

## Temple architecture of Himachal Pradesh: A critical review of composite construction, regional styles, and research gaps

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The evolution of temple architecture in Himachal Pradesh represents a vibrant interaction between spiritual devotion, cultural transformations, and environmental influences, culminating in unique architectural styles that have evolved over centuries. The temple architecture in Himachal Pradesh is characterized by two prominent typologies: the Nagara temple architecture including Latina form, and a distinctive Himalayan style marked by pyramidal and conical roofs, utilizing composite materials such as wood and stone. This systematic review examines the evolution from early stone temples to hybrid wood-stone structures. By reviewing scholarly literature, archival records, and regional studies, we identify key trends in construction techniques and stylistic adaptations. The findings reveal that local environmental challenges (e.g., seismic activity and harsh climates) have driven innovations such as the Kath-Khuni technique, while external influences have contributed to a diverse architectural vocabulary. While construction techniques, materials, and design approaches vary across different sites, some temples display a synthesis of architectural styles, highlighting a shared heritage. This review also highlights research gaps in interdisciplinary analysis, computational modeling, and conservation science, suggesting avenues for future inquiry.

**Keywords:** Architecture, Himachal Pradesh, Kath-khuni, Nagara temple, Temple architecture, Wooden temples

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Himachal Pradesh, a mountainous state in northern India, is renowned for its diverse topography, rich cultural heritage, and unique architectural traditions. Nestled within the Western Himalayan region, it shares geographical boundaries with Jammu & Kashmir to the north, Punjab to the west, and Tibet to the east, forming a historical nexus of cultural and architectural exchanges. The region exhibits a varied topography, ranging from the low-lying Shivalik Hills (600-1,500 meters) in the south to the Pir Panjal and Dhauladhar ranges (1,500-4,500 meters) and the high-altitude trans-Himalayan zones of Lahaul-Spiti and Kinnaur (above 4,500 meters). The state's river valleys, including the Sutlej, Beas, Yamuna, and Ravi, have historically played a crucial role in shaping settlement patterns, construction techniques, and material choices. Himachal Pradesh experiences diverse climatic conditions; from humid subtropical in the lower valleys to alpine and glacial conditions

in the upper reaches. These geographical and climatic variations have significantly influenced vernacular architectural styles, leading to the development of distinct construction traditions adapted to local environmental conditions. Over centuries, Himachal Pradesh has cultivated a distinctive architectural identity, deeply interwoven with its religious and socio-cultural traditions, most prominently reflected in its temple architecture.

The temple architecture of Himachal Pradesh represents a confluence of indigenous craftsmanship and external influences, shaped by the region's historical interactions with neighbouring cultures. Broadly, Indian temple architecture is classified into Nagara (northern) and Dravida (southern) styles; with an intermediary Vesara style<sup>1</sup>.

However, the temples of Himachal Pradesh (Fig. 1 & Fig. 2) transcend these rigid classifications, incorporating elements from Kashmiri stone-carving traditions, Tibetan Buddhist motifs, and Nepalese Pagoda structures. The architectural diversity of the region is exemplified in the transition from early

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animistic shrines to sophisticated stone temples with Nagara-style shikharas and elaborately carved wooden structures that reflect Himalayan craftsmanship.

Historically, archaeological evidence from sites such as Nalagarh, Bilaspur, and Kangra Valley suggests human settlement dating back to the Indus Valley Civilization. Early inhabitants practiced animistic worship, venerating natural elements such as mountains, rivers, and forests. The gradual integration of Vedic traditions introduced ritualistic structures, leading to the emergence of sacrificial altars and rudimentary shrines. During the Mauryan period (4<sup>th</sup> - 2<sup>nd</sup> centuries BCE), Buddhist influence permeated the region, as evidenced by stupas and monastic sites in Lahaul and Spiti. The early medieval period (7<sup>th</sup> - 14<sup>th</sup> centuries CE) marked a

significant phase of temple construction, particularly under the patronage of local dynasties such as the Katoch rulers of Kangra and the Chamba kings. This era witnessed the proliferation of stone temples with intricate carvings and wooden pagoda-style shrines, blending indigenous and external architectural elements.

The strategic location of Himachal Pradesh facilitated extensive cultural exchanges with Tibet, Kashmir, Nepal, and the northern plains of India. Kashmiri influences are particularly evident in stone temples with symmetrical layouts and intricate relief carvings, as seen in the Baijnath Temple. The Buddhist artistic and architectural elements from Tibet, alongside the Nepalese pagoda tradition, contributed to the region's rich architectural

### TEMPLES IN HIMACHAL PRADESH

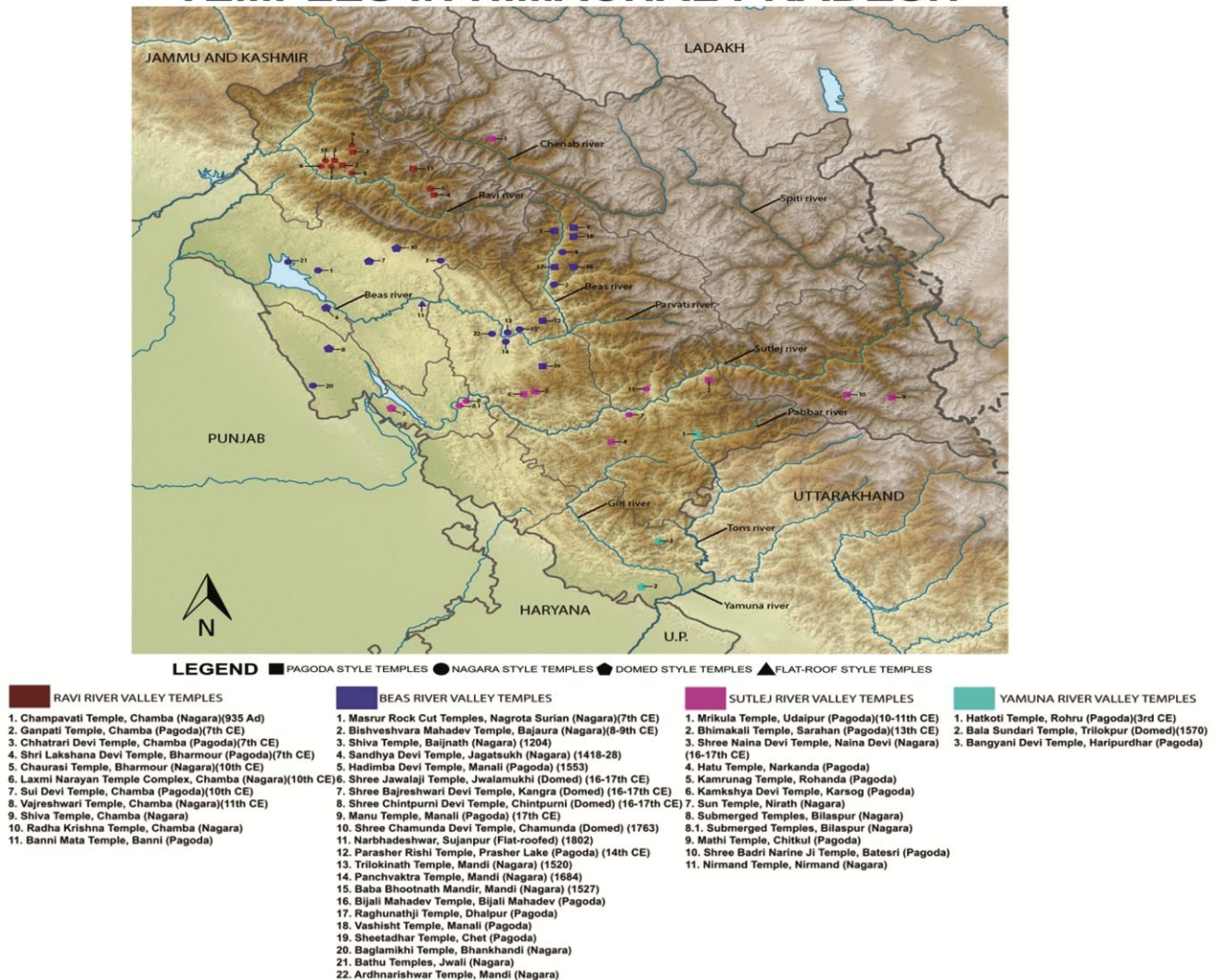


Fig. 1 — Map showing temples across river valleys (Sutlej, Ravi & Beas) in Himachal Pradesh (Source: Author)

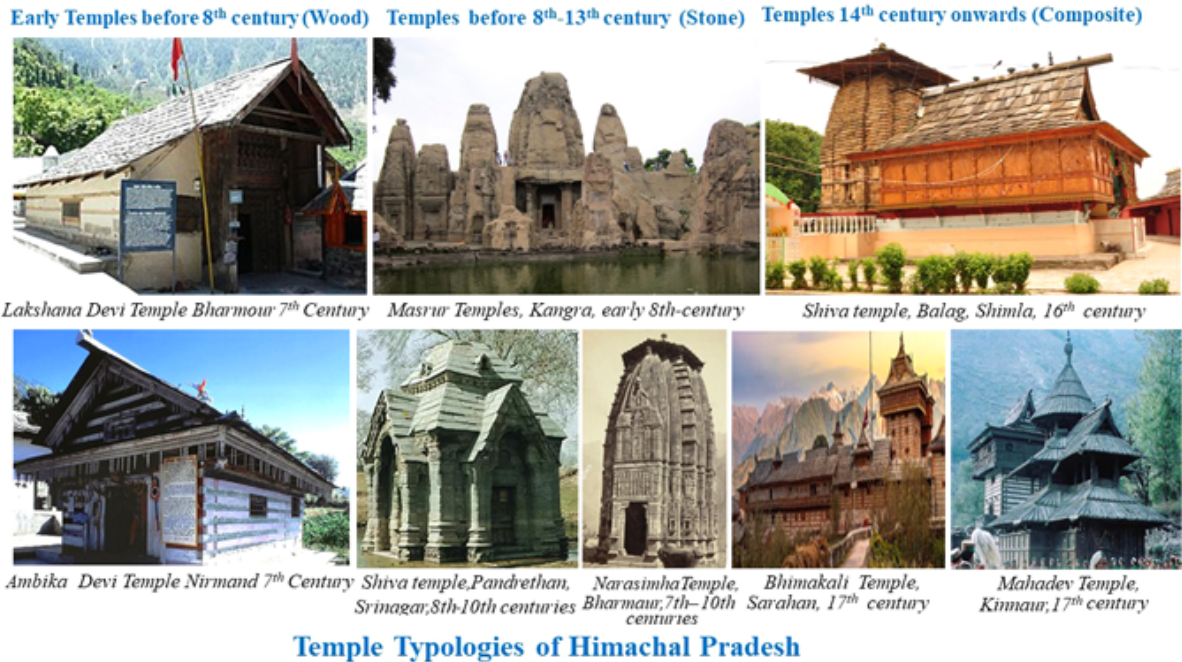


Fig. 2 — Evolution of Temple typology in Western Himalayan Region (Source: Author)

vocabulary. Furthermore, trade routes traversing the Himalayas facilitated the transfer of artistic techniques, religious iconography, and construction materials, reinforcing the hybrid nature of Himachal's temple architecture.

The rich cultural traditions of Himachal Pradesh have played a pivotal role in shaping its architectural landscape. Temples in the region are not merely places of worship but also serve as community hubs where religious festivals, fairs, and cultural ceremonies take place. Iconic celebrations such as the Minjar Mela at Laxmi Narayan Temple (Fig. 3), the Shivratri festival at Baijnath Temple (Table 1, Sr no 20), and the Navratri festivities at Jwalamukhi Temple (Table 1, Sr no 23), underscore the temples' enduring significance in maintaining cultural continuity and regional identity.

Despite the extensive scholarship on Indian temple architecture, critical research gaps remain concerning the composite construction techniques, regional stylistic variations, and socio-political influences on temple-building traditions in Himachal Pradesh. Existing literature primarily focuses on dominant architectural styles across India, often overlooking the nuanced interplay of indigenous and external influences in the Himalayan region. This study aims to conduct a systematic review of the existing literature to identify these gaps and analyse the architectural evolution of temples in Himachal



Fig. 3 — Lakshmi Narayan Temple Complex (Ravi Valley) (Source: The Gazette of India, 1890)

Pradesh from the pre-Gupta period to the British colonial era. Through a structured evaluation of material choices, construction techniques, and stylistic adaptations, this research seeks to provide a more comprehensive understanding of Himalayan temple architecture, its regional distinctiveness, and its broader significance within South Asian architectural history.

Table 1 – Analysis of temples of Himachal Pradesh

Sr. No	Temple name	Location	Year built	Primary construction material	Architecture style	Region (River valley)
SUTLEJ RIVER BASIN						
1	Dakshineshwar Mahadev temple	Nirmand Kullu	9-10 <sup>th</sup> century	Stone		Sutluj
2	Sun temple	Nirath, Shimla	12 <sup>th</sup> century	Stone	Nagara	Sutlej
3	Ardhnarishwar temple	Mandi	-	Stone	Nagara	Sutlej
4	Submerged temple	Bilaspur	-	Stone	Nagara	Sutlej
5	Submerged temple	Bilaspur	-	Stone	Nagara	Sutlej
6	Mrikula temple	Udaipur, Lahaul & Spiti	10 <sup>th</sup> -11 <sup>th</sup> century	Stone and wood	Pent-roof	Lahaul Valley
7	Bhimakali temple	Sarahan, Shimla	13 <sup>th</sup> century	Stone and wood & Stone	Pent-roof & Nagara	Sutlej
8	Shree Naina Devi temple	Naina Devi, Bilaspur	16 <sup>th</sup> -17 <sup>th</sup> century	Stone	Shikhara	Sutlej
9	Shree Chintpurni Devi temple	Chintpurni, Una	16 <sup>th</sup> -17 <sup>th</sup> century	Stone	Domed	Sutlej
10	Hatu temple	Narkanda, Shimla	-	Stone and wood	Pent-roof	Sutlej
11	Kamrunag temple	Rohanda, Mandi	-	Wood	Pent-roof	Sutlej
12	Kamakshya Devi temple	Karsog, Mandi	-	Stone and wood	Pagoda	Sutlej
13	Mathi temple	Chitkul, Kinnaur	-	Stone and wood	Pagoda	Sutlej
14	Shree Badri Narines ji temple Batseri	Batesri, Kinnaur	-	Stone and wood	Pagoda	Sutlej
YAMUNA RIVER BASIN						
15	Hatkoti temple	Rohru, Shimla	3 <sup>rd</sup> -9 <sup>th</sup> century	Stone and wood & Stone	Pent-roof & Nagara	Yamuna
16	Bala Sundari temple	Trilokpur, Sirmour	16 <sup>th</sup> century	Stone	Domed	Yamuna
17	Bangyani Devi temple	Hariपुरdhar, Sirmour	-	Stone and wood	Pagoda	Yamuna
BEAS RIVER BASIN						
18	Masrur rock cut temples	Nagrota Surian, Kangra	8 <sup>th</sup> century	Stone	Nagara	Beas
19	Bishveshvara Mahadev temple	Bajaura, Kullu	8 <sup>th</sup> -9 <sup>th</sup> century	Stone	Nagara	Beas
20	Shiva temple Bajinath	Bajinath, Kangra	13 <sup>th</sup> century	Stone	Nagara	Beas
21	Sandhya Devi temple	Jagatsukh, Kullu	15 <sup>th</sup> century	Stone	Nagara	Beas
22	Hidimba Devi temple	Manali, Kullu	Mid 16 <sup>th</sup> century	Stone and wood	Pent-roofed/Pyramydical	Beas
23	Shree Jwalaji temple	Jwalamukhi, Kangra	16 <sup>th</sup> -17 <sup>th</sup> century	Stone	Domed	Beas
24	Shree Bajreshwari Devi temple	Kangra town, Kangra	16 <sup>th</sup> -17 <sup>th</sup> century	Stone	Domed	Beas
25	Manu temple	Manali, Kullu	17 <sup>th</sup> century	Stone and wood	Pent-roof/Pyramydical	Beas
26	Shree Chamunda Devi temple	Chamunda, Kangra	Mid 18 <sup>th</sup> century	Stone	Domed	Beas
27	Narbhadeshwar temple	Sujanpur, Hamirpur	Early 19 <sup>th</sup> century	Stone	Flat-roofed	Beas
28	Parashar Rishi temple	Prasher lake, Mandi	14 <sup>th</sup> century	Stone and wood	Pagoda	Beas
29	Trilokinath temple	Mandi	16 <sup>th</sup> century	Stone	Nagara	Beas
30	Panchvaktra temple	Mandi	17-18 <sup>th</sup> century	Stone	Nagara	Beas
31	Baba Bhootnath Mandir	Mandi	Early 16 <sup>th</sup> century	Stone	Shikhara	Beas
32	Bijali Mahadev temple	Bijali Mahadev, Kullu		Stone and wood	Pent-roof/Pyramydical	Beas
33	Raghunathji temple	Dhalpur, Kullu		Stone and wood	Pent-roof	Beas
34	Vashisht temple	Manali, Kullu		Stone and wood	Pent-roof	Beas
35	Shetadhar temple	Chet, Mandi		Wood and stone	Pent-roof	Beas
36	Nirmand	Kullu		Stone	Nagara	Beas
37	Baglamukhi temple	<i>Bhankhandi</i> , Kangra		Stone	Shikhara	Beas
38	Bathu temples (Submerged)	Jawali, Kangra		Stone	Nagara	Beas

... Contd.

Table 1 – Analysis of temples of Himachal Pradesh (Contd.)

Sr. No	Temple name	Location	Year built	Primary construction material	Architecture style	Region (River valley)
RAVI RIVER BASIN						
39	Ganpati temple	Chamba	7 <sup>th</sup> century	Stone	Pent-roof	Ravi
40	Chhatrari Devi temple	Chamba	7 <sup>th</sup> century	Stone	Pent-roof	Ravi
41	Shri Lakshana Devi temple	Bharmour, Chamba	7 <sup>th</sup> century	Stone and wood	Pent-roof	Ravi
42	Champawati temple	Chamba	10 <sup>th</sup> century	Stone	Shikhara	Ravi
43	Chaurasi temple	Bharmour, Chamba	10 <sup>th</sup> century	Stone	Shikhara	Ravi
44	Laxmi Narayan temple Complex	Mohalla Hathnala, Chamba	10 <sup>th</sup> century	Stone	Shikhara	Ravi
45	Shiva temple	Chamba		Stone	Nagara	Ravi
46	Radha Krishna temple	Chamba		Stone		Ravi
47	Sui Devi temple	Chamba	10 <sup>th</sup> century	Stone and wood	Pent-roof	Ravi
48	Vajreshwari temple	Chamba	11 <sup>th</sup> century	Stone	Shikhara	Ravi
49	Banni Mata Temple	Banni, Chamba		Stone and wood	Pent-roof	Ravi

**Methodology**

This study adopts a systematic approach to analyse the temple architecture of Himachal Pradesh by examining key parameters and identifying research gaps in existing literature. Focusing on major temple clusters within the Ravi, Beas, and Sutlej River valleys, the research explores the diverse architectural adaptations shaped by geographical, climatic, and cultural influences.

**Literature review**

The literature is assessed according to its relevance, credibility and comprehensiveness to facilitate a thorough analysis of the temple architecture in Himachal Pradesh. Emphasis is given to the research that specifically investigates the architectural progression, construction methods, and cultural influences of the area. Although the primary focus is on studies published within the last three decades, crucial works that offer essential insights are also taken into account. Only materials from peer-reviewed journals, academic books, and institutional reports are utilized to uphold academic integrity.

**Data collection for literature review**

The study systematically collects and reviews relevant literature from the following sources:

1. Academic Journals & Books:
2. Government & Institutional Reports:
3. Key Scholars:

Overall, 50+ sources were referred out of which total 22 were used for literature review.

**Analytical framework**

The study of temple architecture is carried out by applying an analytical framework centred on the key parameters which are:

1. Typology & Architectural Styles
2. Historical Development (Time-based classification)
3. Form, Planning & Proportion (Sacred geometry, site context)
4. Construction Techniques & Materials (Wood-stone hybrid structures, seismic resilience)
5. Regional & Geographical Adaptations (Climate, terrain influences)
6. Cultural & Religious Significance (Temple function, rituals, patronage)
7. Iconography & Symbolism (Artistic motifs, sectarian influences)
8. Geo-Political & Socio-Economic Influences (Trade routes, dynastic sponsorships)
9. Research Gaps (Unexplored aspects in literature)

**Literature review outcomes**

The vast geographical, climatic, cultural, racial, historical, and linguistic distinctions between India's northern plains and southern peninsula have contributed to the development of the unique architectural styles of Hindu temples. Hindu temples can be divided into three orders, roughly according to their geographical location: the Nagara, or "northern" style; the Dravidian, or "southern" style; and the Vesara, or hybrid style, which is found in the Deccan between the other two. Other notable forms can also be found in outlying regions like Bengal, Kerala, and the Himalayan valleys<sup>2</sup>.

The evolution of temple architecture in Himachal Pradesh (Fig. 2) has been extensively discussed in scholarly literature, tracing its development from the Gupta period to contemporary times. Sanskrit texts such as the *Brihat Samhita* have been noted for their fundamental insights into Hindu temple architecture,

particularly highlighting the influence of Brahmanical religious and ideological structures from the Gupta period, often regarded as India's 'Golden Age'<sup>3</sup>. These texts categorize Indian temple architecture into the Nagara and Dravidian styles, emphasizing their impact on temple design. Temples have been identified as both shaping and being shaped by local cultural traditions, rituals, and environmental conditions.

The temple architecture of Himachal Pradesh has been characterized as a unique blend of indigenous design, environmental adaptation, and external cultural influences. It has been observed that this region's architectural evolution has been deeply shaped by local religious practices, the availability of materials, and geographical conditions, particularly in areas historically associated with Jammu and Kashmir<sup>4</sup>. The Nagara temples in the region have been linked to the principles of *Vastupurushamandala*<sup>5</sup>. Early historical accounts, such as those by the Chinese traveller Hiuen Tsang, have suggested that structural temples for indigenous deities did not emerge in the Western Himalayas until the 7<sup>th</sup> century. The Lakshana Devi Temple (Table 1, Sr no 41), in Bharmour and the Dakshineshwar Mahadev Temple in Nirmand (Table 1, Sr no 1), have been identified as some of the earliest wooden structures, although significant modifications over time have obscured their original architectural forms<sup>4,6</sup>.

The emergence of the Nagara style in Himachal Pradesh has been dated to the late 7<sup>th</sup> and early 8<sup>th</sup> centuries, with a period of prominence between the 8<sup>th</sup> and 10<sup>th</sup> centuries. The influence of Shaivism during this era has been emphasized, as reflected in intricate carvings, shikharas, and mandapas, which were designed to accommodate Shaivite rituals. Archaeological and numismatic evidence has pointed to the deep-rooted presence of Shaivism in the region, with coinage from the Audumbara, Vemakis, Kunindas, and Yaudheyas displaying Shaivite imagery<sup>7,8</sup>. The consolidation of the Brahmaur-Chamba kingdom during this period has been identified as a key factor in the dominance of Shaivism, which significantly influenced temple construction. Temples such as those at Masrur, Bajaura, and Baijnath have been cited as examples of the Nagara style's adaptation in the Himalayan region. (Table 1, Sr no 18,19 & 20, respectively),

The Latina Nagara style, distinguished by its curvilinear shikhara towers, has been traced to central India, with its introduction to the lower Himalayan

region linked to the influence of Yasovarman of Kanauj in the early 8<sup>th</sup> century<sup>9</sup>. Concurrently, alternative architectural styles such as the Valabhi and Phamsana forms (Fig. 4) and Table 1, Sr no 36), referenced in the *Vishnudharmottara Purana*, have been observed in Himachal Pradesh. These styles, characterized by rectangular layouts, barrel roofs, and pent structures, have been attributed to influences from Central India and Gandhara, particularly in Kashmiri temple architecture<sup>10,11</sup>. The Kath-Khuni construction technique has been recognized as a distinctive architectural response to the seismic activity and material limitations of the region. The use of alternating layers of deodar wood and stone has been found to enhance structural stability and thermal insulation, making this technique particularly suited for the Himalayan climate<sup>12,4</sup>. Further studies have categorized temple styles based on altitudinal zones, identifying pent-roof temples at higher altitudes (above 4500 meters), a mix of pagoda, tower, and pyramidal styles in mid-altitude zones (1500-3000 meters), and domed and shikhara temples in lower altitudes, where stone carving traditions have been more prominent<sup>13,14</sup>.



Fig. 4 — Shiva Temple at Nirmandin Valabhi style (Beas Valley); Source: *Antiquities in Indian Tibet 1914* by A.H Francke; Open Access

The Maru-Gurjara style, a unique architectural tradition that originated in western India during the 11<sup>th</sup> century, is also evident in the central Himalayan region. This suggests a transmission of architectural knowledge, as seen in the Gujjar Deva Temple complex at Dwarahat, which was likely constructed by skilled craftsmen from Gujarat who travelled to the area<sup>15</sup>.

Buddhist temple architecture in Himachal Pradesh has been documented from the 10<sup>th</sup> to 15<sup>th</sup> centuries, particularly in Spiti and Kinnaur. Temples such as those at Dhangker and Chango have been noted for their adobe brick construction, load-bearing walls, and wooden roof structures<sup>16</sup>. The architectural influences from Tibet and China have been attributed to the role of trade routes and the spread of Buddhism under the Purang-Guge kingdom. The stylistic elements of Kashmiri and Tibetan architecture, including intricate wood carvings and decorative motifs, have been observed in temples such as Lotsaba Ihakhang in Kinnaur and Kojarnath<sup>17</sup>.

The 10<sup>th</sup> century Mirkula Devi temple, is rich in sculptural details and carvings that tell stories and carry religious symbolism. The earlier sculptures, found on the facade and doorframes of the sanctum, include intricate carvings of river goddesses, guardian figures, and scenes from Hindu epics. Specific motifs include representations of deities such as Siva, Parvati, and various incarnations of Vishnu, along with floral, vegetal, and geometrical patterns which add an ornamental layer to the temple. A notable element is the detailed ceiling with panels arranged as a 'lantern' design featuring a central lotus surrounded by triangular panels and inner circular motifs. This design echoes similar features found in temples in Kashmir and Camba, providing a visual narrative that links the temple to a broader artistic tradition. Iconography in the temple focuses on both Hindu and, later, Buddhist influences. The cult image inside the sanctum is dedicated to Durga in the form of Mahisasuramardini, which features detailed representations consistent with regional depictions of the goddess<sup>18</sup>.

The Jagannath temples of Sirmaur have been linked to 18<sup>th</sup> - century patronage by local rulers, reflecting a synthesis of political and religious aspirations<sup>19</sup>.

The modern era has witnessed the evolution of Hindu temple architecture in Himachal Pradesh, balancing traditional forms with contemporary influences. While the Nagara and Dravida styles continue to be prevalent, emerging architectural

expressions have been noted in response to socio-economic and cultural transformations<sup>20</sup>. The existing literature highlights the adaptability of temple architecture in the region, showcasing its gradual evolution through local materials, indigenous construction techniques, and external influences. The architectural landscape of Himachal Pradesh has been portrayed as a reflection of its spiritual, environmental, and cultural contexts, contributing to a resilient and distinctive temple architecture that integrates with the Western Himalayan terrain. The material culture and ancient monuments in central Himalayas showcase the transformation central Himalayas into a sacred landscape shaped by regions geography, ecology, literature, history, politics, religion and architecture<sup>21</sup>.

#### Analysis

Himachal Pradesh's temple architecture exhibits considerable diversity across its different river valleys, largely due to variations in geography, climate, and cultural influences. (Fig. 1 & Fig. 2) The Sutlej, Beas, and Ravi valleys each developed distinct architectural characteristics shaped by locally available materials, construction techniques, and religious traditions. (The Ganga and Yamuna basin temples, for context, date back to the Gupta and post-Gupta periods and reached significant elaboration during the Pratihara era; influences from those heartland regions extended into the Western Himalayas along trade routes. Pilgrimage sites frequented by nobles and merchants likely facilitated these architectural exchanges).

By the late 7<sup>th</sup> century, the Nagara architectural style had gained a foothold in Himachal Pradesh, with stone assuming a greater role in temple construction. This coincided with the spread of Shaivism and the influx of Hindu architectural ideas from the Gangetic plains. By the 8<sup>th</sup> century, the Latina Nagara typology characterized by a curvilinear shikhara appeared in the lower Himalayas, likely under the patronage of rulers like Yasovarman of Kanauj. Two sub-styles of Nagara architecture emerged in this context: the barrel-roofed Valabhi and the Phamsana, with multiple projections (Fig. 4) adapted to local tastes and conditions. Western Himalayan builders faced challenges in sourcing large blocks of quality stone, often working with flaky schist that could only form flat slabs. To overcome this, local artisans developed the wood-and-stone Kath-Khuni technique for improved durability. By the 14<sup>th</sup> - 15<sup>th</sup> centuries, both

Nagara and tiered pagoda forms (Fig. 5-7) influenced temple designs evident in structures like the Sandhya Devi Temple (Kullu) (Table 1, Sr no 21) and the Tripura Sundari Temple (Kangra). The 15<sup>th</sup> and 16<sup>th</sup> centuries saw the rise of multi-tiered timber temple, exemplified by the Hidimba Devi Temple in Manali) (Table 1, Sr no 22) This era introduced steeply pitched roofs (Fig. 6) and intricate carving in wood and stone (Fig. 5), reflecting refined craftsmanship

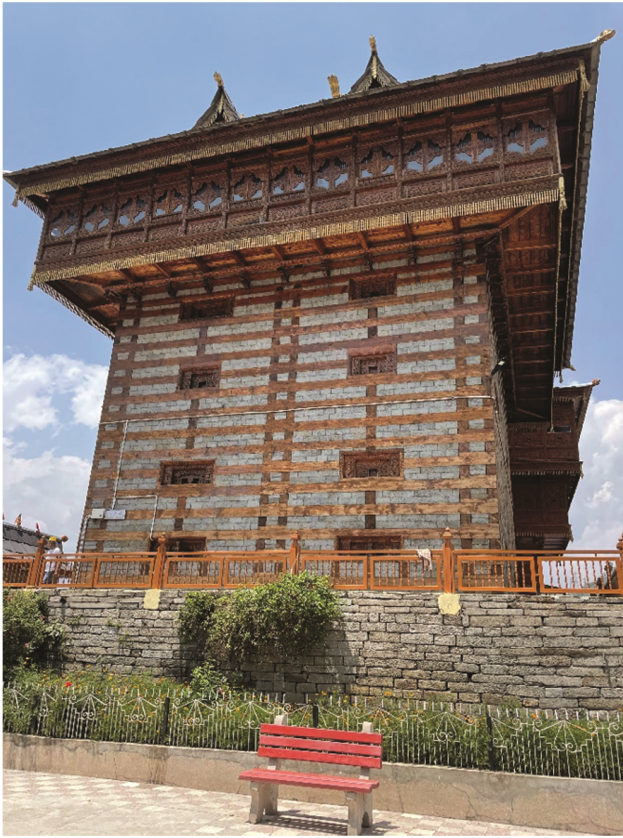


Fig. 5 — Bhimkali Temple Sarahan (Photo by the author, 2023)



Fig. 6 — Manu Temple at old Manali showcasing multi-tiered Pagoda style roofing and Kath-khuni style construction (Beas valley) (Source: by Christina Noble at British Museum)

and rich religious symbolism. Major temple clusters in Himachal Pradesh are distributed across the Ravi, Beas, and Sutlej valleys, each region showcasing distinct architectural traditions shaped by its environment and history (Fig. 1) provides a map of temple sites by valley).

#### Beas valley

Valley regions like Kullu and Mandi exhibits a rich architectural history shaped by various dynasties. Before the 8<sup>th</sup> century, temple structures were predominantly wooden, utilizing abundant timber due to limited access to quality stone. Early shrines were modest and dedicated to local deities, reflecting animistic beliefs. The introduction of Hinduism, particularly Shaivism and Vaishnavism, led to composite stone and wood constructions incorporating Nagara influences from the Gangetic plains.

A significant example from this period is the Bijli Mahadev Temple in Kullu (Table 1, Sr. no 32), one of the earliest composite structures in the valley. Featuring a stone base and deodar wood beams, the temple's shikhara is adorned with intricate carvings of Hindu deities and local myths. The sloping roof design accommodates heavy snowfall. Between the 10<sup>th</sup> and 13<sup>th</sup> centuries, pagoda-style temples, influenced by Nepalese architecture and local traditions, became prevalent in Kullu. These multi-tiered structures, ideal for shedding snow and with

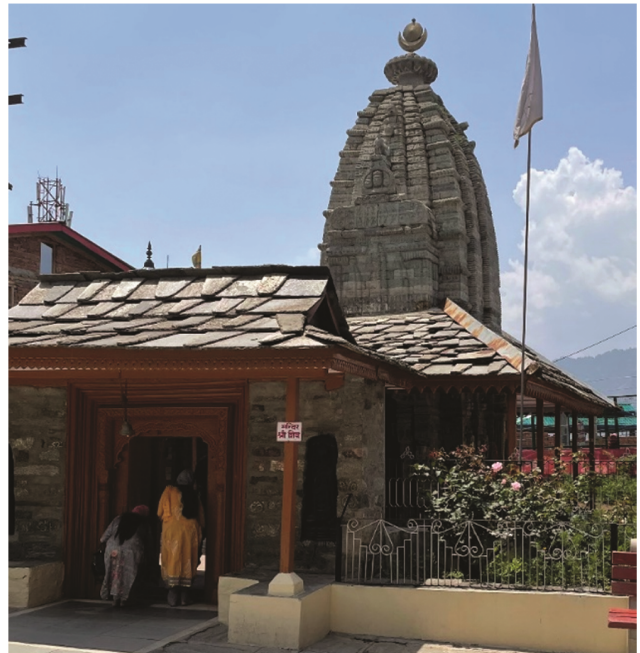


Fig. 7 — Narsimha temple in Nagara style at Sarahan (Source: Photo by the author, 2023)

standing seismic activity, featured finely carved wooden pillars and sloping eaves.

From the 13<sup>th</sup> to the 16<sup>th</sup> centuries, the Kath-Khuni technique, which alternates layers of stone and wood (Fig. 5), became the dominant construction method, ensuring resilience against earthquakes and providing thermal insulation. Notable examples include the Manu Temple in Old Manali Temple (Fig. 6) (Table 1, Sr. no 25) and the Hidimba Devi Temple in Manali (Table 1, Sr. no 22). The latter, a 16th-century pagoda-style shrine dedicated to the goddess Hidimba, features a three-tiered roof and intricately carved wooden surfaces.

In Mandi, 16<sup>th</sup> - century temples embraced the Nagara style, favoring stone-based structures with elaborate carvings. The Bhootnath Temple and Triloknath Temple (Table 1, Sr. no 31 & Sr. no 29), exemplify this transition, showcasing intricately sculpted shikharas and mythological depictions. By the 18<sup>th</sup> century, temple architecture in the Beas Valley incorporated elaborate wooden carvings and canopy-like structures over shikharas, exemplified by the Raghunath Temple in Kullu (Table 1, Sr. no 33).

#### Ravi valley

Spanning areas of Chamba (including Bharmour) and parts of Kangra, the Ravi Valley's temple architecture evolved under the patronage of local rulers who blended regional styles with broader North Indian influences. In the 7<sup>th</sup> century, King Meru Varman of Bharmour established the Chaurasi Temple complex (Table 1, Sr. no 43) at Bharmour, which includes the Lakshana Devi (Table 1, Sr. no 41) and Manimahesh temples early examples of Nagara style in the Western Himalayas.

The temples in the Chamba region are broadly classified into wooden and stone types. Stone temples, like the Lakshmi Narayan group and Bharmour temples, exhibit a narrow circumference, tall structures, and an apex or "Shikhar" characteristic. These structures were built using interlocked stone bricks, and many of them show delicate carvings<sup>22</sup>.

By the 10<sup>th</sup> century, the rulers of Chamba had commissioned grand Nagara-style stone temples, such as the Lakshmi Narayan Temple complex in Chamba (Fig. 3) (Table 1, Sr. no 44). These temples are characterized by finely carved stone shikharas and detailed mythological panels, demonstrating a high degree of artisanship and the influence of mainstream North Indian temple idioms. This also observed in Narsimha Temple at Sarahan (Fig. 7 & Fig. 8)

Between the 13<sup>th</sup> and 16<sup>th</sup> centuries, periods of political instability in the region led to a greater reliance on vernacular styles. Temple construction during this time often returned to simpler local techniques: wood-and-stone structures became more common as large-scale royal projects waned. The Kath-Khuni technique also gained prominence here, blending timber and stone for both practical and aesthetic reasons. The Chhatrari Devi Temple in Chhatrari village (Table 1, Sr. no 40) exemplifies the craftsmanship of this era, with its elaborately carved wooden pillars and beams supporting a modest pent-roof structure. During the 16<sup>th</sup> to 18<sup>th</sup> centuries, the Chamba rulers revived large-scale temple building, fusing classical Nagara elements with local architectural adaptations. Stone once again became the primary material for structures, while wood was used for detailing and interiors. The influence of the Mughal empire during this period introduced new decorative motifs (such as floral patterns) and architectural features (like jali screens and even dome-like roofs) into the local temple architecture. For example, the Ambika Devi Temple in Chamba and the Bala Sundari Temple in Sirmour (Table 1, Sr. no. 16) display carved floral designs and other stylistic elements reminiscent of Mughal art. By the late 18<sup>th</sup> century, these Mughal-Pahari influences were more pronounced, as seen in temples like Jwalamukhi



Fig. 8 — Stone carving detailing at the entrance of Narsimha Temple at Sarahan (Photo by the author, 2023)

Devi (Flame Goddess Temple) in Kangra and Narbadeshwar Temple in Sujampur (Table 1, Sr. no 23 & 27). These sites feature elements such as bulbous domes or decorative arches alongside traditional layouts, illustrating a blend of Punjabi/Mughal sensibilities with hill architecture.

#### **Sutlej valley**

The temples of the Sutlej Valley showcase a harmonious blend of Himalayan vernacular traditions, particularly the Kath-Khuni style. The Dakshineswar Mahadev Temple in Nirmand (Table 1 Sr. no 1) exemplifies this technique, featuring interlocking timber and stone construction with intricate wood carvings.

By the 10<sup>th</sup> century, the valley emerged as a key Buddhist pilgrimage route, leading to the establishment of monasteries such as Tabo Monastery, which fuses Indian and Tibetan architectural elements.

Between the 12<sup>th</sup> and 16<sup>th</sup> centuries, Hindu and Buddhist architectural influences coexisted in Kinnaur, resulting in temples that integrated iconography from both traditions. The region's timber resources contributed to the widespread use of wooden structures, as seen in the Shree Badri Narinesh Temple (Table no 1, Sr. no 14). From the 17<sup>th</sup> century onwards, the Kath-Khuni technique gained prominence, producing resilient multi-story temples adapted to the valley's seismic activity and harsh climate. Notable examples include the Bhimakali Temple in Sarahan (Fig. 5) (Table 1, Sr. no 7), known for its tiered structure and ornate woodwork, and the Mathi Temple in Chhitkul, (Table 1, Sr. no 13) which highlights local craftsmanship through its elaborate carvings.

#### **Discussion**

The synthesis of existing literature on temple architecture highlights several key research gaps across the thematic parameters outlined in our analytical framework (Table 2). This analysis provides a comparative evaluation of the extent of current knowledge in each area, identifying underexplored aspects that warrant further research and discussing the implications of these findings.

#### **Typology & architectural styles**

Previous studies have primarily classified temples in broad stylistic categories. For instance, Lakshman S. Thakur provided an early framework for

categorizing temple typologies in the Western Himalayas, focusing mainly on stone Nagara-style structures<sup>5</sup>. However, hybrid architectural styles that integrate both stone and wood remain under-studied. While Adam Hardy extensively categorized Nagara and Dravida styles in an all-India context, transitional and region-specific variations particularly those unique to Himachal Pradesh have not been comprehensively mapped<sup>1,10</sup>. Recent scholars like Mayank Joshi and Sanjay Pathania documented examples of mixed forms (such as Nagara temples with wooden elements), but comparative studies across different districts or valleys are needed to better understand the full spectrum of temple typologies in this region<sup>22,13</sup>.

#### **Historical development**

The historical progression of temple construction in Himachal Pradesh has been partly addressed by researchers like Penelope Chetwode and O. C. Handa, who focused on early medieval structures and regional histories<sup>4,14</sup>. However, documentation beyond the 14<sup>th</sup> century is inconsistent. For example, Ashwani Kumar highlights changes in temple patronage patterns in the later periods, but the decline of royal sponsorship and the rise of community-funded temple building are not deeply analyzed in the literature. Some recent works, such as Ankush Sharma, attempt to bridge this gap by examining historical transitions in temple construction techniques<sup>3</sup>, yet a more detailed chronological mapping integrating epigraphic records and archaeological data is required to fully understand the continuum from medieval to modern times.

#### **Form, planning & proportion**

Sacred geometry and proportional systems in temple layouts have been explored to some extent. Durga Basu and Shuchita Sharma discuss the application of textual canons (like those in the *Viṣṇudharmottara Puraṇa*) in the design of Himachali temples, suggesting that traditional principles of mandala layout and measurement were known<sup>17,9</sup>. However, there is a lack of computational or on-site analysis verifying these geometric principles in actual temple layouts. Neerja Babbar and Prabhjot Kaur touch on how site context (terrain and orientation) influences temple design, yet there remain few empirical studies on how topography or astronomy (e.g., solstice alignments) might have affected temple placement and orientation in the Himalayas<sup>8</sup>.

Table 2 — Synthesis: comparative analysis of architectural studies on temples of Himachal Pradesh

Sr No	Author(s)	Year	Parameters							Research Gap	
			Typology & Architectural Styles	Historical Period	Form, Planning & Proportion	Construction Techniques & Materials	Regional & Geographical Adaptations	Cultural & Religious Significance	Iconography & Symbolism		Geo-Political & Socio-Economic Influences
1	Lakshman S Thakur	1990	✓	✗	✓	✗	✓	✗	✓	✗	Lacks proper documentation of temples.
2	Seema Bawa	1992	✓	✓	✗	✗	✓	✓	✗	✗	Scarce evidence for later periods. Limited understanding of transitional dynamics.
3	Penelope Chetwode	1986	✗	✗	✓	✗	✗	✓	✓	✗	Lacks discussion on contemporary influences in temple architecture.
4	Christian Luczanits	1996	✓	✓	✓	✗	✗	✗	✓	✓	Limited use of scientific techniques in temple studies.
5	OC Handa	2001	✓	✓	✓	✓	✗	✓	✗	✓	Minimal discussion on modernization and conservation.
6	Sandeep Sikka & Charu Chaudhary	2006	✗	✓	✗	✓	✓	✗	✓	✗	Lacks broader sampling and long-term monitoring.
7	Adam Hardy	2012	✓	✗	✓	✓	✗	✓	✓	✗	Limited exploration of contemporary architectural influences.
8	Chandra Yashaswini	2013	✓	✓	✗	✗	✓	✗	✓	✓	Cultural influences across Lahaul valleys need further study.
9	Ashwani Kumar	2014	✓	✓	✓	✓	✓	✓	✗	✗	Requires broader application of findings to traditional architecture.
10	Nachiket Chanchani	2014	✓	✓	✓	✗	✓	✓	✗	✓	Needs further investigation into architectural typologies and religious identities.
11	Mayank Joshi	2016	✓	✓	✗	✓	✓	✓	✗	✓	Limited focus on seismic activity post-1555 earthquake.
12	Neerja Babbar & Prabhjot Kaur	2017	✓	✓	✓	✓	✓	✓	✗	✗	Absence of comparative analysis with religious architecture from other regions.
13	Durga Basu	2020	✓	✓	✓	✗	✓	✓	✓	✓	Findings might not represent broader regional variations.
14	Shuchita Sharma	2020	✓	✓	✓	✓	✓	✓	✓	✓	Limited discussion on modernization and adaptation.

... Contd.

Table 2 — Synthesis: comparative analysis of architectural studies on temples of Himachal Pradesh (Contd.)

Sr No	Author(s)	Year	Parameters								Research Gap
			Typology & Architectural Styles	Historical Period	Form, Planning & Proportion	Construction Techniques & Materials	Regional & Geographical Adaptations	Cultural & Religious Significance	Iconography & Symbolism	Geo-Political & Socio-Economic Influences	
15	Nachiket Chanchani	2020	✓	✓	✓	✓	✓	✓	✓	✓	Lack of detailed studies on Central Himalayan monuments.
16	Anjali Verma, Neelam Sukhan	2021	✓	✓	✓	✓	✓	✓	✓	✓	Limited analysis on conservation strategies.
17	Ankush Sharma, Shruti Gupta, Saba Parveen, Ashwani Kumar, Divya Sharma	2023	✓	✓	✓	✓	✓	✓	✓	✓	Methodological challenges in digital documentation.
18	Shavnam, Sanjay Pathania	2024	✓	✓	✓	✓	✓	✓	✓	✓	Lack of study on modern influences on temple architecture.
19	Pratiksha Mahajan, Ajinkya Malokar	2024	✓	✓	✓	✓	✓	✓	✓	✓	Gap in structural and material-based studies.
20	Arjun Mukerji, Sanghamitra Basu	2024	✓	✓	✓	✓	✓	✓	✓	✓	Need for better understanding of contemporary temple architecture.

### Construction techniques & materials

Traditional construction techniques especially those ensuring seismic resilience have been documented in case studies by Sikka and Chaudhary<sup>16</sup> and by Mahajan & Malokar<sup>2</sup>. These works describe how features like tapered walls, wooden bands, and interlocking joinery contribute to earthquake resistance in Kath-Khuni architecture. Nonetheless, regional variations in materials (such as the choice of specific wood types or stone qualities in different valleys) need further analysis. Anjali Verma and Neelam Sukhan<sup>19</sup> discusses some hybrid wood-stone structures, but detailed structural assessments (e.g., engineering analysis of load distribution or shake-table tests of models) are largely absent from the literature. There is also a need for more studies that integrate modern conservation science with traditional building knowledge Christian Luczanits notes this gap, indicating that few researchers have evaluated how ancient construction techniques can be preserved or adapted using contemporary technology<sup>11</sup>.

### Regional & geographical adaptations

O. C. Handa and Nachiket Chanchani both note that climatic adaptations (like steep roofs for snow or raised plinths for flooding) are evident in temple

designs across Himachal's varied landscape<sup>4,15</sup>. However, comparative analyses between different climatic zones are still lacking. For example, how do temples in the snowy high-altitude areas differ systematically from those in lower, rainier valleys? A broader comparative framework potentially using GIS mapping of temple locations against climate and terrain data, as suggested by Mukerji & Basu could illuminate patterns of environmental adaptation<sup>20</sup>. Such studies could reveal, for instance, correlations between annual snowfall and roof styles or between seismic zones and construction materials, which so far are only qualitatively described.

### Cultural & religious significance

The relationship between evolving religious practices and temple architecture is another area with gaps. Seema Bawa (1992) highlights the role of royal patronage and religious movements (like the spread of Shaivism) in shaping temple design and distribution in the Chamba region<sup>7</sup>. However, ethnographic research into how contemporary local communities engage with these temples is sparse. Nachiket Chanchani implies that understanding living traditions-festivals, rituals, oral histories-could shed light on how and why certain architectural features persist or change, yet

such perspectives are underrepresented<sup>15</sup>. Moreover, community-led patronage in the modern era (in the absence of kings) is a growing phenomenon; Mukerji & Basu point to a need for documentation on how grassroots religious communities contribute to temple renovation and new temple construction today<sup>20</sup>.

#### **Iconography & Symbolism**

Iconographic studies by scholars like Chandra Yashaswini and Durga Basu have analyzed temple carvings and images, focusing on stylistic lineage and religious symbolism (for example, tracing certain deity forms or motif styles to specific influences)<sup>18,17</sup>. These studies provide deep insight into the symbolic programs of individual temples (e.g., the wooden carvings at Mirkula Devi temple in Lahaul). However, they often do not account for the broader impact of cultural exchange on temple iconography. For instance, the extent to which trade routes facilitated the diffusion of artistic motifs (such as Tibetan influences on Hindu temple murals, or vice versa) remains underexplored. Nachiket Chanchani touches on cross-regional artistic influences in the Central Himalayas, suggesting that motifs travelled along pilgrimage circuits, but a comprehensive study focusing on Himachal Pradesh's temple iconography in a wider context is yet to be undertaken<sup>15</sup>.

**Geo-Political & Socio-Economic Influences:** It is well acknowledged that historical trade routes and political shifts affected temple building in Himachal Pradesh, but detailed architectural analyses of these influences are limited. The economic prosperity of certain periods (or conversely, declines due to wars or invasions) likely had direct impacts on temple construction booms and busts. Anjali Verma & Sukhan N, and S. Pathania indicate that socio-economic factors such as the availability of donors or the price of materials played a role in temple construction trends, but quantitative or case-specific studies are lacking<sup>19,13</sup>. While early dynastic sponsorships are well-documented in historical records and some art-historical studies by Hardy<sup>1,10</sup>, the long-term effects of these sponsorships, especially how they sustained temple traditions into the 19<sup>th</sup> and 20<sup>th</sup> centuries, require more extensive study. Additionally, the colonial period and post-independence era are barely touched upon in existing literature, representing a gap in understanding how modern governance and societal changes influenced temple conservation or new temple projects.

#### **Implications of the findings**

The patterns identified in this review illustrate that temple architecture in Himachal Pradesh is the product of a complex interplay between local innovation and external influence. This underscores the importance of interdisciplinary approaches: historical and art-historical studies must be combined with structural engineering, anthropology, and environmental science to fully appreciate these structures. For instance, recognizing that Kath-Khuni temples inherently possess seismic resilience has implications for modern engineering-contemporary builders and conservationists can learn from these traditional techniques to improve earthquake resistance in new constructions. Similarly, understanding the cultural significance of temples as community centres implies that preservation efforts should involve local stakeholders and consider living heritage aspects, not just physical structures. The findings also highlight that many aspects of the Himachali temple architecture are under-documented, implying that our current understanding may be skewed towards more easily accessible or famous sites. Without comprehensive documentation (including remote and lesser-known temples), any analysis of regional styles or historical development might be incomplete. This has implications for heritage management: it suggests a need for broad surveys and databases of temple sites in Himachal Pradesh to ensure even obscure and rural structures are studied and preserved. A deeper appreciation of these findings can also inform tourism and educational initiatives, as showcasing the rich variety of temple forms and techniques in Himachal can enhance cultural tourism and local pride, while underscoring the need to protect this heritage from neglect or inappropriate modernization.

#### **Limitations of the study**

This review is subject to several limitations. First, it relies on available literature and published research, which means it may overlook knowledge preserved in local oral histories, temple records, or regional-language sources not accessible in major databases. The focus on English-language and peer-reviewed sources may introduce a bias, as some valuable information might exist only in Hindi or Pahari publications or remain unpublished. Second, the research gaps identified are constrained by the scope of studies reviewed; it is possible that ongoing or very recent research (as of 2025) has begun addressing

some of these gaps, but such work may not yet be widely available. Third, while an analytical framework was used to systematically assess various parameters, the evaluation of each parameter's coverage in the literature involved qualitative judgment. For example, determining that a particular aspect (like "iconography influenced by trade routes") is underexplored is to some extent subjective and based on the reviewer's interpretation of the available sources. Finally, due to space limitations, this study could not include a detailed discussion of every individual temple site in Himachal Pradesh thus, some micro-level variations and unique cases might not be represented in our broad analysis.

#### **Future research directions**

Building on the insights and gaps identified, future research on Himachal Pradesh's temple architecture should pursue several directions:

#### **Interdisciplinary structural analysis**

Collaborations between architectural historians and structural engineers could quantitatively analyze the seismic performance of Kath-Khuni constructions and other hybrid structures. For example, 3D modeling and finite element analysis of temples like Hidimba Devi or Bhimakali could validate their earthquake-resistant features and inform modern engineering and conservation techniques.

#### **Digital documentation and GIS mapping**

A comprehensive digital documentation project should be undertaken. Using tools like LiDAR scanning, photogrammetry, and Geographic Information Systems (GIS) to map temple sites would enable more thorough analysis of spatial patterns. This could reveal correlations between temple locations, trade routes, and ecological factors, as well as create a digital archive for at-risk sites. Over time, such a database could be invaluable in monitoring changes or damage to these structures due to natural aging or environmental pressures.

#### **Comparative regional studies**

Expanding the scope beyond Himachal Pradesh to include temple architecture in other Himalayan regions (such as Uttarakhand, Nepal, or Kashmir) would help distinguish which features are truly unique to Himachal and which are part of broader Himalayan trends. Comparative studies could, for instance, examine why certain pagoda forms in Himachal differ from those in Nepal, or how Himachali Nagara

temples compare to contemporary temples in the plains, thereby placing Himachal's architecture in a wider South Asian context.

#### **Extended chronological coverage**

Future research should focus on the less-studied later periods the eighteenth, nineteenth, and twentieth centuries. This includes documenting the state of temple building during the late colonial period and after Indian independence. Such studies might explore how modern influences, including colonial policies or contemporary architectural materials (like concrete and steel), have impacted temple design and restoration practices.

#### **Ethnographic and cultural research**

Incorporating ethnography can illuminate how current devotees, priests, and local communities maintain and adapt temple spaces. Participant observation during festivals, interviews with temple committees, and studies of oral folklore can reveal how intangible heritage (rituals, beliefs, community values) influences the physical upkeep or modification of temples. This human-centric approach would complement architectural analysis, showing how temples function as living centers of culture and how traditions help preserve (or sometimes alter) the structures over time.

#### **Conservation strategies and traditional knowledge**

Another vital direction is to develop conservation approaches that marry traditional building knowledge with modern preservation techniques. Researchers could pilot restoration projects on lesser-known temples using historically accurate methods and materials, documenting the outcomes to provide case studies on maintaining structural integrity and authenticity. Additionally, investigating how local craftspeople (wood carvers, masons) can be involved in restoration work could help in transferring invaluable skills to new generations and ensure that conservation interventions respect the original construction ethos.

By pursuing these avenues, future scholarship can not only fill the gaps highlighted by this review but also ensure that the rich temple heritage of Himachal Pradesh is thoroughly documented, well-understood, and effectively preserved for generations to come.

#### **Conclusion**

The synthesis of existing literature on Western Himalayan temple architecture reveals critical gaps in

understanding the evolution of construction techniques, spatial organization, and the influence of external cultural and geopolitical factors. While early studies laid a foundation for typological classifications, recent research has expanded on material innovations and structural resilience. However, there remains a lack of interdisciplinary inquiry that integrates architectural history with engineering assessments, computational modelling, and conservation science.

Historical investigations have largely focused on early temple typologies, with limited studies examining shifts in patronage and their impact on architectural adaptations in the recent times. Similarly, iconographic interpretations remain regionally fragmented, often lacking a comparative approach that considers trans regional artistic and religious exchanges. The role of trade networks in shaping temple architecture remains underexplored, despite evidence suggesting significant stylistic influences from neighbouring regions. The impact of climatic conditions and seismic activity on construction techniques has been acknowledged, yet there is insufficient empirical research that systematically evaluates structural resilience across different temple typologies. The hybrid use of wood and stone, a defining feature of Himalayan temple architecture, requires further structural analysis to understand its long-term stability and response to environmental stressors. Future research on contemporary temple-building practices and local craftsmanship can provide insights into the continuity and adaptation of traditional knowledge. A more integrative approach will not only enhance historical understanding but also inform sustainable conservation strategies for these architecturally and culturally significant sites.

This review underscores the need for a comprehensive, interdisciplinary framework that bridges historical analysis with modern technological methodologies. Addressing these research gaps will contribute to a deeper appreciation of Western Himalayan temple architecture while ensuring its preservation for future generations.

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### Conflict of Interest

The author declares no conflict of interest regarding the publication of this manuscript.

### Author Contributions

This article is the original work of the SB and is part of an ongoing doctoral research study on temple architecture and its conservation and management in the Western Himalayas. SB independently conducted the literature review, performed the analysis, and wrote the manuscript. VKP (second author) guided the methods of review and contributed to framing the overall research methodology.

### Ethics Approval

The research does not involve any human or animal subjects. All sources of information used have been appropriately cited, and the study adheres to academic and ethical standards in research and publication.

### Data Availability

The data used and analysed in this study is available from the author upon reasonable request.

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