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Irrigation System Installation

This information is provided to you as a public service by the City of Chandler. It is designed as an educational service for you, our customer, to help you better understand these sophisticated systems. Technical advice or assistance with specific systems and their installation as well as the newest technology should be obtained from a professional contractor.

The owner of the property or the irrigation contractor must obtain an irrigation permit. It may be obtained at the Planning and Development Building located at 215 E. Buffalo Street in downtown Chandler.

This permit allows inspectors to check the installation of the required anti-siphon valve or pressure backflow preventer and electrical timers. The landscape inspector will need access to the main electrical panel for purposes of inspecting the circuit breaker. The circuit breaker must be compatible with the electrical panel brand. Electrical timers may not "piggy-back" on another circuit breaker.

Irrigation System Details

The potable water supply to lawn irrigation systems shall be protected against backflow by:

- An atmospheric-type vacuum breaker; or
- A pressure-type vacuum breaker; or
- A reduced pressure principle backflow preventer.

A valve shall not be installed downstream from an atmospheric vacuum breaker. Where chemicals are introduced into the system, the potable water supply shall be protected against backflow by a reduced pressure principle backflow preventer.

Installation

It is recommended that a licensed contractor install the anti-siphon/vacuum breaker assemblies. If someone other than a licensed contractor does the installation, make sure the assembly is positioned correctly with the arrow pointed in the direction of the water flow. The use of lead solder is prohibited.

Any aboveground piping before the anti-siphon/vacuum breaker assembly may be copper or galvanized pipe. If PVC is used, it must be protected from physical damage and be sunlight resistive. All connecting piping installed in the ground before the anti-siphon/vacuum breaker must be buried at least 12 inches deep.

Vacuum breakers shall be installed a minimum of 6 feet above the flood level rim of the fixture or device in accordance with Section 608.15.4 of the 2003 International Plumbing Code. The flood level rim of hose connections shall be the maximum height at which any hose is utilized.

Type of Assembly

Atmospheric Anti-Siphon Assembly

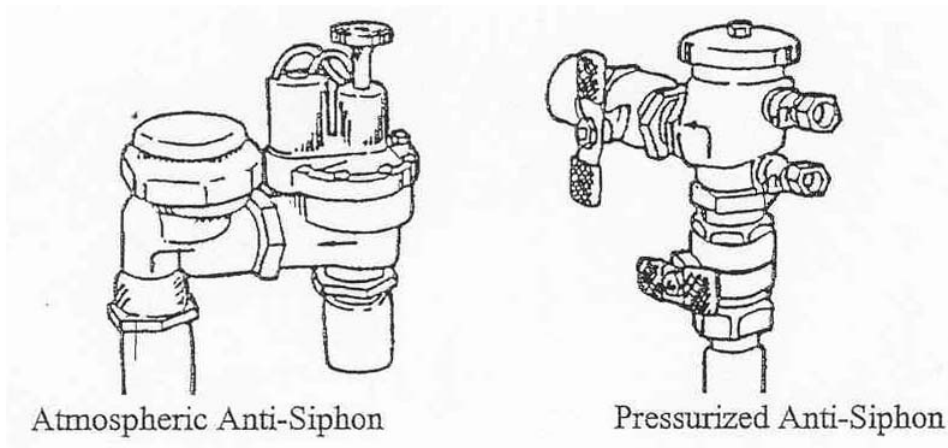
Atmospheric anti-siphon assemblies work on the principle of atmospheric pressure. Once the irrigation valve shuts off or if there is a sudden drop in water pressure, a float disc in the assembly drops down to prevent back flow.

- Pipe-applied atmospheric-type vacuum breakers shall conform to ASSE 1001 or CSA CAN/CSA B64.1.1.
- Hose connection vacuum breakers shall conform to ASSE 1011, ASSE 1019, ASSE 1035, ASSE 1052, CSA CAN/CSA B64.2, CSA CAN/CSAB64.2.2, CSAB64.7.

These devices shall operate under normal atmospheric pressure when the critical level is installed at the required height. An atmospheric anti-siphon assembly shall be installed at least 6 inches above all downstream piping and sprinkler heads, bubblers or drip emitters. This will keep the vacuum breaker from being subjected to back pressure or drainage.

Pressurized Anti-Siphon Assembly

Pressure-type vacuum breakers shall conform to ASSE 1020, and spill-proof vacuum breakers shall comply with ASSE 1056. These devices are designed for installation under continuous pressure conditions when the critical level is installed at the required height. Pressure-type vacuum breakers shall not be installed in locations where spillage could cause damage to the structure. A pressurized anti-siphon assembly provides great flexibility because only one assembly is needed regardless of the number of control valves. The control valves may be placed above or below ground. A pressurized anti-siphon assembly must be in an upright position and at least 12 inches above all downstream piping and sprinkler heads, bubblers or drip emitters. A pressurized anti-siphon assembly includes shut-off valves and test ports that facilitate testing to determine proper operation.



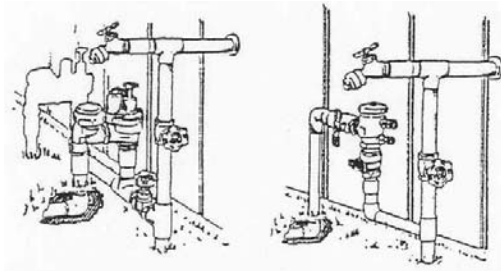
System Connection

Before installing an underground irrigation system, decide where to make the water source connection. Water professionals recommend the following four options shown.

Whichever option you choose, it is recommended that the anti-siphon/vacuum breaker assembly be installed with its own gate valve. This enables the irrigation system water to be shut off without disrupting water service into the home. Turning off the water at the meter is not recommended. This may cause a leak at the supply line coupling to the meter. All leaks on the home side of the water meter are the owner's responsibility to repair.

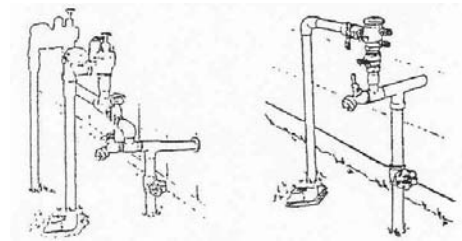
Option 1

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



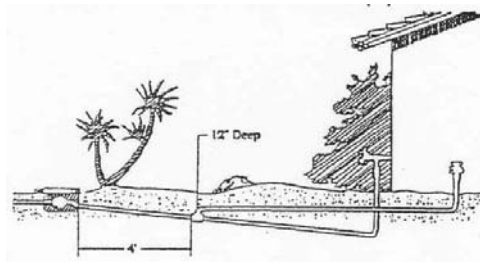
Option 2

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



Option 3

Connect to the water service line on the home side of the water meter. At the point of connection, the irrigation line must be 12 inches deep. The connection should be made at least 4 feet on the home side of the meter.



Option 4

Connect to the water faucet line at the back or side of the home. An extension tee is added between the faucet and the waterline. This faucet line is $\frac{1}{2}$ inch in diameter. Since this waterline is generally smaller than the front water faucet line ($\frac{3}{4}$ inch), the irrigation system will have less water pressure. In addition, if the home has a water softener, this faucet line will contain conditioned water, which may be harmful to plants.

