4

Tiles

4.1 Introductory: Tiles are than slabs made of clay burnt in kiln. They are used for flooring, walling and drainage purposes. Tiles require more care in manufacture than bricks, as from their greater delicacy they are more liable to deformation. The clay should be much stronger than that used for bricks. The manufacturing process is same as that of bricks.

4.2 Classification: The following are the various types of tiles according to the purpose they serve:

1. Roofing Tiles: There are various types of roofing tiles of which plain tiles, pot tiles and pan tiles are most common in use.

Plain Tiles: They are hand made tiles from clay. They are glazed to prevent the absorption of water. They are provided with two small projections beneath the top edge to facilitate fixing against roof battens (Fig. 4. 1).

Pot tiles: They are made by hand on a potter's wheel. They are hollow, half round and tapering in shape. The length varies from 10" to 12" on and the diameter is generally kept 6" on one side and 5" on the other side. The thickness is generally $\frac{1}{8}$". On the wheel, the tile is first made into a tapering tube just before taking the tile off the wheel, the potter makes two vertical cuts, one at each end of the diameter. These cuts are intended to assist in easily cutting the tube into two pot tiles after the tube has been burnt (Fig. 4.2).

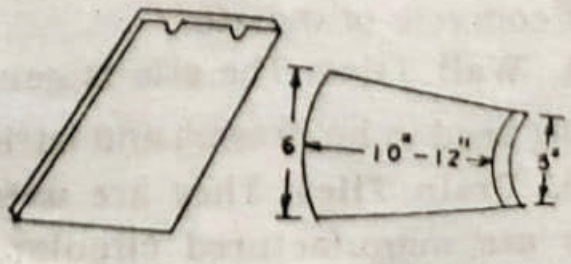

Fig. 4.1 PLAIN TILE FIG. 4.2 POT TILE

Pan Tiles: Pan tile is similar to the pot tile in shape and differs from it only in being shorter, heavier and less curved and having equal width at both ends. They are first moulded flat, then curved and are provided with a small projection beneath their top edge which rests against horizontal battens and prevents the tile from sliding down the slope of the roof (Fig. 4. 0).

Flat Tiles: They vary in size from 6"X6"X $\frac{1}{2}$" to 8"X8" X $\frac{1}{2}$" The larger variety called paving tile is used on floors while tiles. Fig. 4.4 shows a typical flat tile.

Ridge Tiles: This is meant to serve a specific purpose in roofing shown in fig. 4. 5.

Fig : 4.3 PAN TILES

Fig : 4.4 FLAT TILE

Fig : 4.5 RIDGE TILE

Concrete Tiles: They are made in various shapes and shades from 1.3 (1 part cement and 3 parts sand) cement morter with powdered colouring ingredient. They are used very commonly in the form of preceast thin slabs.

3. Flooring Tiles: The size of the flooring tiles varies from 6" square upto 12" square and the thickness ranges from $\frac{1}{2}$" to 3" they are made exactly like flat tiles. They may be of concrete or mosaic.

4. Wall Tiles: The size is generally 6"X6"X$\frac{1}{2}$". They are mainly used in bathrooms and latrines.

5. Drain Tiles: They are used for drainage purposes. They are manufactured circular. V or U-shaped and in lengths of 2 to 4 ft each. The clay should be of best variety.

perfectly homogeneous and of uniform semi-stiff consistency to admit of hollow moulding.

6. Sewer or Water Pipes: They are made from highly silicious clays containg about 75% of silica and 22% alumina.

4.3 Characteristics Of Good Tiles: The tiles should be of regular desired shape and size, free from twist, cracks, flaws and bends. They should be of well burnt and of uniform colour. They should be compact, hard and sound.

4.4 Glazing of tiles And Its Purposes: The surface of tiles is sometimes glazed for the protection of the surface from the action of the atmospheric destroying agents and sometimes for beautiful appearance.

A glaze is a mixture of glass forming materials of special compositions like lead silicate, titanium, zinrconium oxides, etc. They are ground to a very fine powder and give colourless glazes, other metallic oxides such as iron oxides, for red and brown, iron oxide with tittle time for cream and yellow, copper oxide for green, cobalt oxide for blue colour, etc. The process of applying the glaze on tiles is known as glazing.

The glazing is applied to the surface of clay-wares for improving the appearance, for producing decorative effect of the desired colours and design, for making them nonabsorbent, for imparting durability, for protecting them from the destroying effects of atmospheric agents. In case of sewers, glazing is applied to save them from the corrosive action of sewage and sewage gases and also to provide smooth surface.

Questions:

1. What is a tile? Discuss the different types of tiles with neat sketches wherever possible.
2. Give the characteristics of good tiles. Name the different uses of tiles.
3. What is glazing? Explain its functions over tiles.