



Safeguarding Our Drinking Water From Landscape Irrigation Systems

How to Install
Anti-Siphon/Vacuum
Breaker Assemblies



REQUIREMENT

All underground irrigation systems must contain an anti-siphon/vacuum breaker assembly. The Uniform Plumbing Code (UPC) requires underground irrigation systems to be equipped with either atmospheric, pressure or reduced pressure, anti-siphon/vacuum breaker assemblies, depending upon irrigation system design. The City of Glendale requires a plumbing permit whenever an underground irrigation system (sprinkler, drip or bubbler) is installed. The purpose of the permit is to set up an inspection process to verify that an approved anti-siphon/vacuum breaker assembly has been installed properly. Proper installation prevents contamination of your drinking water supply and that of your neighbors.

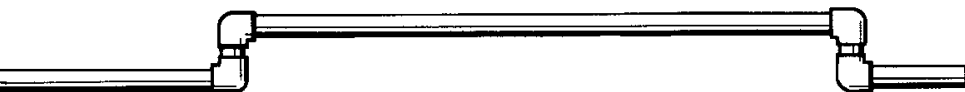
Anti-siphon valves on hose bibbs are for hose connections only. They are **NOT** to be connected to underground irrigation systems.

PERMIT

The owner of the property or the irrigation contractor **MUST** obtain the plumbing permit prior to installation. The permit is obtained at the Development Services Center, Second Floor, 5850 West Glendale Avenue, for a nominal fee.

PURPOSE

The purpose of installing an anti-siphon/vacuum breaker assembly is to prevent contaminated fluids or solids from entering the internal drinking water pipe system within the home or business. PVC irrigation lines can be accidentally nicked during installation. Over time, the lines can become brittle, increasing the possibility of stress cracks occurring. Also, cemented joints can weaken, causing connections to separate. Any of these conditions can allow dirt, fertilizer, or other hazardous substances to enter the irrigation lines. Since the irrigation lines connect to pipes which deliver drinking water into your home/building, these hazardous substances could enter your internal drinking water



pipe system and contaminate your drinking water. Properly installed anti-siphon/vacuum breaker assemblies allow water to flow **ONLY** in one direction, there by preventing contamination of the drinking water system. Incorrectly installed anti-siphon/vacuum breaker assemblies reduce the protection features of the assembly.

INSTALLATION

It is recommended that a licensed contractor be used to install anti-siphon/vacuum breaker assemblies. If you choose to do your own installation, please note the use of lead solder is prohibited. Be sure the assembly is positioned correctly with the arrow pointed in the direction of the flow.

Any piping above or below the ground before the anti-siphon/vacuum breaker assembly may be copper or schedule 40 PVC. If PVC is used, it must be protected from physical damage and must be painted with a latex paint to protect it from sunlight which deteriorates PVC pipe. All connecting piping installed in the ground prior to the anti-siphon/vacuum breaker must be buried at least 12 inches deep.

UPC Code requires one union be installed within 12 inches of the assembly. It is recommended that 2 unions be installed, one on each side of the assembly for ease in removal if needed.

TYPE OF ASSEMBLY

Atmospheric Anti-Siphon Vacuum Breaker (AVB) Assembly:

AVB assemblies work on the principle of atmospheric pressure. As soon as the irrigation valve shuts off, or if there is a sudden drop in water pressure, a float disc in the assembly drops down to prevent backflow.

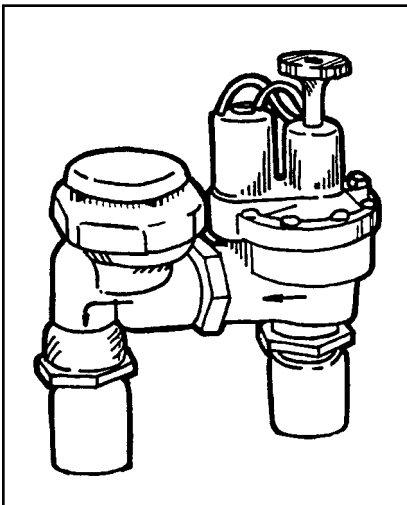
An AVB assembly is required on the discharge side of every control valve. No water control valve shall be installed on the outlet side of an AVB assembly. An AVB assembly shall be installed at least



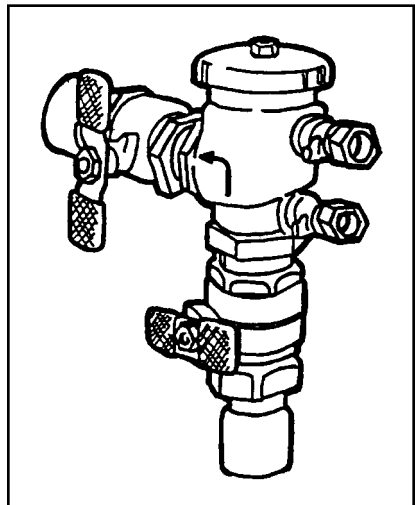
6 inches above the horizontal irrigation piping, sprinkler heads, bubblers or drip emitters so at no time will the vacuum breaker be subjected to back pressure or drainage. If this height cannot be obtained, it is recommended that a pressure anti-siphon vacuum breaker assembly be considered.

Pressure Anti-Siphon Vacuum Breaker (PVB) Assembly:

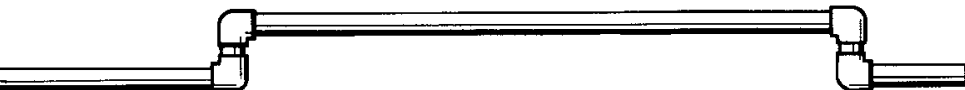
A (PVB) assembly provides the greatest flexibility in that only one assembly is needed regardless of the number of control valves. The control valves may be placed above or below ground. A pressure anti-siphon assembly must be in an upright position and be at least 12 inches above the horizontal irrigation piping, sprinkler heads, bubblers or drip emitters. If this height cannot be obtained, it is recommended that a reduced pressure vacuum breaker assembly be installed. A PVB assembly includes shut-off valves and test ports that allow it to be tested to determine whether it is functioning properly. A benefit of the PVB assembly is that it can be tested annually to ensure it is working properly to safeguard your drinking water.



Atmospheric Anti-Siphon Assembly



**Pressure Anti-Siphon Assembly
(Recommended)**



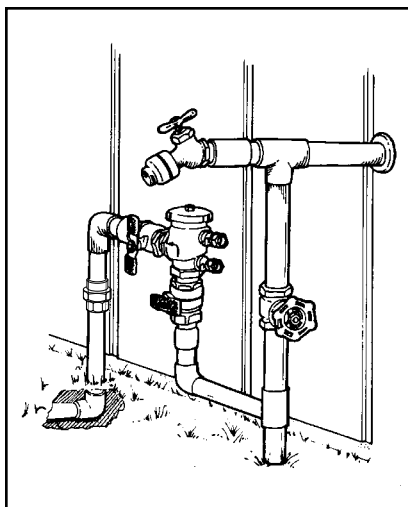
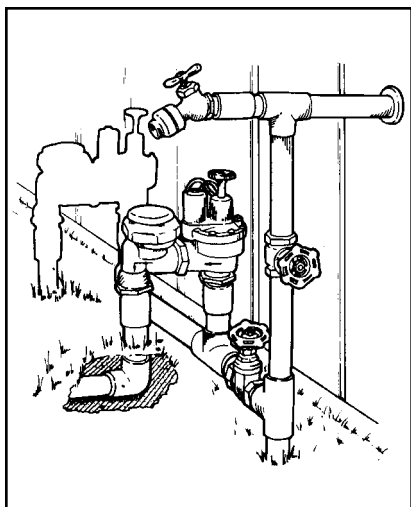
WHERE TO CONNECT IRRIGATION SYSTEM TO WATER SOURCE

Before installing an underground irrigation system, decide where to make the connection to your water source. There are four options - listed below in the order they are recommended by water professionals. When using the AVB assembly, it is recommended that a gate or ball valve be installed prior to the assembly. This enables the water to be shut off to the irrigation system without shutting the water off to the home/business. (See illustrations pages 4, 5 & 6.)

Shutting the water off at the meter is not recommended because it may cause a leak at the coupling of the supply line to the meter. All leaks on the owner's side of the water meter are the owners' responsibility to repair.

Option 1

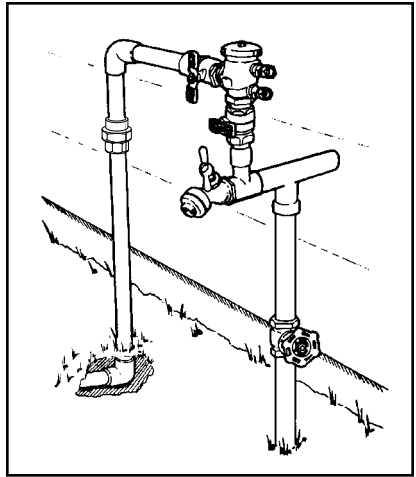
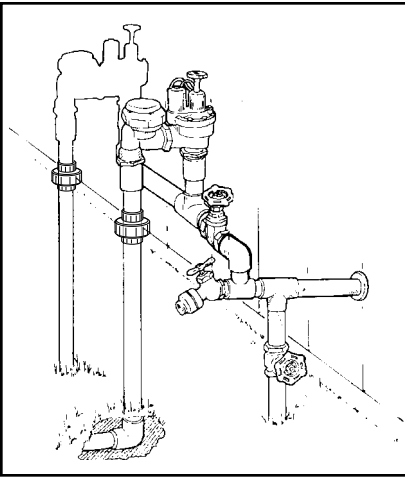
Connect to the capped extension (copper tee) on the riser (water supply line going into the home/building).





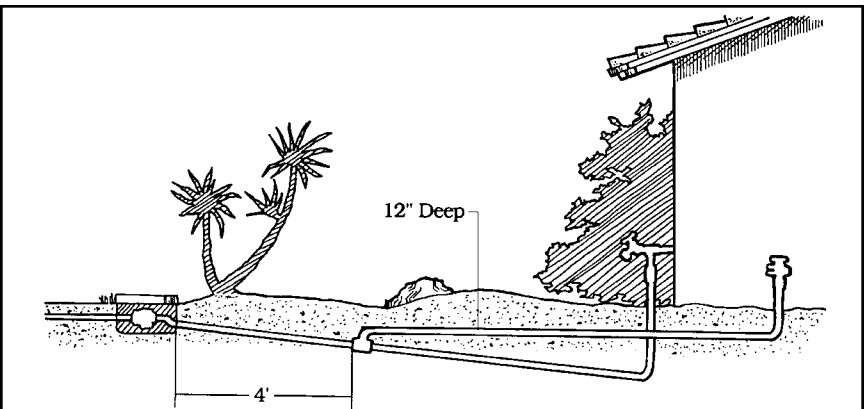
Option 2

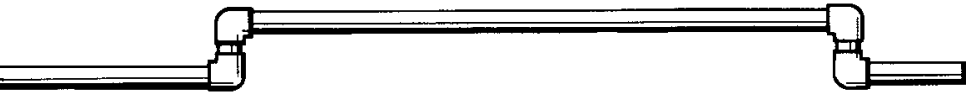
Connect to the water faucet line above the riser. An extension tee is added between the faucet and the water line.



Option 3

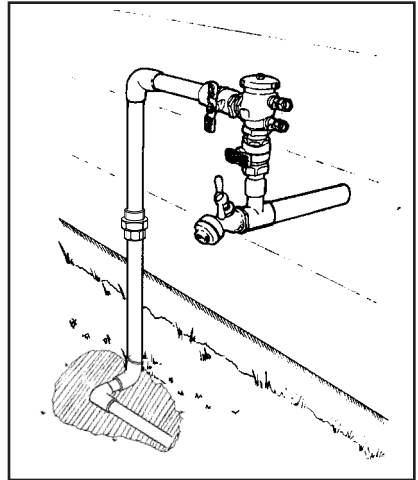
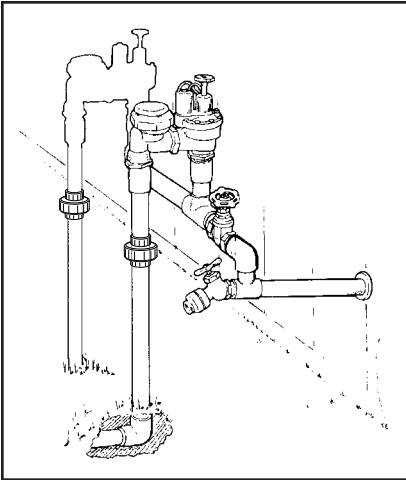
Connect to the water service line on the home/building side of the water meter. At the point of connection, the new water supply line to the vacuum breaker must be 12 inches deep. Therefore, the connection should be made at least 4 feet on the home/building side of the meter.





Option 4

Connect to the water faucet line at the back or side of home/building. An extension tee is added between the faucet and the water line. This water faucet line is 1/2 inch. Since this water line is generally smaller than the front yard water faucet line (3/4 inch), the irrigation system will have less water pressure. In addition, if the home/building has a water softener, this water faucet line will contain conditioned water. This water may be detrimental to plants over time because it may contain high concentrations of salt which is used to soften water.



SCHEDULING AN INSPECTION

When the installation of the irrigation system is completed, call the City of Glendale Building Safety inspection request line at **915-3263**. When calling, state your permit number and request a **No. 32** inspection. If installation meets city requirements, a green tag will be issued. Should the system not meet city requirements, a red tag will be issued and the property owner will be required to correct the deficiency in the irrigation system as a condition of continued water services.



City of Glendale
Building Safety Department
5850 West Glendale Avenue
Glendale, AZ 85301
(623) 930-2800