Tacoma Water customers are responsible for compliance with the following general installation guidelines

You must obtain a plumbing permit before you install a backflow preventer.

If you live within Tacoma city limits, you can purchase a plumbing permit from the Building and Land Use Permit Counter in the Tacoma Municipal Building, 747 Market Street, (253) 591-5030.

If you live outside Tacoma city limits, you can purchase a plumbing permit from the appropriate administrative authority, such as your city or county plumbing inspector.

Tacoma Water performs a water quality inspection on landscape irrigation systems installed in the utility's service area. A water service inspection may be performed by your local plumbing authority.

To arrange for a water quality inspection, call (253) 502-8215.

To arrange for a water service inspection contact your local plumbing authority.

WATER SERVICE INSPECTION

A water service inspection, if required, will cover the irrigation system from the meter or branch line connection on the domestic water service line to the backflow preventer, including the shutoff valve. The trench must be open during the inspection. Do not backfill the trench until the water service inspector (not the water quality inspector) has given approval. Following are common requirements for irrigation system piping. Contact your local plumbing authority for specific requirements:

Shutoff Valve

- A brass-bodied valve with key or hand wheel must be installed on the water supply line to the landscape irrigation system between the meter or branch line connection and the backflow preventer.
- The valve must be at least 30 inches below the surface of the finished site grade.
- The valve must be enclosed in a minimum 6-inch diameter pipe or box of concrete, plastic or iron with an approved cover. Additionally, the valve must be protected from freezing by insulating with sawdust or other suitable material.

Branch Line Connection

- Branch line connections must not be made within 18 inches of the property side edge of the water meter box.
- If the water supply line to the building is PVC, schedule 40 PVC fittings may be used for the branch connection.
- If the water service pipe is copper tubing, cast brass compression fittings or sweat fittings must be used to make the branch line connection.
- If the water service material is polyethylene, you must use cast brass compression or insert fittings. Insert fittings must be secured with two stainless steel clamps and must have cast flat surfaces between the ribbed portion of the fitting and the male iron pipe threads for wrench tightening.

Pipe Requirements

- The pipe installed between the meter or branch connection to the domestic water supply and the backflow assembly must be approved by the National Sanitation Foundation for potable water use.
- PVC pipe must be schedule 40, minimum; polyethylene must be PE3408, SDR7, 200 P.S.I. rating and copper must be Type "K".
- All pipe installed between the meter or connection to the domestic supply line must be installed at least 30 inches below the final grade of the site.

WATER QUALITY INSPECTION

The water quality inspection covers all backflow prevention assemblies and devices. Backflow preventers must meet the following criteria as a minimum:

Backflow Prevention Assemblies and Devices

- All backflow prevention assemblies must be models approved by the State of Washington Department of Health. If you have a question regarding the approval of an assembly, please call the Water Quality section at (253) 502-8215.
- Assemblies must be installed according to the requirements of Tacoma Water. Installation guidelines are available by selecting Water Quality at www.tacomawater.com
- Assemblies may not be installed in ceilings, walls or crawl spaces.
- Assemblies must be installed with adequate clearance for testing and maintenance.

Additional information is available by visiting Tacoma Water's Web site at www.tacomawater.com and selecting Water Quality or by contacting Water Quality at (253) 502-8215.

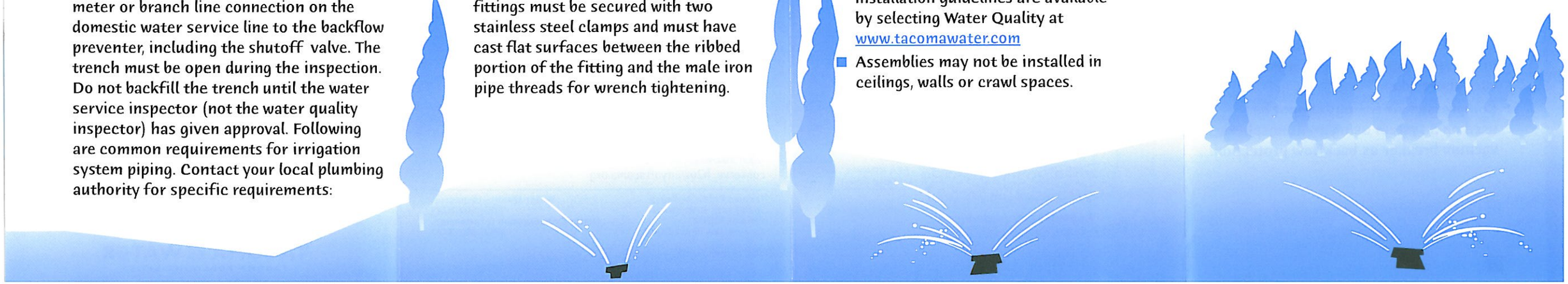
Stop-and-Waste or Drain Valves

No stop-and-waste valves or other type of drains below ground level are allowed between the water meter and the backflow prevention assembly.

METHODS OF BACKFLOW PREVENTION FOR LANDSCAPE IRRIGATION SYSTEMS

Four types of backflow preventers are acceptable. Reduced pressure backflow assemblies, double check valve assemblies and pressure vacuum breaker assemblies must be tested when they are first installed and annually after installation by a State of Washington-certified Backflow Assembly Tester.

A list of state-certified testers in the Tacoma Water service area is available from the Water Permit Counter and from the Water Quality section, (253) 502-8215.



Pressure Vacuum Breaker Assembly

- A State of Washington-approved pressure vacuum breaker assembly must be installed a minimum of 12 inches above the highest point of the system and no more than 5 feet above ground level.
- Compressed air fittings cannot be used on a system using a pressure vacuum breaker assembly as backflow protection.

Reduced Pressure Backflow Assembly

- A State of Washington-approved reduced pressure backflow assembly is required when fertilizer is injected directly into the irrigation system.
- Reduced pressure backflow assemblies cannot be installed below ground level.
- An approved air gap is required under the relief valve port.

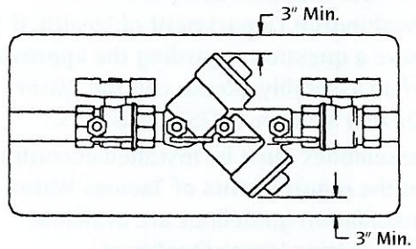
Atmospheric Vacuum Breaker

- An atmospheric vacuum breaker is required on the water supply line to each irrigation zone.
- An atmospheric vacuum breaker must be installed at least 6 inches above the highest point on the zone it serves and no more than 5 feet above ground level.
- Control/shutoff valves cannot be installed downstream of an atmospheric vacuum breaker.
- Compressed air fittings cannot be used on a system using an atmospheric vacuum breaker as backflow protection.

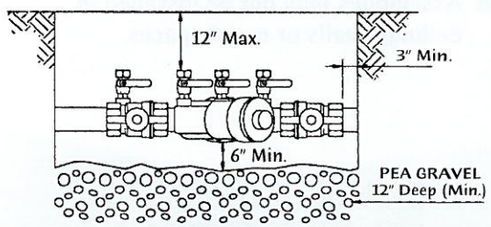
Double Check Valve Assembly

- Double check valve assemblies must be installed with the test cocks facing up or to one side.
- Plugs are required in each test cock.
- Compressed air fittings used for blowing water from an irrigation system cannot be installed upstream of a double check valve assembly.
- Minimum box sizes for below-ground double check valve assembly installations:
  ¾" to 1" DCVA: 10" x 13" Box
  1¼" to 2" DCVA: 14" x 20" Box
- Drainage sufficient to prevent box flooding is required. There must be a minimum of 6 inches clearance under the valve.

BELOW-GROUND BOX CLEARANCE REQUIREMENTS



***PLAN VIEW** (Top View)*



***ELEVATION** (Side View)*

WATER – *WE CAN'T LIVE WITHOUT IT.*

Water efficient irrigation doesn't need to be a contradictory statement, but here's the catch: only irrigation systems that are 1) correctly designed, 2) correctly installed, and 3) later maintained for efficient applications, can minimize the water you use. Here are tips to help you achieve all three:

Efficient Irrigation

- ***Get to know your irrigator*** – Before you sign an installation agreement, ask more than one contractor what they know about irrigation and about water efficiency. Referrals from satisfied friends, certification in the irrigation industry, licensing and bonding are practical items to request of any irrigation contractor.
- ***Plan it before you plant it*** – A water efficient irrigation plan of your irrigation system should shows all system hydraulics and product details. Coordinate high, moderate and low water planting zones with similar irrigation system zones. Water efficient systems also include head-to-head spray coverage, consistent output rates from all heads in a zone, rain sensors, operating pressures between 30-50 psi on sprays and rotors, and a 'distribution uniformity' rate of 63% or higher.
- ***Consider long-term costs*** of the system you are installing; not just the construction cost. Rotary sprinklers may be less expensive for installation but cost more in the long run than spray heads, because rotors waste water and cause other problems due to overspray.
- ***Don't be controlled by your irrigation controller*** – While "set it and forget it" system controllers look appealing, they are the worst water wasters. Look for an irrigation controller that allows for multiple start times, and the ability to interrupt with rain or soil sensors.
- ***Low volume = Low monthly bills*** – Use micro-irrigation where appropriate. This includes drip, porous pipe, and micro-spray technologies, which are useful for shrub beds and for trees placed in low water zones. Be ready for more maintenance to keep the system from clogging.
- ***Soil health and infiltration rates*** affect how quickly water is absorbed into your soil. Design for a ½-inch per hour optimum precipitation rate where possible. Infiltration rates are negatively affected by heavy clay soils, slopes greater than 2%, thatch, and soil compaction.

Automated irrigation systems have lots more to do with the landscape than just pipes and valves. For more information on water efficient landscaping or tips on installing and operating efficient irrigation systems call us at (253) 502-8723, or send us an e-mail at conserve_h2o@cityoftacoma.org

Tacoma Public Utilities
3628 South 35th Street
P.O. Box 11007
Tacoma, WA 98411-0007

Water Quality Inspector:
(253) 502-8215
Water Conservation Information:
(253) 502-8723

Landscape

TACOMA WATER *requirements for* IRRIGATION SYSTEMS

...to keep drinking water safe

TACOMA WATER
TACOMA PUBLIC UTILITIES