

Unit 209: Drainage systems

Outcome 2 (part 2)

Types of traps and associated requirements

Requirements

Trap seal loss

There are many reasons that the trap seal can be lost – ie the water level is lowered to below the bend of the trap.

If this occurs, the noxious smell will enter the property until the trap seal is reinstated.

Requirements

Trap seal loss

Leaks

A basic but common reason for trap seal loss is that the seal water is leaking out. This could be due to one of the rubber seals not being watertight, or it could be due to the plastic body of the trap being damaged.

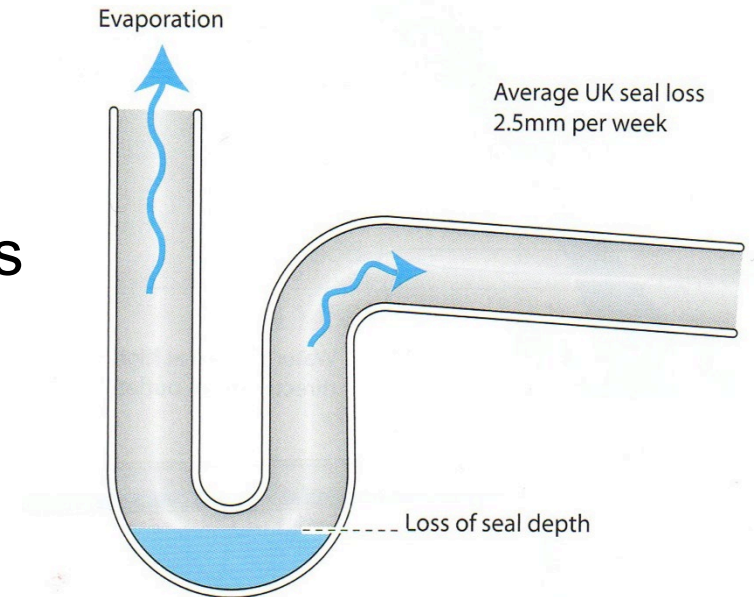
Requirements

Trap seal loss

Evaporation

A simple reason commonly experienced in warmer climates and holiday properties.

Due to the lack of use of the appliance, the water in the trap seal evaporates out. All appliances rely on the seal water being topped up by regular use.



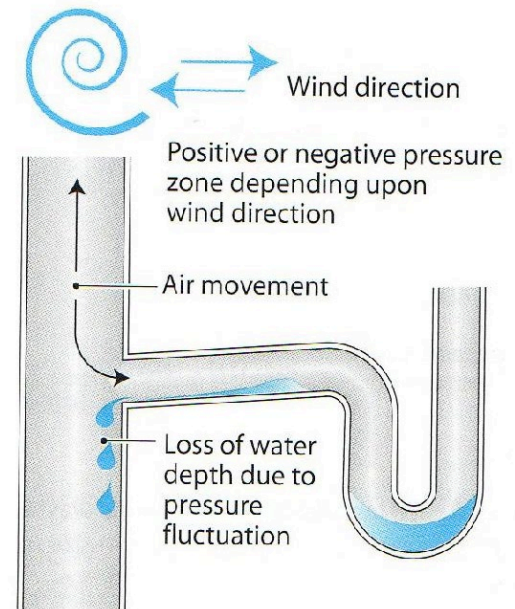
Requirements

Trap seal loss

Wavering out

This is caused by the wind passing over the top of a soil stack and therefore creating the traps in the appliances to bob up and down.

This motion loses a little water from the seal every time.
A wind cowl can assist with this problem.

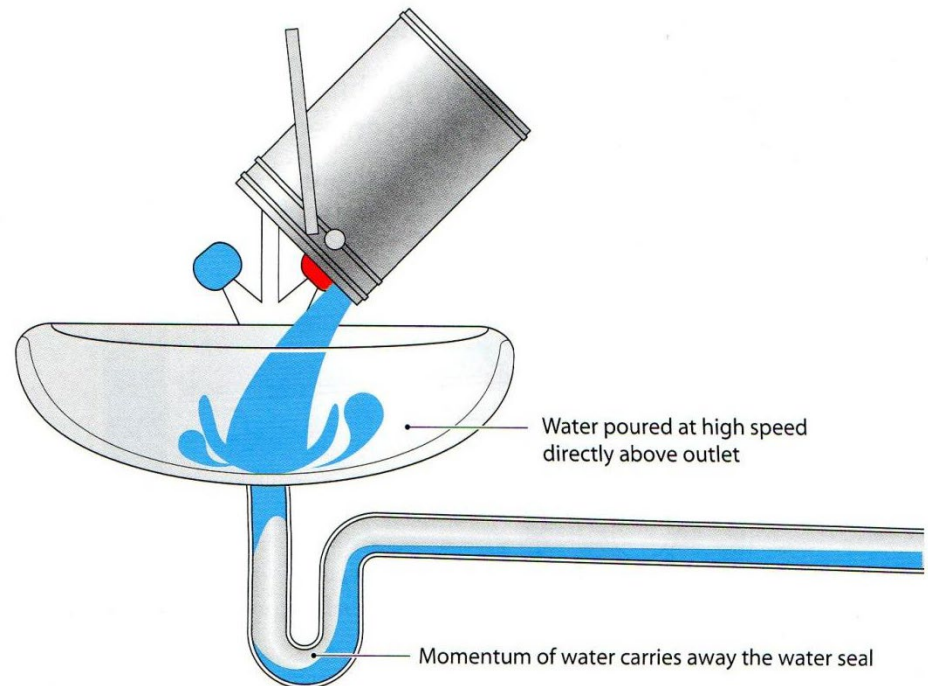


Requirements

Trap seal loss

Momentum

This occurs when a large amount of water is suddenly discharged down a trap. The force of water movement carries the trap seal out.

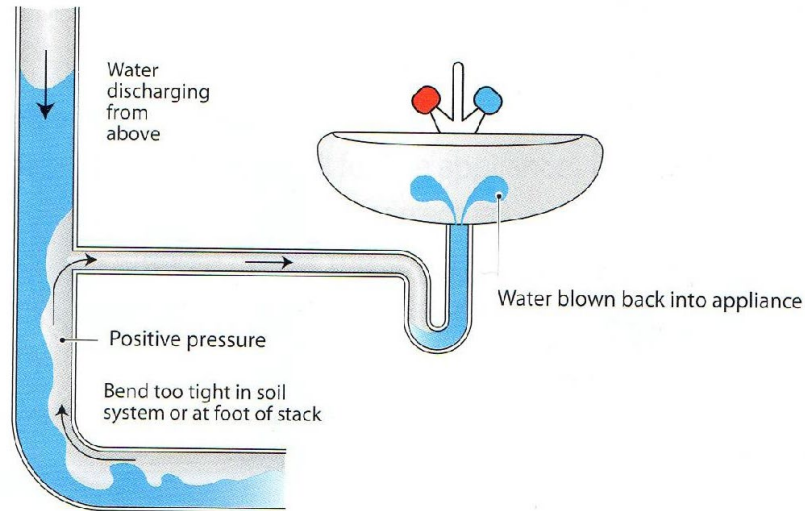


Requirements

Trap seal loss

Compression

When a WC is discharged from the first floor, it falls rapidly down the soil stack. If the stack has a tight radius at the base (instead of a long radius bend) the water can start to back up the stack, causing pressure to build, and pushing out the lower traps.

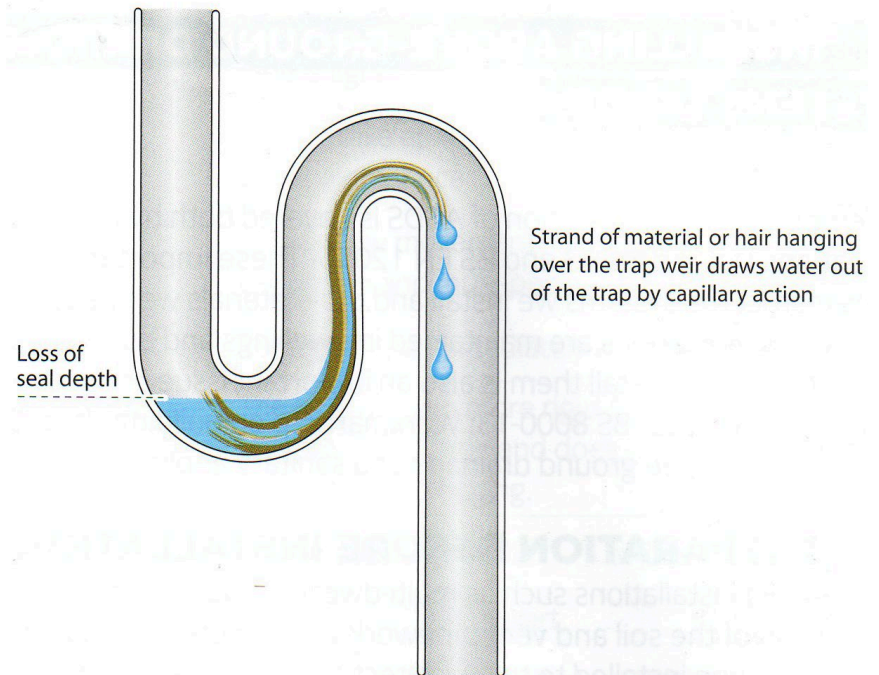


Requirements

Trap seal loss

Capillary action

Generally happens in S traps when long fibres or hairs get caught over the top of the weir. Capillary action then draws the trap seal water up and over the weir.



Requirements

Trap seal loss

Self-siphonage

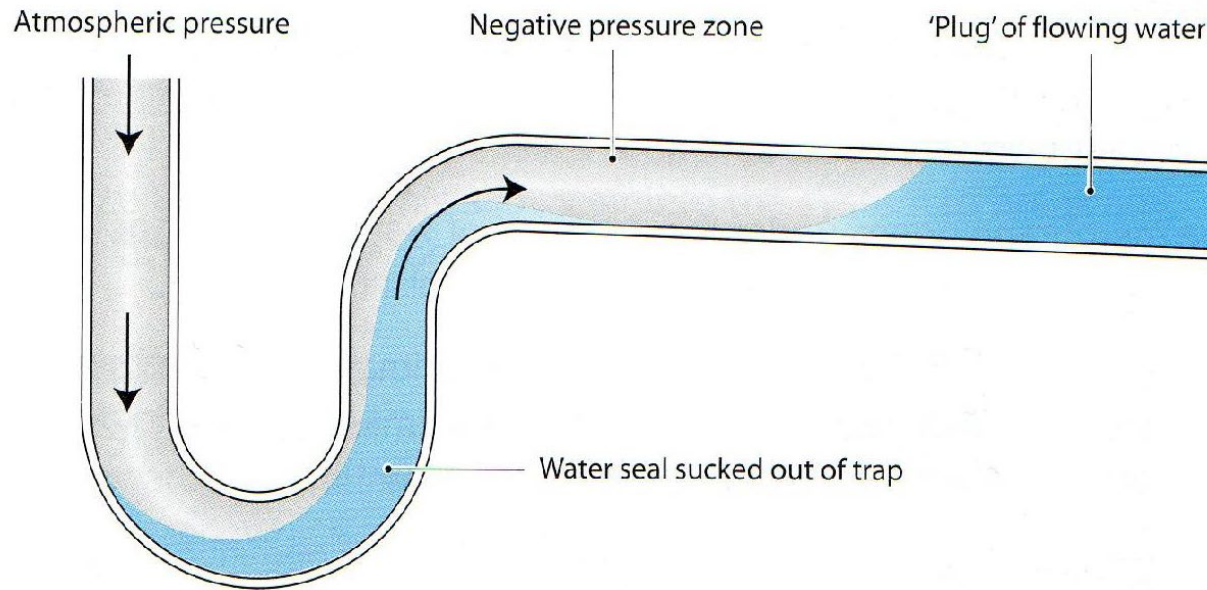
This occurs when a single appliance discharges and pulls its own trap out. When it discharges, a plug of water is formed; as the plug moves down the waste pipe, a negative pressure is created pulling the trap out.

This commonly occurs in basins due to the small waste pipe diameter, but an anti-vac trap is the easiest way to overcome the problem. This also takes place if the gradient of the waste pipe is too steep.

Requirements

Trap seal loss

Self-siphonage



Requirements

Trap seal loss

Induced siphonage

This can occur when several appliances are connected to the same discharge branch. One appliance is discharged, and as the water passes another appliance, it pulls the other appliance's trap out.

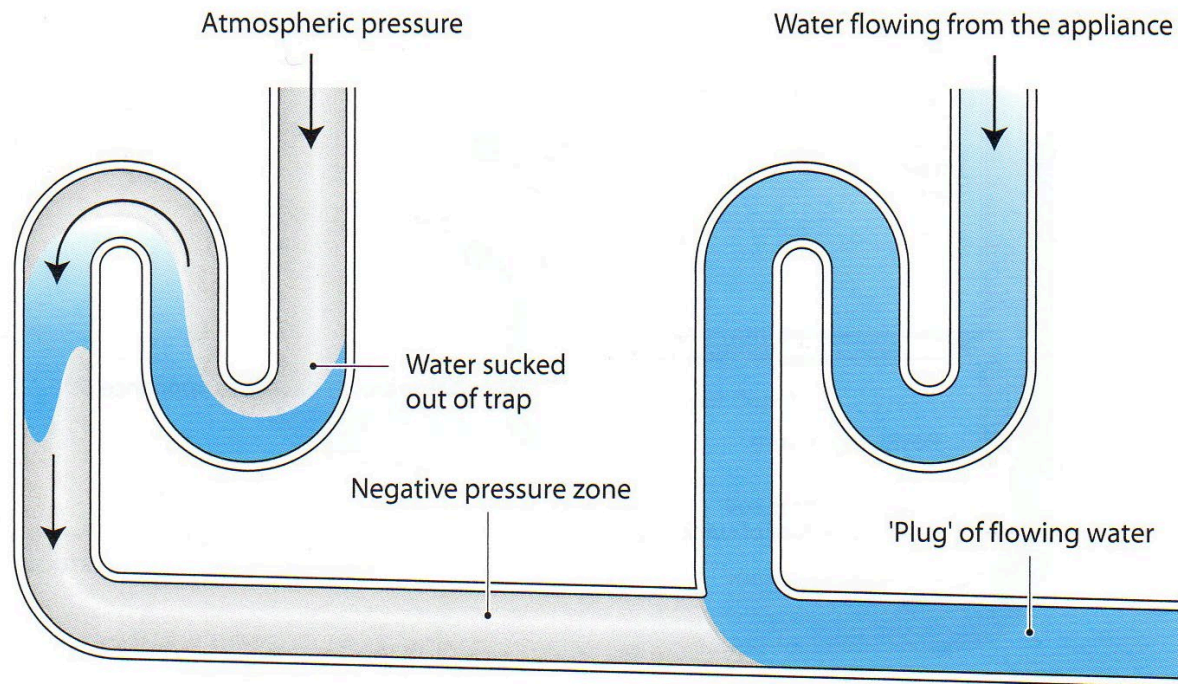
A plug of water is formed as it passes another appliance. As the plug moves down the waste pipe a negative pressure is created pulling the trap out.

For this reason multiple appliances should have a branch discharge pipe diameter of 50mm.

Requirements

Trap seal loss

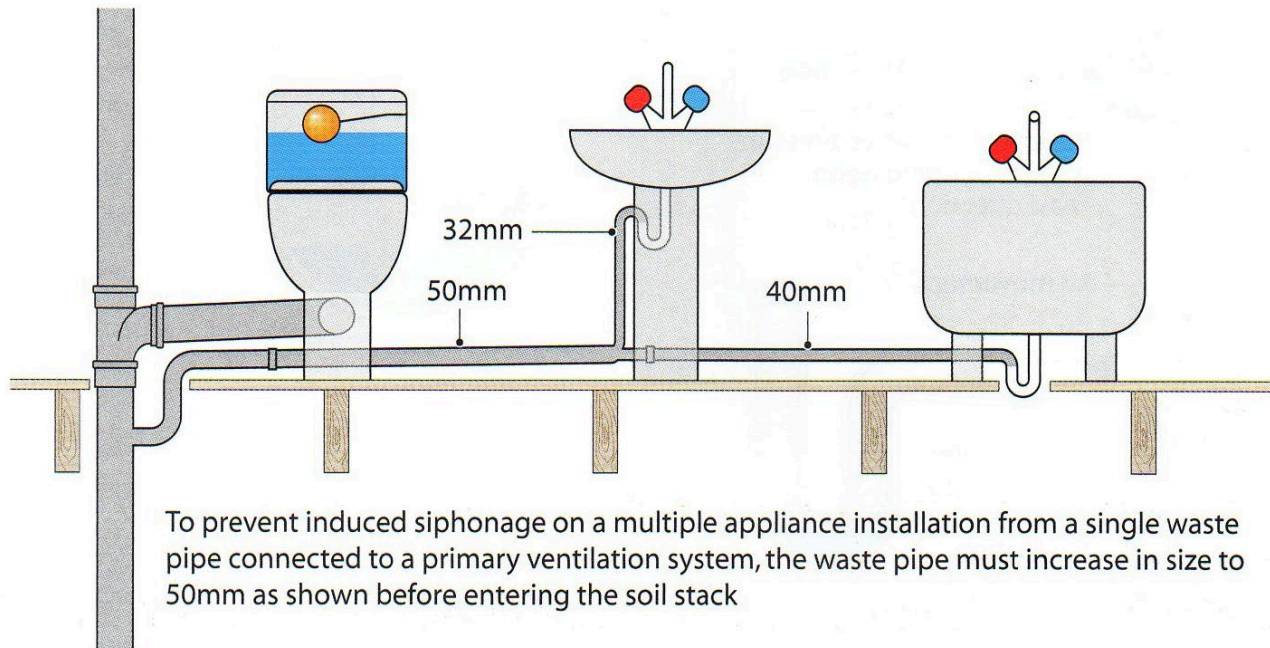
Induced siphonage



Requirements

Trap seal loss

Induced siphonage



Requirements

Trap seal loss

Common causes:

- Waste pipes are too long
- Waste pipe diameter is too small
- Incorrect fall
- No long radius bend
- Too many appliances on a discharge branch
- Too many changes in direction
- Debris or blockages

How would you rectify each cause?

Requirements

Trap seal loss

Size of waste pipe for appliances, with maximum length and gradient.

Appliance	Waste size (mm)	Max length (m)	Gradient mm/m	Trap seal depth (mm)
WC	100 (adult) 75 (junior)	6.0	18	50
Basin or bidet	32	1.7	18-22	75
Washing m/c dishwasher	40	3.0	18-90	75
Bath	40	3.0	18-90	50
Sink	40	3.0	18-90	75