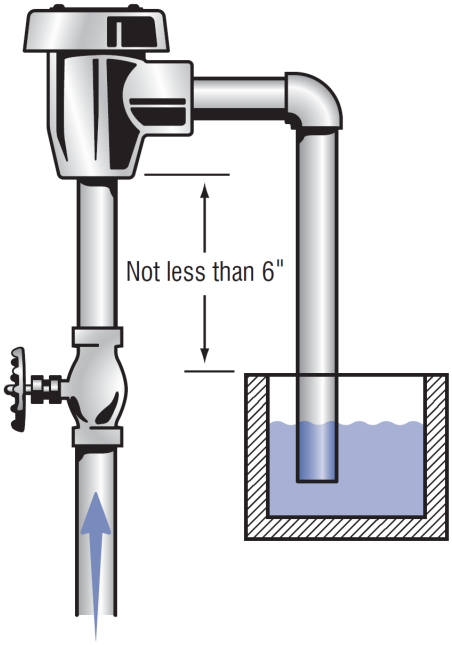
AVB: Atmospheric Vacuum Breaker

Example for illustrative purposes only.
Valves differ by model and manufacturer.

Atmospheric vacuum breaker typical installation.



Mechanical Description:
A device containing an air inlet valve, a check seat and an air inlet port(s). The flow of water into the body causes the air inlet valve to close the air inlet port(s). When the flow of water stops the air inlet valve falls and forms a check valve against backsiphonage. At the same time it opens the air inlet port(s) allowing air to enter and satisfy the vacuum. A shutoff valve immediately upstream may be an integral part of the device, but there shall be no shutoff valves or obstructions downstream.

Applications:
Toilets, sink faucets, urinals, ball cocks, limited irrigation, and isolation protection.

Limitations:
An atmospheric vacuum breaker does not protect against backpressure.

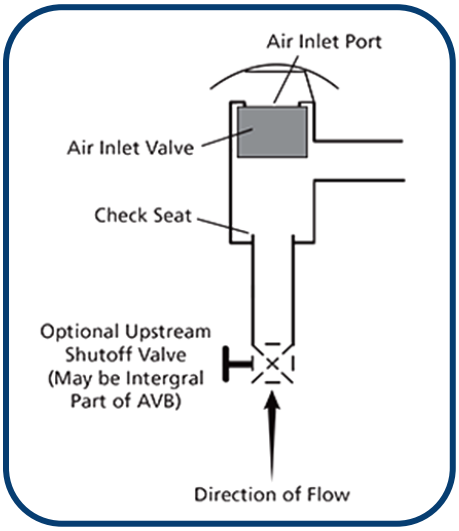
Installation Guidelines:
An atmospheric vacuum breaker must be installed at least six inches above all downstream piping and outlets. The critical level (C/L) of the valve shall be the bottom of the valve body unless otherwise indicated.

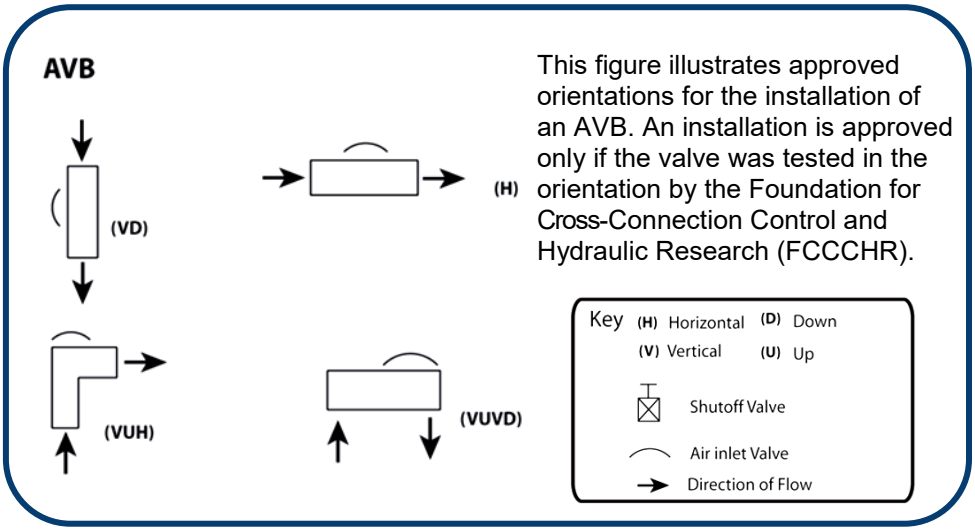
Protection:
An atmospheric vacuum breaker is designed to protect against a non-health hazard (i.e., pollutant) or a health hazard (i.e., contaminant) under a backsiphonage condition only.

Hazard Rating:
Health hazards and non-health hazards.

Pressure Condition:
Device may not be subjected to continuous pressure, may only be used for twelve hours out of any twenty-four-hour period and may have no shutoff valves downstream.

Hydraulics, Orientation and Rule Requirements





This figure illustrates approved orientations for the installation of an AVB. An installation is approved only if the valve was tested in the orientation by the Foundation for Cross-Connection Control and Hydraulic Research (FCCCHR).

Requirements for Public Water Supplies:

As mandated by the federal Safe Drinking Water Act, water suppliers are responsible for ensuring that the water they supply meets federal primary drinking water regulations and is delivered to consumers without compromising water quality due to its distribution system. Water utilities may want to implement a cross connection program to stave off any problems that could occur.

Mechanical backflow preventers have internal seals, springs, and moving parts that are subject to fouling, wear, or fatigue. Also, mechanical backflow preventers and air gaps can be bypassed. Therefore, all backflow preventers have to be tested periodically to ensure that they are functioning properly. A visual check of air gaps is sufficient, but mechanical backflow preventers have to be tested with properly calibrated gauge equipment by a certified individual.

Administrative Rules of Montana:

17.38.305 CROSS-CONNECTIONS: REGULATORY REQUIREMENTS

(1) A cross-connection on a public water supply system must be eliminated by the disconnection of the cross-connection whenever reasonably practicable. Whenever elimination of a cross-connection is not reasonably practicable and the cross-connection creates a health or non-health hazard, the hazard must be eliminated by the insertion into the piping of an approved backflow prevention assembly or device.

Additional Resources:

Administrative Rules of Montana: Cross-Connections in Drinking Water 17.38.301—312 http://www.mtrules.org
American Backflow Prevention Association https://abpa.site-ym.com/
Environmental Protection Agency Cross Connection Control Manual (2003) http://nepis.epa.gov
Foundation for Cross-Connection Control and Hydraulic Research https://fccchr.usc.edu/introduction.html

Montana Department of Environmental Quality

Public Water Supply Bureau
Telephone: (406) 444-4400
Website: http://deq.mt.gov/water/drinkingwater
DEQ Contacts: https://directory.mt.gov/govt/state-dir/agency/deq