

Minimum Standards for Various Parts of Buildings

Topics Covered

- Considerations for planning of residential buildings
- Major areas of a residential building
- Minimum standards for various parts of residential buildings

Introduction



- Several types of buildings such as a house, bungalow, block of flats and cottage fall in the category of residential buildings. Also, certain other buildings which are used for residential purposes for short duration such as hotel, hostel buildings, dormitories and motels are also included in the category of residential buildings.

Considerations for Planning of Residential Buildings

The following considerations have to be taken into account by the planner prior to planning of a residential building:



Major Areas of Residential Building

A residential building is divided into three major areas to fulfil its purpose of serving human needs. They are:



Major Areas of Residential Building

The Living Area

- The living area of the house is that area of the house where the family meets its friends, relaxes and entertains itself.
- Living area make the first impression about the house to outsiders.
- It is a representative of the status and standard of living of the family residing in that building.
- It should be comfortable, sufficiently lighted and spacious enough to accommodate furniture.
- It should have the proper circulation of air.



Major Areas of Residential Building

The Living Area

The living area includes the following types of rooms:

- Drawing room
- Dining room
- Office room
- Guest room
- Entrance foyer
- Recreation or games room, if any



Major Areas of Residential Building

The Sleeping Area

- The sleeping area is designed for sleeping and relaxing.
- The basic function of the sleeping area is to provide facilities that offer maximum comfort and relaxation to the inmates of the house.
- One-third of our life time is generally spent is sleeping. Hence, it is important that it should be located in a quiet part of the house.



Major Areas of Residential Building

The Sleeping Area

- The sleeping area includes the following types of rooms:
 - Bedroom
 - Bath
 - Dressing room
 - Nurseries



Major Areas of Residential Building

The Service Area

The part of residence where the service functions are performed is known as the service area. The service area includes the following types of rooms:

- Kitchen
- Store room
- Bath room
- W.C.
- Garage



Minimum Standards for Various Parts of Buildings

The different parts of the building for which the minimum standards have to be considered are:

- Plinth
- Habitable Rooms
- Kitchen
- Bathrooms and Water-Closets
- Ledge or TAND/ Loft
- Mezzanine Floor
- Store Room
- Garage
- Basement
- Chimneys
- Parapet
- Cabin, Boundary Wall
- Wells & Septic Tanks, Staircase and Roofs



Minimum Standards for Various Parts of Buildings

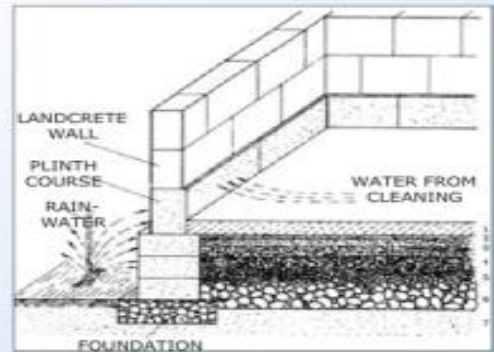
1. Plinth

Plinth for Main Buildings

The location of the plinth or any part of a building or outhouse with respect to the surrounding ground level should be such that adequate drainage of the site is assured. The height of the plinth should not be less than 45 cm from the surrounding ground level.

Plinth for Interior Courtyards

Every interior courtyard should be raised at least 15 cm above the level of the centre of the nearest street. It should also be satisfactorily drained.



Minimum Standards for Various Parts of Buildings

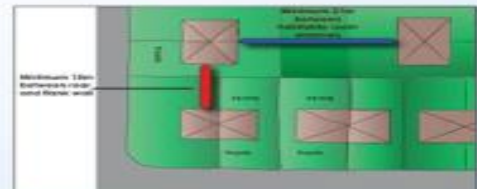
The different parts of the building for which the minimum standards have to be considered are:

2. Habitable Rooms

Height:

The height of all rooms for human habitation should not be less than 2.75 m measured from the surface of the floor to the lowest point of the ceiling (bottom of slab).

- The average height of rooms should not be less than 2.75 m in the case of pitched roof.



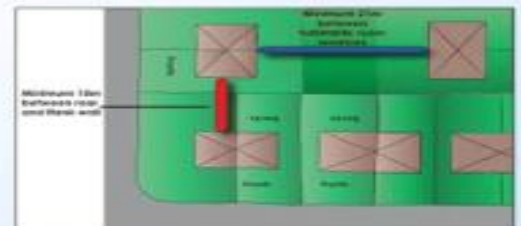
Ceiling Height in Rooms with Sloped Ceilings
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Minimum Standards for Various Parts of Buildings

2. Habitable Rooms

Size:

- Where there is only one room with a minimum width of 2.4 m, the area of habitable room should not be less than 9.5 m².
- In cases where there are two rooms, one of them should not be less than 9.5 m² and the other should not be less than 7.5 m², with a minimum width of 2.1 m.



Ceiling Height in Rooms with Sloped Ceilings
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Minimum Standards for Various Parts of Buildings

3. Kitchen Height

The height of a kitchen should not be less than 2.75 m, measured from the surface of the floor to the lowest point in the ceiling (bottom slab), except for the portion to accommodate floor trap of the upper floor.

Size

The area of a kitchen where separate dining area is provided, should be not less than 5.0 m², with a minimum width of 1.8 m.

The area of the kitchen may be reduced to 4.5 m², where there is a separate store. A kitchen should have a floor area of not less than 7.5 m² with a minimum width of 2.1 m when it is used as a dining area also.



Minimum Standards for Various Parts of Buildings

4. Bathrooms and Water-Closets

Height

The height of a bathroom or water-closet should not be less than 2 m, measured from the surface of the floor to the lowest point in the ceiling (bottom of slab).

Size

The size of a bathroom should not be less than 1.5 m X 1.2 m or 1.8 m². The floor area of water-closet should be 1.1 m², with a minimum width of 0.9 m. In cases where the bath and water closet are combined, its floor area should not be less than 2.8 m², with a minimum width of 1.2 m.



Minimum Standards for Various Parts of Buildings

5. Ledge or TAND/Loft

Height

The ledge or loft should have a minimum head-room of 2.2 m.

Size

A ledge or rand in a habitable room should not cover more than 25 percent of the area of the floor on which it is constructed. Under any circumstances, it should also not interfere with the ventilation of the room.



Minimum Standards for Various Parts of Buildings

5. Ledge or TAND/Loft

Height

The maximum height of loft should be 1.5 m. If provided on a kitchen, a loft should not exceed 25 percent of the area of the kitchen, leaving minimum headroom of 2.2 m for kitchen under loft. On bathroom, water-closet and corridor, the loft can be 100 percent.



Minimum Standards for Various Parts of Buildings

6. Mezzanine Floor

Height

The mezzanine floor should have a minimum height of 2.2 m.

Size

If the mezzanine floor is to be used as a living room, then its minimum size should not be less than 9.5 m. For such a mezzanine floor in a building, the aggregate area should never exceed one-third the plinth area of the building.



Minimum Standards for Various Parts of Buildings

7. Store Room

Height

The height of a store room should not be less than 2.2 m.

Size

When provided in a residential building, the size of a store room should not be less than 3 m².



Minimum Standards for Various Parts of Buildings

8. Garage

Height

The height of a garage should not be less than 2.4 m.

Size

The size of garages should be as given below:

- Private Garage: The size of a private garage should be at least 2.5 m x 5.0 m.
- Public Garage: The size of a public garage should be based on the number of vehicles parked, etc.



Minimum Standards for Various Parts of Buildings

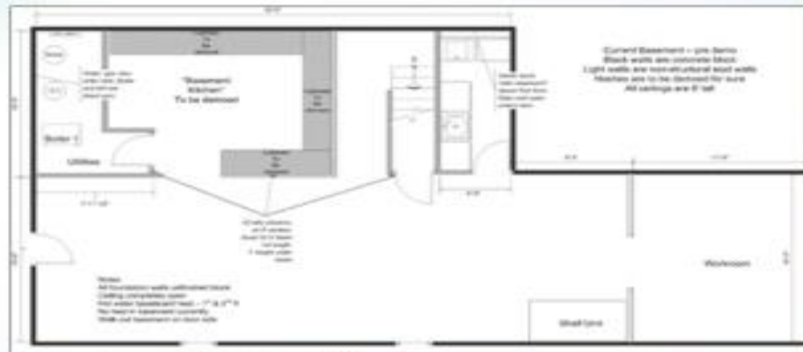
9. Basement



The basement should not be used for residential purposes. The construction of the basement shall be allowed by the authority in accordance with the land use and other provisions specified under the Development Control Rules.

Minimum Standards for Various Parts of Buildings

9. Basement



A basement can only be used for the following purposes:

- Storage of household or other goods of ordinarily combustible material
- Strong rooms, bank cellars, etc.
- Air-conditioning equipment and other machines used for services and utilities of the building and parking spaces

Minimum Standards for Various Parts of Buildings

10. Chimneys

The chimneys should be built at least 0.9 m above flat roofs. Also, for flat roofs, the top of the chimneys should not be below the top of the adjacent parapet wall. For sloping roofs, the chimney top should not be less than 0.6 m above the ridge of the roof, in which the chimney penetrates.



Minimum Standards for Various Parts of Buildings

11. Parapet

Parapet walls and handrails that are provided on the edges of roof terraces, balcony, veranda, etc. should not be less than 1.05 m and not more than 1.20 m in height from the finished floor level.



Minimum Standards for Various Parts of Buildings

12. Cabin

The size of cabins should not be less than 3.0 m flat roofs. The clear passages within the divided space of any floor should not be less than 0.75 m. Also, the distance from the farthest space in a cabin to any exit should not be more than 18.5 m. The maximum height of the cabin should be kept 2.2 m, if the subdivided cabin does not receive direct lighting and ventilation from any open spaces/mechanical means.



Minimum Standards for Various Parts of Buildings

13. Boundary Wall

The following are the requirements of the boundary wall:

- The maximum height of the compound wall should be 1.5 m above the centre line of the front street, except otherwise changed only with the special permission of the Authority. If the top 0.9 m is an open type construction of a design, then a compound wall of up to 2.4 m height may be permitted and approved by the Authority.
- In the case of a corner plot, the height of the boundary wall shall be restricted to 0.75 m for a length of 10 m on the front and side of the intersections. Also, the balance height of 0.75 m, if required in accordance with (a) may be made up of open type construction (through railings) and of design to be approved by the Authority.

Minimum Standards for Various Parts of Buildings

13. Boundary Wall

The following are the requirements of the boundary wall:

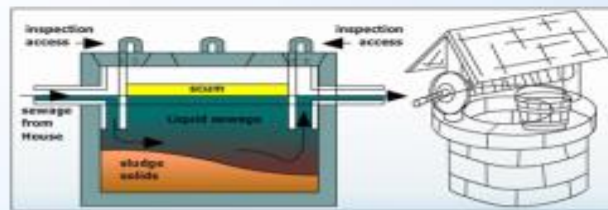
- However, the same provisions of height are not applicable to boundary walls of jails, industrial buildings, electric substations, transformer stations, institutional buildings like sanatoria, hospitals, industrial buildings like workshops, factories and educational buildings like schools, colleges, including hostels and other uses of public utility undertakings. For such buildings, a height of up to 2.4 m may be permitted by the Authority.

Minimum Standards for Various Parts of Buildings

14. Wells and Septic Tanks

Wells are constructed for supply of water for human consumption or domestic purposes. The well should be located:

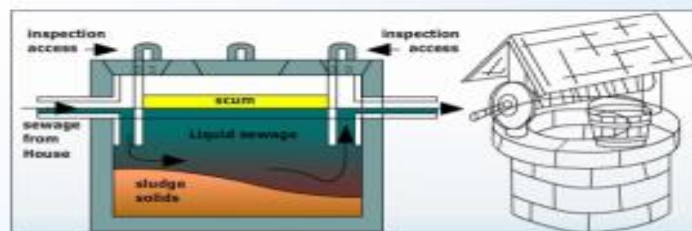
- Not less than 15 m from any ash pit, refuse pit, earth closet or privy. It should be located on a site upwards from the earth closet or privy.
- Not less than 18 m from any cess pit, soak way or borehole latrine. It should be located on a site upwards from the earth closet or privy.
- Such that contamination by the movement of sub-soil or other water is unlikely.
- Not under a tree or else it should have a canopy over it, so that leaves and twigs may not fall into the well and rot.



Minimum Standards for Various Parts of Buildings

14. Wells and Septic Tanks

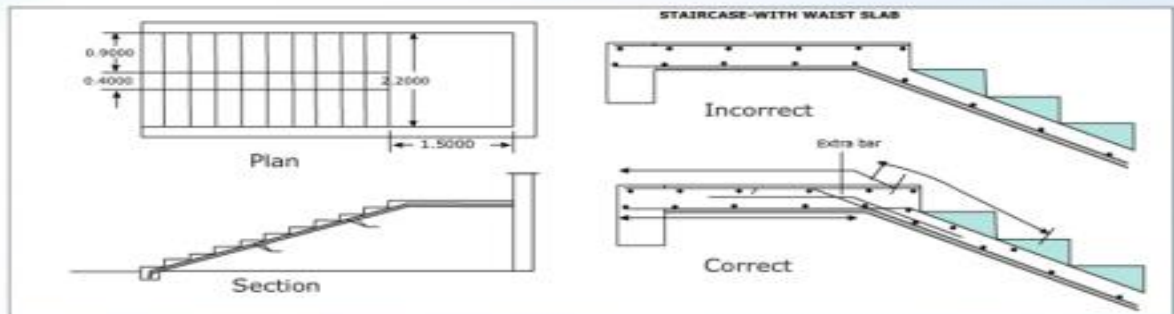
Septic tank is used for sewage disposal. The location of septic tanks and subsurface absorption systems or subsoil dispersion system should not be closer than 18 m from any source of drinking water, such as well. Such a location helps to mitigate the possibility of bacterial pollution of water supply.



Minimum Standards for Various Parts of Buildings

15. Staircase

The minimum clear width, minimum tread width and maximum riser of staircases for buildings shall be as given in 12.18.1.1 to 12.18.1.3 (see also Part IV Fire protection).



Minimum Standards for Various Parts of Buildings

15. Staircase

Minimum Width

The minimum width of staircase shall be as follows:

- Residential buildings (dwellings): 1.0 m
- For row houses with 2 storeys, the minimum width shall be 0.75 m to 1.5 m

Minimum Tread

The minimum width of tread without nosing shall be 25 cm for residential buildings. The minimum width of tread for other buildings shall be 30 cm.

Maximum Riser

The maximum height of riser shall be 19 cm for residential buildings and 15 cm for other buildings and these shall be limited to 15 per flight.

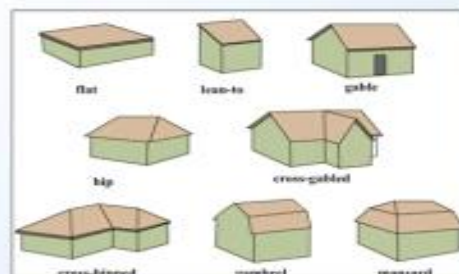
Minimum Head

The minimum head which is the room in a passage under the landing of a staircase shall be 2.2 m. The minimum clear head-room in any staircase shall be 2.2 m.

Minimum Standards for Various Parts of Buildings

16. Roofs

The roof of a building should be constructed such as to permit effectual drainage of the rainwater. The drainage of rainwater is achieved by means of sufficient rain-water pipes of adequate size, wherever required, so arranged, jointed and fixed so that the rain-water is carried away from the building without causing dampness in any part of the walls or foundations of the building or those of an adjacent building.



16. Roofs

It may be mandated by the Authority that the rainwater pipes should be connected to a drain or sewer to a covered channel formed beneath the public footpath so that the rainwater pipe gets connected to the road gutter or in any other approved manner. Rainwater pipes shall be affixed to the outside of the external walls of the building, or in recesses, or chases cut or formed in such external walls or in any other manner as may be approved by the Authority.

Other Important Requirements

Kitchen



Every room to be used as kitchen should have:

- A means for washing of kitchen utensils unless separately provided in a pantry. This washing area should lead directly or through a sink to a grated and trapped connection to the waste pipe
- An impermeable floor
- A flue, if found necessary
- A window, ventilator or opening of more than or at least the minimum specified size

Bathrooms and Water Closets



For every bathroom or water-closet:

- It should be so situated that at least one of its walls should open to external air.
- It should not be directly over or under any room other than another water-closet, washing place, bath or terrace, unless it has a water-tight floor.
- It should have the platform or seat made of watertight non-absorbent material.
- It should be enclosed by walls or partitions and the surface of every such wall or partition should be finished with a smooth impervious material to a height of not less than 1 m above the floor of such a room.

- It should be provided with an impervious floor covering, sloping towards the drain with a suitable grade and not towards verandah or any other room.
- It should have a window or ventilator, opening to a shaft or open space, of area not less than 0.3 m² with side not less than 0.3 m.

Note:

It is important to note here that no room containing water-closets should be used for any purpose except as a lavatory. Also, no such room should open directly into any kitchen or cooking space by a door, window or other opening. Every room containing water-closet should have a door completely closing the entrance to it.

Mezzanine Floor



Mezzanine Floor

A mezzanine floor may be permitted over a room or a compartment under the following conditions:

- In case the size of mezzanine floor is 9.5 m² or more, it should conform to the standard of living rooms as regard to lighting and ventilation.
- It should be constructed so as not to interfere under any circumstances with the ventilation of the space over and under it.
- Such mezzanine floor should not be subdivided into smaller compartments.
- Such mezzanine floor or any part of it should not be used as a kitchen.
- A mezzanine floor should never be closed so as to make it liable to be converted into unventilated compartments.

Basement

- Every basement should be at least 2.4 m in height in every part from the floor to the underside of the roof slab or ceiling.
- Adequate ventilation should be provided for the basement. The ventilation should be provided as per the requirements of the particular occupancy according to byelaws. In case of any deficiency, adequate mechanical ventilation in the form of blowers, exhaust fans, air-conditioning systems etc. should be provided.
- The height of the ceiling of any basement should be minimum 0.9 m and maximum 1.2m above the average surrounding ground level.
- Adequate arrangements should be made to prevent surface drainage from entering the basement.



Basement

Basement

- The walls and floors of the basement should be watertight. The effects of the surrounding soil and moisture, if any, should be taken into account in design and adequate damp proofing treatment should be given.
- The access to the basement shall be separate from the main and alternative staircase providing access and exit from higher floors. In the case of buildings served by more than one staircase, where the staircase is continuous, the same should be of enclosed type.
- Hence, it would serve as a fire separation from the basement floor and higher floors. Permission for construction of open ramps within the building line will be subject to the provision of adequate ventilation as given in point (b).



Requirements of different Rooms and their Grouping

Requirements of Different Rooms and their Grouping

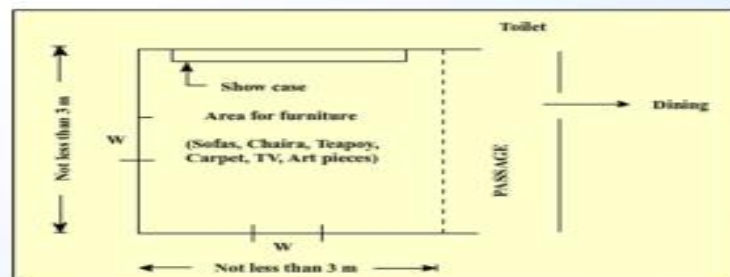
The requirements of the following different rooms have to be kept in mind while planning a residential building:

- Drawing or Living Room
- Dining Room
- Kitchen
- Bedroom
- Bath and Water-closets
- Veranda
- Store Room
- Worship or Prayer Room or Pooja Room
- Children's Room or Nursery Room
- Study Room
- Guest Room
- Office Room
- Stairs
- Garage



1. Drawing or Living Room

The first room that anyone enters into a house is the 'Drawing room'. Sometimes, it may be placed after a veranda. A drawing room is also called 'drawing hall', 'parlour', 'main living room', 'entrance foyer' or a 'lounge.'



1. Drawing or Living Room

Purpose

The drawing room serves as a congregation room of the members of the family and outsiders. In European countries, the drawing room is located in a central place so that it is connected with all rooms to suit their life style. However, in India it is not centrally located but is the entrance room.

The main functions of the drawing room are:

- To entertain guests
- Act as a lounge
- Act as a sitting or relaxing room
- Listening to radio or watch T.V.
- Play chess, cards or indoor games
- For social functions
- For small such as bhajans and religious discourses
- As a bedroom for guests and study room for children and music room for girls

1. Drawing or Living Room

Requirements

The following are the requirements for a drawing room:

- It should be a comfortable and spacious room.
- It should get adequate natural light and breeze.
- It should be as near to the entrance of the building as possible.
- It should be well lighted and properly ventilated.
- The number of doors in a drawing room should be as few as possible.
- Entrance door should be wider than any other door in the house.
- The size of doors should never be less than 1.0 m X 2.0 m and that of window should be 1.2 m X 1.0 m.
- The number of windows in a drawing room should be as many as possible.
- It is desirable to have a minimum of two windows; one facing north and another facing east.

1. Drawing or Living Room

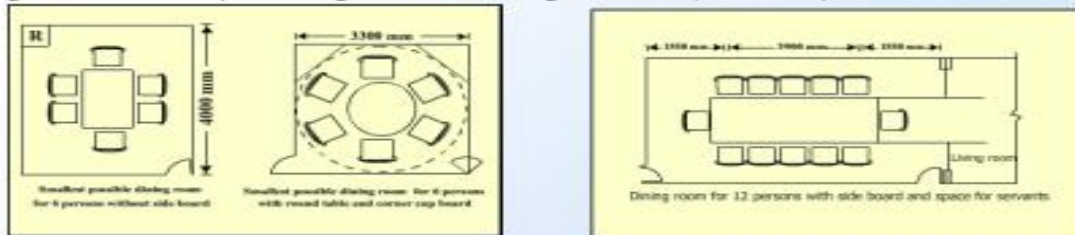
Requirements

- More illumination can be enjoyed by using windows that are tall and narrow (sometimes starting from the floor level itself).
- A minimum illumination of 100 Lux is needed.
- The minimum window area should never be less than 10% of floor area but 20% is preferred.
- No built-in cupboards should be provided in the drawing room. However, a show case may be provided.
- The minimum floor area 15 sq m to 20 sq m. However, a greater area of 20 sq m to 40 sq m is preferred.
- The minimum floor area of a drawing room is required to be 23 sq m to 28 sq m, if it is to be very frequently used as a bedroom for guests.
- A drawing room of size 3.5 m X 5.5 m is a small drawing room, 5 m X 6 m is a comfortable one and one of 7 m X 9 m is a luxurious drawing room.

2. Dining Room

Purpose

- Dining room is a place where family members have their breakfast, lunch and dinner.
- The total activity of dining in a day may take less than an hour. Hence, a dining room can also be used as a study place for children, gathering place for ladies and music room for girls. Therefore, having a separate dining room is a luxury for middle income group people.
- The latest trend is having a combined living cum dining room. This increases the usable space of the room. Another advantage of using a combined living cum dining room is that it eliminates the requirement of formal dining suits by substituting a table and light chairs and providing built-in storage of linen, crockery and silverware.



2. Dining Room

Requirements

The following are the requirements for a dining room:

- It should be cool.
- A dining room should be as close as or connected to the kitchen.
- Besides the dining table and chairs, it should accommodate a wash-basin, towel rail and cupboards to accommodate steel and silver plates, glassware, crockery and linen.
- Using built-in cupboard economises the space. A shelf 300 mm wide and 6 m long and preferably 10 m long and 500 mm wide is required.
- A minimum floor area of 15 sq m and a minimum width of 3 m are needed.

2. Dining Room

Requirements

- A kitchen-cum-dining is better suited for those who are accustomed to squatting on floor for dining or who need more privacy or for orthodox families.
- A brightness of 50 Lux is considered adequate.
- The windows should be large with large glass panels and the out-door view should be pleasing.
- Fly proof doors and windows should be provided in dining room.
- The minimum size of dining room is 4.0 m X 3.0 m, so as to accommodate dining space for six persons together with proper and sufficient space for circulation round the table.

2. Dining Room

Requirements

- A dining room of 4 m X 5 m is a comfortable one and one of 5 m X 6 m is a spacious one.
- A minimum clearance of 900 mm is required around the dining table for easy movement.
- A minimum clearance of 1200 mm is required between the dining table and the cabinet or cup board.
- A wash basin is to be accommodated in a minimum width of 1 m and a minimum clearance of 600 mm is required between the free edge of the wash basin and the wall parallel to it.

2. Dining Room

Dining Tables

- Dining tables may be 'Rectangular shape', 'Elliptical shape', 'Boat shape', 'Square shape' or 'Circular in shape'.

Rectangular Shape

- The most common shape is the 'Rectangular shape'. The minimum size of a rectangular dining table for 4 users is 750 mm X 1500 mm. 'Rectangular shape' is the only shape that is suited for dinners and parties for large group of people.

Elliptical Shape

- Elliptical dining tables are rectangular tables with semi-circular short ends. They offer more space for the chairs besides looking artistic.

2. Dining Room

Dining Tables

Boat Shape

- Boat shaped dining tables are convex in shape lengthwise and are a straight line widthwise. Boat shaped dining tables look more artistic. They also provide more room for dishes kept on the table. They are available in various sizes starting from a minimum size of 1000 mm X 2500 mm for 8 users.

Square Shape

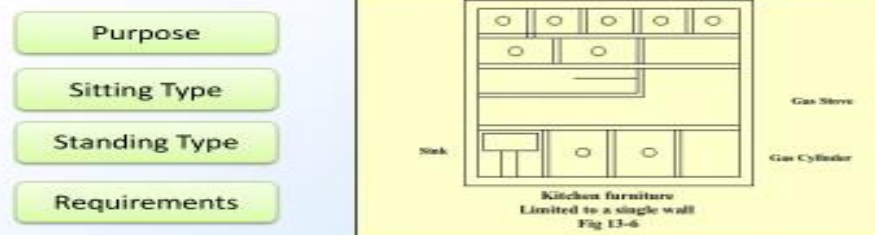
- Square shaped dining tables are rarely used. The minimum size for square shaped dining table for 4 users is 900 mm square.

Circular Shape

- Circular dining table looks more artistic with a central rotating disc of dishes. A size of 1000 mm diameter table may be used for 4 users.

3. Kitchen

- A kitchen is a place where food is prepared and stored for consumption.
- A well planned kitchen is always efficient and attractive.
- Health, comfort and happiness of the family directly depend upon the quality and cleanliness of the food prepared in the kitchen.
- Therefore, effective planning of kitchen is important as the house wife spends most of her time in it.



Purpose

Sitting Type

Standing Type

Requirements

3. Kitchen

Purpose

It is the place where food is prepared. Depending on the position of the fire place or the cooking range, it is classified as:

- Sitting type
- Standing type

3. Kitchen

Sitting Type

- In old traditions, it was customary to cook using fire-wood or cow dung cakes for which the fire place is at the floor level.
- It had no advantages. There were more chances of the saree to catch fire and also the cutting oneself with the knife when cutting is done at floor level.
- Moreover, a house wife cooking with cow dung cakes or green fire wood on a fire at the floor level inside a thatched hut inhales as much CO (carbon monoxide) as that by a chain smoker consuming 20 packets of cigarettes per day. Such cooking also proves fatal to pregnant ladies.

Standing Type

- It is highly desirable to cook on a stove provided on a kitchen platform.
- The cooking range at a height improves the draught of air and as a result the smoke and gases of cooking easily get diffused and diluted. Such a position of the stove causes lesser health problems and also reduces the cause of back pain for house wives.
- Anthropometric data is all data regarding personal movements and measurements.
- The anthropometric studies dictate the horizontal and vertical limits of reach both standing and sitting positions.
- The critical dimensions of different postures used for performing the cooking and other activities are used to determine the space requirement for kitchen. These dimensions help in deciding the working place and help in proper planning and organization of storage and placement of equipment.

Requirements

The following are the requirements for a kitchen:

- The atmosphere of kitchen should be pleasant and cheerful.
- The best location for the kitchen is the Eastern or North-Eastern corner.
- It should be the most brightly illuminated room of the house requiring a minimum illumination of 200 Lux both day and night.
- The good illumination provides safety, clarity, cheerfulness and prevents fatigue.
- Both, natural as well as artificial illumination is a must for both day and night.
- Providing a window towards north helps to provide light without heat and another towards east helps to receive the morning sun.
- Exhaust fan may be provided to remove pungent smells of food preparation. However, the exhaust fan should never be provided above windows or ventilators.
- The kitchen should be located adjacent to the dining room as well as close by to the children play area.

Requirements

- The location of the kitchen should be such that the house wife can keep a watch on the front area of entrance.
- The window should be of a size of minimum area of 15% of floor area.
- The number of doors in a kitchen should be limited to two.
- A minimum floor area of 5 sq m is to be adopted. If it is a kitchen-cum-dining, the floor area should be a minimum of 7.5 sq.m. A minimum width of 2.1 m and preferably a minimum of 2.5 m are to be provided.
- The kitchen should be provided with built-in cupboards or cabinets with storage space for grains, vegetables, poultry products, milk and oils.
- Cupboards for storing cooking utensils before and after the food preparation, cooked food and storage vessels for water should be provided.
- Also, a working table with sufficient space for cutting and vegetables, washing and grinding, cooking platform, sink, garbage bin and refrigerator are to be provided.

4. Bedroom

Purpose

A major part of the day of every person is spent in the bedroom either sleeping or relaxing. Hence, on an average, a person spends 30% to 50% of his life in a bedroom.

Requirements

The following are the requirements for a bedroom:

- Any bedroom should be designed for a maximum of 1 or 2 adults.
- Children of different genders above the age of 10 should have separate bedrooms. These rooms particularly that for girls should be close to the parents.
- Bedroom should be located in the direction of the prevailing wind to get plenty of natural breeze.
- The location of the windows should be such that they receive maximum breeze any time.
- The placement of beds should be such that cross air currents should pass over the bed.
- Also, the bed should be placed such that when the door is open, the beds should not be in the line of sight of the outsider.
- A minimum floor area of 10 sq m, is to be provided and a minimum width of 3 m is to be provided.

Requirements

- The shape of the room should be rectangular shape which is preferred to square shape. A size of 4 m x 3 m or 5 m x 4 m is generally adopted.
- A room of 3 m x 3 is a small bedroom and 4 m x 4 m is a relatively comfortable one.
- Window area should be minimum 10% of floor area.
- A minimum of two windows should be provided on the two outside walls.
- Only one entrance door is to be provided.
- The minimum space required for an adult is 8.5 m³.
- The minimum space required for a child is 5.5 m³.
- Built-in cup boards are essential in a bedroom for the storage of clothes, linen and valuables.
- During the planning of bedrooms, the most important factor to be considered is privacy.
- Toilet and dressing rooms are to be grouped with the bedroom for better privacy.

4. Bedroom

Table

The given Table shows the desirable number of bedrooms for different standard families.

Desirable number of bedrooms for different standard families	
Size of family	Number of bedrooms
A couple	1 double bedroom
A couple with 1 children	1 double and 1 single bedroom
A couple with 2 children	1 double and 2 single bedrooms
A couple with 3 children	2 double and 1 single bedrooms with a room in spare

5. Bath and Water-Closets

Purpose

- Bathroom is the place where the inmates of the house take bath. The wastewater known as 'sullage' is collected and conveyed off in a hygienic manner.
- The place of collection of the human discharges of foul nature such as urine and human excreta and conveyed off hygienically is known as 'Water-closet'.

Requirements

The following are the requirements for bathroom and water-closet:

- Bathroom should have a minimum breadth of 1.2 m and length of 1.5 m. However, a minimum width of 1.5 m is desirable.
 - A minimum floor area of 1.8 sq m is to be provided.
 - The floor area of combined bath and water-closet should not be less than 2.8 m² with a minimum width of 1.2 m.
 - Additional space should be provided for wash-basins, geyser and shower.
 - W.C. should have a minimum width of 0.9 m and a minimum length of 1.2 m.
 - The minimum clearance along the waist of the user of a commode should be a width of 750 mm.
 - A minimum clearance of 600 mm is needed between the front edge of the commode and the wall or any other obstruction nearer to it.
 - A minimum floor area of 1.1 sq.m. is to be provided for W.C.
-
- The flooring should be non-greasy, non-absorbent, non-slippery and impervious.
 - As per the Indian Standard, every bath room or water-closet should be located such that at least one of its wall should be open to external air. Also, it should not be under or over any room other than another toilet, washing place, bath or terrace unless it has a water tight floor.
 - Glazed tiles are provided to the walls to a height of 1 m.
 - The floor level of the bath is to be depressed by 50 mm compared to the floor level of the other rooms.
 - To make sure that the used water never gets stagnated, and runs off quickly towards the gully trap, the floor is given slope in more than one direction.
 - An outside wall is a must for supporting the drainage pipes for both bath and W.C.
 - A single door shutter with of a minimum width of 650 mm and height of 1750 mm should be provided.
-
- The doors of water-closet and bath room should not open directly into kitchen or cooking space.
 - Good ventilation should be provided to dispel odours and control humidity.
 - A ventilator of 500 mm X 300 mm is to be provided at a height of 1.8 m above the floor level. Or an exhaust fan may be provided to suck the inside gases.
 - In case of combined bath-cum-W.C., use of a pedestal (European) commode is more desirable than the squatting type commode.
 - Roof slab bath and W.C. may be provided at height of 2.1 m above floor level. Also, sometimes the room above may be used as a loft or attic.
 - A toilet incorporating Bath and W.C. of 1.5 m X 2 m is a small one and one of 2 m X 3 m is a big one.
 - The biggest toilet is of 3 m X 4 m with a bath tub, wash-basin, geyser and shower.

6. Verandah

Purpose

- The main purpose of any veranda is to protect the interior rooms from the sun.
- It is the best place to receive strangers. It serves as a sit-out in the evenings and nights with members of the family or friends enjoying a talk in the open.
- It helps to keep the interiors clean by serving as an ideal place to keep cycles and scooters, shoes, raincoats, umbrellas etc.
- It serves as passage between different rooms giving independent access to other rooms. In summer, it may also serve as a sleeping area.

Requirments

The following are the requirements for a veranda:

- Its minimum width is 1.5 m.
- It is very rare to provide verandahs of width greater than 4 m.
- A verandah situated on in south and west help to protect the interior rooms from hot sun.
- It is not essential to have a veranda in east as it will diffuse the morning sun and also providing a veranda in north also serves no purpose.
- The roof of the veranda is to be provided at a minimum height of 2.1 m above the floor level.

7. Store Room

Purpose

A store room is used to store items of regular use such as food grains, fire-wood or coal, spare gas cylinders, brooms etc. It can also be used to store items of rare use such as utensils, vacuum cleaner, crowbar, painting brushes, broken furniture, condemned utensils etc.

Requirements

The following are the requirements for a store room:

- It is to be locate close by to the kitchen.
- It should be dark, cool, damp proof and rodent proof.
- To store frequently used items, racks and closed cupboards should be provided.
- If a separate store room is not provided, then the loft above bath, W.C. and garage and the room below the stair landing may be used as a store.
- The minimum floor area of store room should be 8 sq m.
- For a kitchen-cum-store, when storage is provided with kitchen, the minimum floor area should be about 15 sq m to 20 sq m.

8. Worship or prayer Room or Pooja Room

Purpose

- It is a common practice for many people to perform pooja or offer prayers in their house.
- The prayer room or pooja room is a quiet and calm space to offer prayers to God.
- In cases where no separate pooja room is provided, Pooja can be performed in the dining room or in kitchen room.

Requirements

The following are the requirements for a prayer room:

- As per the rules of Vasthusastra, pooja or prayer room should be located in N.E corner of building as God would be facing west and devotee would be facing east.
- The main requirement of this room is seclusion or isolation, rather than privacy.
- It should be located such that it should not be disturbed by activities inside or outside the house.
- Concentration while offering prayers can be increased by a little bit of darkness or diffused light coming from north direction.
- The size of the pooja room may be 2.1 m x 2.1 m which is roughly 4 m² in area.
- If group prayers such as Bhajans are going to be performed, then size has to be suitably increased.
- If group poojas are to be performed occasionally then grouping is necessary with drawing or dining-room.

9. Children's Room or Nursery Room

Purpose

- This room is very important as a child is the most cherished member of the family. It is essential to care for babies in early stages of childhood.
- In most of the middle class families, it may not be possible to allocate a separate room for the nursery. However, some space for it is necessary. Also, this room should be under the vigilance of the mother while working in the kitchen.

Requirements

The following are the requirements for a prayer room:

- It should be close by to the kitchen so that the mother can keep vigilance on the children.
- This room should not be near to bedroom.
- A double door should be provided to reduce noise.
- Children should get fresh air and sufficient light.
- Light colours which are pleasant to the eye of the child are to be used.
- The sill level of windows should be low and can be 300 mm above floor level.
- A strong and safe railing around the balcony should be provided for nurseries located on upper floors.
- Provide a dado of 1.2 m above floor level around the walls. This would allow the children to write on walls which can be easily cleaned.
- Provide low cupboards to keep toys.

10. Study Room

Purpose

The study room is the place where the child studies and study materials are stocked and read.

Requirements

The following are the requirements for a study room:

- Study room area should be calm and free from noise.
- For studying, it is essential to have gentle breeze with frequent air exchanges.
- This room can also be used as the master's office room during the daytime. So, it should be given outside access.
- A minimum brightness of 150 Lux is required.
- Area of study room should be 10 m² to 12 m².
- Furniture should include a table with 1 or 2 chairs.
- If there is any cup-board, its depth should be 300 mm to 400 mm.

11. Guest Room

Purpose

Guest room is the place where the guests are accommodated. In present times, space is precious, hence, when there are no guests, the guest room may be used as a study room or recreation room or for other purposes.

Requirements

The following are the requirements for a guest room:

- A guest room should preferably be isolated from other bedrooms.
- If no attached toilet is provided, then it should have an independent access to common bath and W.C.
- It should have good light, breeze and ventilation.
- Dimensions are similar to that of bedroom.
- In case there is no separate guest room, then drawing and sometimes rarely the dining-room can be used for this purpose.

12. Office Room

Purpose

The main function of an office room is to study. Hence, it is also called a reading room or library. This room is useful to various professionals to deal with their clients such as Lawyers, Engineers, Doctors, Chartered Accountants and many others such as astrologers, teachers rendering tuition etc.

Requirements

The following are the requirements for an office room:

- It should be located near front verandah in a quiet part of house
- It is preferable to have a diffused light and no glare.
- Facilities for the storage of the books, space for working, reading, relaxing and entertaining the guests should be provided.
- The size of the office room depends on the profession using it. A lawyer will need a large study room whereas for others a small room may be sufficient.

13. Stairs

Purpose

The main purpose of stairs is to provide vertical movement in the house. Stairs lead to elevated levels through a number of steps. Staircase is the flights of stairs with balusters, hand rails etc.

Requirements

The following are the requirements for stairs:

- Stairs must be fire proof.
- The minimum width of stair for a residential building is 900 mm. This minimum width is such that a person going up the flight and another rushing down can do so simultaneously with enough clearance between their shoulders.
- The minimum width of stair for a public building is 1000 mm.
- The Rise should not be greater than 190 mm for residential building
- The Rise should not be greater than 150 mm for public building.

Requirements

- The Going should not be lesser than 250 mm for a residential building.
- The Going should not be lesser than 300 mm for a public building.
- The pitch of stair may vary from 20° to 40°.
- Any flight should have a minimum of 3 steps and a maximum of 15 steps.
- Width of the landing should never be less than width of the stair.
- Rise of a stair should never be altered within a flight because a small change of 10 mm in it causes uneven stress on legs and may even lead to bone fracture.
- It is impossible to keep the rise uniform throughout the stair. Hence, it must be kept uniform in a flight, that is, a slight change in rise is permissible between two successive flights.
- The vertical clearance above the walking line should be a minimum of 2.1 m.
- Winders are to be avoided as far as possible. However, if they cannot be avoided, they should be provided at lower elevation.

Purpose

A garage is a place where four wheelers are parked. Due to the rapid increase in the number of vehicles, it has become essential to provide garages. Also, due to the increase in scooters and also due to increase in number of thefts, people have started thinking of the provision of garage for scooters also.

Requirements

The following are the requirements for a garage:

- The dimensions of garage depend on the type of vehicle and number of vehicles to be kept.
- A space of 1 m X 1.5 m for scooters and space of 3 m X 6 m for cars is sufficient.
- A small garage of 3 m X 5 m space is required for tractors but more height of 2.8 m is required.
- For cars, a height of 2.2 m is sufficient.
- For lighting and ventilation, a minimum of one window should be provided in the garage.
- The entrance gate of garage should have a minimum clear opening width of about 2.23 m.
- The entrance gate of the garage should have a straight approach.

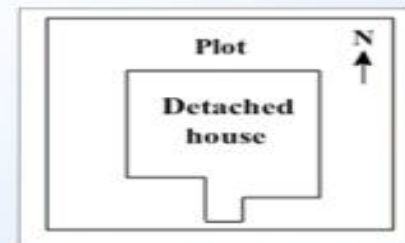
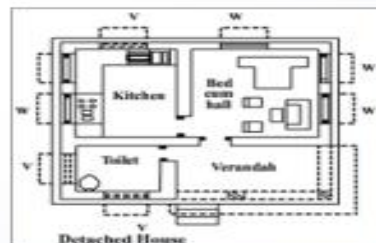
Characteristics of Various Types of Residential Buildings

Types of Residential Buildings

Types of residential buildings can be classified into:



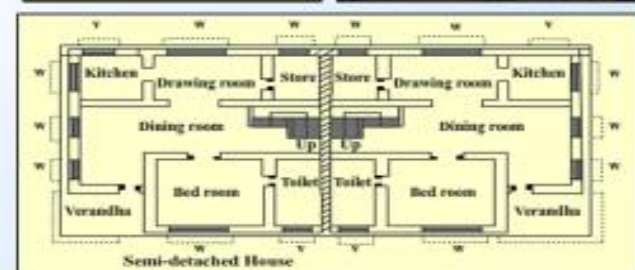
Detached House



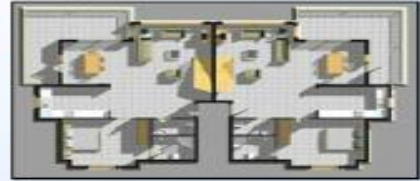
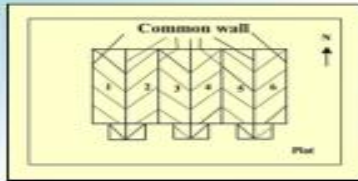
- A detached house is a building whose walls or roof is independent of other buildings.
- It has an open space on all the sides.
- Such a house has all kinds of rooms that are required for a single family.
- A detached house may be more than a single storeyed building.
- When a detached house is constructed as a two-storeyed building, it may have its living room, kitchen, dining room, store-room, garage etc. on the ground floor and all the bed rooms, study room, guest room etc. on the first floor.

Semi-detached House

- A semi-detached house is the next lower grade to the detached house. A semi-detached house is an attached twin of two similar houses with one common wall to both.
- Hence, the two semi-detached houses are symmetrically planned and one is the mirror image of the other.
- The semi-detached house just like a detached house, may also be either single storeyed or two storeyed.

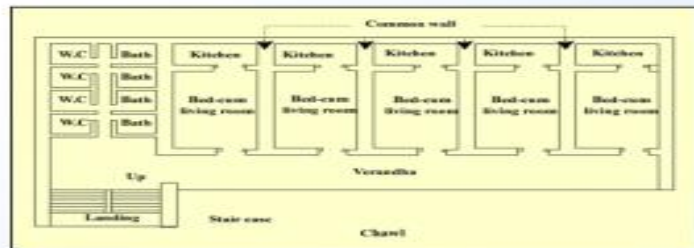


Row Houses



- Row Houses are single storied houses having common walls between neighbours.
- In such houses, the orientation and ventilation of rooms has to be compromised and many times the inmates may be deprived of privacy.
- All the houses are of the same plan and occupy the least area. They offer better security.

Chawls



Chawls are similar to and a sort of row houses with common services such as water closets, bathrooms and a washing place.

The access to the individual units and services is through the front and rear verandahs joined by lobby or corridor to a staircase.

- For every 3 or 4 families, a common water-closet and bath is provided. The upkeep, maintenance and sharing services often lead to problems and petty quarrels amongst neighbours.
- These types of houses are the most secure. Hotels, dormitories are the examples of this group.

Blocks of Flats or Terrace Houses



- Blocks of Flats or Terrace Houses are developed due to the increasing land costs and also due to the increasing population.
- Blocks of Flats or Terrace Houses allow a large number of people to be accommodated in limited area. They provide people the option of living closer to their workplaces as people prefer to live near their work place in city rather than spending much time and money for travelling from their suburban home.

- A flat is a unit of two or more rooms providing accommodation for one family.
- Generally, each flat has 3 to 4 rooms provided with the usual amenities. In a multi-storey building, 3 to 4 flats are provided at each storey with one common centralized staircase to serve all the floors.

Duplex Type House



- Duplex House is a type of detached or semi-detached house provided with an accommodation of single dwelling at two or more floors.
- It enjoys both the advantages of living on ground floor as well as on the first floor. It is a very common type of building in a rich locality where people prefer to have drawing, dining, kitchen, guest room and hall for gathering at ground floor and bed rooms at first floor. Sometimes the guest room may also be provided on the first floor.
- Another form of duplex housing is the 'Split level'. Split level construction is a type of construction where different rooms of a residential house are at different levels. Such construction is usually done when the ground is steeply sloping.