**Pipe Lines:-**

Pipe lines are used for transferring a large amount of water. They may construct from reinforced concrete, cast-iron or steel.

Pipe is also used for the distribution system in the city, in this case, the pipes of large sizes having many connections and branches for the supply network, cast-iron is mostly used.

**Water Distribution System in Building**

Water is usually received from city mains at about 50 psi (Ib/in2) (115 ft= 37 m).

1. **Direct feeding method:-**

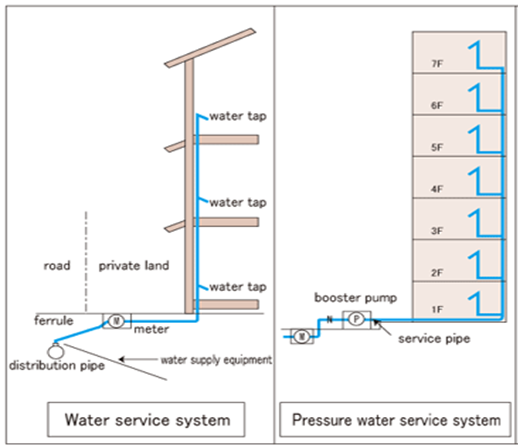
It is the best systems at all, where water is not exposed to any pollution, and requires the presence of water in the network throughout the year and throughout the day and this system is divided into two sub-systems:

1. **Feeding by network pressure:**

This system is used when the pressure of water in the main pipe enough to supply the sanitary equipments in all stories of the building with water through daily times.

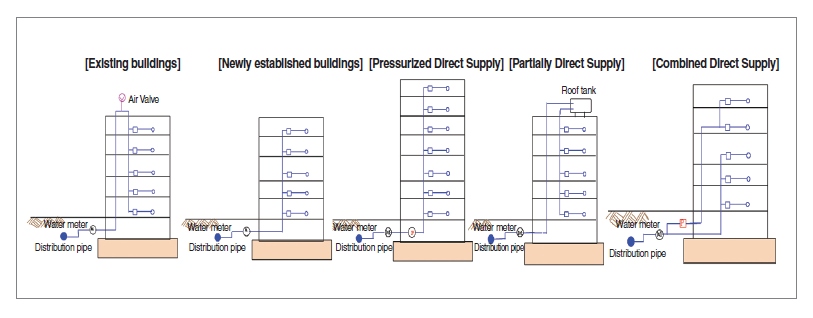
1. **Direct feeding with the help of lifting pumps:**

This system is used when the pressure of water in the main network was not enough to supply the sanitary equipments in all stories of the building because of the increase in consumption rate, or to increase the height of building.



1. **Indirect Feeding Method:-**

It used when the pressure of the water in the main pipe not enough to supply the sanitary equipments at the top stories with water. In this case water is pumped to elevated tank placed at the roof of the building and by gravity feeds the equipment of the stories.



**The water pressure in the distribution pipes decrease due to several factors:-**

1. The friction between the water and the internal wall of the pipes.
2. The friction between the particles of the water.
3. The flow of water through the valves and joints
4. The difference of the elevation between the main pipe and the sanitary equipments.

**The pressure in the following sanitary equipments must not be less than:**

1. (2-5 m) in the sanitary equipments in the highest floor.
2. (10-18 m) in the cleaning valve of W.C.
3. (10 m) in the cleaning valve of urinal.