BUILDING TYPOLOGY

A building structure is a man-made structure with a roof and walls standing more or less permanently in one place, such as a house or factory.

BASED ON THE OCCUPANCY

Every building or portion of land shall be classified according to its use or the character of its occupancy as a building of Occupancy. They are categorized into the following types.

1) Agricultural buildings
2) Commercial buildings
3) Residential buildings
4) Educational buildings
5) Government buildings
6) Industrial buildings
7) Military buildings
8) Religious buildings
9) Transport buildings
10) Power plants

1) Agricultural buildings

They are the structures designed for farmers and for agricultural practices, for growing and harvesting crops, and to raise live stock.



2) Commercial buildings

They are the buildings, which are used exclusively for commercial use.



Ware house
Bank
Convention centers


Gas stations
Automobile companies

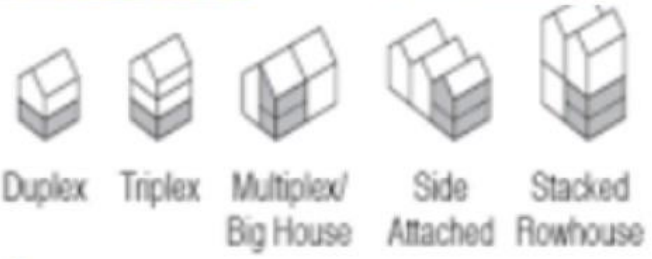
Reference: Building-typology-adapted-from-Hecht

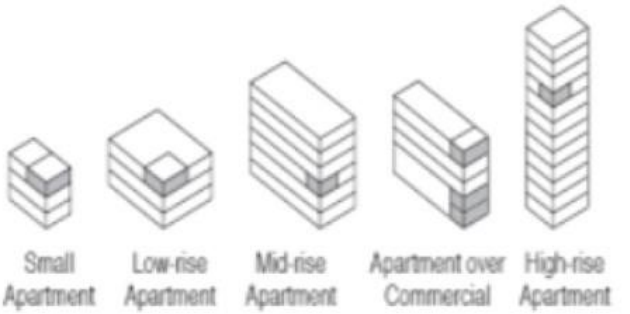
3) Residential buildings

A Residential building is that, in which housing predominates, as opposed to industrial and commercial areas. building may vary significantly between, single-family building, multi-family building, or mobile homes.









4) Educational buildings

This occupancy type shall include any building or portion thereof in which education, training and care are provided to children or adults.




BUILDING TYPOLOGY

5) Government buildings

It is a building that houses a branch of government.





6) Industrial Buildings

These buildings are designed to house industrial operations and provide the necessary conditions for workers, and for the operation of industrial equipment.

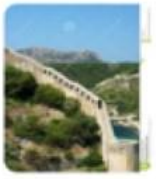





7) Military Buildings

This building is a structure designed to house the functions, performed by a military unit.



8) Religious Buildings

These are the buildings for religious purposes, with a large open interior or other monumental qualities. They often have spires, towers, domes rising above the main structure.





9) Transport Buildings

This is a structural building which consists of the means of equipment necessary for the movement of passengers or goods on land, water, and air ways





10) Power plants

These buildings serve as the industrial facility to generate electric power


Reference: Building-typology-adapted-from-Hecht

THE ELEMENT OF RELIGIOUS BUILDINGS

BASIC FORM OF A HINDU TEMPLE

Hindu Temple's were a gradual evolution starting from the rock cut- cave temples to monolithic rathas which finally culminated in structural temples. The basic form of a Hindu structural temple consists of the following.

1. GARBHAGRIHA:

- It literally means 'womb-house' and is a cave like a sanctum.
- In the earliest temples, it was a small cubical structure with a single entrance.
- Later it grew into a larger complex.
- The Garbhagriha is made to house the main icon (main deity) which is itself the focus of much ritual attention.

2. MANDAPA:

- It is the entrance to the temple.
- It may be a portico or colonnaded (series of columns placed at regular intervals) hall that incorporates space for a large number of worshippers.
- Dances and such other entertainments are practiced here.
- Some temples have multiple mandapas in different sizes named as Ardhamandapa, Mandapa, and Mahamandapa.

3. Shikhara or Vimana:

- They are mountain like the spire of a free-standing temple.
- Shikhara is found in North Indian temples and Vimana is found in South Indian temples.
- Shikhara has a curving shape while vimana has a pyramidal-like structure.

4. AMALAKA:

- It is a stone disc like structure at the top of the temple and they are common in North Indian temples.

5. KALASHA:

- It is the topmost point of the temple and commonly seen in North Indian temples.

6. ANTARALA (VESTIBULE):

- Antarala is a transition area between the Garbhagriha and the temple's main hall (mandapa).

7. JAGATI:

- It is a raised platform for sitting and praying and is common in North Indian temples.

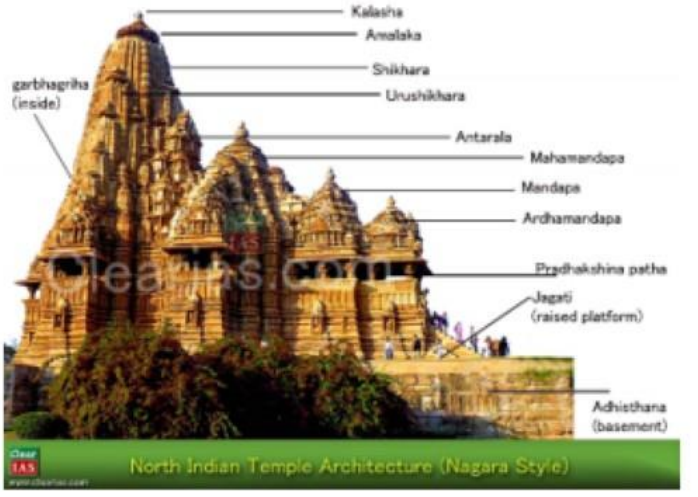
8. VAHANA:

- It is the mount or vehicle of the temple's main deity along with a standard pillar or Dhvaj which is placed axially before the sanctum.

CLASSIFICATION OF INDIAN TEMPLES

Indian temples can be classified into two broad orders as

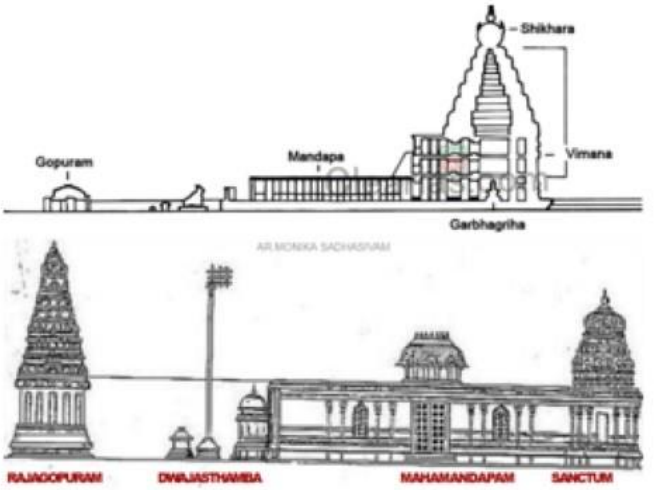
- **Nagara** (in North India)
- **Dravida** (in South India)
- At times, the **Vesara** style of temples as an independent style created through the mixing of Nagara and Dravida orders.



Nagara (in North India)

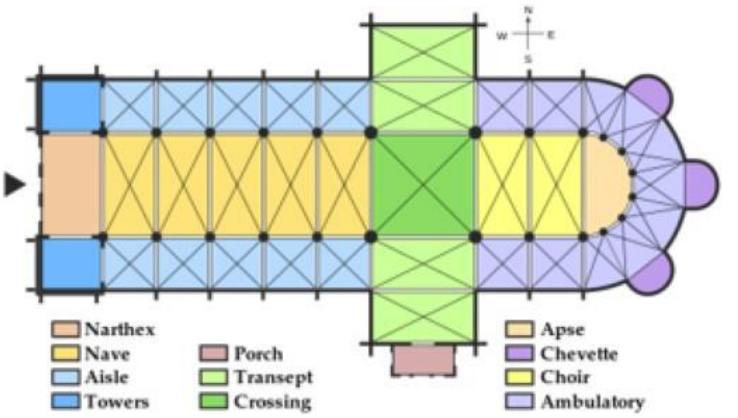
Reference: Temple Architecture and Sculpture – Hindu, Buddhist and Jain (Indian Culture Series – NCERT)

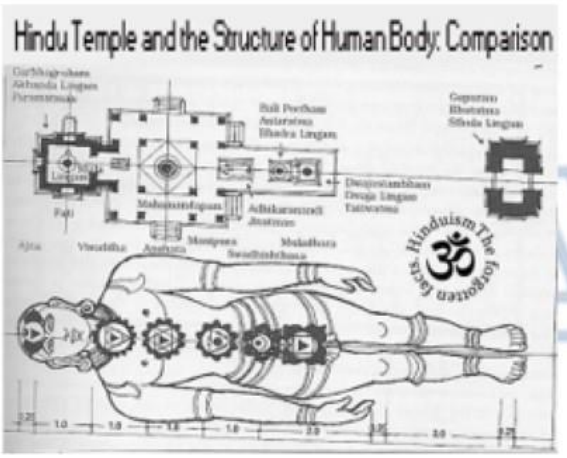
THE ELEMENT OF RELIGIOUS BUILDINGS

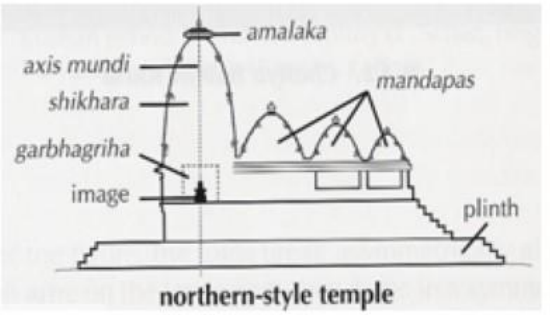


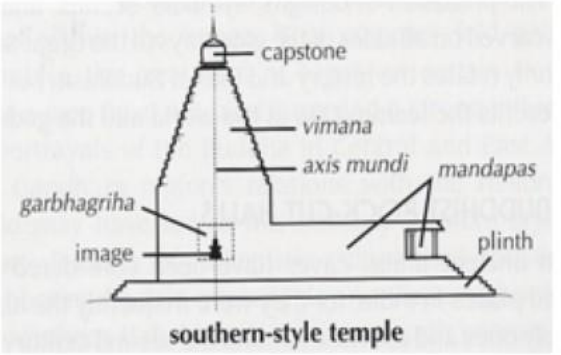
Dravidian (South Indian)

CHURCH ARCHITECURE









PROPYLAEUM

The entrance building of a scared precinct, whether church or imperial palace.

ATRIUM

In early Christian, byzantine, and medieval architecture, the forecourt of a church; as a rule enveloped by four colonnaded porticoes.

NARTHEX

The Entrance hall or porch proceeding the nave of a church.

NAVE

The great central space in a church. In longitudinal church, it extends from the entrance to the apse (or only to the crossing if the church has one) and is usually flanked by side aisles.

SIDE AISLE

One of the corridors running parallel to the nave of a church and separated from it by an arcade or colonnade.

Reference: Temple Architecture and Sculpture – Hindu, Buddhist and Jain (Indian Culture Series – NCERT)

THE ELEMENT OF RELIGIOUS BUILDINGS

CROSSING

The area in a church where the transept and the nave intersect.

APSE

A recess, sometimes rectangular but usually semicircular, in the wall at the end of a Roman basilica or Christian church. The apse in the Roman basilica frequently contained and image of the Emperor and was where the magistrate dispensed laws. In the Early Christian basilica, the apses contained the "Cathedra" or Throne of the bishop and the altar.

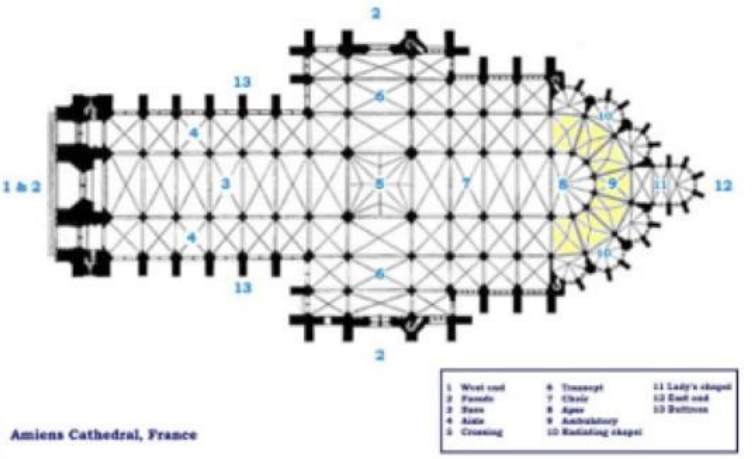
CHOIR

Area of the church where the priest performs the mass.

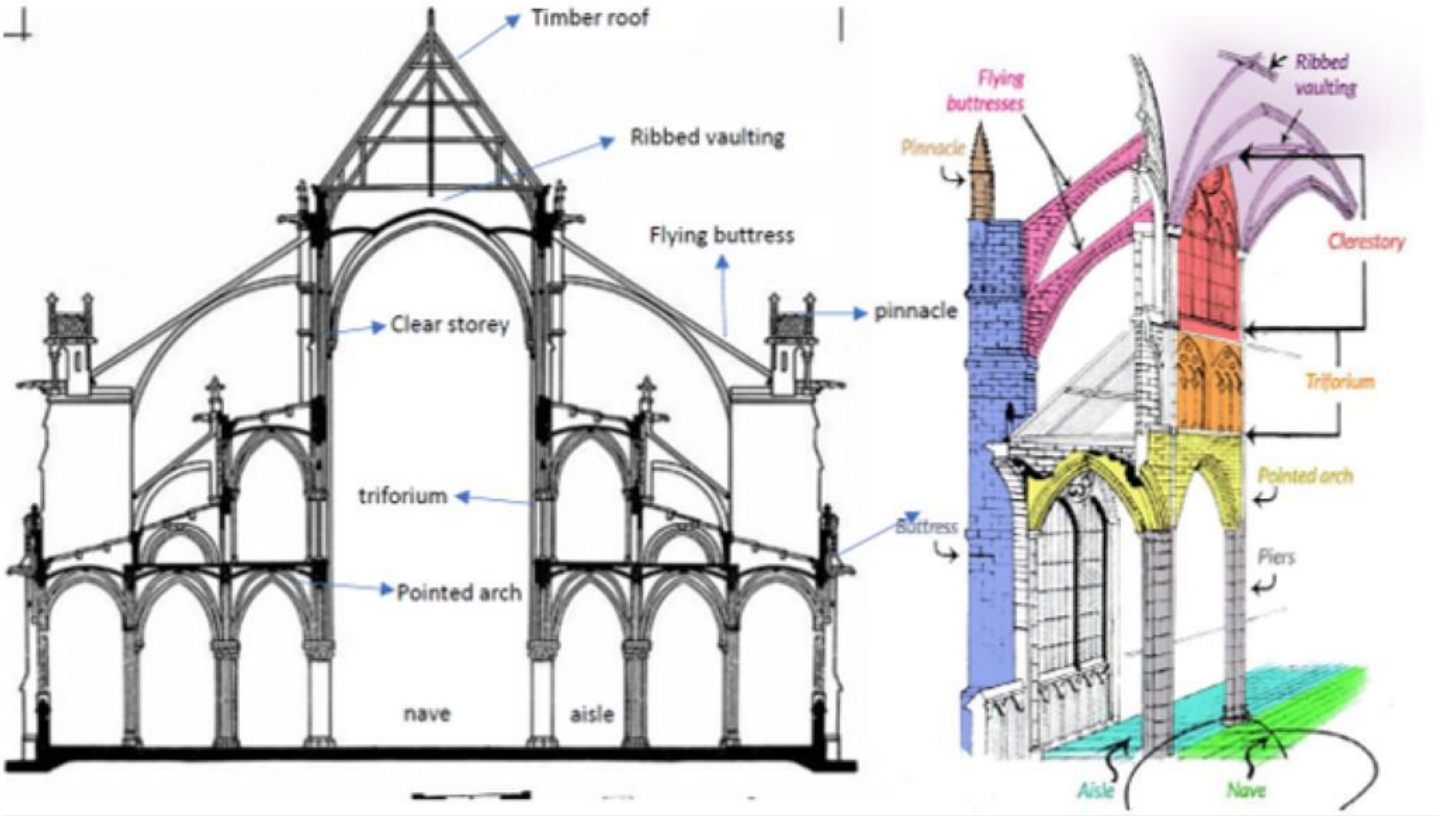
TRANSEPT

In a cruciform church, the whole arm set at right angles to the nave.

NOTE: The Transept appears infrequently in Early Christian churches. The Transept become a standard component of the Christian church until the Carolingian period.



Amiens Cathedral, France



Reference: Architecture_of_cathedrals_and_great_churches

THE ELEMENT OF RELIGIOUS BUILDINGS

ISLAMIC BUILDINGS

The major building types during the Islamic period were:

- The Mosque
- The Tomb
- The Madrasa
- Caravanserai
- Wells
- Gardens
- Market – places
- Palaces and forts

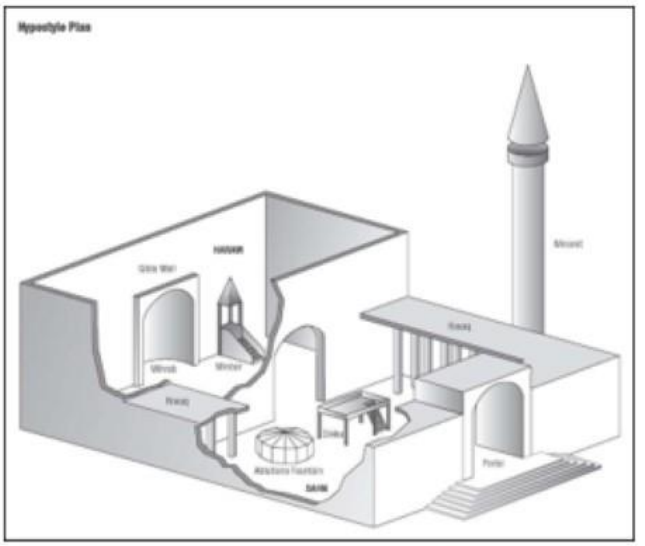
ESSENTIAL PARTS OF A MOSQUE:

Two ancillary structure are necessary for Islamic worship : the minaret, from which the muezzin gives the call to prayer, and a fountain for ablution.

The courtyard afforded an opportunity for architectural display, which the ottoman the safavids and especially the mughals seized with enthusiasms. In India the courtyard of the 'Jami Masjid' is surrounded by finely sculptured arches.

Ablution tank can be at the middle of the courtyard.

Inside the mosque, the chief feature is the mihrab, a niche, in the centre of the qibla wall to define the direction of Mecca.



On the right side of the mihrab stands the 'mimbar' or pulpit. The top step of the mimbar is reserved for the prophet, the imam stands for the second step of the mimbar and uses the top one as a seat.

A portion of the sanctuary is screened off into a compartment for women - maqsura screen.

MIHRAB

The pillared hall which forms the sanctuary with the wall at the back containing an elegant arched shaped niche called "mihrab" which shows the Qibla.

Qibla - prayer side or Mecca side.

MIMBAR - Imam stands to deliver sermons.

Pulpit – present at the right side of the mihrab

Dikka - The reading desk in mimbar.

Zenana - Woman's compartment.

Maqsura - A screen of arches.

MINARET

A raised structure for a person to stand to make the call for the prayer.

Iman – belief-in god – his unity

Ibadat – religious obligation

Ihsan –right doing.

TOMB

It usually consist of a single compartment or tomb- chamber, know as 'huzrah'or 'estanah' , in the centre of which is the cenotaph or 'zarih' that is a raised platform to indicate position of burial.

The whole structure is roofed over by a dome. In the ground, underneath this building , resembling a crypt , is the mortuary chamber called the 'maqbarah or takhana' , with the grave or 'qaba' in the middle.

Reference: **Islamic Architecture – Form, Function, and Meaning** by R Hillenbrand

THE ELEMENT OF RELIGIOUS BUILDINGS

RAUZA – TOMB COMPLEX

The tomb along with the garden enclosure is called 'RAUZA'.

MAUSOLEUM

mosque + tomb. Eg: Taj Mahal.

DARGAH

These are the important tombs of nodes and are occasionally called as **"Dargah".** Derived from a Persian word – meaning court palace.

MADRASSAH

Educational complex

It's a **collegiate mosque** which has

Lecture halls

KHANS (SERIAS) : Caravanserai

Travelers bun-glow.

These are **the inns** where the travelers took rest.

This is generally a two storied building, the ground floor for stable camels or horses and the first floor for residences/rest houses for the travelers.

FORTS / FORTRESSES :

The cities were **fortified** with tall spreading **bastions** at frequent intervals.

Generally, the fort walls had **gateway on all the four cardinal, direction – forming an axis.**

The fortress housed a number **of imperial building , edifices such as the emperor's palace , audience halls , mosque , tombs. Eg – Forts in Agra, Delhi etc.**

PALACES, CITADELS & FORTIFICATION

A gate serves to **admit and to exclude.**

It is also a symbol **of strength , of security and of wealth.**

The expression of power is in many ways an automatic attribute of **monumental architecture.**

Three consistent components of Islamic military and defensive architecture are – **wall and towers , gates , citadels.**

BAUDIS OR WELLS

These are the **common utilitarian structures.**

It had **large rectangular tank** which is enclosed within high walls.

There were **rest houses** on the either side of the entrance towers.

There was a common landing with passage ways on either sides which can be descended stages to the level of water.

CHARBAGH :

The garden was divided into **4 quadrants** which was spilt by the water flow.

The principal axis is formed by a **waterway** which had **coniferous trees** along the length which emphasized it.

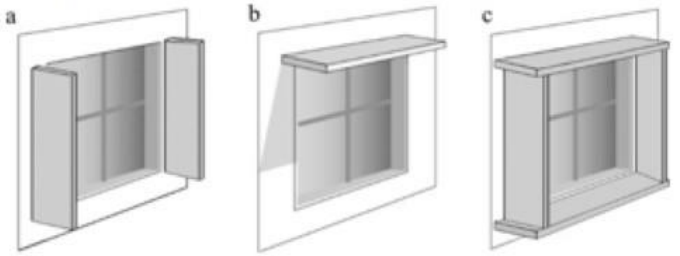
Eg : **Shalimar Gardens , Nishak Gardens etc,**

Reference: **Islamic Architecture – Form, Function, and Meaning** by R Hillenbrand

CLIMATE ORIENTED ARCHITECTURE

TYPES OF SHADING DEVICES

- Vertical devices
- Horizontal devices
- Egg-crate devices



FENESTRATIONS

Prime Parameters:

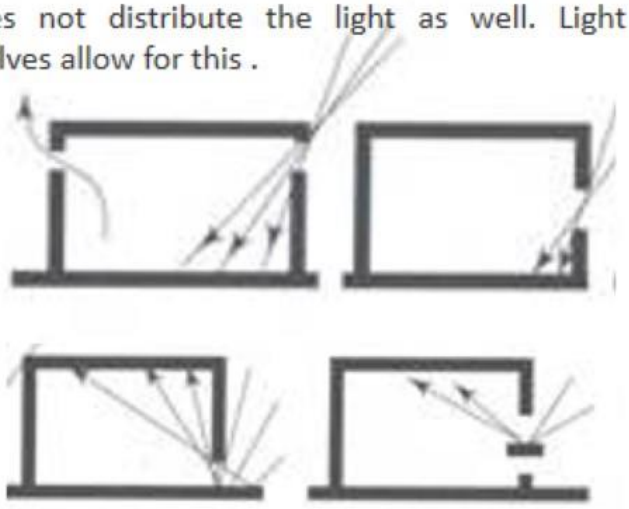
- Air movement
- Day light

Effect of window position on light and ventilation.

High windows act as ventilation points and also allow for the best distribution of light from overcast skies.

Low windows do not allow much ventilation but allow an even distribution of ground reflected light.

Middle windows allow for even ventilation but does not distribute the light as well. Light shelves allow for this .



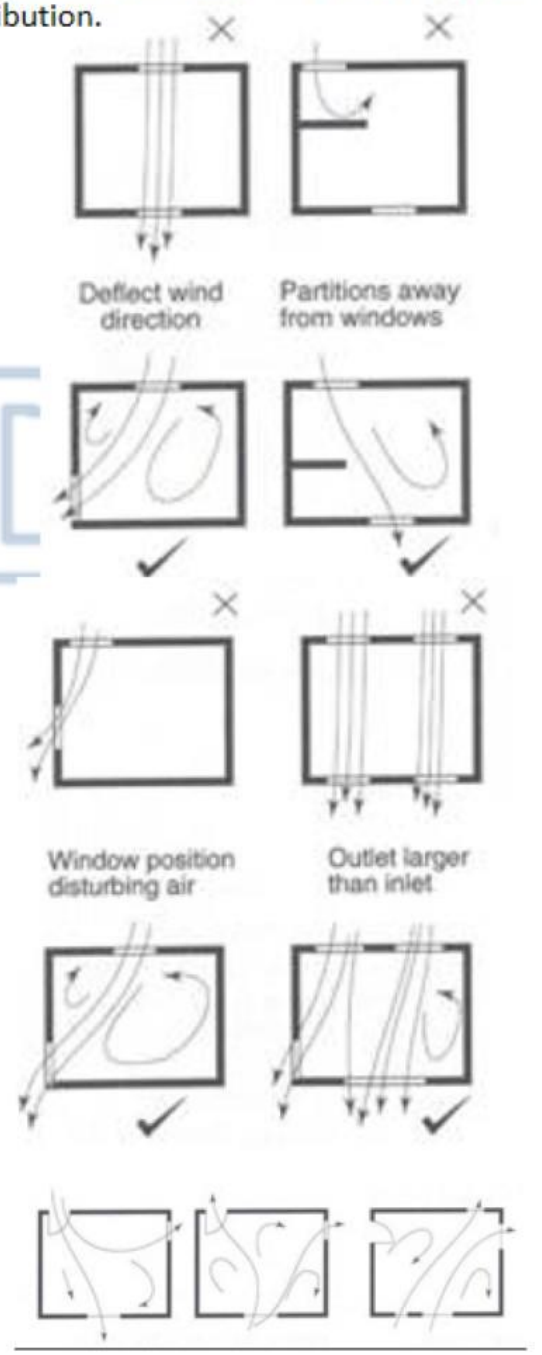
AN IDEAL CASE FENESTRATION POSITIONING:

Openings (windows), are placed on two external walls with the door on one internal wall.

If air is incident on any of the external windows, then the fenestration configuration not only ensures a good distribution of air but also has a larger outlet area than inlet area.

If the air is incident on any of the other walls then the door could act as the inlet into the room.

Once again the outlet would be larger than the inlet and the configuration would allow good air distribution.



Reference: Koenisberger, Manual of tropical Housing