EPA Region 8 Drinking Water Unit Tech Tips

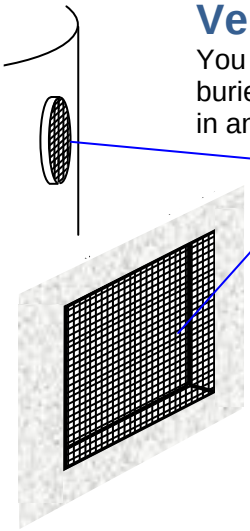
With special thanks to the Washington State Department of Health's Office of Drinking Water

Sanitary Protection of Reservoirs (Tanks)- Vents, Drains and Overflows

Finished Water Storage Sanitary Protection: Storage tanks must have dedicated vents, overflow and discharge pipes, and drain lines to operate. However, to prevent the water supply from being contaminated, you must protect these openings from birds, bats, other animals, insects, rain and windborne contaminants. Be sure to consider the potential for vandalism, physical damage, and ice buildup when choosing a design.

Vents

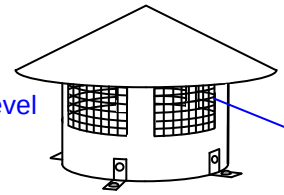
You must screen all vents with 24-mesh non-corrodible screen. For below ground (buried or partially buried) storage tanks, vent openings should be 24 to 36 inches above the roof or ground, terminate in an inverted U construction, and be covered with 24-mesh non-corrodible screen.

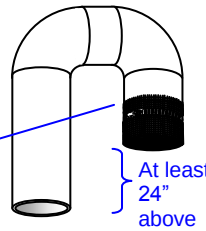


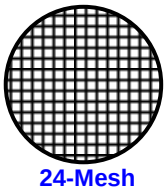
Poor Designs
Vents are screened but not protected from rain and windborne contaminants.

It is important to inspect all screens for damage at least weekly.

Non-inverted U
design acceptable solely for ground level or elevated tanks.







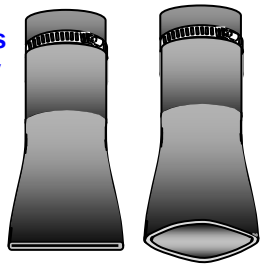
24-Mesh
non-corrodible screen
(0.03 inch openings)

Good Design
Vents are inverted U construction, screened and are adequately protected from rain and windborne contamination.

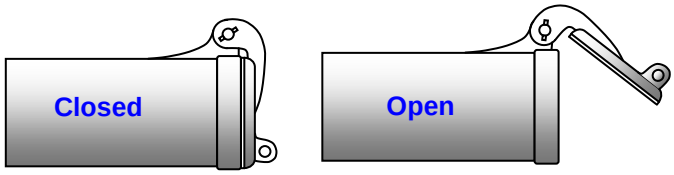
Overflow and Drain Lines

Overflow and drain lines must be protected with 24-mesh screen or a mechanical device, such as a properly sealed flapper valve or duckbill valve. Overflow lines should extend down to an elevation of 12 to 24 inches above ground level and discharge into a splash plate or rocked area. Do not connect overflow or drain lines directly to a sewer or storm drain without a properly designed air-gap. Discharge end pipes must be located where they can be routinely inspected. See WY DEQ policy dated 6/17/11 for design requirements.

Flexible "Duckbill" Check Valves
Rubber check valves are commercially available for overflow and drain lines. Some of the valves are designed to fit inside the pipe and should be installed in the vertical position. No. 24 mesh screen is still recommended inside check valve.

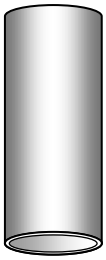


Closed **Open**



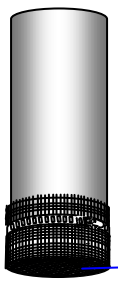
Flapper Valves
Flapper valves are commercially available for overflow and drain lines. They help to exclude birds, bats and other animals and still allow the free flow of water. No. 24 mesh screen is still recommended inside the flapper valve.

Poor Design

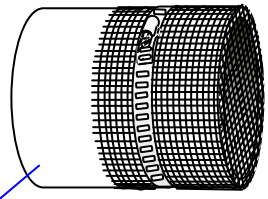


Open end is not protected from birds, bats or insects.

Good Design



Overflow end is screened with splash plate to direct water away from base of tank.



At least 12-24" above splash pad

Splash Pad

Bats can squeeze into very small spaces and birds may damage screens to gain entrance into a storage tank.