel. Make sure the hose bib is screwed in straight (this may take a few tries). Caulk around the hose bib, inside and outside of the barrel, and then place a second washer on the caulked surface on the hose bib inside of the barrel. Place and tighten a locknut (using a wrench or channel locks) on the hose bib inside the barrel for a tight seal. The hose bib may turn when tightening the locknut. Make sure you set it straight again before the caulk dries.



Overflow:

Drill a hole near the top of the barrel to accommodate the overflow adapter that is at least 15/16" inches in diameter (you can use the same drill bit you used for the hose bib). Wrap Teflon tape around the threads of one side of the 3/4" overflow adapter and screw it into the hole. Make sure half of the adapter goes into the barrel. Place a bead of caulk around the adapter, both inside and outside of the barrel, then secure with a locknut on the inside of the barrel.



Inlet:

Barrels with two-part lids are used for this rain barrel construction. These lids disassemble into two parts — a tray and an outer ring. Removing the tray and keeping the outer ring allows for a large opening (12" diameter) that is covered with screening through which the rain barrel will collect water. Work with a partner to place screen over the opening and then place the outer ring over the screen. Push down and screw the lid into place. Other barrel lids may be one solid piece, requiring you to drill a series of smaller openings or one large opening directly in the top of the barrel. Either way, be sure to include the screen to keep out unwanted pests and other debris.





Photo: Peter Francisco Soil & Water Conservation District

Foundation:

Create a raised, stable, level base (like concrete blocks) for the rain barrel to sit on. You might want to test stability by filling the rain barrel with water before attaching it to your structure. A full rain barrel is very heavy and tipping is a risk if it is unsecured or on an uneven surface.



Photo: Clean Virginia Waterways

Downspout:

Remove existing downspout straps and save for reuse. Cut the downspout with a hacksaw so that the elbow will sit just above the rain barrel inlet. Carefully crimp the edges of the cut downspout inward, and then attach the elbow (new or existing) <u>over</u> the downspout with screws. Re-secure the downspout to the house with the downspout strap(s).



Photo: Clean Virginia Waterways

Attach Barrel:

Set the barrel beneath the elbow on the platform. [Option: Secure the barrel to the house with a strap].

Use:

After a rainfall, fill a watering can from the hose bib or attach a hose to use the water where it's needed.



Maintenance

Simple maintenance of your rain barrel and downspouts can prevent problems.

- Clean gutters at least twice a year, more often if you have trees.
- Make sure gutters are tilted to direct water to downspouts and fix low spots or sagging areas along the gutter line with spikes or place new hangers as needed.
- Make sure roof flashing directs water into the gutter.
- Make sure all parts are securely fastened.
- Clean out the rain barrel and check for leaks at least once a year. Check and clear down-spout elbows, rain barrel screening, and overflow to prevent clogging. Caulk any gutter, downspout, barrel, and overflow leaks and holes.
- Make sure the rain barrel remains securely screened to prevent mosquito entry.
- If overflow is directed to a grassy area, monitor the area and re-grade soil if necessary to make sure water drains away from structures and does not flow onto pavement, sidewalks, or neighboring properties.

Protecting America's Founding River

The mission of the James River Association is to be guardian of the James River. We provide a voice for the river and take action to promote conservation and responsible stewardship of its natural resources.



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www.jamesriverassociation.org

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