

## **Good Construction Practices and Quality Control Tests**

**Foundation:-** Foundation of building shall not be laid on filled up soil or in low lying areas occasional testing of bearing capacity of soil may be undertaken

**Brick masonry:-** Only well burnt brick with ringing sound having crushing strength of around 100kg/cm<sup>2</sup> shall be used. The bricks shall be drenched for 6 hours before use. The thickness of brick masonry joints shall be between 6.25 mm to 10 mm only raking of masonry joints up to 12 mm depth shall be under taken when mortar is still green Similarly clearing of cement mortar over brick masonry is undertaken regularly and bricks are brought to its original shape.

**Stone masonry:-** Stone for stone masonry shall be uniform in colour texture and sound durable free from flaws cracks, cavities veins etc. porous stone with stains shall not be used, ensure using bond stone at regular intervals.

**Sand:-** Only well graded fine sand shall be used for brick masonry and plastering. Similarly well graded coarse sand shall be used for RCC work and flooring.

**RCC Work:-** Only steel shuttering or good wooden planks shuttering shall be used use only ISI or ISO marked steel and 43 graded port land cement only. Always provide bed plates below beams and hearing plaster below slabs use of concrete mixture and vibratory is essential for laying slabs and beams.

**Flooring & Plastering:-** Cement concrete floor may be laid in ponds of not more than 2 sq.mt. Use only wooden float while plastering steel float is prohibited in plastering the walls.

**Doors & Windows:-** All doors and windows frame may be fixed in the masonry during construction only use of angle iron for door and window frames may be avoided; instead 2mm thick pressed steel sheet frame for doors and windows conforming to IS 226-1962 may be used. Don't use plywood panels for doors and windows exposed to rain.

**Roofing:-** Provide proper slope while laying roof for draining rainwater. Spouts or rain water pipes of not less than 100 mm diameter shall be used. 100 mm diameter pipes can drain rain water up to 35 sq.m. of roof area.

**General:-** Provide drip course on all projection and sunshades. Provide grooves wherever two different materials join together curing of all cement works for minimum 15 days is necessary. Dry cement mortar of not more than one cement bag shall be

prepared at a time. Cement mortar or cement concrete shall be used within 30 minutes after adding water. Providing of or plinth protection is essential for safety of the foundation of the building

**Quality control tests for materials and technology during execution:-**

- i. Sieve analysis and gradation test for fine and coarse sand as per IS 2720
- ii. Water absorption test for bricks
- iii. Compressive strength test for bricks
- iv. Compressive strength test for cement concrete work by testing 6 cubes of 15 cm x 15cm x 15 cm for slab beams and flooring
- v. Slump test for RCC work for ascertain water cement ratio in concrete work particularly at the time of laying RCC slab
- vi. Cement sand mortar test for ascertaining cement and sand contents is the mortar.

**Format showing frequency of test to be carried out by third party**

Sl. No.	Building materials	Test to be carried out	Frequency of test
1	Cement	<ul style="list-style-type: none"> <li>• Consistency</li> <li>• Setting time               <ul style="list-style-type: none"> <li>- Initial</li> <li>- Final</li> </ul> </li> <li>• Fineness by specific surface</li> <li>• Compressive strength n/mm<sup>2</sup> <ul style="list-style-type: none"> <li>- 3 days</li> <li>- 7 days</li> <li>- 28 days</li> </ul> </li> </ul>	One test for each site and on change of brand
2	Sand	<ul style="list-style-type: none"> <li>• Silt content</li> <li>• Gradation, fineness modules</li> <li>• Zoning tests</li> <li>• Sp. Gravity</li> <li>• Water absorption (%)</li> </ul>	One test for each site
3	Material for lintel & Bend	<ul style="list-style-type: none"> <li>• Specific gravity</li> <li>• Absorption</li> <li>• Abrasion</li> <li>• Impact value (%)</li> <li>• Flakiness index</li> <li>• Gradation percent passing of IS serve</li> </ul>	One test for each site
4	Brick	<ul style="list-style-type: none"> <li>• Water abortion</li> <li>• Efflorescence</li> </ul>	One test for each site

		<ul style="list-style-type: none"> <li>• Compressive strength</li> <li>• dimension</li> </ul>	
5	Reinforcement (steel)	<ul style="list-style-type: none"> <li>• ultimate tensile strength</li> <li>• yield stress (proof )</li> <li>• elongation</li> </ul>	Each set of test for each diameter of bars in every site of work.
6	C.C.Cube	<ul style="list-style-type: none"> <li>• compressive strength</li> </ul>	1 (one) sample consisting of 3 cubes for each sip