Rain Barrels

One Form of Rain Harvesting

The term "rain harvesting" covers a variety of technologies to utilize one of our most valuable – yet locally undervalued – resources: rainwater. During most years, our Southwestern Pennsylvania Region receives ample rain and snowfall to meet our residential, industrial, and agricultural needs. Our climate, geography, and geology combine to provide us with one of the highest functioning watersheds in the nation.

Historically, our water cycled very efficiently from the sky to the land (and vegetation) to the water table to the streams and back around again.

However, over the last few decades, our standard development practices have disrupted this cycle, creating a series of related, but unintended, consequences that our region is now feeling in our collective wallet. More and more people are experiencing routine flooding episodes form excessive stormwater runoff volumes. ALCOSAN and other waste water treatment system customers are paying higher rates to cover the significant upgrades required to address combined and sanitary sewer overflows that discharge raw sewerage during storm events.

Higher stream levels from excess runoff erode millions of tons of streambank materials – more and more often in homeowners' back yards. Eroded soil materials are then deposited in stream channels, displacing water and making future flooding more likely.

These consequences tend to make us think the rain is at fault, rather than the development practices that mismanage both the land and the rainfall.

Allowing our natural features to infiltrate rainfall safely into the water table where it belongs is our best defense against flooding, sewer overflows, and erosion. Low-impact-development (LID) practices attempt to do exactly this. But those of us living and working in areas of standard development with few natural features left can also help mitigate our excess runoff issues – often saving money in the bargain – by "harvesting" rainfall.

Kentucky Barrels

Rain Saver USA

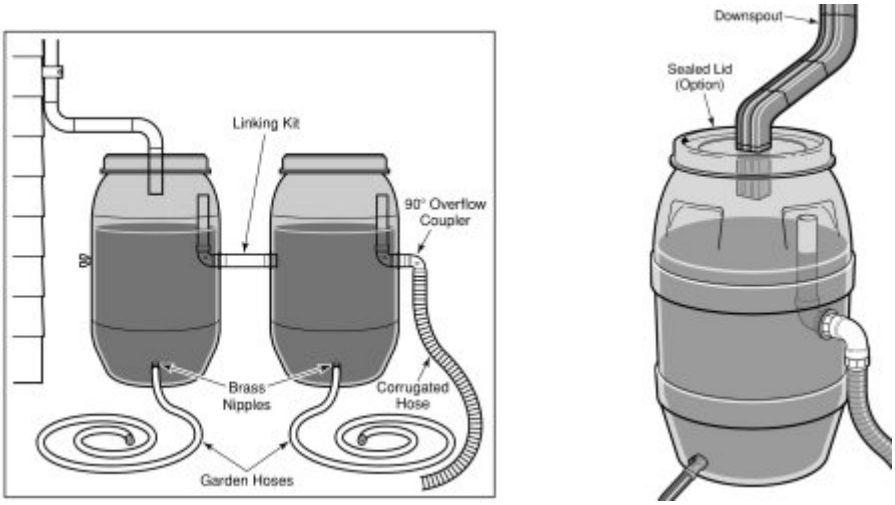
Great American Rain Barrel

Cascada Rain Barrel

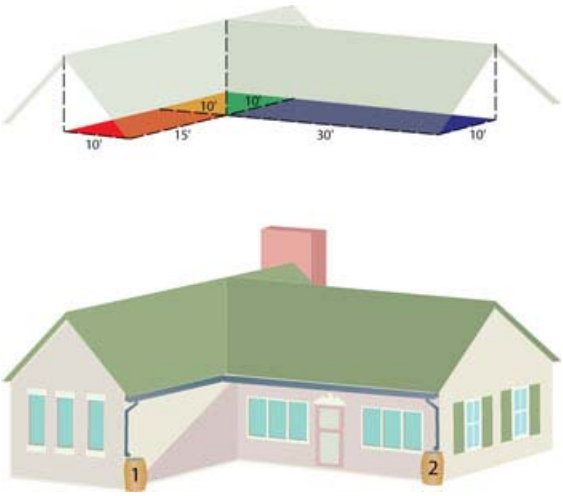
Because it has not filtered through soils and rocks picking up dissolved minerals, rainwater is "soft," making it good for watering plants or washing cars. In some places, the collected water is properly filtered and used as potable water.

We can choose from among cisterns, dry wells, vegetated swales, rain gardens, and rain barrels to harvest and use our precipitation.

Rain barrels have become quite popular for their ease of installation and their compatibility with existing gutters and downspouts. They can also be linked in a series to maximize the volume of stored water. To decide how many barrels you might need to collect your roof runoff, consider that a 1,000 square foot roof will shed almost 600 gallons of water during a 1" rainfall.



Typical Manufactured Urban Rain Barrel Design with added accessories
(Source: Composters.com, A subsidiary of The Green Culture ®)



Be Water Smart

You can estimate the volume your roof will collect by using the following information:

Your roof's surface area (in square feet) = roof length x roof width
(if necessary, use the length and width of the building to estimate)
Actual rainfall (measured in fractions of feet: 1" = 0.083; ½" = 0.042)
0.90 (a conversion factor representing average system losses)
7.50 (another conversion factor representing gallons per cubic foot)

Roof surface area x Rainfall x 0.90 x 7.5 = Volume of ideal rain barrel(s)

Or, for example:

If you have a 25'x 40' roof section, and you intend to capture a ½ inch rainfall, then your equation to find the ideal barrel volume is –

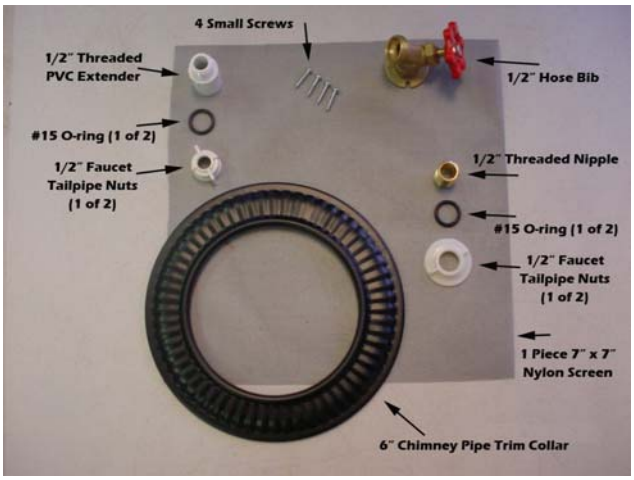
1,000 square feet x 0.042 feet x 0.90 x 7.5 gallons/cubic foot = 283.5 gallons

Barrels come in a variety of shapes, sizes, and designs to suit a wide variety of space, style, and budget considerations. Quite serviceable rain barrels can also be made at home with readily available materials, and they can be personalized with creative painting or adornments. These make interesting school, scout, or church projects for older children.

Milwaukee Metropolitan Sewerage District

There are many websites with rain barrel instructions. Regardless of your choice, be sure you use sturdy materials that will last. Barrels must be food grade to prevent leaching of potentially dangerous residual chemicals. You will also want to screen out mosquitoes and roof debris.

City of Raleigh, NC



On-line instruction sources include:

http://www.bestgreenhometips.com/
http://www.instructables.com/
http://www.blackstoneriver.org/programs/
http://fyn.ifas.ufl.edu/barrels.htm
http://www.youtube.com/watch?v=MGFDlkJOdaM

Decide how you will use the water in the barrel. If you will be putting buckets or watering cans under the spigot, then use a stable base to provide adequate height. Whether on a base or at ground level, make sure the barrel will not tip over – especially if small children are nearby.

To simplify garden or landscaping watering tasks, you can attach a soaker hose to the spigot. People who wish to responsibly manage their roof runoff, yet do not garden, may use soaker hoses around their homes' foundation plantings or trees. Opening the spigot will effortlessly use the water in between rain falls. (Mature shade trees evapo-transpire 75-100 gallons of water per summer day, so they can benefit from rain barrel resources.)

Lawns, gardens, and other summer water needs often make up 30-40% of average homeowners' water bills. No matter what rain barrel or other rain harvesting method fits your needs best, collecting and using rainfall (and keeping our rainwater within the normal water cycle) offers an economical way to keep your lawn, garden, or landscaping in good health.

City of Tampa