



Lady Bird Johnson Wildflower Center

Rainwater Harvesting

Educating people about the environmental necessity, economic value, and natural beauty of native plants

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For central Texas, water conservation is becoming one of the most important issues of environmental citizenship. Homeowners can reduce water consumption by using in their landscapes a beautiful array of native plants well suited to our semi-arid climate. Another way to conserve water is to harvest the rainfall we receive. Most of us rely on a utility company to supply our water, but early Texans creatively used roofs and cisterns to collect rainwater for all their household and agricultural uses. With increased concern over water pollution and depletion of the Edward's Aquifer, there has been renewed interest in the self-sufficiency of harvesting rainwater, one of the purest sources of water available.

As a part of our commitment to the environment, the Lady Bird Johnson Wildflower Center has one of the largest rainwater harvesting systems in America. The Wildflower Center's system utilizes 17,000 square feet of roof that can collect about 10,200 gallons of water for every inch of rain. Based on the average Austin rainfall of 30 inches per year, the Center can potentially collect 300,000 gallons of rainwater each year. Visitors enjoy the aqueducts, rock cisterns and several water features that comprise the 70,000-gallon storage system that add beauty and interest to the gardens. The water is used exclusively on our plants.

The most common roofing material used for a rainwater harvesting system is metal because it is smooth, durable and affordable. The catchment area is the same square footage as the footprint of your building, as long as the entire roof has gutters. Gutters should have leaf screens and overhanging tree branches should be pruned back. Be sure all soldering is lead-free. When rainwater is intended for drinking, a roof washer system should be installed that collects and disposes of the first flush of water from the roof.

A variety of cisterns are now commercially available. A cistern should be sited with vehicular accessibility in mind, in a shady area close to the catchment area. A strong foundation is essential to adequately support the weight of

the water. Chances are you will need a pump and a pressure tank to simulate usual water pressure.

Rainfall is free of most water quality hazards and contains almost no dissolved minerals or salts that typically clog plumbing and appliances. Central Texas rainfall has a pH slightly below neutral and its acidity can easily be neutralized. You'll want to have your water tested by a certified laboratory to ensure it meets standards for drinking water. Results will help determine if your system will need to employ treatment techniques such as screening, settling, filtering or disinfecting.

The design of your rainwater harvesting system should take into account how much water you will use. Look through past utility statements for numbers. Take advantage of low-flow plumbing fixtures and water-wise irrigation practices to extend your rainwater holdings. One inch of rain on one square foot of catchment area yields 0.62 gallons. To calculate how much rainwater you can catch each year, multiply the square footage of your roof catchment area by 0.62 gallons by the average rainfall (30 inches for Austin). If your system is not 100% efficient at catching the rain, you may want to take this into account in your equation. To determine your daily allotment, divide this figure by 365 days per year. When considering the possibility of drought conditions, cut this figure in half.

In sizing your system, you can determine storage and demand by multiplying the square footage of your roof catchment area by 0.62 gallons by the monthly rainfall, then adding the gallons already in storage and subtracting the monthly demand.

Typically, a rainwater harvesting system will cost more than drilling a well, and the break-even point may be 15-30 years. However, rainwater is historically reliable and the quality is unsurpassed. A rainwater harvesting system would be an asset to any home, and a healthful investment for an ecological future.