

# Topic: Home management

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## **Introduction:**

### **HOUSING:**

The house is the first unit of society and it is the primary unit of human habitation. The housing, next to food and clothing, satisfies one of the basic needs of man. According to National Building Organization a **house** is a **pucca or semi-pucca unit** of dwelling that can accommodate an average household. With advancement in science and technology man has created newer designs of shelter to provide greater comfort, convenience and facilities.

### **Importance of House:**

1. A house is a physical structure consisting of walls, doors, windows, roofs, etc. in which human being live and seek refuge from tensions and worries of the outside world.
2. The house protects the family members from excessive cold and heat, wind and rain and from all external anti-social elements.
3. The house forms the center of family life. It is a place where family members are bound together by love and affection and enjoy group living.
4. The house provides space for group and individual activities for the members of the family such as cooking, serving, washing, storage, disposal of waste, recreation, reading and hospitality.
5. The house offers facilities for self-expression and a degree of freedom of action.
6. A good house provides a healthy environment for its members to develop their personality, attitudes, values and a sense of security in addition to rest and privacy.
7. Only in the house an individual acquires customs, traditions, habits and culture of the family.
8. A house is the place where some family members who cannot support themselves for reasons of sickness, unemployment, old age, widow-hood or other handicaps get shelter and care.
9. A house and its surrounding is a status symbol of a family.
10. Housing is the determining factor for the standard of living of a family.
11. The housing condition is a measure of nation's progress.
12. Housing contributes to national income, national wealth and national employment.

### **The residential buildings may broadly be classified into five categories as follows**

1. Detached house: This is an independent house surrounded by its own land on all the sides.

2. Semi-detached house: A common boundary wall to form a structural barrier and divides an independent plot into two units. This helps in achieving economy by sharing expenses on amenities such as water lines, drainage lines, electric cables etc.
3. Row of houses: This is preferred for low-income group of families. These rows of houses, having a common wall between two houses, with minimum requirements such as living room, and kitchen.
4. Apartments or flats: This consists of three to seven storeys and each floor or storey may accommodate two or four tenements. The land and other amenities are shared by all the occupants.
5. Skyscrapers: These are multi-storeyed building. This is common in big cities where the price of the land is very high.

### **Factors affecting choice of house**

The following points should be kept in mind while looking out for a house.

- 1. Physiological needs :** The house should have adequate ventilation and proper orientation so that there is proper temperature balance, adequate fresh air circulation and light.
- 2. Psychological needs:** The house should provide privacy and safety.
- 3. Family size:** A large family with more than six members have to go for a larger house than a small family with four members.
- 4. Family type:** Families can be classified as nuclear, extended or joint families. The size of the house will vary according to the type of family.
- 5. Stage of family life cycle:** The stage in which the family is, should be considered. A family in the expanding stage will need a larger house than a family in the beginning or contracting stage.
- 6. Family Structure:** This indicates the buildup of the family with regard to the age, sex and their relationship of one member to another.
- 7. Family Values and Standards:** The standard of living that a family wants to maintain, the family values and priorities in life should be considered while selecting a house.
- 8. Permanence of residence:** There are two types of family in this regard.
  - 1. Transient family** - which has to move from place to place, because of occupational or other needs.
  - 2. A Permanent family** - which is reasonably sure of staying in the same place for a long time. This factor should be considered while making decision to rent or own a house.
- 9. Cost of living:** The cost of living in a particular area should be taken into account while deciding on the locality of the house.
- 10. Cost of building:** The financial status of the family should be considered while selecting a house

## **Owning or renting a house**

**Owning:** This is buying a house outright in order to secure its services.

### **Advantages of owning**

- 1) People who own a house will feel secure and have a feeling of belongingness.
- 2) Can stay in a house for a long period.
- 3) Become a means of compulsory saving.
- 4) Changes or improvement in the house can be made whenever needed.
- 5) Gives a feeling of happiness, pride and sense of security during old age.
- 6) Credit can be acquired easily.
- 7) Can develop longstanding friendship with neighbours.
- 8) It is a good investment.
- 9) Have tax benefits.
- 10) Better furniture and furnishing can be purchased.

**Renting:** Renting is the compensation that is paid to the owner, generally in terms of money, by the user for the services of a house, from month to month.

### **Advantages of Renting**

1. Freedom of mobility.
2. Can take advantage of different occupational opportunities.
3. Can change the house according to the needs and income of the family.
4. No responsibility of maintaining the property.
5. No need to invest on furnishings and furniture as furnished house can be rented.
6. Renting is cheaper.
7. Higher living standards can be achieved.
8. The family will not get affected if the property value decreases.
9. Money spent on buying the house can be invested in other business to get more money returns.
10. Gives financial freedom. In general, many families feel that owning a house is far better than renting.

## **Site Selection**

Each family attempts to meet its housing needs through the selection of a dwelling unit. The house is probably the largest single investment you will make in your life. One cannot change one's residence often. Hence it becomes essential for each one of us to have adequate knowledge about selection of a site and house planning. A site in a good locality should be selected. Now let us see the factors to be considered while selecting a site for the construction of a house.

### **i. Physical Features**

1. The site should be regular in shape and should have exact boundaries marked on the land.
2. A low lying ground is unhealthy because it is likely to cause dampness during rainy season and it becomes a breeding place for flies and mosquitoes.
3. The site should be on an elevated ground for drainage of water especially during rainy season.
4. A site on an elevated ground affords wider and brighter view of the house.
5. Site which faces South/North direction is preferable.

### **ii. Soil Conditions**

1. The best soil is one where soft soil is at the surface and hard soil beneath 3 or 4 ft.
2. A mixture of sand and gravel is good.
3. Rocky surfaces afford good foundation, but poses difficulty while leveling or excavating the ground due to its hardness. On rocky surface, laying drainage pipe is very costly. Besides, it is not suitable for growing plants.
4. Clay and sandy soils are unsuitable because clay surface holds water for a long time and sandy soil absorbs water.

### **iii. Sanitary Facilities**

1. There should be no stagnant pools or water tanks and unused wells around the site.
2. The site should never be surrounded by public drainage and toilet.
3. The site should not be selected near cattle sheds, poultry farm and factories for health reasons.
4. Reclaimed land filled with debris and refuse is unhealthy for building purposes, as it will give out obnoxious gases. During rainy season it becomes a good breeding place for flies and mosquitoes.
5. The site should be such as to command fresh air, ample lighting and good water supply.
6. A site in a busy locality may not be suitable for health reasons because of dust and the constant smoke from vehicles.
7. A site with modern sanitary facilities is the most suitable.

### **iv. Practical Convenience**

The value of the site depends upon the convenience available around. The site should be within easy reach to school, market, bank, hospital or nursing home, railway station, bus terminus and post office.

#### **v. Good Neighbourhood**

1. The site should be selected near a developed area for safety.
2. Good neighbourhood adds to the permanent happiness of the family.
3. The economic and social status of the neighbourhood should be on par with the occupants.
4. The area should be pleasant and charming.
5. The site in the neighbourhood of a sea commands pleasant sea breeze. But one disadvantage is that sea breeze carries with it a thin spray of salty water, which corrodes all iron articles.

#### **vi. Legal Characteristics**

1. The legal description of the plot and the exact location of the plot must be known.
2. The site should be a freehold land without encumbrance.
3. A legal advisor should be consulted, the place surveyed and the boundaries marked on.

#### **5.1.5 Activities in the house and space allocation**

The house and its grounds can be divided into three major areas based on the various activities of the house.

- 1) Social or public area** - The rooms allotted are, verandah, living room, reception, dining, music, reception and games room.
- 2) Service or Work area** - The rooms allotted are kitchen, serving, laundry, drying yard, ironing room, garage, storage areas, office and study room.
- 3) Rest or private area** - Bedroom, dressing room, bathrooms, prayer room etc. It is not possible to allot room for each and every activity separately, but it is important to allot spaces for the more important ones.

#### **Rooms in the house**

**A verandah** serves many purposes. It is a place for stranger or a visitor to wait. It is a place for keeping shoes, walking sticks, umbrellas and a place to store vehicles. It provides place for business, the postman, the newspaper boy, milkman, and the vendors to call on the family members at the entrance. It serves as a passage to other rooms of the house. It is a place for sitting in the evening or at night after dinner enjoying light reading, or conversation with family members and neighbours. In small houses, it is the main sitting room. It protects the walls of the house from the direct rays of the sun. It is a place for pets and also a place for growing plants.

#### **The Back Verandah**

It serves different functions such as grinding, drying clothes etc. A verandah more than 3.6 m wide is not economical. A verandah facing south or west is comfortable.

### **Living Room**

Living room is placed adjacent to verandah. The living room should provide place for many of the family activities as reading, conversation, get together, indoor games and light music. It is a place to receive friends and also to hold social functions. In a small house, it can serve as a study room for children, sleeping area for one or two members. It can be a dining room during special occasions. At times it can accommodate guests. Thus, it may serve multi various functions, depending upon the type of the family.

A living room should express cordial welcome to the friends of the family. The living room should be well lighted and well ventilated and should provide maximum comfort for the family members. The living room should be situated on one side with an entrance from front verandah.

The minimum size for a living room should be 4.5m by 3.6m(15 ft. by 12 ft). The size of the door should be 90cms as minimum width and should be at one side of the wall. A coating of oil painting on tiles fixed on walls for a distance of 1.5 m from the floor is good from the sanitary point of view. The furniture and furnishing that are used in the living room must be comfortable and suitable for the room. For example,

For **conversation**- sofa, chairs,

For **hospitality**- a center coffee table

For **reading**- table, chairs and bookcase

For **recreation**- radio and television cabinet, table and chairs

The living room should be simple in design. There should be enough wall space for hanging pictures and for display of decorative articles. Flower arrangements add beauty to the room. A shelf may be provided for art objects.

### **Bed Room**

One spends more than 1/3 of his/her lifetime at rest and instead of in sleep here. It can provide place for dressing and storage of clothes. Practically 4.5m by 3.5m has been found to be a good size for a bedroom. A rectangular room is more convenient than a square one. No room should have less than 3sq.m. of the floor area. Ventilation is of utmost importance in bedroom. It should be on the side of the direction of prevailing wind. The door of the bedroom should be located in such a way that when opened the bed is not visible fully. Bathroom attached to a bedroom would add to the convenience of the family members. Some storage space should be provided in the bedroom. Built-in cupboards for clothes and bed linen save space. A chest of drawers could also be provided. A small table and a chair may find a place to keep some of the books for light reading, table lamp, flower arrangements etc. It is better that parents have a separate master bedroom and children above ten years have separate bedrooms.

## **Kitchen**

Kitchen is aptly described as the **home maker's workshop**. It is the nerve Centre of the house, a place where we cook food, store our food, utensils and provisions. It can provide space for eating too. The comfort, health and happiness of the family mainly depends on the activities carried out in the kitchen. Homemakers in India spend 70% of their time in the kitchen. Kitchen should never be a suffocating chamber of pungent smoke irritating the eyes, nose, lungs and also the temper of the housewife. The apartments pose some of the problems such as lack of space and uncomfortable arrangements. It is very essential that one gives enough thought to the kitchen arrangements.

## **Location**

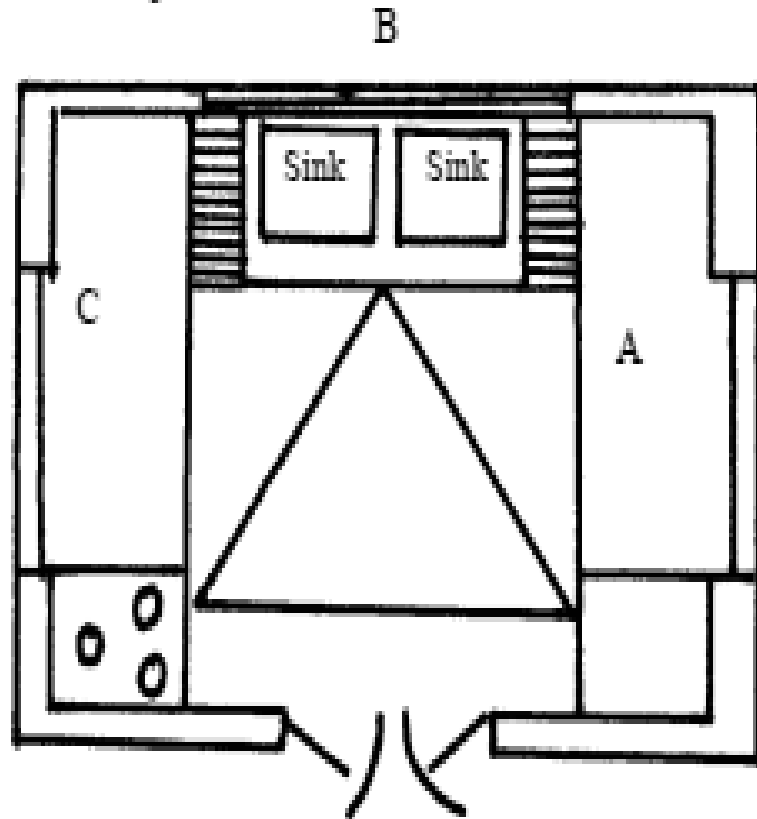
The best location will be eastern or north-eastern corner of the house. This is helpful in having purified air and also warmth in the morning and coolness during the other part of the day.

## **Size and shape**

For actual efficiency the kitchen should be neither too small nor too large. A rectangular kitchen is step saving. The size can vary from 3m by 2.4m or 3m by 3m.

## **Activities and work centers**

The main activities in the kitchen are food preparation, cooking and cleaning of food items and equipment. The work area for these three activities should be carefully planned. The kitchen should have the preparation, cooking and washing centers adjoining each other at comfortable heights to form a triangle. This work triangle ensures convenience and safety



**Fig. 1 - Work triangle**

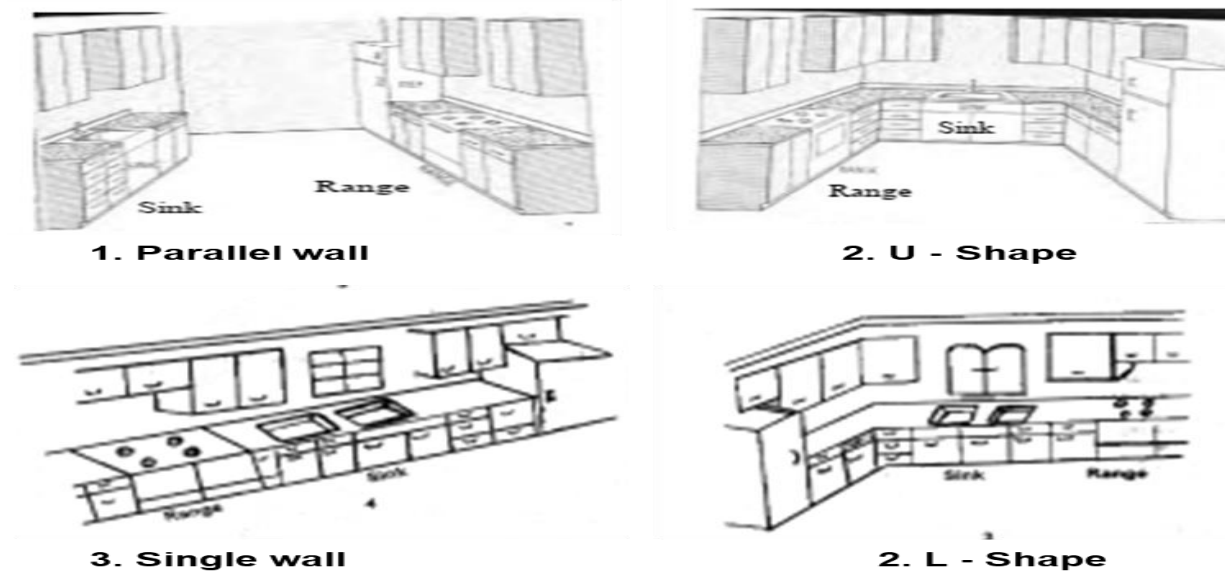
A. Preparation centre

B. Washing center

C. Cooking centre

The various shapes in which the major work centers can be arranged are 'U' shaped, 'L' shaped, one wall and parallel walls. The ideal shape for the kitchen arrangement is 'U'. It consists of preparation and cooking centers on either side and the cleaning center in the middle. This is a compact arrangement and labour saving too. In the 'L'-shaped kitchen arrangement of the work centers are placed on two adjoining walls. The one wall arrangement is suitable for small kitchen.





**Fig. 2. Types of kitchen**

### **Cooking Centre**

The range with the storage of utensils needed for cooking occupied an important place in the kitchen. A peg board for frying pans andauce pans, a holder for knives and spoons and all the food items and equipment must be placed within easy reach in the cooking center.

### **Washing Centre**

Storage cupboard for dishcloth and brushes can be hung in convenient place provided there. Sink should always be placed in front of a window. Garbage pail should be kept near or under the sink.

### **Preparation Centre**

Placement of a refrigerator in the preparation center facilitates easy handling of vegetable, milk, egg and fruits during preparation. The equipment like blenders, beaters, sifters, saucepans, measuring cups, spoons, knives, spatula should be stored here.

### **Height of the working center**

It can be 80 to 90cms depending upon the height of the person working in the kitchen.

### **Storage facilities in the kitchen**

Built-in cupboard or cupboard with drawers and rack can be provided. Care should be taken to avoid insects. The wall area above and below the counter should be made full use of.

### **Bathroom**

The purpose of a bathroom is to provide facilities for bathing, washing and dressing too. The main bathroom should be in the ground floor not far away from the main rooms. It can be attached to the bedroom for convenience. A bathroom with 1.5m by 1.8m in size is necessary. If area for

keeping water boiler and washing clothes are to be provided the size may be 1.8m by 3m. There should be good ventilation in the bathroom. A window at the usual level with frosted glass shutters, admitting light but keeping privacy, is good. A ventilator at the height of 180 cm. above the ground level is helpful. Loft can be provided to store things if necessary. Small built-in shelf may be used for keeping oil, soap, brush, paste, etc. The flooring finish should be easy to clean. It should never be slippery. The wall should have a polished surface to a height of 90cms from the floor. There should be good drainage facilities for removal of waste water from the bathroom.

### **Water closet or latrine**

Water closet can be near the house or even inside the house. Now a days they can be flushed with the water. The latrine on basket system is not sanitary. Earth closets can be used in rural areas. The minimum space needed is 1.2m by 1.8m in width and length. Strictest privacy is required in these rooms in respect of light and sound. The lavatory should be kept clean. The basin should be cleaned daily with a reagent. The room should be washed with disinfectant like phenol/Dettol. If bath section and water closet are combined, more space is needed. The room may be equipped with mirror, washbasin, closed storage for toilet articles, a rack to keep clothes and towels, tub, mug, etc. There should be tap connection for running water. Facilities for shower bath add to the convenience and pleasure.

### **One Room Apartment**

The acute housing shortage and low-income levels in India have compelled many to live in one room apartment. One room apartment is a single room where daily activities of family are carried on. Hence enough thought should be given for the proper planning and use of one room apartment. One should learn to make the best use of their single room.

1. The single room is divided into various areas as cooking, dining, sleeping, studying, entertaining areas and so on.
2. The division of space is possible by means of room divider, screen, wooden screen, plywood, wooden cupboard and other types of partitions.
3. The front area can be used as living room and the area behind can be used as cooking cum dining room.
4. The living room can be partitioned from the dining by a large wooden partition with shelves on either side. Curioes, flower arrangements could be placed on the shelf facing the living room, where as crockery, tumblers and other dining utensils could be stored on the shelves of the dining room side.
5. The kitchen section should be large enough to play the part of a kitchen as well as an eating-place.
6. The living room can be converted into bedroom at night. The dining room can serve as a study room.
7. In the kitchen, built-in-cupboards for storage help to save space. 8. Furniture should be kept to a minimum.

9. Multipurpose furniture save space. For example, sofa-combed, which is convertible as sofa in the morning and as bed at night.

10. Folding chairs, tables, movable modas are helpful to keep the place compact. 11. If wooden partitions take too much space, cloth screens can be used as room divider. By carefully planning the one room apartment a family can enjoy a comfortable life.

**5.1.6 House plans** House plans are important and it is the initial stage towards construction of a house.

### **Importance of House Plan**

1. For an owner or builder to have clear idea about the construction.
2. To estimate the cost of the proposed building.
3. To estimate the building materials requirement.
4. To get sanction for construction from the authorities. The plans usually required in connection with the building are site plan, elevation, perspective view, cross-sectional plan, land scape plan and floor plan.

**Site Plan:** This consists of a drawing, which shows the location of the particular building in a plot with reference to the surroundings.

This includes,

1. The length of the boundary of the plots.
2. The adjoining plots on all sides with numbers.
3. The nearest street.
4. The north direction indicated by an arrow with the letter 'N' at its head.
5. The exact location of the proposed building and other structures and margin around the house.
6. The drainage lines
7. The public water lines.
8. 8. The direction of the prevailing wind.
9. The direction and amount of the downward surface slope.
10. Results of the type of soil in the plot.

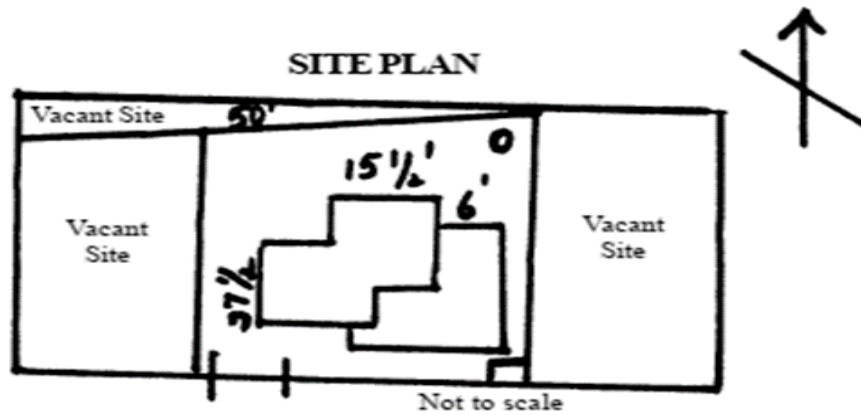


Fig. 3 - Site Plan

**Elevation:** This shows the type and location of the windows, doors, balconies, and roof lines which will enhance the outside appearance of the house.

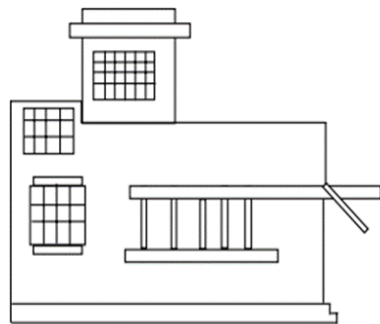


Fig. 4 - Front view elevation

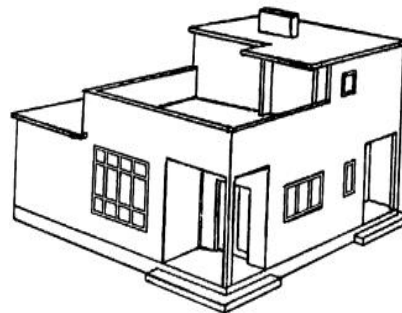


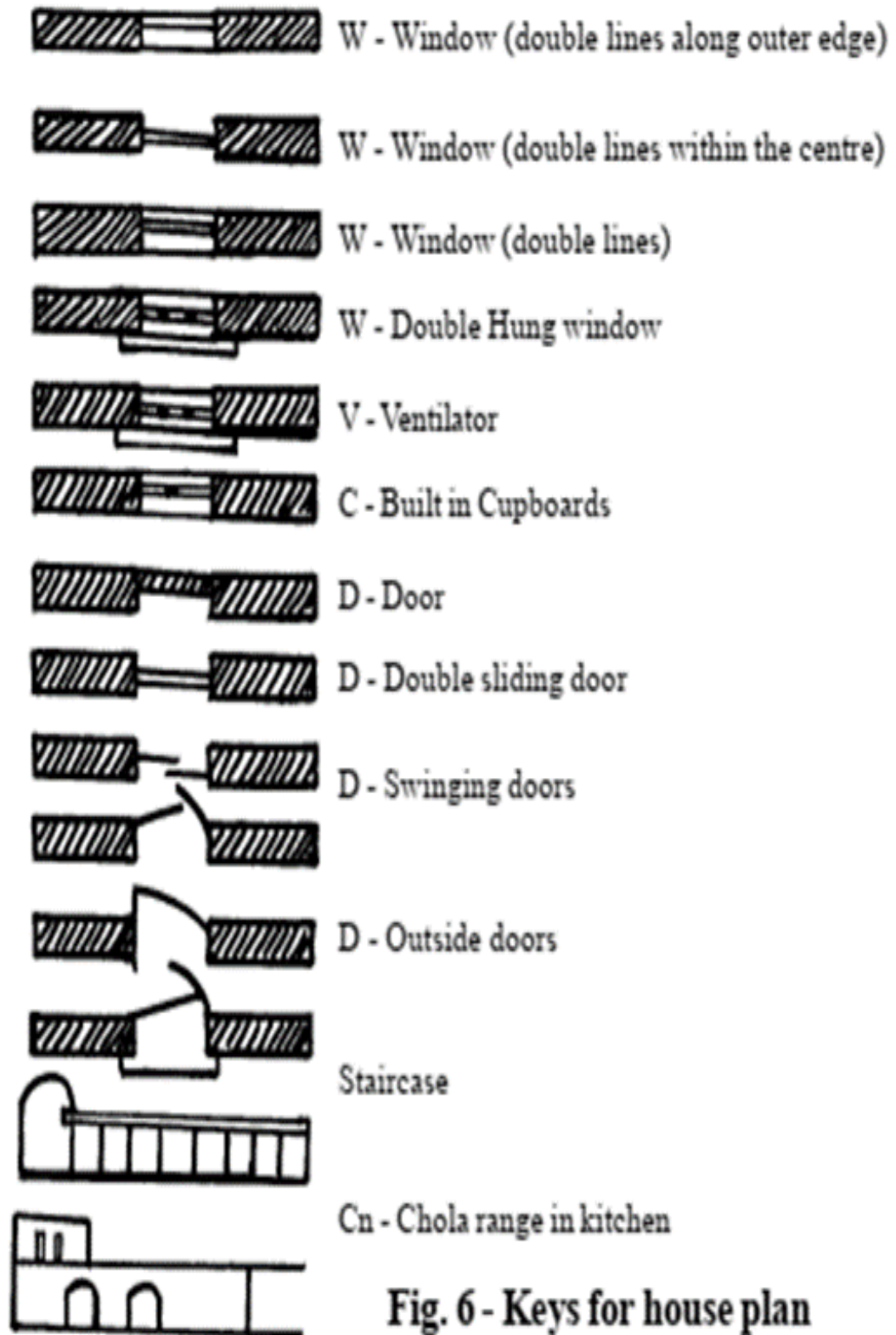
Fig.5-Perspective View

**Perspective view:** This represents the photographic view with three-dimensional effect resembling the true image of the proposed house.

**Cross sectional plan:** This explains fully the details from the roof to the foundation, in a vertical position. This indicates the heights of the windows, doors, built in cupboards, ceiling, thickness of the floor, walls and depth of foundation.

**Land scape plan:** This shows the positions of plants, shrubs, lawns, paths, etc. in the plot through which the beauty of the building can be enhanced.

**Floor plan:** This is a horizontal plan which shows the general arrangements of the various rooms, its length and breadth, thickness of walls, positions of the doors, windows, cupboards, furniture and fittings.



**Fig. 6 - Keys for house plan**

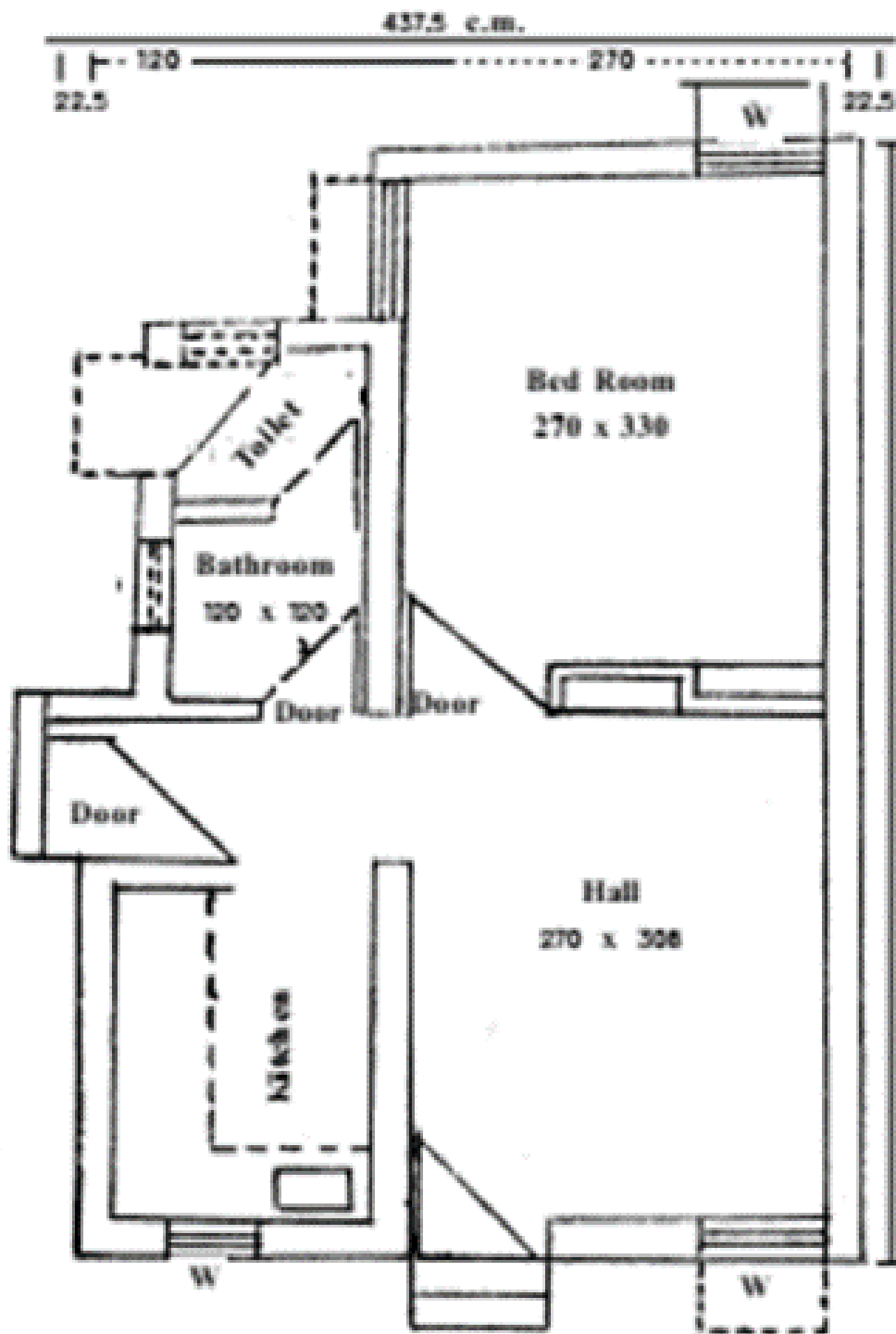


Fig. 7. Low income group house plan Plinth area 386 sq.ft

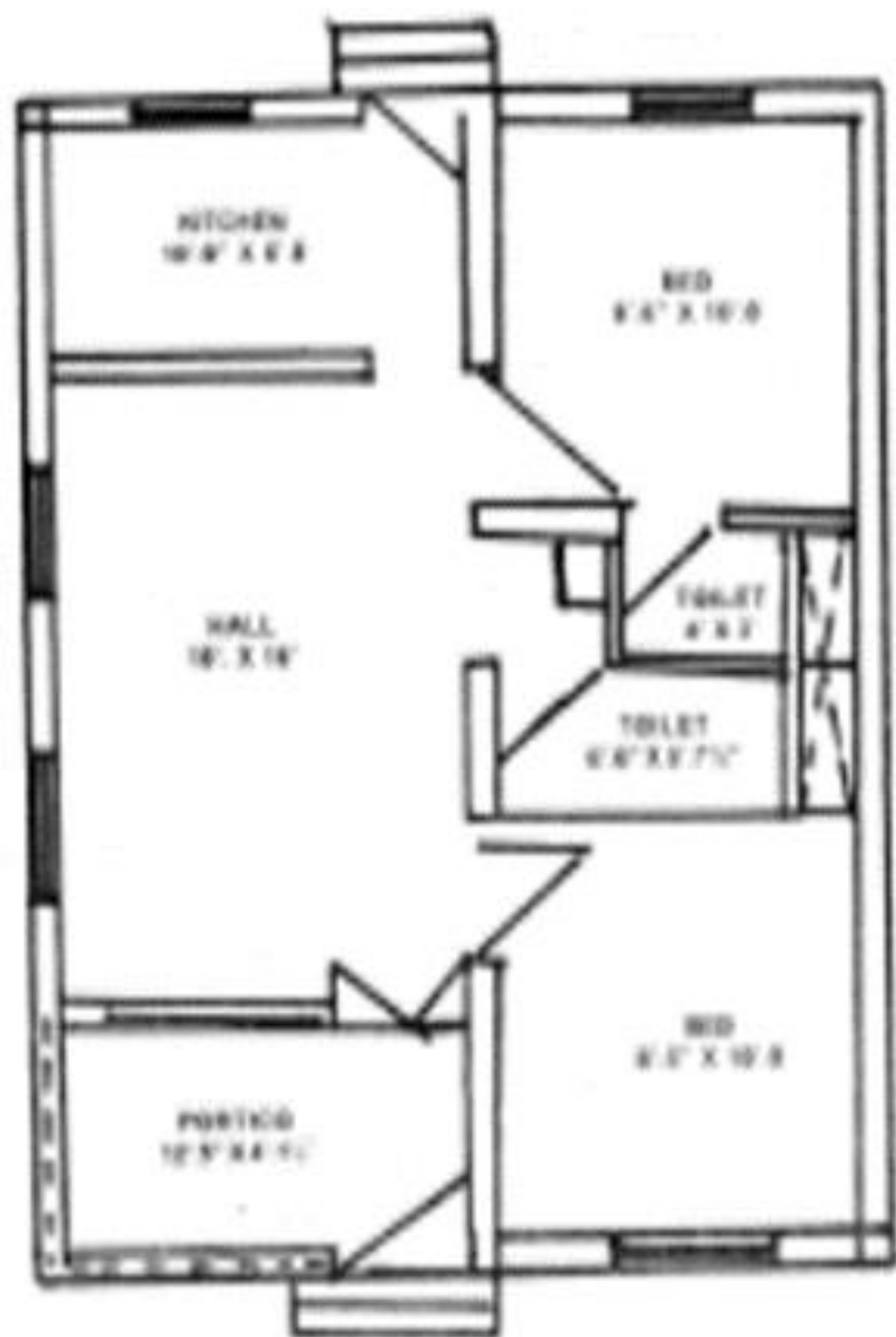


Fig. 8- Middle income group house plan Pinch area 593 sq. ft

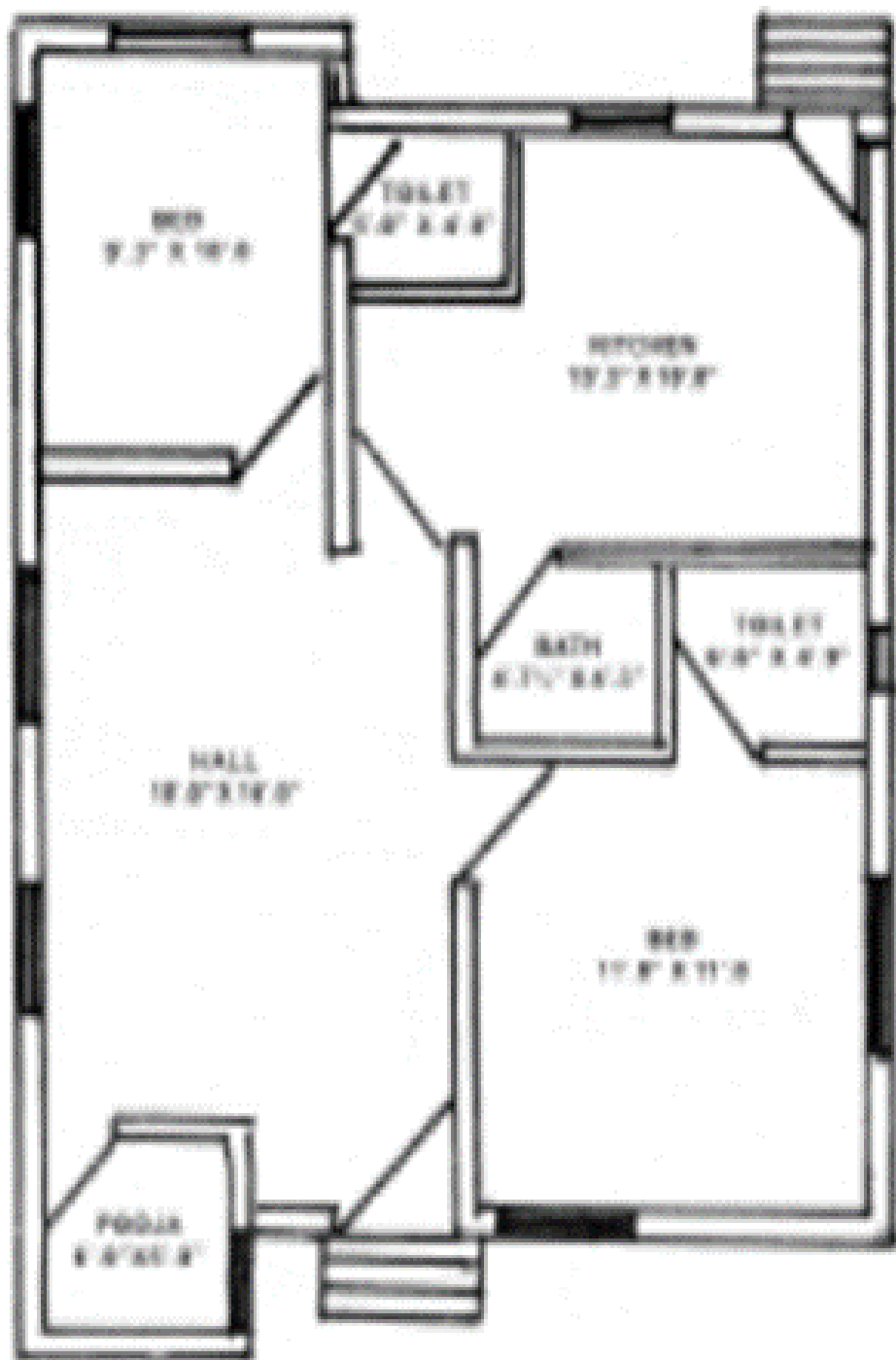


Fig. 9- High income group house plan Plinth area 798 sq.ft



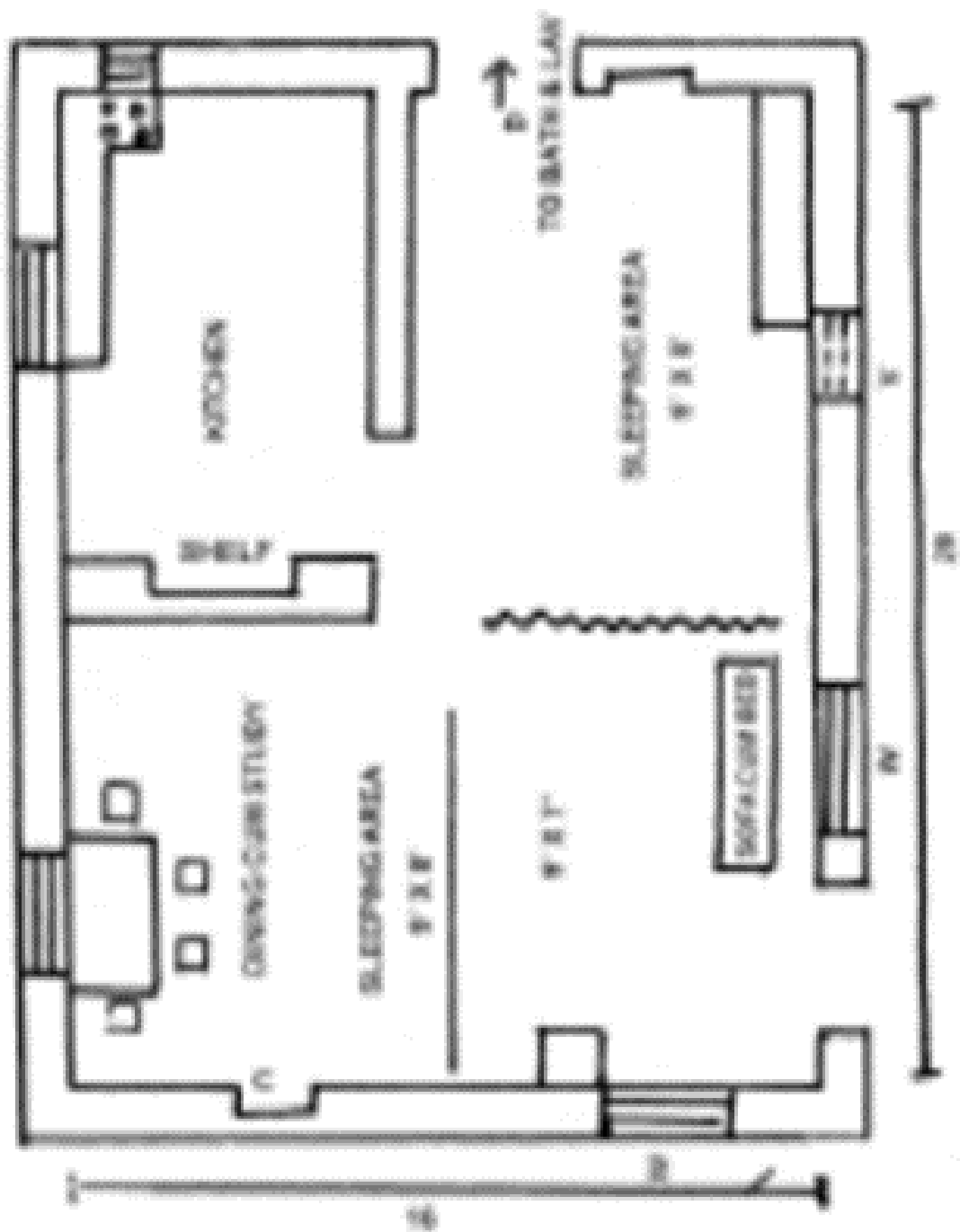


Fig. 10 - One room apartment

**5.1.7 Principles of Organizing a House** The factors to be considered while planning a house are aspect, prospect, privacy, grouping, roominess, furniture requirements, circulation, flexibility, sanitation and practical consideration.

**i. Aspect**

Aspect is the arrangement of doors and windows on the outside walls of a house which allows good breeze, sunshine and a good view of the nature. Aspect is also needed from hygienic point of view. With careful placement of windows, it is possible to admit sun's rays into any desired room. For example, kitchen should face the eastern side so that the morning sun's rays can purify air. Bed rooms should have southern aspect- either southeast or south west to facilitate enjoyment of good breeze. The living room can be north-east or south-east in its aspect.

**ii. Prospect**

It is the impression that the house creates on a person who views it from outside. It must be attractive in appearance, modern, cheerful and comfortable. A beautiful window, carved pillars, modern design on the walls and roof may add to the charm of the house.

**iii. Privacy**

Privacy is of two kinds-privacy of the entire house from the road side; privacy of each room from other rooms and from the entrance. Privacy from outside can be gained by planting trees and growing creepers or having a compound wall. Privacy within the house can be obtained by proper arrangement of doors and windows. Privacy to bedrooms, toilets, water closets and dressing room is of utmost importance.

**iv. Grouping** It is the arrangement of rooms in the house in respect to their relative positions and activities towards each other. The dining room close to the kitchen and living room, the living room near verandah, the toilet near bed room and so on. Grouping is based on convenience.

**v. Roominess**

It is the spacious effect a room gives to those who live in. The available space should be fully made use of. One can have built in wall cupboard, shelves and storage area so that the floor of the room is left free for various activities. The same way the space under the staircase, window sill, area below the ceiling (attic) can be made use of for storage. In addition, the size and shape of the room, the furniture arrangement as well as the colour scheme used, have a bearing over the roominess of the house.

**vi. Furniture Requirement**

The rooms must be planned with due thought to the furniture to be placed there. The type, the position, size and the number must be planned earlier in respect to the size and placement of doors, windows and built-ins in the room.

**vii. Circulation**

The circulation from room to room must be good. Good circulation means independent entry to each living space through a common space. It should provide privacy to the members and not to disturb any member doing his/her work in the room. Straight, short, direct passages must be provided. Circulation can be achieved by proper placement of the doors, grouping of the rooms and furniture arrangement.

**viii. Flexibility**

This means making use of a room originally designed for one purpose, for different purposes at various occasions. e.g. converting a living room to a dining hall during function, a back verandah near the kitchen to be used as play center for children, a dining room converted as child's study center or play center. Screens, cupboards, folding partitions may help to make a room flexible and serve more than one purpose.

#### **ix. Sanitation**

It includes provision of light and ventilation and attention to general cleanliness and sanitary conveniences. There should not be any room in a house without enough light. Ventilation must be adequate. It means supplying fresh air and evacuating polluted air. Opposite windows and doors as well as ventilators must be provided for easy movement of air. Sanitary conveniences as provision for drainage of waste water, disposal of refuse and human waste must be planned ahead.

#### **x. Practical Considerations**

One may have to take into consideration, while planning the house, the following practical points as **strength, convenience, comfort, simplicity, beauty, possibilities of extending** the house in future and above all economy.

##### **5.1.8 Storage**

Successful housing needs the provision of adequate storage facilities through out the various parts of the house. Good storage facility is needed for the following reasons.

1. Gives a neat and orderly background for a family living.
2. Avoids unnecessary waste of time and energy.
3. To have easy access to things.
4. To have maximum use of space allotted.
5. To preserve and protect the things against mice, flies, ants etc.
6. To keep things away from dust, sunlight, moisture, obnoxious gases and adverse temperature.
7. To prevent pilferages.
8. To keep things out of reach of children.

Some of the things in the house that need to be stored are clothing, bedding, food supplies, kitchen equipment, sports equipment, garden and yard tools, cleaning agents, cleaning equipment, books, medicines, disinfectants, recreational equipment, etc.

Provision for storage in a house can be made in **attics, basements, garage, shelves and built in cupboards.**

The following points should be kept in mind when planning storage.

1. Store materials and equipment near the place of work.
2. Store materials at proper heights to avoid unnecessary stooping and stretching.
3. Arrange articles properly.
4. Group articles of similar nature together.
5. Label the items stored.

##### **5.1.9 Safety**

Safety in the home refers to **prevention of accidents** so that a hazard free environment can be provided to the family members. One of the main reasons for the cause of accidents, is the manner of house construction. The following points should be kept in mind while constructing the house to avoid accidents.

1. Avoid bumpy and insecure flooring.

2. Avoid slippery and highly polished flooring.
3. Plan for storage cabinets at proper heights.
4. Avoid shelves and corners jutting into traffic lanes.
5. Light switches should be placed in proper places.
6. Electrical wiring should be done properly.
7. Stairs should have handrail.
8. The slope for stairs should be between 30-36 degrees and should not be very steep.
9. There should be sufficient landing space and head room at each flight of stairs.
10. The house should be well ventilated and well lit.
11. The terrace should have parapet walls of sufficient height
12. Use non-combustible building materials.

#### **5.1.10 Building materials**

The beauty, utility, economy, comfort and convenience of the houses generally depend to a larger extent on the selection, use and care of the building materials. The cost of building materials alone works out to more than forty percent of the total cost of the house. The materials available in our country are **natural materials and man-made materials.**

- a. Natural materials: Mud, stone, sand, wood, lime, asbestos and leaves.
- b. Man-made materials: Cement, brick, tiles, metal, glass and plastic.

##### **a. Natural materials Mud**

It is the most commonly used material in the house construction. Ever since man felt the necessity of a house, mud is widely used. Its main features are as follows.

1. Abundantly available natural material.
2. Cost is cheap.
3. Easily made and repaired.
4. Sufficiently lasting.
5. Maintain equitable temperature both in winter and summer.
6. Highly useful for low-income people.

The use of mud mixed with chopped straw and cow dung helps for coating the inner and outer walls of the house. A thin coating of mud and cement maintain the surface in a good condition.

##### **Stone**

Stone is a natural material of construction and is obtained from quarries. Since prehistoric days, it has been used for constructing different components of buildings like foundation, walls, lintels, floors, roofs etc. The stones used for foundation and walls should be sound and free from cracks and decay. Stones of different forms such as granite, marble, slate, sandstone and limestone are commonly used as building materials. Waxing and polishing make them more attractive. Gravel which are stones not larger than 2cms is essentially needed for building. Care should be taken in using proper sizes of stones and correct inter locking in the width of walls.

##### **Sand**

It consists of small grains of silica and is formed by the disintegration of rocks caused by weather. Sand should have the following qualities.

1. It is hard, durable, clean, free from organic matter and does not contain appreciable amount of clay.

2. It does not contain harmful impurities such as iron pyrites, salts, coal, mica, alkaline or other materials, which will affect hardening.

### **Wood**

Wood is the nature's most abundant useful building material. It is comparatively inexpensive, strong, durable and easy to work. Mainly wood is used for paneling, ceiling, roofing, partitions, doors, windows and for making veneers and plywood. Plywood is made of odd number of woodpiles or layers laminated with plastic resins under high temperature and pressure. It is used for doors, cupboards and decorative paneling. Deodar, teak, mango, jack, toon, mahogany and bamboo are some of the common Indian timber trees used for building purposes.

### **Lime**

Lime has been used as a cementing material since time immemorial. In India till recently, lime has been extensively used for all types of construction purposes. Big palaces, forts, monuments, temples, bridges that were constructed centuries back and that are still existing in good condition substantiate that the use of lime for constructional purposes had reached perfection in the past. Egyptian and Romans made extensive use of lime. Even though cement has replaced the use of lime. Lime mortars have some advantageous properties like good workability, plasticity, less shrinkage on drying and durability. Lime is cheaper and easily available.

### **Asbestos**

It is available in nature as a mineral in Marwar , Garhwal (Uttar pradesh) and Bhandra in Madhyapradesh. It is silicate of calcium and magnesium found in the form of very thin fibres which are elastic and capable of being woven into fabrics. It can withstand high temperature and acids without any change. It is used for roof, bathroom doors and partitions. However it is not advisable to use asbestos as a roofing material essentially in our country since they transfer heat.

### **Leaves**

Grass, palm leaves and palmyrah leaves are used for roof structure. They are temporary and highly inflammable.

### **b. Man-made Materials Cement**

Cement should be used for the purpose of **durability** and **strength** of buildings. It has the quality to bind together loose particles of gravel, broken stones or other aggregates. Its quick setting property, strength and ease with which it can be used under variety of conditions has revolutionized the concept of construction. Hence it has become the most popular cementing material.

**Concrete** is a building material made by mixing cement, sand, gravel and water, which becomes rockhard, when dry and set. It is fire proof, sturdy and can withstand high pressure. Because of these qualities, almost all huge structures are moulded by concrete.

### **Brick**

It is the **most extensively** used construction material because it is locally available, cheap, strong, and durable and it has the good insulating property against heat and sound. It can be moulded to any shape or size.

### **Tiles**

Tiles used for construction are of different types such as **flooring tiles, country tiles and marble tiles**. The **Country tiles** and **Mangalore tiles** are generally used for roofing in rural areas. Floor tiles consists of terrazzo, which are polished tiles made out of marble chips mixed with coloured

sand. Mosaic tiles are cement tiles polished with a portable machine after laying. Though they are expensive, they are easy to maintain.

### **Metals**

Metals and their alloys are the backbones of all engineering products used for construction. Metals used for construction can be classified in to two categories.

(i) **Ferrous metals** wherein iron is the main constituent. (e.g.) Cast iron, wrought iron and steel.

(ii) **Non-Ferrous metals** wherein iron is not the main constituent. (e.g.) Aluminium, Copper, zinc, lead and tin. Iron and steel occupy the most important place in the construction of huge structures. Steel is produced by combining iron and carbon chemically, heating it to red-hot and cooling it suddenly. Steel is used as reinforcement in reinforced cement concrete. Metal have great tensile strength and are lighter than wood. Metals are both malleable (Capable of being beaten into any shape or rolled into sheets) and ductile (Capable of being drawn into wires of variable thickness).

### **Glass**

Glass has been extensively used for **glazing doors and windows**, for **insulation and for decoration**. Rapid advances in glass technology have opened up new avenues for its use. Glass plate is heated and then suddenly cooled to temper it. This tempered glass is much stronger and is used for glazing entrance doors, or in making table tops, shelves, counters, etc. Glasses are also used for sound proof partitions.

### **Plastics**

Plastic have become a versatile material of modern times. Plastics are available in a variety of forms to suit varied requirements. It is fast replacing many conventional materials like timber, aluminums etc. Plastics are used in electric and sanitary fittings like electric points, switches, holders, insulators, water closet seats and domestic furniture. While selecting the building materials, the following factors are to be considered:

1. Utility
2. Ease of maintenance
3. Durability
4. Availability
5. Process of installation
6. Cost
7. Family's taste and preference
8. Fashions of the present day.

### **Prefabrication**

Architects have long been aware of the need for less expensive ways of building and have recognized the potentialities in prefabrication. Prefabrication is the process of assembling the different architectural structures like roof, walls, floors, windows etc., from standardized factory-built components. Reasons for prefabrication in houses are

1. Prefabrication reduces the cost of construction, shortens construction time and assures a specified degree of quality.
2. Inadequate housing for millions of people.

3. At the present rate of population growth millions and millions of new dwelling unit will be needed within the next few years. Enormous social problems can be solved only if satisfactory housing at realistic costs can be provided which is possible by prefabrication.

## **5.2 CARE OF THE HOUSE**

Proper care and maintenance of the house is important to keep our living environment clean, healthy and livable. To clean means, to remove dust that has settled, dirt or foreign matters that has adhered to various surfaces and discoloration of various surfaces.

### **Dust**

These are both **organic and inorganic loose particles** deposited from the air. Examples: powdered earth, sand, hair, pollen etc. As these are light in weight it floats above in the air and settles on any surface. As it is easily disturbed, careful attention should be given in the removal of dust.

### **Dirt**

These are dust held firmly by moisture, or grease on rough surfaces. **Foreign matter** These include chemical compounds formed due to the reaction of air or food with metals. Example: rust. Cleaning involves various kinds of operation, knowledge, abilities and skills and hence it is important to know the reasons, types of cleaning and the different types of cleaning implements used in the upkeep of the house.

#### **5.2.1. Reasons for cleaning**

1. To make the house look neat and tidy.
2. To keep the environment clean.
3. To protect things from destruction.

#### **5.2.2. Types of cleaning**

Cleaning can be classified into three types. They are

- 1. Daily cleaning:** This includes sweeping and mopping of floors, dusting of various surfaces, removing superficial dust from carpets, shaking of curtains and making beds.
- 2. Weekly cleaning:** This needs more attention and time. This includes removing dust or dirt by scrubbing, vacuum cleaning of carpets, cleaning of shelves and cupboards, cleaning of toilets, bathrooms and washbasins. This sort of cleaning is usually done during weekends.
- 3. Periodical cleaning:** This involves more amount of time and work. This includes airing the mattresses, getting rid of insects, pests, washing heavy draperies and carpets, polishing the floor and furniture etc. This sort of cleaning is done occasionally or before certain festivals.

#### **5.2.3 Cleaning implements**

Cleaning method depends upon the amount of soiling, the nature of the substance to be cleaned and the purpose for which the article is used.

- 1. Dusters:** They are made of cotton fabrics and are used to wipe dust from hard surfaces.
- 2. Mop cloths:** These are a kind of dusters used for mopping floors, stairs, ledges and shelves. They are of different types namely impregnated mop, static mop and disposable mop. They have a handle with polyester or cotton head.
- 3. Rag:** These are used for applying polish which are thrown away when dirty.
- 4. Chamois leather:** This is supple thin leather used for wiping windows and glass.
- 5. Scrim:** This is loosely woven linen material which has high absorbency and does not leave lint. It is often used to clean windows, glass and mirrors.

**6. Brushes:** They are available in various sizes and shapes. The bristles are made of plastic, nylon and coconut fibers. They are used to clean toilet pans, carpets, clothes and furniture.

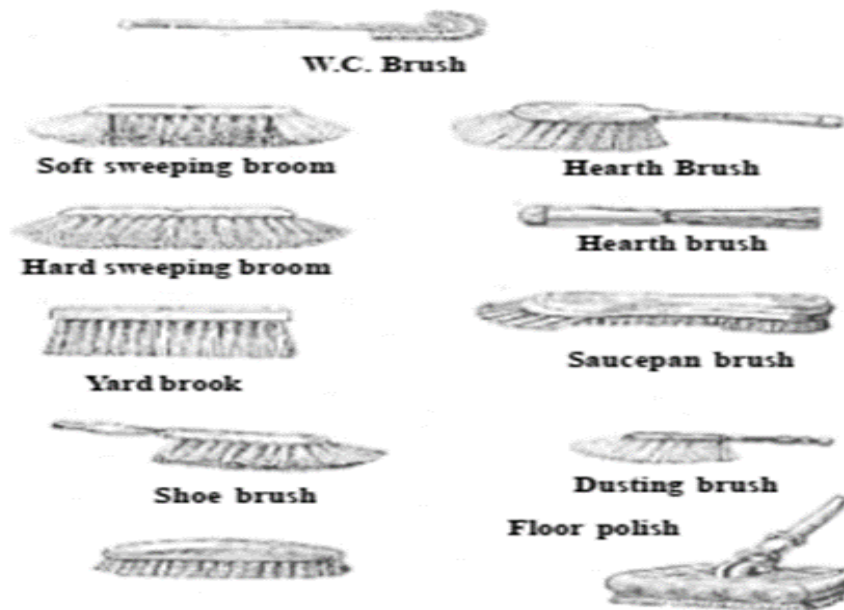
**7. Brooms:** Brooms are either soft or hard depending on the type of material used. They are available in different varieties. They are used to clean interior floors. Yard brooms are stiff and are used to clean exterior floors.

**8. Dust pan:** This is used for collecting dust and dirt. They are available in different shapes and colours, sizes and materials

**9. Buckets and basins:** They are used for carrying water for cleaning. They are available in different shapes, sizes, colours and materials.

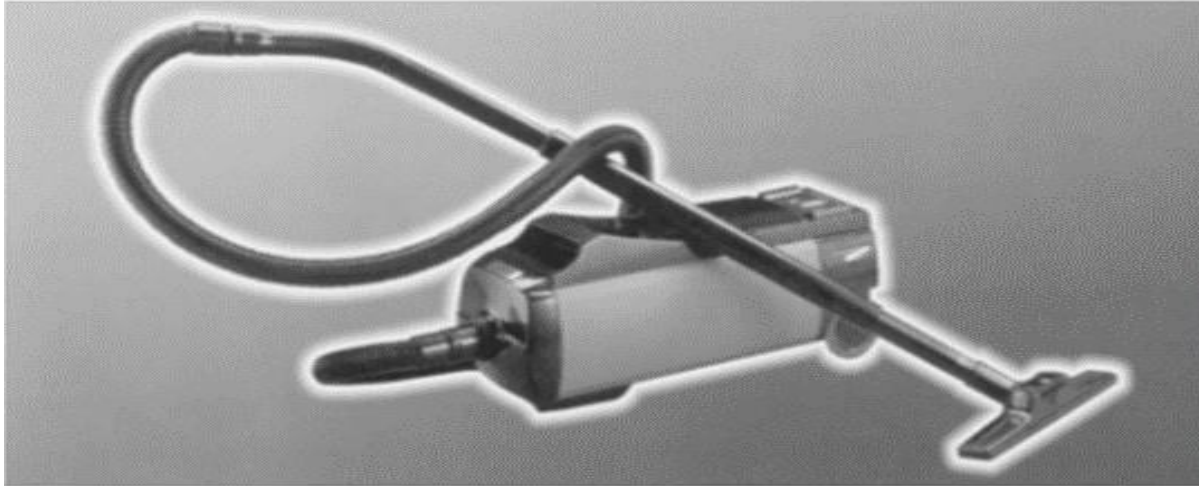
**10. Stools and Ladders:** These are used for reaching high places in the house for removing cobwebs, clean lamps and fans.

**11. Vacuum cleaner:** This is a motorized cleaner used for sucking dust. This has a disposable dust bag, brushes and tube nozzles. The suction created by a revolving fan helps in drawing the dust from the article into the dust bag. They are used to collect dust from carpets, upholstery and are used in high dusting and to collect dust from inaccessible areas.



**Fig. 1 la - Types of Brushes**





**Fig.11b-Vacuum cleaner**

#### **5.2.4 Cleaning agents**

- 1. Soaps:** These are alkaline salts of fatty acids. They emulsify the grease on the articles.
- 2. Detergents:** Detergents are effective in all types of water. They are non-soapy, synthetic materials.
- 3. Abrasives:** They are used to remove dirt by scrubbing and cleaning the surface. Examples of abrasives are saw dust, nylon mesh, steel wool, ash and brick powder.
- 4. Disinfectants:** These are used after cleaning to get rid of microorganisms.
- 5. Grease solvents:** These are used to remove grease. Eg. Petrol, kerosene, spirit.
- 6. Lemon, vinegar and salt** are used for removing tarnishes from metals.
- 7. Bleaches:** These are used to remove stains from toilets, sinks and mosaic floors. They are obtained in liquid and powder forms.
- 8. Linseed oil, varnish and wax polishes** are used to polish **unpainted** wood
- 9. Polishes:** Jeweler's rouge and silvo are used for polishing silver and brasso for polishing Brass. These are commercially available in the market.
- 10. Shikakai:** This is used for cleaning tarnishes, metals.

#### **5.2.5 House Hold Pest**

Control of pests in the house is an integral part of home management. Some insects do good, but most insects do harm. Some are the direct causes of disease while others are indirect forms. These pests can be divided into three types based on their tendency's bloodsuckers, polluters of food and destroyers of property.

**Ants:** They live in colonies in soil and in garbage. They can be controlled by

1. Poisoning with sodium chloride by spraying it into cracks where they abide.
2. Keep the legs of food safes standing in vessels of water with a little oil.
3. Dust borax in their haunts.

**White ants:** These are **most destructive** of all household pests. They cause damage to wood and wooden articles. They can be controlled by

1. Wooden post erected on earth should have cement foundation.

2. If they are planted into the earth directly, the sunken part can be coated with thick tar.
3. Boiling water or kerosene may be used to kill them.
4. Cracks should be filled up with cement.

**Bed Bugs:** These are round flat insects reddish brown in colour. They live on **human blood**. They breed on crevices of walls, floors, beds and other furniture. They can be controlled by

1. Plastering crevices on ceilings, walls and floors.
2. Sun dry bed sheets, cloths and hangings at least once a week.
3. Spraying pyrethrum in crevices.
4. Fumigation with ethylene oxide.

**Book lice:** These pests devour the paste used for binding books and framing pictures. They sometime breed on mattresses and upholstered furniture. These can be controlled by airing the rooms every day.

**Cockroaches:** The colours vary from dark brown to black. They feed on leather, books, starchy fabrics and all kinds of food. They live in drains and pipes. They are found mostly in kitchen and dining rooms. The control measures are

1. Do not keep any food item open.
2. Using repellents like borax or pyrethrum powder.
3. Thorough cleaning to remove unpleasant odour.

**Crickets:** They cause a **lot of damage to wood**. The way of controlling them is to keep the areas clean or spray borax.

**Houseflies:** Flies are very dangerous insects as they play a major role in **spreading diseases** like typhoid, cholera, tuberculosis, dysentery and diarrhoea. They can be controlled by

1. Cover all garbage items.
2. All food items should be covered.
3. Destroy the eggs with kerosene or borax.
4. Use flypapers made of 5 parts of castor oil and 8 parts of resin powder, to which flies will get stuck and die.

**Mosquito:** They suck blood, inject germs. There are different types of mosquitoes namely **anopheles** which causes malaria, **culex** which causes filaria and **qedes** which causes yellow fever. The control measures are

1. Stagnation of water should be avoided.
2. Wells and tanks should be covered properly.
3. D.D.T powder suspended in water can be sprayed.
4. Mosquito nets can be used over beds and windows to prevent entry of mosquitoes.
5. Kerosene can be sprayed in open drains to destroy larva.
6. Incense and other repellants like neem leaves, tobacco and camphor can be burnt.
7. Eucalyptus oil or lavender oil can be rubbed on the skin.

**Silver fish:** They attack paste used for bookbinding, framing pictures and starched clothes. The control measures are

1. Clean pictures, photograph and glass frequently.
2. Use D.D.T powder or pyrethrum powder.

**Mice:** They get attracted by the warmth of the building and the food in the house. They destroy clothes and newspapers. They can be controlled by blocking all possible points of entry and placing rodenticides.

**Pests:** This could be controlled to a greater extent if the house is kept clean. To keep the house clean, it is important to know the various ways of collecting and disposing waste in a hygienic manner.

### **5.2.6 Waste disposal**

The wastes that are produced in the house should be collected and disposed off in a proper manner. There are two types of household waste. They are

**1. Refuse:** This is made up of solid organic waste in a decomposing or non-decomposing state, excluding body wastes. Examples are garbage and rubbish.

**2. Sewage:** This is waste water containing solid and liquid excreta.

#### **Reasons for waste disposal**

1. To avoid contamination of soil
2. To prevent ground water from getting polluted.
3. To prevent breeding of flies and other harmful microorganisms that spread diseases.
4. To keep the surroundings clean.
5. To protect the surroundings from obnoxious odour. The domestic refuse should be collected in a container or bin which has a tight-fitting cover. The bins must be kept away from cooking area.

**Methods of refuse disposal Dumping:** This is filling up empty pits with refuse or reclaiming low-lying lands. If dumping is done under proper supervision and during dry season it is called “Controlled dumping”.

**Sanitary land fill:** This is dumping the refuse material in a trench and covering it with 15cm layer of earth.

**Compost formations:** This method is used mainly where refuse is to be disposed off with night soil and to convert the waste into humus.

**Sorting:** This method consists of sorting the refuse into soft core which consists of animal and vegetable organic matter which can be used as manure and hardcore which consists of broken bottle, crockery tiles, etc. which can be used for metaling roads.

**Incineration:** This is one of the best methods of refuse disposal. In this method, the refuse is burnt in incinerator and reduced to ashes,

**Sewage disposal:** The best method of disposing sewage is through water carriage system. In big cities, this system leads to the sewer systems and in small towns it may lead to septic tank.

**Dilution** is a method in which the sewage is disposed into water sources such as rivers, streams and sea, after having been suitably treated. The solid part obtained from this treated sewage is used as manure in fields. A well-maintained house will create a healthy and safe environment to live in. But one should also know to add beauty to the house, by decorating its interiors in a pleasant way.

### 5.3 INTERIOR DECORATION

A simple house can be made to look attractive by decorating its interior tastefully. When our home looks beautiful, we feel happy and proud. **According to Keats, “A thing of beauty is a joy forever”.** One’s imagination, good taste and aesthetic sense are very much needed to have a good interior. Interior decoration is a creative art of adjusting the space and equipment to suit the fundamental and cultural needs of the dwellers.

#### 5.3.1. Importance of good taste

Taste differs from person to person. The taste is reflected by the things a person buys. A thing may or may not be appreciated by all individuals equally. Certain arrangements attract the viewers for longer periods while some arrangements attract for shorter periods. Whatever the care may be, taste of the person who has created that particular piece of work is reflected through his or her creation.

**Art and good taste go together like the jasmine and its fragrance.**

There are general characteristics found in beautiful things that establish certain principles. Any piece of art that satisfies the principles is always admired by all. One should have the knowledge of the principles fundamental to good taste. Based on this, he can identify and appreciate beauty. Now let us deal with the elements of art. In formulating a design, two groups namely **the elements of art and principles of design emerge. Design is defined as any arrangement of lines, forms, colours and textures.** It involves the problem of choosing these forms and colours and then arranging them. **A good design shows an orderly arrangement of the materials and creates beauty in the finished product.**

#### 5.3.2. Elements of Art Line:

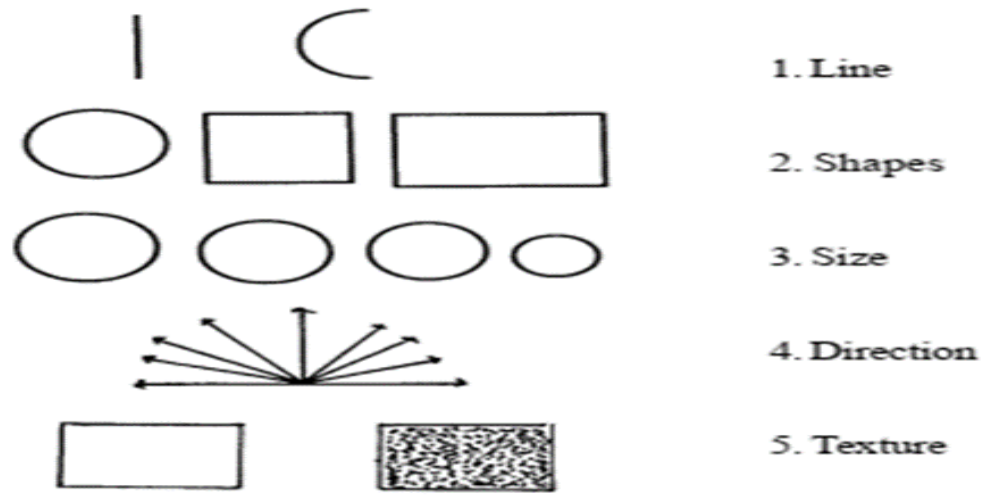
Line is the basic element. Line has three dimensions. They are **length, thickness and direction.** Lines can be classified into straight, curved lines or combination of these as zig zag line, scalloped lines. Straight lines give a rigid, formal appearance whereas curved line indicates femininity and flexibility. They also give gracious look. Lines can take vertical, horizontal, diagonal directions or a combination of these. **Vertical lines** suggest dignity and create the illusion of height to the room. **Horizontal lines** give a restful effect and make the room look lengthier and reduces height. **Diagonal lines** are dynamic and create the impression of restlessness if used in excess.

**Form:** Form is referred to as **area, mass and shape.** When lines are drawn in different directions, they meet at common points to form different shapes. A solid has three dimensions and the flat forms have two dimensions of length and width. Too many varieties in form create confusion. A rectangular and square form can be obtained by combining horizontal and vertical lines. A triangular form can be produced by combining vertical or horizontal and diagonal lines.

**Size:** Size is the dimension of objects. It may vary from small, smaller, smallest or large, larger and largest.

**Texture:** Texture is the surface quality of the material. This can be classified into **actual and visual** texture. Actual texture is the one that can be felt when we touch and visual texture is the one that can be identified through visual examination. A rough texture absorbs more

light and smooth texture reflects light. Texture in home may refer to wall finish, rugs, woodwork, an oil painting, a ceramic urn or wood used for furniture



**Fig.12-Elements of art**

**Colour:** Colour adds beauty to any expression of art. Colour can bring about warm or cool effect, light or dark effect, bright or dull effect in the articles and different areas of the house.

**Design:** A good design shows an orderly arrangement of **lines, forms, colours and textures**. It involves the problem of choosing these forms and colours and then arranging them. It can be **structural and decorative**.

### **5.3.3 Structural design**

Structural design is the design made by the size, form, colour and texture of an object. Structural design is essential to every object.

#### **Requirements of a good structural design**

1. It should be simple and beautiful.
2. It should be suited to its purpose.
3. It should be well proportioned.
4. It should be suited to the material of which it is made.
5. It should have originality



**Fig. 13 - Structural Design**

**5.3.4. Decorative design:** Decorative design is the surface enrichment of a structural design. This adds luxury to a design.

#### **Requirements of a good decorative design**

1. The decoration should be in moderation.
2. The decoration should be placed at structural points.
3. It should strengthen the shape of the object.
4. There should be enough background space to give an effect of simplicity and dignity to the design.
5. Surface patterns should cover the surface quality. Designs, based on their source can be classified into natural, conventional, geometric and abstract designs.

#### **5.3.5 Colour and colour combinations**

The appeal of colour is universal. It enhances the beauty of objects and gives satisfaction to the mankind. Each colour has got its own characteristic such as irritating, charming, boring, welcoming or repelling. Because of these effects, colour affect the atmosphere of the home and we react emotionally to different colours.



Fig.14-Decorative Design

Prang colour chart



Fig.15- Prang colour chart

### Dimensions of colour

Colour has three qualities or dimensions. They are hue, value and intensity.

**Hue:** hue indicates the **name** of the colour. Examples are red, yellow, blue etc.

**Value:** Value indicates the **lightness or darkness** of a colour. The value of the colour can be changed by adding white or water to make it lighter and black or more colour to make it darker than the normal colour. A value that is lighter than the normal hue is termed as **tint** and a value darker than the normal hue is termed **shade**. **Example:** Red is a normal hue. Pink is tint of red and maroon is shade of red. **Dr. Denman W. Ross** has given nine degrees of value scales ranging from white to black. **White is the highest** of all values and no colour can be as light as white. **Black is the lowest** of all values and no colour can be as dark as black. When black and white are mixed, we get seven different scales of grey namely highlight, light, lowlight, middle, light dark, dark and low dark, based on the amount of black and white present in the grey colour.

White
High Light
Light
Low Light
Middle
High Dark
Dark
Low Dark
Black

Fig. 16 - Ross Value Scale

## Intensity

This indicates the brightness or dullness of a colour. It indicates the purity or strength of a colour.

**Classification of colours Prang colour chart:** According to Prang colour chart, there are three primary colours. They are **yellow, blue and red**. They are called primary colours because these colours cannot be produced by mixing other colours. When two primary colours are mixed in equal proportions, we get secondary colours.

Yellow	+	Blue	=	Green.
Blue	+	Red	=	Violet or Purple.
Red	+	Yellow	=	Orange

The primary and secondary colours together are called **basic colours**. When a primary and an adjacent secondary colour is mixed an intermediate colour is produced. There are six intermediate colours.

They are

Yellow	+	Green	=	Yellow Green.
Blue	+	Green	=	Blue Green.
Blue	+	Violet	=	Blue Violet
Red	+	Violet	=	Red Violet
Red	+	Orange	=	Red Orange
Yellow	+	Orange	=	Yellow Orange.

The three primary colours, three secondary colours and six intermediate colours form the outer circle of the Prang colour chart. When two binary colours are mixed a tertiary colour is produced.

There are three tertiary colours. They are

Green	+	Orange	=	Grey Yellow or Smoky Yellow.
Orange	+	Violet	=	Grey Red or Old brick Red.
Green	+	Violet	=	Grey Blue or Slate Blue.

When two tertiary colours are mixed a quaternary colour is produced. There are three quaternary colours. They are Smoky Yellow + Old Brick Red = Grey Orange or Buff.

Smoky Yellow	+	Old Brick Red	=	Grey Orange or Buff.
Smoky Yellow	+	Slate Blue	=	Grey Green or Olive Green
Old Brick Red	+	Slate Blue	=	Grey Violet or Prune.

The three tertiary and three quaternary colours form the inner circle of the prang colour chart. Grey colour is in the Centre of the Prang colour chart. When we draw an imaginary vertical line in the Centre of the Prang colour chart, the colours will be divided into two large groups. The colours on the right side of the prang colour chart closer to blue are cool colours and the ones on the left side, closer to red and orange are warm colours. **Red and Orange are the warmest colours and Blue and Blue Green are the coolest colours.** Warm colours make the objects appear bigger and closer where as cool colours make the objects appear smaller and far away. Warm colours are cheerful and stimulating where as cool colours are calm and restful. Light values increase the size of the



objects and dark values reduce the size. **Colour combination or colour harmonies** Colours should be combined effectively to create beauty, pleasure and satisfaction. They produce a sense of unity in colour combinations. Colour combination or colour harmonies can be classified into related and contrasting colour harmonies. **Related colour Harmony:** They are obtained by using colours which are similar. They are classified into **monochromatic and analogous** colour harmony. **Monochromatic colour harmony:** This is also known as one hue or one mode harmony. In this only one colour in different values and intensities is used. Example. Dark blue and light blue. In a monochromatic colour scheme, charming effects can be obtained through contrast in textures of the materials used. **Analogous colour harmony:** In this colour scheme the colours which are lying adjacent to each other in the prang colour chart are used. They provide interesting variety than monochromatic harmony. The colours should be of different intensities and values. Examples: Yellow, Yellow Green, Red, Red Orange, Orange. **Contrasting colour harmonies**

**Complementary colour scheme:** Two colours that are directly opposite in the Prang colour chart are combined. Example: Yellow and Violet, Blue and Orange

**Double complementary colour harmony:** Two adjacent colours and their opposite colours in the Prang colour chart are combined. For example: Yellow, Yellow Green, Violet and Red Violet.

**Split complementary colour harmony:** In this a primary or an intermediate colour and the two colours that lie on either side of its complementary colour are combined. For example: Yellow, Blue Purple and Red Purple.

**Triad:** In this, three colours which are at equal distance in the Prang colour chart are combined. We get four triads namely primary, secondary and two intermediate triads. Primary Triad - Yellow, Blue and Red. Secondary Triad - Green, Orange and Violet. Intermediate Triad –

a) Blue Green, Red Purple and Yellow Orange

b) Yellow Green, Blue Purple and Red Orange.

**Tetrad:** This is formed by any four hues equidistant. on the Prang colour chart. Example: Green, Yellow Orange, Red and Blue Purple

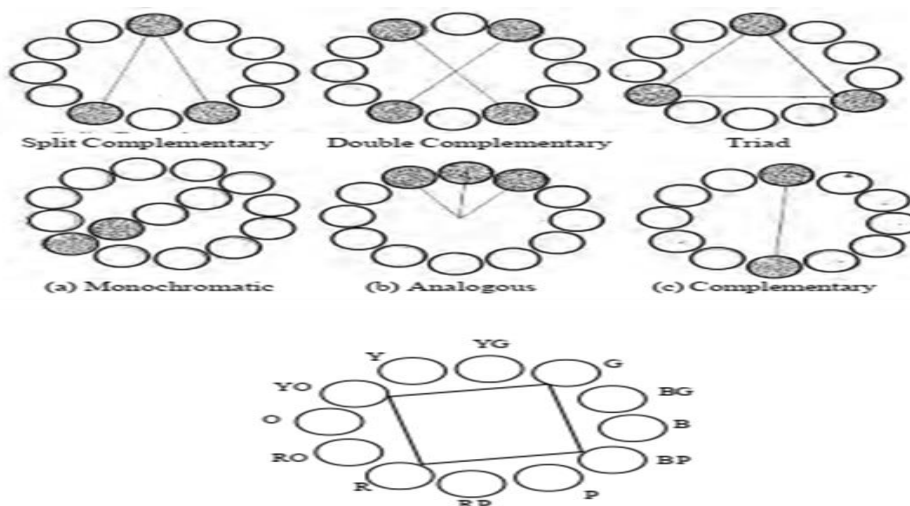


Fig.17 - Colour Harmonies

### Factors to be considered while planning colour scheme:

1. The expected effect in size, shape and direction of the room.
2. The mood to be created in the room. Example: Masculine, feminine, traditional, formal, etc.
3. Individual preference of the family members.
4. The activities to be carried out in each room.
5. Colours of other existing furniture and furnishings in the house.
6. Only one colour should dominate.
7. The basic colour should occupy atleast 60-70% of the whole colour scheme. Second hue should be used in lesser quantity and if a third colour is used, it should be used in least quantity.
8. Follow 'Law of areas' that is, larger the area lighter the colour and smaller the area brighter the colour.
9. The current trends and fashions.

### 5.3.6 Principles of Design

In our daily life, we meet with a number of designs. It is always important to remember that beauty is the goal toward which we are striving for. Utility also plays a major role in forming a good design. The following art principles are the bases for judging good design. They are Harmony, Balance, Proportion, Rhythm, and Emphasis.

#### Harmony

Harmony is the fundamental requirement of any piece of work. It means **unity or a single idea or impression**. It produces an impression of unity through its selection and arrangement of consistent objects and ideas. Forms, lines, textures and colours should be harmonious. For example, in a formal dinner arrangement, a table should have table mats, plates, knives, spoons, forks, cups, hand towels etc., arranged in order so as to achieve harmony of ideas. In a round plate, a round design will be more apt than a square design

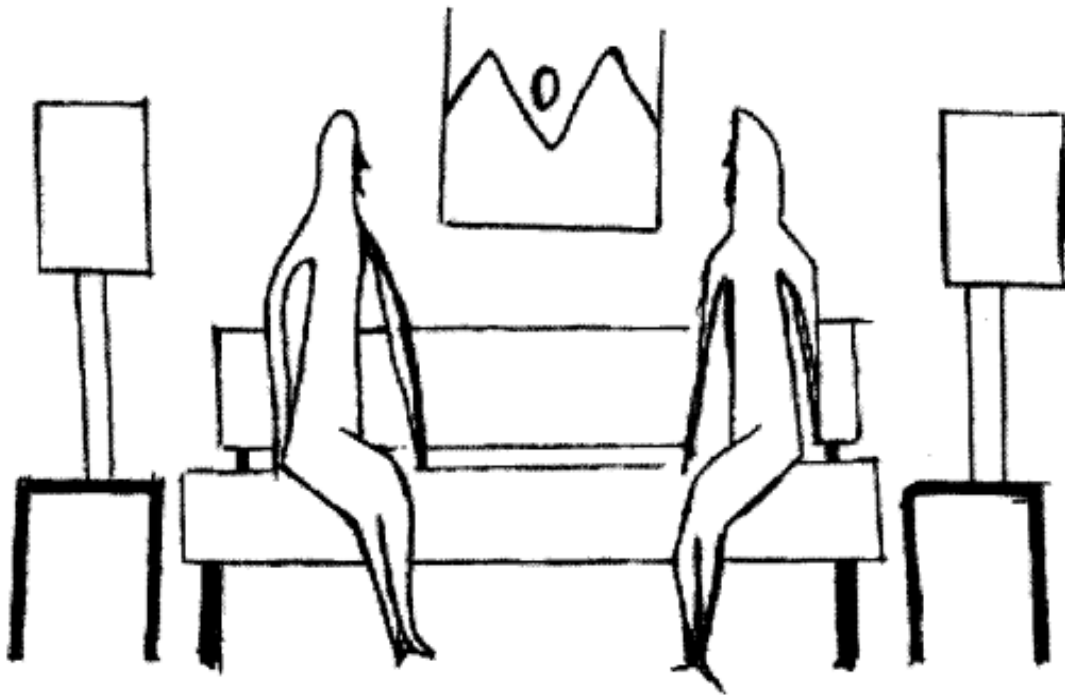


Fig.18-Harmony

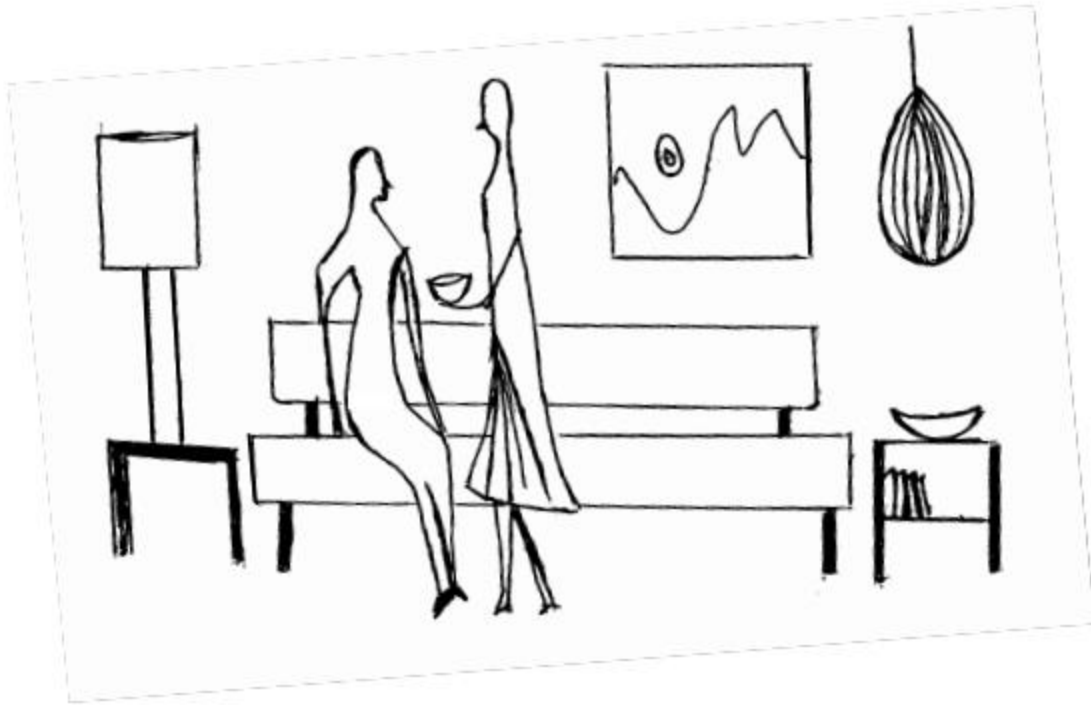
## Balance

Balance is **equalization of attraction on both sides of the center**. It is rest or repose. This effect is obtained by grouping shapes and colours around a center in such a way that there are equal attractions on each side of that center.

**Balance is of two types** They are formal and informal balance. **Symmetrical or formal balance** results when articles are kept at equal distance. If objects are similar in appearance, they will attract the same amount of attraction and therefore should be equidistant from the center. A design which has formal balance gives a feeling of dignity and stateliness. **Asymmetrical or informal** can have many variations. If the objects do not have the same amount of attraction, they must be placed at different distances from the center. This type of the balance is just like see-saw, in which to balance off a heavier person, the lighter one moves away from the Centre and the former towards the Centre. Informal balance is more creative and require much more effort than the formal one. It gives an impression of spontaneity, freedom of movement and casualness.



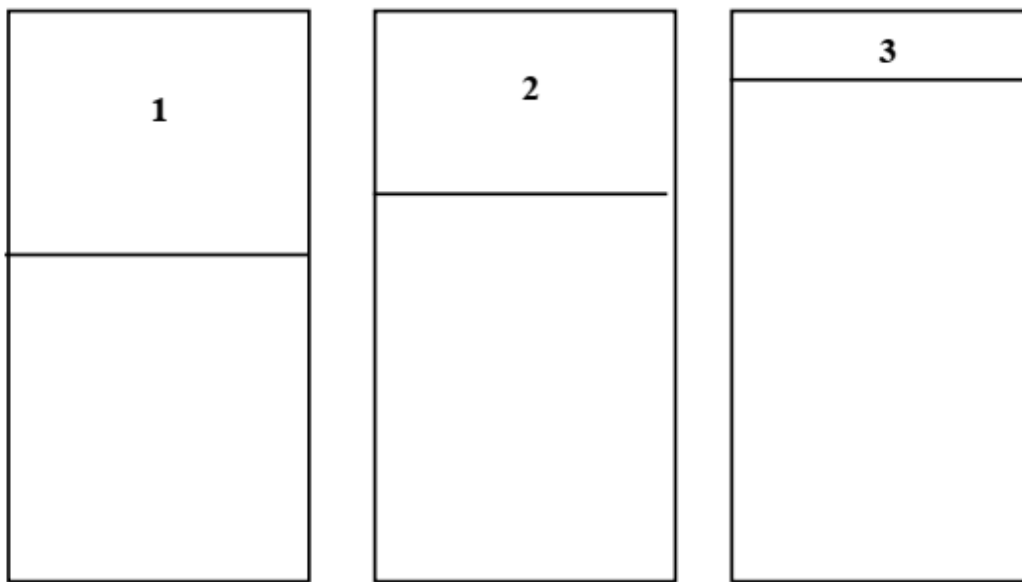
**Fig. 19A Symmetrical balance  
seems formal and static**



**Fig. 19-B Asymmetrical balance suggests informality and movements**

### **Proportion**

Proportion means **the relationship of sizes or areas to one another or to a whole**. Whenever two or more things are put together, good, or bad proportions are established. Proportion is achieved when the different sizes of objects are successfully grouped in an arrangement the elements making up the structure having a pleasing relationship for the whole and to one another. For example, a very small chair next to a very massive one would be 'out of scale'. **Greek oblong or Golden Oblong** is a good proportion, which can be used for division of space interestingly. This oblong uses the ratio of 2:3 or 3:5 in case of flat surfaces and 5:7:11 in case of solids. In the figures, three rectangles are given where the entire area is divided into two portions. The division of the area can either be interesting or uninteresting proportions. In A, the division is too simple to be interesting. In C, the proportion is too unlike. In B, the divisions are pleasantly related because they are little alike. The difference in the division makes it interesting.



**Fig. 20- Division of Space**

### **Rhythm**

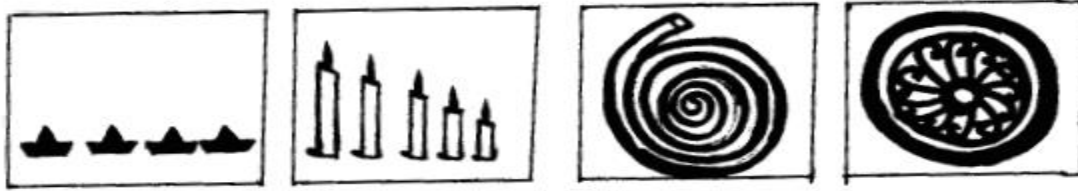
Rhythm is the **movement of the eyes across a design**. It is a kind of organized and related movement in continuity. Rhythm means an easy connected path along which the eye may travel in any arrangement of line, form or colour. In a perfectly plain surface, there is absolutely no movement of the eye and it remains quiet. Some line movements create rhythm and others create a feeling of confusion.

**Rhythm can be achieved in many ways: Through the repetition of shapes** When a shape is regularly repeated at proper intervals, a movement is created which carries the eye from one unit to the next. **Through a progression of sizes** Progressing sizes create a rapid movement and at the same time interesting.

**Through an easily connected, or a continuous line movement.** The eye is led along the design by the continuous line movement.

### **Radiation**

Radiation is the plan for many geometric designs. From a central point, line radiate. Radiation is a type of movement that grows out of a central point or axis. It is used very commonly in designs like Ashoka Chakra in the national flag, and flower arrangements



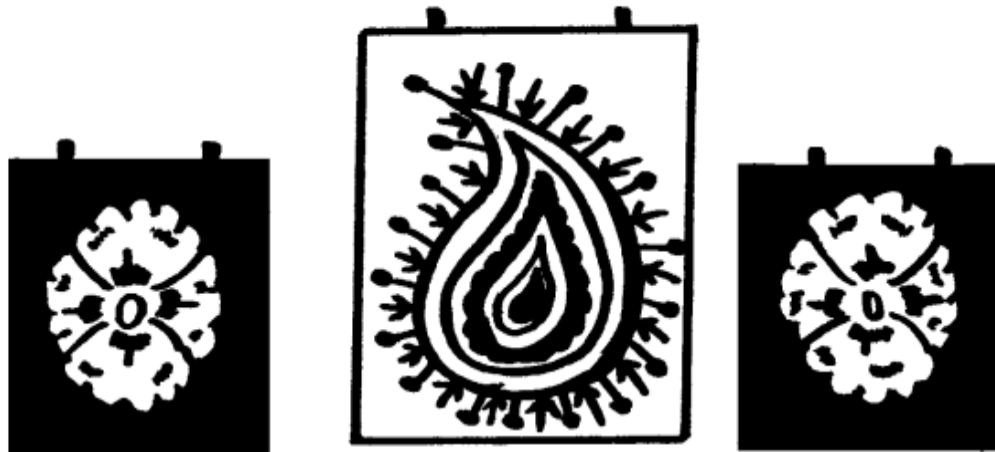
**Fig. 21-Rhythm**

### **Emphasis**

Emphasis is the art principle by which the eye is carried first to the most important thing in any arrangement and from that point to every other detail in order of importance.

**Emphasis can be achieved by the following ways**

1. By placing or grouping of objects.
2. By the use of contrast of colour.
3. By using decoration.
4. By having sufficient background space around objects.
5. By contrasting or unusual lines, shapes or sizes.
6. By unusual texture



**Fig. 22-Emphasis**

So far, we have learnt about the use of art principles in decorating the interiors. Now we will learn about the different ways of furnishing the house.

### 5.3.7 Furniture for the House

Furniture are pieces intended for comfort, rest and relaxation, storage or articles of beauty. Furniture in all houses, are indispensable and they provide for a harmonious living. While selecting furniture the following points are to be borne in mind.

1. Furniture used should be in proportion to the size of the room.
2. The design should be simple, plain, well-constructed and provide comfort to the user.
3. The furniture we select should be easy to maintain.
4. The furniture should not occupy too much space.
5. It should be light weighted.
6. Children's furniture should be of adjustable height (legs).
7. The furniture should be movable.
8. The furniture should be functional and not too decorative.
9. The furniture should stand firmly.

#### General Rules

1. Select, a Centre of interest and subordinate all other interests to it.
2. Observe balance in arrangement. Formal balance gives dignified, restful effect, but too much of formal balance in a room will give a monotonous appearance.
3. Retain good proportion while arranging. Place all large pieces on large wall area and small pieces on small wall area.
4. Avoid using too many furniture in a room.
5. Scatter upholstered pieces among wooden pieces.
6. Avoid letting furniture hide the walls. But at the same time avoid filling too much of the centre floor area. Keep the traffic lines in the room very clear while arranging. Arrange all furniture with purpose and function in mind, grouping those, which are needed for a particular activity in one place. In the distribution of furniture, the housewife should exercise three policies: **elimination, re-arrangement, and concealment**. If one can afford, broken and unwanted furniture may be discarded and fresh ones replaced. Furniture in a room may be reorganized so as to achieve satisfaction. Unsightly and jarring object must be concealed by the use of slipcovers. Defective and unattractive furniture can be concealed by the use of good attractive covers.

**Furniture Needed in Different Rooms Drawing Room:** One comfortable sofa and few chairs. Teapoy which is a bit lower than the seat of the sofa, television, video cassette recorder, radio and record player cabinets to keep record albums.

**Dining Room:** Dining table and chairs, folding chair, if needed a trolley.

**Bed Room:** A double bed, bedside table and a lamp, dressing table, bed time table with lamp, place for suitcases, chairs.

**Children's Room:** A study table, a bed, book shelf.

**Guest Room:** Sofas which can be converted to bed. Dressing table, bed side table with lamp, place for suitcases, chairs.

**Kitchen:** Built in storage space (appliances), stools, shelves, plate rack.

**5.3.8 Window treatment** Treating the windows with fabrics and other materials is the easiest and most common way of furnishing the house. Window treatment can be classified into **soft and**

**hard.** Soft window treatment is furnishing the windows with curtains and draperies. **Curtains** are thin fabrics which are used to cover the windows. They provide lighter and less privacy to a house. **Draperies** are the thick fabrics which are used to cover the windows and they provide less light and more privacy.

#### **Selection of Curtains**

1. Curtains should control light, heat and noise.
2. It should provide privacy.
3. The material purchased should be easy to wash and maintain and should not collect dirt easily.
4. It should neither be too light nor too heavy.
5. Curtains should add to the width of the windows.
6. It should suit the colour scheme of the house. Curtains with large designs suit only large rooms, while those small designs are fit for use in small rooms.

**Hard window** treatment is treating the windows with blinds, shades, shutters, thoranams, beads, leaves etc.

**5.3.9 Cushions** Cushions are available in many sizes and shapes. We can select the cushions according to the size of the furniture on which they are placed. Cushions are used for comfort and relaxation. They are luxury and charm to the room.

**5.3.10 Floor Coverings** Floor coverings are used to **enhance the beauty of an ugly floor surface.** Floor covering may be hard floor covering, which include wood, stone, marble, slate, brick, tile and concrete; Resilient floor coverings which are smooth surface materials like asphalt tile, rubber tile, vinyl's, cork and varieties of linoleum and soft floor coverings are carpets and rugs which represent the major house furnishing. The floor covering should be selected on the basis of function, wear, cost design; and the effect of covering on the overall decoration.

#### **5.3.11 Carpets and Rugs**

A carpet covers the entire floor area of the house. They create an **illusion of space.** Wall to wall carpets produce a feeling of warmth, quiet and luxury. A rug is single piece of floor covering made with a floor pattern or a border with fringe. Plain rugs add unity and warmth.

#### **Points to be considered while buying Carpets and Rugs**

1. Their design and colour should be in harmony with the general colour scheme.
2. They should be of durable material.
3. The edges of rugs should be well finished and clear.
4. They should prevent the floor surface noise.
5. Carpets should provide safe fitting and prevent slipping.
6. Maintenance of carpets and rugs should be easy.
7. Cost, character of the room, purpose, quality, design, utility, resiliency and abrasiveness are also the factors to be borne in mind.

#### **5.3.12 Wall finishes**

Wall finishes play an important role in changing the appearance of the room. A room can be made to look larger or smaller, noisy or quiet, formal or informal, light or dark, cluttered or empty, festive or serious, depending on the finish that is given to the walls. It is also important to give an easily cleaned and hygienic surface. It is easy to bring various colours, patterns, textures and light inside the interior using various types of wall finishes. Wall finishes can be classified into **structural and applied** wall finishes. Structural wall finishes are the finishes that are given to the



walls while the construction of the building is on. Examples for structural wall finishes are brick finish, cement plastered finish, tiled finish, stone finish with granite, marble, black stone, etc., rubble finish etc. Applied wall finishes are those, which are applied to the structural unfinished walls. Examples for applied wall finishes are lime and colour wash, paints, wall paper, fabric wall covering, wood paneling, glass wall covering, metal wall covering, leather wall covering etc. It is possible to introduce more than one type of wall covering into a room and colours, designs or materials can be used for focal points to add interest.

**5.3.13 Lights** Sunlight has a cheerful and happy effect on everybody in the home. House should be built in such a way as to admit maximum sunlight. Sunlight is also germicidal in action. Other than electricity, gas light, candle and oil lamps can be used. The amount of light from these sources prove to be sufficient. Electric lamps are powerful and lessen the strain to the eye. Electric tubes are better than filament bulb. Careful choice and colour of light in a room adds to the decorative appearance of the home. Good lighting means providing an even diffused light throughout the rooms, as well as providing spot lighting for concentrated work. Besides a central light in a room, local lighting as table lamps, dining table spot lamps, bedside lamp or work spot light near stove etc. are needed. There are many decorative lampshades available in the market. The lampshades should not collect dust. Adequate lighting helps in reducing eyestrain and provides more comfortable working conditions. Lighting in all parts of the house is considered to be essential, for the sake of convenience and safety.

#### **5.3.14 Accessories:**

Accessories are **small art objects**, which are used in completing the interior decoration. It contributes much to the loveable and comfortable atmosphere of a room. They enhance the beauty of the room. They serve as means of self-expression, originality and personality of the homemaker. Accessories may be classified as **functional or decorative**. Paper weight, timepiece, pin tray, penholder etc. are functional. Carvings, pictures, ornamental objects, flower arrangement etc. are decorative. Some other accessories are books, gifts, candle stick, book ends, strip covers, shells, wall hanging, feathers, stones, twigs, beads, metal objects etc. Likewise, you can have a list of other accessories you have come across.

#### **Pictures**

Pictures are integral part of wall decoration. It reveals **the aesthetic sense** of the viewers. They have the power to stir one's imagination. They can establish the mood or theme of a room. The various types of pictures are landscape, seascape, still life, architectural portraits, photographs, religious, abstract modern pictures etc.

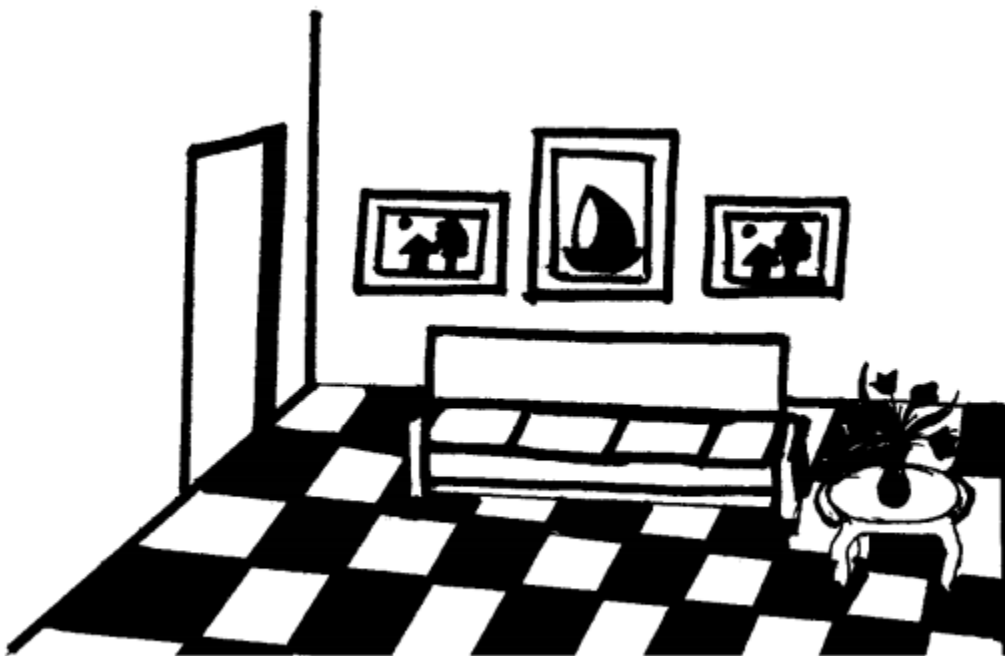
#### **Selection of Pictures**

1. The picture must coincide with the idea of the room.
2. Pictures should have the natural colours.
3. It should satisfy the principles of design.
4. It should fit in with the general decor of the house.
5. The frame should suit the picture. It should be plain and not too decorative.
6. Pictures should find a central place on the wall, directly above the furniture and should not be hung too high or too low.
7. Sufficient light should be focused on the picture.

8. Cost of the picture, availability and the personal taste of the user must be considered.

### **Hanging of pictures**

Hanging picture is itself an art. Pictures should be hung in such a way that the center of interest comes at above eye level. They should be hung flat against the wall and not tipped forward. Avoid using visible wires. Light pictures are best hung on fairly light walls and dark pictures on dark walls or in dark corners. Tall pictures should be hung on vertical wall spaces and broad pictures on horizontal space. Small pictures will be out of place on large wall spaces. **Proportion** is an important consideration while hanging pictures. Principle of **emphasis** plays an important part. There must be plain space which will add to the brightness. Pictures should carry the eye towards it and not away from it.



**Fig. 23- Hanging of pictures**

The following rooms can have the pictures as suggested below:

**Living room** - portraits, photographs of personalities, abstract paintings, landscapes, marine life, flower and figure compositions.

**Bed room** - photos of close relatives and babies.

**Dining room** - still life paintings of fruits, vegetables, land space etc.

**Children's room** - picture of animals, flowers, cartoons, Photos of leaders, scientists, great men of the nation etc.

**Kitchen** - pictures of fruits and vegetables.

### **5.3.15 Using plants and flowers**

Flowers delight everyone. Interior decoration is complete only with the presence of few flowers in a room. Flowers suit any room in the house and provide variety and interest. Flowers are

universally admired and loved. Apart from the beauty and charm they possess, plants also help to purify the air during the day time. Plants inside the house create a pleasant, fresh and cheerful atmosphere. It alleviates feelings of depression and objection. Today arranging flowers has become the fascinating hobby of many housewives. Now we shall discuss flower arrangement in detail.

**Selection of Vases** The main function of the vases or container is to support the flowers and foliage. The container should be subordinate to the flower arrangement. It should be of the right size, shape, colour and material.

#### **Types of vases or containers**

1. Jars, attractive bottles, tins.
2. Tall cylinders, narrow necked vases, flat round dishes, deep trays, low round bowls.
3. Bottles of different colours.
4. Block of wood or bamboo baskets.
5. Household pots, vessels, tumblers, shallow dishes.

#### **Selection and preservation of flowers**

1. Flowers should be collected either early morning or evening.
2. Select buds or flowers just blossoming than flowers in full bloom. These flowers are liable to shed their petals or droop and wither fast in a short period.
3. The stems should not be broken with the hand. It should be cut with scissors or a sharp knife. The stem should be as long as possible.
4. The cut portion of the stem should be immersed in water. Only the petals of the flowers should be exposed.
5. The leaves close to the base of the stem should be removed.
6. The flowers should be wrapped either in a piece of paper or a broad leaf, such as the banana leaf, above the stem ends and stored in dark corner of a room in a bucket of water, to protect them from sunlight. If they are not going to be used soon, polythene covers may also be used to cover the cut flowers.
7. The container or the vase should be filled with warm water. The water should be changed every day. Add sugar or salt to enable the flower to last.

#### **Flower Holder**

A flower holder is one which has sharp spikes upon which the stems can be firmly placed. This is known as pin type holder. Other than this we also have crumpled wire, split twigs etc. Flower holders must be strong and flexible, so that any type of stem can be easily fixed. It should also be rust proof. Pin holders can be fixed to the bottom by clay or candle. This fixing must be done when the vase as well as the holders are dry. Large flowers and foliage can be arranged at the bottom so that the holders are concealed.

#### **Styles in flower arrangement**

- 1. The traditional style:** Where a mass of flowers of all kinds, colours and size are used together. This produces a multicolored mass effect.
- 2. Oriental style:** This is Japanese mode of flower arrangement. It gives an impression of a natural growing plant. The stems are so arranged that their lines form an attractive pattern. The flowers are placed in such a way so as to produce balance. The flowers are always in odd numbers, three,

five, seven or eleven. The arrangement has three main branches representing heaven, man and earth.

**3. The modern style:** A combination of traditional and oriental style.

**4. Floating arrangement:** This arrangement can be made in shallow bowls and trays with short stemmed flowers. The largest, highest and most attractive flower can be allowed to float in the Centre and others grouped around. Flowers should not completely cover up the water.

### Points to be Considered While Arranging Flowers

1. Have an idea about the arrangement.
2. Arrange the flowers first and then fill up with leaves and twigs.
3. Have big bright flowers at the bottom and small light coloured flowers on higher levels.
4. Make the levels start and deviate from one point in the arrangement.
5. Fill the flower vase with enough water to dip the stem ends.
6. Sprinkle salt, sugar or suitable preservative to keep up the freshness of flower for long.
7. Display the flower arrangement beautifully in a place to be seen and enjoyed. Select suitable accessories to go in with the arrangement
8. All the principles of design should be followed for pleasing effects.

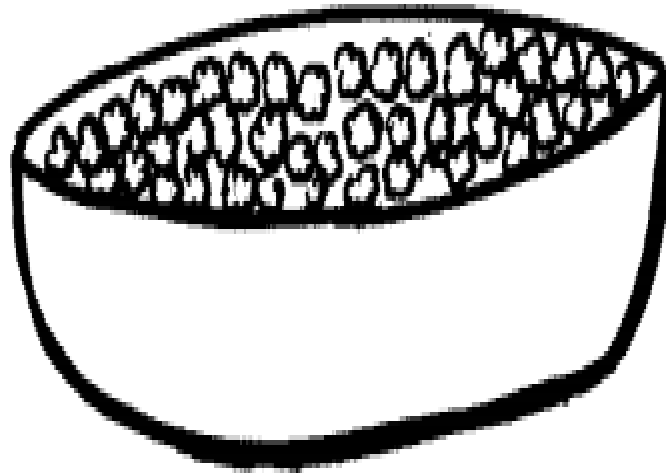
### Types of Flower Arrangements

**1. Mass Arrangement:** A group of flowers of all kinds, colours, size and textures are combined in a container. Usually decorative container is used.

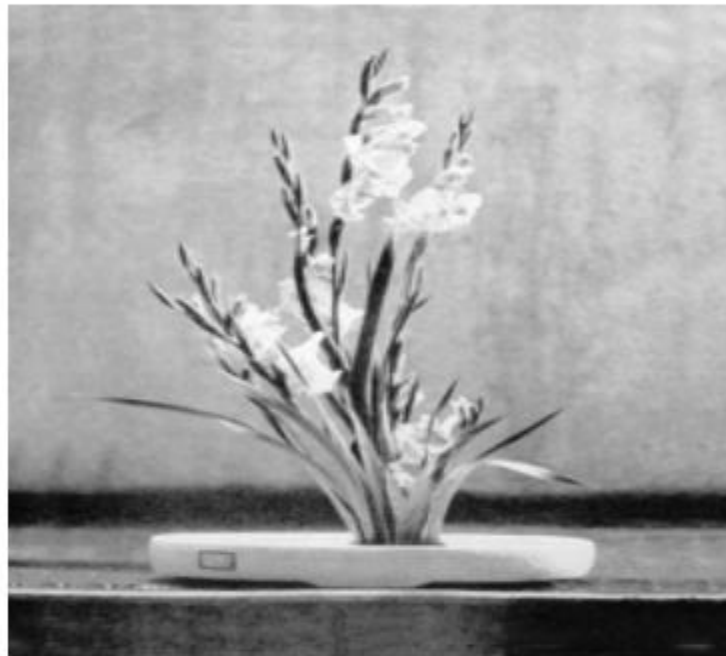


**Fig. 24 -Mass arrangements**

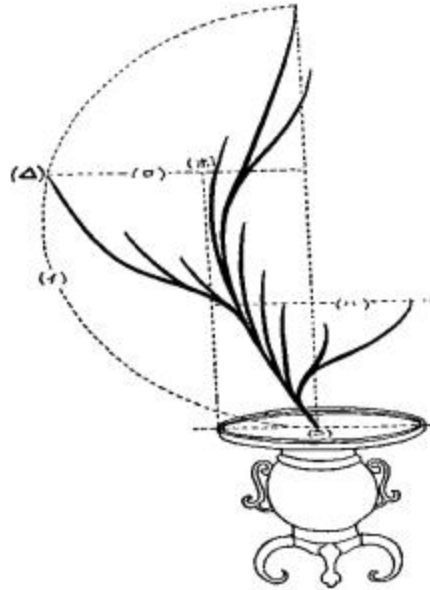
**2. Line arrangement:** This arrangement is simple, meaningful, beautiful and informal. The Japanese oriental style usually follows. This arrangement gives an impression of natural, free growing plant. Odd numbers of flowers are used at three levels. The **highest** level signifies heaven, the **middle** refers to the man and **lowest** indicates the earth. Heaven-  $1\frac{1}{2}$  times to 2 times the height or width of the vase Man -  $\frac{3}{4}$ th the height of heaven. Earth -  $\frac{1}{2}$  the height of man.



**Fig.25-Floating arrangement**



**Fig. 26 -Ikebana arrangement**

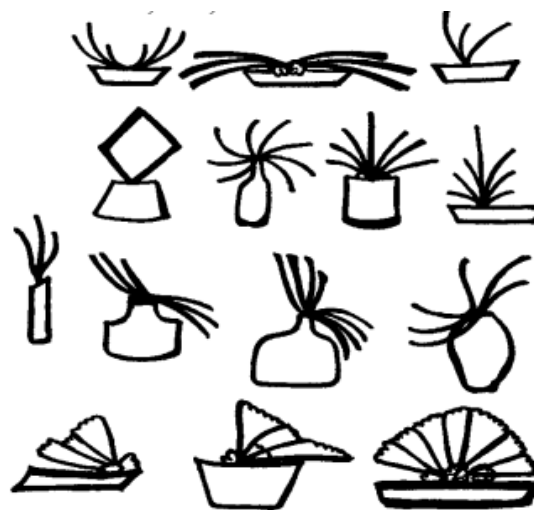


**Fig. 27 -Ikebana arrangement - basic style.**

**3. Combination arrangement:** A combination of line and mass arrangement gives rise to geometric shapes as cone, crescent, circle, triangle, 'L' shape and so on.

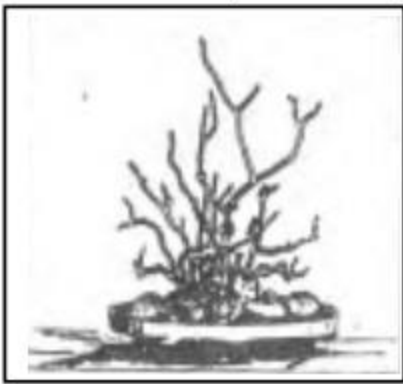
**4. Foliage arrangement:** Arrangements using leaves or branches of plants are foliage arrangements, (e.g.) ferns, crotens, cannas, cactus, weeds can also be arranged effectively with a touch of imagination

**5. Diminutive arrangement:** They are small arrangements usually within four inches in height arranged in small containers like egg shell, small bottles, lids, etc.



**Fig. 28 - Arrangements of Different Shapes**

**Dry Arrangement** These are particularly useful during rainy season when there are very few flowers, Dry arrangements with fruits, vegetables, seed pods, bare branches, flower plumes of tall grasses, sugar cane, roots, stems of money plant, a small dead tree, the clustering, especially peacock feathers if well-arranged presents a novel appearance and are suitable for interior decoration. Dry arrangements with wood can be painted in silver, white or gold for variation in style



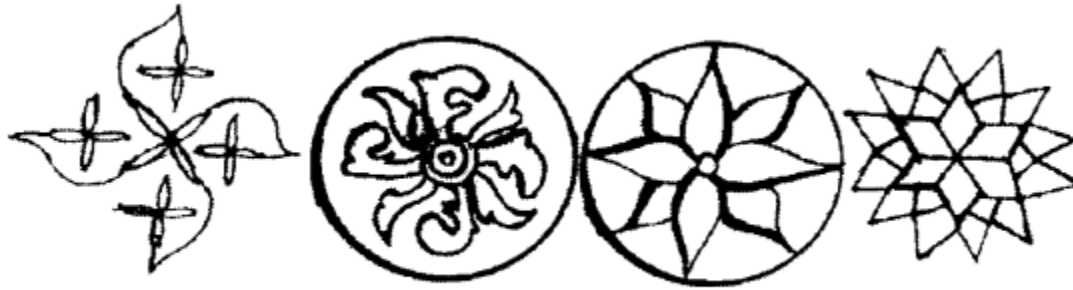
**Fig. 29 - Dry arrangements**

**Fruit and Vegetable Arrangement** A great amount of foliage should be added in fruit or vegetable arrangement. Containers should be sturdy and large sized. Even baskets and trays will be attractive. The cuts and carving should be made in such a way so that a pine apple may look like a peacock, an onion a lotus and beet root, red rose, melon - a. lamp shade etc.

**5.3.16 Floor decorations:** The various types of floor decorations are

**1. Kolam:** Kolam is a free hand drawing of various designs. It can be either dotted or in various designs. For drawing kolams, either white stone or chalk powder, enamel paint, white or Coloured salt, sand or powders and solutions prepared by mixing ice flour and water is used. Red mud solution is used as painting to give added brightness. In rural areas, people spray cowdung mixed with water as base on floors before putting Kolam.

**2. Rangoli:** Coloured dry powder which are usually made from kolam powders are used. They are mixed with either sand or salt.



**Fig. 30 -Rangoli**

**3 Alpana:** Alpana is a traditional art where the design is painted with white paint. Usually zinc oxide and gum are mixed to keep it for a longer duration.

**4. Flower Carpet:** Different coloured flowers, petals and leaves are arranged over the design. Wet sand may be evenly spread beneath the flower carpet to have a raised effect.