

UNIT-VI

SANITARY FITTINGS

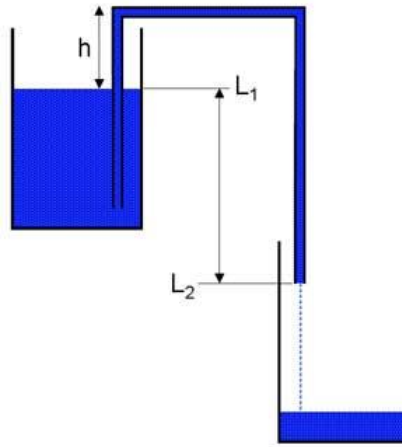
RANGE

- By the end of this unit, you will be able to learn:
- PRINCIPLE OF SIPHON
- TYPES OF FLUSHING MECHANISMS
- DRAINAGE SYSTEM
- TYPES OF TRAPS

SANITARY FITTINGS

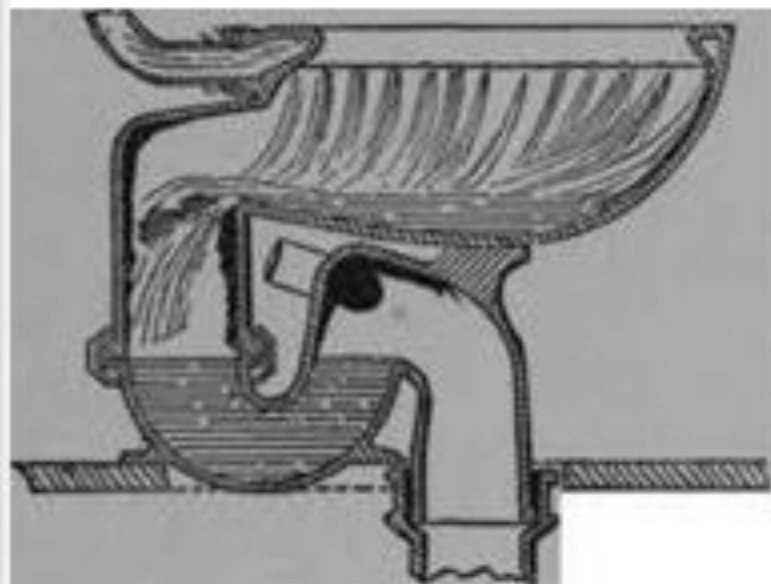
- **SINKS & BASIN**: They are meant for washing purposes.
- **USAGE OF SINKS:**
- Sinks are made of different materials according to the purpose for which they are intended:
 - A. Heavily galvanized iron for heavy pot wash.
 - B. Stainless steel for general purpose.
- Basins are made of porcelain.
- Provision of hot & cold water supply
- Cockroach trap

SIPHON(SYPHON)



- It is a continuous tube that allows liquid to drain from a reservoir through an intermediate point that is higher or lower than a reservoir.
- The flow being driven by the difference in hydrostatic pressure without any need for pumping.

W/C , BIDETS

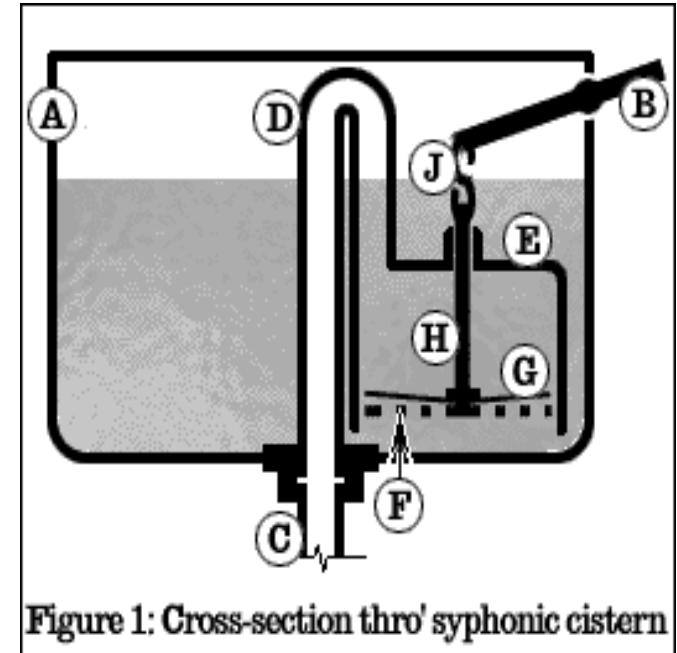


FLUSHING MECHANISMS

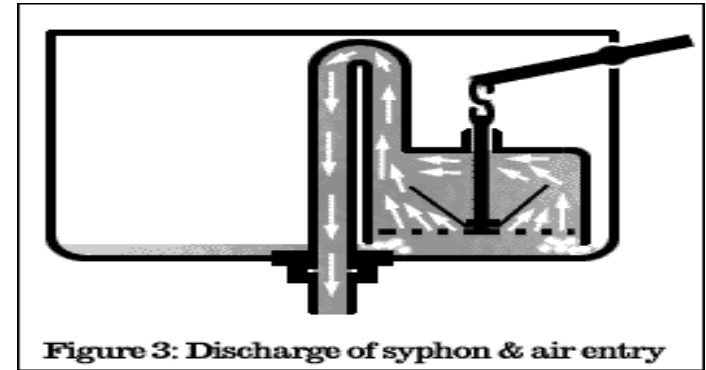
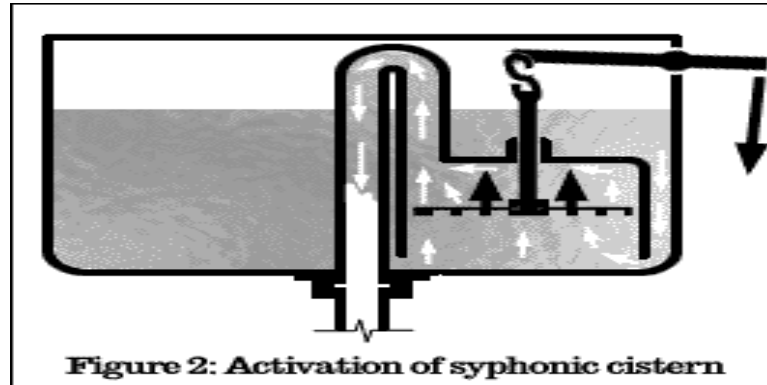
- WATER CLOSET
- Flushing the toilet, pours large quantities of water in the bowl hence fills the siphon tube.
- FLUSHING MECHANISM can be of two types:
 - 1) FLUSHING CISTERN
 - 2) FLUSH VALVE
- Flushing cisterns are of two types:
 - A. PLUNGER TYPE B. BELL TYPE.

PLUNGER TYPE CISTERN

- A. CISTERN
- B. FLUSH LEVER
- C. FLUSH PIPE
- D. SIPHON
- E. SYPHON DOME
- F. PERFORATED PLUNGER PLATE
- G. Flexible plate
- H Rod connecting plunger plate & hook.
- J To flush lever



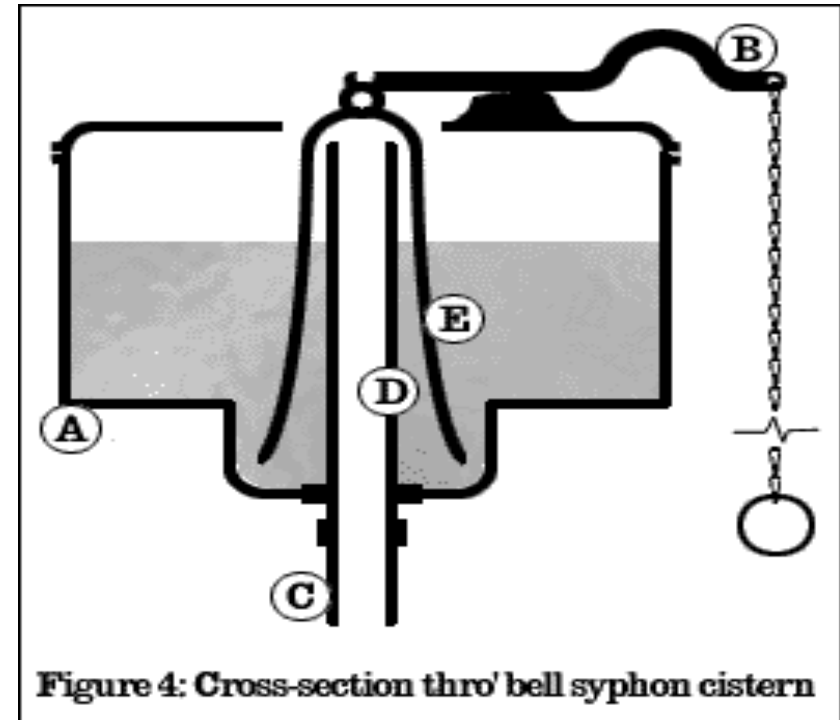
PLUNGER CISTERN



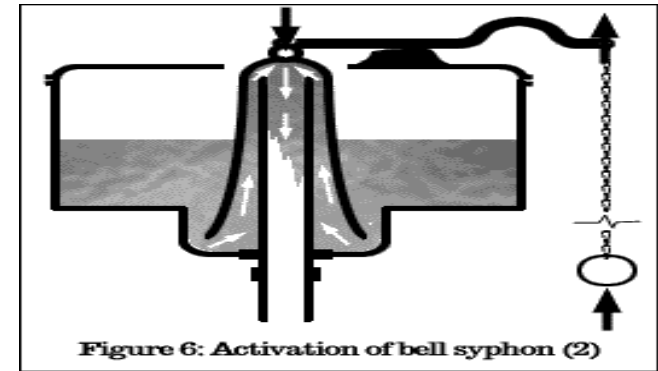
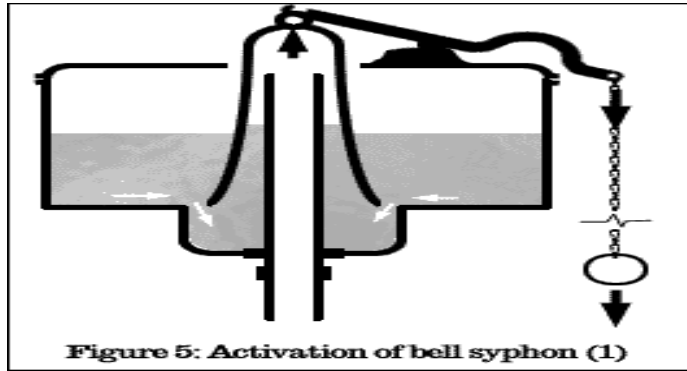
- The syphon type extends atleast 1.5 inches above the highest water line.
- Water is forced up through the dome & into the syphon tube.
- The water begins to fall under gravity.
- Flexible plunger plate is pushed away from the perforated plate.
- Air rushes in to break the syphon.

BELL SYPHON CISTERN

- A – CISTERN
- B – FLUSH LEVER
- C – FLUSH PIPE
- D – STAND PIPE
- E – BELL SHAPED DOME



BELL SYPHON CISTERN



- Water moves into the lower compartment of the cistern & some water is pulled up inside the bell by surface tension.
- Release of chain causes displacement of water by the bell & forced up inside the bell & over the top of the stand
- Syphon starts & as air enters the bell, flushing ceases & the cistern refills. It is also called as

FLUSH VALVE



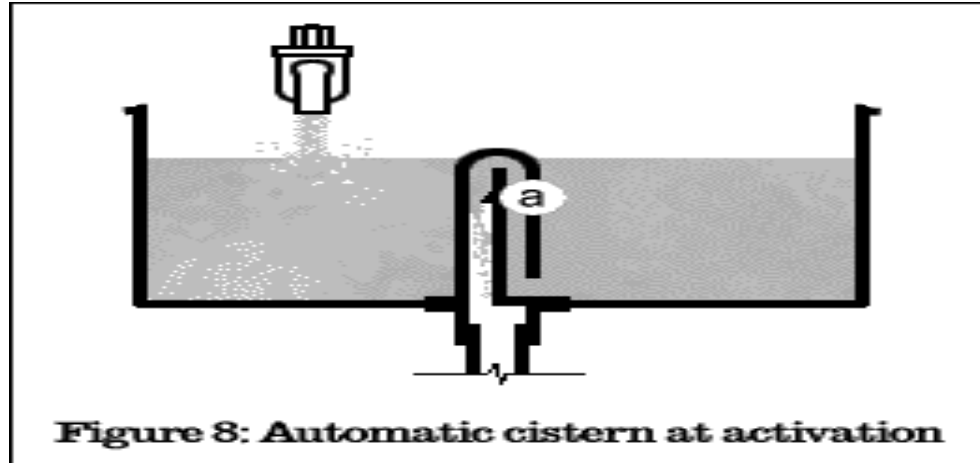
- They are used to provide frequent flushes.
- High pressure is required.
- The flush valve is directly connected to the central water system.
- There is no cistern provided.

FLUSHING CISTERNS

- Cistern can also be of following types:
 - 1)AUTOMATIC URINAL CISTERNS
 - 2)PRESSURE CHAMBER CISTERNS
 - 3)RETROFIT DIRECT FLUSH CISTERNS

- By retrofit we mean to replace existing part etc. with updated parts or systems.

AUTOMATIC URINAL CISTERNS



- Syphon dome & plunger assembly are omitted & the top of the syphon tube is below the top water line.
- As water fills the cistern & reaches the top of the tube, water pours over the top of the syphon lip & down the flush pipe.
- This starts the syphon & the cistern flushes.

PRESSURE CHAMBER CISTERNS

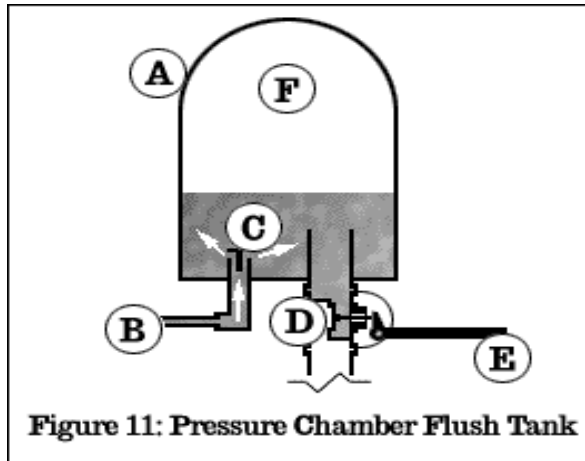


Figure 11: Pressure Chamber Flush Tank

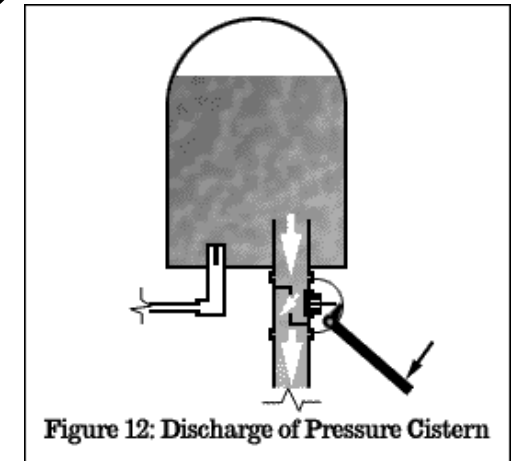
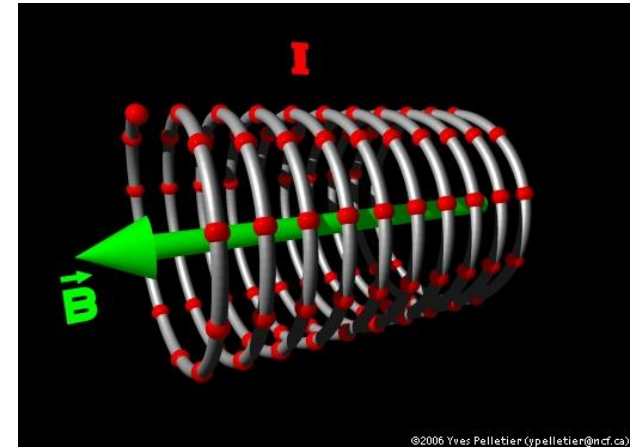


Figure 12: Discharge of Pressure Cistern

- PRESSURE CHAMBER- A
- INLET FOR WATER - B
- ONE WAY VALVE - C
- FLUSH VALVE IN THE LARGE BORE
OUTLET - D
- FLUSH LEVER - E

RETROFIT DIRECT FLUSH CISTERN

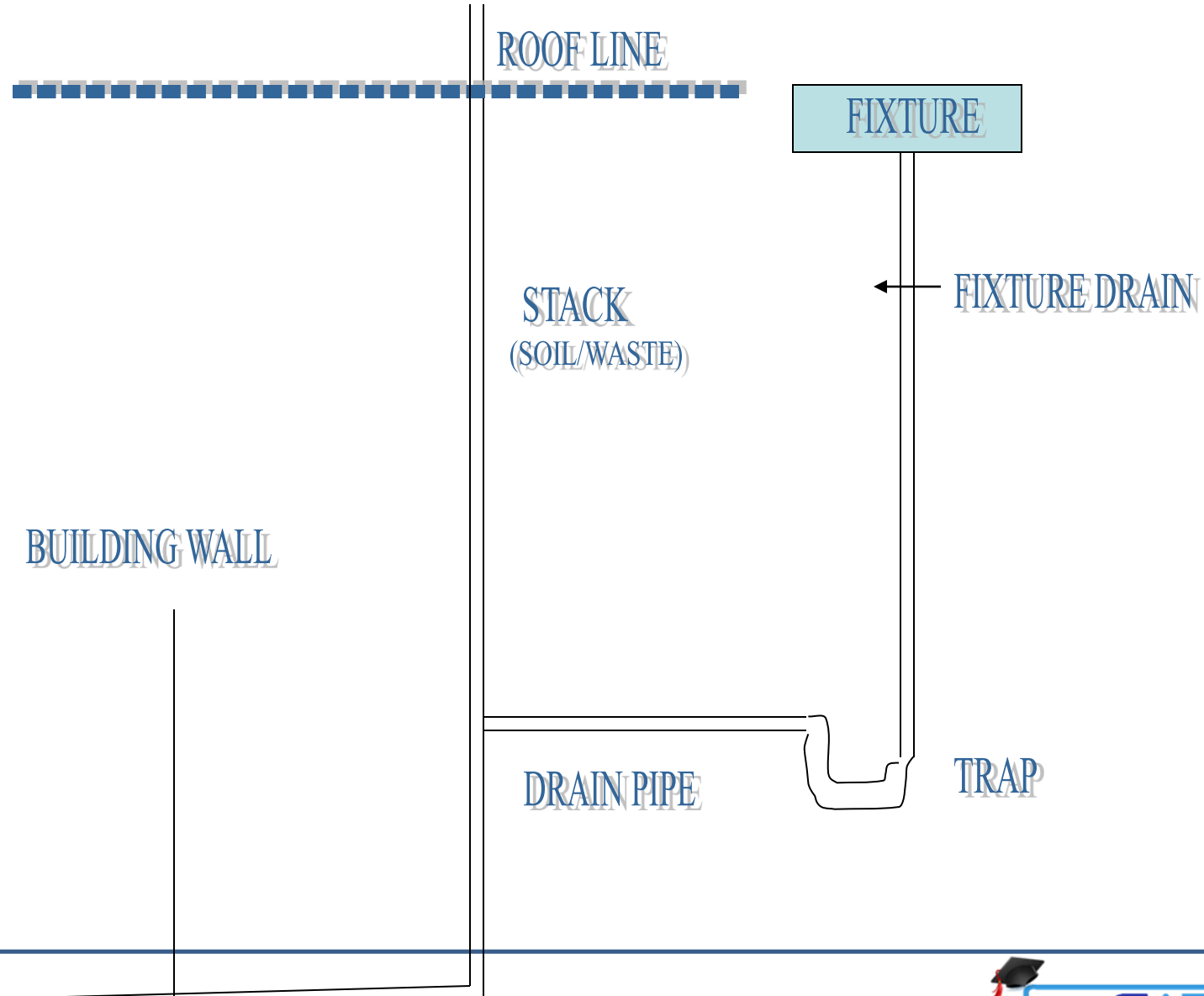


- The retrofit direct flush cistern uses a sensor operated system that automatically flushes the fixture when user departs.
- A solenoid is used to activate the flush from a 6 volt battery inside the unit that powers the vision system.

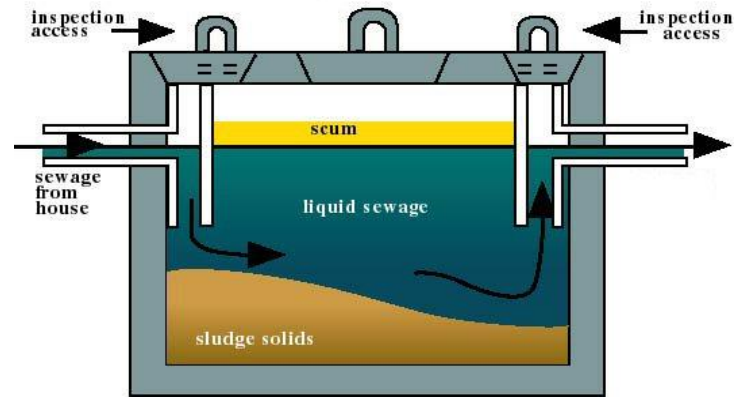
DRAINAGE SYSTEM

- DRAIN PIPE
soil pipe or waste drain pipe
- STACK PIPE. Its upper end has a VENT which extends to above the roofline.
- BUILDING DRAIN collects all building sewage.
- BUILDING SEWER
- SEPTIC TANK

DRAINAGE SYSTEM



INSPECTION CHAMBERS



- Septic tanks are large, enclosed sewage holding tanks buried in the soil.
- From one side, sewage flows in while effluent (liquid sewage) drains out from the other side into a series of connected pits called as **CESSPOOLS**.

BLOCKAGES & LEAKAGES

- Since the drainage system works on the gravitational force, the system should be open, clean & free from any types of blockages.
- Most of the plumbers use **AUGERS, RODS & SNAKES**. These equipments are flexible & do not coil within the pipes & make turns as pipe turns.

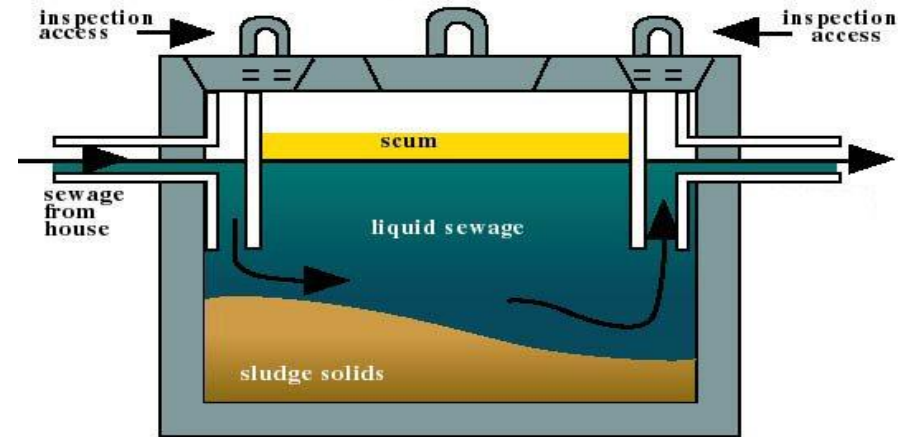
1. WIRE ROOTER 2.AUGER 3.PLUNGER 4.AUGER



CLEARANCE OF BLOCKAGES

- Blockage in drain can be cleared by having sufficient & suitable access points.
- Access points should be one of four types. They are:
 - A. RODDING EYES:
 - B. ACCESS FITTING
 - C. INSPECTION CHAMBERS
 - D. MANHOLES:

1.RODDING EYE 2. INSPECTION CHAMBER 3.MANHOLE



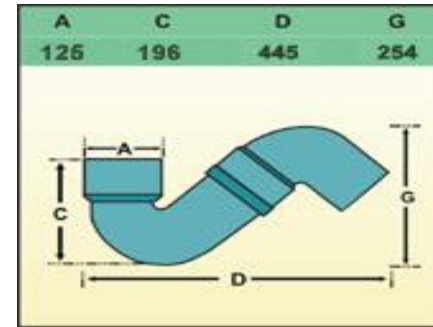
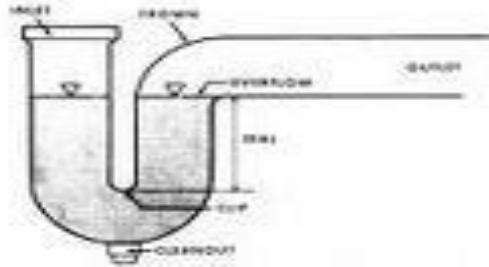
SETTING OF ACCESS POINTS

- Access points should be provided at the following points:
 1. On or near the head of each run
 2. At a bend ,change of gradient(a sloping part of a road)
 3. At a change of pipe size
 4. At a junction

TRAPS

- DEFINITION
- Traps can be classified on the basis of:
- SHAPE:
 - a. P- trap
 - b. Q- trap
 - c. S-trap
- USE:
 - a. Floor trap
 - b. Gully trap
 - c. Intercepting trap
 - d. Grease trap

P TRAP & Q TRAP



- **P,Q,S -TRAP**: They are used for bath sink & lavatories. They are made with enlarged mouth so that the waste pipe may be thoroughly flushed out.

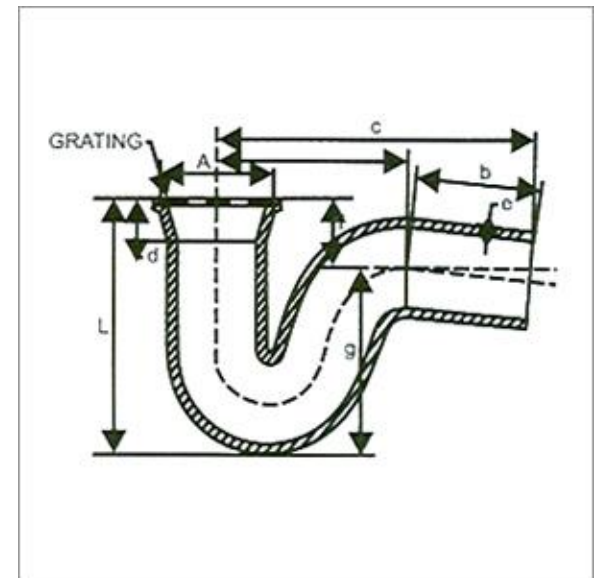
S- TRAP

- They are also used for bath sink & lavatories. They are made with enlarged mouth so that the waste pipe may be thoroughly flushed out.



FLOOR TRAP

- They are used to admit waste water (sullage) from the floors of rooms, kitchen, baths etc.
- They are provided with C.I. grating at the top to prevent the entry of solid & larger sticky matter.

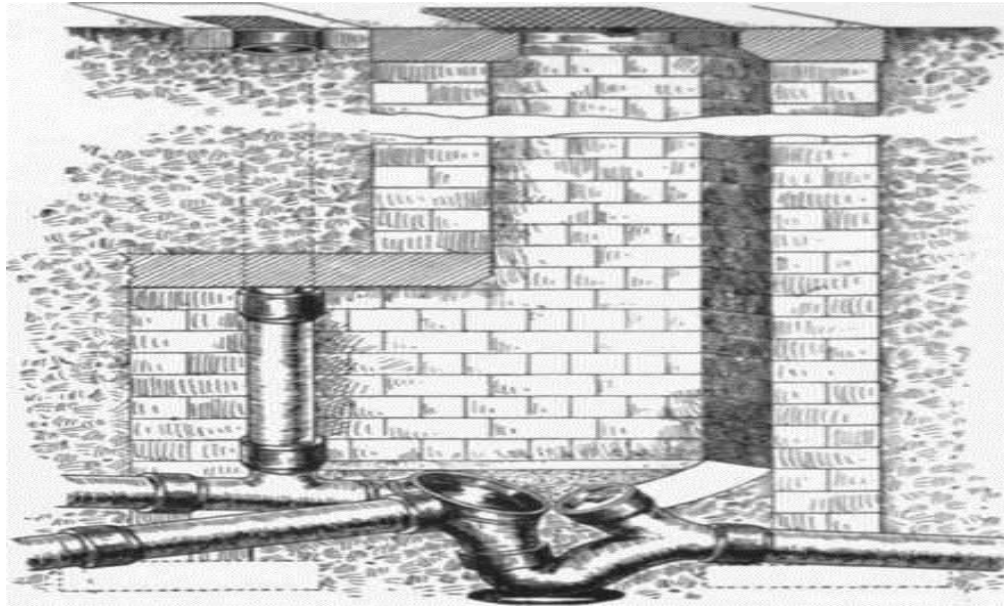


GULLY TRAP



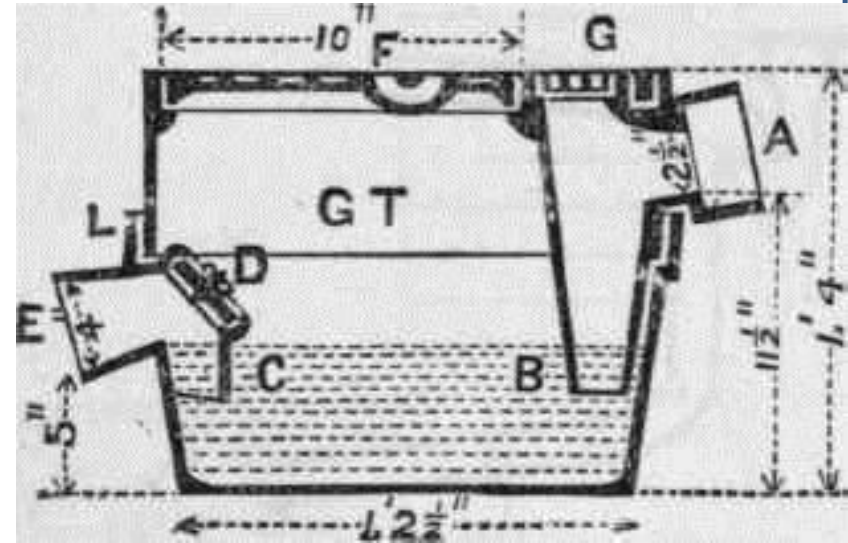
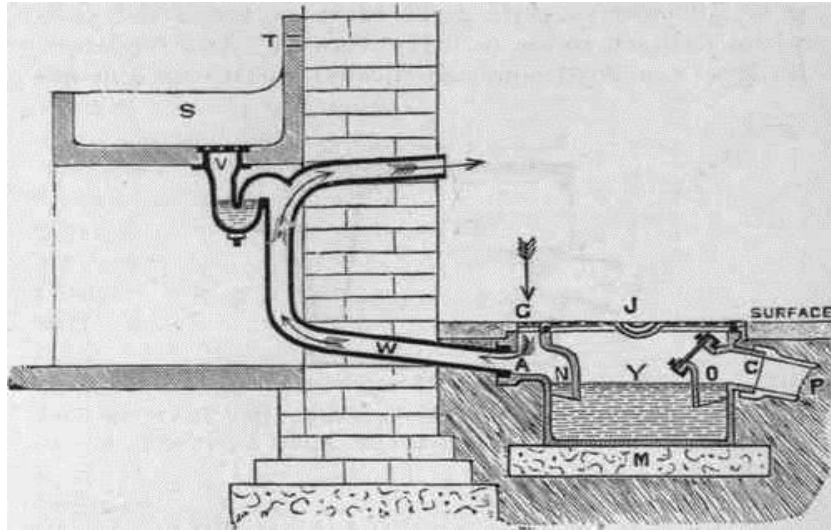
- Present at the junction of a room or a roof drain & the other drain coming from bath, kitchen etc.

INTERCEPTING TRAP



- It is provided at the junction of a building sewer & a municipal sewer so as to prevent the entry of the foul gases of the municipal sewer in the building drainage system.

GREASE TRAPS



- Oil & greases are separated by passing the flow through a grease trap. It is having baffles which retards the flow of water & the grease accumulates on the top as scum layer. It is then removed manually.

REVIEW

- SINKS, WASHBASIN & BIDETS
- SIPHON PROCESS
- FLUSHING CISERNS
- DRAINAGE SYSTEM & ACCESS POINTS
- EQUIPMENTS USED FOR CLEANRING BLOCKAGES
- TYPES OF TRAPS

ASSIGNMENTS

- Explain PLUNGER & BELL type flushing cistern
- What is SIPHON?
- Explain the following
 - A) trap b) water seal c) rodding eyes d) wire rooters. E) Gully trap f) Intercepting trap g) Grease trap h) Stack pipe i) Septic tank j) Cesspool k) Bidet
- Explain the functioning of AUTOMATIC URINAL CISTERN

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