



Natural rainwater is an important resource to use for gardening, cleaning, and so many of our daily tasks. Although it requires an initial investment, you will benefit both financially and morally as you reduce your water bill and conserve public water resources. Here are important tips to consider now that you're ready to set up a rainwater collection system of your own:

Research the local guidelines and laws in your area.

While some states have almost no restrictions, there are some states that require a permit based on the amount of water you are planning to collect or ban it altogether. [Here is a map of rainwater harvesting laws by state.](#)

How much water do you want to collect?

When determining the amount of water you need, consider what you want to use the water for, and what conservation measures you can incorporate that fit your lifestyle. Also, take into consideration how much water you can collect.

Determine the collection area and rate.

Use this formula to help figure out the rate of collection given your roof size:

1. Calculate the cubic inches of the section of your roof that drains to the downspout you will use to collect rain water. $\text{Length(inches)} \times \text{Width(inches)} \times \text{Height(1inch)} = \text{Total Cubic Inches}$
" Example: 20 ft by 15 ft roofline = $(20 \times 12) \times (15 \times 12) \times 1 = 43,200$ inches³
2. Cubic inches per gallon conversion: 1 gallon of water = 231 inches³
3. Then divide Total Cubic Inches by 231 to find total gallons collected per one inch of rainfall.
" Example: $43,200/231 = 187.01$ gallons collected per 1 inch of rainfall.

Obtain the necessary equipment and supplies.

Rainwater collection systems can be roughly separated into two types - those where the water runs by gravity and those where the water runs by gravity to a surge/pump tank. Gravity flow is ideal and most cost effective because it does not require power. Often you can buy a water storage barrel online or from a local business. The other supplies you'll need to make your rainwater collection system can easily be picked up at a hardware or home and garden store.

Determine the type of filtering system

The filtration process can be as simple or as elaborate as you need and will depend mostly on what the goals are for use of the water harvested. For most people a rain water collection system is employed for watering their gardens and use around their yards. With this type of use, a basic large particle filter or screen can be used to keep leaves, twigs, and other larger items from collecting in the harvest tank. With a little ingenuity, a basic leaf filter can be made at home, but there are also many options you can purchase online.

Collection Barrel Material and Placement

The barrel used to collect rainfall is important as some materials allow sunlight to penetrate and catalyzes algae growth. Make sure to research the material type and try to find a shady area where the barrel is not located in direct sunlight. If the barrel you have does not block sunlight, there are paints available that will block the sun's rays and deter algae growth from taking place in your tank.

Overflow and Bypass

Overflow and bypass are often overlooked when setting up a rainwater collection system, but are important in ensuring proper water drainage away from the building when the system collects beyond its capacity. Building in a system bypass will restore downspout functionality during the colder months and ensure the collection system doesn't break due to freezing.

