

A GUIDE TO SELECTING, INSTALLING AND MAINTAINING BACKFLOW PREVENTION ASSEMBLIES FOR RESIDENTIAL IRRIGATION SYSTEMS

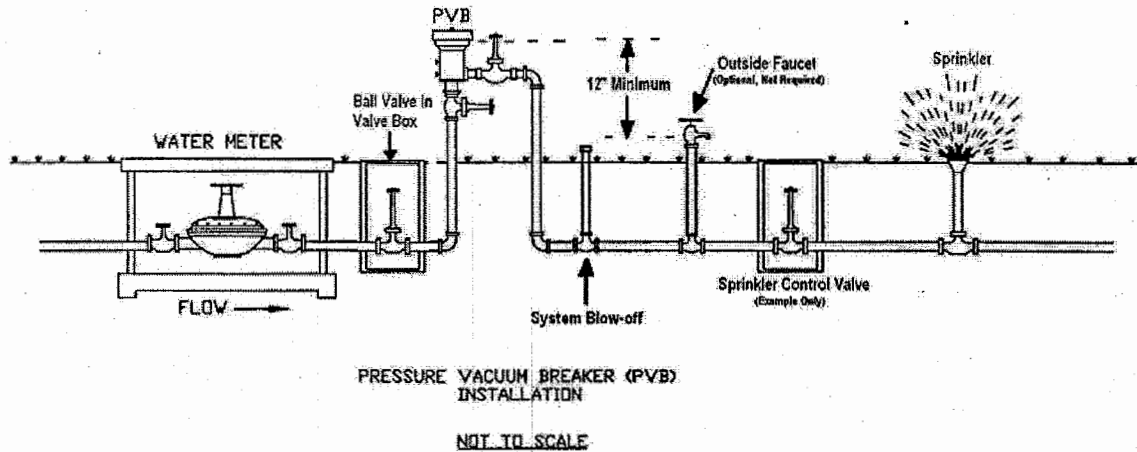
Backflow prevention assemblies on the water supply to an irrigation system with underground piping has been required by water regulations and building codes since the mid-to-late 1970's. These assemblies, commonly called "backflow preventers" must be installed and maintained according to the requirements described below, as a minimum. Failure to do so creates an unprotected, or inadequately protected, cross connection (an interconnection between a drinking water supply and a potential source of contamination. If a backflow condition were to occur, such as an unexpected pressure reduction from a water-main break or fire-fighting activities, fertilizers and pesticides that you apply to your lawn can be siphoned backward into the drinking water pipes in your home or in the street.

The information below is provided to help guide you in selecting the proper type of backflow prevention assembly for your irrigation system, installing it correctly, and maintaining it adequately. If a backflow assembly is not installed and maintained properly it could fail prematurely and result in more frequent maintenance and higher costs. The measures below will help protect your investment, the health of you and your family, and your community.

There are two types of backflow prevention assemblies that may be installed in lawn irrigation systems in Dinwiddie County:

1. The pressure vacuum breaker, or PVB assembly (see Figure 1):
 - A. Designed to stop back-siphonage backflow only
 - B. Cannot be used where backpressure may develop in the downstream piping (examples - your system has elevated piping, a pump, or an auxiliary source of water)
 - C. Protects against health (high) and non-health (low) hazards
 - D. Can be installed and used under continuous supply pressure
 - E. Cannot be located in below-grade vaults or pits
 - F. Must be provided with ample atmosphere in order to operate properly
 - G. Cannot be wrapped with insulation
 - H. Must be installed upright (air inlet canopy at top)
 - I. Must be accessible for testing and maintenance
 - J. Must be protected from freezing (unions are required on each end of the backflow preventer for removal of water prior to the winter season, or an approved insulated enclosure installed over the assembly)
 - K. Must be installed a minimum of 12 inches above the highest downstream outlet or sprinkler head, measured from the outlet pipe of the backflow assembly to the highest point of the highest downstream outlet
 - L. Must be installed downstream of the water meter or separately connected to your home's plumbing system
 - M. Must be tested upon installation, after repair, when relocated, and annually as a minimum by a certified Backflow Prevention Device Worker.
 - N. Must be overhauled or replaced if tests reveal the check valve or air inlet poppet closes at less than 1.0 psi (pounds per square inch) on the test gauge
 - O. Should be overhauled (replacement of internal rubber parts as a minimum) every five years

FIGURE 1
PVB BACKFLOW PREVENTION ASSEMBLY INSTALLATION



2. The reduced pressure principal, or RP or reduced pressure zone, or RPZ assembly (see Figure 2):
 - A. Is designed to stop back-siphonage and backpressure backflow
 - B. Can be used where back-pressure can develop in downstream piping
 - C. Protects against health (high) and non-health (low) hazards
 - D. Can be installed and used under continuous supply pressure
 - E. Cannot be located in below-grade vaults or pits
 - F. Cannot be wrapped with insulation
 - G. Must be installed horizontally
 - H. Must be accessible for testing and maintenance
 - I. Must be protected from freezing Must be protected from freezing (unions are required on each end of the backflow preventer for removal of water prior to the winter season, or an approved insulated enclosure installed over the assembly)
 - J. Must be installed a minimum of 12 inches above grade, measured from grade (surface level) to the lowest point on the body of the assembly
 - K. Must be installed where water spillage will not be objectionable or a nuisance
 - L. Must be installed downstream of the water meter or separately connected to your home's plumbing system
 - M. Must be tested upon installation, after repair, when relocated, and annually as a minimum by a certified Backflow Prevention Device Worker.
 - N. Must be overhauled or replaced if tests reveal the check valves will not hold tight or the relief valve opens at less than 2.0 psi on the test gauge
 - O. Should be overhauled (replacement of internal rubber parts as a minimum) every five years

Installation and Maintenance Notes

1. The installation of new backflow prevention assemblies requires an auxiliary plumbing permit issued by the Dinwiddie County Building Inspections Department, Pamplin Building, 14016 Boydton Plank Road. The permit may be obtained by the homeowner or the contractor. No matter who obtains the permit, the backflow prevention assembly shall be installed according to applicable building codes.
2. An emeter is available from the Dinwiddie County Water Authority for residential outside water use only. The emeter allows you to irrigate your lawn, flowers, and shrubs without having to pay sewer charges for the water used only for irrigation. For more information call (804) 861-0998.
3. You, or your contractor, are responsible for connecting your irrigation system to the water service to or within your property. If connected to the domestic water service, the attachment must be made downstream of (after) the water meter. Materials and construction must comply with Virginia building codes and the Dinwiddie County Water Authority Specifications and Procedures.
4. The water supply pipe to the backflow prevention assembly (between the meter and the assembly) must be installed 24 inches deep.
5. A separate ball valve must be installed in a below-grade valve box located between the meter and the backflow preventer. This valve is necessary when repairing, replacing, and winterizing the backflow preventer.
6. A "blow-off" (a pipe connected to the irrigation system, extending above ground, and used for pumping pressurized air into the pipes to remove water to prevent freezing during winter) is not allowed upstream (before) the backflow prevention assembly. The "blow-off," if any, must be installed after the backflow prevention assembly.
7. The backflow prevention assembly must be inspected and tested annually as a minimum at or within a reasonable time after seasonal start-up of your irrigation system. This must be done to determine that the use and installation of the backflow preventer has not been circumvented or changed, that it has not been damaged, and will operate properly. The purpose of the backflow preventer is to protect you and the public drinking water while the irrigation system is in operation.
8. Individuals who perform tests on backflow prevention assemblies must hold a valid certificate as a *Backflow Prevention Device Worker* issued by the Virginia Department of Professional and Occupational Regulation. Testers can be found in the yellow pages of your local telephone book under Backflow Equipment/Testing, Plumbing Contractors, Mechanical Contractors, Irrigation Contractors, or Landscape Contractors, or by searching the Internet.
9. Test results must be recorded on an approved Backflow Prevention Assembly Test Report form. The test must be conducted by and the report signed by the certified tester. The form is available online at www.dcwa.org, under "Cross Connection Control and Backflow Prevention Program."

10. It is recommended that you maintain a copy of the test report for your records.
11. A copy of the test report must be submitted annually by November to the following mailing address, fax number, or email address:

Dinwiddie County Water Authority
Attn: Operations Manger
P.O. Box 100
Sutherland, VA 23885
Fax (804) 861-4270
Email: emeter@dcwa.org

12. All reports, originals or faxed copies, must be legible. Illegible reports will be rejected.
13. The manufacturer's name, model number, serial number, size and the results of all tests will be maintained by the Dinwiddie County Water Authority for a period of 10 years.

If you have any questions, please call the Operations Manager at (804) 861-0998.

FIGURE 2
RPZ/RPZ BACKFLOW PREVENTION ASSEMBLY INSTALLATION

