PARTS OF A BUILDING

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BASIC TERMS RELATED TO BUILDING

- Layout: Dimensional sketch of an area indicating position of various plots in which buildings have to be constructed (Min. Scale 1:1000)
- Height of building: vertical level difference between natural ground level adjoining the street and highest point of building.

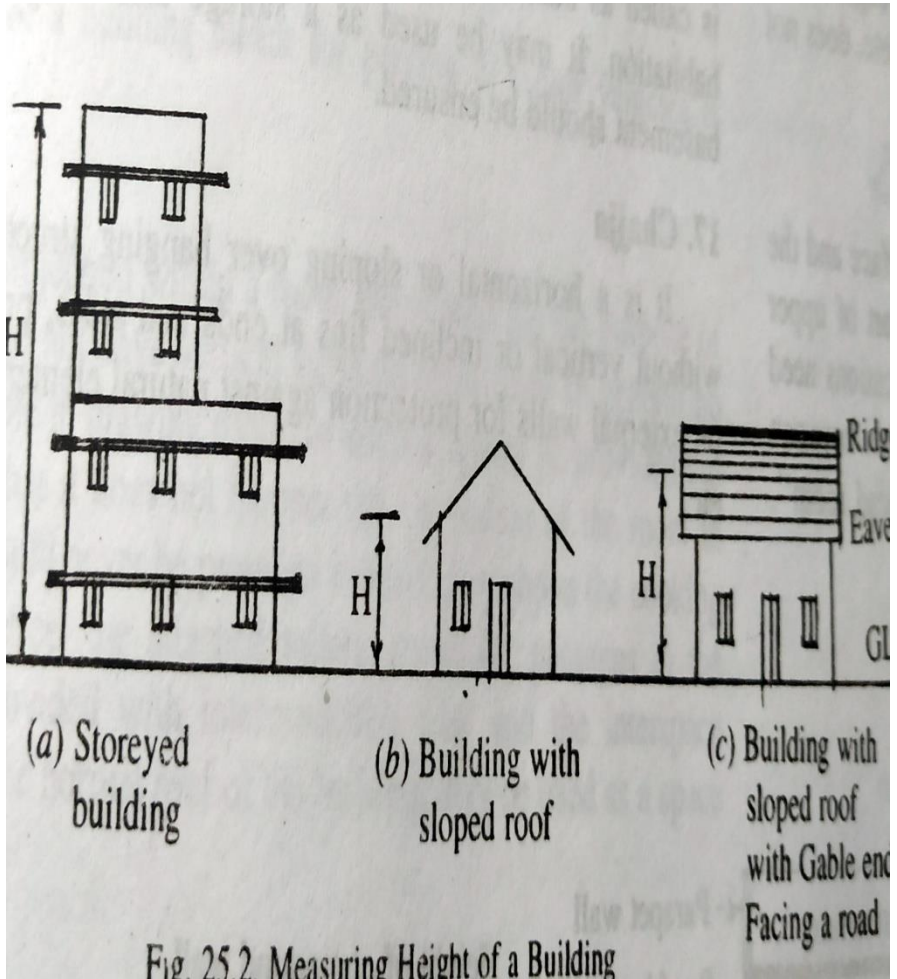
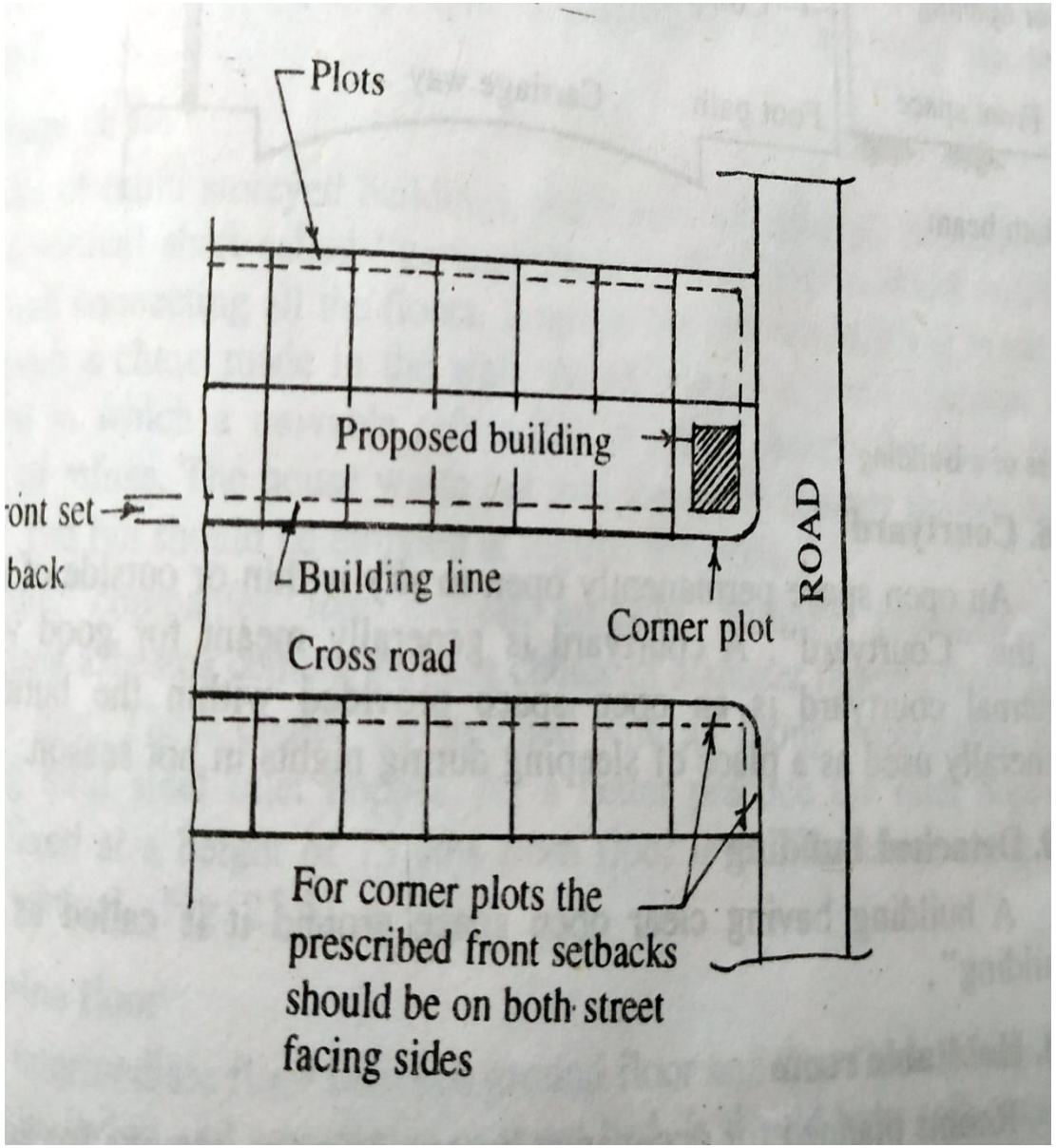


Fig. 25.2 Measuring Height of a Building

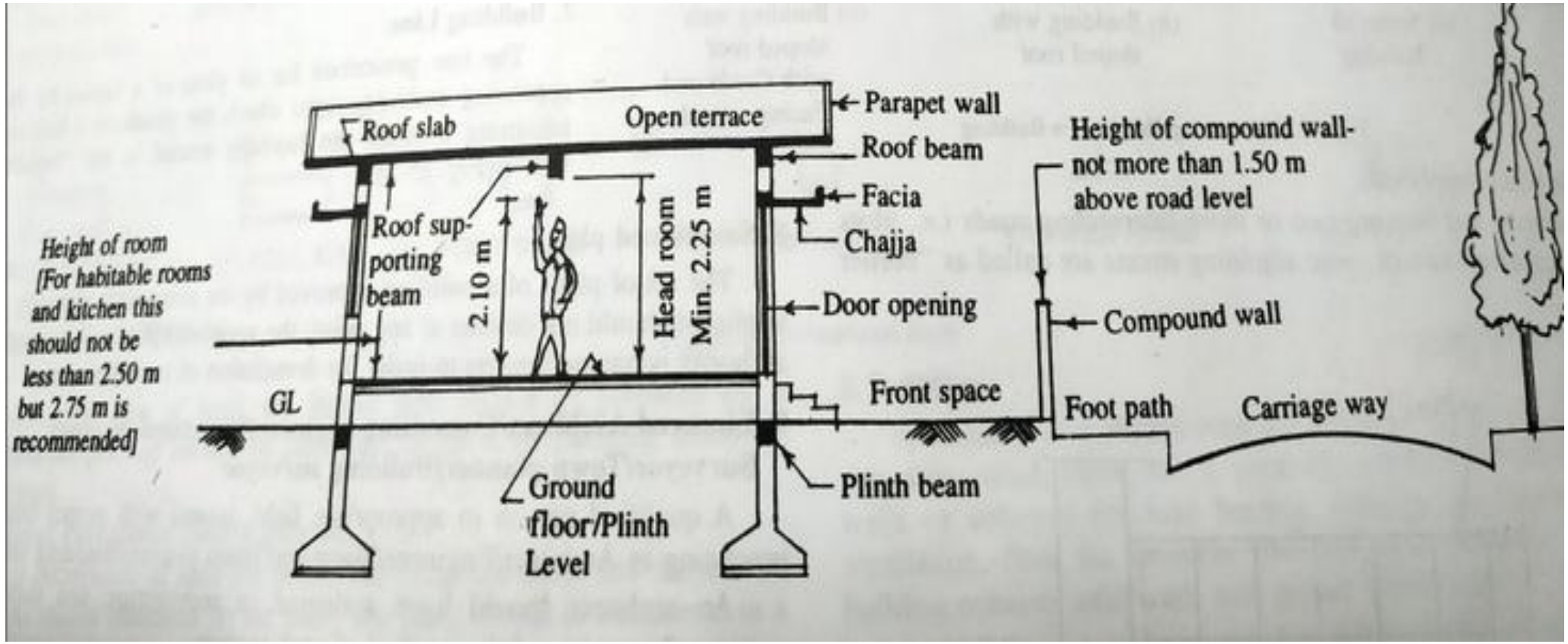
- Plot or site: A piece of land with definite boundaries.

- Building line: Line prescribed by approving authority upto which plinth of a building adjoining a street can lawfully extend



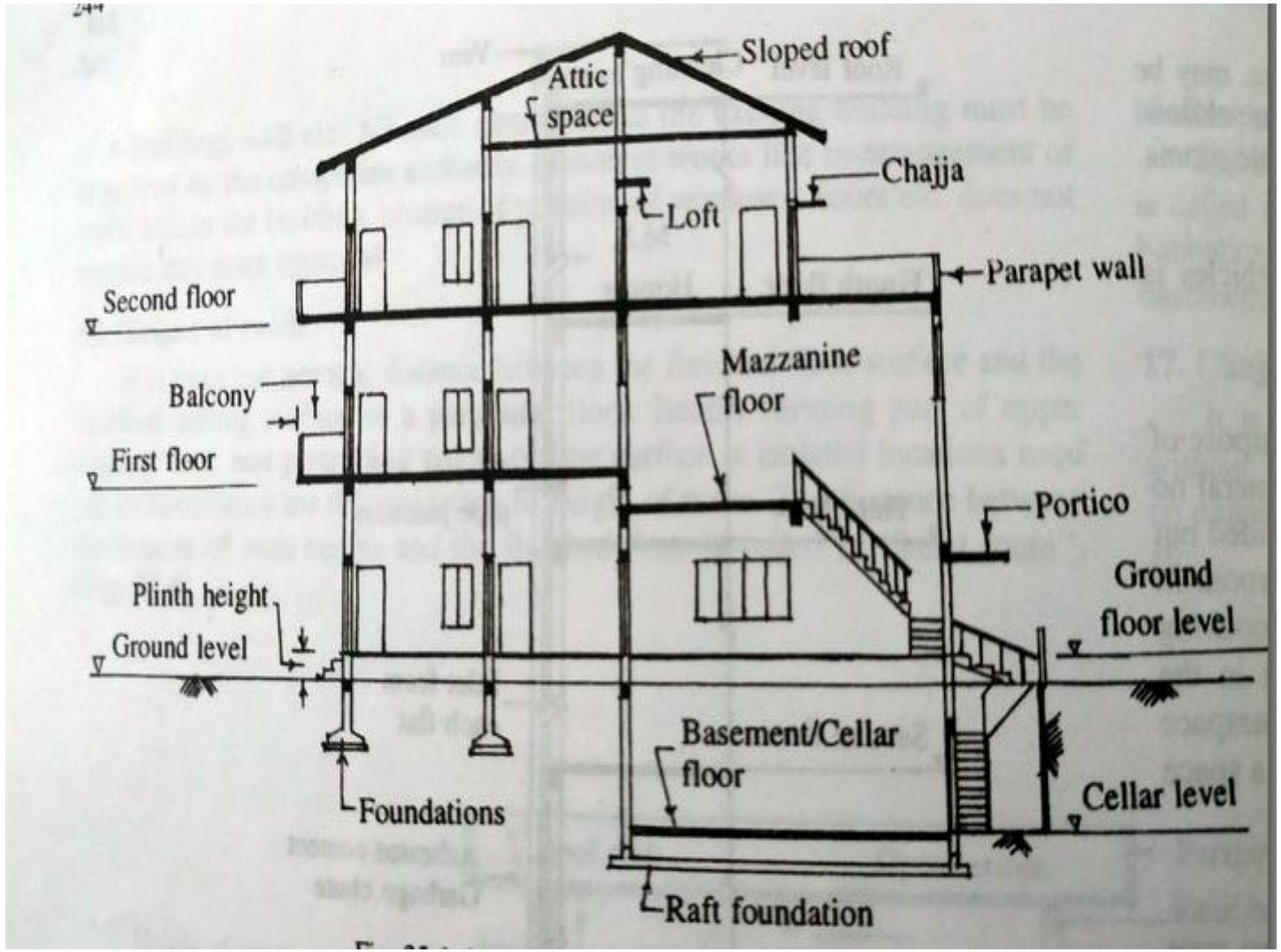
- Height of a room: clear vertical distance between finished floor surface and finished ceiling surface.

- Head Room: distance between beam and floor



- Mezzanine floor: intermediate floor between ground and first floor.

- Plinth: level of ground floor. Min plinth level = 25 cm for residential buildings. 60-75 cms usually.



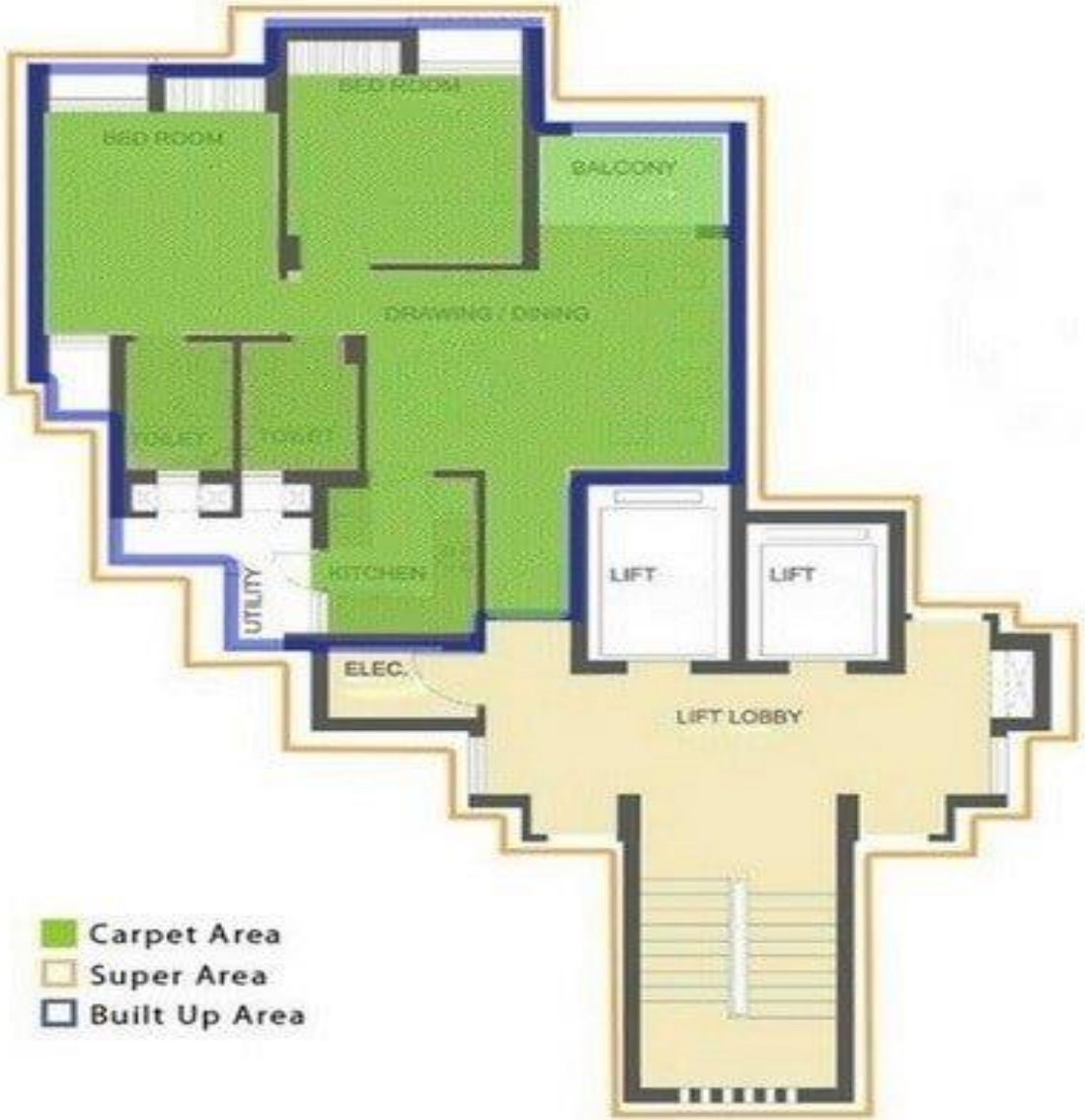
- Carpet Area:

  It is the sum of covered floor area of all usable rooms at any floor. Carpet area should be 50-65 % of plinth area
- Carpet area is the plinth area less the area of the following portions of the building:
  - Wall area
  - Veranda
  - Corridor and passage
  - Entrance hall and porch
  - Staircase and stair cover
  - Lift shaft and machine room for lift
  - Bathroom and lavatory
  - Kitchen and pantry
  - Store
  - Canteen
  - Air conditioning duct and plant room
  - Shaft for sanitary piping
  - Stilted floor and garage

- Plinth Area/Built up Area:

  It is the Built up covered area measured at ground floor level. Plinth area is the entire area occupied by the building including internal and external walls. Plinth area is generally 10-20% more than carpet area.
- It includes area of:
  - Walls at floor levels
  - Internal shafts for sanitary instalation (if does not exceed 2 sqm)
  - Mumty at terrace
  - Vertical duct for air conditioning and lift well including landing.
  - Staircase room or head room other than terrace level
  - Machine room
  - Porch
  - Open projections of veranda, balconies and parapets, if the area is protected by projections, full area is included in plinth area, if the area is un-protected by projections, 50% of the area is included.

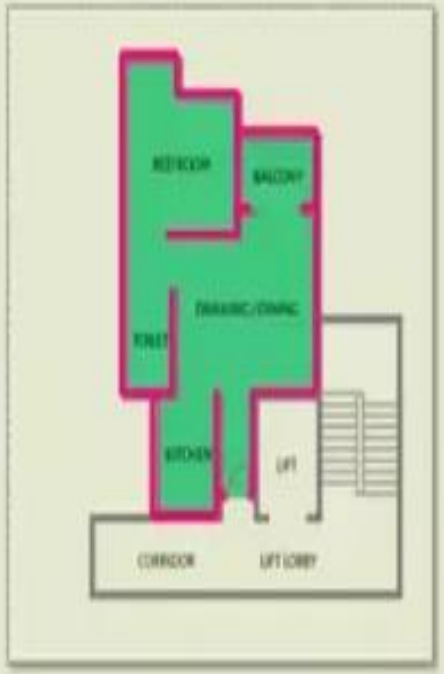
- It Does not include area of:
  - Additional floor for seating in assembly buildings, theatres, auditoriums
  - Balcony
  - Area of loft
  - Internal sanitary shafts with more than 2 sqm area
  - Towers, domes above terrace level
  - Architectural projections
  - Sun shades etc.
  - Spiral staircase including landing



CARPET AREA

Area that can be covered by a carpet

It helps you know the actual usable area in the kitchen, room, hall etc.



Carpet Area

+

Wall Area

=

Built Up Area

BUILT UP AREA

Carpet Area + Wall Area will give you Built up area

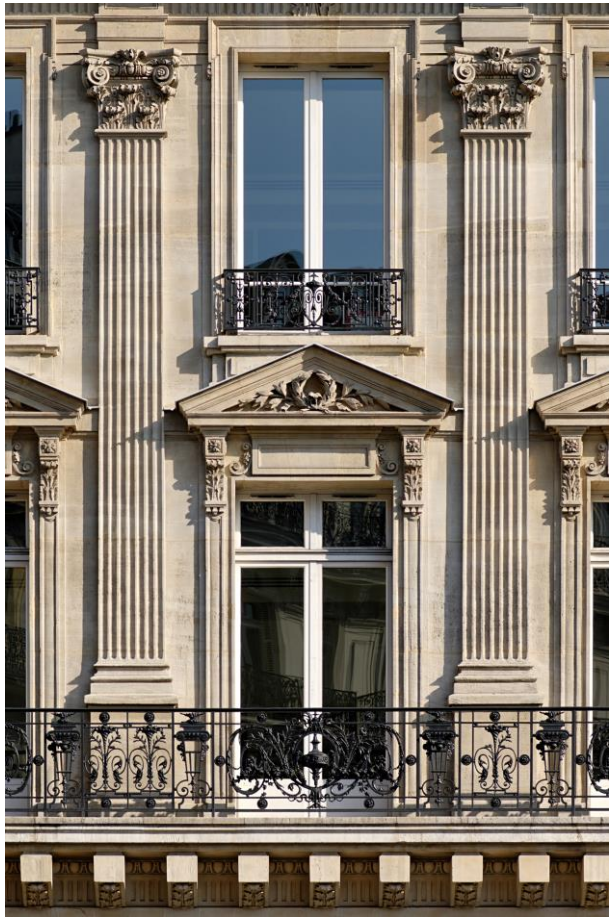
- Floor Area:

  area of floor in between walls all rooms, verandahs, kitchen, passages, lobby, staircase, entrance lobby, bath, store, etc.

Floor area = Plinth Area – area occupied by walls, pillars etc.

- Wall Area:
- Area occupied by walls and other vertical supporting elements
- It includes
- Area of pillars etc
- Doors and other openings in walls
- Pilasters along walls exceeding 300 sqcm area

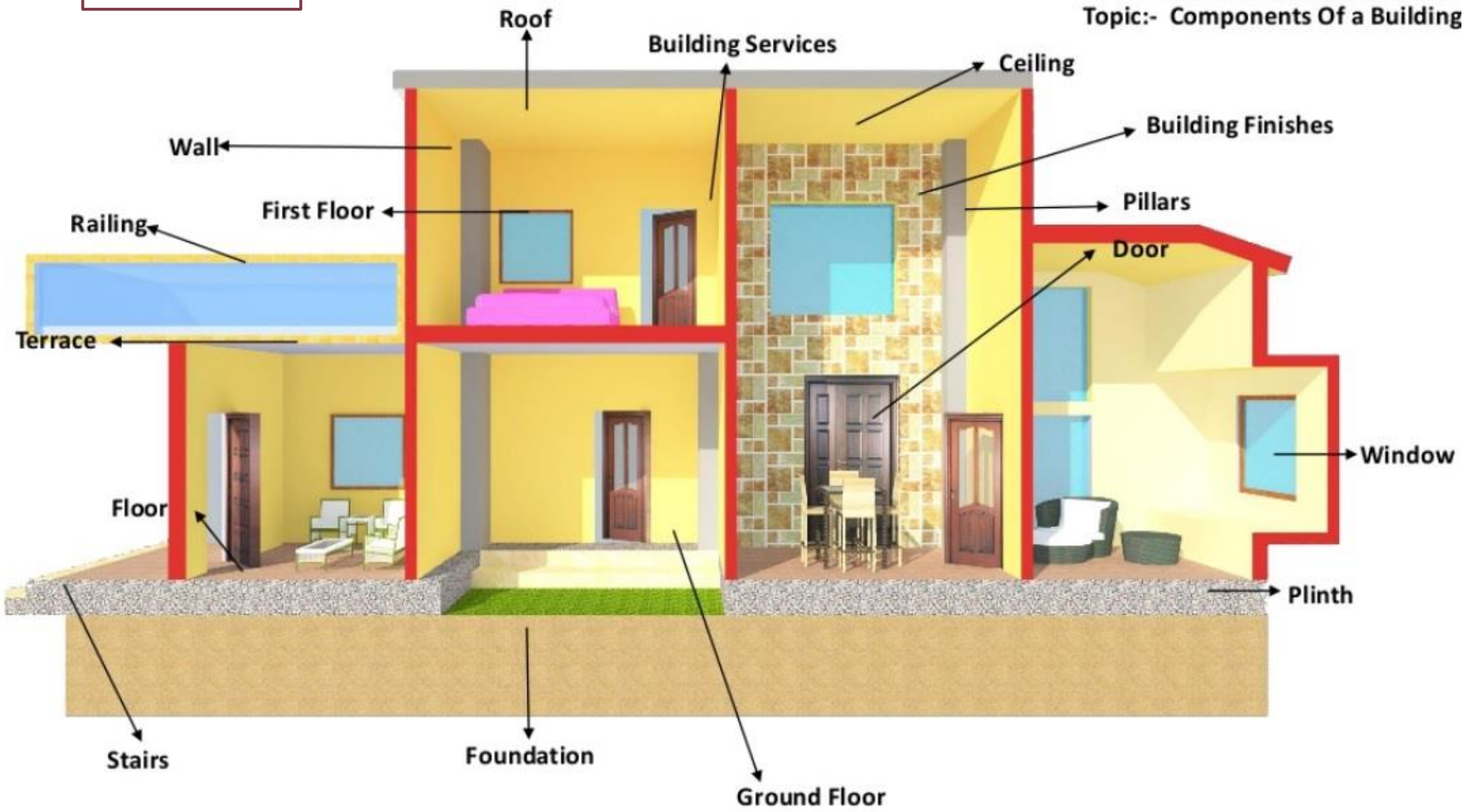
- It does not include:
- Pilasters along walls not exceeding 300 sqcm area
- Fire place
- Chullah, cooking platforms beyond face of wall

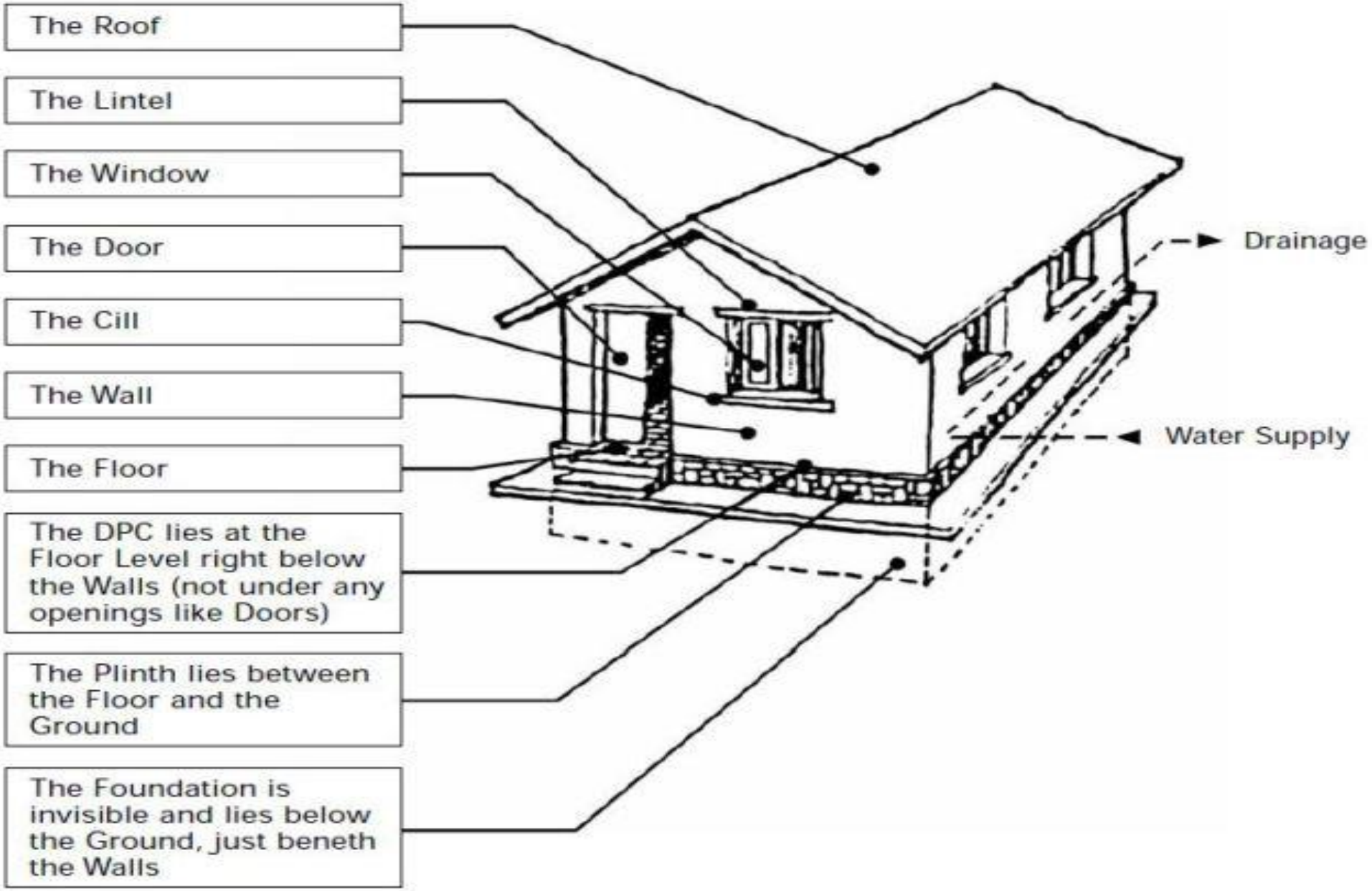


PARTS OF A BUILDING

Building Construction

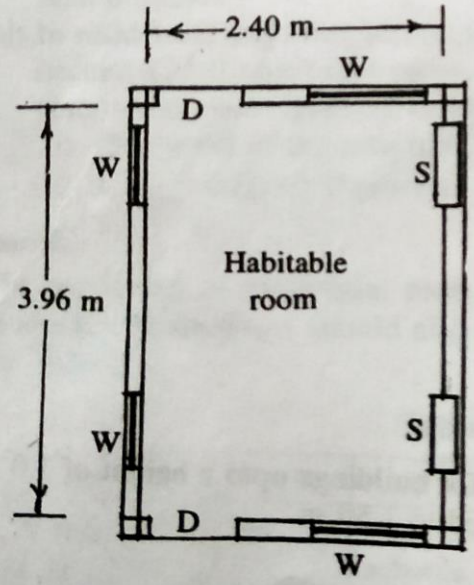
Topic:- Components Of a Building




The Roof
The Lintel
The Window
The Door
The Cill
The Wall
The Floor
The DPC lies at the Floor Level right below the Walls (not under any openings like Doors)
The Plinth lies between the Floor and the Ground
The Foundation is invisible and lies below the Ground, just beneth the Walls
Drainage
Water Supply

HABITABLE ROOMS

		Building with single Habitable room	*Building with two habitable rooms*	
			Ist *room*	IInd *room*
(*i*)	Min. floor area	9.5 sqm	9.5 sqm	7.5 sqm
(*ii*)	Min. width	2.4 m	2.1 m	2.1 m
(*iii*)	Min. height	2.75 m	2.75 m	2.75 m
(*iv*)	Min. Head room	2.40 m	2.40 m	2.40 m



Building with Single Habitable Room

Minimum floor area = 9.50 sqm
Minimum width = 2.4 m
Minimum height = 2.75 m

Building with Two Habitable Rooms

Minimum floor area
1st room = 9.5 sqm
2nd room = 7.5 sqm
Minimum width = 2.10 m

Fig. 25.10. Minimum Dimensions of a Habitable room

KITCHEN

		Min. floor area	Min. width	Min. height
(*i*)	Kitchen without store	5.00 sqm	1.80 m	2.75 m
(*ii*)	Kitchen with store	4.50 sqm	1.80 m	2.75 m
(*iii*)	Kitchen cum dining	7.50 sqm	2.10 m	2.75 m

Dimensions of kitchen as prescribed in some states are as follows (Fig. 25.11)

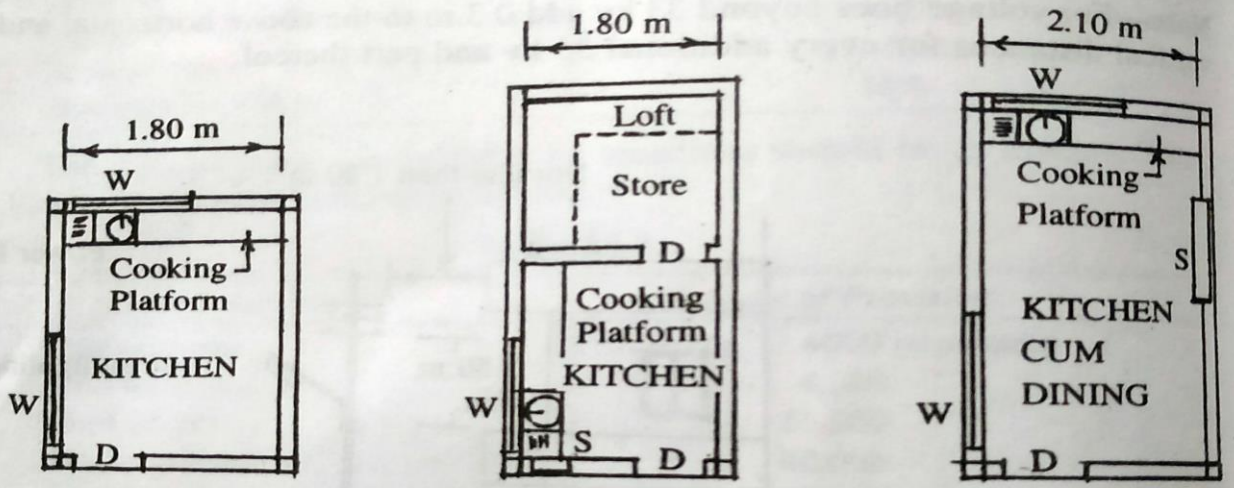


Fig. 25.11. Minimum Dimensions for Kitchen

Table 25.8

		Min. floor area	Min. width	Min. height
(*i*)	Kitchen without store	5.50 sqm	1.80 m	2.75 m
(*ii*)	Kitchen with store	4.50 sqm	1.80 m	2.75 m
(*iii*)	Kitchen cum dining	9.00 sqm	2.50 m	2.75 m

At least one wall of kitchen should abut the exterior open space.

3. Bath room

BATHROOMS AND WATER CLOSETS

Table 25.9.

	Bath	*Water closet*	*Bath cum WC*
Minimum floor area	1.80 sqm	1.10 sqm	2.80 sqm
Recommended size	1.50 × 1.20 m	1.10 × 1.0 m	2.30 × 1.20 m
Minimum height	2.00 m	2.00 m	2.00 m

The dimensions as prescribed in some states are as follows.

Table 25.10.

	Bath	*Water closet*	*Bath cum WC*
Minimum floor area	1.50 sqm	1.20 sqm	2.50 sqm
Recommended size	1.20 × 1.20 m	1.00 × 1.20 m	2.10 × 1.20 m
Minimum height	2.25 m	2.25 m	2.25 m

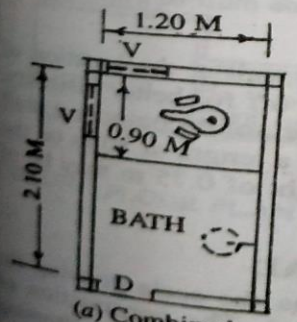
On study, CBRI/Roorkee has established that

(*a*) An average man taking bath may rotate his hands/body in a circle of dia. 0.91 metres. Hence keeping a clearance of 15 cm around, the bath room should be of a minimum size of 1.20 × 1.20 m. A size of 1.50 × 1.20 m is more comfortable.

(*b*) An average person using a water closet in squatting position occupies a size of 0.79 × 0.72 m. Keeping a clearance of 10 cm of side, 0.20 m in rear and 0.28 m in front the water closet should have a minimum size of 1.0 × 1.20 m

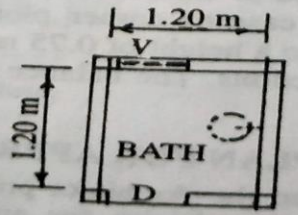
General:

At least one wall of bath, WC should abut the exterior open space. The

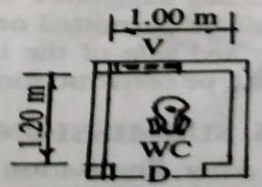


(*a*) Combined Bath and Water closet

Minimum height of bath or WC = 2.00-2.25 m



(*b*) bath room



(*c*) Water closet

STORE ROOMS

Min. area	= 3.0 sqm
Nominal size	= 1.80 × 2.20 m
Height	= 2.50 m minimum

MEZZANINE FLOORS

- Minimum area 9.5 m^2
- Area should not exceed 1/3rd of plinth area
- It should be permitted over a room provided that:
  - No obstruction to light or ventilation
  - Not subdivided into further smaller compartments
  - Should not be closed and unventilated.

STAIRCASE

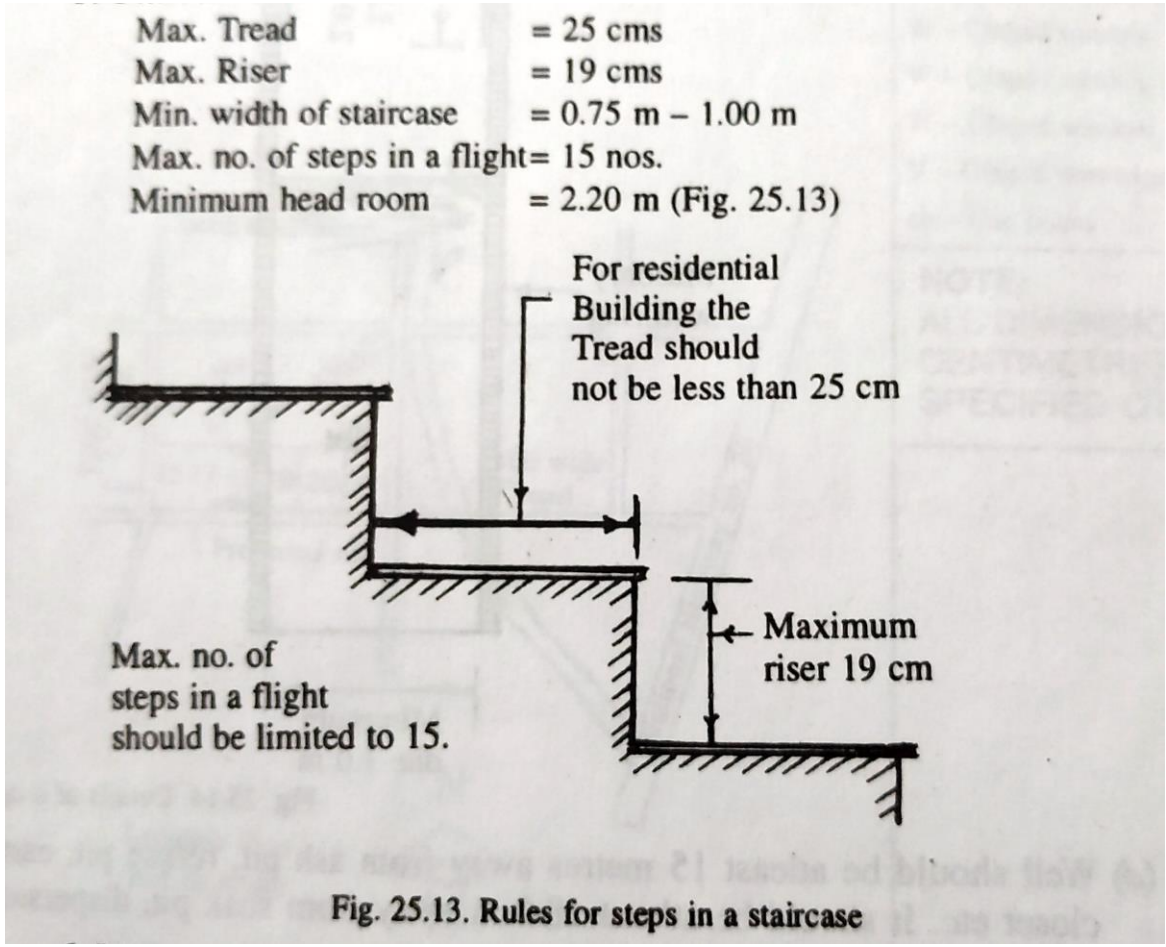


Fig. 25.13. Rules for steps in a staircase

FOUNDATIONS

- Different types of foundations depending on soil
- Min depth
  - For single storied = 75 – 100 cm below GL
  - For double storied = 100 – 130 cm below GL
- Width of first footing = thickness of wall + 30 cm

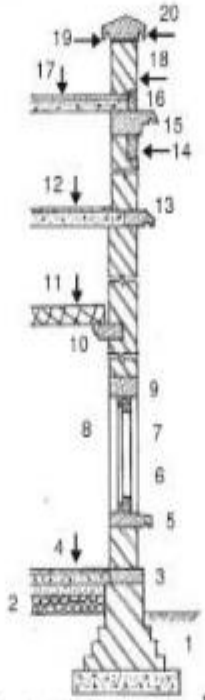


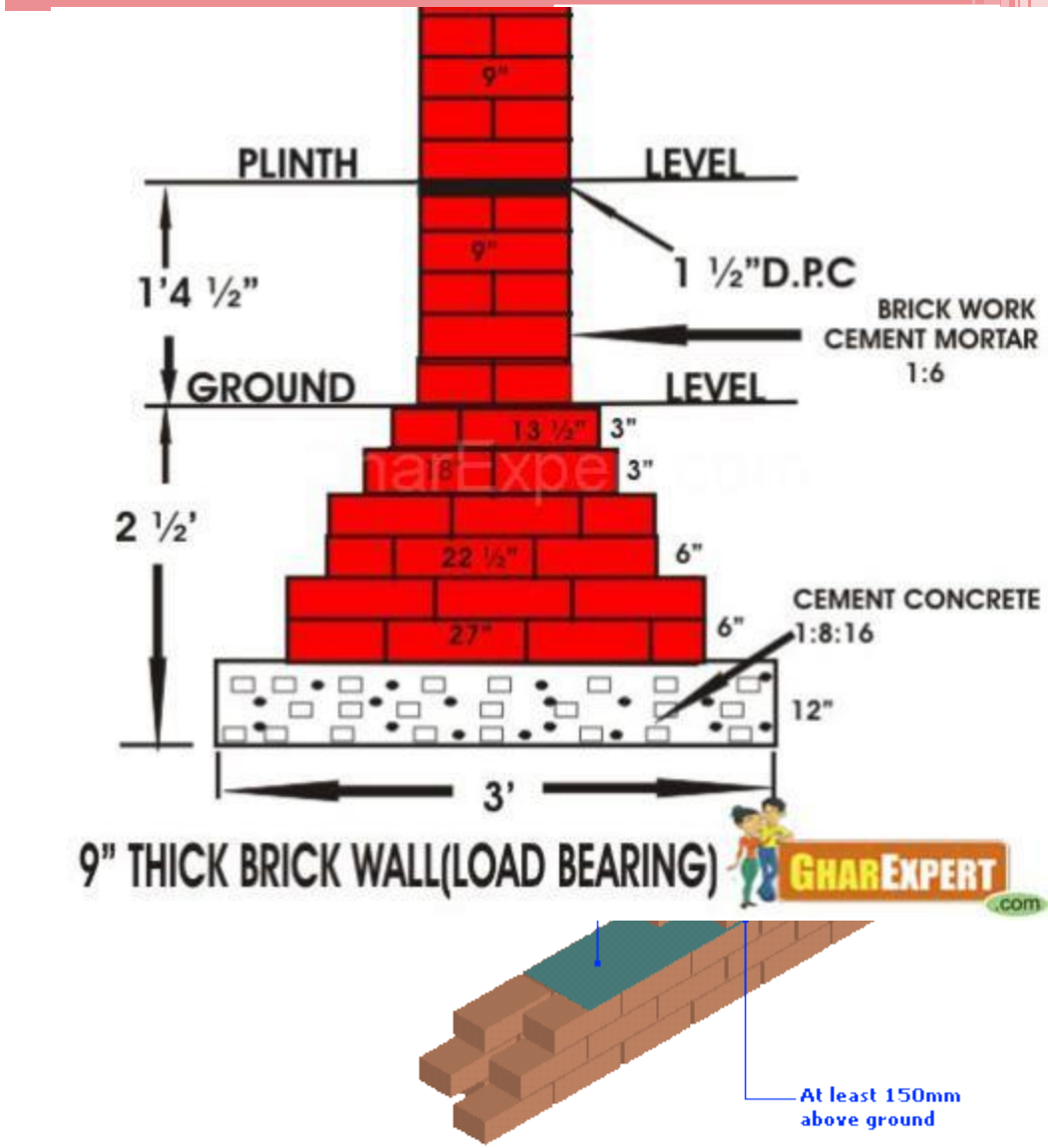
Fig. 1.2 Section through a wall: 1. Foundation, 2. Hard core (Basement filling), 3. Plinth, 4. Ground floor, 5. Sill, 6. Window, 7. Reveal (revealed vertical wall on the sides of door or window frame as inner reveal and outer reveal), 8. Jamb (vertical wall on both sides of doorway or window opening), 9. Lintel, 10. Corbel, 11. Ceiling, 12. Upper floor, 13. String course with throating, 14. Frieze (stone course below cornice), 15. Cornice, 16. Blocking course, 17. Terracing, 18. Parapet, 19. DPC under coping, 20. Coping

PLINTH

- The plinth is a dividing line between the substructure and superstructure. Thus, the projecting part of the wall above the ground level to the floor level is the plinth.
- The plinth is usually kept at least 45 cm (1.5 ft) above the general ground level of the building.

DAMP PROOF COURSE

- The damp proof course is a layer provided in building to prevent the entering of dampness from the ground to the building components
- Usually made of 4 cm thick of cement concrete 1:2:4 with waterproofing compound provided at plinth
- Other materials can be also used for DPC



FLOORS

- It is constructed on the filling and laid over the plinth level. Floors are usually made from different types of materials, such as, timber, brick, R.C.C.

WALLS AND COLUMNS

- Walls are mostly made of masonry. It may be of brick, block-work, stonework, etc.
- Buildings may also be constructed as a framed structure with columns and footings and then walled.
- Most of the flats and high-rise buildings are built this way.

ROOFS

- Should permit drainage of rain water
- Flat roofs or sloped roofs of different materials according to suitability

BUILDING FINISHES

- The final appearance of a building depends very much on its finishing. We have to deal with the following:

1. Plastering and pointing

2. Painting of walls, woodwork, grillwork, etc.

- It is essential that we have a knowledge of the finishing to be used on the various materials of construction such as plaster, wood, metals, etc.

BUILDING SERVICES

- Water supply, drainage, sanitation, electric supply lifts, external works, construction of cupboard, etc. are considered as items outside of civil works and are called building services.