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Assignment : 01

Soil Pipes AND Anti-syphon Pipes:

Soil Pipes=

As already mentioned, soil pipe is for soiled water. This type of pipe will carry water and solids into the sewer. While any pipe could physically perform the task, the soil pipe, also known as soil vent pipe, as installed in most homes has a specific quality. First it is of dimension to allow solid waste to pass. Second, it is vented in a very specific way to maintain a very specific way to maintain a safe environment and reduced odour.

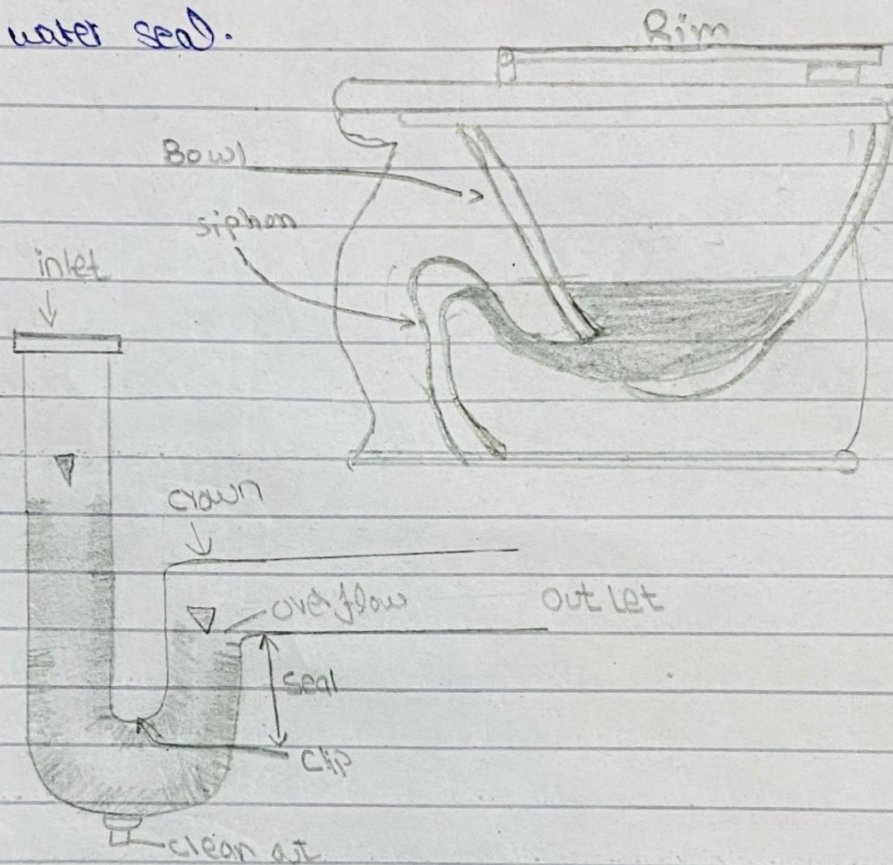
Soil pipes are vented high at the top or near the top of building, thanks to soil pipe stacks, to allow gases produced by waste to vent safely into the atmosphere. Such gases can be harmful to health so venting them high keeps them out of the way. This is a vital feature of soil pipes and it form part of building regulation too.

An extra pipe connected to the outlet of toilet seats of all the floors, the end of which is exposed to atmosphere is called anti-syphorage pipe. These are provided to maintain water seal so that foul gases of the sewer line do not find entry into the toilet/bathrooms.

If we look into a toilet seat we find some water at the bottom, which remains there even after

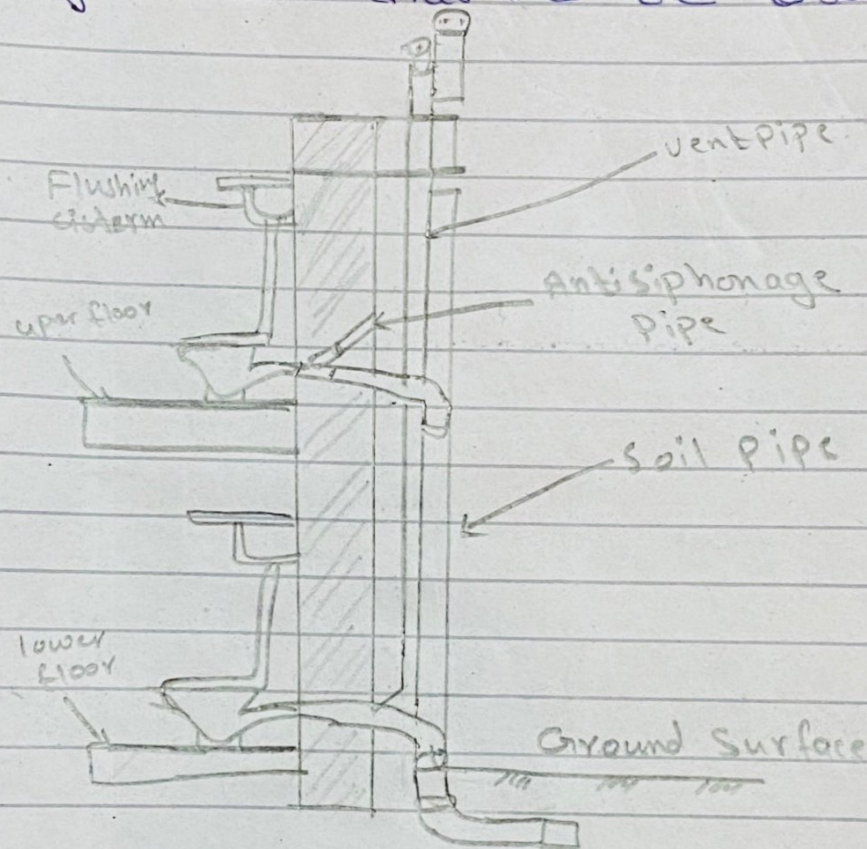
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Flushing. The seats are design with a trap so that the water remain in the seat. The water is maintained to prevent the entry of foul gasses from the toilet pipe sewer line into a toilet room. This is called water seal.



When one of the toilet in the upper floors is flushed a lot of water gushes down the toilet line in the form of water column with accelerating speed due to gravity. This fast moving water column causes a low air pressure just above it.

The water seal of the toilet has normal air pressure on the toilet side and a lower air pressure on the toilet pipe side. This difference of air pressure causes the water seal in the toilet seat to get sucked out into the pipe. Thus the water seal is broken and foul gases can enter into the toilet room.



To maintain water seal, it is necessary to maintain equal air pressure on both the toilet room and soil/toilet pipe sides. Therefore an additional pipe called anti syphonage pipe is connected close to the toilet seat outlet the other end of which is open to atmosphere. As soon as the air pressure above the fast moving flush water column reduces, the anti-syphonage pipe is allow the atmosphere to enter the

low pressure zone, and equalized the air pressure. This prevents the sucking out of water seal from the flushed toilet seat as well as all the toilet seats.

SANITARY FIXTURES AND TRAPS:

SANITARY FIXTURES:

A receptacle for industrial and fecal sewage that is installed in homes and public and industrial buildings. Sanitary fixtures are attached to the interior system of water pipes and sewerage systems and constitute the main elements of a building's sanitary engineering equipment.

Sanitary fixtures are installed in different areas. Bathtubs, washstands, shower sumps, toilet bowls and urinals of various types, whether equipped with flush tanks or traps are installed in lavatories, washers, sinks and drains are installed in kitchen.

Special sanitary fixtures are used in medical institutions, laboratories, bath houses, and on a transportation facilities. These fixtures are made from cast iron, ceramic (faience, semi-porcelain) sheet steel and steel fixtures are covered with a white or colored vitreous enamel.

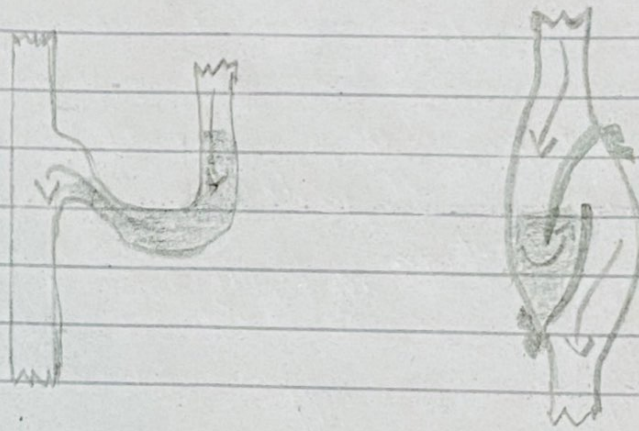
Ceramic fixtures are covered with glaze, and nonferrous.

metal fixtures are electroplated. Sanitary fixtures are equipped with hydrants or faucets that deliver both hot and cold water. They are also equipped with siphons that have water seal. They are equipped with siphons

TRAPS = In plumbing, a trap is a device shaped with a bending pipe path to retain fluid to prevent sewer gases from entering buildings while allowing waste materials to pass through. In oil refineries traps are used to prevent hydrocarbons and other dangerous gases and chemical fumes from escaping through drains.

In domestic applications, traps are typically U.S. or J shaped pipe. located below or within a plumbing fixture. An S-shaped trap is also known as an S-bend. It was invented by Alexander-Cumming in 1775. but became known as the U-bend following the introduction of the U shaped trap by Thomas Crapper in 1880. The U-bend could not jam. So unlike the S-bend it did not overflow. The most common of these traps is referred to as a P-part. It is the addition of 90 degree fitting on the out let side of a U-bend there by creating a p-shape (pointed horizontally). It is also referred to as a sink trap. because it is installed under most sink.

Because it is localized low point in the plumbing, sink traps also tend to capture small and heavy object such as (jewelry or coins) accidentally dropped down the sink. Traps are also tend to collect hair sand, food waste water and limit the size of object that entered the plumbing system.



Cross Connection And Back Siphonage Control =

Cross Connection =

A Cross-Connection is any temporary or permanent connection between a public water system or consumer potable (i.e. drinking) water system and a source or system containing non-potable water system or other substances. An example is the piping between a public water system or consumer's potable water system and an auxiliary water system, cooling system or irrigation system.

Back Siphonage Control =

It is used to protect potable water supplies from contamination or pollution due to backflow. In water distribution systems water is normally maintained at a significant pressure to enable water to flow from the tap. Shower, or other fixture-water pressure may fail or be reduced when a water main bursts pipes freeze, or there is unexpectedly high demand on the water system (for example when several fire hydrants are opened). Reduced pressure in the pipe may allow contaminated water from the soil, from storage, or from other sources to be drawn up into the system.

Backflow means the undesirable reversal of flow of a liquid gas or suspended solid into the potable water supply.

A backflow preventer is designed to keep this from happening. Points at which a potable water system connects with a non-potable water system are called cross connections. Such connections occur naturally in appliances such as clothes washer and dishwashers, but they must be carefully designed and installed to prevent backflow. Another common location for a backflow preventer is the connection of a fire sprinkler system to a water to prevent pressurized water.

from flowing from the fire suppression system into the public water supply.

Back-siphonage occurs when higher pressure fluids, gases, or suspended solids ^{move} to an area of lower pressure fluids.

For example, when a drinking water straw is used to consume a beverage, suction reduces the pressure of fluid inside the straw, causing liquid to move from the cup inside the straw and then into the drinker's mouth. A significant drop of pressure in a water delivery system creates a similar suction, pulling possibly undesirable material into the system. This is an example of an indirect cross-section.

