

THE HOME YOU OWN

How to harvest rainwater — and why you want to

With the right catchment system, you can use rain to water your yard, wash the car and even flush the toilet

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December 19, 2023 at 6:00 a.m. EST

Though people have been collecting rainwater for thousands of years, the process can be mystifying.

“Most homeowners know what a rain barrel is. They know the design they want and how much they’re willing to pay, yet they don’t know how to connect them to their home properly,” says Kara Young, creative director of Rainplan, a company that helps homeowners find contractors and incentives for storm water collection. “It’s sort of like home-buying, with lower stakes, of course. Most of us know the generalities of the process but when we actually start, we realize there are a lot of considerations and details we weren’t aware of.”

Still, the benefits of harvesting rain typically make navigating the complexities and regulations worth it. Not only is it an environmentally sound way to use a natural resource and conserve water, it also helps divert storm runoff from pavements, where it could otherwise cause flooding or carry pollutants into natural bodies of water.

Using rainwater can save money in the long run, especially amid rising utility costs: According to a report by Bluefield Research, the combined water and sewer bill for a typical U.S. household has grown by more than 50 percent since 2012. And many municipalities aim to make the upfront costs more affordable with incentive and rebate programs.

Here’s what else to know.

How does rainwater harvesting work?

When rain falls on your roof, you can direct it to flow from your gutters through the downspouts, into a storage container such as a tank or barrel. At its most fundamental, that’s rainwater harvesting.

Attaching one of those 50-gallon plastic rain barrels you see at hardware stores to a downspout certainly counts, but that's the bare minimum. One inch of rain falling on one square foot of roof surface yields approximately 0.623 gallons, meaning a barrel like that would be full after less than a quarter-inch of rain.

For more serious harvesting, larger cisterns that hold hundreds of gallons are a better bet. (Beyond that, custom rain catchment systems can get far more elaborate, costing tens of thousands of dollars.)

There are several ways to help filter debris from the water before it's stored, too, such as adding screens over your gutters, or installing a first flush diverter — device between the downspout and the storage tank that helps sift out debris.

Once the water is stored, it can easily be used for outdoor activities, such as watering a yard or washing a car. Directing the water for indoor use is also possible, though more complex, especially if the goal is to treat it so that it's safe for drinking. Some households use rainwater indoors only for toilet flushing.

Why collect rainwater?

The most common reason for homeowners to harvest rain is to conserve water. This was Seattle homeowner Kari McCrory's main goal when she had two rainwater tanks installed on her property last spring by local company [Product Water](#). She uses the water they collect for her vegetable garden. "I just felt like it was one way that we could try to help the environment," she says.

One of McCrory's tanks relies only on gravity to water her garden through a drip hose, which is attached to a timer that automates watering. So far, it's been a success. "I was able to water that garden all summer using that water," she says.

McCrory paid roughly \$5,000 for the installation of the tanks, about \$3,000 of which was subsidized by a local government program called [RainWise](#). Though saving money wasn't her main priority, she says her use of utility-supplied water has decreased significantly. "I almost cut [usage] in half during the hotter, drier months," she says.

Will harvesting rainwater save me money?

The cost of water varies widely throughout the United States, as does the amount of water used by homes, making it hard to generalize about the cost savings of rainwater harvesting. And the type of system you install is another variable. A small rain barrel used to water the yard might cost \$100, while an elaborate system that captures thousands of gallons of water and treats it for indoor use could be \$20,000 or more, and require special permits to install.

Doug Pushard, founder of [Harvest H2O](#), a company that provides design and installation of water reuse systems, says that one of his customers in Santa Fe, N.M., put in a “fairly large and sophisticated system” and saw their water bill drop from more than \$1,000 per month to around \$100 per month.

Can I DIY a rainwater system?

It may be possible to install rainwater tanks yourself, but it’s important to understand how to do so properly, as well as the challenges and opportunities that your property presents, and the rules and incentives in your area.

“If you’re going to do a larger rainwater system, finding somebody that has done it before to at least do an on-site consulting visit will save you money because you’re going to avoid a lot of mistakes that can occur in installing it,” says Pushard.

He recommends visiting the website of the nonprofit organization, ARCSA International, to look for contractors in your area. The group also offers a 16-hour online course on how to install and maintain a rain catchment system and a [rainwater harvesting manual](#). Even if you hire someone for the initial installation, you may want to educate yourself on ongoing maintenance. [Rainplan](#) offers free virtual site visits and assessments for property owners as well.

If you’re concerned about aesthetics, that may be another reason to consult a pro. McCrory says her green tanks don’t blend in perfectly with her brick house, but they were able to position them in a fairly unobtrusive way. “You can see it from street level, but it’s not bad,” she says. “And then we have one up above that’s just along a neighbor’s fence. It kind of blends into the grass.”

Are there rules and regulations for rainwater harvesting?

Regardless of what kind of system you want, familiarize yourself with the guidelines of your municipality. Roughly half of states have no regulations for collecting rainwater. Ten states encourage or incentivize homeowners to harvest it, provided they follow the appropriate regulations. The Federal Energy Management Program [created a map](#) of guidelines across the country.

Rainplan’s website includes an [online database](#) that allows you to look up incentive programs by state; it contains more than 1,200 of them. In Washington, D.C., for instance, [RiverSmart Homes](#) offers rebates to residents who buy and install rain barrels. The amount someone can receive is based on the capacity of the barrel — for example, a 50-gallon barrel yields a \$100 rebate.

Even with a rebate, installing a rainwater catchment system will probably require some upfront investment. However, the savings could grow over time with continued use, especially if the cost of utilities continues to rise.

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