



Rainwater Harvesting Questions

Our article on water catchment drew many questions from folks who were seeking information about capturing rainwater for home use. Here are answers to a few.

How much rainwater falls on a roof? Each inch of rainfall drops 1,240 gallons on a 2,000 square foot roof. To approximate the amount of rainwater falling on your roof, multiply the square footage of your roof's footprint by .62 to get your gallons per inch of rain. If you don't know the square footage of your roof footprint, just substitute your house square footage—including the garage.

How much water do we typically use? We use about 150 gallons per day per person, which includes outdoor use. Indoors, we use about 70 gallons per day per person. Of that, less than 5% is used for drinking and cooking. Most is used for washing dishes and clothes, flushing toilets, and bathing. It takes 2 gallons to brush your teeth, 2 to 7 gallons to flush a toilet, and 25 to 50 gallons to take a shower. By using water-efficient appliances and water-conserving practices, you can achieve a daily per-person usage lower than 50 gallons per person.

What are the basic components of a rainwater harvesting system? Simply put, the system typically includes rain gutters, some piping, storage tanks, a first flush process, some filters, a purification mechanism (UV light) for potable systems, and a pump.

How much does a rainwater harvesting system cost? This is a toughie because it depends on several factors. The biggest expense is the storage tank. Strive to size your system so that you have enough rainwater storage to withstand a drought. See our final question below.

For a new house here in the hill country, a rainwater harvesting system can cost less than drilling a well depending on rock where you are and the depth to your groundwater. If you are adding a rainwater harvesting system to an existing house, consider the infrastructure you already have, such as gutters, downspouts, and the terrain of your parcel—if water can be stored downhill from its capture point, you will need fewer or less-expensive pumps.

Another consideration that affects cost is your desired use. Potable systems must include purification and pressurization equipment, while non-potable systems need filtration only. If your non-potable water is used with drip irrigation or a garden hose to water landscaping, it may not require pressurization. Pressurization of more than gravity's 5 to 7 psi is achieved by using a pump.

For typical systems with no unusual features or obstacles, a simple rule of thumb is that a 2,500 - 5,000 gallon system costs about \$1.75 - \$2.25 per gallon of storage, excluding gutters. Systems 10,000 gallons and up cost between \$1.00 and \$1.75 per gallon of storage, excluding gutters.

How much storage do I need? The storage amount needed depends on your use and our hill country rainfall. Think of water storage as a bank account, with rain making the deposits, and water demand making each month's withdrawals. If you are going to depend entirely on rainwater, the storage size you need has water in the "bank" through a worst-case rainfall year. Use the rainwater calculator at <http://www.texasrainfallcatchment.com/index.php?page=calculator> to estimate how much storage you may need.

Feel free to send your questions to us at the Comal Trinity Groundwater Conservation District by emailing Dr. Sunn at comaltrinitygcdsecretary@gmail.com.