

Iconic Indian Architectural Structures And Their Influence On Modern Design

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Abstract- India's iconic architectural structures, such as etc. the Taj Mahal, Sanchi Stupa (Reference Image on 1st Page), Brihadeeswara Temple, Qutub Minar, Fatehpur Sikri, and the stepwells of Gujarat etc. have had a profound influence on modern Indian design. These monuments showcase beautiful aesthetics, advanced engineering, harmony, sustainable techniques, and detailed artistry that continue to inspire contemporary architects. Modern Residential Indian architecture often incorporates elements like climate responsiveness, chowk (courtyards), jaali (lattice) work, use of local materials and a lot more details varying with different areas involving principles deeply rooted in these historical and ancient structures. As a result, India's evolving architectural landscape reflects a blend of tradition and innovation.

Keywords- Indian architecture , Architectural heritage Sustainable design, Contemporary influences, Climate responsiveness

I. ANCIENT ARCHITECTURE OF INDIA

Ancient Indian architecture was deeply rooted in principles that prioritized harmony with nature, structural innovation, and artistic expression. Structures were often designed to be climate-responsive, utilizing natural materials and techniques to create comfortable living spaces. Courtyards, known as chowks, were a common feature, providing ventilation and a communal space for residents. Jaali work, or lattice screens, allowed for natural light and ventilation while maintaining privacy. The use of local materials not only reduced the environmental impact but also ensured that the buildings blended seamlessly with their surroundings.

These principles, evident in Indian architecture , showcase a deep understanding of sustainable design.

Understanding some monuments for reference, The Taj Mahal, commissioned by Mughal Emperor Shah Jahan in memory of his wife Mumtaz Mahal, exemplifies the fusion of Persian, Islamic, and Indian architectural styles. Its symmetrical design, intricate marble inlays, and lush gardens

reflect a meticulous attention to detail and a deep understanding of aesthetics.

The Sanchi Stupa, a Buddhist complex in Madhya Pradesh, demonstrates the evolution of Buddhist architecture and its influence on subsequent structures. Its design has inspired modern buildings like the Rashtrapati Bhavan, showcasing the enduring impact of ancient motifs.

The Brihadeeswara Temple in Tamil Nadu, built during the Chola dynasty, is a masterpiece of Dravidian architecture. Its towering vimana (tower) and intricate carvings reflect the architectural brilliance of the Chola period. The Qutub Minar in Delhi, a UNESCO World Heritage Site, represents a blend of Indo-Islamic architectural styles. Its design has inspired modern architectural projects, particularly in the use of sandstone and marble.

The Dilwara Temples in Mount Abu, Rajasthan, are renowned for their exquisite marble architecture and intricate carvings. Built between the 11th and 13th centuries by the Solanki dynasty, these Jain temples exemplify the purity, symmetry, and spiritual elegance of ancient Indian temple design. The ceilings, pillars, and domes are adorned with delicate marble carvings that appear almost lace-like. The Dilwara Temples reflect Rajasthan's rich heritage, combining devotion with artistic brilliance.

Ancient Concepts In Contemporary Architecture

Ancient Indian architectural concepts profoundly influence modern design, weaving cultural, spiritual, and climatic wisdom into sustainable spaces. Elements like jali, courtyards, mandapas, stepwells, arches, domes, carvings, regional materials, and Vastu Shastra principles, rooted in temples, palaces, and vernacular traditions, prioritize environmental harmony, cultural symbolism, and community connection, ensuring a timeless blend of heritage and innovation.

Jali, perforated screens of marble, sandstone, or terracotta, are iconic in Mughal, Jain, and Rajput architecture. Their intricate geometric or floral patterns, inspired by sacred texts like Vastu Shastra, symbolize cosmic order. Jali filter

sunlight to create diffused lighting, ensure privacy, and promote ventilation by allowing cool air to circulate while blocking heat. This climate-responsive design suits India's hot climate, reducing reliance on artificial cooling and adding aesthetic depth, making jali a sustainable and culturally resonant feature in modern architecture.

Courtyards, or chowk, central to havelis, temples, and stepwells, embody Vastu Shastra's spatial harmony. These open spaces foster community interaction, rituals, and gatherings while regulating climate through natural airflow. Often featuring water bodies or trees for shade, courtyards create cooling microclimates, enhancing comfort in hot regions. Symbolically, they represent openness and connection, inspiring modern designs that prioritize social engagement and environmental functionality.

Mandapas, pillared halls in South Indian temples, are open pavilions with intricately carved columns, used for ceremonies or public gatherings. Their airy design aids ventilation, while carvings of deities or floral motifs reflect spiritual narratives. Stepwells, like Gujarat's baolis, combine water storage with social spaces, their terraced, subterranean designs with carvings symbolizing cosmology. Modern architecture adapts these for communal areas and water conservation, blending utility with cultural depth.

Arches and domes, prevalent in Indo-Islamic architecture, use sandstone or marble for structural efficiency and cosmic symbolism, often adorned with pietra dura inlays. Intricate carvings of lotuses, peacocks, or mandalas on gopurams and forts signify purity and cosmic order. Modern designs reinterpret these using concrete or terracotta, maintaining their elegance and cultural resonance in sustainable forms.

Regional materials like red sandstone in Rajasthan, granite in South India, or laterite in coastal areas ensure climatic suitability and cultural resonance. Lime plaster aids breathability. Vastu Shastra guides spatial orientations and elemental balance, ensuring harmony with nature. These principles inspire modern layouts that blend ancient wisdom with eco-conscious design, preserving India's rich architectural heritage.

Contemporary Indian Architecture

Contemporary Indian architecture skillfully mixes old philosophies with new innovation, designing buildings that respect cultural heritage while responding to modern requirements. Here are some elements such as Jali (perforated screens), Chowk (courtyards), Mandap (pillared halls),

stepwells, arches, domes, detailed carvings, and local materials combined with Vastu Shastra principles to design cohesive, eco-friendly spaces. This blending is reflected in major national icons such as Rashtrapati Bhavan and other first-rate buildings where ever India is located, showcasing the conversation between tradition and contemporaneity.

Rashtrapati Bhavan, New Delhi: Sir Edwin Lutyens built the Rashtrapati Bhavan in 1929. This monumental Indo-Saracenic work features a red sandstone exterior, Jali screens, and symmetrical structure drawing from Indian influences, while the central dome drawing from the Sanchi Stupa and Mughal-style gardens with watercourses epitomize the idea for common spaces. Vastu Shastra dictates its orientation, being ecologically harmonious. Complex Rajasthani and Mughal ornamentations, 12 Tuscan Pillars decked with Hindu, Jain, Buddhist reflect regional craftsmanship making it an icon of the nation.

CEPT University, Ahmedabad: B.V. Doshi designed the CEPT University campus in the 1960s as a modernist wonder based on Indian concepts. Open Chowks allow interaction and ventilation, mirroring courtyards in the past. Exposed brick, a local material, is reminiscent of Gujarat's built heritage, and the modular arrangement reminds one of a Mandap with open pillared spaces. Jali-inspired screens allow filtered sunlight, adding to sustainability, and the east-facing entrance is in accordance with Vastu Shastra, providing an inspiring learning atmosphere.

Parliament House (Sansad Bhavan), New Delhi: Constructed by Lutyens and Herbert Baker, the Parliament House, built in 1927, is a circular building representing unity. Its verandahs with colonnades and central courtyard are reminiscent of the Chowk, facilitating airflow and contact. The sandstone arches and Jali screens are inspired from Mughal and Rajasthani design, whereas intricately carved columns are Mandap-like splendor. Vastu principles are followed in its orientation to ensure cosmic alignment. The employment of local materials highlights its national relevance, combining tradition and democratic principles.

Lotus Temple, New Delhi: Designed by architect Fariborz Sahba and completed in 1986, the Lotus Temple is an international architectural symbol. Its 27 marble sheathed petals create a domed form, based on ancient Indian lotus patterns and temple domes. Its open, symmetrical design conforms to Vastu Shastra, producing a meditative environment. The nearby gardens and pools reflect stepwell-inspired water systems, with the incorporation of regional white marble symbolizing purity and sustainability. The

temple's universal design with no carvings but full of form reflects spiritual balance.

Modern Indian architecture, epitomized in iconic landmarks such as Rashtrapati Bhavan, CEPT University, Parliament House, and the Lotus Temple, balances ancient knowledge with contemporary utility. By integrating Jali, Chowk, Mandap, stepwells, arches, domes, carvings, and local materials, these buildings obey Vastu Shastra, keeping culture content and sustainable. These global-grade structures honor India's architectural heritage while adopting global standards, infusing spaces with inspiration, cohesion, and longevity as symbols of national pride.

CONCLUSION

India's iconic architectural structures, such as the Taj Mahal, Sanchi Stupa, Brihadeeswara Temple, Qutub Minar, Fatehpur Sikri, and the stepwells of Gujarat, have profoundly shaped contemporary Indian architecture. These monuments, with their climate-responsive designs, intricate artistry, and sustainable practices, exemplify a harmonious blend of tradition and innovation. Elements like jali, chowks, mandapas, arches, domes, and local materials, guided by Vastu Shastra, continue to inspire modern architects to create spaces that are both culturally resonant and environmentally conscious. Structures like Rashtrapati Bhavan, CEPT University, Parliament House, and the Lotus Temple demonstrate how ancient principles can be seamlessly integrated into modern designs, balancing heritage with functionality.

Looking to the future, Indian architecture is poised to further evolve by embracing technological advancements while preserving its rich heritage. Sustainable practices, such as the use of eco-friendly materials and passive cooling systems inspired by jali and courtyards, will address urban challenges like climate change and population growth. Digital tools, including parametric design and 3D printing, will enable architects to reinterpret traditional motifs with precision, creating innovative yet culturally rooted structures. By fostering collaboration between global and local architects, India's architectural landscape will continue to reflect its diverse heritage, ensuring that future designs remain sustainable, incl

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