

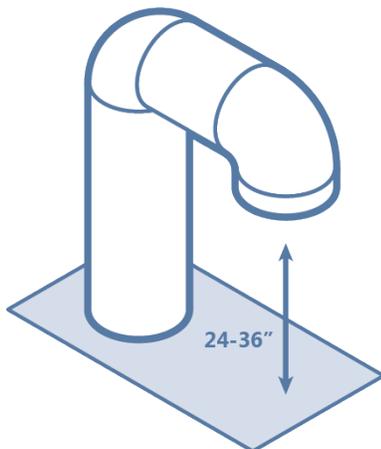
Stored Water Sanitary Protection: Reservoirs must have adequate sanitary protection to prevent the water supply from being contaminated. Drinking water regulations require reservoirs to prevent entry by birds, animals, insects, excessive dust and other potential sources of contamination. You must correct unprotected reservoir openings as soon as possible.

Finished water storage facilities must have dedicated screened vents designed to allow air in and out to balance internal pressures when water levels change (WAC 246-290-235). Overflows are not vents.

Vents should be constructed and maintained to avoid plugging or air restriction from ice build-up. Use reasonable security measures to protect the reservoir and stored water from possible damage and compromise by unauthorized persons (WAC 246-290-415(8)).

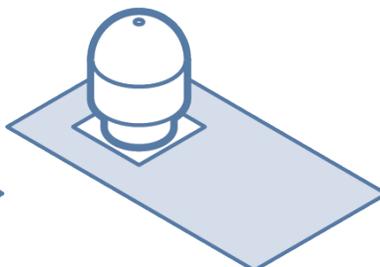
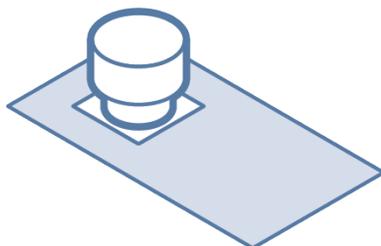
Examples of Good Vent Designs

Vents must have screens to keep insects and animals out of the reservoir. We recommend using durable 24-mesh noncorrodible screen backed with 4-mesh screen. Further, vent openings must face downward or have shielding to minimize the entrance of insects, surface splatter, rainwater, and excessive dust. Modern vent designs protect against icing, vacuum conditions, and tampering. Vent size must be adequate to relieve vacuum during peak-flow conditions. Consult with an engineer when retrofitting vents on larger steel reservoirs to avoid structural damage caused by inadequate vent capacity, especially if vents may experience ice buildup.



Gooseneck-Style Vents

Vents must be sealed and secured to the roof to keep out contaminated surface water and to deter vandalism (typical for all vent designs).

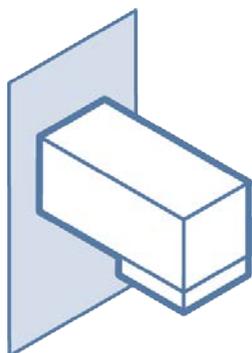
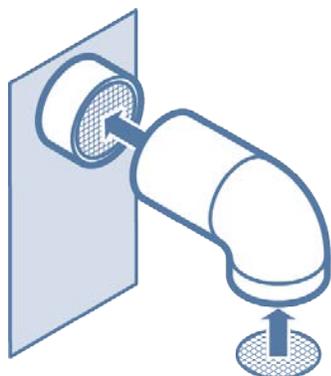


Mushroom-Style Vents

These vents, made of durable noncorrodible steel, have an internal downward or vertical screen with hood shield; they are secured or sealed to the reservoir roof to keep out contaminants.

Examples of Poor Vent Designs

Many existing reservoir vents are deteriorating or poorly designed and require upgrades to protect stored water adequately. Replace poorly designed, damaged or deteriorated vents with vents made of durable material and adequate security to keep contaminants out.



Sidewall Vents

A screened opening on the side of a tank provides little or no protection from rain, tank run-off, or windblown contaminants.

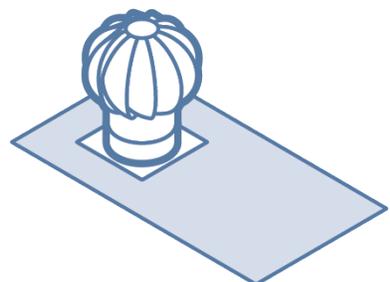
Install a downward facing extension or hood, and screen the downward-facing open end.



Chimney Vents

The screened area is not adequately hooded. The screen must be high enough off the roof to prevent rain splatter from entering the vent.

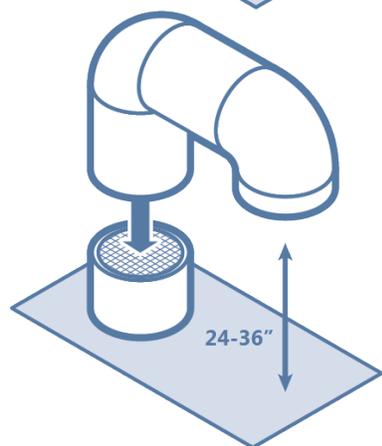
Thin galvanized steel construction is prone to corrosion or structural failure. Check the strength of the connection and the integrity of the seal between vent and reservoir roof.



Ventilators

You cannot retrofit these vents to eliminate the potential for contaminants to enter.

These vents weren't designed for use on finished water storage tanks. **You must replace them.**



Upward Facing Vents

A screened upward-facing opening provides no protection from contaminants.

You must replace an upward-facing vent. We recommend installing a downward-facing vent in its place.

Inspect your storage tank vents at least once per year. You must correct corroded, broken, or missing screens and other unprotected openings as soon as possible.

Make reservoir vent inspection a routine activity. Don't wait until the lab reports contamination to perform an inspection.

General Principles

- Water storage tanks must be free of sanitary defects. Sanitary defects are unnecessary risks to public health that can lead to illness, unsatisfactory coliform samples, more frequent sanitary surveys, boil water notices, additional sampling and/or treatment requirements, public notice, and legal liability.
- Tank tops may have debris that are a source of *E. coli* and pathogens like *Salmonella*, including bird droppings. You should consider any water that contacts the tank roof contaminated.
- You will need to repair or replace older, improperly designed vents that don't adequately protect stored water with secure and durable vents.
- Even the best design will fail if it isn't sealed and anchored to the tank to keep surface water from seeping into the interior. Approved sealers and epoxies work well if you use proper techniques.
- All systems must have an active Operations and Maintenance Program to document routine self-inspections, the results, and follow-up work. For guidance on routine preventive maintenance, see *Preventive maintenance program: Guide for small public water systems using groundwater (331-351)**. Routine inspections detect damage from corrosion, vandals, severe weather, animal activity, and so on.
- Some old storage tanks may be at the end of their useful lives. Start planning for the replacement!

For more information

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