Rainwater Collection System

9001 Settlers Trail

Dripping Springs, Texas

Following two years of research, we decided that a rainwater collection system was, for a variety of reasons, the best way to get water in northern Hays County. Three of those reasons include:
1. Water quality – water brought up from this portion of the Edwards Aquifer tends to have a great deal of mineral content that is not easily removed. Rainwater, on the other hand, contains no minerals at all and, thanks to our filtration system, has no chemicals added either. Just pure rainwater.

2. Water assurance – In times of drought, wells in this part of Hays County have been known to dry up. You then must drill deeper or find another sort of remedy, all the while being without water service. With a rainwater system, if necessary, you can always have water trucked in and deposited in your cistern.

3. Environmental effect – water is becoming more and more scarce as area populations increase, and people who share their water sources with others may someday find themselves without an adequate supply. With rainwater, you are using the same water as your neighbors except that you are capturing it before it sinks through the ground to the aquifer and then has to be pumped back to the surface. The only water you are taking out of the system is the rain that falls directly upon your roof, so you are not denying area flora and fauna any water that naturally occurs in the area and you aren't draining precious water from rivers and streams before it reaches people downstream whose needs are just as great as yours.

We found that the most common problem with rainwater collection systems is a lack of adequate storage. The best remedy for dealing with a potential shortfall would be to build in adequate storage facilities up front so that in times of drought you have a sufficient reserve to see you through. We did some math and determined that an adequate reserve would be a cistern capable of holding 40,000 gallons.

Had we elected to go with plastic above-ground tanks, we would have needed to have a minimum of four ten-thousand gallon tanks linked together. This seemed like a poor solution for several reasons:
1. They would look ugly and be very hard to hide.

2. It would seem a bit too easy to somehow puncture one of the tanks and thereby imperil your water supply.

3. In the Texas summer, wouldn't a black tank simply heat up its contents making it impossible to enjoy a cold shower?

The better alternative seemed to be a sunken cistern or, in essence, to construct our own private aquifer. We had our rainwater contractor excavate a large hole in the downward portion of the hill upon which we

were building our house. We had him construct a 35’ in diameter cistern out of ferro-cement that would be both strong and capable of neutralizing the slightly acidic quality of our local rain. He brought the sides straight up five feet, thereby creating a concrete cistern with a holding capacity of 40,000 gallons. He then added a 5’ high dome to provide a structurally sound roof while still adding approximately 25,000 additional gallons to the cistern.

He arranged for the intake pipe to terminate about 12 inches above the floor of the cistern so that any debris that might have been washed into the container would remain at rest on the bottom and not be drawn up into the filtration area.

We installed large gutters around the house to collect all precipitation and channel it into 4” PVC pipe which we installed just underground all around the house. These pipes then deliver the water into the top of the cistern.

The water is then pumped back out of the ground and into the filtration system located in the garage. There it passes through both a 20 micron filter and a five micron filter (one micron is one millionth of a meter), followed by a charcoal filter and an ultraviolet light that essentially sterilizes the water, zapping anything that might have made it through the filters.

Maintenance is quite simple. The two filters are changed whenever they appear to be getting dirty (about once a month or so) and the ultraviolet light should be changed once each year. The pump was changed out after seven years and the old pump, with a rebuilding kit, is stored in the garage as a backup.

The system in eight continuous years of service has never failed us and we have never even been low on water. We have calculated that for every inch of rain we accumulate close to 2500 gallons of water.