SEWERS AND TYPES OF SEWERS

Sewers

Sewer is a pipe or conduit carrying sewage. Sewers are usually not flow full (Gravity Flow). The full flowing sewers are called force main as the flow is under pressure.

Sewerage

It is the science and art of collecting, treating and disposal of sewage. There are three types of sewerage system.

- **Separate system.** In this system the sanitary sewage and storm water are carried separately in two set of sewers.
- **Combined sewerage system.** In this system the sewage and storm water are carried combine in only one set of sewers to the waste water.
- **Partially separate sewerage system.** This system is the compromise between separate and combine system taking the advantages of both systems.

Following are **types of sewer according to material**

1. Asbestos Cement (AC) Sewer
2. Brick Sewer
3. Cement Sewer
4. Cast iron (CT) Sewer
5. Steel Sewers
6. Plastic Sewers

1. Asbestos Cement (AC) Sewer

Types of sewer like Asbestos Cement (AC) Sewers are manufactured from a mixture of cement and asbestos fiber. Asbestos Cement (AC) Sewers are suitable for carrying domestic sanitary sewage. Asbestos cement sewer is best as vertical pipe for carrying sullage from upper floors of multistory buildings (in two pipe system of plumbing).

Advantages of Asbestos Cement (AC) Sewer

1. Smooth
2. Light in weight
3. Can easily be cut, fitted and drilled
4. Durable against soil corrosion

Disadvantages of Asbestos Cement (AC) Sewer

1. Brittle cannot withstand heavy loads
2. They are easily broken in handling and transport.

2. Brick Sewers

These types of sewer (Brick Sewers) are made at site and used for construction large size sewer. Brick Sewers are very useful for construction of storm sewer or **combined sewer.** Nowadays brick sewers are replaced by concrete sewer. Brick sewers my get deformed and leakage may take place. A lot of labour work is required.

Note: To avoid leakage the brick sewer should be plastered.

3. Cement Concrete

i. PCC - for dia upto 60 cm

Suitable for small storm drains. Not durable .

ii. RCC - for dia > 60 cm

They may be cast in situ or precast, resistant to heavy loads, corrosion and high pressure. These are very heavy and difficult to transport.

4. Cast Iron (CI) Sewers

These types of sewer are High strength and durability water tight. Cast Iron sewers can withstand high internal pressure and can bear external load. Cast Iron sewers are suitable for the following conditions.

- When the sewage is conveyed under high pressure
- When the sewer line is subject to heavy external load e.g. under railway line, foundation wall etc, below highways
- When there is considerable difference in temperature

5. Steel Sewers

These types of sewer (steel sewers) are Impervious, light, resistant to high pressure, flexible, suitable when;

- The sewage is carried under pressure
- The sewage has to be carried across a river under water
- The sewer has to cross under a railway track
- They are generally used for outfall and trunk sewers

6. Plastic Sewers

Nowadays PVC sewers are used for carrying sewage. Plastic sewers are resistant to corrosion. Such types of sewer are light in weight, smooth and can be bent easily. But these types of sewer (Plastic sewers) are having high co-efficient of thermal expansion and cannot be used in very hot areas.

Other types of Sewer materials

- Wooden Sewers (Rare now)
- Stoneware Sewers

Source : http://www.nprcet.org/e%20content/Misc/e-Learning/CIVIL/VI%20SEMESTER/10111CE605%20-%20Environmental%20Engineering%20II.pdf