

Review Article

Fusing Architecture as a Catalyst for Reviving the Cultural Values of Assam

Tanya Gupta ^{1,*} and Diksha Dey ²

¹Professor and HOD, School of Architecture, Delhi Technical Campus Gr. Noida, Greater Noida, Gujarpur, Uttar Pradesh 201306, India.

² Student, School of Architecture, Delhi Technical Campus Gr. Noida, Greater Noida, Gujarpur, Uttar Pradesh 201306, India.

*Corresponding Author Email Address: tanya.archi@gmail.com

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ABSTRACT

This paper explores the diverse cultural tapestry of Assam and its role in fostering a sense of belonging and connecting individuals with nature and society. It intends to infer attributes of bygone Assam type houses and find ways to integrate them in contemporary prevalent construction techniques. By comprehensively analyzing Assam's cultural heritage, the paper emphasizes the ongoing need to nurture and protect cultural diversity. It highlights the significance of cultural exchange, dialogue, and mutual respect in this endeavor. Recognizing the intricate relationship between culture, society, and the environment, the study promotes a profound appreciation for Assam's unique heritage while paving the way for sustainable development and harmonious coexistence in a world that is constantly evolving.

1. Introduction

The world we live in is a work-in-progress that calls for continuing improvement and adaptation to shifting social demands. Our expectations for the places we live change as society does. Humans and the environment come into contact through culture. We strengthen our roots in both nature and society and build a sense of identity and belonging through culture [1-5].

Assam is often referred to as "The Shangrila of North-Eastern India" due to its spectacular natural beauty, diverse flora and fauna, hilly landscapes, tea gardens, plains, rivers, forests, and valleys. Assam has a rich cultural history that is diverse and distinctive. The state is a cultural melting pot, housing numerous indigenous people with unique customs, traditions, and languages. Assam, also known as the Ahom, is the largest and most accessible among the northeastern states, which are collectively known as the seven sisters (Arunachal Pradesh, Mizoram, Tripura, Nagaland, Meghalaya, Manipur, and Assam). Assam offers breathtaking scenery, friendly locals, delicious cuisine, a rich artistic heritage, and revered religious sites [6-10].

To safeguard the cultural importance of a region, it becomes essential to create a space designed to facilitate the dissemination of various forms of artistic, philosophical, educational, and cultural expressions [11-15].

Need for the Study

1. Helps in promoting understanding and appreciation of diverse cultures, traditions & architecture
2. Encourages creativity and artistic expression
3. Provides access to cultural resources and information
4. Preserves and promoting local history and heritage
5. Fosters intercultural dialogue and exchange
6. Promotes social inclusion and diversity
7. Facilitates cultural tourism and economic development.

Aim

To comprehend the importance and relevance of architecture in promotion and preservation of various aspects of culture, including art, music, dance, theatre, literature, history, and traditions for the people of Assam.

Objective

1. To identify the cultural heritage of Assam.
2. To identify the architectural style of Assam.
3. To study different sustainable material used in building construction.
4. To study the inclusive and itinerant spaces that allow the full enjoyment of the entire community in its cultural and artistic development.

Scope

1. It will help in promoting the mutual understanding amongst the people of Assam and will also help in relating each one of them with their culture.
2. Blending traditional architectural elements with modern design principles enables the creation of structures that not only fulfil functional purposes but also embody and advocate for the deep cultural heritage of Assam.

Limitations

1. The study will be confined to the region of Assam
2. Focuses more on the living habits and culture of Assam rather than the food habits and clothing.
3. Emphasizes more on the architectural context of Assam.
4. The conclusion of this research is based on self-generated analysis.

Hypothesis

It is hypothesized that there will be notable outcomes including heightened cultural awareness, enhanced community engagement, and sustainable development



2. Introduction on Assam

Assam is located in the central plains of northeastern India. The geography of Assam is shaped like a horizontal Y, characterized by plains and river valleys. The state is comprised of three primary physical regions: the Brahmaputra River valley in the north, the Barak River valley in the south (also known as the upper Surma River), and the mountainous region located between Meghalaya, Nagaland, and Manipur in the south-central part of the state and the demographic data is shown in table 1.

A. Climate

Assam witnesses a diverse range of average temperatures throughout the year. In August, the temperature is up to (approximately 36 degrees Celsius), while in January, they can drop to (around 7 degrees Celsius). The cool season spans from October to February and is marked by foggy conditions and light rainfall. Although there may be occasional rain from March to May, the southwest monsoon, which arrives in June and lasts until September, brings the majority of the precipitation. This monsoon often leads to widespread and severe flooding in the region.

Table 1. Demographics

Capital	Dispur
Area	78,438 SqKm
Population	26,638,407
Principal Language	Assamese
Literacy rate	64.28%
No. Of Districts	23
Cities	Guwahati, Dispur, Jorhat, Dibrugarh
Ratio of Urban Population	12.72%

B. History

Assam was formerly a part of Kamarupa, a state that had its capital in Pragjyotishapura, which is known as Guwahati in present times. Prior to the 13th century, Assam was under the rule of various dynasties, including the Pala, Koch, Kachari, and Chutiya. This period was characterized by ongoing conflicts among the rulers. Following the partition and independence of India in 1947, the Sylhet district, except for the Karimganj subdivision, was allocated to Pakistan, eventually becoming part of Bangladesh. In 1950, Assam became a state and joined the Indian union. However, in the early 1960s to early 1970s, Assam experienced territorial loss as new states emerged within its borders.

C. Cultural Significance

• Bihu

This festival is celebrated three times annually: Rongali or Bohag Bihu in April, Kongali or Kati Bihu in October, and Bhogali or Magh Bihu in January. Bihu is marked by vibrant traditional dances, melodious music, and joyous feasts, forming an integral part of the festivities.

• Weaving

The craft of silk weaving holds significant cultural significance in Assamese society and has been an integral part of their heritage for many centuries. It stands out as a prominent hub for manufacturing exquisite silk textiles,

showcasing the exceptional skills of numerous indigenous communities engaged in the art of silk weaving

• Handicrafts

It is renowned for its diverse handicrafts, encompassing the creation of bamboo and cane products, pottery, and traditional jewelry. These crafts hold deep cultural roots and have been integral to the state's heritage for centuries.

• Music and Dance

The state has a rich tradition of music and dance, with various forms of traditional dance like Bihu, Bagurumba, and Jhumur. The state also has a unique musical instrument, the Pepa, which is a type of horn made from buffalo horn.

• Folktales and Literature

Assam has a rich literary tradition, with folktales and ancient texts dating back to the 8th century. The state is known for its famous writers like Birendra Kumar Bhattacharya, Jyoti Prasad Agarwala, and Hiren Bhattacharya.

3. Vernacular Architecture

Vernacular architecture pertains to the distinctive architectural styles and construction methods that have evolved organically in response to the local climate, available materials, and cultural customs. It embodies the indigenous building traditions and the accumulated wisdom of a specific region or community. Vernacular architecture, the most basic and practical approach to meeting human needs, appears to have been overlooked in contemporary architecture. Nonetheless, with the recent surge in energy costs, there has been a sensible shift in this trend. Architects are now embracing regionalism and incorporating cultural building traditions, recognizing that these structures have demonstrated remarkable energy efficiency and overall sustainability.

A. Vernacular Architecture of Assam

Here in fig 1 are some characteristics of vernacular architecture in Assam:



Figure 1. Vernacular house

• Bamboo and Thatch

Bamboo, known for its rapid growth and flexibility, is abundantly found in the region and serves as a primary

material for constructing walls, roofs, and floors. Thatched roofs, made from grass, straw, or palm leaves, are prevalent in rural areas and offer insulation and protection against the elements.

- **Stilted Houses**

Stilted houses shown in figure 2, known as Chang Ghars or Chang Ghor, are a characteristic feature of Assam's vernacular architecture. These houses are raised on wooden stilts or bamboo pillars to protect against floods and pests. The elevated design also allows for ventilation and creates space for livestock or storage underneath the house.

- **Sloping Roofs**

Assamese houses typically have sloping roofs that help shed rainwater effectively. The roofs are usually covered with thatch, corrugated metal sheets, or tiles, depending on the availability of materials. The steep slope prevents water logging and helps withstand heavy rainfall, which is common in the region.

- **Earth Construction**

The combination of mud, clay, and organic materials like straw is used to create walls. These earthen walls offer excellent thermal insulation, ensuring cool interiors during the summer and warmth during the winter months.

- **Open Courtyards**

Numerous traditional Assamese houses showcase open courtyards, referred to as Naamghar, which serve as a focal point for various family and community gatherings. The courtyard is typically encompassed by rooms and verandas and often features religious symbols.

- **Wood Carvings and Ornaments**

Elaborate designs and motifs are carved into wooden beams, pillars, doors, and windows, showcasing the artistic skills and craftsmanship of local artisans.

- **Satras**

Satras are religious institutions closely linked to the Vaishnavite culture of Assam. These architectural complexes function as hubs for religious and cultural affairs. They are characterized by unique structures adorned with sloping roofs, intricate woodwork, and embellishments, all contributing to their distinctive appearance.

B. Construction Process

- **Site Selection**

When selecting a location for a house, careful consideration is given to various factors, including the availability of water, accessibility, and natural features such as slopes and drainage.

- **Foundation**

Typically, stone or brick footings are laid to provide stability.

- **Frame Construction**

The frame of the house is typically built using bamboo or wooden poles, which are arranged in a vertical and horizontal manner to form a skeletal structure.

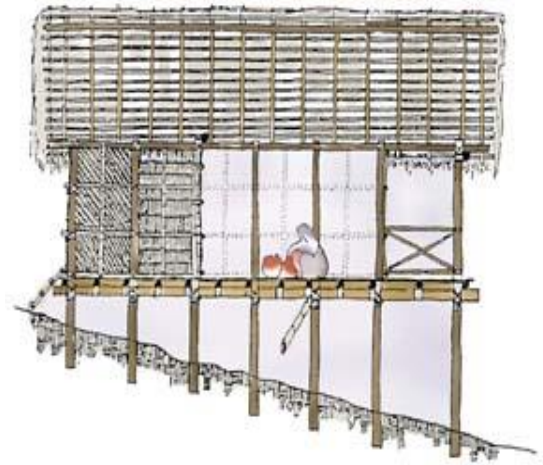


Figure 2. Stilt house section

- **Wall Construction**

The walls are constructed using bamboo or wooden frames filled with materials like mud, clay, or woven bamboo mats. The materials are packed tightly to form the wall structure.

- **Roofing**

The roof is constructed with bamboo or wooden beams placed horizontally across the top of the walls. Thatching materials like grass, straw, or palm leaves are then layered on top of the beams. The thatch provides insulation and protection from the elements.

- **Flooring**

The floor is typically made of compacted earth, which is leveled and smoothed.

- **Finishing Touches**

Once the basic structure is complete, additional finishing touches are added. This includes the installation of doors, windows, and decorative elements. Wood carvings and ornate designs may be incorporated into the door-frames, window shutters, and other architectural features.

4. Tribes & Their Housing Typology

Diverse tribes like Bodo, Kachari, Karbi, Miri, Mishimi, Rabha, etc co-exist in Assam; most tribes have their own languages though Assamese is the principal language of the state.

- **Bodo Tribe**

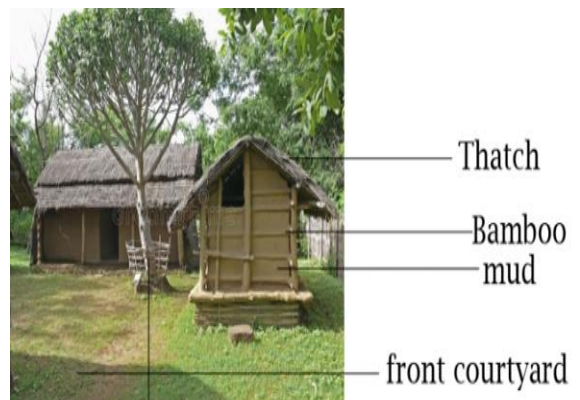


Fig. 3 Housing Typology of Bodo tribe

The Bodo people, who speak the Tibetan-Burman language, primarily reside in Assam's Brahmaputra Valley. They possess a vibrant culture distinguished by their distinctive traditions, beliefs, and practices that set them apart from other communities. Their traditional architectural style shown in fig 3 showcases the uniqueness of their culture, utilizing locally available materials such as cane, bamboo, and wood. This design reflects their harmonious coexistence with the environment and exemplifies their inventive and environmentally conscious approach to building homes.

• **Karbi Anglo**

The Karbi tribes predominantly inhabit the Karbi Anglong district of Assam, although some can also be found in other districts such as North Cochar Hills, Nagaon, Golaghat, Kamrup, Jorhat, Sonitpur, and Lakhimpur. The traditional Karbi homes are constructed using thatch, bamboo, and wood as the primary materials shown in fig 4. The dwelling space is elevated several feet above the ground on a bamboo platform, which is supported by posts or tree trunks. This elevated structure allows domestic animals to freely roam beneath it. The floor of the platform is strengthened by multiple layers of shattered and whole bamboo grids to ensure stability. Access to the platform is through a single entry point, typically reached by a bamboo ladder, and the area is enclosed on all four sides by a bamboo lattice fence.

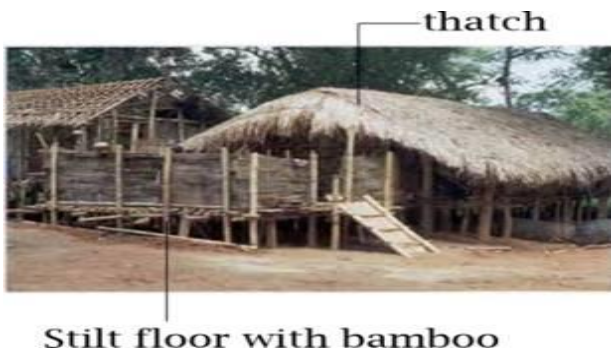


Figure 4. Housing Typology of Karbi Anglo

• **The Mising**

The Mising community, formerly known as Miris, is an Indo-Mongoloid ethnic group and the second-largest ethnic group in Assam. A typical Mising hamlet is composed of 50-60 stilted dwellings, featuring thatched or tin roofs supported by bamboo frames and bamboo flooring shown in fig 5. These hamlets are often located along the banks of rivers. The primary sources of income for the Mising people are farming, fishing, and weaving.



Figure 5. Housing Typology of Mising

• **Sonowal Kancharis**

The homesteads commonly have a bamboo fence surrounding the premises, and a range of functional dwellings is arranged around a central courtyard. One remarkable feature of these homesteads is the construction of separate facilities dedicated to habitation, livestock, ducks, poultry, and other animals. Each animal is given its designated space within these divisions, ensuring protection and segregation from other animals. They also construct the granary on the eastern side of the courtyard. Their building practices prioritize environmental friendliness and sustainability by utilizing locally available materials such as bamboo, wood, and mud. Each structure is allocated its specific space while maintaining a connection to the central courtyard, as designed shown in fig 6.

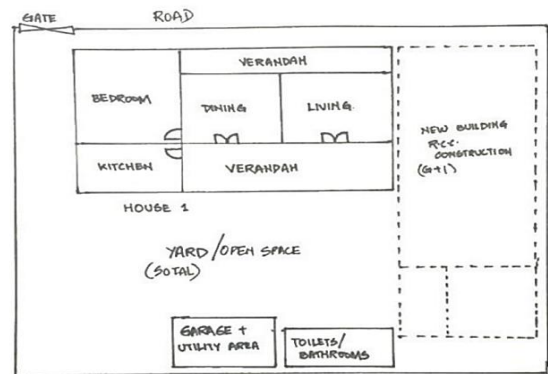


Figure 6. Housing Typology of Sonowal Kacharis

• **The Deori**

The Deori community, living along the Brahmaputra river, constructs houses on wooden and bamboo stilts facing the river. Traditional Deori houses are characterized by their elongated and straight design, elevated on stilts. In the Deori culture, the term "jakhala" refers to a family or household, and the number of ladders in a hamlet corresponds to the number of households present. Besides the main residence, a typical Deori home shown in fig 7 includes additional structures such as a granary and a cowshed. Interestingly, the Deori people do not enclose their home grounds with fences as they believe it would be disrespectful to their deities. They also emphasize having straight boundaries for their farmland. Any violation of this principle, known as "Hemeju," is considered a significant transgression.

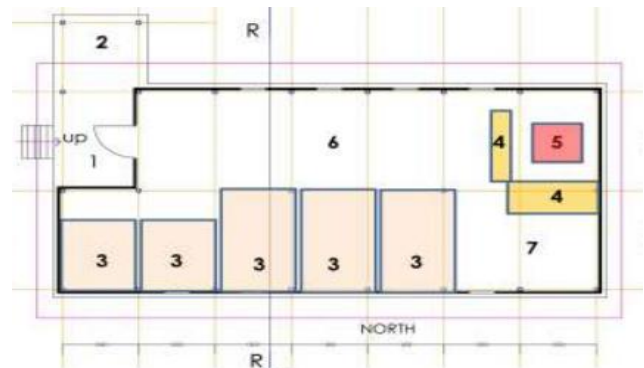


Figure 7. Housing Typology of Deori

5. Types of Traditional Housing Typology

Assam-type housing is a prevalent form of traditional housing in the region, known for its distinctive architectural style that embodies the cultural, climatic, and geographical influences of the area. This housing practice stands out due to its specific choice of materials, construction techniques, and aesthetic elements.

- **Ikra House**

Ikra houses, also known as "ikra-style" houses, are simple one-story structures made of brick or stone, featuring walls that extend up to 1 meter above the plinth. The construction method used for these houses, known as the Ikra method, incorporates mud or clay for the walls, often supplemented with the use of reeds in Assamese homes. Ikra houses are designed with a proper system of bamboo or wooden beam-columns, ensuring structural stability and meeting earthquake safety requirements. The roof of an ikra house typically consists of GI (galvanized iron) sheets, which are supported by wood or bamboo trusses. These trusses also provide lateral connectivity between the parallel walls, enhancing the overall stability of the structure.

- **Mud House**

Mud is a composite of water mixed with varying proportions of soil, silt, and clay. In the context of traditional buildings, the typical plan dimensions of such structures often range from 5 to 10 meters in length and 3 to 5 meters in width. These buildings typically consist of 1 to 2 storeys. The roofing and flooring systems of these structures usually span around 3 to 4 meters. Roughly speaking, the ratio of the length to width of the house can be expressed as 3:2 or 2:1. Additionally, the typical storey height in these buildings falls within the range of 1.6 to 2.5 meters.

- **Chang House**

In the northeastern region of India, tribes residing in hilly areas with dense vegetation, forests, and along riverbanks commonly adopt this type of housing. One such community is the Mising tribe in Assam, where their traditional houses are built on stilts. These houses, along with the flight of 5-7 stairs leading to them, hold religious and social significance embedded in the beliefs and practices of the community. The stilted houses are typically spacious halls accommodating large joint families, with a central kitchen serving as a focal point.

- **Bamboo House**

The bamboo and plinth are securely attached to the brick wall. The walls in this system are constructed using bamboo strips, which are then plastered with mud. To withstand the heavy monsoon rains, the houses are designed with specific details. The roof of these houses is typically made from locally available grass, providing a durable covering that can last up to 10 years before requiring replacement.

6. Materials Used for Construction

- **Bamboo**

Its strength, lightweight nature, and local availability make it suitable for structural elements such as columns,

beams, and walls. Bamboo is also used for roofing, flooring, and wall panels. The use of bamboo in construction promotes sustainability and showcases local craftsmanship.

- **Wood**

Assam's dense forests offer a range of wood species suitable for construction. Responsibly sourced wood from local forests can be used for framing, flooring, doors, windows, and decorative elements.

- **Mud and Clay**

Mud and clay are traditional and eco-friendly construction materials in Assam. Adobe, rammed earth, and mud bricks are made by combining mud, clay, and organic materials. These materials possess excellent thermal insulation properties, helping maintain comfortable indoor temperatures.

- **Stone**

Assam is known for its abundant reserves of various types of stones. Local quarries provide sandstone and granite, commonly used for foundations, walls, and flooring. Stone buildings offer durability and a natural aesthetic appeal.

- **Thatch**

Thatched roofing using grass, straw, or palm leaves is a sustainable option in Assam. Thatch provides insulation, keeping interiors cool in summers and warm in winters. It is particularly prevalent in rural areas and traditional-style buildings.

- **Jute and Cane**

Jute fibers and cane are employed in the construction of wall panels, screens, partitions, and furniture.

- **Ferrocement**

Ferrocement is a cost-effective and eco-friendly composite material comprising a thin layer of cement mortar reinforced with wire or steel mesh. It finds applications in roofing, water tanks, and other structural elements.

6. Case Study 1- Mahabahu Brahmaputra River Heritage Center, Guwahati



Figure 8. Mahabahu River Heritage Centre

Architect- Smita Makhija and Zia Hussaim

Location- Old DC Bungalow, Pan Bazaar, Guwahati, Assam 781001

Established- 2021

The Mahabahu Brahmaputra River Heritage Centre shown in fig 8, dedicated to celebrating the essence and heritage of

the magnificent Brahmaputra River, has been established on a hilltop encompassing the Deputy Commissioner's bungalow and the surrounding grounds, overseen by the Guwahati Metropolitan Development Authority. The campus is designed exclusively for pedestrians and features tree-lined pathways. It includes an Art Garden, a 170-year-old Heritage Bungalow, an open-air Amphitheatre, a modern glass-fronted cafe building, and the Riverside Garden.

The Brahmaputra River Heritage Centre in Assam is a unique and significant initiative aimed at preserving and showcasing the cultural and ecological heritage associated with the Brahmaputra River and its surrounding regions. It serves as a platform to educate visitors about the historical significance, biodiversity, and the communities reliant on the river. The Riverside Garden showcases open grass areas surrounded by trees, adorned with art installations, specially designed spaces for activities, and viewing decks that offer panoramic views of the river. The entire landscape is thoughtfully designed to create a serene and tranquil ambiance. It raises awareness about the problems faced by the river such as pollution, ecological imbalance, environmental threats etc.

By promoting sustainable practices, the center works towards protecting the river and its diverse biodiversity. Engagement with local communities and stakeholders is a key aspect of the center's work. It ensures that their perspectives and voices are heard, and their cultural heritage and livelihoods are safeguarded and promoted.

7. Case Study 2-Thengal Manor Hotel, Jorhat



Figure 9. Thengal Manor Hotel

• Location

Jalukanibari, Jorhat, Assam Thengal House was constructed in the time 1929 by Rai Bahadur Siva Prasad Barooah. This structure suffered serious earthquake damage in 1943, challenging the temporary abandonment of the home while repairs were being made. Family moved into this house when it was repaired, and they continued to do so until 1950, when the North East endured its most significant earthquake.

In the early 2000s, the Barooah family decided to convert Thengal Manor into a heritage hotel in order to preserve its history and share it with others shown in fig 9. The property

underwent extensive renovations to transform it into a hotel while maintaining its original architecture and character. To ensure comfortable and sustainable living conditions for the guests and staff, the hotel adopted a climate responsive design approach that takes into account the local climate, geography, and culture. It incorporated passive cooling techniques, Rain water harvesting, use of low level fixtures, strategic landscaping etc.

• Culture Influence Design

Siva Prasad Barooah started the first Assamese newspaper, Dainik Batori, from this very bungalow and provided a voice to the Assamese freedom fighters. Clearly, this bungalow had a lot of history unfolding on its premises.

• Cultural Events

Thengal Manor hosts cultural events and activities, such as traditional dance performances, Marriages, workshops on Assamese cuisine, and tours of nearby tea gardens.

• Namghars

Namghars play a significant role in facilitating educational, political, cultural, and developmental activities within their communities, all of which are carried out through democratic processes. Namghar house model is shown in fig 10



Figure 10. Namghar

• Corridors

The wall installation in the corridor depicts historical legacies & stories linked to the family through rare old photographs.



Figure 11. Corridors

Sustainable material like lime plastering, rattan cane furniture, bamboo, clay tiles, wood etc were used in the construction of this hotel shown in fig 11.

• Guest Room

Thengal Manor has preserved the architecture and interior decor of the original mansion, providing visitors with a glimpse of the luxurious lifestyle of the Ahom dynasty.

8. Case Study 3-Ikra House, Guwahati

Ikra houses are designed with a robust framework of wooden beams or bamboo columns shown in fig 12. This construction technique ensures the structural integrity of the houses, particularly during earthquakes, meeting the necessary safety standards. Typically, Ikra houses in Guwahati and other regions are characterized by their simplicity and single-story design, featuring brick or stone walls that extend up to one meter above the plinth.



Figure 12. Ikra house

A. Building Type

1. The building is of one or two storied houses.
2. Building is symmetrical on both sides.
3. 1st floor is connected with a timber stair case.
4. Open spaces in front (chotal) and back side (bari) of the house.

B. Roof

1. Roof layout is very critical.
2. It is in various level and multi-cornered.
3. But the angle of inclination is same.
4. Roof is of corrugated iron sheet.

C. Building Form

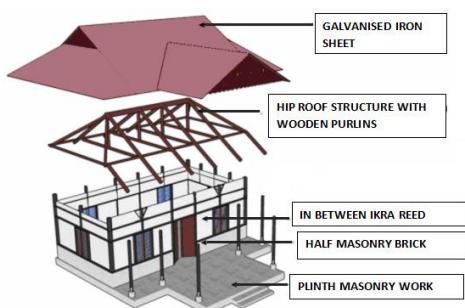


Figure 13. Building Form and Components

The "Ikra" housing style shown in fig 13, for instance, holds immense value and antiquity in the region, making it a subject worthy of examination and appreciation. These dwellings have had a profound influence on the design of traditional housing in the area. Through their design elements that respond to the local context and exhibit remarkable aesthetic qualities, "Ikra" houses emerge as exemplary instances of architectural innovation, meeting the defined criteria.

This study provides a complete analysis and evaluation of sustainability aspects by highlighting the significance and the need to take action to protect this important housing style.

9. Conclusion

The integration of architectural styles in Assam has the potential to revitalize the cultural values of the region. With its diverse traditions and rich cultural heritage, Assam has experienced notable transformations over time. By combining traditional Assamese architectural elements with contemporary design principles, the fusion of architecture plays a vital role in reconnecting the present generation with their cultural heritage.

The incorporation of cultural values into fused architecture can have several positive impacts. Firstly, it aids in the preservation and conservation of traditional architectural styles and techniques, which are often at risk of being forgotten or overshadowed by contemporary influences. Secondly, fused architecture serves as a symbol of identity and a source of inspiration for the people of Assam. It fosters a sense of belonging and pride in their distinctive cultural heritage, encouraging active involvement in its preservation and promotion. By integrating features like museums, exhibition spaces, and cultural centers into architectural designs, we can establish platforms to showcase Assam's art, music, dance, literature, and history. These spaces can serve as vibrant hubs for cultural activities, festivals, and workshops, instilling a sense of pride and belonging among the local community while also educating visitors about the region's abundant cultural heritage.

Studying local vernacular architecture offers insights into developing an approach to green building design. Indian traditional architecture has long been recognized for seamlessly integrating energy efficiency and sustainability. As a result, Indian vernacular architecture stands as one of the most captivating architectural styles worldwide. The use of readily available materials and skilled craftsmanship in vernacular architecture contributes to its sustainability. Therefore, embracing the vernacular style of architecture is crucial for building a sustainable future.

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