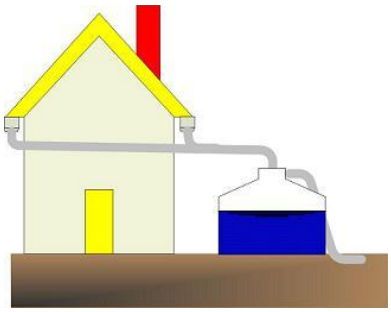
Dry vs. Wet Systems

By Dr. Larry Sunn and Dr. Steven Grainger

When installing rain harvesting systems, a challenging aspect is plumbing configuration. The two methods for plumbing conveyance piping from your roof to your water storage tanks are known as dry systems and wet systems. The roof's surface can be any material (except wood shake shingles) and roof surfaces covered by asphalt shingles should not be used for potable water use until the roof has aged at least 5 to 7 years.

A dry system involves sending water in pipes directly from your roof to your tank. This system is referred to as "dry" because the conveyance pipes are dry when it is not raining. In dry systems, water is fed directly into the tank via gravity. All conveyance pipes are positioned above the tank's inlet and the pipes slope towards the storage tank.

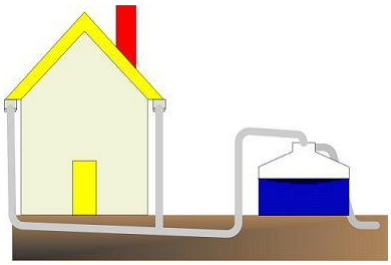


Graphic courtesy of *Greater Edwards Aquifer Authority*

Dry collection systems are cost-effective installations because there are fewer pipes and joint fittings. And, because there is no need to bury pipes, installations are quicker and there is no need to drain conveyance pipes in freezing temperatures. The drawbacks of dry systems include the necessity to install the water storage tank near the roof of your house or outbuilding and, to some, the exposed pipes may appear unsightly.

A wet system is more intricate but generally offers increased security. Rain collected from the roof is directed into air-tight PVC downspouts, which then flow into sealed underground pipes. The water is channeled back up to the top of the tank through a riser pipe located near the tank. A sufficient drop of about 2 feet from the bottom of the gutter to the top of the tank is necessary to allow gravity to fill the tank. These systems are referred to as wet systems because water remains in the pipes after rainfall.

In wet systems, a low-point drain is installed in the piping to allow water to be drained from the pipes when freezing weather is imminent. Wet systems are commonly used when there are multiple downspouts. Because most of the conveyance pipes in wet systems are hidden from view, many consider them more aesthetically pleasing than dry systems. For this reason, homeowners' associations are more likely to favorably view wet systems.



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Wet system advantages include minimal exposed pipes and the ability to locate the rain harvesting tank a good distance away from the collection roof, resulting in a neater appearance compared to dry systems. However, wet systems tend to be more expensive due to the need for additional pipes and joint fittings. Installation time is increased because a trench must be dug to bury the pipes, and if gravity cannot fill the tank due to the home's eave height or site topography, water may need to be pumped from a small collection tank to a higher, more distant storage tank.

The choice about "dry" or "wet" ultimately depends on factors such as the property's layout, topography, and the water's intended use. If aesthetics and permanence are important, especially if the home is in an HOA-regulated area, the wet system may be the best option. On the other hand, if working with a tight budget, the dry configuration could be more suitable.

For answers to questions regarding rainwater capture, reach out to the *RainBee* consultants at https://www.rainbees.com/; their consulting service for rain collecting and well water integration is provided to the public without charge. They do not install anything, sell anything, or push any products—they provide no-cost public service information courtesy of Comal Master Gardeners and the Comal Trinity Groundwater Conservation District.