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Mughal architecture is the type of Indo-Islamic architecture developed by the Mughals in the 16th, 17th and 18th centuries throughout the ever-changing extent of their empire in the Indian subcontinent. It developed the styles of earlier Muslim dynasties in India as an amalgam of Islamic, Persian, Turkic and Indian architecture. Mughal buildings have a uniform pattern of structure and character, including large bulbous domes, slender minarets at the corners, massive halls, large vaulted gateways, and delicate ornamentation; "grandiose architecture was the most visible of the ways that the Mughals used to assert their sense of superiority and their supremacy over what in many ways remained to them an alien land". Examples of the style can be found in modern-day India, Afghanistan, Bangladesh, and Pakistan.

The Mughal dynasty was established after the victory of Babur at Panipat in 1526. During his five-year reign, Babur took considerable interest in erecting buildings, though few have survived. His grandson Akbar built widely, and the style developed vigorously during his reign. Among his accomplishments were Agra Fort, the fort-city of Fatehpur Sikri, and the Buland Darwaza. Akbar's son Jahangir commissioned the Shalimar Gardens in Kashmir.

Mughal architecture reached its zenith during the reign of Shah Jahan, who constructed Taj Mahal, the Jama Masjid, the Shalimar Gardens of Lahore, the Wazir Khan Mosque, and who renovated the Lahore Fort. The last of the great Mughal architects was Aurangzeb, who built the Badshahi Mosque. Mughal Inlay art is a remarkable feature of Mughal architecture in India and Inlay art was an instrument of dynamic expression in the great age of the Mughal Empire. The Monuments of Agra(India) provide the different stages of the development of Mughal Inlay art in a progressive sequence during sixteenth to seventeenth century as practiced under Akbar (r. 1556-1605), Jahangir (r. 1605-1627), and Shah Jahan (r. 1628-1658). This research paper will present probable aspects related to the origin and development of Mughal Inlay art. Marble inlay-‘Pachchikari’ or ‘Parchinkari’ is one of the most beautiful and popular forms of Mughal art developed indigenously in India. It is to be believed that it is typically Italian in origin and some contend it to be of the Indian origin itself. Inlay technically known as Pietra dura (Italian for "hard stone") is marble inlaid with designs in precious or semi-precious stonework. The present paper attempts to establish from written sources the possible interconnection between the inlay work during Jahangir period and its development. The Mughal Inlay art’s origin is in India and it developed indigenously as it relied on several key aspects. Ram Nath, Ebba Koch, E.W Smith, V.A. Smith and Major Kole explore some elements of the origin and development of inlay work. The findings show that it is not only an indigenous Indian art and but also that it developed rapidly during the reign of Jahangir. The points came from the visit of Jahangir in Mandu (India). When Jahangir visited Mandu, the fascinated inlay work there impressed him

and as the continuous refinement of inlay work can be seen in the Jahangir buildings i.e. from Akbar's Tomb to Salim Chisti's Tomb and ultimately a remarkable change in the Tomb of Itmad-ud-doulah. Mughal Inlay art is a remarkable feature of Mughal architecture in India and Inlay art was widely appreciated and debated with respect to its origin and development



Mughal Inlay art

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Architecture of the Delhi Sultanate

The best-preserved example of a mosque from the days of the infancy of Islam in South Asia is the ruined mosque at Banbhore in Sindh, Pakistan, from the year 727, from which only the plan can be deduced.

The start of the Delhi Sultanate in 1206 under Qutb al-Din Aibak introduced a large Islamic state to India, using Central Asian styles. The important Qutb Complex in Delhi was begun under Muhammad of Ghor, by 1199, and continued under Qutb al-Din Aibak and later sultans. The Quwwat-ul-Islam Mosque, now a ruin, was the first structure. Like other early Islamic buildings it re-used elements such as columns from destroyed Hindu and Jain temples, including one on the same site whose platform was reused. The style was Iranian, but the arches were still corbelled in the traditional Indian way.

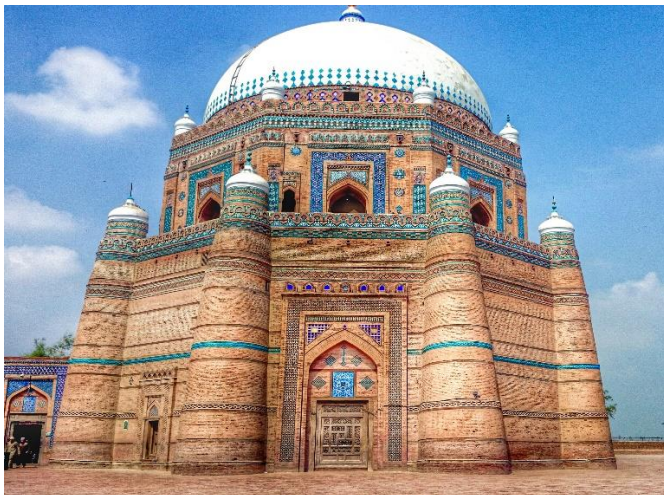
Beside it is the extremely tall Qutb Minar, a minaret or victory tower, whose original four stages reach 73 meters (with a final stage added later). Its closest comparator is the 62-metre all-brick Minaret of Jam in Afghanistan, of c.1190, a decade or so before the probable start of the Delhi tower. The surfaces of both are elaborately decorated with inscriptions and geometric patterns; in Delhi the shaft is fluted with "superb stalactite bracketing under the balconies" at the top of each stage. In general minarets were slow to be used in India, and are often detached from the main mosque where they exist.

The Tomb of Iltutmish was added by 1236; its dome, the squinches again corbelled, is now missing, and the intricate carving has been described as having an "angular harshness", from carvers working in an unfamiliar tradition. Other elements were added to the complex over the next two centuries.

Another very early mosque, begun in the 1190s, is the Adhai Din Ka Jhonpra in Ajmer, Rajasthan, built for the same Delhi rulers, again with corbelled arches and domes. Here Hindu temple columns (and possibly some new ones) are piled up in threes to achieve extra height. Both mosques had large detached screens with pointed corbelled arches added in front of them, probably under Iltutmish a couple of decades later. In these the central arch is taller, in imitation of an iwan. At Ajmer the smaller screen arches are tentatively cusped, for the first time in India.

Tomb of Ghiyath al-Din Tughluq (d. 1325), Delhi

By around 1300 true domes and arches with voussoirs were being built; the ruined Tomb of Balban (d. 1287) in Delhi may be the earliest survival. The Alai Darwaza gatehouse at the Qutb





complex, from 1311, still shows a cautious approach to the new technology, with very thick walls and a shallow dome, only visible from a certain distance or height. Bold contrasting colours of masonry, with red sandstone and white marble, introduce what was to become a common feature of Indo-Islamic architecture, substituting for the polychrome tiles used in Persia and Central Asia. The pointed arches come together slightly at their base, giving a mild horseshoe arch effect, and their internal edges are not cusped but lined with conventionalized "spearhead" projections, possibly representing lotus buds. Jali, stone openwork screens, are introduced here; they already had been long used in temples.

Construction Material Used In Mughal Architecture

Mughal architecture is a remarkably symmetrical and decorative amalgam of Persian, Turkish, and Indian architecture. Mughal architecture first developed and flourished during the reign of Akbar the Great (1556–1605), where it was known for its extensive use of red sandstone as a building material.

Construction Material Used In Mughal Architecture

SUSTAINABLE AND INNOVATIVE MATERIALS

Mughal architecture

1. Mughal architecture is an amalgamation of **Islamic, Persian and Indian architecture**.
2. The architecture of the Mughal dynasty reflects their **love for poetry, personality and other artistic inclinations**.
3. **Mughal architecture** has its origin in the religion of **Islam**.
4. The **concepts apparent in Islam like power, pleasure and death** are reflected in the **forts, durbars, mosques, tombs, gardens and so on**.
5. The Mughal architecture can be divided into two sections: **Early and Later Mughal architecture**.



BUILDING MATERIALS IN MUGHAL ARCHITECTURE

DEPT. OF ARCHITECTURE
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SUSTAINABLE AND INNOVATIVE MATERIALS

❖ MAIN CONSTRUCTION ELEMENT :-

The main characteristic features of Mughal architecture are :-

The bulbous domes, the slender minarets with cupolas at the four corners, large halls, massive gateways and delicate ornamentation.

- White marble and red sandstone was favored.
- Semi-precious gemstones were popular (jade, crystal, etc.)
- Used arches sparingly.
- Symmetry and balance stressed.
- Used octagons a lot.
- The buildings wore a look of grace, beauty, grandeur and richness.
- Red stone was substituted by White Marbles and Precious Stones.
- The Pietra Dura style became a popular feature of this period.
- squared stone and marble was replaced by brick or rubble with stucco ornament at the time of Aurangzeb.

BUILDING MATERIALS IN MUGHAL ARCHITECTURE

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Interior decorations

SUSTAINABLE AND INNOVATIVE MATERIALS

Interior Decorations

- Traditional decorative elements
- The inlay work is not pietra dura but a lapidary of precious and semiprecious gemstones
- Octagon with entrance from each side
- The four central upper arches form balconies with jali cut from marble
- Efficient daylight
 - from balconies
 - Through roof openings covered by chattris at the corners
- Sarcophagi of false grave of Mumtaz Mahal & Shah Jahan

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