INTERNAL DRAIN VENTING

Internal venting and bad smells within properties are a common problem. As with all drainage problems there is a set pattern of investigation works that you can follow to eliminate the problem.

Good drainage systems are designed so that no matter what goes on below ground level you should not get any venting (smells) at ground level or within the property. All external gullies should have a water trap to act as a barrier and the soil vent pipe is there to allow the foul air to vent above the eaves of a property. Likewise all internal fittings such as sinks, baths, toilets and showers should have water traps fitted and waste pipes from dishwashers & washing machines should also pass through a water trap of some description.

The first question is:-

How long has the problem being going on?

If you have lived in the property for ten years and the venting started 18 months ago this suggests that something has changed somewhere for the problem to exist. However if you have been in a new build property for two years and you have had venting from day one there is a fair chance that the problem is due to the poor design or installation of the drainage or plumbing system.

Is the venting constant or is it intermittent?

This can eliminate certain scenarios and obviously if you have had recent building or plumbing works undertaken this would be an area to investigate. Especially if the problem started after this work.

Recreating the same circumstances that caused the system to vent is often a problem. There are a number of reasons for this such as the amount of flow passing through a main sewer increasing and stirring up the sediment and increasing the smell at certain times in the day. The flow rate of a sewer will increase first thing in the morning when everyone is getting up and using the bathroom and again in the evening when people get home. Rainfall can dramatically increase the flow rate on older combined sewer systems. Combined sewers take both foul and rainwater runoff, so become more adversely affected by periods of heavy rainfall.

POSSIBLE CAUSES OF INTERNAL VENTING FROM DRAINAGE SYSTEM.

1. BLOCKED OR MISSING SOIL VENT PIPE

The soil vent pipe is the large pipe which runs from your toilet to the drains, it also should extend upwards above the gutter. A soil vent pipe not only allows foul air to vent from the drainage system it also allows air into the system. When an upstairs toilet is flushed water flows down the soil vent pipe and if there is not an open vent at the top a vacuum can momentarily occur behind this falling water. If your sink, shower or bath waste pipe

discharges directly into the soil vent pipe, this vacuum can draw water out of the trap. Once the water in the traps drops to a certain level this trap stops being effective and you have a direct vent from the drainage system into your bathroom until the next time water passes through the trap and the level is restored.

This can also affect kitchen sinks, if they are plumbed directly into a soil vent pipe and it can be the case that downstairs toilets and en-suite bathrooms have been installed with no vent system at all.

If you feel water is being drawn from the traps you need to establish if there is a vent on the system and if so if it is blocked? Blockages to the top of soil vent pipes can often be the result of nesting birds. On more modern properties some vents finish within the roof space and have an air admittance device fitted. These can be prone to failing due to dust and loft insulation fibres but they are simple to dismantle and clean out.

2. **POOR PLUMBIMG CONNECTION TO SOIL VENT PIPE OR POOR WASTE PIPE CONNECTION.**

This is most common on internal soil vent pipes. The vast majority of internal soil vent pipes are boxed in and hidden from view. A poor connection from a waste pipe onto the soil vent pipe may not necessarily leak if the defect is in the crown of the connection but it can cause venting.

These can be difficult to trace, it will involve a full survey of all the connections to the soil pipe.

3. **BLOCKED DRAINAGE SYSTEM**

When an external below ground drainage system is blocked, or even partially blocked, the air within that system will be pungent. This air can become displaced by the water from a flushed toilet. This can cause the toilet to be slow in draining. Gurgling in the traps in the bathroom and on the toilet itself is a side effect of this process as is the venting that follows. So it's always prudent to lift any external inspection chamber covers before you start any internal investigation of smells.

4. **INTERNAL PIPE WORK**

These are often fitted between floor joists for upstairs bathrooms and en-suites. These systems can sometimes be installed with very little fall at all. They will usually consist of narrow pipe-work and can have numerous changes of direction. It is possible that this pipe-work will not be able to cope with demands upon it at peak usage. The system may become "half-blocked" as waste water and air enter it. If this is the case the trapped air will vent through one, or all, of the traps in the bathroom.

5. **INTERNAL INSPECTION CHAMBERS**

Sometimes properties are extended and the extension will cover existing drainage systems and inspection chambers. These chambers were designed to be outside of the property and

for that reason are not air-tight. If the property has been extended it is possible that there may be an old inspection chamber inside the new extension. This may be beneath a carpet or other floor covering. It may even be beneath a new sub-floor. They will not usually cause a problem but a partially blocked system can force air up through the cover and frame.

6. FOUL WATER SITTING IN A TRAP

Partially blocked pipe work can cause the level in the system to rise but not actually overflow. This can allow foul water to enter the lowest trap (typically the shower or bath) which then starts to vent.

This can also apply to external drainage when a partial or full blockage causes foul water to fill the outside gullies. If the gullies are near to air-bricks the foul air will enter the property.

7. NEW WASHING MACHINE/DISHWASHER

If the machine has been incorrectly plumbed in to the system it can cause venting. When the machine is on its final rinse or spin mode it can push out as much air as water. This air can displace the water out of (for example) the kitchen sink trap leaving a direct vent.

8. DISUSED JUNCTIONS AND OLD BRANCH LINES

Extensions and conservatories are often constructed over external gullies or soil vent pipes which then have to be re-sited. These should be properly capped off. Sometimes it is not done correctly. This gives a direct vent to beneath the property and in certain circumstances can cause problems. A blockage or partial blockage of a system can go unnoticed if the water can surcharge up the disused branch line and into the sub-soil area. The ground can become saturated and this can cause venting and damp problems.

Any disused and poorly capped drains may also give rats access into your property.

9. LEAKING AND BROKEN DRAINAGE PIPES

Cracked, broken and fractured pipe work will allow water loss into the sub-soil area. If the leak is on the outlet of a gully or on the rest bend at the base of a soil vent pipe this is usually directly adjacent to the external wall of a property. This can cause standing foul water in the sub-floor or cellar. At the very least this will cause foul air venting into the property.

10. DAMAGED GULLY POT/LEAKING EXTERNAL/INTERNAL GULLY POT

As above, a fractured gully pot will allow water loss that can find its way into sub-floors and cellars and as the water level in the gully drops the barrier from the sewer smells is lost. The water loss can be very slow compared to the flow that passes through the gully so the water level may only drop below the trap level every so often before it is topped up again. A typical scenario would be a rain water gully on a combined drainage system, during a prolonged dry spell the gully could dry out and vent at ground level. If the gully is beneath an air brick then this venting will be detected inside the property.