

**What happens if I do not test a backflow assembly after I receive a notification to test it?**

If for some reason you do not test your backflow assembly, you may be cited and fined for non-compliance. Also, your water service may be terminated to protect the public water system.

**Where are the most common cross-connections?**

Whenever a plumbing fixture is connected to the public drinking water supply, a potential cross-connection exists. Some example of cross-connections that can lead to backflow are:

- Wash basins and service sinks
- Laboratory equipment
- Irrigation or lawn sprinkler systems
- Swimming pools and spas
- Fire sprinkler systems
- Auxiliary water supplies (wells, storage tanks)
- Photo developing equipment
- Chemical feed equipment
- Food and beverage processing equipment
- Boilers



**CITY OF RICHMOND**  
DEPARTMENT OF PUBLIC UTILITIES



Everyday, DPU proudly supplies an average of 60 million gallons of water that exceeds the federal and state regulatory requirements to its citizens and customers. Before the water is pumped to your business, it has gone through careful treatment and numerous tests to ensure its quality.

To keep the city's water safe, DPU diligently checks the plans of each new connection to its water system for compliance with cross connection/backflow requirements. We inspect and investigate for businesses that do not have required external backflow prevention devices. We send notices and test forms for completion requiring the annual testing and repair of said devices. We also maintain a database of external backflow prevention devices as required by the Virginia Health Department.

**Contact us at:**

Cross Connection and  
Backflow Prevention Program  
c/o Richmond Department of Public Utilities  
400 Jefferson Davis Highway  
Richmond, VA 23224  
804-646-8502

*DPU takes pride in the water we provide and will continue to protect it and our citizens and customers. Thank you for your assistance in protecting our water supply for all of its users.*



**CITY OF RICHMOND**

DEPARTMENT OF PUBLIC UTILITIES



**City of Richmond  
Department of  
Public Utilities  
Cross-  
Connection  
and  
Backflow  
Prevention  
Program**

Water systems depend on pressure to keep water flowing in the proper direction. Water distribution systems are designed so that the pressure is greater in the lines delivering the water than the pressure on the property side of the water meter.

However, there are instances when there is a drop in pressure in the water distribution system, or an increase in pressure of water on the property side of the water meter. When either of these happen, it's possible for unsanitary water from the customer's plumbing system to get sucked back into the public water system. If the water in the customer's system has come into contact with harmful substances and it backflows into the municipal drinking water system, it could cause illness or, in extreme cases, death.

The City of Richmond Department of Public Utilities (DPU) is working to ensure its drinking water system remains safe. We require backflow prevention devices where mandated by law, and we work with customers to eliminate any potential cross-connections in our customers' plumbing that, unprotected by a backflow prevention device, could lead to dangerous situations.

Here are some answers to commonly asked questions about DPU's Cross-Connection Control and Backflow Prevention Program.

### **What is backflow?**

Backflow is the reversal of water flow from its normal or intended direction of flow. Whenever a water utility connects a customer to its water distribution system, the intention is for the water to flow from the distribution system to the customer. However, it is possible and common for the flow to be reversed and flow from the customer's plumbing system back into the public water distribution system. If harmful substances exist within the user's plumbing system when backflow occurs, then it is possible to contaminate the public water system.

### **What causes backflow?**

Backflow is usually caused by back-pressure or back-siphonage. Back-pressure is a condition caused when the water pressure within a customer's plumbing system exceeds that of the water



distribution system supplying it. Back-pressure can result from an increase in pressure on the customer's side—due to pumps, steam boilers, or other means—or from a decrease in pressure in the city's distribution system due to water line flushing, fire fighting, or water main breaks.

Back-siphonage is a condition caused when there is a loss of water pressure causing a negative pressure (i.e. vacuum) within the distribution system. The effect is similar to drinking water through a straw. This can occur due to nearby firefighting, water main breaks, water line flushing, or other situations that cause a significant loss in water system pressure.

### **Do backflow incidents really happen?**

Yes! Here are just a couple of examples:

- A resident called to complain that the tap water was pink, after an estimated 2,000 gallons of water mixed with car washing chemicals got into the city's drinking water supply. City staff traced the problem to a car wash. The facility has been using a pressure washer to clean out pipes as part of maintenance work on plumbing.



- Creosote was found in the water system as a result of back-siphonage at a wood preservative company. The company had installed an unprotected cross-connection between a hose being used as a priming line, a fire service connection and the suction side of a creosote pump.

### **Who is required to have a backflow prevention assembly?**

Most multi-family, as well as all commercial and industrial properties and irrigation meters are required to have a backflow prevention assembly. Most single-family residences are not required to have one.

### **What is a backflow assembly?**

Backflow assemblies are devices placed on potential cross-connections to prevent water from flowing back into the public water system. The most common type of backflow assemblies are a Reduced Pressure Zone device (RPZ) and a Double Check Valve Assembly

device (DCVA). Both the RPZ and DCVA type backflow prevention assemblies are testable to ensure they are in proper working order.



Placed just downstream of a water meter to an establishment, they can protect the public water system from any contamination that may occur within the entire establishment's plumbing system.

### **Why do I have to install a backflow prevention assembly?**

To protect the customers of public water providers, the Environmental Protection Agency Safe Drinking Water Act, Virginia Department of Health, DPU, and Uniform Plumbing Code each require customers to equip all potential cross-connections with a backflow prevention assembly. As a water supplier, DPU has a responsibility to provide safe drinking water under all foreseeable circumstances to its customers. In addition, customers generally have absolute faith that water delivered to them through a public water system meets all federal and state requirements and is safe to drink.

### **Does my backflow assembly need to be tested?**

Yes. DPU requires that a certified tester check all backflow assemblies at the time of installation, annually after installation, after repairs, and after relocating. Backflow assembly testers are private contractors certified by the state of Virginia and possess valid and current certification. These testers must submit a report to DPU following the test. Testers can be found in the Yellow Pages under "Plumbing Contractor" or "Backflow Testers," or online.

### **Will I receive notification when to perform my test?**

Yes. DPU tracks the backflow assembly information in our database that will generate a reminder letter to customers of when their annual test is due. These letters are typically sent 45 to 60 days before the test is due. If you do not receive a letter, contact the Backflow Prevention and Cross Control Connection Division. Please note the absence of a reminder letter does not void the requirement of the annual inspection required by DPU.