THE SPIGOT
from the NORTH DAKOTA RURAL WATER SYSTEMS ASSOCIATION

# Frozen Sewer Vent DETECTION and PREVENTION

By Keith Hegney, Wastewater West

Winter in North Dakota means more than just abundant snowfall, dangerous windchills and treacherous travel conditions. The colder temperatures can also wreak havoc on your home's plumbing.

In extremely cold weather, water vapor in the vent can freeze on the top of the stack and may close it off completely. If this happens, the pressure in your sewer or drainage system may be disrupted, causing the water traps to empty. With no vent to the roof, there is great potential for gases to build up in your home.

The plumbing vent – also called an air vent or vent stack – acts as an air pressure regulator. This vent allows air into your home's plumbing system, which then forces water throughout the pipes. This process removes gases and odors that wastewater can leave behind. A frozen (or clogged) vent does not allow air into the pipes. (The opening of the vent stack is outside, typically on the roof and is vulnerable to becoming clogged any time of the year with dust, debris or leaves to name a few). If a plumbing vent freezes or becomes clogged, stagnant water can accumulate in the pipes until the pipes can no longer contain them. This can result in the water flowing back up and out of drains.

It's during such times that you will begin to notice the symptoms of a closed vent.

Any drain in your home that takes a long time to drain can be due to a blocked vent. This includes a bathtub or shower drain, sink drains or toilets. Slow-to-drain water does not always signal a blocked vent. However, if you only experience this issue with one drain, it is likely a clogged drainage pipe where a plunger may alleviate the problem. If not, or if it is occurring in multiple areas of your home or *causing a gurgling sound in any of your drain fixtures*, the next likely culprit is a frozen or clogged vent.

In addition to a slow-to-drain sink or toilet, foul smells can also signal a clogged vent stack. These smells are normally caused by toxic sewer gases like ammonia and hydrogen sulfide – which can make your home smell like rotten eggs.

The largest constituent of sewer gases, however, is methane. Methane gas is colorless and odorless, but when inhaled, can lead to symptoms like nausea, dizziness, and headaches. If you detect these smells or experience any symptoms of methane gas, your vent stack is most likely blocked. The reduced air pressure in the vents can completely empty out the drainpipes, ultimately resulting in plumbing P-traps to dry out. (These traps are U-shaped pipes in toilets and underneath sinks. Floor drains, usually found in storage rooms, washrooms, or utility rooms, also have a P-trap).

Clearing a clogged air vent can be an easy fix if the blockage is isolated to the stack's opening. *If* you can *safely* climb up on your roof, remove or melt the ice covering the vent by pouring hot water down the vent. If the affected drains appear to be back to normal working order, your problem should be solved. If not, it may mean that the vent and/or drainpipe is clogged further down the line, and you will need to call in a professional.

# Get The Smell Out of Here

By Keith Hegney, Wastewater West

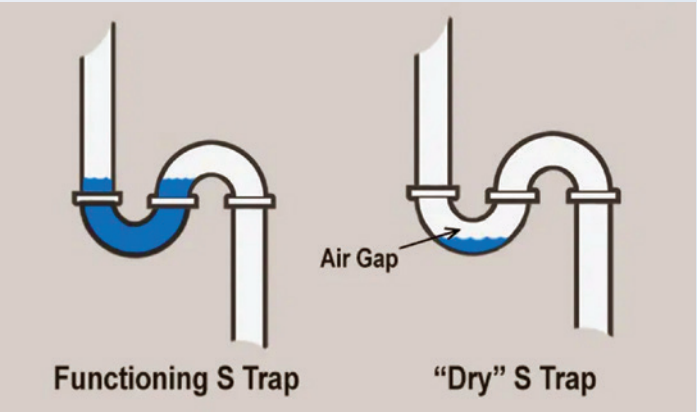
Have you ever experienced a "rotten egg" smell in your home? This is most likely an indication of a P-trap issue.

P-traps are what holds on to sewer gases so that they will not pass through the pipes and back into your home or dwelling. They do this by keeping a small amount of water in a little "dip," which then creates a seal for the dangerous gases, ultimately trapping the sewer gases. Thusly, if a P-trap does NOT get any water, it cannot create that seal, and will not prevent the harmful sewer gases from shooting back into the pipes and into your home.

P-traps dry out for a few different reasons, but the most common is due to a frozen or clogged vent stack that is no longer allowing air into your plumbing system. The air flow is important to force water throughout the pipes. If there is an obstruction, the water will become stagnant and eventually water will flow back up and out of drains. Homes that have heated floors are more likely to have issues due to higher evaporation.

The first indication that you have a P-trap issue, is a foul smell. Ammonia and hydrogen sulfide are toxic gases that smell like rotten eggs. Methane gas is the largest and most dangerous constituent of sewer gases. Methane is colorless and odorless, but when inhaled, can lead to symptoms like nausea, dizziness and headaches. If you detect a foul smell or experience any symptoms of methane gas, chances are that what you are smelling is the result of a dried-out P-trap.

P-traps are the U-shaped pipes in toilets and underneath sinks. Floor drains, typically found in storage rooms, washrooms or utility rooms, also have a P-trap. It is very common to have *hidden or unused floor drains* in your home as well. These drains can become dry, any time of year, resulting in the harmful effects of sewer gas. If this is the case, after locating the problematic drain, simply administer an environmentally safe oil, such as mineral oil, into the drain. (You can also fill the drain with water; however, mineral oil will reduce the evaporation rate of the water in the trap). Mineral oil is safe to use in any septic system.


If you are still experiencing sewer gas odors inside your home and are unable to pinpoint the problem to an exact drain, North Dakota Rural Water Systems Association (NDRWSA) has the equipment available to assist with a "smoke test" in your home, business or city's sewer system. A sewer smoke test can conveniently locate the source of the sewer odor, allowing the source of the sewer gas leak to be fixed. Quite often, the smell from a sewer is traced back to unused drains with dried up traps. (However, there may also be a worn-out pipe, a tree root that has cracked and entered the pipe causing a leak, or simply an unsealed toilet wax ring). In any event, a leak may be very hard to find on your own. Smoke testing allows for "visual proof" to locate the exact source of a leaky sewer system.

Smoke testing can detect even a hairline crack in a pipe, which could be hidden beneath the floor or behind a wall. Such cracks are undetectable and could be impossible to get to without the use of a smoke testing machine.

The smoke testing method is administered by a highly-trained technical advisor of NDRWSA and is a very efficient and cost-effective way to identify a sewer leak. The "smoke" is not true smoke, but rather a mist containing a large percentage of atmospheric moisture that is highly visible at low concentrations. It is not harmful to your health and will disappear rapidly without leaving an odor. The smoke is non-toxic, non-staining and odorless, it is harmless to humans, pets, plants, food, and material goods.

Please contact your city's public works department to schedule a smoke test with NDRWSA.