FAQ's

1. **What are the Qualities of good bricks ?**

   The good bricks which are to be used for the construction of important structures should posses the following qualities:

   The bricks should be table-mounted, well burnt in kilns, copper-coloured, free from cracks and with sharp & square edges. The colour should be uniform and bright.

   The bricks should be uniform in shape and should be of standard size.

   The bricks should give a clear metallic ringing sound when struck with each other.

   The bricks when broken or fractured should show a bright homogeneous and uniform compact structure free from voids.

   The bricks shouldn't absorb water more than 20 percent by weight for first class bricks and 22 percent by weight for second class bricks, when soaked in cold water for a period of 24 hours.

   The bricks should be sufficiently hard. No impression should be left on brick surface, when it is scratched with finger nail.

   The bricks should not break into pieces when dropped flat on hard ground from a height of about one meter.

   The bricks should have low thermal conductivity and they should be sound-proof.

   The bricks, when soaked in water for 24 hours, should not show deposits of white salts when allowed to dry in shade.

   No brick should have the crushing strength below 5.5 N/mm^2.

2. **What are the various tests on bricks? Explain.**

   Following tests are conducted on bricks to determine its suitability for construction work.

   - Absorption test
   - Crushing strength test
   - Hardness test
   - Shape and size
   - Color test
   - Soundness test
   - Structure of brick
   - Presence of soluble salts (Efflorescence Test)

   Absorption Test on Bricks

   Absorption test is conducted on brick to find out the amount of moisture content absorbed by brick under extreme conditions. In this test, sample dry bricks are taken and weighed. After weighing these bricks are placed in water with full immersing for a period of 24 hours. Then weigh the wet brick and note down its value. The difference between dry and wet brick weights will give the amount of water absorption. For a good quality brick the amount of water absorption should not exceed 20% of weight of dry brick.

   Crushing Strength or Compressive Strength Test on Bricks

   Crushing strength of bricks is determined by placing brick in compression testing machine. After placing the brick in compression testing machine, apply load on it until brick breaks. Note down the value of failure load and find out the crushing strength value of brick. Minimum crushing strength of brick is 3.50N/mm^2.if it is less than 3.50 N/mm^2, then it is not useful for construction purpose.

   Hardness Test on Bricks

   A good brick should resist scratches against sharp things. So, for this test a sharp tool or finger nail is used to make scratch on brick. If there is no scratch impression on brick then it is said to be hard brick.

   Shape and Size Test on Bricks

   Shape and size of bricks are very important consideration. All bricks used for construction should be of same size. The shape of bricks should be purely rectangular with sharp edges. Standard brick size consists length x breadth x height as 19cm x 9cm x 9cm. to perform this test, select 20 bricks randomly from brick group and stack

them along its length , breadth and height and compare. So, if all bricks similar size then they are qualified for construction work.

Color Test of Bricks

A good brick should possess bright and uniform color throughout its body.

Soundness Test of Bricks

Soundness test of bricks shows the nature of bricks against sudden impact. In this test, 2 bricks are chosen randomly and struck with one another. Then sound produced should be clear bell ringing sound and brick should not break. Then it is said to be good brick.

Structure of Bricks

To know the structure of brick, pick one brick randomly from the group and break it. Observe the inner portion of brick clearly. It should be free from lumps and homogeneous.

Efflorescence Test on Bricks

A good quality brick should not contain any soluble salts in it. If soluble salts are there, then it will cause efflorescence on brick surfaces.

To know the presence of soluble salts in a brick, placed it in a water bath for 24 hours and dry it in shade. After drying, observe the brick surface thoroughly. If there is any white or grey color deposits, then it contains soluble salts and not useful for construction.

3. **Explain the method of Stacking of Bricks.**

Bricks shall be stacked on dry firm ground in regular tiers.

For proper inspection of quality and ease in counting, the stacks shall be 50 bricks long and 10 bricks high and not more than 4 bricks in width, being placed on edge two at a time along the width of the stack. Clear distance between adjacent stacks shall be not less than 800 mm.

Bricks of each truckload shall be put in one stack. Bricks of different types, such as, clay bricks, clay fly ash bricks, fly ash lime bricks, sand lime (calcium silicate) bricks shall be stacked separately. Bricks of different classifications from strength consideration and size consideration (such as, conventional and modular) shall be stacked separately. Also bricks of different types, such as, solid, hollow and perforated shall be stacked separately.

Bricks made of clay containing lime shall be thoroughly soaked in water (docked) while in stack. Concrete blocks, stone blocks and other masonry blocks shall be stored in stacks of such height as not to damage the blocks in the lower layers or topple.

Bricks shall be loaded or unloaded with care, and shall not be thrown or dumped. They shall be carried from the stack to the site of placement in small batches as and when necessary. Brick stacks shall be placed close to the site of work so that least effort is required to unload and transport the bricks again by loading on pallets or in barrows. Unloading of building bricks or handling in any other way likely to damage the corners or edges or other parts of bricks shall not be permitted.

4. **The significance of Bricks in the current construction industry.**

Bricks are more commonly used in the construction of buildings than any other material except wood. Brick and terracotta architecture is dominant within its field and a great industry has developed and invested in the manufacture of many different types of bricks of all shapes and colours. With modern machinery, earth moving equipment, powerful electric motors and modern tunnel kilns, making bricks has become much more productive and efficient. Bricks can be made from variety of materials the most common being clay but also calcium silicate and concrete. With clay bricks being the more popular, they are now manufactured using three processes soft mud, dry press and extruded. Also during 2007 the new 'fly ash' brick was created using the by-products from coal power plants.

Good quality bricks have a major advantage over stone as they are reliable, weather resistant and can tolerate acids, pollution and fire. Bricks can be made to any

specification in colour, size and shape which makes bricks easier to build with than stone. Brickwork is also much cheaper than cut stone work. However there are some bricks which are more porous and therefore more susceptible to dampness when exposed to water. For best results in any construction work, the correct brick must be chosen in accordance with the job specifications.