



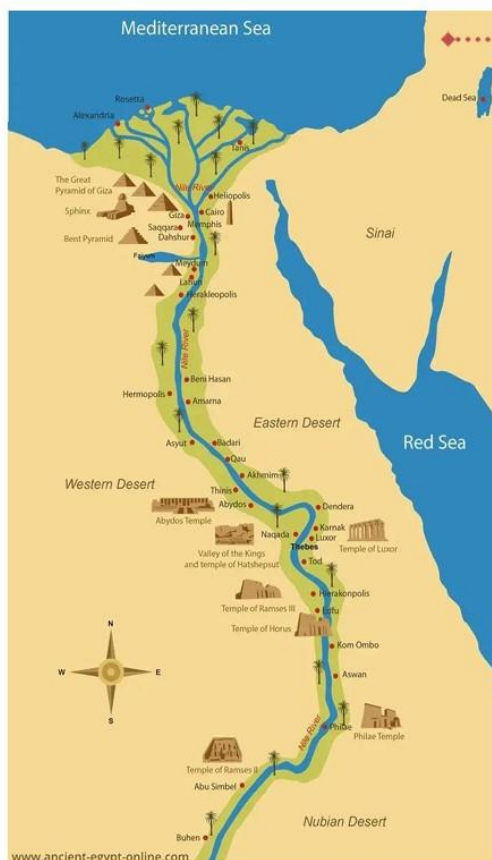
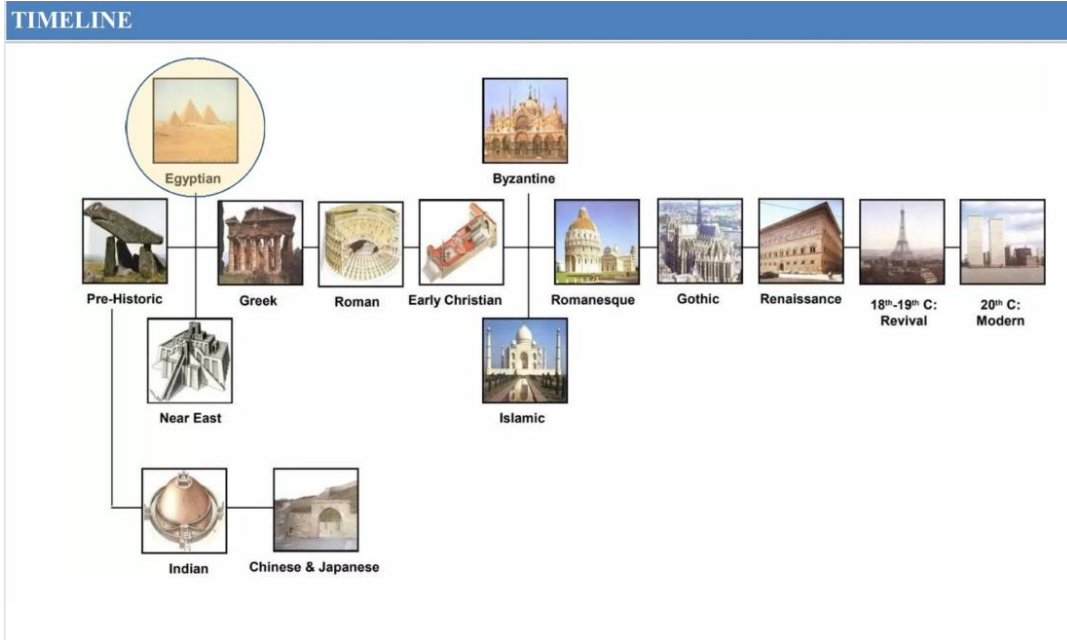
LECTURE NOTES ON HISTORY OF ARCHITECTURE

GOVERNMENT POLYTECHNIC, BHUBANESWAR

DIPLOMA IN ARCHITECTURE ASSISTANSHIP, 3RD SEM

IPSITA MISHRA

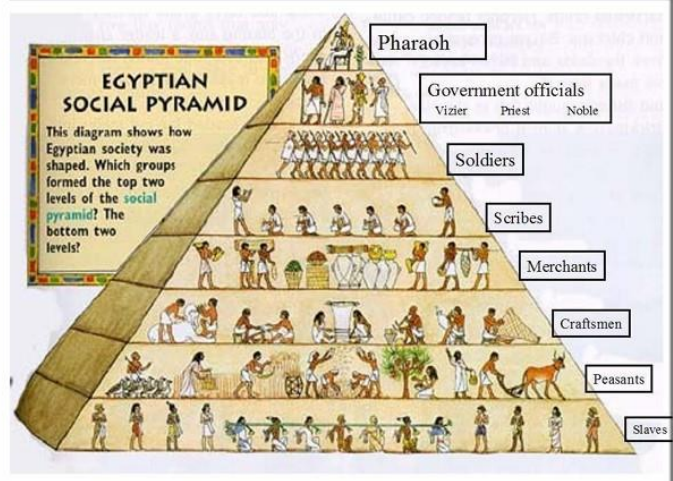
EGYPTIAN ARCHITECTURE (5500 BC - 31 BC)



MAP OF ANCIENT EGYPT

1. Ancient kingdom (4400 – 2466 BC) – Mastabas were built during the 3rd dynasty & most pyramids were built during the 4th dynasty.
2. Middle kingdom (2466 – 1600 BC) – 12th dynasty founded the great temple of Ammon at karnak.
3. New kingdom (1600 – 332 BC) – Thebes became the capital & queen Hatsheput constructed the terraced temple at Der-el –bahari.

The Pharaohs were referred to as the rulers.
The tomb was seen as a permanent dwelling for the afterlife



ARCHITECTURAL FEATURES

Walls : • The walls were constructed using limestone, sandstone, granite, and mud bricks. The stone was used mainly for massive structures such as pyramids and tombs, while mud bricks were used for the construction of houses and palaces. • They were adorned with intricate hieroglyphic carvings that depict religious texts, historical events, and Pharaoh's achievements. • The outer walls of the Great Pyramid of Giza were originally covered with smooth casing of limestone to enhance their appearance.

Roof : • Larger structures such as temples and palaces had massive stone slabs supported by columns or walls. • Smaller buildings such as houses had flat roofs made from mudbrick and wooden beams.

Columns : • Columns in Egyptian architecture often mimicked the form of bundled palm fronds and were commonly found in temples and hypostyle halls. The capital of the column would resemble the top of a palm tree, symbolizing growth and life. One of the most important types is the papyriform columns. • The forms of capitals were believed to derive from archaic reed-built shrines. Other forms of columns reflect the organic forms of palm, lotus, and papyrus. They were carved with stone, and decorated with hieroglyphics.

Doors : • Doors were made of wood often covered with metal sheets or carvings, while the doors of monumental structures featured massive stone doors. • The doors of the burial chambers were false doors, either they were painted or carved representing the connection between the living and dead.

Windows : • Tombs and underground structures of Egyptian architecture had small openings for ventilation, whereas clearstory windows were common in temples and hypostyle halls.

Ramps ; • Ramps were important for building big structures, like pyramids. There were straight and zigzagging ramps that helped move heavy stone blocks up to higher levels. Sometimes, ramps were made of mudbrick, limestone scraps, and other materials. These ramps were built next to or around the structure being built.

Arcades : • Arcades with colonnades were common in temple complexes. These were covered walkways that provided shade and were often adorned with hieroglyphic inscriptions.

Courtyards : • Courtyards were open spaces within temple complexes, surrounded by walls or colonnades. They were used for religious rituals, gatherings, and processions. They featured statues of Gods, Kings, and other significant figures.

Interiors : • Interiors of Egyptian architecture often contained hypostyle halls (large columned halls), chapels, and sanctuaries. These halls were used for religious ceremonies and other gatherings.

Exteriors : • The exteriors of temples and tombs were adorned with symbolic carvings, often depicting religious scenes, protective deities, and pharaohs making offerings to the gods. Continuous bands of hieroglyphic inscriptions and reliefs adorned the exteriors of many structures, narrating the religious significance and historical events associated with the building.

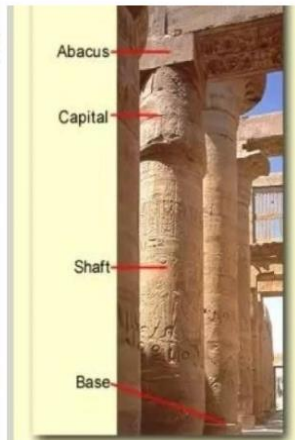
BATTERED WALL: The walls of Egyptian buildings are sloped on the outside, which is referred to as the “battered walls” while remaining vertical on the inside.



HIEROGLYPHICS: Egyptian hieroglyphs were the formal writing system used in Ancient Egypt for writing the Egyptian language.



EGYPTIAN COLUMNS: Egyptian columns have an inverted bell capital derived from the papyrus flower or the bud capital derived from the lotus bud.



PALM CAPITAL:



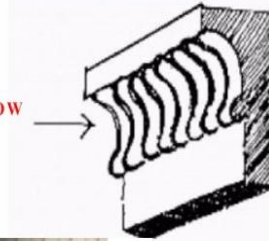
PAPYRUS CAPITAL:



LOTUS CAPITAL:

MOULDINGS: Egyptians generally used **George and Hollow** mouldings. **Torus** moulds were used to cover the angles.

GEORGE AND HOLLOW
MOULDINGS.

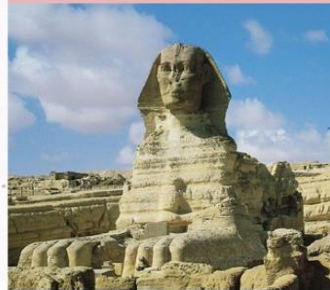


TORUS MOULD



SPHINXES: Temples are approached by avenues of **sphinxes** with the body of a lion & the head of a man, ram or hawk.

PYLONS: The monumental gateway to the temple consisting of slanting walls at the entrance.

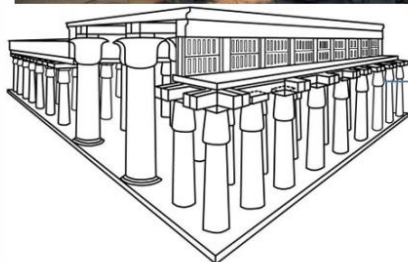


SPHINXES



PYLONS

HYPOSTYLE HALL: The interior of temples have **great courts, hypostyle (pillared) halls & mysterious chambers.**

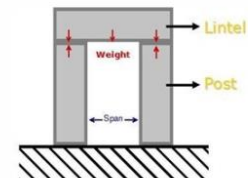
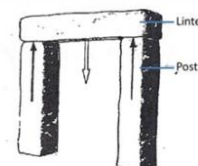


HYPOSTYLE HALLS

POST AND LINTEL CONSTRUCTION: Also known as **trabeated system**



POST AND LINTEL



OBELISK: Tapered monolithic pillar, originally erected in pairs at the entrances of ancient Egyptian temples considered the symbol of sun God.



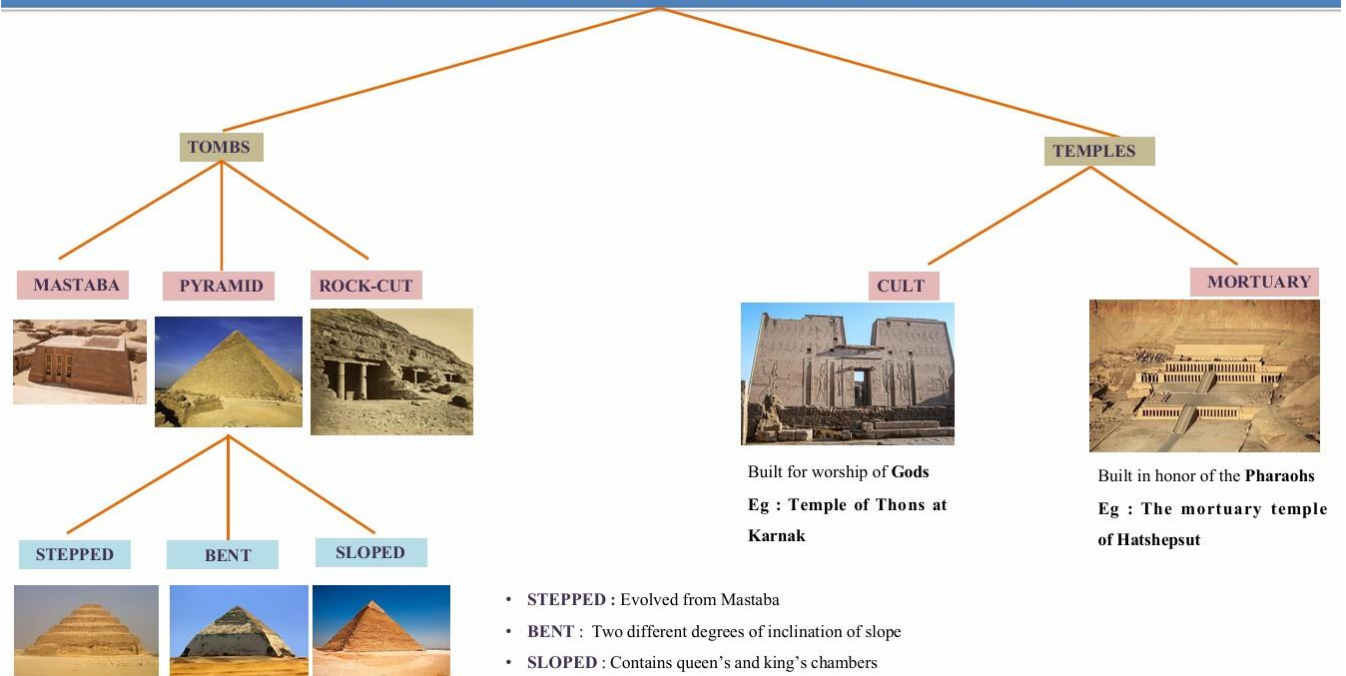
OBELISK



In Egyptian mythology, the obelisk symbolized the **sun god**.

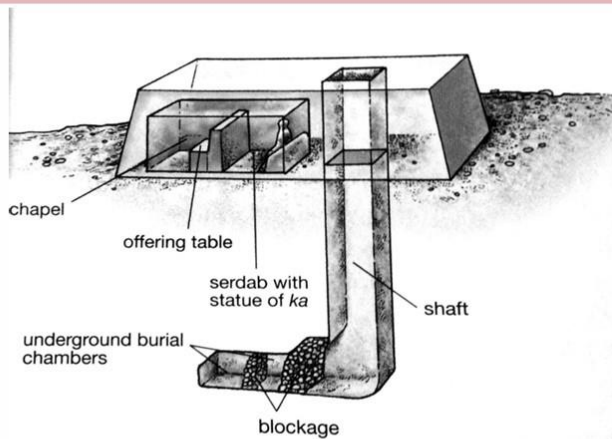
The Egyptian obelisk was carved from a **single piece of stone**, usually **red granite**.

Architecture and Building Types of Egyptian Architecture



MASTABA

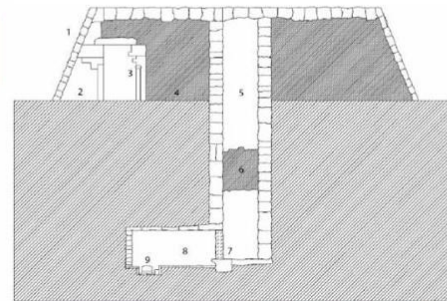
Rectangular superstructure built of mud brick or stone, with sloping walls and flat roof.



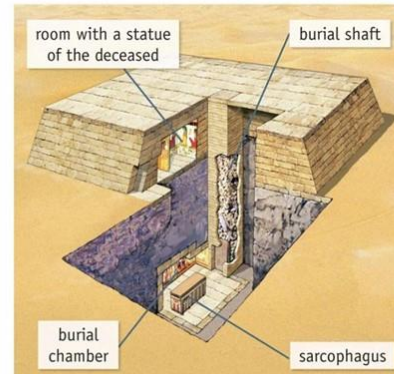
OUTER CHAMBER- where offerings were placed

SERDAB – inner chamber containing the statues of the deceased member of the family

SARCOPHAGUS – chamber containing the “coffin” reached by an under ground shaft.



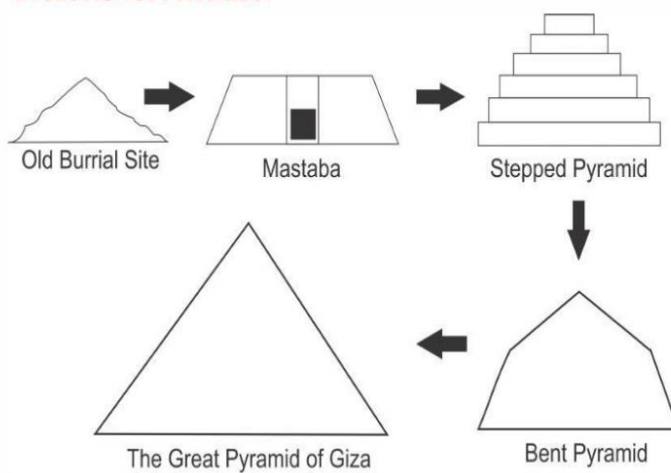
- 1 stone facing
- 2 sacrificial chapel
- 3 tombstone (serdab)
- 4 fill
- 5 shaft
- 6 masonry seal
- 7 stone slab
- 8 burial chamber
- 9 sarcophagus



PYRAMID

- The Egyptian Pyramids are described as **pyramid-shaped monuments**.
- Built as **tombs** for their **dead pharaohs** during old and middle kingdom period.
- They are **square based** have **four faces** with **smooth edges** which connects the base of the summit, on which was located a **pyramidion** (A pyramidion is a small pyramid that sits on top of a larger pyramid or an obelisk, except on the stepped pyramid).

EVOLUTION OF PYRAMIDS :



STEPPED PYRAMID: Stacking mastabas on top of one another and building in stone as opposed to the traditional mud-clay of other mastabas (for the king of the Third Dynasty of Egypt).



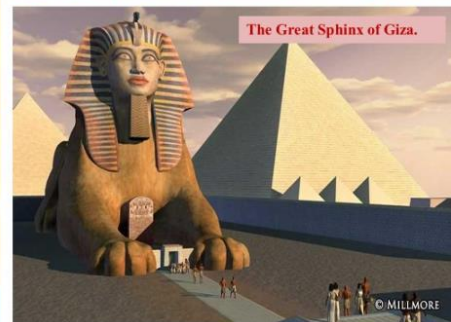
BENT PYRAMID: Unique amongst the ancient Egyptian pyramids is the aptly-named Bent Pyramid, the slope of which changes roughly two thirds of the way up. The lower part of the pyramid is angled inward at roughly 54 degrees, then at 49 metres above the base it flattens out abruptly to 43 degrees, creating a distinctively bent shape.

PYRAMID

GIZA PYRAMID COMPLEX (PYRAMIDS OF GIZA) :

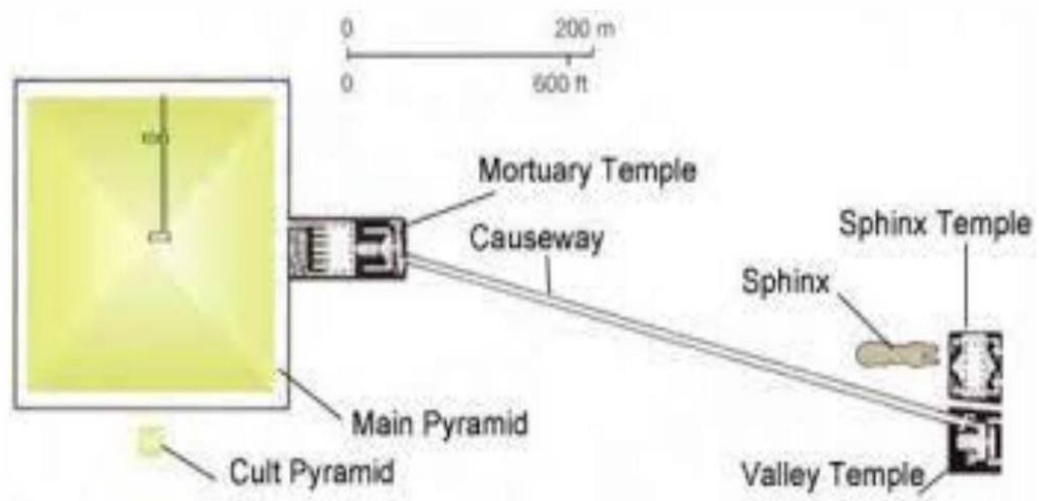
The Giza Plateau is the location of :

1. The Pyramid of Khufu (also known as the "Great Pyramid of GIZA" and the "Pyramid of Cheops"),
2. The somewhat smaller Pyramid of Khafre (or Chephren),
3. The relatively modest-sized Pyramid of Menkaure.
4. The Great Sphinx of Giza.



PYRAMID

PARTS OF A PYRAMID COMPLEX:



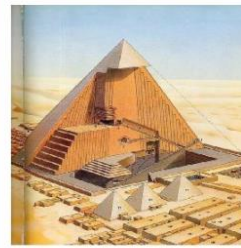
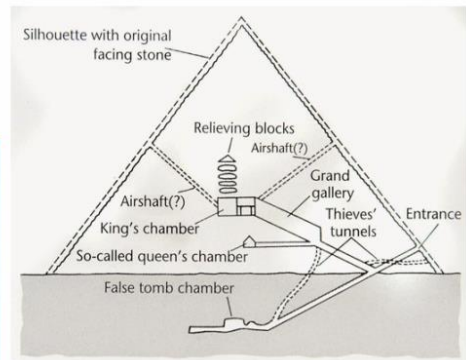
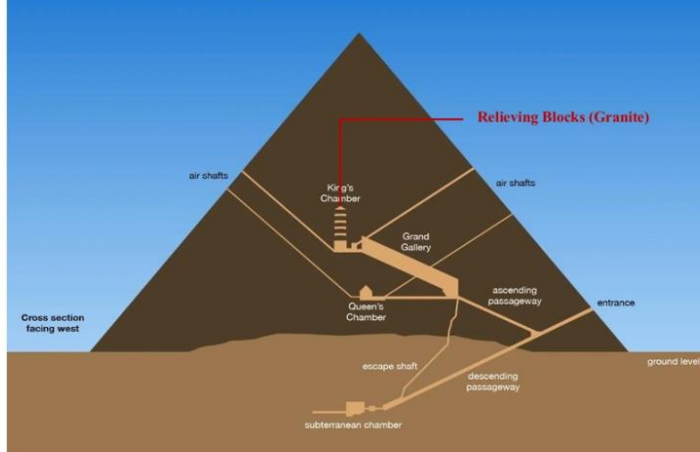
Valley temple: It was built to serve two functions. First used for the purification of the mummy of the king before its burial. Secondly, used for making the mummification process of the king.

PYRAMID

GREAT PYRAMID OF GIZA (Pyramid of Cheops/Khufu):

- The **largest pyramid** and the most famous in history.
- Height : **146.7m**, Material : **Limestone**
- The sides are oriented to original **cardinal points**.
- Error of **3 degrees**.

Great Pyramid of Khufu (Cheops), Giza, Egypt



The Great Sphinx of Chephren

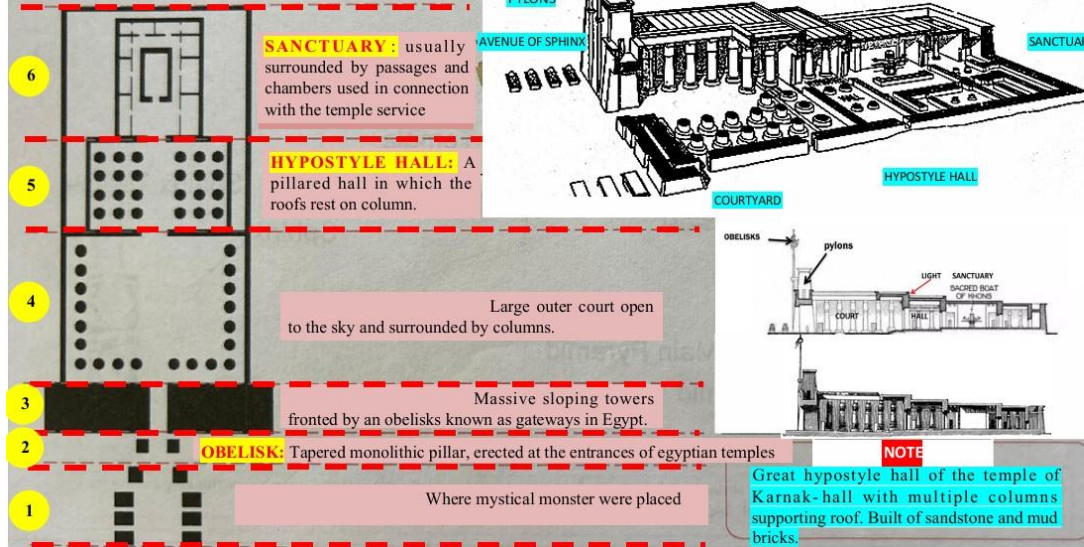
- Approximately **66 feet** tall and **240 feet** long, it is one of the largest and oldest monolithic statues in the world.
- It features a **lion's body** and a **human head** adorned with a **royal headdress**.
- The Sphinx was not assembled piece by piece but was carved **from a single mass of limestone**.

SKETCH



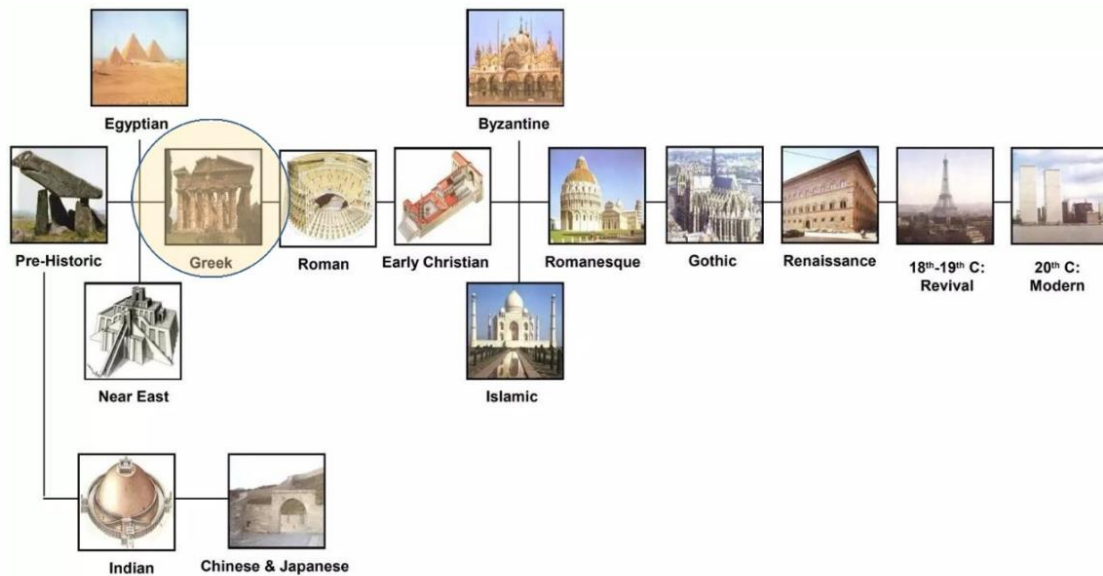
Temple of Khons at Karnak

PARTS OF EGYPTIAN TEMPLE :



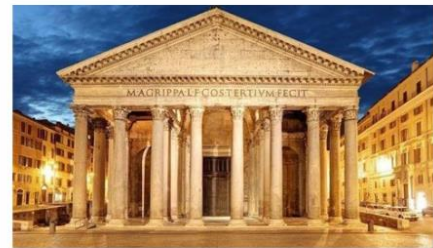
GREEK ARCHITECTURE(650BCE - 27 BCE)

TIMELINE



ARCHITECTURAL CHARACTERISTICS

- Balance, symmetry, and sense of proportion
- Materials – Carpentery in marble
- Sculptures and artistic characters.
- Human figures as decorative motifs
- Richly decorated palaces.
- Massive Fortifications
- Stone built temples
- Paintings with floral and motifs of sea life.
- Belief in the worship of Nature
- Decorating cornices and Pediments
- Colonnades surrounding courtyards

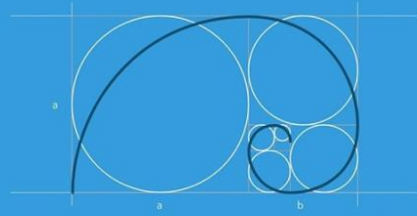


ARCHITECTURAL CHARACTERISTICS

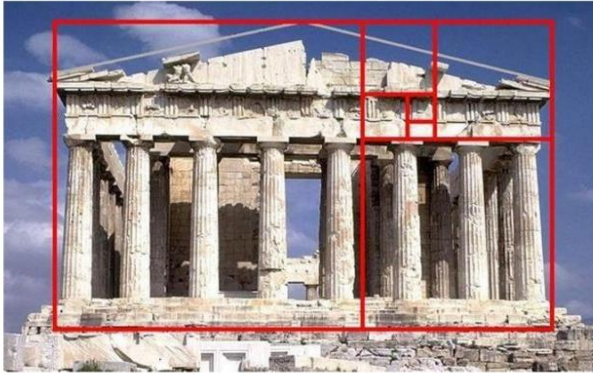
They opted for Golden ratio.

GOLDEN RATIO: In mathematics two quantities are in golden ratio if their ratio is same as the ratio of their sum to the larger of the two quantities. Here it is expressed in a and b.

Golden Ratio Formula $\phi = \frac{a}{b} = \frac{a+b}{a} = 1.618034...$



SLIDEMODEL.COM



ARCHITECTURAL CHARACTERISTICS

•They opted for optical correction in all their structures.

The temple as it visually appears with correction



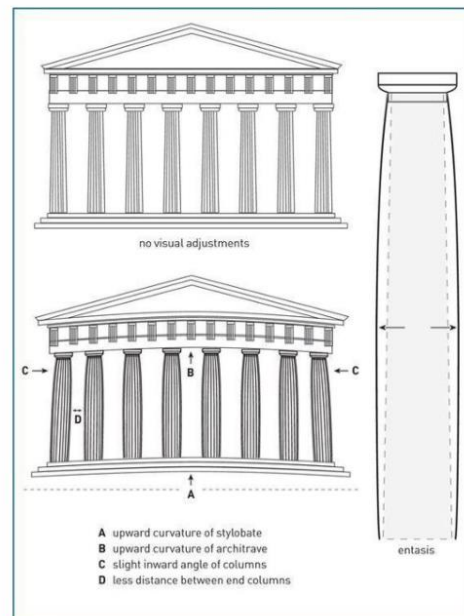
The temple as it visually appears without correction



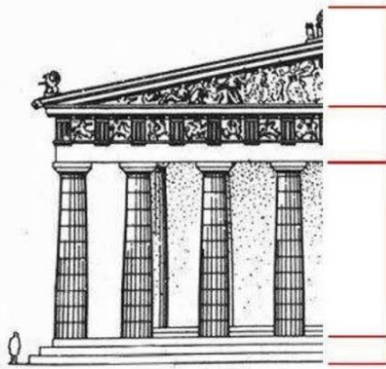
The temple as it actually built with correction



Optical Correction (Entasis) In Doric Temples



ARCHITECTURAL CHARACTERISTICS (of greek temples)

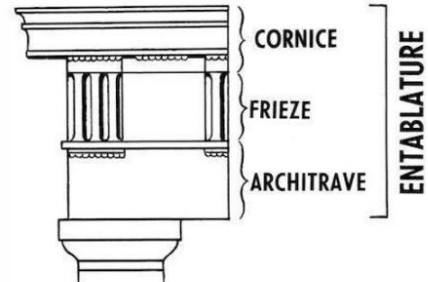


Pediment
Entablature
Column
Base

- **PEDIMENT:** The pediment is the traditionally triangular section at the top of a temple's entrance. The pediment was the crowning feature of the Greek temple front.
- **ENTABLATURE:** The entablature is an architectural design element that is located at the top of buildings and structures above supportive columns. The entablature has three parts which include the architrave, frieze, and the cornice.

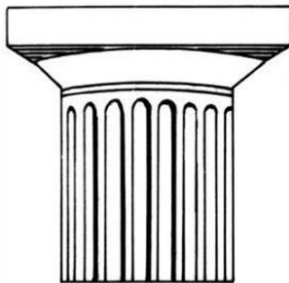
PARTS OF A COLUMN ENTABLATURE:

1. **CORNICE:** Top most part of entablature having layers of mouldings.
2. **FRIEZE:** Part of entablature between cornice and architrave usually decorated with sculpture.
3. **ARCHITRAVE:** Lowest division of the entablature resting immediately on the column capital.



GREEK CLASSICAL ORDERS

- The Greeks designed the columns with specific design principles that were **symmetric, balanced, proportionate**, and clear in a certain order.
- They divided the column styles into **three different orders**
- 1. **Ionic order,**
- 2. **Doric order, and**
- 3. **Corinthian order.**
- Roman architectural writer "Vitruvius" named them "**classical orders**" or "Orders of Architecture".



DORIC



IONIC

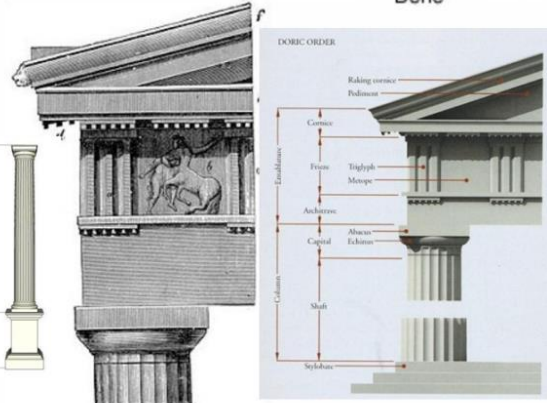
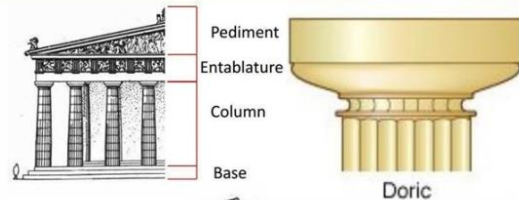
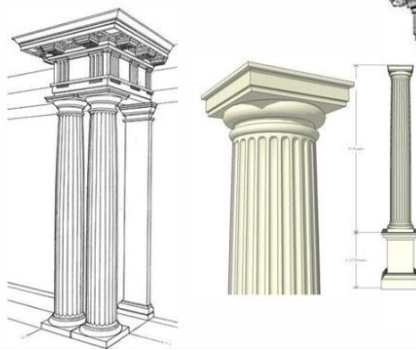
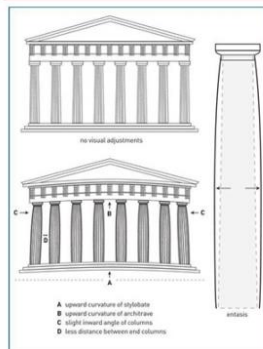


CORINTHIAN

GREEK CLASSICAL ORDERS

DORIC ORDER

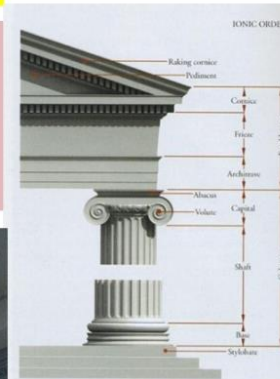
- Represents the proportion of a man's body because of its **strength and beauty**.
 - Has a **square capital**.
 - The **shafts** of columns were **grooved into 20 shallow grooves and wider at the bottom for structural support**.
 - Thicker than other two-column styles.
 - USE OF ENTASIS:**
- ENTASIS:** Refers to the practice of optical correction in Greek Doric Temples. The best example of the application of entasis is found in the Parthenon.



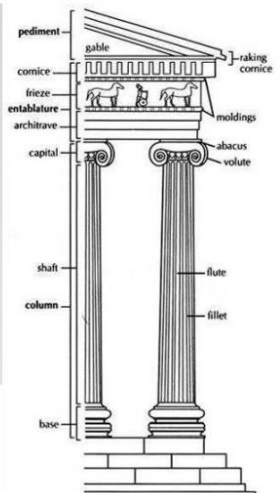
GREEK CLASSICAL ORDERS

IONIC ORDER

- The ionic order column represents a **women** with its **delicacy and feminine slenderness**.
- Capitals** featured two **spiral volutes**.
- The **shafts** of the columns can be fluted with **24 flutes**(having vertical grooves).
- The **base** is designed as **stacked disks**.
- It is designed to be seen **from front only**.



Ionic



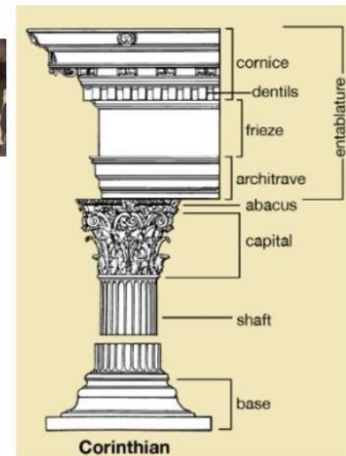
GREEK CLASSICAL ORDERS

CORINTHIAN ORDER

- The most beautifully ornamented column out of the three orders.
- Also sometimes represented the figure of Caryatids (sculpted female figures used in place of columns as a support on buildings).
- The design and proportions give a sense of height.
- The capital is adorned with flowers and leaves which protrude outside.
- The shaft of the columns is fluted or grooved.
- The corinthian capital can be seen from all directions.

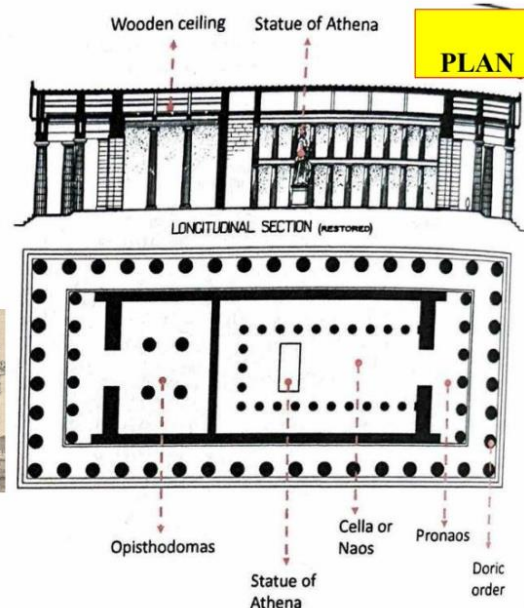


Corinthian



Temple of Parthenon at Athens

- Parthenon, is the **largest building** of Ancient Greek Architecture and is exceptional for its large size, huge columns, and proportion.
- Dedicated to **Goddess Athena**.
- **Foundations made of limestone and columns made of pentelic marble.**
- The temple is of **Doric order** with **8 columns** at facade and **17 columns** at **both the sides**.
- These columns support a **decorative frieze**.
- The inner room of the temple is **divided into two parts** and surrounded by columns.
- The **ratio of 9:4** is **aesthetically appealing**.



ROMAN ARCHITECTURE

Architectural characteristics and detail features

1. Monumentality, scale & permanence

- Roman architecture was designed to express power, durability, and grandeur: large public buildings, temples, baths, amphitheatres.
- The materials and construction methods aimed to last: the use of solid masonry, brick, stone, roman concrete.
- Example: the Pantheon, Rome's huge unreinforced dome – still standing.

2. Symmetry, proportion, order and axial planning

- Buildings and urban layouts often followed clear geometrical order, symmetry, and a sense of balance.
- Use of classical column orders (Doric, Ionic, Corinthian) and derived Roman orders (Tuscan, Composite) as part of the façade vocabulary.

3. Innovative structural systems: arches, vaults, domes

- The arch (especially the semicircular/round arch) became a hallmark of Roman architecture.
- Vaults (barrel vaults, groin/cross vaults) allowed for covering large interior spaces without many internal supports.
- Domes enabled large open interior spaces with minimal interruption; again, the Pantheon is a prime example.

4. Use of new materials and techniques: Roman concrete (opus caementicium), brick, composite materials

- Roman concrete allowed for forms and spans previously very difficult or impossible.
- Brick and tile work became common as surface/structural materials; sometimes concrete cores with brick or stone facings.

5. Decoration, façades, ornamentation and adaptation of classical elements

- While structurally inventive, Roman architecture also embraced decoration: reliefs, friezes, sculptures, mosaics, and richly finished interiors.
- Classical orders were used, sometimes purely decoratively rather than strictly structurally.

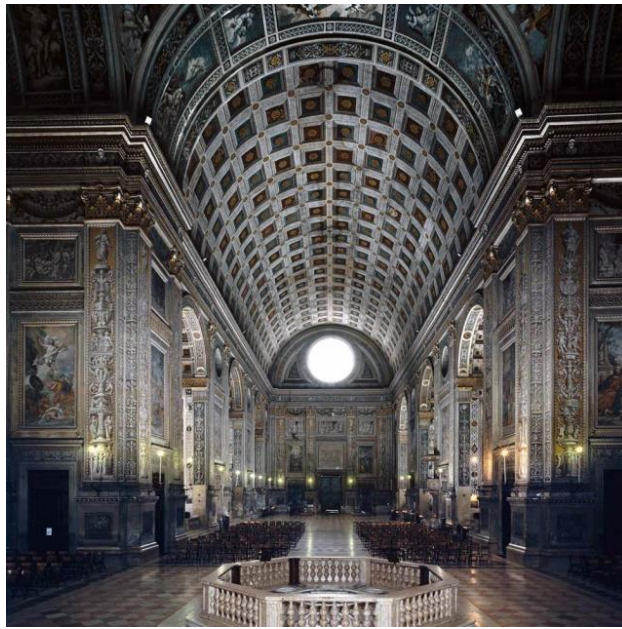
6. Functional planning, public infrastructure and urbanism

- Romans were not just about temples – they built baths, basilicas, forums, aqueducts, roads, amphitheatres. The architecture supported daily life, politics, commerce, leisure.
- Urban grid planning, separation of functions, hierarchy of spaces.

Detailed Features

Arches & Vaults

- Round or semicircular arch: widely used in doorways, bridges, aqueducts.
- Barrel vault: an arch extended in depth; common in baths, corridors.
- Groin or cross vault: formed by the intersection of two barrel vaults; allowed covering square or rectangular spaces.
- Domes: hemispherical vaults; used especially in temples, baths, mausoleums. Example: the Pantheon.



Columns, Orders & Facades

- Use of Greek orders adapted: Doric, Ionic, Corinthian. Romans introduced Tuscan and Composite orders.
- Columns may be structural (as in Greek temples) or decorative (engaged columns or pilasters on a wall).
- Façades often have porticos (columned entrances), large pediments, and decorative entablatures. For example, the Temple of Portunus.



Temple of Portunus.

Materials & Finishes

- Concrete (opus caementicium) allowed large, complex forms and interior spaces.
- Brick and tile frequently used, often as facing over concrete cores or as structural walls.
- Marble and decorative stone veneers: For upscale buildings or prestigious interiors/facades.

Spatial Organization & Urban Context

- Public forums serving civic, religious, commercial, and social functions.
- Baths: large complexes with designated functions (frigidarium, tepidarium, caldarium) and often vaulted/arched ceilings.
- Domestic architecture (domus, villae) often organized around atria and peristyles (courtyards) to bring light, air, and garden into living spaces.
- City planning: grid layouts (especially in colonial towns), main arteries, efficient infrastructure.

Decoration & Sculptural Detail

- Narrative relief sculpture on triumphal arches, public monuments: telling stories of conquest and civic identity.
- Mosaics, frescoes, ornate wall treatments in baths, villas and important buildings.

- Attention to detailing: cornices, capitals, entablatures, decorative brickwork, coffered ceilings (especially in domes).

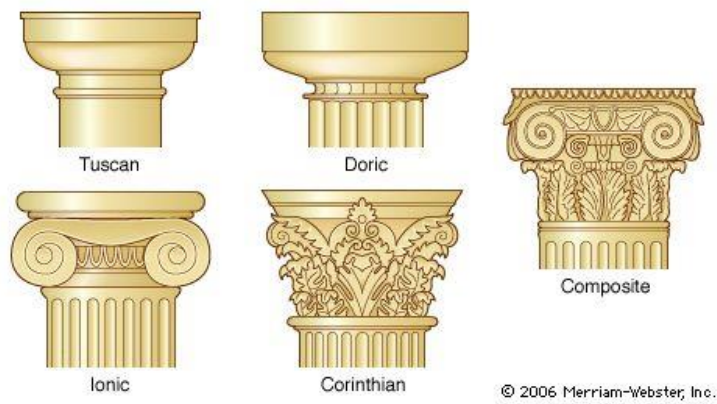
Why These Features Matter & Their Significance

- The structural innovations (arches/vaults/concrete) allowed for much larger and more varied interior spaces than earlier architecture (e.g., Greek).
- The architecture was not just aesthetic but **functional and urban**: public buildings, infrastructure like aqueducts, baths, and roads.
- These characteristics influenced subsequent architecture (Renaissance, Neoclassical) and modern civic buildings.
- As indicators of power, these buildings helped express the dominance of Rome and its empire (monumentality, scale, decorative messaging).

Summary Table

Feature	Description	Example or Note
Arches/Vaults/Domes	Structural system allowing wide spans, vaulted ceilings, and domed spaces	Pantheon dome, baths with barrel vaults
Concrete & Brick	Materials enabling new forms and durability	Use of opus caementicium
Classical Orders (Columns)	Use/adaptation of Greek columns + Roman additions (Tuscan, Composite)	Corinthian column capitals
Monumental Scale & Monumentality	Large buildings designed to impress and endure	Colosseum, large bath complexes
Symmetry/Proportion	Geometrical clarity, balanced design	Temples, forums, city layouts
Decoration & Narrative	Ornamentation, reliefs, mosaics telling stories	Triumphal arches, lavish interiors
Urban & Functional Planning	Infrastructure, public spaces, civic buildings	Forums, aqueducts, baths, grid-layout towns

Sketch of doric, ionic, corinthian, composite, tuscan order



Temple of Saturn at Rome



BUDDHIST ARCHITECTURE

Architectural characteristics and detail features

1. Religious Functionality

- Designed for **worship, meditation, and monastic life**.
- Often includes **shrines, stupas, viharas (monasteries), and chaityas (prayer halls)**.

2. Symbolism and Cosmic Representation

- Structures are often symbolic of **Buddhist cosmology** (e.g., the stupa as the axis mundi or cosmic mountain).
- Use of **mandala layouts** in temple planning, representing the universe.

3. Integration with Nature

- Many Buddhist sites are situated in **natural settings** like mountains, caves, and forests (especially in early architecture).
- Architecture complements rather than dominates the environment.

4. Hierarchy and Orientation

- Oriented based on **cardinal directions**, often east-facing.
- Hierarchical spatial arrangement—from **profane (outer)** to **sacred (inner)**.

5. Ritual Pathways

- Many structures, especially **stupas**, are designed for **circumambulation (pradakshina)**—ritual walking around the sacred structure.

◆ Detail Features of Buddhist Architecture

1. Stupa

- Dome-shaped mound containing **relics** or symbolic remains of the Buddha.
- Key elements:
 - **Anda** (hemispherical dome)
 - **Harmika** (square railing on top)
 - **Yasti** (central pillar, symbolic axis)
 - **Chattravali** (umbrella-like discs)
 - **Torana** (gateway) and **Vedika** (railing around the stupa)

2. Chaitya Hall

- Rock-cut or freestanding hall with a stupa at the end, used for congregational worship.
- Features:
 - **Barrel-vaulted roof**
 - **Colonnaded aisles**
 - **Apse at the end**

3. Vihara

- Monastic dwelling or monastery.
- Originally simple quadrangular cells around a central courtyard.
- Evolved to include shrines, assembly halls, and educational spaces.

4. Pagoda (East Asia)

- Multi-tiered tower-like structure derived from the stupa.
- Symbolizes levels of enlightenment and houses sacred relics.
- Common in China, Japan, Korea, and Vietnam.

5. Temple Complexes

- Especially in Tibetan and Southeast Asian contexts.
- Contain **images of the Buddha, bodhisattvas, murals, and mandalas**.
- Often decorated with **dragons, lotuses, wheels, and mythological figures**.

Decorative and Symbolic Elements

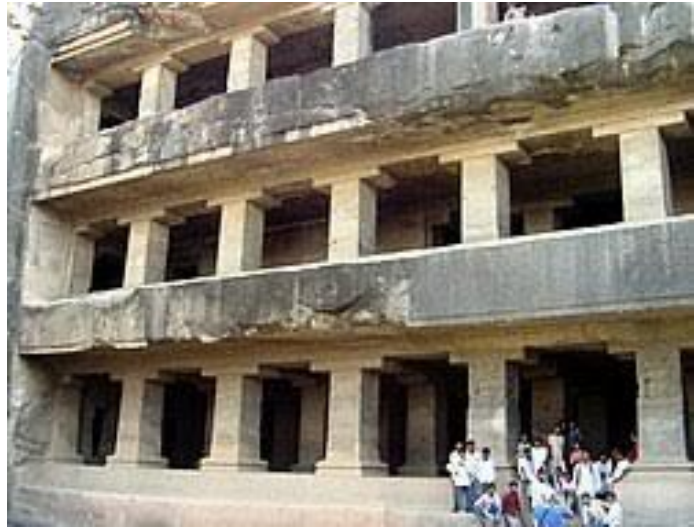
- **Lotus:** Purity and spiritual awakening
- **Dharmachakra (Wheel of Dharma):** The Buddha's teaching
- **Lions:** Royalty and protection
- **Bodhi Tree:** Enlightenment
- **Toranas:** Sculpted gateways with narrative reliefs
- **Mandalas:** Cosmic diagrams in architecture and decoration



the great stupa of sanchi



Chaitya hall



Vihara

TEMPLE ARCHITECTURE

Architectural characteristics and detail features of Odishan Temple

. Broad Architectural Characteristics

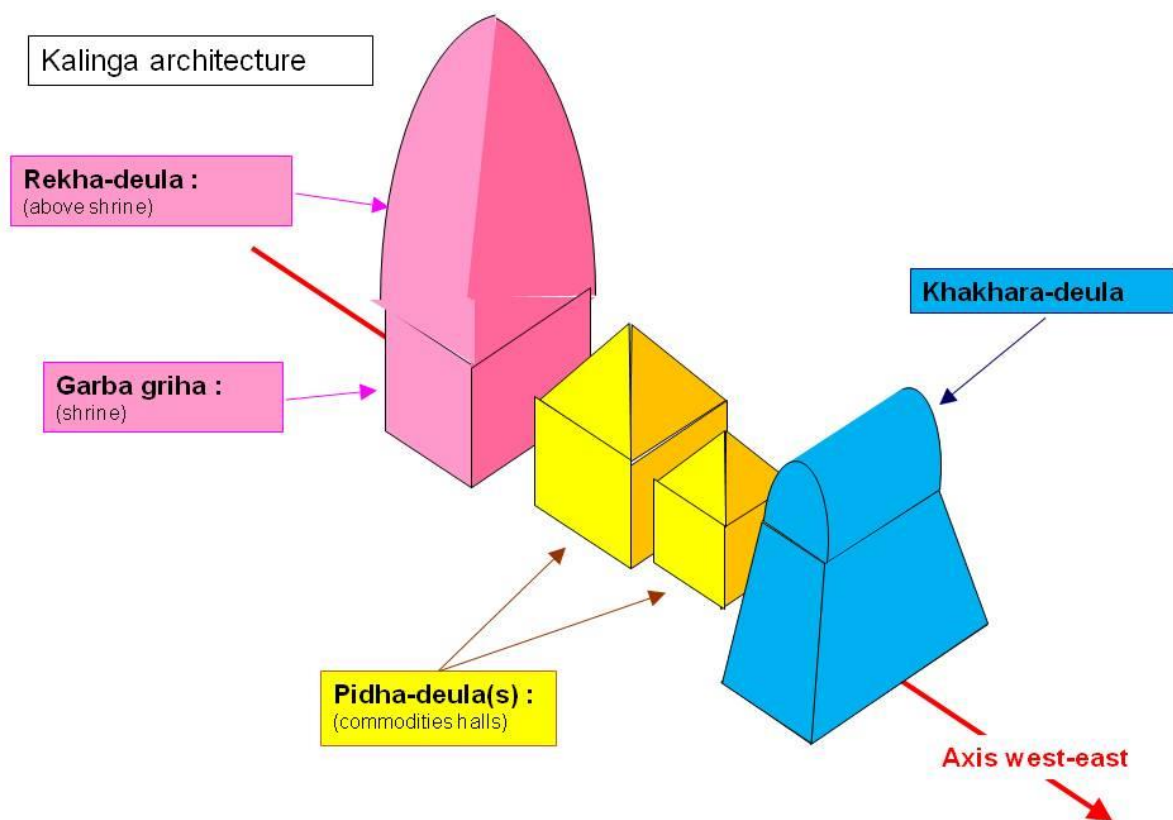
- The temples of Odisha typically follow a **square ground-plan** for the sanctum (garbha-griha) though variations occur.
 - A key feature is the **vertical projection**, i.e., the temple isn't simply cubic: its walls often have projections (called pagas or rathas) that create a cruciform or rich outline in plan.
 - The elevation is typically divided into clear zones: base/plinth, body (walls), superstructure/spire, and crowning elements.
 - Temples follow an **axial layout**: sanctum → assembly/hall → dance-hall/offering, aligned along an east-west axis (often east facing).
 - The style categorises into three major types of superstructure forms:
 1. **Rekha Deula** (curvilinear spire)
 2. **Pidha Deula** (pyramidal/stepped roof)
 3. **Khakhara Deula** (oblong plan with wagon-vault roof)
 - Ornamentation: The temples are richly decorated externally with sculptural motifs (mythological figures, celestial beings, flora/fauna) and internally the sanctum remains simpler.
-

2. Key Components & Their Detail Features

Here are some of the major “parts” of an Odishan temple and the detail features to look out for:

(a) *Vimana / Deula (Sanctum + Spire)*

- The term *deula* is used locally for the temple proper. The sanctum (garbha-griha) is often called the *vimana*.
- For the Rekha Deula type: a vertical curvilinear spire (“sikhara” or “gandi”) rising from a square base.
- The body (bada) of the wall is subdivided into parts:
 - **Pabhaga** (base mouldings)
 - **Jangha** (wall portion)
 - **Baranda** (moulding cornice)
- On top of the spire is the **mastaka** (head/crown) which includes: the *beki* (cornice), *amalaka* (ribbed disc-like stone), *kalasa* (pot-shaped finial) and often a *dhwaja* or *ayudha* (flag or weapon symbol) at the very top.
- Plan projections: In plan the walls may have three, five or more rathas or pagas (vertical offsets) giving terms like *triratha*, *pancharatha*, *saptaratha*.



(b) Jagamohana (Assembly Hall) and Other Halls

- In many temples the “sanctum + spire” is followed by a **jagamohana** or *mukhasala* (entrance/assembly hall) in front of it. The jagamohana often uses the Pidha Deula type roof (stepped pyramid) rather than the curvilinear spire.
- Further additions: **natamandira** (dance pavilion) and **bhoga-mandapa** (offering hall) may be included, aligned along the same axis.
- Roof forms: The Pidha roof consists of receding tiers of horizontal slabs or “pidhas” stacked. The Khakhara form has a wagon-vault overhead.

(c) Temple Complex & Platform

- Many temples stand on a raised plinth/platform (*pista* or *vedika*).
- They may be enclosed by compound walls, with gateways (*torana*) and subsidiary shrines.
- Orientation: predominantly east-facing entrance (so the deity faces east).

(d) Ornamentation & Structural Detail Features

- Sculptural niches: Vertical *pagas* often contain niches for deities or decorative sculptures. E.g., the early Parsuramesvara Temple in Bhubaneswar has niches in the pilasters.
- Carving motifs: Mythological scenes, celestial dancers, animals, flora, and sometimes erotic figure.
- Roof transitions: For example the *Beki* moulding marks the transition between *gandi* and *mastaka*. The *amalaka* disc sits below the *kalasa* finial.
- Use of projections (“*pagas*”) and offsets: These create rich external forms and catch light/shadow.

3. Summary of Style Types

- **Rekha Deula**: The quintessential “tower” form over the sanctum with curvilinear spire and rich verticality.
- **Pidha Deula**: Usually the hall/mandapa in front; stepped pyramidal roof of receding tiers.
- **Khakhara Deula**: Less common; oblong plan, with wagon-vault roof, often associated with goddess (Shakti) temples.

4. Example: Features in Practice

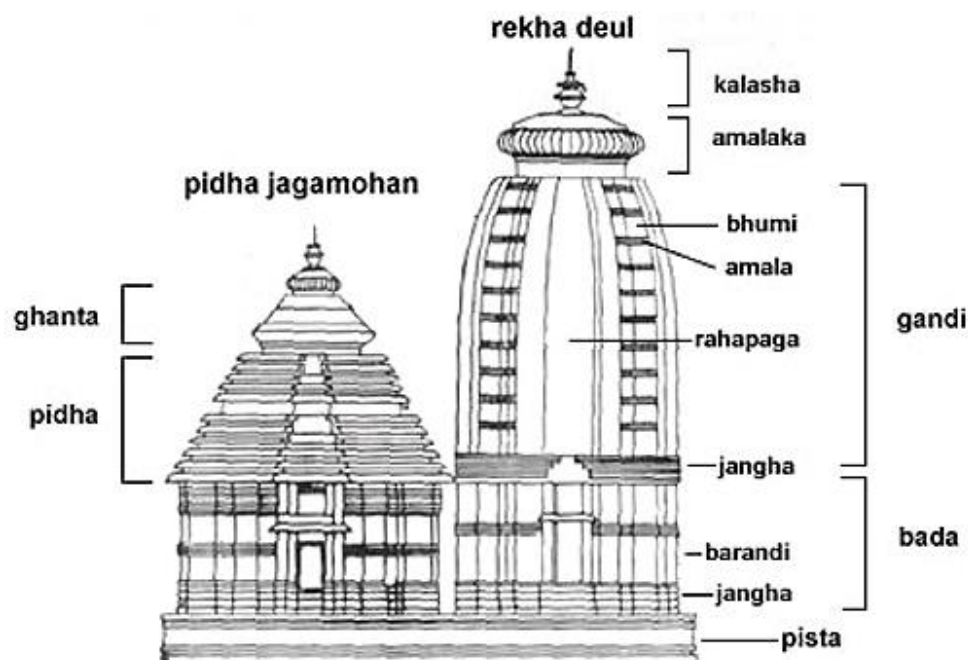
For instance, the Parsuramesvara Temple (circa 7th c) in Bhubaneswar:

- Plan: *triratha* plan (three vertical projections) but *gandi* shows *pancharatha* style.
- It has a jagamohana hall (rectangular) added to the front, two rows of pillars supporting the roof.

- Walls with carved creepers, human/animal figures.

5. Why It Matters & Distinguishing Points

- Unique in India: While derived from the larger Nagara tradition, the Kalinga style has its own vocabulary (e.g., the pagas/rathas, the rich bada/gandi/mastaka subdivisions) which makes Odishan temples easily identifiable.
- The interplay of elevation (height, projections), ornamentation, and axial planning gives them grandeur and coherence.
- Because many of the temples include multiple linked halls (jagamohana, natamandira, bhoga-mandapa), they reveal the evolution of temple usage (ritual, assembly, dance, offering).





Sun temple at Konark



Lingaraj temple at Bhubaneswar

MUSLIM ARCHITECTURE

Muslim architecture, also known as **Islamic architecture**, is a rich and diverse tradition developed over centuries across vast regions—from Spain and Morocco in the west to India and Southeast Asia in the east. While styles vary by geography and time period, there are core architectural characteristics and decorative features that define Muslim architecture.

◆ Architectural Characteristics of Muslim Architecture

1. Religious Foundation

- Rooted in **Islamic principles**, with many buildings serving religious purposes (e.g. mosques, madrasas).
- Architecture is often designed to **enhance spiritual experience** and community gathering.

2. Use of Geometry and Symmetry

- Emphasis on **geometric design**, **balance**, and **symmetry**—representing the perfection of God.
- Spaces are often organized around a **central axis or courtyard**.

3. Domes

- **Large, central domes** over key spaces (e.g. prayer halls).
- Domes often symbolized the **vault of heaven**.
- Example: Dome of the Rock in Jerusalem.

4. Arches and Vaults

- Extensive use of **pointed**, **horseshoe**, or **multifoil arches**.
- **Muqarnas** (stalactite-like vaulting) is a distinctive feature in ceilings and domes.

5. Minarets

- Tall, slender towers used for the **call to prayer**.
- Architecturally varied: round, square, spiral, or octagonal.

6. Courtyards (Sahn)

- Central open space in mosques and homes.
- Often includes **fountains** for ablution and relaxation.

7. Oriented Towards Mecca (Qibla)

- Mosques are aligned to face **Mecca**.
 - The **Qibla wall** features the **Mihrab** (a niche indicating direction).
-

◆ Detail Features of Muslim Architecture

1. Mihrab

- A **semicircular niche** in the qibla wall of a mosque.
- Often elaborately decorated with **tilework**, **calligraphy**, and **stucco**.

2. Minbar

- A **pulpit** from which the sermon (khutbah) is delivered during Friday prayers.
- Usually made of wood, stone, or marble with intricate carvings.

3. Calligraphy

- Arabic script used decoratively, often featuring verses from the **Qur'an**.
- Found on walls, domes, doors, and tiles.
- Serves as a spiritual and visual element—no human or animal imagery due to aniconism in religious contexts.

4. Arabesque Patterns

- Complex, repeating **floral or vegetal motifs** symbolizing infinite creation.
- Often combined with geometric patterns and calligraphy.

5. Muqarnas

- Decorative three-dimensional **stalactite-like forms** used in domes, niches, and entrances.
- Creates a sense of depth and celestial beauty.

6. Tilework and Mosaics

- Use of **glazed tiles**, especially in Persian, Ottoman, and Mughal architecture.
- Colors like **blue**, **turquoise**, **white**, and **gold** are prominent.

7. Iwan

- A large **vaulted hall** or space walled on three sides, open on one side.

- Prominent in Persian and Central Asian architecture.

8. Carved Wood and Stucco

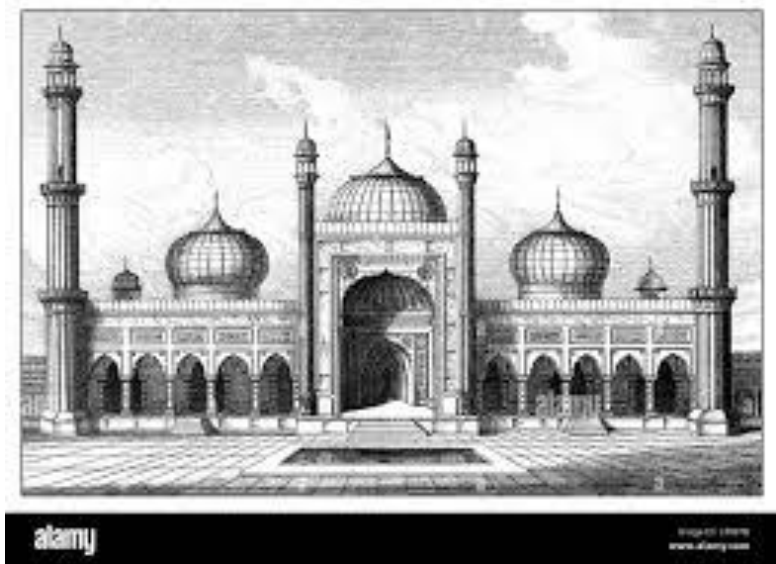
- Intricately carved **wooden screens (mashrabiya)** for privacy and ventilation.
- **Stucco** used for detailed surface decoration.

◆ Notable Examples of Muslim Architecture

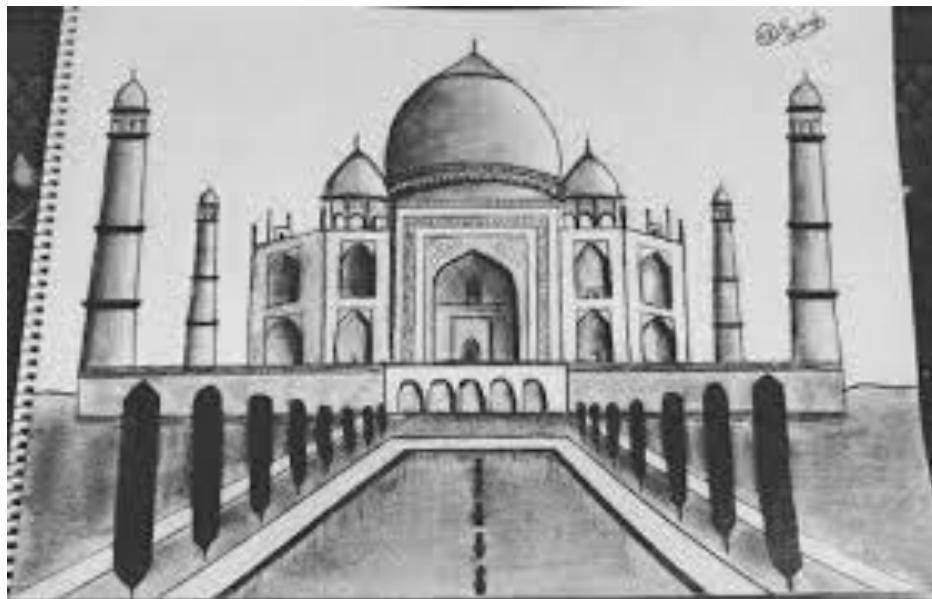
Monument	Location	Notable Feature
Alhambra	Spain	Arabesques, muqarnas, gardens
Dome of the Rock	Jerusalem	Octagonal plan, central dome, mosaics
Great Mosque of Córdoba	Spain	Horseshoe arches, hypostyle hall
Sultan Ahmed Mosque (Blue Mosque)	Istanbul	Large central dome, minarets, blue Iznik tiles
Taj Mahal	India	Symmetrical plan, white marble, inlaid stonework

◆ Summary

Muslim architecture is a fusion of **faith, function, and form**. While regional styles differ (Ottoman, Persian, Mughal, Andalusian), common elements like **domes, arches, calligraphy**, and **geometric decoration** unify them under a shared Islamic artistic vision. It remains one of the most influential and visually captivating traditions in world architecture.



SKETCH OF JUMA MASJID



sketch of taj mahal



SKETCH OF QUTAB MINAR

CONTEMPORARY ARCHITECTURE

Contemporary architecture refers to the architecture of the 21st century and is characterized by its innovative approach to design, materials, sustainability, and technology. It's not a single style, but rather an evolving movement that reflects current trends, societal values, and technological advancements.

◆ Architectural Characteristics of Contemporary Architecture

1. **Simplicity and Clean Lines**
 - Emphasis on minimalism
 - Clean, geometric forms without excessive ornamentation
2. **Open Floor Plans**
 - Spatial fluidity with few walls or barriers
 - Flexible spaces that adapt to function
3. **Asymmetry and Irregular Forms**
 - Often breaks from traditional symmetrical designs
 - Use of dynamic and sculptural forms
4. **Integration with Nature**

- Indoor-outdoor flow
 - Large windows and open spaces that blend with the environment
 - 5. **Sustainable and Eco-Friendly Design**
 - Use of green roofs, solar panels, and passive heating/cooling
 - Recycled or low-impact materials
 - 6. **Innovative Use of Materials**
 - Glass, steel, concrete, and composite materials
 - Unconventional combinations (e.g., wood with metal or stone)
 - 7. **Transparency and Light**
 - Extensive use of glass for natural lighting
 - Curtain walls and floor-to-ceiling windows
 - 8. **Technology Integration**
 - Smart home features (lighting, climate control, security)
 - Responsive facades or kinetic elements
-

◆ Detail Features in Contemporary Architecture

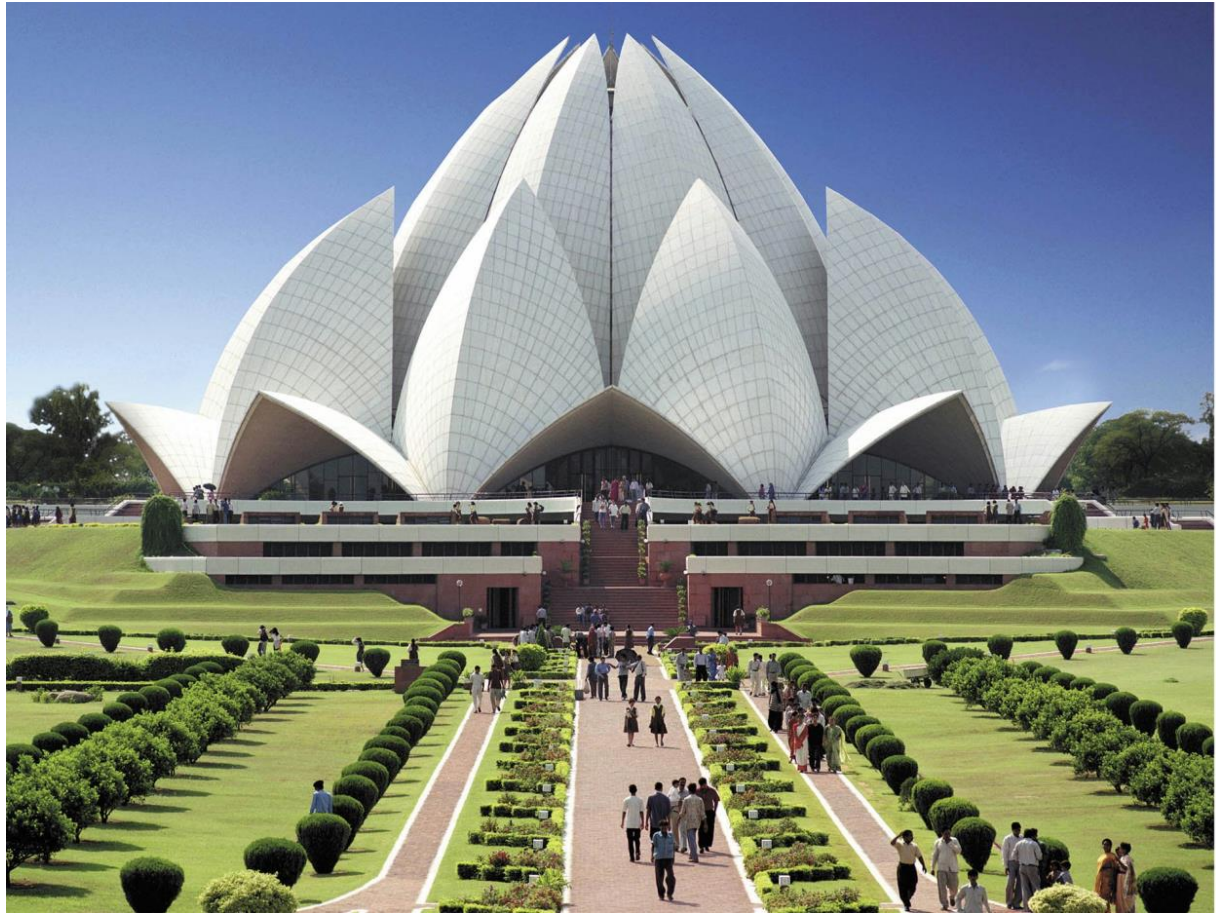
1. **Flat or Low-Pitched Roofs**
 - Often with hidden gutters and clean edges
 2. **Cantilevered Elements**
 - Overhangs that create dramatic architectural effects
 3. **Exposed Structural Components**
 - Beams, steel frames, or trusses shown as design elements
 4. **Mixed Cladding and Textures**
 - Juxtaposition of materials like glass, wood, and metal panels
 5. **Large, Uninterrupted Windows**
 - Frameless or minimal-frame glazing for panoramic views
 6. **Custom Lighting Design**
 - Integrated lighting in walls, ceilings, stairs, and exterior façades
 7. **Sculptural Staircases**
 - Often a central visual feature made from glass, steel, or floating treads
 8. **Green Features**
 - Living walls, green roofs, rainwater harvesting systems
-

Summary

Contemporary architecture is defined more by **concepts and innovation** than by a strict set of stylistic rules. It's responsive to environmental concerns, user needs, and technological progress, making it a **living, adaptable form** of design.



EIFFEL TOWER



BAHAI TEMPLE



BURJ AL KHALIFA

Works of famous architects.

FRANK LLOYD WRIGHT

Frank Lloyd Wright (1867–1959) was one of the most influential architects of the 20th century, known for his philosophy of **organic architecture**—designing structures that are in harmony with humanity and the environment.

Here's a list of **some of his most iconic works**, grouped by category:



Residential Works

1. **Fallingwater** (1935) – Pennsylvania
 - Built over a waterfall; Wright's most famous work, epitomizing organic architecture.
 2. **Robie House** (1909) – Chicago, Illinois
 - A prime example of the **Prairie Style**, emphasizing horizontal lines.
 3. **Taliesin** (1911) – Spring Green, Wisconsin
 - Wright's personal home and studio, evolving over decades.
 4. **Taliesin West** (1937) – Scottsdale, Arizona
 - Winter home and school; adapted to the desert landscape.
 5. **Hollyhock House** (1921) – Los Angeles, California
 - Early modernism with Mayan and pre-Columbian influences.
 6. **The Emil Bach House** (1915) – Chicago, Illinois
 - A compact example of the Prairie Style.
 7. **The Ennis House** (1924) – Los Angeles, California
 - Inspired by Mayan temples, using textile concrete blocks.
 8. **Kentuck Knob** (1956) – Pennsylvania
 - Usonian-style home, near Fallingwater.
-



Public and Commercial Works

1. **Unity Temple** (1908) – Oak Park, Illinois
 - Unitarian church; considered the first modern building.
2. **The Guggenheim Museum** (1959) – New York City
 - Spiral ramp gallery; iconic modernist landmark.
3. **Johnson Wax Headquarters** (1936) – Racine, Wisconsin
 - Features “dendriform” columns and open office space.
4. **Price Tower** (1956) – Bartlesville, Oklahoma
 - A rare Wright-designed skyscraper.

5. **Marin County Civic Center** (1962) – San Rafael, California
 - A futuristic government complex completed after Wright's death.
-

Usonian Homes (Affordable middle-class housing)

- Designed from the 1930s to the 1950s
- Focused on simplicity, modular design, and integration with nature

Notable Examples:

- **Jacobs House** (1937) – Madison, Wisconsin (First Usonian house)
 - **Rosenbaum House** (1940) – Florence, Alabama
 - **Pope-Leighey House** (1940) – Virginia
-

Architectural Style Highlights

- **Prairie Style** – Horizontal lines, flat roofs, open interiors
- **Usonian Style** – Affordable, efficient, modest homes
- **Organic Architecture** – Harmony with natural surroundings
- **Textile Block Construction** – Decorative concrete blocks, especially in California

LE CORBUSIER

Le Corbusier (1887–1965) was a pioneering Swiss-French architect, designer, urban planner, and writer, widely regarded as one of the most influential architects of the 20th century. He was a key figure in the development of modern architecture, known for his innovative use of materials, rational design principles, and vision for urban planning.

Here's a list of **notable works by Le Corbusier**, categorized for better understanding:

Key Architectural Works

1. Villa Savoye (1929–1931) – Poissy, France

- Iconic example of Le Corbusier's "Five Points of Architecture."

- A white, minimalist villa lifted on pilotis (stilts), with ribbon windows and a roof garden.

2. Unité d'Habitation (1947–1952) – Marseille, France

- A model for high-density urban housing.
- Features duplex apartments, a rooftop garden, shops, and communal spaces.
- Also built in other cities: Nantes-Rezé, Berlin, and Firminy.

3. Notre Dame du Haut (1950–1955) – Ronchamp, France

- A bold, sculptural church.
- Marks a shift from strict modernism to a more expressive, spiritual design.

4. La Tourette Monastery (1953–1960) – Évèux, France

- A Dominican monastery emphasizing solitude and silence.
- Brutalist concrete forms; interplay of light and shadow.

5. Maison La Roche-Jeanneret (1923–1925) – Paris, France

- Early modernist residential project.
- Now home to the Fondation Le Corbusier.

6. Cabanon de Le Corbusier (1952) – Roquebrune-Cap-Martin, France

- Tiny wooden cabin, his personal retreat.
- Demonstrates his ideas of efficient, minimal living space.



Urban Planning Projects

1. Plan Voisin (1925) – Paris (unbuilt)

- A radical plan to demolish central Paris and replace it with towers in a park.
- Highly controversial but influential in urban planning debates.

2. Chandigarh (1951–1965) – India

- Planned capital city of the Indian states of Punjab and Haryana.
- Collaborated with Indian architects and planners.
- Notable buildings:
 - **Capitol Complex** (now a UNESCO World Heritage Site)
 - Secretariat Building
 - High Court

- Palace of Assembly
-

Furniture Design

- Co-designed iconic modernist furniture with Charlotte Perriand and Pierre Jeanneret:
 - LC1 (Basculant chair)
 - LC2 (Petit confort armchair)
 - LC4 (Chaise longue)
-

Books and Writings

- **Vers une Architecture (Toward an Architecture)** – 1923
"A house is a machine for living in."
 - **The City of To-morrow and Its Planning** – 1929
 - **The Radiant City (La Ville Radieuse)** – 1935
-

UNESCO World Heritage Recognition

In 2016, **17 of Le Corbusier's works** across 7 countries were inscribed on the UNESCO World Heritage List as “The Architectural Work of Le Corbusier, an Outstanding Contribution to the Modern Movement.”

B.V.DOSHI

Balkrishna Vitthal Das Doshi (1927–2023), known as **B.V. Doshi**, was one of the most important architects in India and a globally celebrated figure in modern architecture. He was the **first Indian to win the Pritzker Architecture Prize (2018)** and was known for blending modernist principles with Indian traditions, climate, culture, and social needs.

MAJOR WORKS OF B.V. DOSHI

Here’s a list of some of his **most significant architectural projects**, categorized by type:



Educational Institutions

1. Indian Institute of Management (IIM) Bangalore (1977–1992)

- Inspired by traditional Indian architecture (like temple towns).
- Uses corridors, courtyards, and stone masonry to create a walkable, shaded campus.

2. CEPT University (Centre for Environmental Planning and Technology) – Ahmedabad

- Doshi founded CEPT and also designed its campus.
- Open plans, exposed concrete, and brick structures designed to promote interaction.

3. School of Architecture, Ahmedabad (1966)

- One of the earliest architecture schools in India that promoted modernist education.
-



Housing & Social Projects

4. Aranya Low-Cost Housing – Indore (1989)

- Won the **Aga Khan Award for Architecture** in 1995.
- Provides affordable housing with flexibility for self-expansion.
- A community of over 80,000 people with a mix of income groups.

5. Bimanagar Housing – Ahmedabad

- Cooperative housing for middle-income families.
 - Encourages communal life and shared spaces.
-



Cultural and Institutional Buildings

6. Tagore Memorial Hall – Ahmedabad (1966–1971)

- Brutalist architecture with exposed concrete.
- Inspired by Le Corbusier, with whom Doshi had worked.

7. Amdavad ni Gufa (1994) – Ahmedabad

- Underground art gallery built in collaboration with artist M.F. Husain.
- Organic, cave-like forms, symbolic of Indian traditions and storytelling.

8. Premabhai Hall – Ahmedabad

- Brutalist theater hall in the city center (currently unused).
 - Monumental structure emphasizing volume and voids.
-



His Own Studio & Residence

9. Sangath – Ahmedabad (1981)

- Doshi's architecture studio.
- Combines vaults, sunken spaces, water channels, and lush landscaping.
- A powerful synthesis of Le Corbusier's influence and Indian sensibilities.

10. Kamala House – Ahmedabad

- His personal residence, named after his wife.
 - Modest in scale, blends indoor and outdoor spaces.
-



Urban Planning & Visionary Projects

- **Vidhyadhar Nagar Master Plan** – Jaipur
 - Urban planning that incorporates climate, context, and community needs.
-



AWARDS & HONORS

- **Pritzker Architecture Prize** – 2018
 - **Padma Bhushan** – 2020 (India's third-highest civilian award)
 - **Royal Gold Medal by RIBA** – 2022
 - **Aga Khan Award for Architecture** – 1995 (for Aranya Housing)
-

DESIGN PHILOSOPHY

- Deeply rooted in Indian culture, climate, and human needs.
- Believed in architecture as a “**living, breathing entity**” that evolves with its users.
- Integrated **modernist ideas** (influenced by Le Corbusier and Louis Kahn) with **vernacular Indian traditions**.

CHARLES CORREA

Charles Correa (1930–2015) was one of India's most influential modern architects, known for designing spaces that were climatically appropriate, culturally rooted, and deeply responsive to human scale and experience. His work spans housing, institutions, urban planning, and memorials, blending **modernist principles** with **Indian traditions**.

MAJOR WORKS OF CHARLES CORREA

Here's a curated list of his **most significant architectural works**, grouped by category:

Housing & Urban Development

1. Belapur Housing – Navi Mumbai (1983–86)

- A model for low-rise, high-density urban housing.
- Uses courtyards, terraces, and flexible layouts to encourage community life.
- Based on participatory design principles and incremental growth.

2. Tube House – Ahmedabad (1961–62)

- Early experimental housing project for low-income families.
- Simple layout promoting cross ventilation and natural light.

3. PREVI Housing – Lima, Peru (1969–72)

- International project showcasing incremental housing concepts.
-

Cultural and Institutional Buildings

4. Jawahar Kala Kendra – Jaipur (1986–92)

- Cultural center inspired by the Navagraha (9 planets) mandala and Jaipur's original city plan.
- Rich in symbolism and rooted in Indian cosmology and geometry.

5. National Crafts Museum – New Delhi (1975–90)

- A fusion of modernist design and vernacular Indian architecture.
- Includes courtyards, sloping tiled roofs, and traditional craftsmanship.

6. British Council Building – New Delhi (1987–92)

- Mixes modern materials with Indian symbolism.
- Divided into three zones reflecting different cultural eras (Mughal, British, Modern).

7. Bharat Bhavan – Bhopal (1975–81)

- A multi-arts complex with amphitheaters, museums, and galleries.
 - Built into a hillside, blending with the landscape.
-

Healthcare

8. Kanchanjunga Apartments – Mumbai (1970–83)

- A 32-story luxury residential tower.
- Introduced the concept of **sky verandas** — open-to-sky terraces within each unit.
- Adapted high-rise living to the Indian climate.

9. Champalimaud Centre for the Unknown – Lisbon, Portugal (2007–10)

- Research and treatment center for neuroscience and cancer.
 - Located on the waterfront; reflects light, openness, and healing.
-

Memorials

10. Gandhi Smarak Sangrahalaya (Gandhi Memorial Museum) – Ahmedabad (1958–63)

- Located at Sabarmati Ashram.
- Built with local materials and modest scale, reflecting Gandhi's values.
- Courtyards and verandas enhance simplicity and connection to nature.

Urban Planning Projects

11. Navi Mumbai Planning – 1970s

- Correa was the chief architect and planner.
- Aimed to decongest Mumbai by creating a planned satellite city.

12. Urban housing schemes & planning reports

- Advocated for inclusive cities and incremental housing.
- Worked with government bodies on affordable housing solutions.

DESIGN PHILOSOPHY

Charles Correa's work emphasized:

- **Climate responsiveness:** Passive cooling, courtyards, cross ventilation.
- **Cultural identity:** Use of symbolism, traditional materials, Indian aesthetics.
- **Human scale:** Designed for how people live, gather, and interact.
- **Inclusivity:** Advocated for equitable urban development and low-cost housing.

AWARDS & HONORS

- **Padma Shri** (1972) and **Padma Vibhushan** (2006)
- **Royal Gold Medal** by RIBA (1984)
- **Aga Khan Award for Architecture** (1988, for Jawahar Kala Kendra)
- Multiple honorary doctorates and international recognition