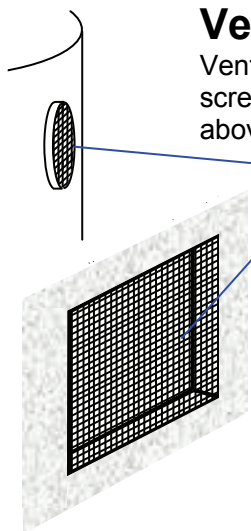


# Drinking Water Tech Tips: Sanitary Protection of Reservoirs – Vents

**Stored Water 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 wind-borne contaminants. Be sure to consider the potential for vandalism, physical damage and icing when choosing a design.

## Vents

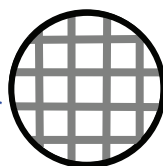
Vents must be inverted and screened. For elevated tanks, you may use 4-mesh non-corrodible screen. For ground level or underground storage tanks, vent openings should be 24 to 36 inches above the roof or ground and you should use 24-mesh non-corrodible screen.



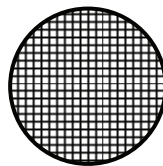
### Poor Designs

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

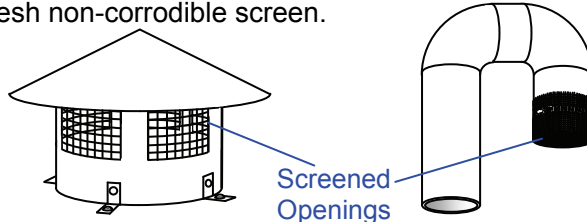
It is important to inspect all screens for damage at least annually.



No. 4 mesh  
To Scale



No. 24 mesh  
To Scale



Screened  
Openings

### Good Designs

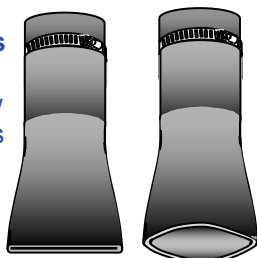
Vents are inverted, screened and are adequately protected from rain and windborne contamination.

## Overflow and Drain Lines

**Overflow and drain lines** must be protected with 24-mesh screen or a mechanical device, such as a flap 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.

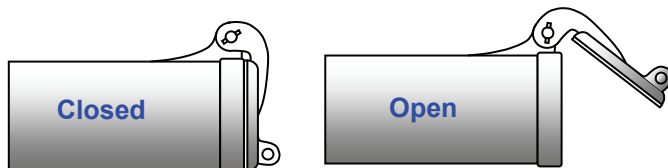
### Flexible “Duckbill” Check Valves

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.



Closed

Open



Closed

Open

### Flap Valves

Flap 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.

### Poor Design



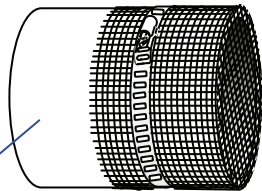
Open end is not protected from birds, bats or insects.

### Good Design



Splash plate

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



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



For more information, call the nearest Office of Drinking Water regional office:

Eastern Region – (509) 456-3115  
Northwest Region – (253) 395-6750  
Southwest Region – (360) 236-3030