Name : Muhammad Hamza

Class : BE(C)

Sec : A

ID # 7692

Subject : Wastewater Engineering

Assignment # 02

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1). Soil Pipes:

(a) A soil pipe is designed to carry soiled water from the toilet, urinal or bidet to the sewer. A waste pipe carries water from your sinks, shower, washing machine or bath.

As already mentioned, a 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 a soil vent pipe, as installed in most homes as a specific quality. First, it is of a dimension to allow solid waste to pass. Second, it is vented in a very specific way to maintain a safe environment and reduce odours. Such gases can be harmful to health so venting them high keeps them out of the way.

1). Anti-Syphon pipes:

(b) An extra pipe connected to the outlets of toilets seat of all the floors, the other end of which is exposed to atm is called anti-syphonage pipe. These are provided to maintain

water seal so that foul gases of the sewer line do not find entry in to the toilet/bathrooms.

If we look into a toilet seat we find some water at the bottom, which remains there even after flushing. The seats are designed with a trap so that the water remains in the seat. The water is maintained to prevent entry of foul gases from the toilet pipe/soil pipe/sewer lines into the toilet room. This is walled water seal.

2) Sanitary fixtures:

(a) A receptacle for industrail and fecal sewage that is installed in homes and public and industrial buildings - Sanitary fixtures are attached to the interior systems 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. Bath tubs, washtubs, shower sumps, traps, and bidets are installed in bathrooms, washrooms, and shower rooms. Toilets bowl, lavatory pans, and urinals of various types, whether equipped with flush tanks or traps, are installed in lavatories. Washers, sinks and drains are installed in kitchens.

2) (b) Traps:-

Traps are designed to restrict the waste water contaminants - such as sludge, debris, oil, soil, sand, or gravel - but to allow the free of the water itself. A trap has three basic

parts. First, there is a pipe or drain (or both) that allows water to go into the tank.

In plumbing, a trap is a device shapped with a bending pipe path to retain fluid to prevent sewer gases from entering buildings while allowing waste materials to pass through.

In domestic applications, traps are typically U, S, Q, or J-shaped pipe located below or within a plumbing fixture. An S-shaped trap is also known as an S-bend.

3) Cross Connection :

(a) Any physical connection or arrangement between potable water and any source of contamination. Examples of cross connections are shown at left.

Separate piping systems, one of which contains potable water and the other either water of unknown or questionable safety or steam, gas or chemical, whereby there exists the possibility for flow from one system to the other, with the direction onflow depending on the pressure differential between the two systems.

3) Back Syphonage control:

(b) Back-siphonage is the reversal of normal flow in a system caused by a negative pressure (vaccum or partial vaccum) in the supply piping.

A backflow prevention device 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.