Unit 209: Drainage systems

Outcome 2 (part 1)

Types of traps and associated requirements

Requirements

Traps

The purpose of a trap under an appliance is to stop the noxious (unpleasant) smell from the soil stack entering the property. They attach to the underside of the waste fitting on the appliance.

There are many styles of traps to suit various situations. The majority are made from polypropylene; others are made from brass and copper, or are sometimes chrome plated.

The jointing methods are mainly push-fit, and more commonly compression using a rubber seal.

Requirements

Traps

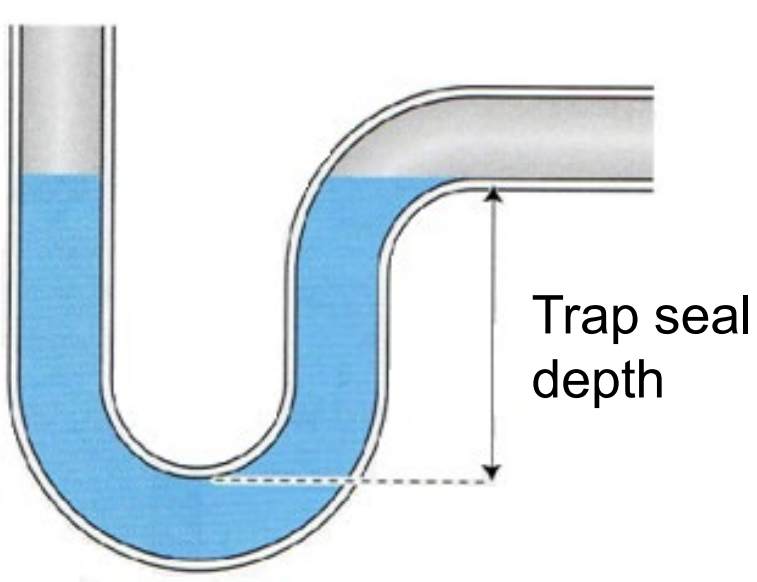
Where a trap diameter is 50mm or above, the trap seal must be a minimum of 50mm deep like a WC.

Being a larger diameter they contain more water, so become more difficult to lose the trap seal due to induced siphonage, waving-out or compression – cohesive property of water.

Requirements

Traps

The trap seal depth is the retained depth of water stopping the noxious smell entering the property.



Requirements

Traps and their seal depths

Appliance	Waste fitting size	Trap diameter	Seal depth for soil stack
Washbasin	1¼”	32mm	75mm
Bidet			
Bath	1½”	40mm	50mm
Shower			
Bowl urinal		40mm	75mm
Washing machine		40mm	75mm
Dishwasher			
WC pan	NA	75mm	50mm
		100mm	50mm

Requirements

Traps and their seal depths

Appliances can also run into a gulley trap or hopper head, which in turn runs into the drainage system. These are independent to the soil stack systems. They cannot have foul water discharged into them so only sinks, showers, basins and baths can discharge into them.

A gulley requires a minimum of a 38mm trap seal.

Requirements

Traps

The reason that a bath and shower can have a shallower seal depth is that both appliances are larger and flat-bottomed. This means they discharge water more slowly than a tapered appliance.

The flat bottom of the bath and shower tray means the last small amount of water to drain away maintains the trap seal.

Requirements

Try to remember the missing details:

Appliance	Waste fitting size	Trap diameter	Seal depth for soil stack
Washbasin	1¼”	32mm	75mm
Bidet			
Bath	1½”	40mm	50mm
Shower			
Bowl urinal		40mm	75mm
Washing machine		40mm	75mm
Dishwasher			
WC pan		100mm	50mm

Requirements

Tubular traps

Swivel traps come in either P, S or running styles. The union connection in the centre allows the trap to swivel through 360^0, enabling multiple positions and connection options.

Requirements

Traps

P and **S traps** are so called because of their shape.

A P trap is commonly installed when the discharge branch is horizontal to the appliance.

An S trap is commonly installed when the initial waste pipe that leads to the discharge branch is vertical. This may happen when a number of appliances are served by one discharge branch.

Requirements

Traps

Running traps are used when an appliance or group of appliances need to be trapped separately to the appliance(s). It could be that the space under the appliance is limited. This also saves money.

The running trap is installed into the discharge branch itself.

Requirements

Traps

Slimline or **pedestal,** or **straight through traps** are specifically designed for use under a washbasin. The slimline nature of the trap allows the waste to be hidden behind the pedestal. (This is a slim S trap.)

Requirements

Traps

Washing machine trap is used for a washing machine or dishwasher that has a pumped discharge.

This is an extended P trap that has a height of 600mm. The discharge hose is located over the top of the trap within a supporting clip.

Requirements

Traps

Spigot trap is another way that a washing machine or dishwasher could be catered for. This is basically a variance on the standard P trap and is commonly located below a sink.

Requirements

Traps

Bath traps are designed for the restricted area under a fitted bath and are allowed a 50mm depth of seal. If the bath is discharging to a hopper or gulley trap, a 38mm trap seal is allowed.

Requirements

Traps

Bottle traps are sometimes used under a washbasin due to their neat appearance but their design means they can be restrictive to the flow of water – so they are **not** suited under a sink.

Requirements

Traps

Chrome finish bottle traps are sometimes installed where there are exposed waste pipes.

Requirements

Traps

Shower traps operate on a similar principle to bottle traps but with a 50mm depth of seal. These also include access for cleaning, via a removable waste grill, which is an integral part.

Requirements

Traps

Anti-vac or resealing traps are used if there is a possibility of trap seal loss due to siphonage. If a system has been designed and installed correctly there should be no problem with trap seal loss, so a standard trap can be used.

Anti-vac traps can alleviate the problem of trap seal loss if a system is upgraded or additional appliances are added.

Anti-vac traps may not hold during an air test, so are not advised on new installations.

Requirements

These traps have a small air admittance valve located on their body to allow a small amount of air into the waste pipe, under negative pressure to avoid any siphonage.




Requirements

Traps

Resealing traps look the same as a standard trap from the outside but internally they have a bypass tube, which allows air to travel from one side of the seal to the other whilst being discharged.

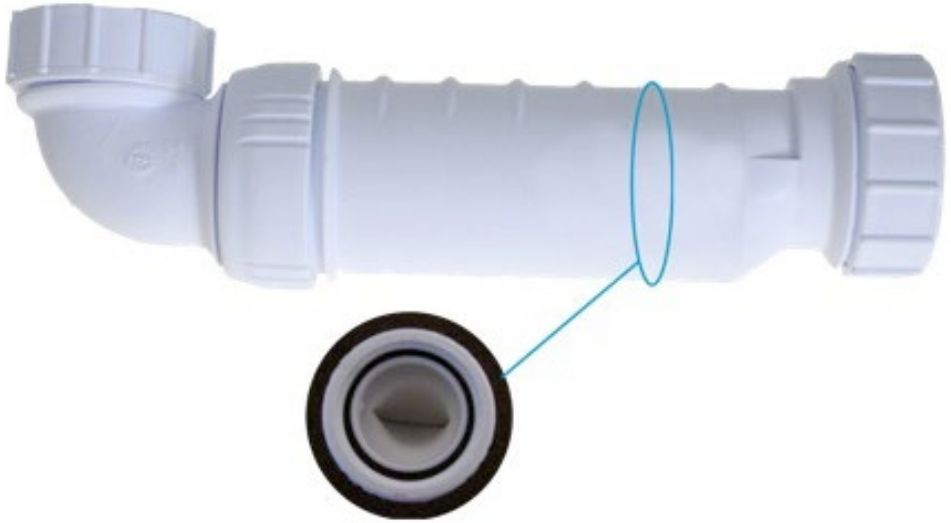
This avoids any negative pressure and therefore siphonage, without the noxious smell entering the property.

Requirements

Traps

A **self-sealing waterless valve** is officially not a trap as it does not use a seal of water. It uses a thin neoprene rubber tube to create an airtight seal to stop the noxious smell entering the property.

The membrane opens under the flow of water from the appliance, closing after the discharge has finished.



Requirements

Traps

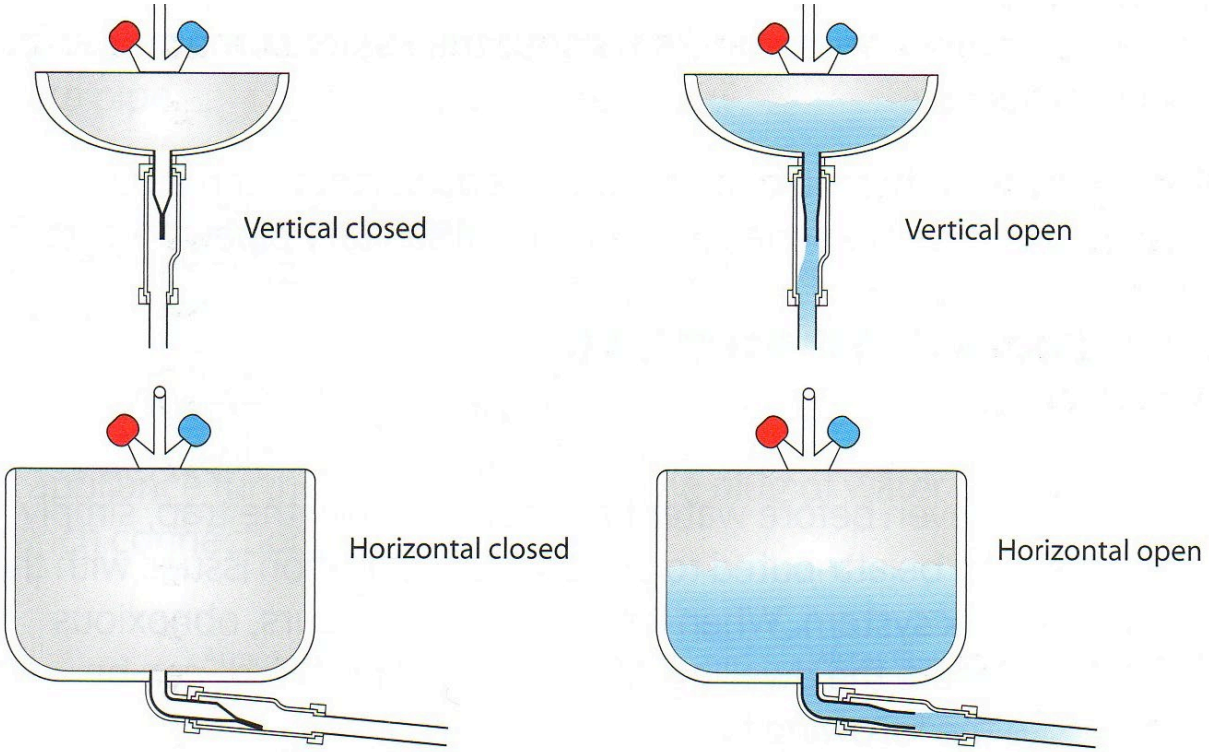
Self-sealing waterless valve:

- They remove the problem of negative pressure
- No water seal means no possible siphonage
- Silent operation
- Additional appliances can be installed on the same discharge branch without affecting performance
- The seal can withstand back pressure
- Pipework length is no longer restricted
- Gradient is not restricted

Requirements

Traps

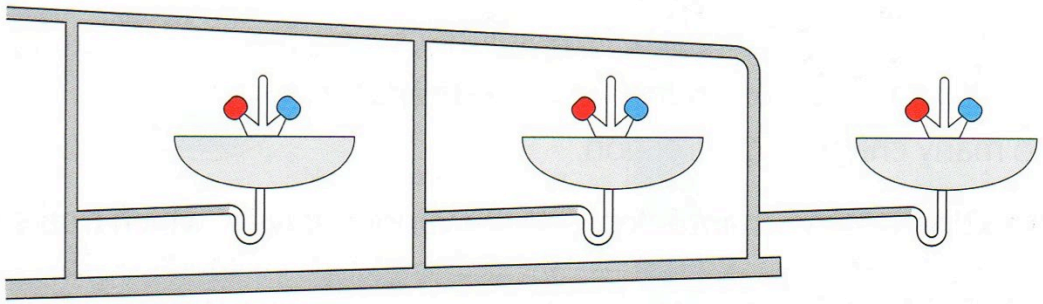
Self-sealing waterless valve



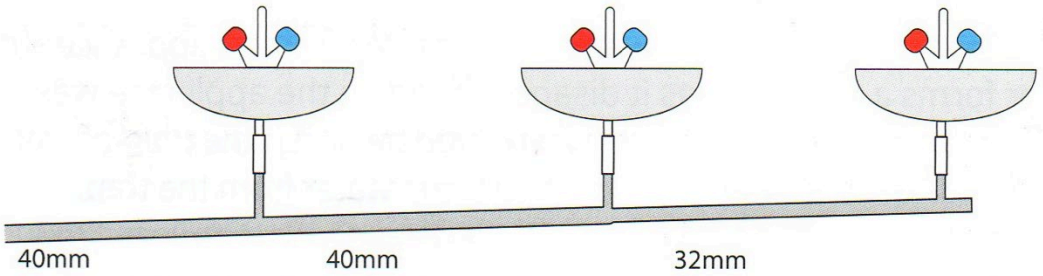
Requirements

Traps

Self-sealing waterless valve



A range of wash basins installed on a ventilated discharge branch system



The same installation using self-sealing valves
There are no ventilation pipes and the main waste pipe is of smaller diameter