

TYPES OF PIPES USED IN WATER SUPPLY SYSTEM OF BUILDINGS

Pipes which are commonly used in water supply system are given below.

Cast Iron (CI) Pipes

Steel Pipes

Galvanized Iron (GI) Pipes

Copper Pipes

Plastic or Polythene or PVC pipes

Asbestos Cement (AC) Pipes

Concrete Pipes

1. CAST IRON PIPES

These pipes are most commonly used in water distribution system mainly because of the following reasons.

They are cheaper in cost

It has high resistance to corrosion

It is highly durable

C.I. pipes are manufactured by following 4 methods.

Horizontally cast (MC ware pipes)

Vertical cast (pit cast in sand moulds)

Centrifugally cast in sand lined moulds spun type

Centrifugally cast in water cooled metal moulds

Now a days horizontally cast C.I. pipes are no longer used.

Centrifugally cast pipes possess fine grained dense structure and uniform thickness and therefore they are widely used.

Special care has to be taken during transportation and making connection of these pipes, to prevent damage.

2. STEEL PIPES

Use of steel pipes in water supply system is suggested when,

pipes are subjected to very high pressure (i.e. above 7 kg/cm²)

large diameter pipes are required

Steel pipes are used because they are stronger and lighter in weight as compared to C.I. pipes.

These pipes, however, require adequate preventive measure to sustain adverse atmospheric conditions.

When steel pipes are encased in cement mortar or cement concrete, they are called Hume Steel pipes.

3. GALVANIZED IRON (GI) PIPES

Galvanized Iron Pipe

Galvanized Iron Pipe

This type of pipe is used for water supply work inside the building. These pipes are wrought steel pipes provided with zinc coating.

They are available in light, medium and heavy grades depending on the thickness of the metal. For a 15 mm GI pipe, the thicknesses are 2.0, 2.65 & 3.25 for the light, medium and heavy grades, respectively. Generally the medium grade pipes are used for internal plumbing in building.

Mostly screw and socket joints are used for G.I. pipes.

4. COPPER PIPES

These pipes are used in hot water installation. They have high tensile strength and can therefore have thin walls and they can be bent easily.

Copper pipes are sometimes coated with chromium to enhance its appearance.

5. PLASTIC OR POLYTHENE OR PVC PIPES

These pipes are being used increasingly these days for supply of cold water in external and internal plumbing work.

They are light in weight, non-corrosive, lower in cost and do not require any threading for connections.

There are 3 common types of plastic pipes are available in market, as given below.

Unplasticized PVC (UPVC) or rigid pipes for use with cold water

Plasticized PVC pipes which are plasticized with addition of rubber. It has lower strength and lower working temperature than UPVC pipes.

Chlorinated PVC (CPVC) pipes which can withstand higher temperatures upto 1200 (used to carry hot water)

For pipes used in soil and waste water discharge systems, the thickness of the wall will be larger than that of used for roof drainage.

Rigid PVC pipes are used for distribution of water with temperature below 450C.

At higher temperature, the strength of the pipes decreases. Similarly ultraviolet radiation from sunlight as well as frequent changes in temperature reduces the life of PVC pipes.

These pipes are costlier than AC pipes but cheaper than GI pipes.

6. ASBESTOS CEMENT (AC) PIPES

These pipes are used for drainage of rainwater from roofs, soil and waste and also for ventilation. They come in two profiles – one with beading around socket (WB) and the other without beading around socket (WOB). The latter type is more common than the former.

The pipes come in lengths of 3 meters.

The principal defects of these pipes are that they are heavy and they break easily.

These pipes are cheaper than PVC pipes.

7. CONCRETE PIPES

Unreinforced pipes of small diameters as well as reinforced and prestressed concrete pipes of large diameters are available for water supply and other uses.

Small unreinforced concrete pipes are very much used for drainage of rain water.

Large diameter pipes are generally used for major water supply works.