

For CMAT Exam

ARCHITECTURE IN INDIA

Harappan / IVC

Building Architecture :

- Age : Started around 2500 BC
- Major sites : Harappa, Mohenjo-daro
- Minor sites : Dholavira, Lothal, Rakhigarhim, Ropar, Balathal, Kalibangan, Surkotoda, Banawali, Alamgirpur
- Important architecture aspect : Urban civic planning
- Features of Architect : Network of towns at rectangular grid pattern, roads cutting at right angles, advanced drainage systems
- Other features : 3 types of buildings - dwelling houses, public buildings and public baths. All built with burnt mud bricks.
- Other features : City divided into two parts 1. Upraised Citadel consisting of granaries, pilloried halls, administrative buildings for Elite class 2. Lower city with one roomed constructions for working class
- Examples : Great bath, a public bath at Mohenjo-daro ; 2 rows of six granaries at Harappa ; Water reservoir & management system at Dholavira, Dockyard and double burial at Lothal



Great Bath Mohenjodaro



Street And Building Layout

Mauryan

Building Architecture:

- Age : Started around 400 BC
- Under the patronage of Kshatriya rulers
- Religious influence : Buddhism

Palace Architecture :

- Major sites : Pataliputra, Kumrahar
- Principle building material : Wood
- Example: Ashoka palace at Kumrahar

Pillar Architecture :

- Independent pillars are built to disseminate state directives/ to commemorate battle victories/ to propagate sermons
- Height - Avg 40 ft
- Principle building material : Chunar sandstone
- Parts of pillar : 4 (shaft -> capital -> abacus -> animal figure)
- Shaft : monolith ; Capital : either lotus or bell shaped ; Abacus : circular or rectangular base
- Major site : Lauria Nandangarh pillar at champaran, Sarnath pillar at Varanasi (National Emblem)



Ashoka Pillar At Vaishali



Sanchi Stupa

Stupa Architecture :

- Stupas are burial mounds in which relics and ashes of the dead are kept
- Principle building material of stupa - Unburnt brick
- Principle building material of Medhi and Torana - Wood
- Way of worship : Walk around pradakshina patha/ ambulatory passageway
- Major sites : Sanchi stupa at Madhya Pradesh, Piprahwa stupa at Uttar Pradesh

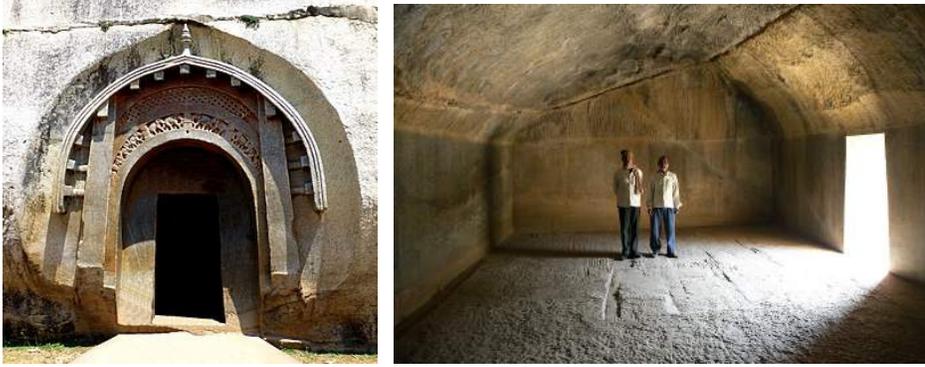
Post Mauryan

Building Architecture:

- Age : Post 200 BC
- Religious influence : Hinduism
- Patronage : Shungas, Kanvas, Kushanas, Shakas in North ; Satvahanas, Ishavakus, Abhiras, Vakatakas in South & West

Cave Architecture:

- Two types of rock cut caves : Chaitya & Vihar
- Vihars - Residential halls for the Buddhist and Jain monks
- Chaitya - Prayer halls which are quadrangular chambers with flat roofs
- Major sites : Karle chaitya hall, Ajanta caves



Barabar Caves Exterior Entrance And Interior

Stupa Architecture:

- Stone replaced wood and brick
- Toranas are made as beautifully decorated gateways (with hellenistic influence)
- Major sites : Bharhut stupa at UP

GUPTA

- Age : Around 400 AD
- Hailed as Golden period of Indian Architecture
- Religious influence : Buddhism at initial phase and hinduism at the later phase

Cave Architecture

- Unique feature : Mural paintings on the wall
- Example 1 : Ajanta caves at Aurangabad - 29 caves ; developed around 200 BC to 650 AD ; Patronage of Vakataka kings (Harishena) ; Buddhist influence (5 during Hinayana phase, 24 during Mahayana phase) ; fresco paintings of life of buddha & Jataka stories ; Absence of blue colour and presence of red outlines
- Example 2 : Ellora caves at Aurangabad - 32 caves ; Mix of Brahmanical (16 caves), Buddhist(12 caves) & Jainism(4 caves) influences ; developed around 500 AD to 1100 AD
- Major differences between Ajanta and Ellora caves

Ajanta Caves	Ellora Caves
On the Stiff slope of mountains	On the slant slope of mountains
Absence of courtyards	Presence of courtyards

- Other Examples : Bagh Caves (9 buddhist caves) at Madhya pradesh - 600 AD
Junagadh Caves at Gujarat

Nasik Caves (23 Buddhist caves) at Maharashtra - 100 AD
Mandapeshwar Caves at Maharashtra - 800 AD\

Stupa Architecture

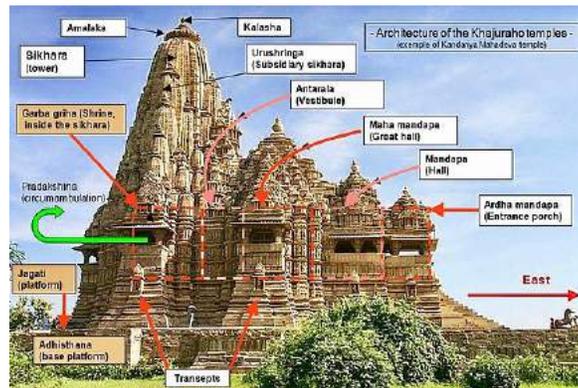
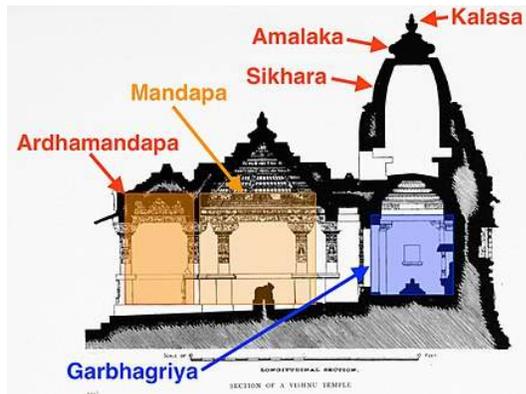
- Decline in development of stupas
- Few Examples : Dhamekh Stupa at Uttar pradesh

Temple Architecture

Basic forms of any Hindu temple contains the following

1. Sanctum sanctorum aka Garbha griha : literally means Womb house, a cubicle which houses the principal deity
 2. Mandapa : Entrance to temple. A portico/hall to house the worshippers
 3. Shikhara : Mountain like a spire. Shape varying from pyramidal to curvilinear
 4. Vahana : Vehicle of the main deity. Placed before the sanctum sanctorum
- Emerged during the Gupta period
 - Gradual progression from the flat roofed, monolithic temples to Shikara (tower) styled temples
 - It can be divided into 5 stages
- a. First stage : Temple no 17 at sanchi
 - Flat roof
 - Square shaped sanctums
 - Low platforms ad shallow pillars
 - b. Second stage : Parvati temple at Madhya pradesh
 - Two storied temples
 - Covered ambulatory passageway around the sanctum sanctorum
 - Upraised platforms
 - c. Third stage : Dashavatara temple at UP, Durga temple at Karnataka
 - Emergence of curvilinear shikaras
 - Panchayatana style of temple making : placing 4 subsidiary shrines along with temple of principle deity with the crucified shape ground plan,
 - d. Fourth stage : Ter temple at solapur
 - Similar to third stage, except the main shrine became more rectangular
 - e. Fifth stage : Maniyar math at Rajgir
 - Introduction of circular temples

Different Styles of Temple Architecture



A. Nagara School of Architecture :

- Location : Northern India
- Timeline : From 500 AD
- Panchayatana style of temple making
- Mandapas/ Assembly halls in front of the principle shrine
- Ganga and Yamuna river goddess are placed outside the garbha griha
- No water tanks/reservoirs in temple complex
- Upraised platform with pillared approach
- Types of shikaras
 - a. Latina : Square base with walls curving to the point on top
 - b. Phamsana : broader base with walls sloping towards on a straight line. Shorter in height
 - c. Valabhi : Rectangular base with roof rising to vaulted chambers. Wagon - vaulted roofs
- Shikaras are topped by horizontal disc called Amalak, which are again topped by spherical body called kalash
- Walls of temples are divided into a number of vertical planes (rathas). If it is 3, then trirathas, 5 - pancharathas, 7 - saptaratha and even 9 - navarathas
- Covered ambulatory passageway around the sanctum sanctorum

Three subschools of Nagara school are

1. Odisha school :

- Location : Kalinga emprise (modern day odisha)
- No use of pillars on the mandapas aka Jagmohanas
- Lavishly decorated exterior walls with plain interior walls
- Shikharas aka rekhadeuls are vertical roofs with sudden inward curves at top
- Temples are surrounded by boundary walls

- Ground plan of temple is square
- Example : Sun temple at Konark, Jagannath temple at Puri

2. Khajuraho school :

- Location : Central part of India
- Patronage : Chandel rulers
- Lavishly decorated interior and exterior walls
- Inspiration from Vatsyayana's Kamasutra, so erotic theme is predominant
- Three chambered temples - sanctum sanctorum, mandapa and ardha mandapa
- Temples are north or east facing
- Panchayatana style of temple making
- Higher platform temples
- Examples : Kandariya mahadeva temples and Lakshman temple at Madhya pradesh



Modhera Sun Temple



Jagannath Temple

3. Solanki School:

- Location : North western part of India including Gujarat and Rajasthan
- Patronage : Solanki rulers
- Walls are devoid of any carvings
- Garbha griha is connected to mandapa both internally and externally
- Porticos have decorative arched gateways called torans
- Presence of step tanks/ surya - kund in temple complex. Steps of the tank have small temple forms
- East facing temples
- Building material used : From sandstone to soft marble
- Example : Modhera sun temple, Gujarat

B. Dravidian style of Architecture :



Meenakshi Temple

Early dravidian temple architecture is developed under Pallava rulers Mahendravarman
They progressed in four stages :

- 1st stage : Mahendra group - rock cut temples and mandapas
- 2nd stage : Narasimha group - rock cut temples with intricate sculptures and mandapas as rathas
- 3rd stage : Rajasimha group - Real structural temples in place of rock cut temples. Eg: Shore temple at Mahabalipuram, Kailashnath temple at kanchipuram
- 4th stage : Nandivarman group - Smaller size temples
- Dravidian style architecture achieved zenith during chola rulers regime

Major features :

- Temples surrounded by high boundary walls
- Gopura, : High entrance gateway at front wall
- Panchayatana style of temple architecture
- Vimana : Spire is in the form of a stepped pyramid, rising linearly rather than curved. Present only on top of the main temple shrine , not on subsidiary shrines
- Shikhara : similar to kalash in Nagara architecture. Octagon shaped
- Antarala : Vestibular tunnel connecting assembly hall with the garbhagriha
- Entrance of sanctum sanctorum has Dwaarपाल, mithun and Yakshas structures
- Presence of Water tank in the temple complex
- Examples : Brihadeswara temple and Gangaikondacholapuram temple at Tanjore



Sun Temple Konark



Brihadeswara Temple



Gangaikondacholapuram Temple

C. Nayaka School aka Madurai School:

- Timeline : Between 1600 and 1800 AD
- Patronage : Nayaka rulers
- Major feature : Presence of Prakarns or huge corridors in portico
- Major feature : large sized gopurams
- Example : Meenakshi temple at Madurai has tallest gopuram in the world

D. Vesara School aka Karnataka School :

- Timeline : Mid 700 AD
- Patronage : Later Chalulya rulers

- Major feature : Combined features of Nagara School and Dravidian School.
- Other features : Open ambulatory passageway ; Intricate carvings of pillars, doorways and ceilings ; Emphasis on Vimana and Mandapa
- Examples : Dodda Basappa temple at Dambal, Ladkan temple at Aihole

E. Vijaynagar School :

- Timeline : Between mid 1300 AD to 1600 AD
- Patronage : Vijayanagar rulers
- Influence : Indo-Islamic style of Bijapur
- Major features : Gopuram built on all the sides , More than one mandapa in the temple (main one is kalyana mandapa), secular buildings
- Other features : Highly decorated wall carvings and geometrical patterns
- Example : Vittalaswami temple, Lotus Mahal



Vittala Temple



Hoysaleswara Temple

F. Hoysala School :

- Location : Region of Karnataka with prime seats at Belur, Halebid and Sringeri
- Timeline : Around 1050 - 1300 AD
- Patronage : Hoysala rulers
- Major features : Multiple shrines around central pillared hall, Stellate style for temple plan, one metre high upraised platforms for temples called Jagati
- Other features : Major decoration of temple walls, walls and stairs follow zigzag pattern
- Principle building material : Soft soap stone
- Examples : Hoysaleswara temple at Halebid, Chennakesava temple at Belur

G.Pala School :

- Timeline : Between 800 AD and 1200 AD
- Patronage : Pala dynasty (Buddhist rulers) and Sena dynasty (Hindu rulers). Both religion influence
- Location : Bengal region
- Major feature : Bangla roof - Buildings had curve or sloping roof
- Other features : Tall curving shikaras, Stone sculptures, lustrous finish in figurines
- Principle building material : Terracotta bricks (Burnt bricks and clay)
- Example : Siddhesvara Mahadeva temple in Barakar, temples around Vishnupur

Medieval India Architecture :



Badshahi Mosque



Bibi Ka Maqbara

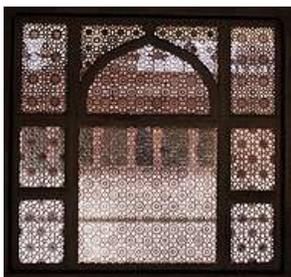


Buland Darwaza

- With advent of Islam, a new fusion of Indian and Islamic style architecture emerged - Indo-Islamic / Indo-Saracenic architecture

Major features :

- Arcuade style (use of arches and domes) replacing the traditional Trabeat style (use of Lintels and shikaras)
- Use of Minars around mosques and mausoleums
- Avoided use of human and animal figures
- Mortar is used as cementing agent
- High reliance on principles of geometry - decorative patterns and symmetry in them
- Use of Arabesque method
- Use of calligraphy for decoration
- Introduced spaciousness and massiveness
- Use of intricate Jaali works for accommodating light
- Use of water in form of courtyard pools and fountains
- Charbagh style of gardening (four adjacent identical gardens)
- Pietra-dura technique for inlay of precious stones and gems into the stone walls
- Use of foresighting techniques for making inscriptions to appear as same size from any place



Jali Work



Mughal Garden Style



Pietra Dura

Delhi Sultanate Period :

- Timeline : 1206 - 1526 AD
- It can be broadly categorised into two categories:
 - a. Imperial style
 - b. Provincial style

A. Imperial style :

1. Slave Dynasty :

- Timeline : 1206 AD to 1290 AD
- Mameluke style of architecture came into picture
- Most constructions were remodellings of the existing Hindu structures and erection of monuments
- Example : 5 storied Qutub Minar (Ground floor by Qutb-ud-din Aibak, Next 3 storeys by Iltutmish and 5th storey by Feroze shah tughlaq)

2. Khilji Dynasty :

- Timeline : 1290 AD to 1320 AD
- Sejluk style of architecture came into picture
- Principle building material : Red sandstone
- Major features : Emergence of Arcade style and Usage of mortar
- Example : Alai Darwaza by Alad-ud-din Khilji, Siri fort

3. Tughlaq Dynasty :

- Crisis period for architecture. No major developments
- Principle building material : Grey Sandstone
- Major feature : Battar style of construction - Using sloping walls for strengthening the building
- Other feature : Using both Arcuade and Trabeat style for entrance design

4. Lodhi Dynasty :

- Crisis period continues
- Only no frills, octagonal shaped tombs with sloping verandahs were commissioned.
- Major feature : Introduction of double domes (Hollow dome inside the top dome). They gave strength to the structure and reduced inner height of the dome
- Example : Lodi Gardens

B. Provincial Style

1. Bengal School :

- Major feature : Usage of Bangla roofs
- Principle building material : Bricks and Black Marble
- Examples : Qadam Rasul mosque and Adina mosque

2. Malwa School aka Pathan School:

- Prominent seats : Cities of Dhar and Mandu
- Major features : Environmental Adaptation - Large windows because of European influence, Slightly arched pavilions for better ventilation, Artificial water storage reservoirs called Baulis, Usage of battar system and locally available materials
- Other features : No minars are built
- Example : Rani Roopmati pavilion, Jahaz Mahal, Ashrafri Mahal

3. Jaunpur School :

- Birth of Sharqi style , as patronised by sharqi rulers
- Unique feature : Use of bold and forceful characters painted on huge screens in the centre and side bays of the prayer hall
- Other feature : Avoided the usage of Minars
- Example : Atala Mosque

4. Bijapur School :

- Birth of Deccan style of architecture under the patronage of Adil Shah
- Unique features : Usage of 3-arched facade and bulbous domes ; Use of cornices
- Other special features : Treatment of ceilings, Use of Iron clamps and strong plasters of mortar to strengthen the building
- Walls are richly decorated
- Example : Gol Gumbaj

Mughal Period

1. Babur :

- Undertook construction of mosques in Panipat and Rohilkhand by 1526 AD

2. Humayun :

- Persian style of architecture
- Laid the foundation of city named Dinapanah

3. Shershah :

- Undertook the construction of Qila-e-Quanah mosque, Grand trunk road and his tomb at Sasaram

4. Akbar :

- Golden period of Mughal architecture began
- Principle building material : Red Sandstone
- Unique feature : Tudor Arch (4 centred arch)
- Started the construction of Agra fort and implemented the charbagh style of gardening
- Created the new capital city at Fatehpur sikri (blend of Hindu and persian styles). Some of finest structures here are Buland Darwaza, Panch Mahalm Jodha Bai's palace, Salim chisti's Tomb (Known for jali works) and Ibadat Khana (multi religious congregation place)
- Built a temple of Govind Dev in Vrindavan

5. Jahangir :

- Architecture took a back seat and replaced by paintings and other art forms
- Major monuments built : Akbar's tomb, His own tomb at Lahore, Moti Masjid at Lahore, Shalimar Bagh gardens in Kashmir
- Principle building material : White Marble
- His wife Noor Jahan undertook construction of the Tomb of Itmad-ud-daulah. First mughal work which is made completely of White Marble

6. Shah Jahan :

- Mughal Architecture reached Climax
- Finished most of structures at Agra fort like Moti Masjid, Diwan-i-aam and Diwan-i-khas
- Built Taj Mahal in the memory of his wife, Mumtaz. The special features of it are Use of Calligraphy, Charbagh style, pietra dura works, foresightening technique, use of water for decoration, beautiful Jali works and low relief carvings on the marble
- Built Peacock throne
- Other major constructions : Red Fort in Delhi, Jama Masjid in Delhi, Shalimar Bagh in Lahore and City of Shahjahanabad

7. Aurangzeb :

- Decline of Mughal Architecture
- Did Not pursue Art and Architecture

8. Bahadur Shah Zafar :

- Built Biwi-ka-Maqbara at Aurangabad (poor man's Taj Mahal) in memory of his mother, Begum Rabia Durani
- Built Zinat Mahal in the memory of his wife

Following regional styles have high Mughal architecture influence :

Sikh Style :

- Developed in modern day punjab
- Major features :
 - 1) Use of Multiple chhatris or kiosks on top
 - 2) Use of multiple cornices
 - 3) Use of fluted domes, covered by brass and copper guilds for decoration
 - 4) Ude of numerous foliations to decorate the arches
- Example : Harminder Sahib or Golden temple at Amritsar

Rajput Style :

- Imposing structures - forts and palaces
- Major features :
 - 1) Introduction of concept of hanging balcony
 - 2) Cornices are built in the shape of arches

Modern Architecture:

Portugese Influence :

- Also known as Iberian style of architecture
- Introduced the patio houses (Independent cluster houses)and Baroque churches of Iberian style
- Principle Building material : Bricks; Woods are used for roofs and stairs
- No influence of Indian style
- Examples : St.Cathedral in Goa and Castella de Aguanda in Mumbai

French Influence :

- Unique feature : Introduction of French Urban city planning - Cartesian grid plans and scientific architectural designs. Examples : Pondicherry and chandernagore
- Introduced anonymous architecture. Example : Church of Sacred Heart of Jesus at Pondicherry

British Influence :

- Brought Gothic style of Architecture, which merged with Indian style to create a fusion called Indo-Gothic style
- Post 1911, a new style called Neo Roman architecture emerged.

Indo - Gothic style :

Also known as Victorian style, Indo Saracenic

Major features :

1. Thinner walls (relative to Indo-saracenic architecture)
2. Extremely large constructions
3. Pointed arches
4. Use of Large windows
5. Crucified ground plan for churches
6. Principle building materials : Steel, Concrete, Iron, Red sandstone and coarse limestone
7. Advanced structural engineering standards
8. Examples : Victoria Memorial in Kolkata, Gateway of India in Mumbai



North Block



Chhatrapati Shivaji Terminus

Neo-Roman/Neo-Classical Style :

Major features :

- Anonymous constructions
- Confluence of all the world styles
- Simplicity, Modernity and Utility are highly compromised
- Focus on circular buildings
- Introduced concept of Upturned dome as seen in Rashtrapati Bhavan and Supreme Court of India
- Examples : Architecture of Delhi by Edwin Lutyens and Herbert Baker