

How to Prevent Backflow Incidents

Backflow prevention methods can be implemented either at the service meter, which is called containment protection, or at the point of water use at the fixture, which is called isolation protection. These backflow prevention methods can be divided into four basic categories — air gap, elimination, backflow device and backflow assembly.

Air gap

The air gap is the vertical, unobstructed space between the water inlet and the flood level or overflow rim in a fixture, device or container to which public water is supplied. The air gap must be at least twice the diameter of the water inlet piping with a minimum of 1 inch. In some jurisdictions, an air gap must not exceed 12 inches. One drawback with an air gap is that the water supply pressure is lost. The water customer must use gravity or a booster pump to regain system pressure to move water from the holding tank to its intended point of use.

Elimination

Eliminating the cross-connection is necessary when the hazard has been improperly installed and plumbed or when the hazard is no longer in use.

Backflow device

A backflow device is a mechanical unit used for backflow prevention. It does not have inlet or outlet shutoff valves and usually does not have test cocks. For devices without test cocks, inline testing is not possible. The devices do not hold approval from the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research.

Backflow assembly

A backflow assembly is another type of mechanical unit used for backflow prevention. Like a backflow device, it is not equipped with inlet and outlet shutoffs. It differs from a backflow device in that it has four test cocks.

Common Backflow Devices and Assemblies

Double Check Valve (DCVA)

Used for:

- Non-health hazards
- Back pressure/back siphonage
- Fire sprinkler system with no booster pumps, most commercial establishments



Double Check Valve Detector (DCVDA)

Used for:

- Non-health hazards
- Back pressure/back siphonage
- Fire sprinkler systems that are classified as non-health hazards



Reduced Pressure Detector (RPDA)

Used for:

- Health and non-health hazards
- Back pressure/back siphonage
- Fire sprinkler systems that are classified as health hazards



Reduced Pressure Principal (RP) — preferred assembly

Used for:

- Health and non-health hazards
- Hospitals, car washes, lawn irrigation, mortuaries



Pressure Vacuum Breaker (PVB)

Used for:

- Back siphonage only
- Multi-zone irrigation systems



Hose Connection Vacuum Breaker (HCVB) — not testable

Used for:

- Back siphonage only
- Garden hose connections

