



PLANNING OF HOUSE



“ You need a plan to build a house. To build a life, it is even more important to have a plan or goal. ”

Zig Ziglar



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Learning Objectives

At the end of this lesson you shall be able to

- Understand the importance of house.
- Know about the orientation of house.
- List the factors to be considered during site selection.
- Understand the principles of organizing a house.
- List the rooms in a house.
- Prepare a house plan.
- Explain the housing demand.
- List the types of residential houses.

1.1 Introduction

Food, shelter and clothes are the basic needs of mankind for a comfortable living. Among these shelter is highly essential. During ancient times, man used to live in dens. As the culture of mankind improved, science and technology also developed. Man utilized this technological development for building his house with all sophistications and facilities.



Ancient Den



Modern House

1.2 Importance of house

- i. A house is a shelter for man constructed with materials like stones, bricks, lime, cement, timber, steel, etc. It consists of foundation, walls, floor, roof, doors and windows. To get rid of the outside busy life and worries, man feels his house as a relaxed and rest place.
- ii. A house protects the family from severe heat, cold, rain, storm, harmful animals and also from anti-social elements.
- iii. A house binds the family members with love and affection. It brings them closer and helps them to understand each other and live together.
- iv. For the general activities of a family like cooking, serving, washing, cleaning, storing materials, welcoming the guests, disposing the waste, etc., and for individual activities like reading, relaxing, sleeping, bathing, etc., a house forms the centre.
- v. House facilitates a man to express his feelings and to act independently.
- vi. A well planned house provides privacy, adequate rest and a healthy atmosphere to the family. It provides

them feeling of governance, vision, affection and protection.

- vii. Only in a house, an individual understands the heritage of his family, culture and habits.
- viii. A house and its surrounding depicts the fame of the family.
- ix. One of the factors which decides the status of a family is the house in which they live.
- x. The development of a nation can also be measured by the colonies of houses in it.

1.3 Orientation

For a healthy life, the natural resources like sunlight, clean air and sufficient rain are mandatory requirements. But at the same time, care should be taken to see that these do not affect the people residing in the house. For this, the orientation of the house constructed in a particular plot is important. The entrance of the house and the orientation of the house should be in such a way that it allows adequate sunlight in the morning and also prevents the inmates from excessive heat during the day.

The doors and windows should be placed and arranged so as to allow adequate air. It is always better to have a verandah in front of the house. Each room should be oriented and placed depending upon the nature of activity it is intended for. Care should be taken for sufficient air and ventilation to all rooms.

1.4 Site selection

Since a house forms one of the basic requirement of man, to satisfy this, he has to initially select a suitable



site for construction. Each and every individual spend a major portion of their savings for purchasing a site and constructing a house. After which they don't move away or change their house. Therefore a good sense regarding site selection and house construction becomes necessary.

1.4.1 Factors to be considered during site selection.

1. Physical features

- i. The plot should be regular with well-defined boundaries on all sides.
- ii. It is better to have an elevated plot when compared to its surrounding areas for better visualisation.
- iii. In elevated areas, water does not stagnate which becomes ideal for living.
- iv. If the site is in low-lying area, it leads to water stagnation, breeding of insects and unhealthy living condition.
- v. It is always better to choose a site oriented towards North or South for better air flow.

2. Soil conditions

Before constructing the house, it is always advisable to check the properties of the soil. This will avoid unnecessary problems during construction and prevent loss of money.

- i. Clayey soil is not good for construction. Because it does not absorb water and retains it.
- ii. Sandy soil absorbs water quickly and hence a strong foundation cannot be laid on it. More over sandy soil is not suited for gardening.
- iii. Strong foundation could be laid on a rocky strata but it is not an

ideal site for house construction as it radiate heat during night.

- iv. Hence a site consisting of soft soil at top and hard soil at the bottom at a depth of 0.9 to 1.2 m is considered ideal for house construction.

3. Sanitary facilities

- i. The area surrounding the proposed plot of house construction should be free from stagnated water, small ponds and deteriorated wells.
- ii. Care should be taken to see that there are no open drainage or public toilets near the plot.
- iii. For the benefit of the family members, the plot should not be selected near cow sheds, poultry farms, industries and burial/cremation grounds.
- iv. Low lying areas which were later filled up with garbage, other city wastes and disposed materials should never be selected for house construction. Because, the bearing capacity of such areas will not be firm or strong. Moreover at the time of heavy rain, these dumped up areas become saturated and promote the breeding of mosquitoes and flies, polluting the surrounding atmosphere with foul smell and causing threat to health.
- v. It is advisable to select a plot with fresh air, adequate light, good water supply and modern sanitary facilities.

4. Practical conveniences

- i. A plot is valued based on the basic facilities that are available around it.
- ii. A plot should be located in such a way that schools, bank, hospital,



market, etc., are at walkable distances.

- iii. If bus stand, railway station, etc., are near by the proposed plot, it will be very convenient for the family members to reach their offices, colleges or schools.

5. Neighbourhood

- i. For guaranteed permanent happiness of the family it is always better to purchase a plot in a developed locality or in a developing locality.
- ii. The plot should be chosen in such a locality where the neighbours residing there are of the same status when compared to us both socially and economically.
- iii. If the plot is adjacent to seashore, one could enjoy the fresh sea breeze. But at the same time, the chlorides present in sea breeze can corrode the steel cup boards, furniture, window and door grills etc., quickly.
- iv. If the plot is located in heavy traffic zone it leads to sound pollution, air pollution, etc., resulting in ill-health.

6. Legal characteristics

- i. Before choosing a plot in a particular locality, it is good to know all the legal aspects completely regarding the plot and its locality by consulting a lawyer.
- ii. The plot should be free from any encumbrance.
- iii. The boundaries of the plot have to be predicted properly and its area has to be checked.
- iv. It is good to purchase a plot which confirms the bye laws laid by municipality, town panchayat or Metropolitan Development Authority (MDA).

1.5 Principles of organizing a house

Though a plot may be of any geometric shape, there are certain principles which govern the shape of the building to be constructed in it as given below

- i. External appearance
- ii. Front elevation
- iii. Privacy
- iv. Grouping of rooms
- v. Roominess
- vi. Circulation
- vii. Flexibility
- viii. Sanitation
- ix. Placement of furniture
- x. Practical consideration

i. External appearance

External appearance mainly includes the location of doors and windows. The doors and windows should be located in such a way that natural resources like fresh air, sun light, natural scenery, etc., are enjoyed to the maximum extent.

ii. Front elevation

A house should have a pleasing and attractive appearance when it is viewed from outside. It should be modern and constructed with various features like beautiful balcony, carved pillars, simple and modern roofs.

iii. Privacy

It is important to take into consideration the privacy of each and every room in a house.

Privacy is of two types:-

- Privacy of individual room from other rooms and verandah.

While positioning the rooms, care should be taken to see that doors,



windows of the rooms do not face each other. If necessary, curtains could be utilized to create privacy.

■ Privacy of entire house from street.

Trees or creepers can be grown in front of the house so that privacy can be obtained for the house from the street.

iv. Grouping of rooms

Based on the routine works that are performed in a house, the rooms shall be arranged adjacent to each other.

To simplify the utility of the family members, dining hall should be placed adjacent to the kitchen, living room adjacent to the verandah, bathroom and water closet should be constructed adjacent to the bedroom.

v. Roominess

A house should be planned and constructed in such a way that the interior of the house is magnified to the maximum extent possible. The available area should be well planned so that, not even a small bit of area is left unutilized. Shelves could be constructed in the walls and lofts could be constructed beneath the roof to store articles. By this way the carpet area of the house could be maximized. The space available beneath the staircase could be covered and also utilized for storing articles. The size and shape of the room, the number and arrangements of furniture, interior wall colour also helps to maximize the carpet area of the room.

vi. Circulation

The path leading from one room to another should be simple, straight and short. It is better to provide separate entrance for every room or the entrance for individual rooms could be from a common passage. None of the rooms should have

their entrance positioned in another room which will lead to inconvenience to the inmates.

Proper positioning of rooms and proper arrangement of furniture like sofa, tables and chairs towards the corner of the walls will facilitate uninterrupted walking space inside a house.

vii. Flexibility

The utility of a room should not only be for a particular purpose. Instead, it should be flexible enough to adopt various other utilities according to the need. It will solve the space problem. For example if the living room is constructed bigger in size, a portion of it could be utilized for dining and also could be utilized for sleeping during night times. Utilizing the kitchen for dining purpose, utilizing the verandah adjacent to kitchen as play area for small kids will solve space problems to a certain extent.

Curtains, folding screens, almirahs, plywood boards, etc., could be used to partition the common area for various activities.

viii. Sanitation

A house should always be constructed with good ventilation, proper lighting and sanitation facilities. Proper planning should be done to drain waste water from kitchen, bathroom and water closet in a hygienic way.

ix. Placement of furniture

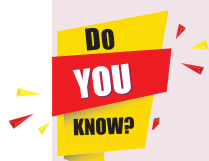
A room in a house should be planned and constructed in such a way keeping in mind the furniture that are to be placed in it. The position of sofa sets, tables and chairs and their sizes should be so fixed initially keeping in view

the position and size of doors, window openings and shelves in the wall.

x. Practical considerations

Since a house is an asset which cannot be shifted from one place to another, the following points should be considered while planning and constructing a house.

- i. It should possess a strong structural integrity.
- ii. Should have all facilities within.
- iii. Should have simple structural configurations.



Building lifting technique

- This technique was introduced for the first time in Philadelphia, Pennsylvania in 1799 for the purpose of moving a building.
- When the road level is increased above the level of building, then it is necessary to lift/ elevate the building.
- If the house is below the street level and sewage water regularly flows in, relocation is not the best solution.
- There is a solution to this problem and it would be house lifting
- There are lot of mistakes done during the construction of house or building. Many times the owner think about to correct those wrong done , but it takes lot of money and time. There was no solution in the past. But now here is the solution, i.e. **Building Lifting Technique**.
- The building is separated from its foundation, lifted with hydraulic jacks and placed on a new or extended foundation.



- iv. It should be attractive.
- v. It should be flexible to adapt to the needs of the future expansion without being demolished and reconstructed.
- vi. Above all, unnecessary construction costs should be avoided and entire construction should be carried out thrifty.

1.6 House Plan

Before constructing a house, it should be planned and presented in a drawing form on a paper.

Following details could be obtained from the plan of a house.

- i. General arrangement of all the rooms in the house.
- ii. The length and breadth of individual rooms.
- iii. Wall thickness.
- iv. The numbers and positions of doors, windows and cupboards / shelves.

For an enjoyable family life adequate space is very important in all the rooms.

Hence, arrangement of rooms in a proper way becomes the important feature in house planning.



1.6.1 Rooms in a house

1. Verandah
2. Living room
3. Bed room
4. Kitchen
5. Dining room
6. Pooja room
7. Bath room

1. Verandah

A verandah is constructed in the entrance of a house. It is beneficial in the following ways.

- i. Strange people could be seated in verandah.
- ii. Articles like umbrella, walking stick and chappals could be left in the verandah. Also bicycles and two wheelers could be parked in it.



- iii. It is the place where family members get together and sit during evenings or nights to obtain fresh breeze.
- iv. Pet animals could be tied in the verandah.
- v. It is the place where plants could be grown in pots.
- vi. Verandah at the back of the house could be utilized for drying clothes and utensils after washing.
- vii. Care should be taken to see that the span of the verandah does not exceed 3 m.



2. Living room

- i. The room next to the front verandah is the living room.
- ii. This room is also called as drawing room.
- iii. A living room should fulfill the various desires of the family members. For example: It should be sufficient enough for all the family members to get together and enjoy, for hospitality of guests, for little children to play, for reading news paper, for listening music, etc.
- iv. Sometimes the living room is utilized for small parties. (e.g.) Birthday party.
- v. Due to shortage of space in certain houses, the living room is utilized as study room and bedroom during nights. Sometimes it gets converted as a guest room.
- vi. The living room should expose the general attitude of the family. It should provide a warm reception to the guests.
- vii. It should possess sufficient lighting, good ventilation and healthy atmosphere.
- viii. A living room should not be less than 4.5 m in length and 3.6 m in breadth. The shelves constructed in the walls should not be less than 0.9 m in width.
- ix. For privacy, the door of the living room should be positioned in a corner and not at the centre.
- x. Based on the size of living room, furniture should be placed to derive maximum benefits and comforts. Following are some of the furniture and articles that could be placed in a living room. Sofa for comfortable seating and discussion, easy chair for relaxation, teapoy for necessary



hospitality to guests, table and chair for studying, television for entertainment, built - in cupboard for placing articles.

- xi. A living room could further be decorated by suitable pictures, flower arrangements, carpets, etc. Artistic items and sculptures could be neatly arranged in a showcase or shelf that is available in a living room.

3. Bed room

- i. People spend one- third of their lifetime in sleeping.
- ii. A bedroom is not only utilized for sleeping, but it is also used for storing dress materials and for dressing.
- iii. Generally a room of size 4.5 m \times 3.6 m is ideally suited for bedroom.
- iv. Care should be taken to see that the width of the bedroom should not be less than 3 m.
- v. A rectangular shape offers better comfort than a square shaped bed room.
- vi. Air circulation is most important for a bedroom. This room should be oriented towards the wind direction.
- vii. For privacy the door of the bedroom should be positioned in a corner. So that, the cot inside the bedroom is not visible from outside while opening the door.



- viii. It is necessary to provide a small bathroom cum water closet adjacent to the bedroom.
- ix. Bed spreads, pillow covers, dress materials, etc., can be stored in built-in cupboards or shelves.
- x. A small table and chair could be arranged adjacent to the cot for various purpose like reading, placing a table lamp, flower vase, etc.

4. Kitchen

- i. Kitchen is supposed to be the major work area for the women in the house. In this place the food for the entire family is being cooked.
- ii. In this room, provisionals, utensils, etc., are stored and electrical appliances for cooking like grinder, mixie, etc., are used.
- iii. Sometimes kitchen is also used for dining purpose.
- iv. Women spends most of her times in kitchen, hence care should be taken to see that the kitchen is spacious with sufficient air circulation and sunlight.
- v. The kitchen should be oriented towards south-east direction for sufficient sunlight to enter during the day. This purifies the air and

provides warmth in the room. In the evenings the kitchen becomes cooler.

- vi. The size of the kitchen should be appropriately fixed for efficient functioning. It should neither be too big nor too small.
- vii. A kitchen should be constructed atleast to a size of 2.4 m × 3 m (or) 3 m × 3.6 m.
- viii. Major three work centers to be arranged in a kitchen are a) preparation centre, b) cooking centre and c) washing centre.
- ix. Unnecessary walking within the kitchen could be avoided if work centers are properly planned and positioned.
- x. The items required for the corresponding working centers should be made available in the respective centers. For this cupboards/shelves should be constructed near it.
- xi. A platform at a convenient height, should be placed so as to facilitate for standing and cooking. It helps to cook with ease and without getting tired.
- xii. A kitchen platform for better performance could be in the form of L or U.



5. Dining Room

- i. This room should be arranged adjacent to the kitchen. Only then it will be easy to serve the cooked food.
- ii. If properly planned, the closed verandah adjacent to kitchen could also be utilized for dining purposes.
- iii. Nowadays, people use tables and chairs for dining. Hence a rectangular shaped dining room with a rectangular dining table in it with dining chairs around will be ideal and convenient.
- iv. Chairs should be placed so as to provide maximum comfort while dining.
- v. The dining place should have adequate sunlight and air circulation with pleasing look.
- vi. The dining room should always be kept clean and tidy so that flies, cockroaches, etc., are avoided.

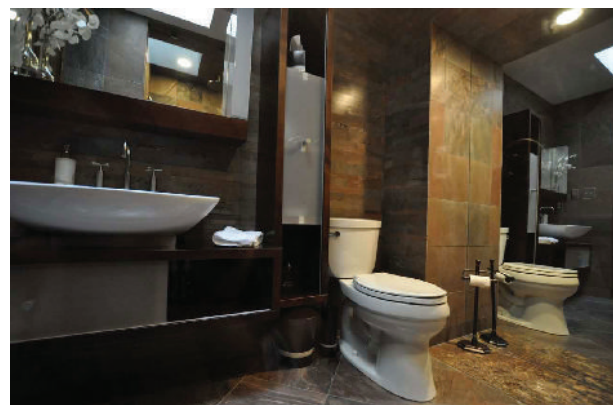


6. Pooja room

In every house there should be a small space for worshipping god. Hence, a pooja room for worshipping god could be planned in a calm portion of the house.

7. Bath room

- i. The main objective of this room is to provide adequate facilities for taking bath and washing clothes. Therefore, the size and shape of this room should be sufficient enough to offer the above facilities.
- ii. The size of the bath room should meet the standards.
- iii. A place has to be provided to keep soap, towel, tooth brush, tooth paste, etc.
- iv. Proper ventilation should be provided.
- v. The floor of the bathroom should be non-slippery, it should not catch stains and should be easily washable.
- vi. Porcelain tiles could be affixed on the wall from the floor to a height of 2 m, so that its glossy exterior will not catch stains easily and the bathroom will always look clean.



- vii. In modern residential buildings, particularly in big houses, bathroom and water closet are combined in a single room and attached to the master bedroom. Still, it is essential to have a common bathroom and toilet.



Expensive home in the world

Antilia, a 27 – storey skyscraper on the pricey Altamount Road in Mumbai, is the most expensive home in the world, valued of ₹ 7200 crore. Mukesh Ambani, an Indian business tycoon and multibillionaire, moved into the 400,000 – square foot mansion in 2012 with his wife and three children Antilia is a private home in South Mumbai, India.

600 staffs are used to maintain the residence 24 hours a day.

| | |
|-------------------|------------------------|
| Floors | : 27 Nos |
| Area | : 4,532 m ² |
| Height | : 173 m |
| Architecture firm | : Perkins and Will |
| Owner | : Mukesh Ambani |



Activity 1

Collect the interior views of various rooms in a residence.

1.7 Housing

A house is highly essential to protect us from rain, wind and heat. A proper housing is a must for today's social life. As roads and streets are considered important in an urban pattern, houses and their arrangements also attain importance.

Housing does not mean mere shelter. It includes hygienic, peace and good environment. Therefore urbanization should be kept in mind while planning for basic housing. When zoning is done for residential purposes, modern thoughts and predications regarding the future should be considered.

The success or failure of any urban pattern lies in the arrangement of housing in it. In any urban pattern, a large amount of area is allocated for residential purposes of the people. Based on the number of residential units, other facilities like roads, commercial complexes, etc., get their due share of land.

The majority of fund required for implementing basic amenities in a city, like drinking water, drainage, roads, etc., are collected from people in various forms of taxes. Therefore in any urban pattern, its revenue for administration depends on its population, commerce, income of people and so on.

Therefore a town planner should always plan well in advance and execute it in such a way to meet the residential demands of all categories of people.



1.7.1 Housing Demand

The factors that increase the housing demand are detailed below:

- i. If housing loans are available for a low interest rate, then the housing demand will increase.
- ii. It also depends on the availability of skilled labour. If good number of skilled labours are available, then the people will be inclined to construct houses without delay.
- iii. Availability of good road facilities is also one of the major reasons for housing development. For example, if a housing site is available in a place which doesn't have good roads, no one will be prepared to construct their houses in that area.
- iv. Real estate agents should develop plots in an area with all basic amenities and then sell it. Then only the people will tend to construct houses immediately.
- v. Huge population, less number of houses, surrounding environment and basic facilities are the reasons for increase in development of housing units.

1.7.2 Types of residential houses

- i. Detached houses or independent houses.
- ii. Semi-detached houses
- iii. Row houses
- iv. Apartments or flats
- v. Skyscrapers

i. *Detached houses or independent houses*

Houses which are alone and independent could be classified under this category.



Independent houses have good air circulation, ample lighting and there is always a feasibility for extending or modifying the existing house in its own land.

Houses of such type are constructed based upon the availability of lands and financial prospects. If the plots are available for a lesser price and if the construction materials are readily and cheaply available, then one could utilize such opportunities for the construction of detached houses. However such houses are luxurious and not thrift enough.

ii. *Semi-detached houses*

If an independent house is separated to accommodate two families, then it is considered as "Semi-detached house".

A common wall is used to separate the two houses. If sufficient frontage is



allowed in the front for both the houses, then it could be utilized in common by both the families.



iii. Row houses

Row houses are generally constructed for labourers and people working on daily wages. The reason is they are economical, suiting to their financial status.

Such houses will have only the minimum basic amenities. Bathrooms and toilets will be in common. Cost of such construction is very low. Therefore more number of people could be provided housing at lesser cost. Such row houses could be constructed with one or two floors.



In prime locations and in congested localities of a city, it is difficult even for high income group people to purchase a plot and construct a house of their own. This lead to the construction of apartments or flats. Also people who like community living prefer apartments.

The cost of construction is much reduced when compared to the construction cost of an independent house. The reason is the cost of the land is shared and also the cost involved in common facilities is being divided among the families.


Disadvantages

- Not suited for large families with lot of children.
- Not possible to renovate, change, demolish and reconstruct the house.

**DO
YOU
KNOW?**

Tallest building in India

Three Sixty West is a super tall skyscraper under construction in Mumbai, Maharashtra, India. It comprises two tower, joined at ground level by a podium. Tower B, the tall of the two, will rise to 372 metres (1,120 ft) and 85 floors and Tower A will be 260 metres (853 ft) and 53 floors. Tower A will be hotel and private residence will be located in Tower B. The podium will accommodate amenities such as restaurants and ballrooms.



iv. Skyscrapers

- Skyscrapers are generally buildings of many stories (more than fifty stories or 150 m) seeming to touch the sky when looked from the ground.



- In metropolitan and cosmopolitan cities, the cost of lands in major areas are too high and also rarely available. Therefore the technology of construction of residential buildings with several floors termed as skyscrapers came into existence and started developing.
- The main advantage of such tall buildings is that, its residents are free from the atmospheric pollution, particularly those who reside in the upper floors.
- Since skyscrapers are constructed vertically, the land beneath is better utilized in the sense that a small area of land is sufficient enough for large number of families to reside.
- But children and aged people find it difficult to negotiate the steps in skyscrapers and hence lifts or elevators become a must in such buildings.
- These skyscrapers are sometimes dangerous in localities through which microwave transmission are propagated and aeroplanes fly at low heights.
- Therefore before construction of skyscrapers various factors have to



be taken into consideration. Wind velocity and earthquake forces have to be definitely taken into account while designing such high rise buildings.



Activity 2

Collect the pictures of types of residential buildings



The biggest building in the world

The Izmailovo situated in Moscow, Russia has a total of 7,500 rooms. The whole unit is made up of four towers, 30 floors each. Each tower is given a name from the Greek alphabet - Alfa, Beta, Gamma, and Delta. The Olympic athletes were housed during the 1980 Olympiad in this hotel.





MODEL QUESTIONS



Part – I

Choose the correct answer. (1 Mark)

1. _____ is a highly essential basic need of mankind.
a. Shelter b. Vehicle
c. Pet animals d. Road
2. During ancient times man used to live in _____.
a. Trees b. Dens
c. Row houses d. Apartments
3. _____ is not suited for gardening.
a. Clayey soil b. Silty soil
c. Sandy soil d. Loamy soil
4. Dining hall should be placed adjacent to the _____.
a. Verandah b. Bed
c. Bathroom d. Kitchen
5. People spend _____ of their lifetime in sleeping.
a. Half b. One - Fourth
c. One - Third d. One - Sixth
6. Row houses are generally constructed for _____.
a. Labourers b. Officers
c. Rich people d. Politicians

Part – II

Answer in one or two sentences.

(3 Marks)

7. Write short notes on grouping of rooms.
8. Write short notes on sanitations of houses.
9. List the rooms in a residence.
10. List the types of residential houses?

Part – III

Answer in brief.

(5 Marks)

11. What are the legal characteristics to be followed in choosing a plot?
12. Write about the physical features to be considered during the site selection.

Part IV

Answer in detail.

(10 Marks)

13. Explain about the Kitchen room.
14. Explain Skyscrapers.

1. (a) 2. (b) 3. (c) 4. (d) 5. (c) 6. (a)

Answers