

Urban Rainwater Harvesting for Landscape Irrigation
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Rainwater harvesting has been practiced for over 4,000 years in the desert of southern Israel. The ancient Romans had systems of aqueducts and cisterns. In the early 1900's, American farms and ranches depended on rainwater and groundwater. Rainwater harvesting is mandated in many Caribbean and European countries.

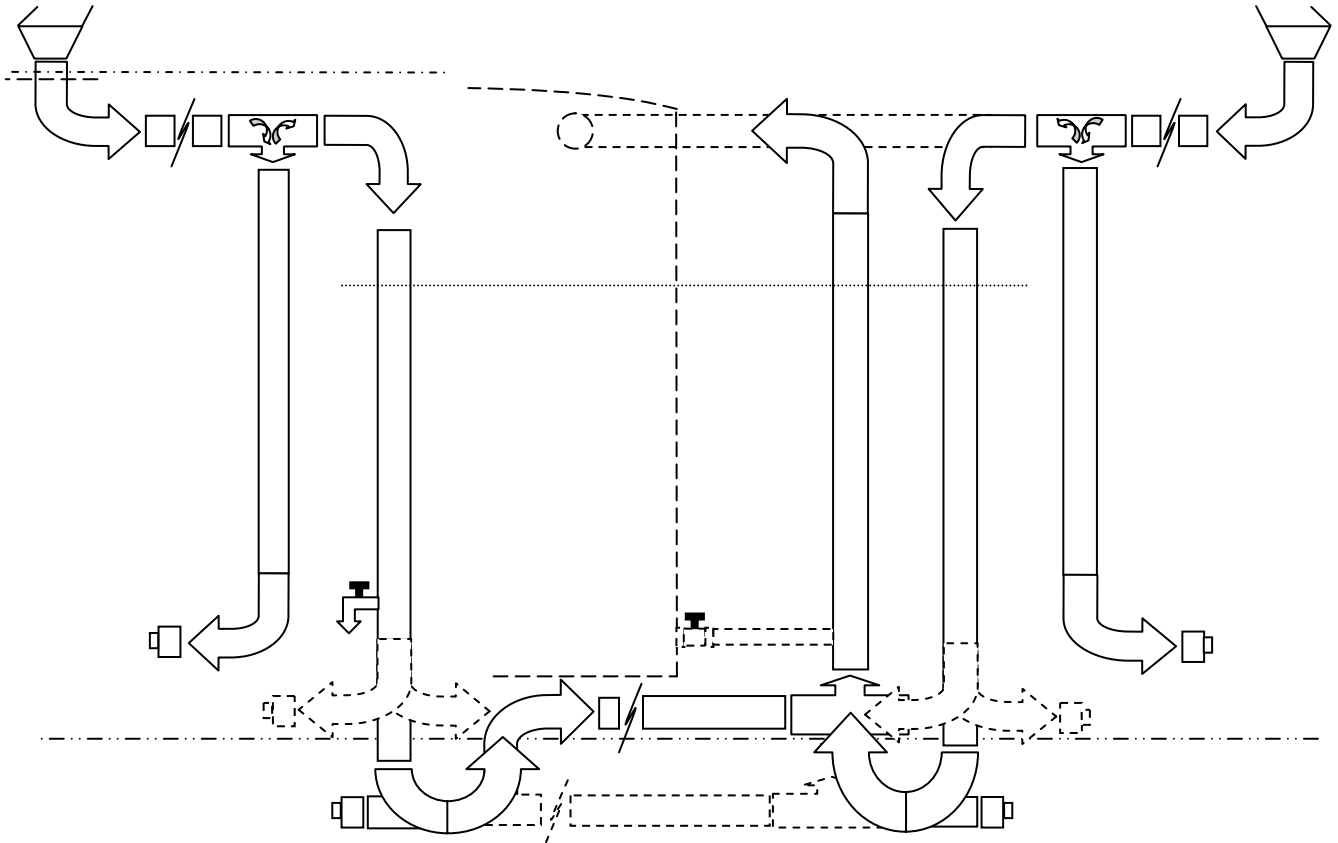
Why do we collect rainwater? The pH is almost neutral except in areas of heavy industry. Most plants love rainwater, because it does not have dissolved minerals from the soil as groundwater does and it does not have chemicals from water treatment plants. Careful planning for a rainwater system can also reduce erosion. Finally, it can reduce your water bill! Using rainwater reduces the need to use expensive potable water on your landscape plants.

In Texas, we have made rainwater harvesting components exempt from sales tax, saving over 8% of the cost in most jurisdictions.

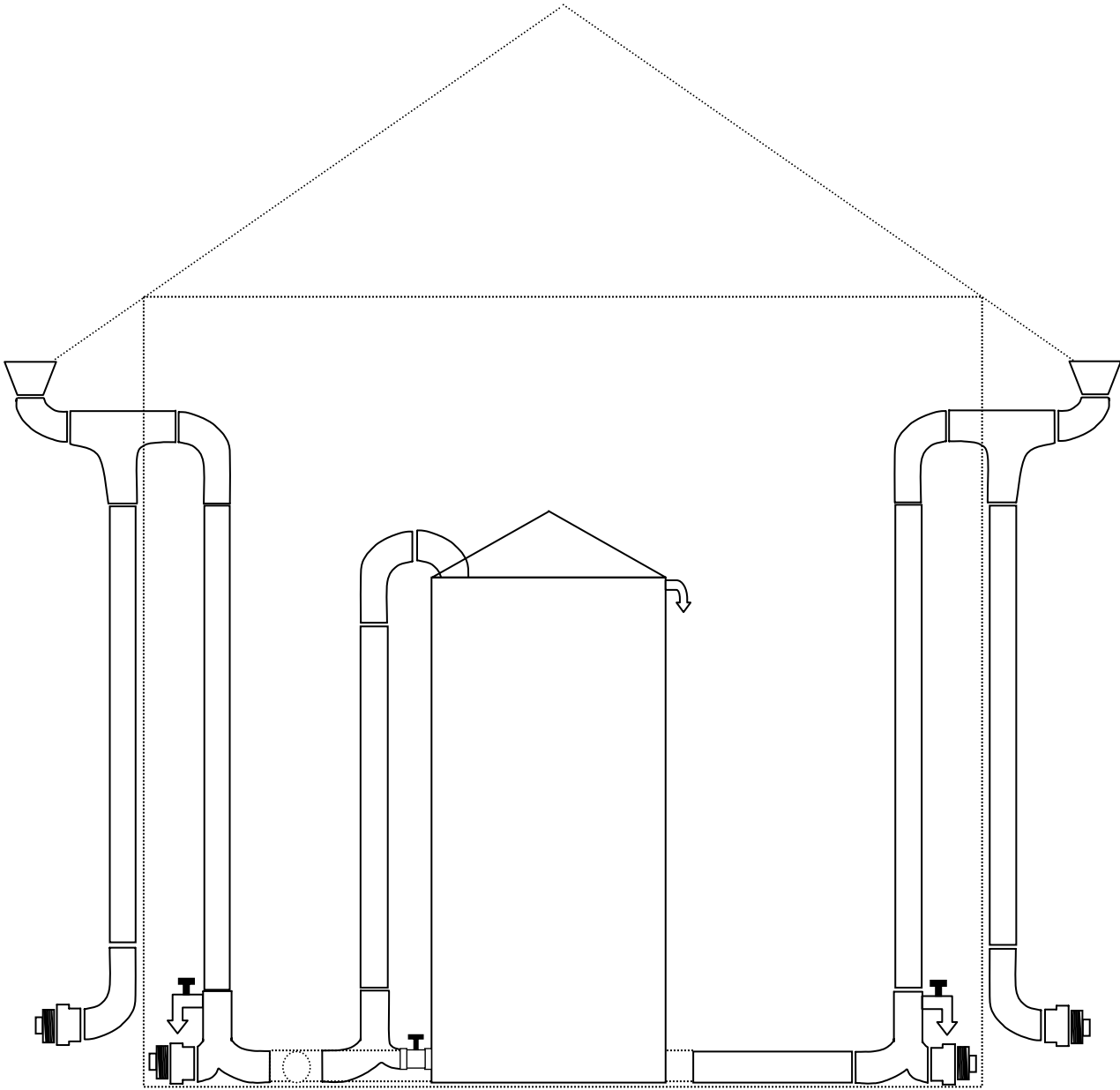
A simple system starts with a first-flush filter or "poor man's roof washer". The PVC components are found at local plumbing stores or "big box" retailers. The use of a first-flush filter reduces silt buildup in the cistern and avoids the need for frequent removal of debris from the tank.

Starter systems can be made from recycled food-grade drums linked together. Other sources of recycled containers may be a nearby industrial plant, or in the case of Austin, the computer industry.

Larger tanks (or cisterns) are available in many sizes and configurations. The least costly are the "poly" tanks available at feed and ranch stores or rural fencing supply houses.



This diagram shows several options for moving water from the gutters to the tank. A “bottom fill” option allows the collection system to become the distribution system. A method to clean out the pipes at the lowest points helps drain the pipes during freezing weather. In mild climates, the tanks do not freeze. In cold weather areas, the tank should probably not be used if there is a chance of the water turning to ice.



In cold weather areas, the tank should probably not be used if there is a chance of the water turning to ice. In central Texas, we do not have long-term freezing temperatures.

If you want to use rainwater for potable water, it will probably not be for financial reasons, if you have water available from a centralized water system. If you are “off the grid”, rainwater systems are comparable in cost to well water. Safety is of primary importance. You become your own water purveyor.

There are various materials used to make cisterns, including polyethylene, fiberglass, wood and ferrocement. Both above ground and below ground cisterns may be utilized. Cost and site issues will dictate the best choice. The expected life span for all cisterns is over 20 years. It is usually less expensive to purchase one large tank than multiple smaller tanks, but again, the site available comes

into play. For a simple landscape system, a pump is usually not necessary. Most household systems are NOT connected to the irrigation system. Watering the typical lawn requires 3,000 gallons or more in just one watering cycle. A 3,000 gallon tank would be empty with just one irrigation cycle.

How much water can you collect? A one-inch rain provides about 60 gallons of water for every 100 square foot of roof area. So, even a 10' x 10' garden shed can fill a 55 gallon drum in a one-inch rain.

There are many examples of both commercial and residential rainwater systems in central Texas and many in the City of Austin received rebates. The total cost of a system depends on many choices, but a simple, gravity system for a home landscape typically costs about \$1,000. An irrigation or landscape contractor has the necessary tools, except perhaps bits for 3 and 4 inch holes. Hey, it's just PVC pipe! Add a rainwater harvesting system onto your next bid and pocket another \$1,000 profit.