International Research Journal on Advanced Engineering and Management
https://goldncloudpublications.com
https://doi.org/10.47392/IRJAEM.2025.0484
e ISSN: 2584-2854
Volume: 03
Issue: 10 October 2025
Page No: 3055 - 3059

Material and Color Lessons from Himachal's Twin Villages

Ashutosh Dubey[1], Devkaran Luthra[2], Deepshikha Dutta[3], Sunakshi Shokeen[4]
[1]Associate Professor - SOD, World University of Design, Haryana, Sonipat, India.
[2,3,4] UG - SOD, World University of Design, Haryana, Sonipat, India.
Emails: *ashutoshd174@gmail.com[1], devkaranluthra1023@gmail.com[2], ddeepshikha902@gmail.com[3], sunakshi.shokeen@wud.ac.in[4]*

Abstract
In the twin villages of Himachal Pradesh, architecture grows out of the land itself, where stone walls, slate roofs, carved wood, and earthen plasters form spaces that are as resilient as they are expressive. These traditional settlements embody a design logic where materials and colours are not aesthetic afterthoughts but lived strategies shaped by geography, culture, and community life. Yet, in contemporary practice, such wisdom often risks being overlooked or reduced to surface styling. This study explores how vernacular traditions in Himachal employ materials and colour palettes to balance climate, craft, and cultural meaning. A qualitative approach was used, combining field visits, photographic documentation, and interviews with local artisans and residents. The investigation focuses on how building materials are chosen, worked, and symbolically valued, and how colour is drawn from the surrounding landscape to embed architecture within its natural and social context. Rather than treating these practices as static traditions, the research positions them as design strategies with ongoing relevance. By examining how materiality and colour operate as cultural expressions, the study highlights lessons for contemporary architects and designers seeking context-sensitive and sustainable approaches. The villages of Himachal thus offer not only a window into vernacular wisdom but also a framework for rethinking modern design with ecological responsibility and cultural depth.
Keywords: *Colour, Interior, Materiality, Sustainability, Vernacular.*

1. Introduction
Himachal Pradesh, often called the "Land of Gods," is a northern Indian state nestled in the Himalayas. Its landscapes—snowy peaks, forests, valleys, and terraced fields—shape not just the scenery but also the way people live and build. Villages here are deeply tied to tradition, where daily life, rituals, and architecture remain closely connected to nature. Vernacular architecture in the region reflects this bond. Using local resources and collective craftsmanship, communities create dwellings that are practical, resilient to climate and terrain, and rich with cultural meaning. Materials and colours are not just design choices but carry stories of identity and belonging. These traditions show how architecture can maintain ecological balance while preserving culture—offering lessons that remain valuable for contemporary design.

1.1. Aim
The aim of this research is to investigate the material and colour lessons from Himachal's twin villages, highlighting how traditional practices can inform and inspire sustainable and culturally rooted approaches to architecture and design Shown in Figure 1.

Figure 1 Architecture Diagram

1.2. Objectives
- **Understanding traditional practices:** To explore how local materials and natural color palettes have been traditionally used in the

International Research Journal on Advanced Engineering and Management
https://goldncloudpublications.com
https://doi.org/10.47392/IRJAEM.2025.0484
e ISSN: 2584-2854
Volume: 03
Issue: 10 October 2025
Page No: 3055 - 3059

architecture and interiors of Himachal Pradesh's twin villages, and how these choices provide practical benefits such as thermal comfort and sustainability.

- **Cultural and functional significance:** To examine how these material and colour traditions are deeply tied to the identity, values, and lifestyles of mountain communities, reflecting both functional needs and cultural meaning in the built environment.
- **Relevance for contemporary design:** To highlight the importance of learning from vernacular wisdom, drawing lessons that can guide and inspire present-day architectural and interior practices toward more context-sensitive, sustainable, and meaningful design approaches [1].

1.3. Need of the Study

This study holds value on many levels, both academic and practical. From an academic perspective, it adds to the understanding of Himachal's vernacular architecture, showing how materials, climate, and culture come together in the built environment. For architects and designers, it provides useful insights into creating sustainable, context-sensitive spaces that respect their surroundings. On a social level, the research highlights the importance of preserving traditional knowledge and cultural identity at a time when rural landscapes are quickly changing under the influence of modernization. By research paper and reflecting on these practices, the study works to connect traditional wisdom with contemporary needs, helping ensure that design remains both environmentally responsible and culturally meaningful [2].

1.4. Scope and Limitations

The study examines how materials and colours shape the vernacular architecture of Himachal Pradesh's twin villages, emphasizing their role in sustainability, identity, and cultural expression. Its scope is limited to selected villages and qualitative observations, without extending to technical testing or representing the entire state. Nonetheless, the insights drawn provide meaningful lessons for contemporary design practices.

2. Research Methodology

The research follows a qualitative approach to study the materials and colours in the traditional architecture of Himachal Pradesh's twin villages. Field visits were conducted to observe and photograph buildings, focusing on construction methods and interior details. Conversations with residents, artisans, and elders provided insights into the cultural meanings and practical reasons behind these practices. Additional information from books, reports, and government records was reviewed to build historical and contextual understanding. The collected data was then analysed to explore how materials and colours reflect identity, culture, and sustainability in these villages Shown in Figure 2 [3].

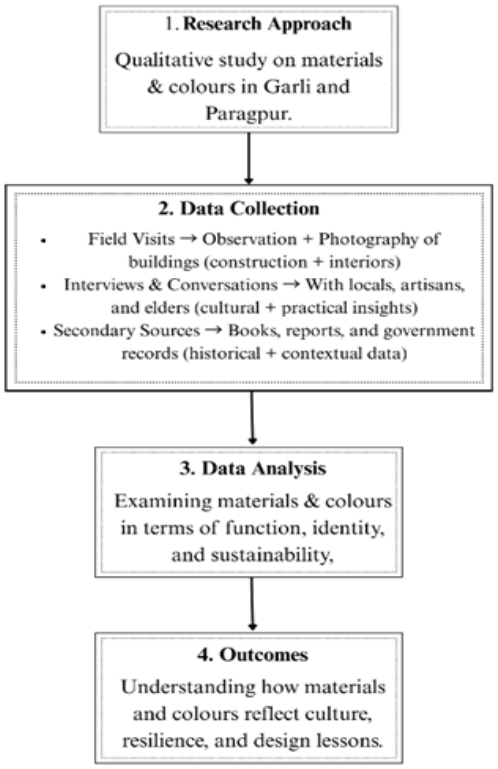

Figure 2 Flowchart Diagram

2.1. Qualitative Design

The research uses a qualitative design to study material and colour strategies in the vernacular architecture of Himachal Pradesh's twin villages. Through observations, photographs, and interviews with residents and artisans, supported by secondary sources, the study explores how these practices'

International Research Journal on Advanced Engineering and Management
https://goldncloudpublications.com
https://doi.org/10.47392/IRJAEM.2025.0484
e ISSN: 2584-2854
Volume: 03
Issue: 10 October 2025
Page No: 3055 - 3059

express identity, culture, and sustainability [4].

3. Theoritical Framework

This study looks at the material and colour traditions of Himachal's twin villages, Garli and Paragpur, through the lens of vernacular architecture, critical regionalism, and material culture. Amos Rapoport's work reminds us that building choices are not only practical but also shaped by climate, available resources, and community life. Kenneth Frampton's idea of critical regionalism helps explain how the use of stone, wood, slate, and lime makes the villages' architecture deeply rooted in place while resisting uniform, modern styles. Juhani Pallasmaa's phenomenological approach draws attention to the sensory richness of textures, warmth, and patina, while Jane Bennett's concept of material agency highlights how materials themselves influence durability and repair practices. Combined with heritage conservation perspectives, these theories show how Garli and Paragpur's use of material and colour keeps cultural identity alive and offers valuable lessons for creating sustainable, context-sensitive design today [5].

3.1. Literature

Research on Himachal's vernacular architecture shows how closely building traditions are tied to both environment and culture. The timber–stone kath-kuni technique stands out for its strength against earthquakes, its ability to keep homes warm in winter and cool in summer, and its reliance on local deodar and stone. Finishes such as lime plaster, mud walls, and slate roofs are valued not only for being eco-friendly but also for creating breathable structures that age beautifully with a natural patina. Colour traditions in the Kangra region add another layer, with limewash, earthy ochres, and muted tones refreshed during festivals, making architecture a part of living cultural practice. Thinkers like Kenneth Frampton and Juhani Pallasmaa remind us of that villages like Garli and Paragpur represent more than just construction—they embody a deep connection to place and a rich sensory experience. Heritage records further affim their importance, showing how these material and colour practices keep cultural identity alive while offering timeless lessons for sustainable and context-sensitive design [6].

3.2. Case Study

In today's construction practices, burnt bricks, cement blocks, and reinforced concrete dominate because they are durable, easy to mass-produce, and quick to assemble. However, these materials come with high embodied carbon, energy-intensive production, and poor climate adaptability. Cement mortar and plaster, though strong, make walls non-breathable, often leading to trapped heat, dampness, and unhealthy interiors. Similarly, synthetic paints and tiles are widely used for finishes but rely heavily on chemicals, contribute to heat retention, and deteriorate faster in vernacular climates. In contrast, the upcoming generation of vernacular architecture is steering toward eco-friendly, low-carbon, and climate-responsive materials that also revive cultural identity. Walls made of Compressed Stabilized Earth Blocks (CSEB) or rammed earth harness local soils to provide natural insulation, while lime mortar and plaster ensure breathability, regulate moisture, and remain recyclable. Structural systems are evolving from carbon-heavy RCC to renewable solutions like bamboo and cross-laminated timber (CLT), which are lightweight, seismic-resistant, and suitable for prefabrication. Roofing systems too are being reimagined: instead of flat RCC slabs or tin sheets that overheat, architects are exploring slate roofs, bamboo composites, and timber trusses that respect local climate and tradition. Even in finishes, natural lime washes, terracotta, and plant-based pigments are gaining ground as sustainable, vibrant, and breathable alternatives. Together, these shifts represent a conscious move away from energy-intensive modern methods toward sustainable, resilient, and culturally rooted architectural practices that balance environmental responsibility with regional identity. The Kath-Kuni tradition of Himachal Pradesh, particularly seen in the villages of Kangra and Rakkar, represents a unique blend of material logic, climate response, and cultural identity. Built in an earthquake-prone, monsoon-affected region, these houses use a layered construction system where locally quarried stone alternates with deodar timber bands. This not only strengthens the structure against seismic shocks but also improves thermal comfort and moisture resistance. The visual result is a

International Research Journal on Advanced Engineering and Management
https://goldncloudpublications.com
https://doi.org/10.47392/IRJAEM.2025.0484
e ISSN: 2584-2854
Volume: 03
Issue: 10 October 2025
Page No: 3055 - 3059

distinctive striped façade that expresses structure as design. Color use in Kath-Kuni is rooted in material honesty and cultural practice. Natural tones of stone and weathered timber dominate the palette, while lime-plastered and whitewashed walls brighten narrow courtyards and interiors. Vibrant accents—most often in deep reds, indigo blues, and greens—appear on doors, windows, and carved verandah posts. These touches of color serve both decorative and symbolic roles, drawing attention to craft details while reflecting local traditions and rituals. The material and color strategy is deeply tied to climate and function. Thick stone walls provide thermal stability, timber prevents cracking, and breathable limewash protects against dampness. At the same time, color highlights not only bring cultural expression into everyday architecture but also reinforce a sense of community identity. For contemporary practice, Kath-Kuni offers clear lessons: celebrate structural honesty, use natural and local materials, rely on breathable finishes like lime, and apply color sparingly yet meaningfully to highlight detail and heritage Shown in Figure 3.

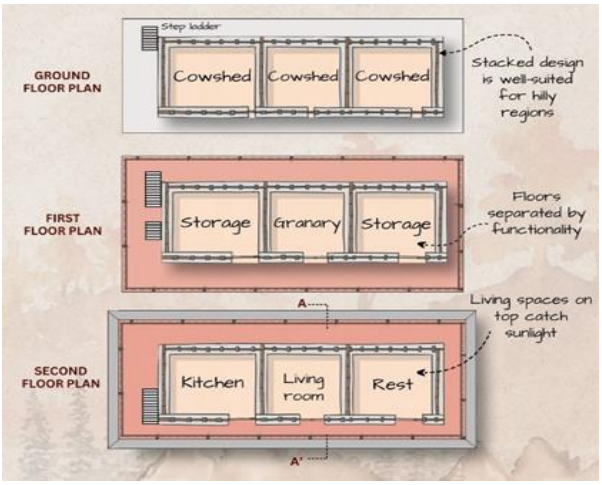

Figure 3 Stop Ladder

4. Result And Discussion

4.1. Result

The study of Himachal's twin villages shows that material and color choices are closely tied to climate, resources, and culture. Buildings use stone, timber, mud plaster, and slate for strength, thermal comfort, and seismic safety, with interlocking wooden corners reflecting vernacular skill. Color palettes emerge from natural sources—earthy mud tones, grey slate, and warm timber—while painted wooden details in vibrant shades express cultural meaning. Field observations and interviews confirmed that these practices reinforce identity and sustainability, with variations in color use reflecting household individuality Shown in Figure 4 [7].

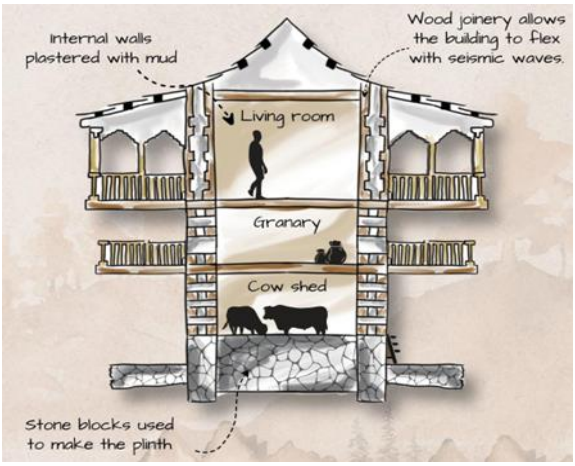

Figure 4 Traditional Earthquake-Safe Architecture

4.2. Discussion

The findings show that Himachal's twin villages use materials and colours as both climate tools and cultural expressions. In Kath-Kuni, stone and timber bands ensure seismic safety and thermal comfort while creating a strong visual identity. In Spiti, thick earthen walls and limewash provide insulation and reflect solar heat, proving how resource availability shapes design. colours, though limited, carry deep meaning: in Kath-Kuni, accents like red and green highlight craft, while in Spiti, saffron and turquoise express Buddhist symbolism. This reveals colour as both craft-based and symbolic. Key insights include the power of minimal yet purposeful colour, limewash as both protective and aesthetic, and structural logic itself becoming ornament. These lessons emphasize how vernacular wisdom can inspire sustainable, identity-rich contemporary design [8] [9].

Conclusion

The study shows that the traditional architecture of Himachal's twin villages uses local materials and

International Research Journal on Advanced Engineering and Management
https://goldncloudpublications.com
https://doi.org/10.47392/IRJAEM.2025.0484
e ISSN: 2584-2854
Volume: 03
Issue: 10 October 2025
Page No: 3055 - 3059

natural colors not just for aesthetics, but as strategies for climate response, cultural identity, and sustainability. These practices highlight how design grows from place, community, and environment. For modern architecture and interiors, the lessons lie in reinterpreting this vernacular wisdom—using local resources, respecting cultural context, and designing with ecological care. Future research can expand to other Himalayan regions and explore ways of adapting these traditions to contemporary needs.

References

[1]. **Journal Articles** Nair, P., Singh, D. P., & Munoth, N. (2021). Challenges and New Paradigms in Conservation of Heritage-based Villages in Rural India-A case of Pragpur and Garli Villages in Himachal Pradesh. Advances in Science, Technology and Engineering Systems Journal, 6(1), 1112-1119.

[2]. Kashyap, V., & Sharma, A. PRESERVING THE OLD-WORLD CULTURAL CHARM–A STUDY WITH REFERENCE TO HERITAGE VILLAGE (GARLI–PRAGPUR), KANGRA, HIMACHAL PRADESH, INDIA.

[3]. Mehta, Sakshi. (2025). Kath-Kuni Architectural Style: A Few Examples of Pabbar Valley. International Journal of Advanced Research in Engineering, Science & Management (IJARESM).

[4]. Majithia, Gur Rehmat. (2024). The Science of Kath-kuni Architecture in Himachal Pradesh. Rising Scholars Research Archive.

[5]. **Book Chapters** Nair, Preeti, & Swati Punyal. (Year). Identifying the Gaps in Sustaining the Heritage Character of Villages. In [Edited Volume Title]. Taylor & Francis.

[6]. **Government / Institutional Documentation** Government of Himachal Pradesh. Heritage Village Garli–Pragpur. Official documentation highlighting traditional buildings, slate roofs, and mud-plastered walls. HP Kangra.

[7]. **Original Articles and Travel Sources** Pragpur & Garli – Heritage Villages. (2024). The Traveller Trails. Retrieved from thetravellertrails.in

[8]. Garli-Pragpur in Himachal Pradesh: Have You Visited India's First Heritage Village? Outlook Traveller.

[9]. **Suggested Reigonal / Archival Sources** Kath-Kuni Architectural Style Examples & Heritage Awareness. (Regional publication by local scholars). Accessible via Himachal Pradesh State Archives or university repositories.