COMPONENTS OF A BUILDING

The following are the basic elements of a building:

- Foundation Plinth
- Walls and columns Sills, lintels and chaijas
- Doors and windows Floors
- Roofs
- Steps, stairs and lifts Finishing work Building services.

Foundation: Foundation is the most important part of the building. Building activity starts with digging the ground for foundation and then building it. It is the lower most part of the building. It transfers the load of the building to the ground. Its main functions and requirements are:

(a) Distribute the load from the structure to soil evenly and safely.

(b) To anchor the building to the ground so that under lateral loads building will not move.It gives level surface for the construction of super structure.

Plinth: The portion of the wall between the ground level and the ground floor level is called plinth. It is usually of stone masonry. If the foundation is on piles, a plinth beam is cast to support wall above floor level.

Walls and Columns: The function of walls and columns is to transfer the load of the structure vertically downwards to transfer it to foundation. Apart from this wall performs the following functions also:

(a) It encloses building area into different compartments and provides privacy.

(b) It provides safety from burglary and insects.

(c) It keeps the building warm in winter and cool in summer.

Sills, Lintels and Chejjas: A window frame should not be directly placed over masonry. It is placed over 50 mm to 75 mm thick plain concrete course provided over the masonry.

This course is called as sill. Lintels are the R.C.C. or stone beams provided over the door and window openings to transfer the load transversely so as to see that door or window frame is not stressed unduly.

Doors and Windows: The function of a door is to give access to different rooms in the building and to deny the access whenever necessary. Number of doors should be minimum possible. The size of the door should be of such dimension as will facilitate the movement of the largest object likely to use the door.

Floors: Floors are the important component of a building. They give working/useful area for the occupants. The ground floor is prepared by filling brick bats, waste stones, gravel and well compacted with not less than 100 mm sand layer on its top.

A lean concrete of 1 : 4 : 8, 100 mm thick is laid. On this a damp proof course may be provided. Then floor finishing is done as per the requirement of the owner. Cheapest floor finish for a moderate house is with 20 to 25 mm rich mortar course finished with red oxide.

Step, Stairs and Lifts: Steps give convenient access from ground level to ground floor level. They are required at doors in the outer wall. 250 to 300 mm wide and 150 mm rise is ideal size for steps. In no case the size of two consecutive steps be different. Number of steps required depends upon the difference in the levels of the ground and the floor. Stairs give access from floor to floor. They should consists of steps of uniform sizes.

Finishing: Bottom portion of slab (ceiling), walls and top of floor need smooth finishing with plaster. Then they are provided with white wash, distemper or

paints or tiles. The function of finishing work is:

(a) Give protective cover

(b) Improve aesthetic view

(c) Rectify defective workmanship

(d) Finishing work for plinth consists in pointing while for floor it consists in polishing.

Building Services: Water supply, sanitation and drainage works, electric supply work and construction of cupboards and show cases constitute major building services.

For storing water from municipal supply or from tanker a sump is built in the house property near street. From the sump water is pumped to over head tanks placed on or above roof level so as to get water all the 24 hours. Plumbing work is made so as to get water in

kitchen, bathrooms, water closets, sinks and garden taps.

Basic requirements of a building

The planning and construction of a building should be aimed at fulfilling the following requirements:

Strength and Stability: Building should be capable of transferring the expected loads in its life period safely to the ground. Design of various structural components like slabs, beams, walls, columns and footing should ensure safety. None of the structural components should buckle, overturn and collapse.

Dimensional Stability: Excessive deformation of structural components give a sense of instability and result into crack in walls, flooring etc. All structural components, should be so designed that deflections do not exceed the permissible values specified in the codes.

Resistance to Dampness: Dampness in a building is a great nuisance and it may reduce the life of the building. Great care should be taken in planning and in the construction of the building to avoid dampness.

Resistance to Fire: Regarding achieving resistance to fire, the basic requirements laid down in the codes are:

(a) the structure should not ignite easily.

(b) building orientation should be such that spread of fire is slow.

(c) In case of fire, there should be means of easy access to vacate building quickly.

Heat Insulation: A building should be so oriented and designed that it insulates interior from heat.

Sound Insulation: Buildings should be planned against outdoor and indoor noises.

Protection from Termite: Buildings should be protected fromtermites.

Durability: Each and every component of the building should be durable.

Security against Burglary: This is the basic need the owner of the building expects **Lighting and Ventilation**: For healthy and happy living natural light and ventilations are required.

Diffused light and good cross ventilation should be

available inside the building.

Comforts and Conveniece

s: Various units in the building should be properly grouped and integrated keeping in mind the comfort and convenience of the user.

Economy: Economy without sacrificing comfort, convenience and durability is another basic requirement of the building.