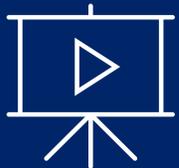


# Backflow Prevention

Tucson Water Rainwater Harvesting & Gray Water System Rebates

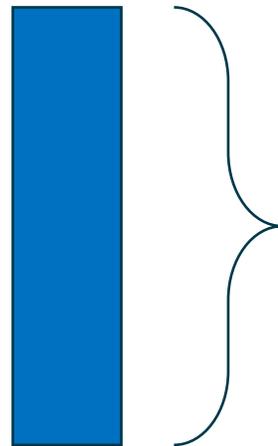




# Rainwater and Gray Water Pressurized Systems - Backflow Prevention Requirement

# Water Pressure

- **Gravity fed column of water:** Pressure from a column of water is .433 psi per foot of water. Every 2.31 feet of water is 1PSI.



1 foot of head =  
**.433 PSI**

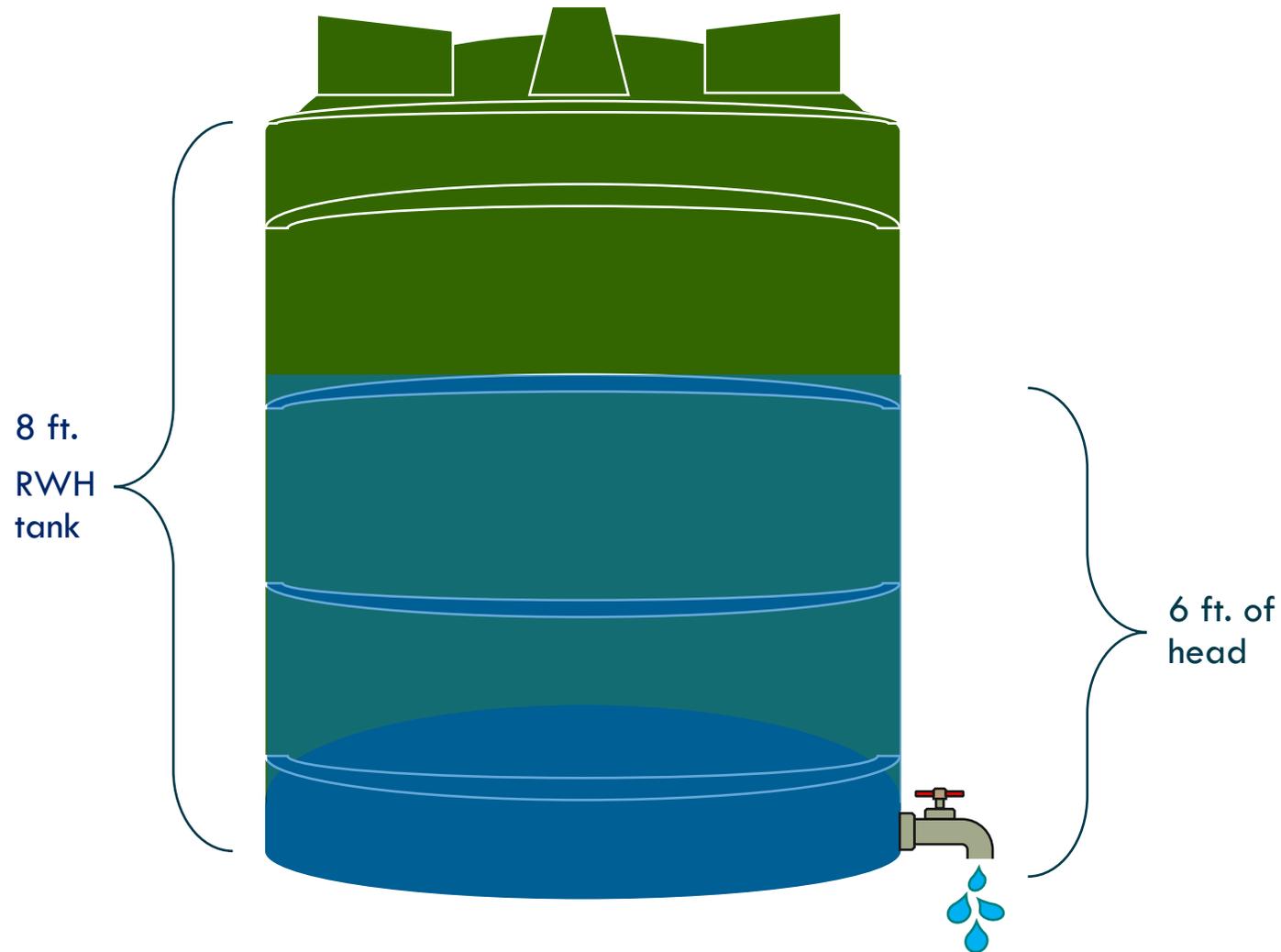


2.31 foot of head =  
**1.0 PSI**

$$\text{PSI} * 2.31 = \text{ft. of head}$$

$$\text{ft. of head} / 2.31 = \text{PSI}$$





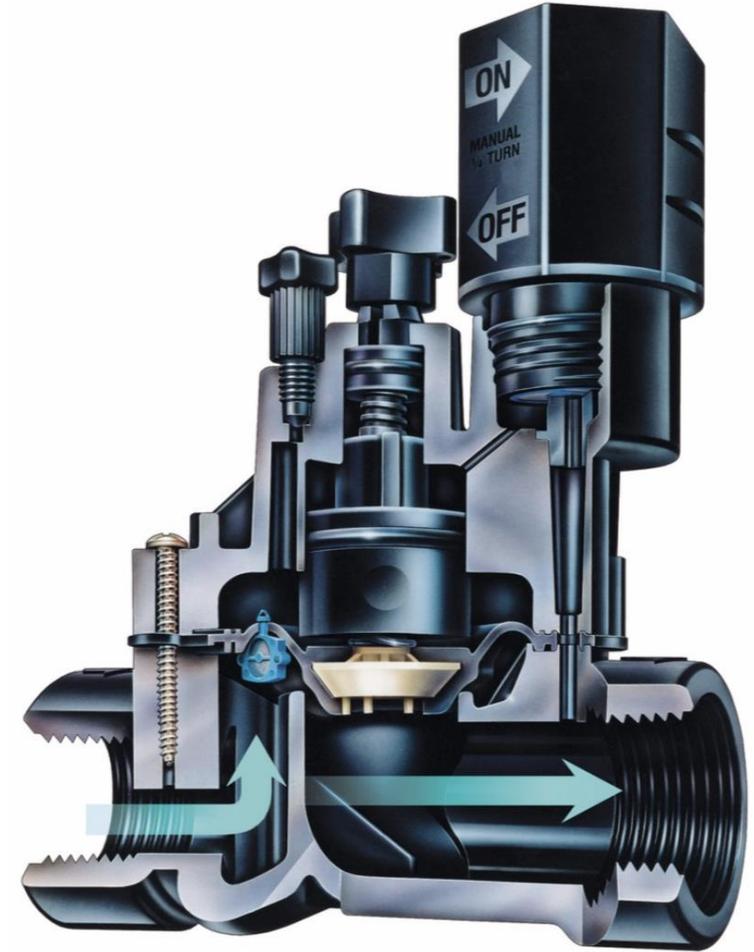
- In this example we have RWH collection tank measuring 8 feet tall, filled with 6 feet of water. How much pressure can we expect to have at the hose spigot located at the bottom of the tank?

**2.598 PSI**



# How much water pressure is needed to operate an irrigation valve?

- Drip irrigation requires approximately 25 PSI, with an operating range of 15-30 PSI.
- Spray heads require approximately 30 PSI, with an operating range of 15-30 PSI.



# Backflow Frequently Asked Questions



## 1. What is a backflow assembly and why do we need one?

*Answer:* A backflow prevention assembly is an approved testable assembly which uses valves in different configurations to prevent potential contaminants from flowing into the potable water system. The Backflow is in place for protection of the public water supply.



## 2. I already have a backflow assembly for my irrigation system, why do I need to install a Reduce Pressure Assembly (RPA) for my pressurized system?



*Answer:* All irrigation systems are required to have a backflow assembly, most commonly a Spill Resistant Vacuum Breaker Assembly (SVB) or a Pressure Vacuum Breaker Assembly (PVB). These assemblies only prevent against back siphonage, the Reduce Pressure Assembly (RPA) prevents both against back siphonage and back pressure, a pressurized (pump) system has the potential to cause back pressure.



Spill Resistant Vacuum Breaker Assembly (SVB)



Pressure Vacuum Breaker Assembly (PVB)



### 3. My pump is not connected to my irrigation system or private plumbing, do I still need to install a Reduced Pressure Assembly (RPA)?



*Answer: YES!* Tucson City code states that an RPA is required if there is an alternative water source on the property and a pump of any kind is installed on the rainwater or gray water system. The absence of a physical connection to the irrigation system will still require the installation of an RPA because of the potential of a possible future connection.



Reduce Pressure Assembly (RPA)

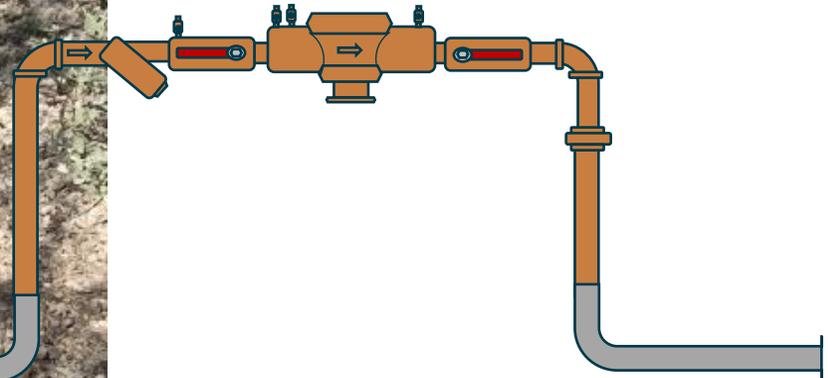
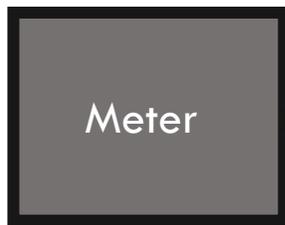
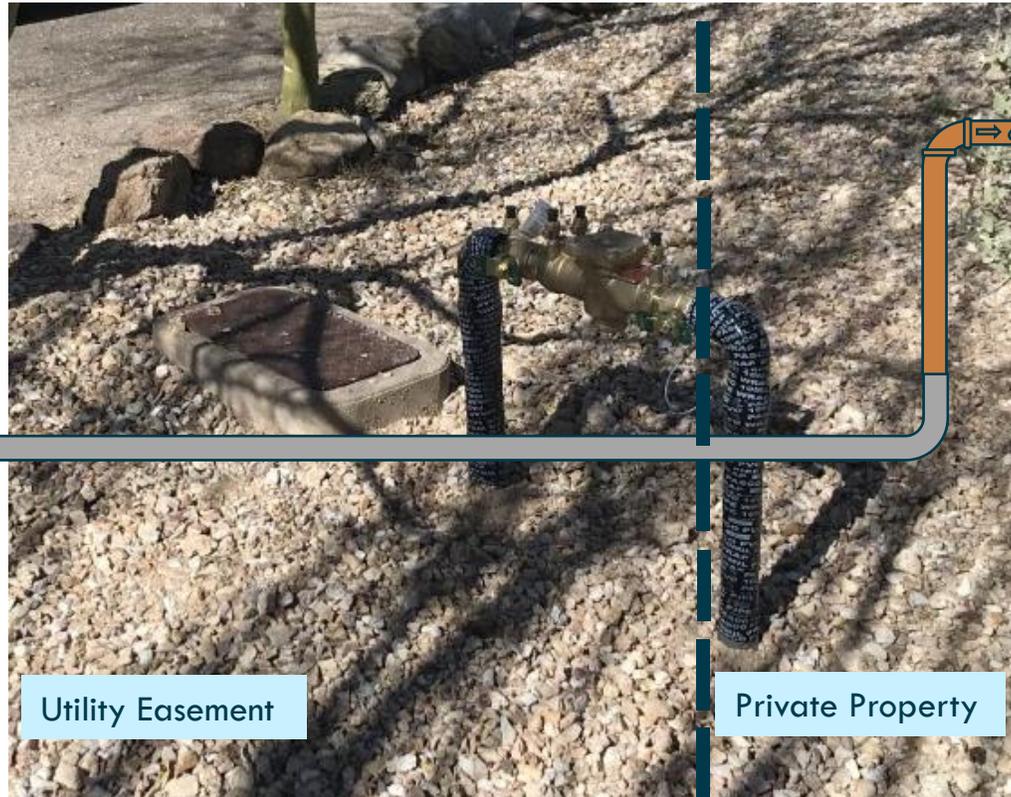




#### 4. Where does the Reduced Pressure Assembly (RPA) need to be installed? And why does it need to be installed in that location?

*Answer:* Per Tucson City Code, the backflow assembly must be installed as close to the water meter as possible to help avoid cross-connections. It also needs to be installed on private property because it is part of the private plumbing system (Utility right of way is not private property).

**Example:** Meter located in utility easement



**Example:**  
Meter and backflow assembly on private property



## 5. Who can install a backflow assembly and how much does it cost?



*Answer:* Only a certified backflow prevention professional can install a backflow assembly. The average installation cost is between \$400-\$1000 with a required annual inspection fee of \$200.

