

PRINCIPLES OF PLANNING:

1. Aspect 2.prospect 3. Furniture requirements 4.Roominess 5.Grouping 6.Circulation
 7. Privacy 8.Sanitation 9.Elegance 10.Economy.

Aspect: An aspect was considered for deal with regulation of admission into any room! of more or less sunshine. Aspect 1s meant for arrangement of doors and windows In the external walls of the buildingwhlch allows the natural gifts of sun shine and air, scenery ect.

Kitchen: Eastern aspect, so that the morning sun would refresh and purify the air and the kitchen would remain cool during latter part of the day.

Living Room: Southern or South-East aspect ,The sun 1s towards the south during cooler days and the living rooms with south aspect will be benefited by the sun when it is winter and in summer as the sun would be on north side.

Bed Room: West or South-west aspects the breeze required partcularly in summer, would prevail from that side.

There will be no sun from the south side most of the year, the laundries and store rooms may be provided on that side. Light from North -evenly Distributed the Studios, reading rooms and class rooms are laid out with north aspect.

Aspect of different rooms of a Residential Building are shown

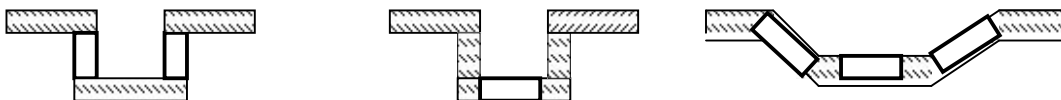
Sl.No	Room	Recommendation aspect	Influencing Factor
1	Bed	NW -W- SE	To reduce plentiful of Breeze in summer
2	Kitchen	E and rarely NE	To Receive morning sun which is germicidal . If purifier the air it should be cool during summer
3	Dinning	SE –S -SW	Proximity of Kitchen, it should be cool
4	Drawing	SE –S – SW - W	Adequate natural lighting during winter and obviate the sun during summer
5	Reading	N - NW	Light from north being diffused and evenly distributed and cool
6	Store	NW – N - NE	Dark and cool

Prospect: The primary consideration the planning *of* a building are the aspect and prospect and these both, often may be at variance with each other. Both these demand the disposition of doors and windows in the external walls at a particular places and in particular ways.

Prospect is determine by the views desired from certain rooms of the house and is interest by surroundings peculiarities of selected site.

For the good outlook natural and artificial landscapes should be consider as a law *of* architecture.

E.g.: Projecting of windows



Projecting windows for desired prospect

Furniture Requirements: it is the functional requirement of a room that decides the required furniture. Generally when non-residential buildings are being planned according to furniture equipment and other fixtures. In designing any dwelling, the architect should take the furniture in account which occupant will use. It is better to prepare a sketch and indicating the position of furniture which helps position of doors, windows, circulation space, size of room etc.

Size of Bed, in 'm'

Double size : 1.35 to 1.45 X 2.0 to 2.10

Single Bed : 0.9 X 2.0

Single cot : 0.75 X 1.80

Divan : 0.75 X 1.65

Dressing stool : 0.45 X 0.38

Chest of drawers (Small) : 0.45 X 0.90

Chest of drawers (large) : 0.60 X 0.39

Bed side table: 0.60 X 0.30

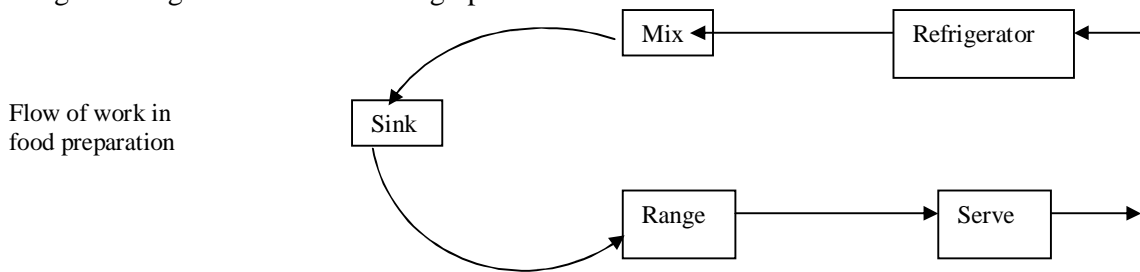
Small dressing table: 0.45 X 0.90

Kitchen:

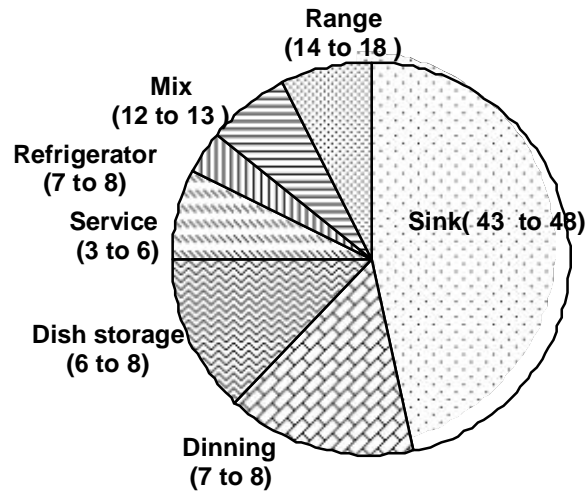
Activities in Kitchen:

1.Storage 2.Cleaning & Mixing 3.Cooking

5. Serving or storage 6. Cleaning up



Percentage distribution of trips in Food preparation

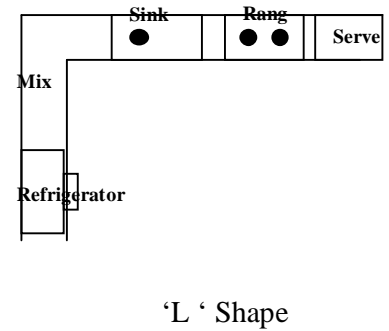
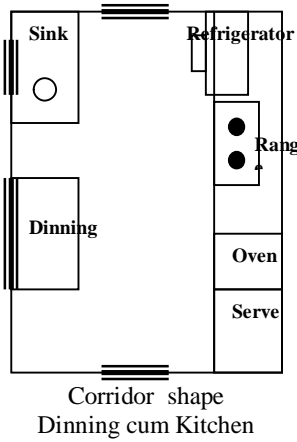
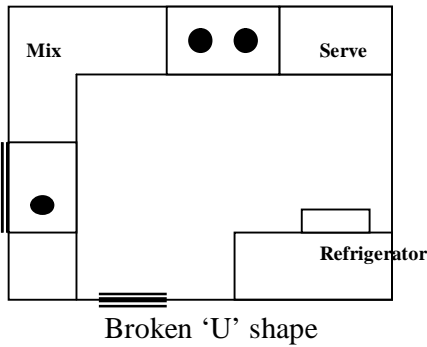


The actual plan may be the

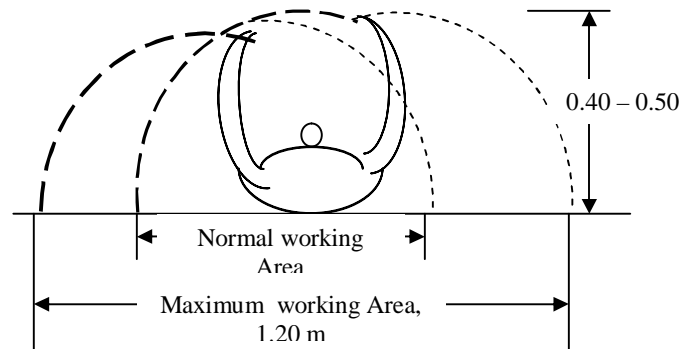
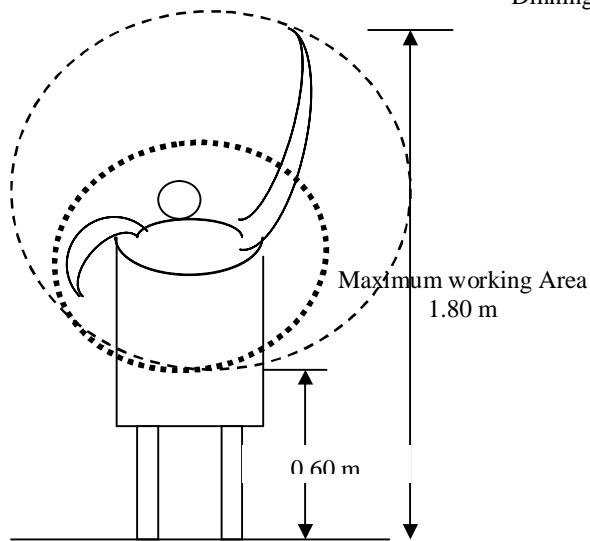
U shape ,L shape or corridor arrangement

U shape arrangement is most compact one, U arrangement is impossible because we must provided a door, so broken U arrangement is permit

L arrangement is ideally suited.



Working Space in Kitchen

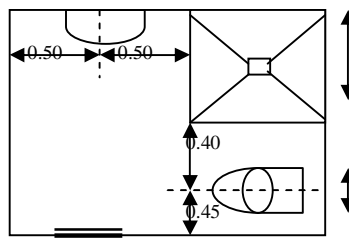
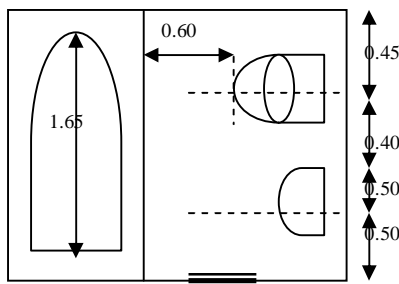


Bath Rooms

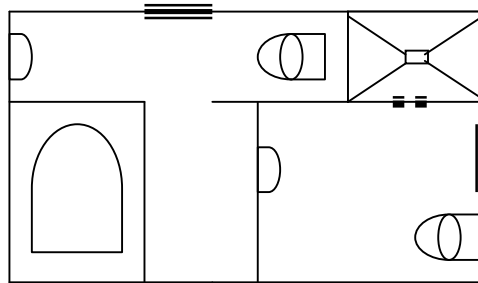
Bath rooms can be classified into four categories

1. The conventional three fixtures bath
2. The larger compartmental bath
3. The Lavatory or guest bath
4. Utility bath

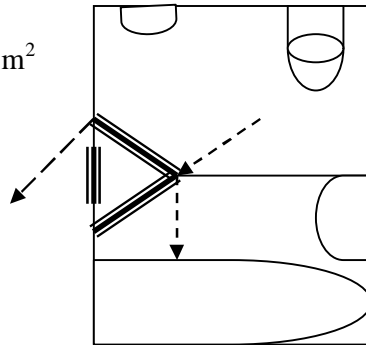
1. The conventional three fixtures bath, area is above 4 sq.m



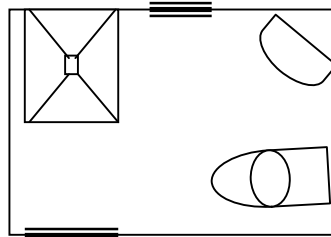
2. The larger compartmental bath



3. The Lavatory or Guest bath
Area up to 1.4 m² or 2 to 2.5 m²



4. Utility bath- Minimum area with three fixtures



Dinning Room:

The principle factors are considered in planning the dinning area

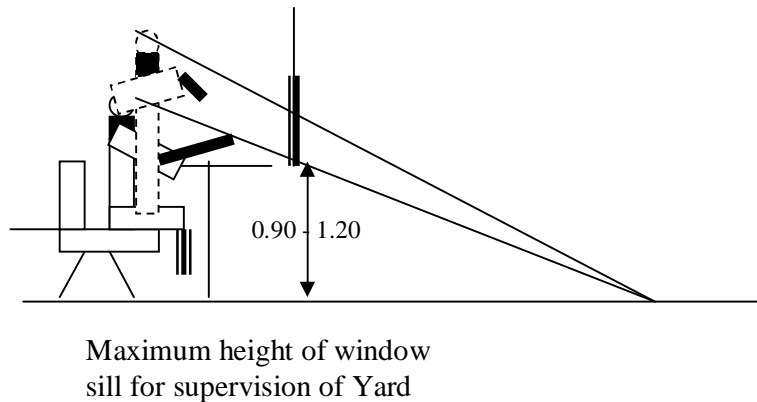
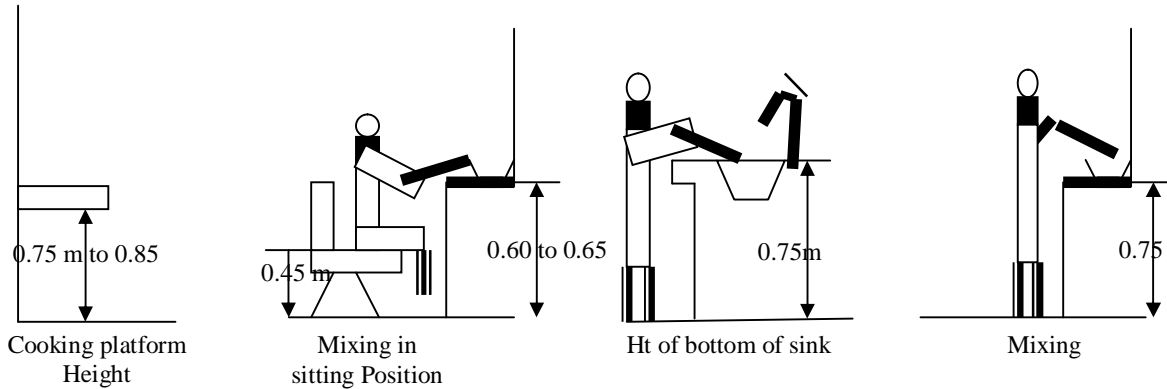
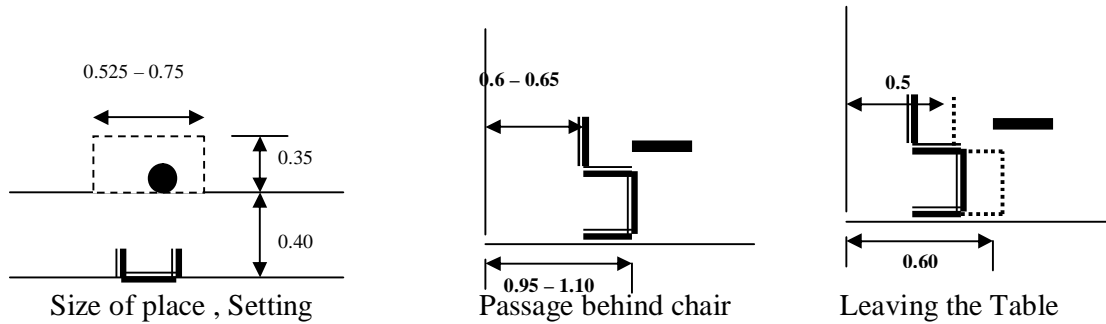
1. No. of personal occuppies
2. Space used at the table
3. space for chairs and passage behind them
4. Seating arrangement
5. Size and type of furniture
6. Storage space for china, glass ware etc.

Space for total dinning area

Persons	W X L in 'm'	Area, m ²
4	3.0 X 3.6	10.8
6	3 X 4.2	12.6
8	3.0 x 4.8	14.4
10	3.0 X 5.4	16.2
12	3 X 6	18.0

Table size

1. Portable Table , Round- 0.75 m to 1.70 m in
2. Portable Table , Rectangular- 0.75 to 1.2 X 1.5 to 2.4 or 0.6 X 1.20
3. Dinning chairs,
Portable- 0.45 to 0.6 X 0.45 to 0.55



Roominess: Roominess refers to the effect produced by deriving the maximum benefits from the minimum dimensions off a room. Giving due importance to the furniture placement in the room. Factors effecting of roominess are

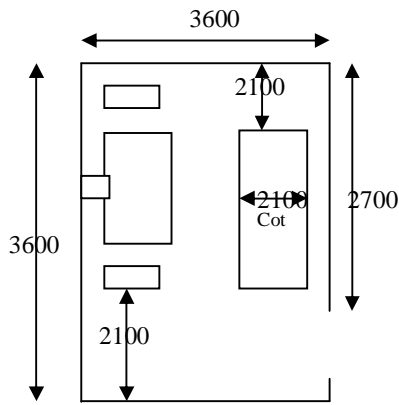
1. Size of the room
2. Shape
3. Furniture used
4. Position of doors, windows.

Every unit in the building is matter of cost, so we must take the maximum advantage of every nook and corner. For storage purpose we show cupboards, lofts, wooden shelves ect . The size and shape of certain rooms create desirable and undesirable impressions regard roominess.

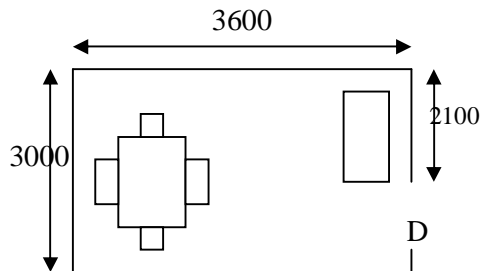
A square room appears smaller then the rectangular room of same area. It is also relatively smaller in respect of utility.

Better proportion *of* the length to- breadth for good rooms is consider as L: B = 1.2 to 1.5: 1. If the ratio exceed one and half', then again bad effect may be created.

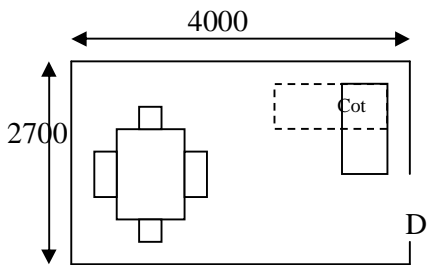
A room, having its length twice the width is objectable as it creates tunnel-like feeling.



Let us consider square room with size 3600 mm X 3600 mm
 Area = 12.96 m²
 Chair dimension = 450mm x 450 mm
 Table = 1200mm X 1200mm
 Cot = 900 mm X 1800mm
 A chair needs 450 mm behind for moving
 Cot can be placed only one direction, perpendicular to the 2700 mm length.
This room is not economical



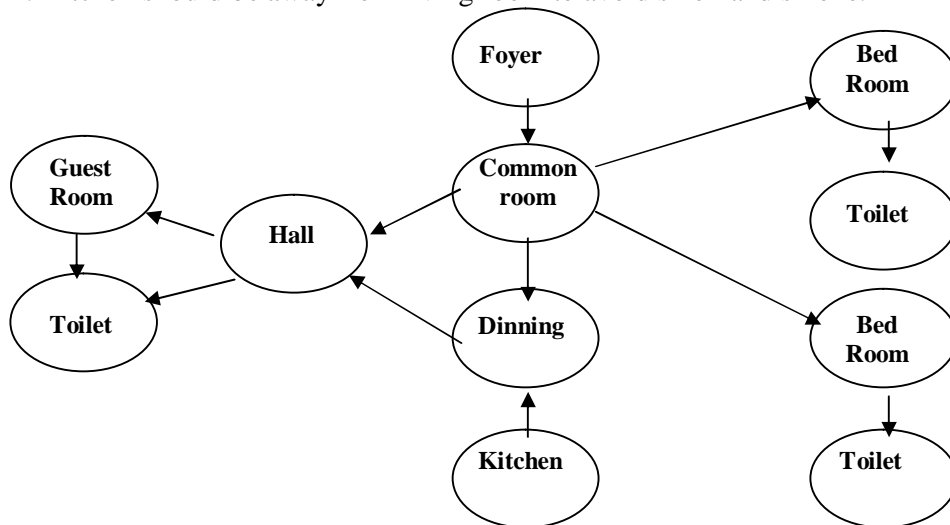
Let us consider rectangular room with size 3.0 m X 3.60 m
 Area = 10.8 m²
 Difference in area between square and rectangular 12.96 – 10.8 = 2.16 m²
 About Rs 60,000/- is saved but no space gained as such



Let us consider another rectangular room with size 4.0 m X 2.70 m
 Area = 10.8 m²
 Here cot can be placed in any direction perpendicular or parallel to the table.
 This room is more economy

GROUPING: Grouping consist in. arranging the layout in typical fashion so that all the rooms are placed in proper correlation of their functional in due proximity with each other .It is the disposition of various rooms in new of their relative and co-ordination, between them. In residential buildings.

1. Dining room should be closer to kitchen
2. Kitchen should be away from living room to avoid smell and smoke.



CIRCULATION :

It is nothing but the movement. This is two types of circulation

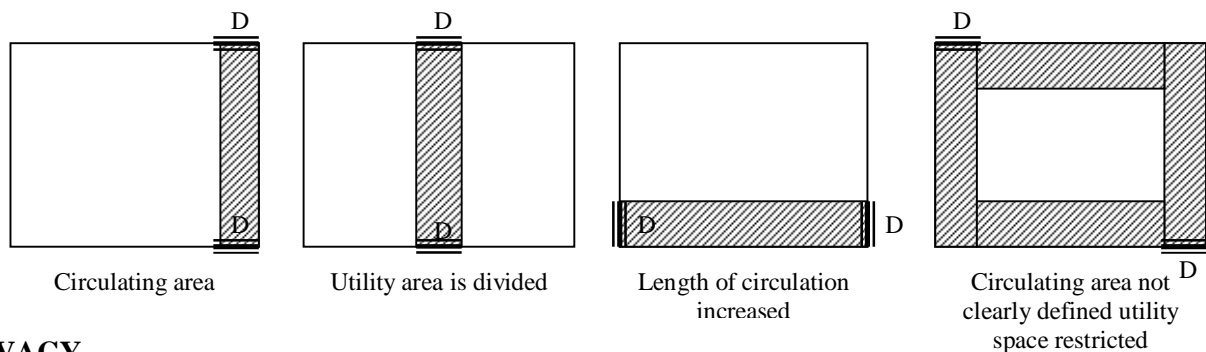
1. Horizontal Circulation
2. Vertical Circulation

1. Horizontal Circulation : It is the circulation on the same floor i.e. it may be between rooms.
e.g.- These are passage, corridor, halls and lobbies and linking of various blocks of apartment.
Area of horizontal circulation may be consists of 20% to 25% of the total building area.

2. Vertical circulation: It nothing but the movement of upward and downward movement.. There are normally stair case. For multi storage structures electric lifts are provided, still stair are necessary if there is any electric fail, or the escape exist for fire disaster.

E.g.: Stair case , lift, ramp . escalators etc.

Area of vertical circulation is about 8% to 10 % of total area.



PRIVACY

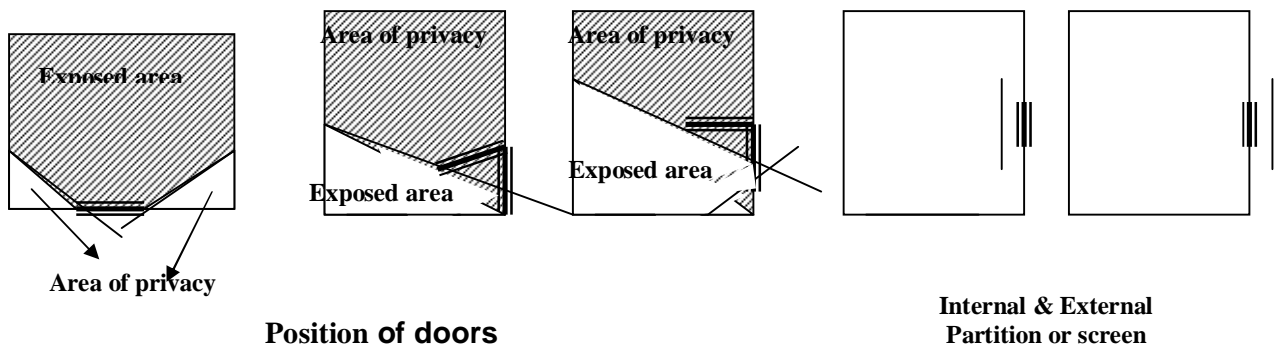
It is the most important principles for planning of all types of general & residential building. The two types of privacy are

1. Internal privacy
2. External privacy

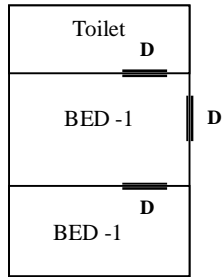
Internal privacy: is important in case of bath room & sanitary services attached bath room, toilets, Lavatories, water closets, urinals etc. The internal privacy can be achieved by providing lobbies or screens. All these services should be independent for every bed room with out disturbing the other. The privacy depends on fixing the position of door.

Internal privacy could be maintained in the following ways

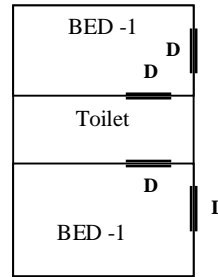
1. Proper Privacy
2. Proper disposition of doors
3. The mode of hangings on doors
4. Provision of small corridor or lobby



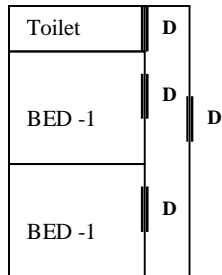
If the door is at the centre of short wall of room at disturbs the privacy & roominess



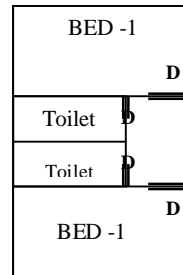
This is not a correct as bed room 1 then will be used as passage



Difficult as per operational point of view by providing accesses from both Bed rooms.



Shoulder to shoulder length of person is 600 mm width of passage for two person or more should be 1200 mm. Here passage serves the purpose. But uneconomical.



This is most economical, one lobby is a room which gives independent access to various rooms.

External Privacy

It is nothing but the privacy of the building. If the building is expose to the public street Or neighbor building. There is no privacy for that. the entrance can be screened with trees or suitable grid work.

SANITATION:

For sanitation we must provided proper light and ventilation facilities for general cleaning and sanitary conveniences to mention hygienic condition of the building. Light is primary significance. Sunlight destroying of deceases germ. There is also the valuable health giving properties of ultra violet rays in clear sun light.

Ventilation: Good ventilation is an important factor to comfort in buildings. Ventilation is the change of air in a room . For living more sunlight, less over crowing and fresh air are necessary for a house.

Requirement of space and air required

	Space, m ³	Air, m ³
Adult	8.5	20 – 30
Child	5.67	20 - 30

Main function of ventilation

1. To maintains the quantity of air inside the building at certain level.
2. To provided thermal environment which will aspect in maintain the heat balance of the body.
3. To cool the structure of the building when the inside temperature is above outdoor.
4. To remove toxic gases, body odors, bacteria, smoke etc. from air inside the room.
5. During winter workers in factory and industrial plants from excessive heat, dust, moisture and supply fresh air for breathing

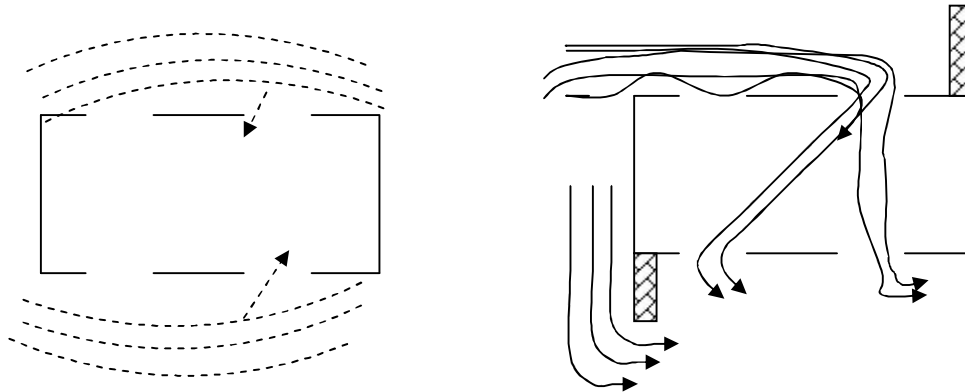
Types of ventilation

1. Natural ventilation, air through windows, roof ventilation
2. Mechanical ventilation: A.C, Fans etc.

Natural ventilation

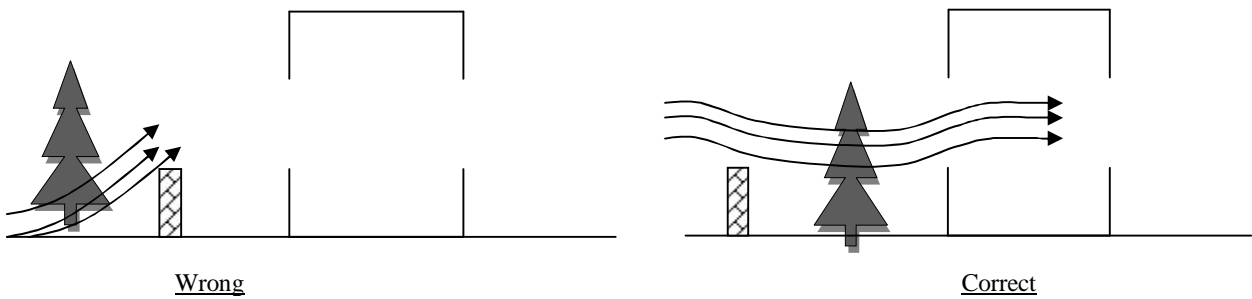
1. Blow through: Blow through opening
2. Drawing through : Blow across

I.



Opening are provided parallel with wind direction of the breeze but then is no air flow into the room

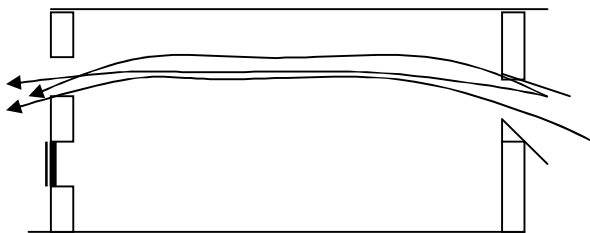
II. Wind hops over the room because of a poor arrangement of a row trees and a continues hedge.



Wind can be diverted into the room by a reverse arrangement of the tree

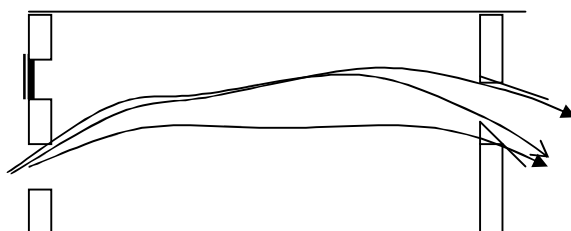
III. How to get current natural ventilation in both summer and in Winter

Air patron of cold and hot month



Occupants of the house should be protected from the heat and glare of the summer.

During **summer** the in coming air should be allowed to blow across the bodies of the occupants,

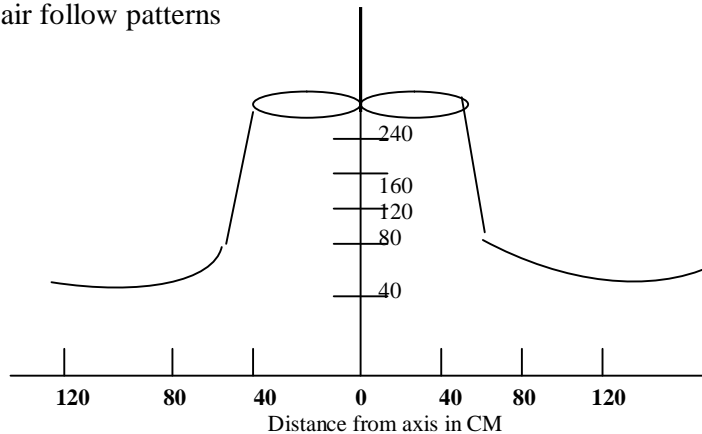


During the **cold time** the air should be allowed upward over the heads of the occupants,

Artificial Ventilation

Room size, “ m”	Desired capacity o fan, “m ³ /min”	Fan size, “mm”
3.05 X 3.05	167.8	900
3.70 X 3.05	203.5	1200
4.30 X 3.70	236.5	1200
4.90 X 4.30	269.5	1400
6.10 X 4.90	335.5	1500

Ceiling fan and air follow patterns



Illumination:

Light divided in to Two types. 1. Natural light 2. Artificial light

For all types of buildings good lighting is a must .

- 1.It helps in promoting different activities in the building, safety, creating pleasing atmosphere in different parts of the building.
- 2.When illumination is sufficient , there is less tension in brain, heart rate is normal, visual sense is greater.
- 3.If illumination is not sufficient, children bring their books closer to eyes which in turn effect eye sight.
- 4.But more illumination is also harmful. Glaring of light is also harmful to sight.

Following methods are adopted to reduce Glaring.

Natural light are three types:

- a. Direct lighting b. Indirect lighting c. Combination of semi direct and indirect lighting

a. **Direct lighting:** By diffusing the light through frosted glass. If diffusion is perfect, light will be uniform and shade less.

b. **Indirect lighting :** By use of Indirect lighting: A beam of light is directed to the wall, floor or ceiling and from there by reflect to other parts of the room

Floor reflection	-	10 % to 20 % of light
Wall reflection	-	35 % to 55 % of light
Ceiling reflection	-	65 % to 80 % of light

Similarly reflection fraction of diffusion of colors

Sl.No	Color	% of light reflection
1	Dark White	85
2	Dark Light Yellow	75
3	Dark Green	65
4	Dark Blue	55
5	Dark Gray	30
6	Dark Red	13
7	Dark Blue	8
8	Dark Green	7

- c. **Combination of Semi direct and Indirect lighting.** A luminous bowl allows some of the light to be diffused to be diffuse downward and some to be throws on the ceiling for reflection.

Artificial lighting:

Due to effective planning no artificial lighting is required in day time. But if recommended illumination is not reached, artificial lighting is necessary.

1. Direct lighting
2. Indirect lighting
3. Semi direct and indirect lighting

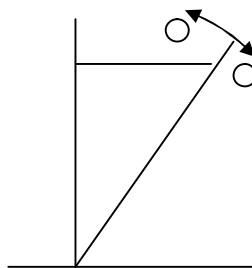
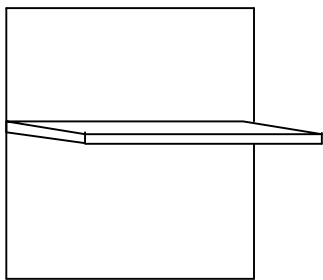
Over hangs as Sun shading devises:

Artificial lighting:

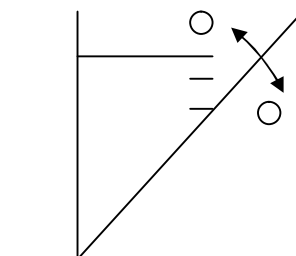
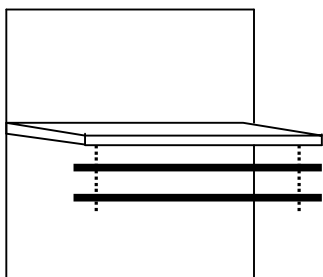
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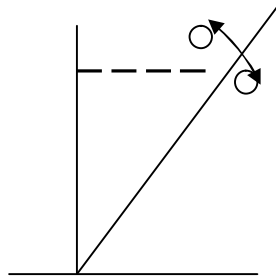
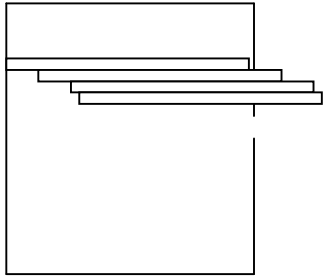
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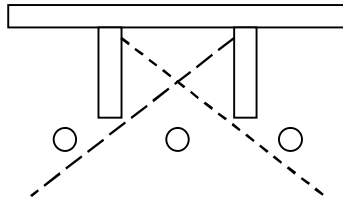
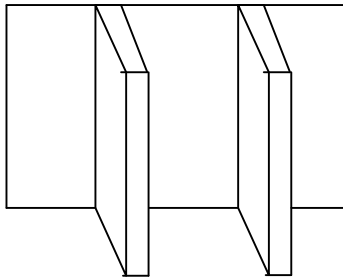
Horizontal overhangs most efficient for south or southern sun



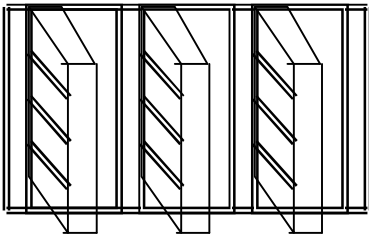
Louvers hang for solid overhangs are efficient



Louvered over hanging,
eliminate direct sun, Permit free



Vertical louvers or sun breakers,
suitable for West, East movement.



Vertical and horizontal louvers

Egg create or Honey comb
Sun Shades

