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Rain Barrels

What are rain barrels?

Rain barrels are containers used to collect a portion of the rainwater that flows from your rooftop and store it for uses such as watering your lawn and garden. Rain barrels are not for storing drinking water or water for use inside your home. By capturing water from downspouts that may otherwise discharge onto a paved surface, rain barrels can reduce the amount of runoff and pollutants reaching local streams. Typical components of a rain barrel include a hose connection at the outlet, a screen trap to filter out downspout debris at the inlet, and an overflow outlet. A range of materials, designs, and colors are available.

What are the benefits to property owners and communities?

Using a rain barrel can provide a free water source for gardens and lawns, reducing your use of potable water for exterior uses. You can also use the water to wash your car. According to the Maryland Department of Natural Resources (MD DNR), rain barrels can save a homeowner 1,300 gallons of water during peak summer months. You can use the collected water any time, even during periods of city- or county-imposed water restrictions.

Rainwater is naturally soft, oxygenated, and devoid of chlorine, so it can help improve the health of your gardens, lawns and trees. However, water collected in or draining from a rain barrel is not suitable for drinking because it may contain roof debris with high levels of bacteria or other pollutants. You may use collected rainwater to water vegetable gardens, but be sure to wash fruits and vegetables with tap water before eating or cooking them.

Rainwater from downspouts often drains onto driveways, sidewalks, or other paved (impervious) surfaces and is not able to soak into the ground. Water rushing over these hard surfaces (runoff) picks up pollutants along the way. Eventually, the runoff flows into storm drains, which in turn empty directly into local streams. A surge of polluted water entering streams can cause flash flooding and erosion, lower water quality, and harm fish habitat.

By installing one or several rain barrels, you can reduce the amount of stormwater runoff from your property, allowing more of the water to soak into the ground. When you and your neighbors install rain barrels, you can help replenish groundwater, minimize erosion.



How can your rain barrel system qualify for a rebate?

For projects on residential properties to qualify for a rebate through the Rain Check Rebate Program, the rain barrel system must capture at least 50 gallons during a rain event. For commercial properties, homeowner associations, condominium associations, civic associations, multi-family dwellings, and nonprofit and not-for-profit organizations, the rain barrel system must capture 100 gallons.

To alleviate costs, the Rain Check Rebate Program provides a rebate of \$2.00 per gallon stored up to \$6,000 for residential properties, and up to \$20,000 for commercial businesses, homeowner associations, condominium associations, civic associations, multi-family dwellings, and nonprofit or not-for-profit organizations.



How can you determine if your property is suitable for a rain barrel?

Rain barrels are a good option for homes and buildings with

- downspouts that discharge onto driveways, sidewalks, and other paved surfaces, or steep slopes; and
- a lawn, garden or other landscaping that requires frequent watering.

Assessing your property while it's raining allows you to see how and where your downspouts discharge water.

What size, number, and configuration of rain barrels will you need?

The size and number of rain barrels you will need for a particular downspout depends on the area (square footage) of the portion of the roof draining into the downspout. Roof area can be calculated by multiplying the length by the width. Note: The slope of the roof does not affect the calculation of roof area draining into a downspout.

According to the Low Impact Development Center, rain barrel volume can be determined, for any given rainfall, using the following general equation: rain barrel volume (in gallons) = roof surface area (in square feet) x rainfall amount (in feet) x 0.90 x 7.5 gallons/cubic foot. For example: one 60-gallon barrel would provide runoff storage from a rooftop area of approximately 215 square feet for 0.5 inches (0.042 feet) of rainfall: 60 gallons = 215 square feet x 0.042 foot x 0.90 x 7.5 gallons/cubic foot. A rain barrel calculator is available at <https://www.watercache.com/resources/rainwater-collection-calculator>.

You can install multiple rain barrels, (in series), to a single downspout. You can also connect a single rain barrel to several leaders draining different portions of your roof.

Locate each rain barrel on a stable, flat surface near the downspout that will be connected to the rain barrel. The barrel should be elevated on cinder blocks or a platform, so that gravity can deliver flow to the area to be watered and to make hose attachment easier.

How can you provide for overflow during large storms?

When a rain barrel fills to capacity during large storms, it discharges through an overflow outlet. To prevent damage to the building foundation, the overflow outlet should be directed to a safe location away from the building foundation or to a drain pipe.

Which other techniques work well with rain barrels?

Rain barrels work well with most other stormwater reduction techniques, such as rain gardens, green roofs, and urban tree canopies. But remember that placing a rain barrel at a downspout that empties into a rain garden may reduce the amount of water that is available to maintain the rain garden plant community.

What are the costs?

Compared with some of the other stormwater reduction techniques, rain barrels are relatively inexpensive, ranging from less than \$50 to as much as \$250, depending on whether you create your own or buy a commercially made barrel. Approval of your rain barrel project through the Rain Check Rebate Program can help reduce costs.

Can you do this project yourself?

Yes. You are not required to hire a contractor, and no special skills are involved. You can build your own rain barrel or purchase a pre-assembled rain barrel and install it yourself. A brief video on how to install and maintain a rain barrel is available from the Rutgers NJAES Cooperative Extension (video link: How to Install Your Rain Barrel, <https://www.youtube.com/watch?v=t5EnKSdWHeE>).

How can you design and build a rain barrel?

Instructions are available from many sources, such as A Homeowner's Guide to Stormwater Management, published by the Office of Watersheds, Philadelphia Water Department (http://phillywatersheds.org/doc/Homeowners_guide_to_stormwater_management.pdf), How to Build and Install a Rain Barrel, published by the South River Federation and Center for Watershed Protection (<http://www.savewaternc.org/documents/>

rainbarrelhowto.pdf), and Building a Rain Barrel, published by the Maryland Department of the Environment (http://www.mde.state.md.us/programs/Water/WaterConservation/Documents/www.mde.state.md.us/assets/document/water_cons/rainbarrel.pdf). You can view a 5-minute video, How to Build a Rain Barrel, from Fine Gardening (<http://bcove.me/80qawv7o>). Workshops are also available through the Prince George’s County Master Gardeners and the Interstate Commission on the Potomac River Basin.

Where can you buy a pre-assembled rain barrel?

Rain barrels are sold at most major hardware stores. A partial list of rain barrel vendors is available through Biologic Performance: <https://biologicperformance.com/rain-barrel/>, scroll to bottom of page.

How do you install a rain barrel?

Be sure that you have a level and secure base for the rain barrel. Wearing safety glasses and gloves, carefully cut the downspout with a hacksaw at the height necessary to connect it to the rain barrel. Position the barrel and attach a flexible downspout elbow over the downspout, positioned above the rain barrel inlet. You can use a strap to secure the rain barrel to the building to prevent it from being tipped over. It may also be helpful to attach a “Caution, do not drink” sign to the rain barrel.

How should you choose a contractor?

If you decide to have a contractor design and install your rain barrel, choose carefully. Ask potential contractors how much experience they have installing rain barrels and whether they know how to link multiple rain barrels together. Experienced contractors should be able to supply references from past clients. Find out if they are insured or bonded, or if they are accredited by a recognized organization such as the American Rainwater Catchment Systems Association. Ask potential contractors to explain what is included in their services, how long it should take to complete the project, whether they will work with other subcontractors (such as electricians) if needed, and whether their work would be guaranteed. Ask potential contractors what type of system they would recommend for your property and request a written estimate, in advance, that includes materials and labor.

Is a permit required?

No permit is required to install a rain barrel. However, if you belong to a homeowners association (HOA) you must obtain a letter of approval from your HOA prior to installing a rain barrel and applying for a rebate.

What maintenance will be required?

Rain barrels require periodic maintenance. Drain them after each significant rainfall from April to November. As a general rule, empty the rain barrel every five to seven days. Clean the rain barrel periodically and inspect it for clogs and leaks. If you suspect mosquitoes may be a problem, a fine mesh screen fitted on the lid of the rain barrel will prevent mosquitoes from gaining access and laying eggs. Remove leaves and other debris from the filter screen and ensure that it is not damaged and is securely fastened. Unless designed for freezing temperatures, the rain barrel should be disconnected and drained in the fall or winter, before the first frost, and stored upside-down in a protected location to avoid damage.

MAINTENANCE SCHEDULE FOR RAIN BARRELS												
	Spring			Summer			Fall			Winter		
Drain after significant rainfalls	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary			
Clean and inspect for clogs or leaks	Required at Low Frequency	Required at Low Frequency	Required at Low Frequency	Required at Low Frequency	Required at Low Frequency	Required at Low Frequency	Required at Low Frequency	Required at Low Frequency	Required at Low Frequency			
Remove leaves and debris	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary			
Replace damaged filter screen	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary	Required as Necessary			
Drain before frost								Required				

 Required
  Required at Low Frequency
  Required as Necessary

For more information

While Prince George's County does not endorse any one method of building or installing a rain barrel, or any particular rain barrel vendor, the following information is supplied for your consideration.

Building, Installing, and Maintaining a Rain Barrel

Interstate Commission on the Potomac River Basin

<https://www.potomacriver.org/resources/get-involved/water/build-a-rain-barrel/>

Maryland Department of the Environment

http://www.mde.state.md.us/programs/Water/WaterConservation/Documents/www.mde.state.md.us/assets/document/water_cons/rainbarrel.pdf

Maryland Department of Natural Resources

<https://dnr.maryland.gov/wildlife/Pages/habitat/warainbarrels.aspx>

Low Impact Development Center

http://www.lid-stormwater.net/raincist_home.htm

Office of the Watersheds, Philadelphia Water Department

http://phillywatersheds.org/doc/Homeowners_guide_to_stormwater_management.pdf

Fine Gardening (5-minute video)

<http://bcove.me/80qawv7o>

City of Portland, Oregon

<https://www.portlandoregon.gov/BES/article/127467>

Rain Barrel Vendors

Lowe's:

www.lowes.com/Search=rain+barrels?storeId=10151&langId=-1&catalogId=10051&N=0&newSearch=true&Ntt=rain+barrels#!

The Home Depot

www.homedepot.com/s/rain%2520barrels?NCNI-5

Ace Hardware

<https://www.acehardware.com/search?query=rain+barrels>

Calculators

Rainwater Collection Calculator

<https://www.watercache.com/resources/rainwater-collection-calculator>

For more information, call 410-974-2941 or visit The Chesapeake Bay Trust (cbtrust.org).