

RANIGANT GIRL'S COLLEGE

(Affiliated to Kazi Nazrul university)

Project on Environmental studies

(2021 - 22)

Title of the project :- HOME Sewage treatment system

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Honours / Program :- Environmental

Semester :- 1st sem

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Raniganj Girls' College

Course Name: Environment Studies

Course Code: AEE101

Topic of the project: Different aspects of Air, Soil, Water, Noise pollution

A Project Report

Submitted by Semester-I students (Academic Year 2021-22)

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CERTIFICATE

This is to certify that this project titled “Different aspects of Air, Soil, Water, Noise pollution” submitted by the students for the award of degree of B.A. Honours/ Program is a bonafide record of work carried out under my guidance and supervision.

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House plumbing for sewage:-

The house plumbing system includes waste pipes, vent pipes and water traps (Figure-1). House plumbing and home sewage treatment system must comply with the north Dakota state plumbing system will be safe and operate properly.

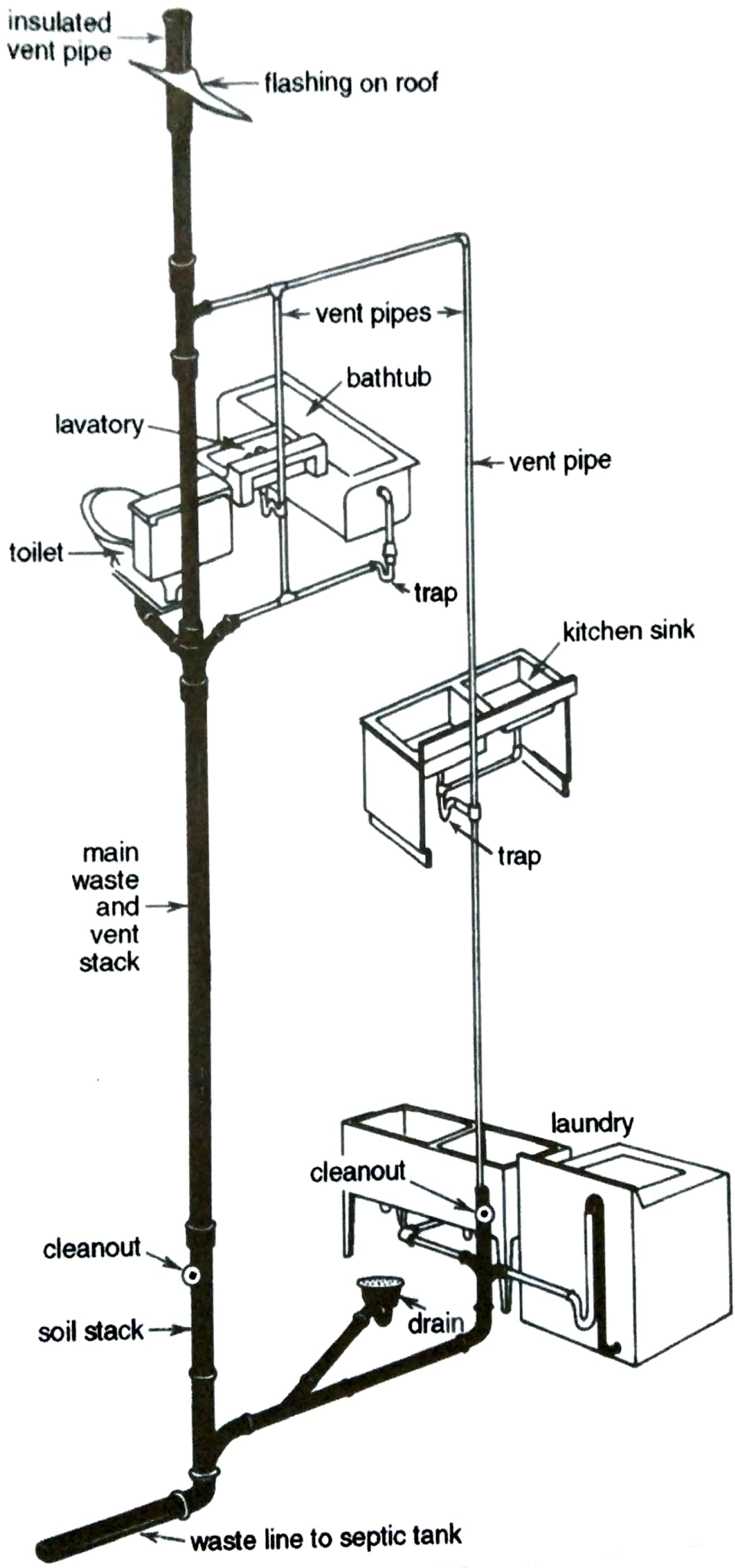


Figure 1. House plumbing includes waste and vent pipes, as well plumbing fixtures.

House sewer pipe should have a slope between 1 percent and 2 percent. This is around a 1-to-2-inch drop in 8 feet. On too flat a grade, the liquid will slow down, allowing the solids to settle out in the sewer pipe. On too steep a grade, the liquids will flow away from the solids.

Never, under any circumstances, allow basement footing drains to discharge into the house sewage system. The water will overload the septic system. It can cause the water and sewage to back up into the house. Run basement footing drain water to a sump.

Septic Tanks :- Septic tanks have been used for on-site wastewater treatment for more than 120 years. A septic tank can have single or multiple compartments. single- and two- compartment septic tanks generally are used with individual home sewage treatment system. Household wastewater enters the septic tank through the house discharge sewer pipe (Figure 2). After passing through the inlet baffle, the solids separate from the liquid as the sewage flows slowly through the septic tank. some solids settle to the bottom of the tank and others float in the scum layer at the top. Bacterial action partially decomposes the solids.

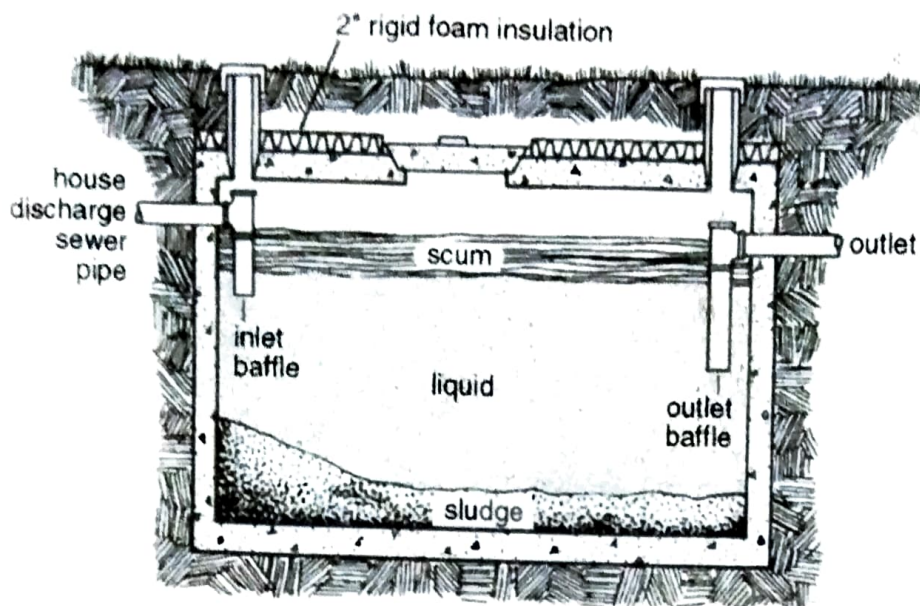


Figure 2. Typical septic tank. sludge builds up on the bottom and scum floats on the liquid surface.

The material in the septic tank separates into three distinct layers:

1. A Top layer of floating scum
2. A middle liquid zone
3. A bottom layer of sludge.

The scum layer consists primarily of cooking fat and oils, soap scum and products of decomposition that are lighter than water. The greatest amount of bacterial action occurs in the sludge layer, which consists of solids heavier than water.

The liquid discharge from a septic tank is called effluent. Effluent from a properly maintained septic tank is slightly cloudy and contains fine suspended solids, bacteria and nutrients. Septic tank effluent must not be discharged directly to the ground surface or into surface waters. Professional sanitarians call effluent on the ground surface "day lighting." Human effluent on ground surface can be a source of dangerous water-borne diseases and produce offensive odors. and The effluent must be delivered

to a properly designed and constructed drainfield or lagoon for treatment.

Sizing:- Septic tanks are sized according to liquid holding capacity, not total capacity. The liquid capacity of a septic tank is the volume of effluent it holds below of the tank outlet.

liquid capacity of ten is called the "working capacity" of a septic tank. for a house.

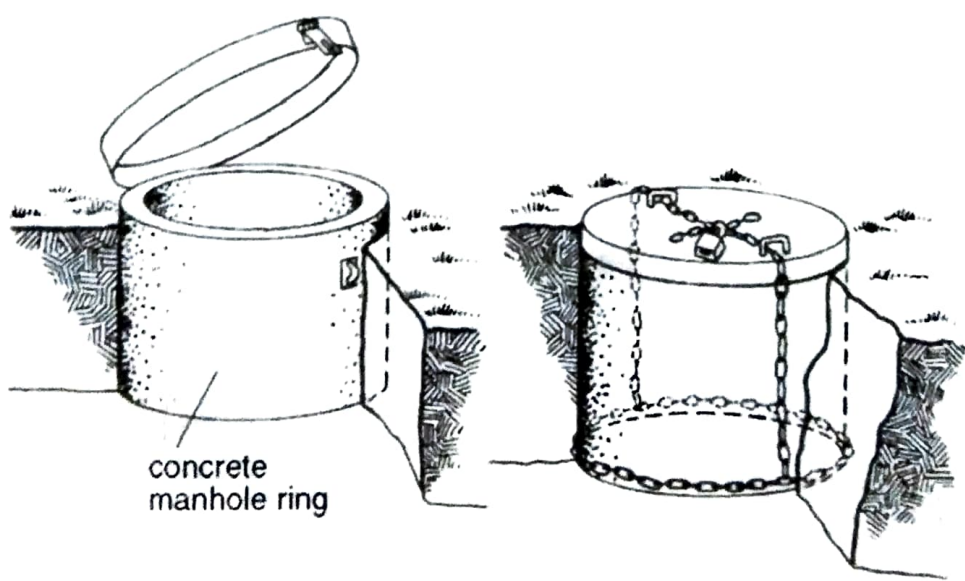
The required working capacity is based on the number of bedrooms, not the number of people in the house at the time of construction. Each bedroom can hold two people, so the standard three-bedroom house could have six people generating household wastewater.

Construction: Septic tanks are built using corrosion - and decay - resistant materials. If installed properly, they will be watertight for a long time (50 years or more). Precast reinforced

concrete tanks are the most common. However, tanks also may be constructed using poured-in-place concrete or built from concrete blocks with the cores filled concrete reinforced with rebar.

concrete block tanks must be sealed with at least two coats of concrete plaster. Fiberglass and durable plastic septic tanks also are available. They must be installed by carefully following the manufacturer's instructions so they will withstand soil and water pressure.

Access Holes in Septic Tanks:- Access to septic tanks is required for inspection and periodic cleaning. one manhole at least 15 inches in diameter must be on the top of the tank. The manhole should have a concrete cover with an earth covering of at least 6 inches, but not more than 12 inches. If the top of the tank is more than 12 inches below ground level, extensions must be attached to the top of the tank to bring the cover within 12 inches of the ground surface.



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Septic tank outlet sewer: The outlet sewer pipe carries sewage effluent from the septic tank to a pump chamber or the drainfield. The outlet sewer pipe must be watertight where it leaves the septic tank and at least 4 inches in diameter. Plastic pipe (either PVC or ABS) should be schedule 40. Plastic pipe with thinner wall thickness often will slump when the soil settles. No maximum grade is required for the outlet sewer pipe be laid since it carries only liquid. The outlet sewer pipe must be laid to grade with no low spots where effluent can collect and freeze.

ACKNOWLEDGEMENT

I would like to Express my special thanks of gratitude to my teacher, who gave me the golden opportunity to do this wonderful project of Environment studies. who also helped me in completing my project. I come to know about so many new things. I am really thankful to them. Secondly, I would also like to thank my parents and friends who helped me a lot in finalizing this project within the limited time frame.