

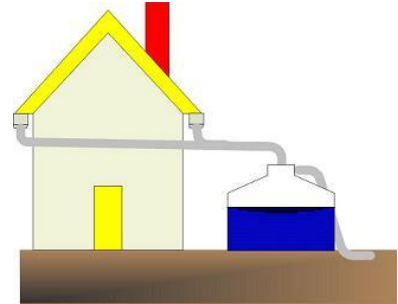


## Dry vs. Wet Systems

By Dr. Larry Sunn

When installing a rain harvesting system, the hardest part to plan is how your plumbing is going to be configured. In this article, we'll discuss two popular ways to plumb the conveyance piping to your water storage tanks so you can safely harvest rainwater. The two pipe configurations are called '*Dry*' systems and '*Wet*' systems. We'll also list some of the pros and cons of the configurations to help you make the right decision for your setup.

*Dry Systems.* A 'dry' system plumbing configuration is when you direct the water from your roof to your tank without it going underground. The reason it is referred to as 'dry' is because when it is not raining, the water drains from the conveyance pipes, so they dry out. These are simple systems because water is fed directly into a tank via gravity. All of the conveyance pipes must be above the tank inlet and slope toward the storage tank for the system to work properly. In dry systems, the conveyance pipe run is usually short, and this type of system usually involves only one or two downspouts.

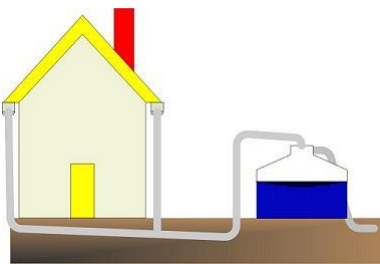


The pros of this dry collection system include:

- Cheaper to install because there is less pipe and fewer joint fittings.
- Quicker to install because you don't have to bury any pipes and the points of use are usually close to the storage tank.
- There is no need to drain your conveyance pipes because the water drains out after the rain stops.
- It is easy to relocate your tank to a new position because there is minimal plumbing to change.

The cons of dry system plumbing include:

- You have to install your water storage tank close to the roof on your house or building.
- There is exposed pipe which could look "messy."



*Wet Systems.* A 'wet' system configuration is a lot more complex but in most cases it is more secure. This style of plumbing directs the water from your roof, underground, through pipes and up into your rain harvesting tank.

In a wet system, rainwater collected from the roof goes into air-tight PVC downspouts to sealed underground pipes and is channeled back up to the top of the tank via a riser pipe located near the tank. There must be enough of a drop (about 2 feet) from the bottom of the gutter to the top of the tank to allow gravity to fill the tank. These systems are "wet" systems because water remains in the pipes after a rainfall.

Wet systems must have a drain mechanism installed in the piping to allow water to drain from the pipes after a fairly long period of no rain; otherwise, water could stagnate because it remains in the downspouts and risers at the same level of water as is in the tank. In wet systems, most of the conveyance pipe is hidden from view; thus they are more aesthetically pleasing than dry systems. For

this reason, HOAs are more likely to favorably view wet systems. Finally, wet designs are common where the system involves multiple downspouts.

Some pros of this style of plumbing.

- You can locate your rain harvesting tank a good distance away from your roof.
- It can look much neater than a 'dry' system because there are minimal pipes exposed.

Cons of this wet style of plumbing include:

- If it doesn't rain for a long time, water will sit in your pipes underground. This can become a breeding ground for mosquitos so care must be taken to screen off all ends of the piping.
- During dry periods you have to occasionally drain your underground pipes to remove stagnant water, or even debris if your system does not have leaf guards on the gutters.
- Wet systems will be more expensive because you have to purchase more pipe and joint fittings.
- Installation time increases because you have to dig a trench to bury the pipes.
- If your home's eaves or the site's topography do not allow for gravity to fill the tank, the collected water might have to be pumped from a small collection tank to a more distant storage tank.

*So, which do you choose?* It really depends on your property's layout, topography, and on how you plan to use the water you collect. If you live in an HOA's jurisdiction or care a lot about the looks of your rain harvesting system, and you are planning to make it a permanent addon to your home, we'd suggest the 'wet' system. If you have a tight budget or don't have much time to maintain it, you might choose the 'dry' configuration.

Feel free to send your rainwater capture questions to us at the Comal Trinity Groundwater Conservation District by emailing Dr. Sunn at [comaltrinitygcdsecretary@gmail.com](mailto:comaltrinitygcdsecretary@gmail.com). All of our CTGCD rainwater and well water consulting services are offered to the public without charge.