

Layouts of Distribution Network:

The distribution pipes are generally laid below the road pavements, and as such their layouts generally follow the layouts of roads. There are, in general, four different types of pipe networks; any one of which either singly or in combinations, can be used for a particular place. They are:

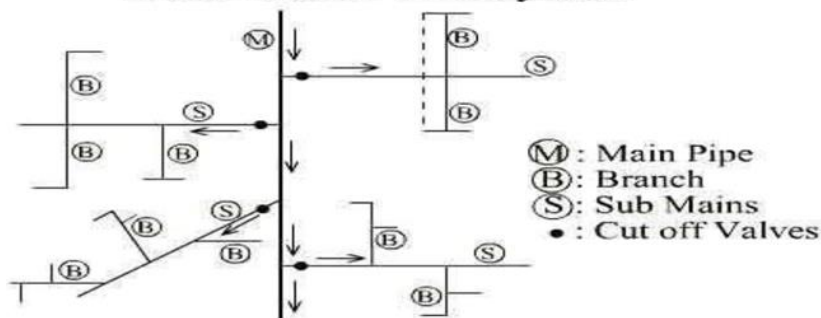
1. Dead End System
2. Grid Iron System
3. Ring System
4. Radial System

1. Dead End System:

It is suitable for old towns and cities having no definite pattern of roads. It is also called tree system. It consists of one supply pipe, from which a number of sub-main pipes are originated.

- Each sub-main, then divided into several branch pipes called Laterals.
- From laterals service connections are given to consumers.
- The water supply mains have then be taken along the main roads, and Branches taken off wherever needed, thus resulting in the formation of several dead ends.

Dead End or Tree System



Advantages

The distribution network can be easily solved.

- It is possible to easily and accurately calculate the discharge and pressures at different points in the system.
- Lesser number of cut-off valves is required in the system.
- Shorter pipe lengths are required, laying of pipes is easy.
- It is cheap and simple, can be extended and expanded easily.
- Relatively cheap.
- Determination of discharges and pressure easier due to less number of valves.

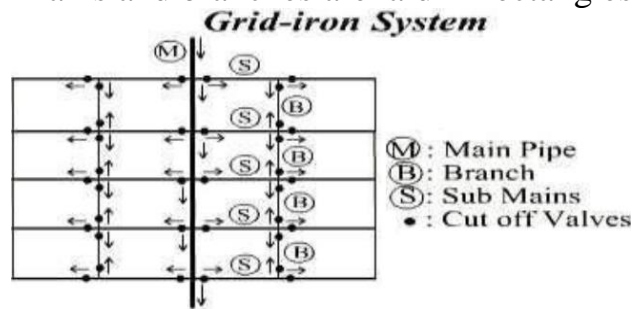
Disadvantages

- Water can reach a particular point through a single route, if any damage or Repair in pipe will stop the supplying the area being fed by that pipe.
- There are numerous dead ends in this system, which prevent the free circulation of water
- Only limited supplies are available, so that it cannot be used in emergencies of fire fighting.

Due to many dead ends, stagnation of water occurs in pipes.

2. Grid Iron System:

It is also known as interlaced system or Reticulation system. The mains, sub-mains and branches are all inter-connected with each other. It is suitable for cities with rectangular layout, where the water mains and branches are laid in rectangles.



Advantages:

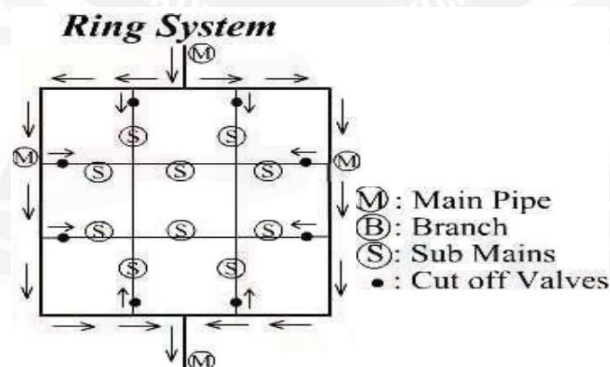
1. Water is kept in good circulation due to the absence of dead ends.
2. In the cases of a breakdown in some section, water is available from some other direction.

Disadvantages

1. Exact calculation of sizes of pipes is not possible due to provision of valves on all branches.

3. Ring system:

The supply main is laid all along the peripheral roads and sub mains branch out from the mains. Thus, this system also follows the grid iron system with the flow pattern similar in character to that of dead end system. So, determination of the size of pipes is easy.

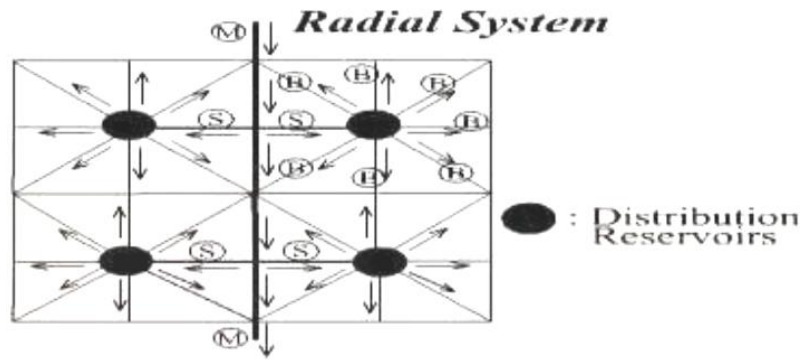


Advantages:

1. Water can be supplied to any point from at least two directions.

4. Radial system:

The area is divided into different zones. The water is pumped into the distribution reservoir kept in the middle of each zone and the supply pipes are laid radially ending towards the periphery.



Advantages:

1. It gives quick service.
2. Calculation of pipe sizes is easy.

