

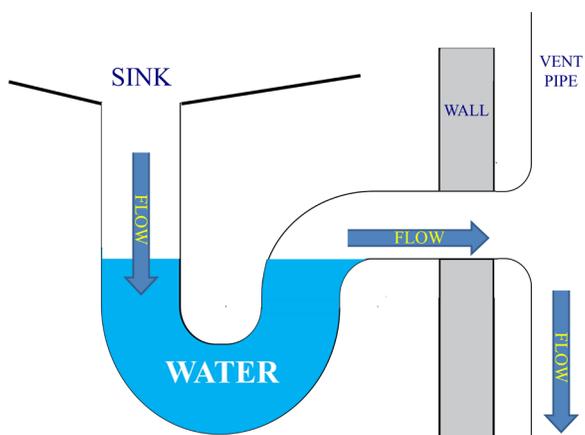


CITY OF NORTH RICHLAND HILLS CONSUMER HEALTH DIVISION

TROUBLESHOOTING SEWER GAS SMELL

Sewer gas is created by the decomposition of waste materials that are found in public and private sewer systems and private septic systems. The characteristic odor can be overpowering and it is toxic. To add further insult to injury, the gas is explosive as it often has a methane component. Finding the source of sewer gas smell can be a vexing problem to solve, but it is by no means impossible. The purpose of this document is to provide some direction on common causes of sewer gas smell.

Plumbing systems are designed with two main components to keep sewer gas within the pipes and prevent it from entering into occupied space: the P-trap and the plumbing vent stack.



The P-trap works by holding water, which creates a barrier to keep out sewer gas. When a drain has not been used for a while (i.e. no water flows down the drain because a space is unoccupied) or when the P-trap pipe is leaking, the P-trap goes dry and there is no barrier to prevent sewer gas from coming through the fixture into the space. This is the most common cause of sewer gas smell with the easiest solution. Repair cracked or leaking P-traps, and run water through all plumbing fixtures and drains periodically, and the sewer gas can no longer enter the space. To slow evaporation from fixture traps that are not used on a frequent basis, fill them with water and then slowly pour four ounces of mineral oil into the fixture or floor drain. This mineral oil will evaporate far more slowly than water and the trap will remain wet for a much longer period of time (usually a few months).

The plumbing vent stack is another system that prevents sewer gas from entering into occupied space. Vent pipes are connected to plumbing and poke up through building roofs. These vent pipes on the roof are actually intake vents, not exhaust vents as most people believe. When a large volume of water enters a plumbing drain pipe it pushes air in front of it towards the sewer or septic tank. This air must be replaced and it is sucked into the plumbing system through the roof vents. However, sewer gas also exits through these vent pipes.

Tennis balls, leaves, bird nests, and all sorts of other debris can clog plumbing vent pipes. When a vent pipe is clogged, the replacement air needed by the system will get sucked into the pipes through a fixture inside the house. When a large amount of water is placed into the drain pipes by a toilet or a powerful washing machine pump, it can readily suck the water out of a nearby bath tub trap or even a kitchen sink trap. Illegal drain connections without vent pipes can also create this problem. Once this happens, sewer gas immediately enters the room through the dry fixture trap. Vent pipes can usually be unclogged using a simple plumbing auger.

While cracks in drain pipes are usually easy to find due to the presence of telltale water leaks, cracks in vent pipes are far more elusive. They can leak vast amounts of sewer gas and you might not be able to locate the source easily without a special machine.



Left Picture: A cracked vent pipe causes smoke from a smoke test to enter through a gap in the wall.

Right Picture: A leaking P-trap does not create a barrier to prevent sewer gas from entering the space.



Sewer gas leaks can be quickly discovered by a licensed Master plumber who owns a machine that generates artificial smoke. The smoke is simply visual and does not create a lasting odor nor does it stain any surfaces in a building. The plumber connects the smoke generation machine to the plumbing drain system and then blocks off the drain pipe leading to the sewer and caps off all roof vent pipes. Once the smoke machine starts, it begins to slightly pressurize the plumbing system. If there is a cracked pipe or a fitting joint that is loose, the smoke readily exits at that point before it would bubble up through a fixture trap filled with water. Usually the source of the sewer gas leak can be discovered in less than one hour.

Another common cause of sewer gas smell is the connection of the HVAC system with the sanitary sewer system. The connection of the HVAC condensate line with the sanitary sewer system creates optimal conditions for bacterial and fungal growth. This growth can produce foul odors. If the sewer gas smell is stronger when the air conditioner or heater is turned on, look for connections between the HVAC system and the sanitary sewer system. These connections should be separated if possible, and the HVAC system lines and components thoroughly disinfected.

If you are having issues with sewer gas smell and cannot determine the cause, hire a licensed Master plumber to help you find and eliminate the problem. Search for licensed Master plumbers in Texas by visiting the following website: <http://www.tsbpe.state.tx.us>

Don't forget to make sure that your plumber obtains the required building permits for any work he is doing! Some types of work do not require a permit. For more information about building permits in North Richland Hills, contact Planning and Permits at 817-427-6300.