The Architecture of ‘Bangla Batton’ Houses in Sylhet City: An Ethnographical Study on Vernacular House Form

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Abstract

Vernacular architecture as a direct expression of lifestyle and culture of a community is observed in many traditional settlements of each part of Bangladesh. Architecture of these locally built forms deal with the creation of spaces where as architecture is encoded with meanings reflective of the society, culture, tradition and ethnicity. The goal of this study is to research and redefine a very unique style of architectural built form located in Sylhet city known as “The Bangla Batton house”. Sylhet city, historically developed as a part of Assam province in colonial India, where this signified style of Bangla batton house intensely denote the socio cultural context of that period. Though many of these historic residential structures are now in state of oblivion, a number of them still surviving to recall their past. But rapid urbanization of city and ignorance towards past are threatening the existence of these last remaining structures. Unfortunately, no proper research has been done yet to document or preserve these local architectural heritages. The objective of this research is to reveal the significances of this particular style of house form through an ethnographic study. To realize how these house forms relate to their environments, people, local context and technology. This research outcome certainly help the future researcher, historian, architects, planner, conservator to cope with the interaction between local architecture and cultural ethnicity prevailing in this historic context.

Keywords:

Bangla Batton house, Vernacular heritage, Sylhet city, Ethnographic study, Preservation
1. Introduction:
Sylhet region has its own remoteness due to geo-physical property. Sylhet city has evolved through a long tradition of organically developed settlement pattern, mostly influenced by the geo-physical setting rather than artifacts those are manufactured by outcast invasion. Local culture and the way of life had always been a unique modifier to absorb or adapt that is new, in its folds. It is through this process of change and adjustments the urban areas remain relevant and useful in a contemporary setting (Mowla, 1999). Each community produces its own architectural forms and techniques, evolved to meet the challenges of a unique set of conditions. (Cooper & Dawson, 1998). Thus Sylhet has its own traditional urban fabric with specific types of vernacular architecture. Similar climatic and social characteristics bring them together to create indigenous house form or dwelling unit. Bangla Batton is a dialect term used in Sylhet city mostly. This type of built form- wooden frame structure with locally available material is one of the oldest house forms of this region. This Bangla Batton has architectural significance as an urban vernacular archetype which is modified from indigenous primitive house with a mixture of Assamese house type and later adaptation has taken from colonial architecture. But present day unplanned urban development, adverse technological development and high density of population restricts the continuity of organic urban pattern including its vernacular architecture like Bangla Batton. The objective of this research is to intervene this housing style to look for the ethnicity and origin, documentation, finding out key determinant behind shaping this style. Some issues for survival of these threatened built forms are also discussed later.

2. Methodology
Ethnographic research method was the main approach to address the key research problem, because of the lack of literature data on the study area this method will help eventually. Reconnaissance survey on site was the ultimate key to collect the data. So the research method is followed by the following stages.

2.1 Selection of the study area:
The study area was selected according to the objective of the study. The researcher selected a distinct part of Sylhet city which is known as the core urban area of old Sylhet. Most of the structures are located within this periphery.

2.2 Collection of Data:
As Linda Groat (2001) users’ participating in the context should be the main source of information. In this research process users’ perception were incorporated with data collection. Data collection process included: User perception Investigation & Literature survey

2.2.1 User perception Investigation:
Total 20 houses were surveyed during this research period. Users were interviewed with a questionnaire. This questionnaire included 18 questions dealing with construction history, occupational information, legal issues of ownership, use pattern, climatic comfort, and sociological aspects and other issues related with living environment. The collected data from ethnographic survey were accumulated to have a brief understanding of the prevailing context on which condition this particular housing style emerged.

2.2.2 Literature survey
For Lacking of written evidences on Bangla Batton House, literature survey did not played an effective role in this research. Some legal documents were collected to know the occupancy history and construction timeline. It is found that many of the houses are under WAKF estate and rented with a long term agreement with the state.

2.2.3 Physical Survey of site and structures:
Site survey and documentation of structures were carried out by a team consisting of the researchers and students of architecture. The intension of the building site structural survey
were to find the physical features of built form and find the determinants which shaped the form-space as a symbol of cultural ethnicity. The structures were also assessed to know their preserving condition and acting threats.

2.3 Analyzing Data:
All the data collected from ethnographic survey were analyzed to make this study report which document and reveals this particular style from an ethnographic view point.

3. Socio Cultural Profile of the Study Area: Urban Sylhet

Sylhet was a commercial center from the ancient period, which explains its original namesake as ‘Sree Hotto (beautiful market place)’. But the region got its urban development after the Mughal invasion in 1612, particularly in infrastructure like road network, culvert and watch tower. In 1765 the East India Company acquired the Diwani and Sylhet immediately came under their rule. Sylhet Municipality was established in 1878. A devastating earthquake demolished almost the entire town on 12 June 1897. The whole place had to be completely rebuilt especially the public offices and building at an ignomously cost. Thus, Sylhet is known as a thousand years old city hub. But the vibrant part of the city is still limited, which is 10-12 sq-km and this part was the old town which experienced pre Mughal, Mughal and Colonial rule. This is the core part of the city and because of its geographical context, orthodox socio-cultural outlook and conservative livelihood, the indigenous use pattern of land and use of construction techniques are still prevailing in the heart of the modern Sylhet City. This old part of the city is a viable study area for sample survey of any research related to heritage. Therefore, the old fabric of the city with various vernacular architecture of different ethnography can easily be found here with their full attribute.

The city can be a centre of industry, trade, education, government or all those activities. This ‘diversity of opportunity’ attracts people from rural to cities (Galion & Eisner, 1986); this pull factor is very much true in the case of Sylhet’s urbanization. The migrants would be poor and without urban skill. Like other old towns of Bangladesh, Sylhet although has been experiencing rapid growth of population and fast physical expansion, the city has grown without proper urban planning. The dynamics of rapid urbanization, changes in land use-pattern, growing population density and shifting economic activities are exerting serious pressure on old fabric including historic built form like old mosques, temples, tombs and other traditional and vernacular built form. Huge building construction work with new technology and material molds the natural landscapes as well as traditional use pattern of architecture and day to day life. But for long term sustainability, that traditional physical fabric is more essential. It is, therefore, necessary to understand the various vernacular forms like Bangle-Batton for sustainable development, for improving urban performance of the organic city like Sylhet.

4. Anthropology, Architecture and Ethnography:

4.1 Anthropological knowledge and Traditional vernacular architecture:

Anthropology is the systemic study of man and his culture. As an all encompassing discipline, anthropology focuses on every aspects of human life and deals with human dwelling as well. Traditional vernacular architecture of any region deeply rooted in elements like culture, society, religion, environment, symbols. These are parts of an anthropological study as well. At the end of sixties in the ‘Crisis of Modern Architecture’ a movement of architectural theoreticians greatly influenced by Amos Rapport’s *Built form and Culture* (1969) began to widen the horizon into the ethnology of architecture. Now this has been established that study of tradition and vernacularism of a built form can reveal different aspects of human life. Evidently, the central factor in dwelling and housing is ‘culture’ or cultural history. Thus planning of housing must incorporate knowledge about culture which is the central point of...
anthropology as well, (Hossain, 2008). In a constructive sense, to change the paradigm of outlook on the human life, architectural anthropology is an essential study.

4.2 Ethnography as a qualitative research method:

The term ethnography has come to be equated with virtually any qualitative research project. The word ‘ethnography’ has been borrowed from the synthetic Greek word ‘εθνογραφία’ which basically means ‘a portrait of people’, Harris and Johnson (2000). Having said that, ethnography has been characterized by Gummesson (2003) to be an in-depth research methodological approach, as well as regarded to be by researchers such as Fetterman (1998) and Dey (2002), both the art and science of understanding, interpreting and describing a group or culture. More to the point, Genzuk (2003) mentions that ethnography has its roots planted in the fields of anthropology and sociology where the intent is to provide a detailed, in-depth description of everyday life and practice. As Linda Groat (2001), Ethnography remains true to its anthropological route while lays particular emphasis on the immersion of the researcher in a particular cultural context and on attempt to as certain how those living in that context interpret the situation. Ethnography is a holistic exploration of a setting using context rich detail, a focus on small number of cases and data analysis that emphasizes ‘the meaning and functions of human action’, Linda Groat (2001). Thus, ethnography may be defined as a branch of qualitative research process, which is aimed to cultural interpretation.

4.3 Ethnographic study of Architecture:

According to Fielding (1993, p.157) ethnography entails the study of behavior in natural setting, ‘getting the seat of your pants dirty in the real world, not the library’. In particular, an ethnographic approach to study any architecture allows naturalistic on site investigation into the host of influences that affect the shape of the living environment. More specifically, based on Othman (2004, p.426), the ethnographic methodological approach embraces:

a) Participant observation, whereby the researchers on site investigate the culture being studied.

b) Observational research, watching users in their environment, how they behave and act towards the environment.

c) Contextual inquiry, to ask questions how the structures adapt in the settings.

d) Componential analysis, a systematic search for meaning of space components, which is frequently connected to symbols and cultures.

According to ‘Preliminary Report on Architectural Ethnography of Ayanis Ethno-archaeological Project’ by the author Ömür Harmansah (2007), the objectives of architectural ethnography of any structure might be:

- To investigate ethnographically the production and use of domestic spaces in the house hold.
- To understand traditions of building technologies and spatial organization in a diachronic perspective.
- To document the corpus of building knowledge in the community,
- To prepare scale drawings (plan/section/detail) of the individual structures, compounds and Constructions systems,
- To formulate and pose new questions to interpret socio-cultural, economical, technological, environmental determinants which influenced the evolution of the particular building style.

In this study, researchers keenly observed the phenomena as a participant of the existing settings, tried to reveal the human structure interaction, and studied ideas about group’s knowledge and beliefs which are key principles of ethnographic research.
5. Ethnography of ‘Bangla Batton’ House Form: Some Architectural Aspects

5.1 ‘Bangla Batton’ Style:
Bangla Batton is a traditional house form of Sylhet City, locally known for its vernacular construction technique of a timber frame (Batton) structure with plastered bamboo fence surfacing. The technique was adopted to build light weight structure with pitch-roof by locally available materials to avoid seismic vulnerability and for substantial rainfall of this area.

5.1.1 History & Origin of Style:
As Sylhet has a strong resemblance of eastern Indian regions (was a part of Harikela of ancient Bengal), mostly Assam, both culturally and geographically. The ‘Bangla-Batton’ houses are nearly similar to vernacular Assamese-house style. However, this pattern was largely practiced in colonial time following the local modules and ethnic expression thus forms a blend of tradition and technology.

5.1.2 Construction Timeline:
This is an early ‘urban house-form’ of Sylhet city started in early 20th century. From the statements of most dwellers it is clear that, the construction period varies from 1920-60s. Consequently most of the houses are nearly hundred years old and at its anonymity but many are still maintained, modified and being used by the dwellers and in fine state.

5.1.3 Ownership and Use:
These classy residential houses were mostly established by the noble families of that time generally lawyers, government officials and teachers in occupation and located in a discrete residential areas of old Sylhet. During the partition of Bengal (in 1905), most of the houses were sold or abandoned. Later declared as WAKF state and rehabilitated in long term rental basis. Residences with separate outhouses were private practice areas, accommodation for staffs related with the profession of that particular owner of that time. Later the functional organizations were adopted differently and rearranged. Still the original spatial quality suits the customs of present socio cultural behavior. For an example the inner-court still maintained strictly as the private area.

5.1.4 Location:
This particular type structures are mostly residential and located at old residential areas of core city. (Figure 1)

Figure 1: Highlighted areas show locations of ‘Bangla Batton’ houses in Sylhet City (Author, Sept. 2012)
5.2 Geo-physical Context:

5.2.1 Form & Spatial Planning:

The formal expression of the house is symmetric compact type single story structure, commonly arranged as compound like living or individual linear houses. Building height is loftier than present single story structures due to its distinctive roofing system - the indoor and semi outdoor spaces are held under a single pitch. Indoor room height is also spacious (varied from 4-5 meters) and lofty that offers better climatic comfort and luxury of space, with or without the provision of access to the attic. So these houses appear as double height structure with distinct structural expression, which expose timber panel walls and posts supporting the roof. Walls painted in white lime and the modular wooden panels with black bitumen create a contrast aesthetic elevation (Figure-3). The roofing system is similar to our vernacular rural house with gables and floral ornamented drops at edges.

Figure 2: Spatial sequence of a ‘Bangla Batton’ house compound. (Saad Uddin Chawdhury Residence, 1924)

The compound houses have a general organization, two distinct zones –semi private part approached by out-house and private part separated by inner court (Figure 2). Out-house faces the approach road and hide the private zones. Location of the house depends on the accessibility because of the compact urban situation, but climatically and socially desirable location for the private house is east. Spatial sequences for Outdoor to semi-outdoor and indoor of the houses are maintained strictly. The out-house is used as public living, guest accommodations, private chambers, store etc. and the private zone comprises bedrooms, dining, kitchens, ponds, lavatory and wash areas etc. In singles residences the sequence is similar as the semi-public functions are placed at the front. But generally in both types the outer form has a projected porch creating inviting character.

Figure 3: Elevation of Rafiqul Haque residence, Hawa Para, Sylhet (1913)
5.2.2 Structure & Construction Technology:

Initially structural system was purely timber posts and beam frames and plastered walls with bamboo mesh. Later on iron angle bars were used for larger spans and to strengthen the joint areas. Some houses have bamboo-reinforced concrete posts specially located at semi-outdoor areas as also aiding decorative purposes (Figure 3). Most of the exposed ornamented timber posts were replaced by concrete posts but the details are kept same as the old ones. 'Bangla Batton' houses have shallow foundation or no foundation as these are light weight structures but the plinths are of masonry structure. Sometimes masonry half wall is embedded at the bottom to strengthen the Batton wall and for other maintenance purposes. The roofing system is commonly wooden frames and false roof by wood planks laid on rafter-purlin supports.

The construction process is customary simple modular system engineered by local craftsman and masons as the system is similar and originated from indigenous abode structure by mud wooden members. Specially the roofing style, C.I sheet cut ornamentation, wood curving in doors, window panels and posts, charms of high windows and ventilators show significant influence of the traditional craftsmanship. Some techniques of steel bolted-joints, isolating members of different materials also reflect the modern ingenuity of that time. The construction is done by three to four phases. The Foundation work including the angle bars are erected and accordingly frame structure for wall and roof system is to be settled with bamboo fence within the Battons. This fabricated structure is then plastered with cements and lime (Figure 4).

![Figure 4: Representation of structural system of 'Bangla Batton' house.](image-url)
5.2.3 Material Culture
The significance of ‘Bangla Batton’ houses is its material culture. The form has fair expression of material and entirely constructed by locally available materials. The wall system is made by Bamboo fence which is also known as ‘Ekra wall’ (Hasan, 1985), initially covered with mud and lime mixture later replaced by cement and paint for maintenance (Figure 5). C.I sheet is used for roofing and drops only. But using it as a surfacing material which is recently being used in low-cost houses is completely absent. The false ceiling is made of well-seasoned wood and has pronounced longevity but bamboo ceiling is very common. Neat finish, terrazzo is generally used for floor finish.

![Image](image.png)

Figure 5: Wall section showing plaster on bamboo fence

5.2.4 Environmental Responsiveness:
Bangla Batton house form like other vernacular house form shows sensitivity towards microclimate. Light weight structures are supporting the contoured topography. Compact house forms with interlocking pitched roof suggest that heavy rainfall in this region has a great impact on vernacular housing. Base isolation from main timber frame structure by iron angle bars ensure structural longevity against driving rain (Figure 6). Rainwater drainage system is also present in most of the houses. Sufficient extended roof and drop details for surface protection are key features for climatic protection. Louvered gable ends of the roof, ventilation in attic, high window with mosquito nets are used for proper ventilation. Clerestory lighting, room height with windows cause maximum use of day light (Figure 7). Use of locally available...
materials, maximum use of vegetable fibers, owner participation and replaceable easy maintenance are also causes a sustainable living environment in Bangla Batton house form.

Figure 6: Base isolation technique of timber post

Figure 7: Clerestory lighting provided as the room is loftier. Unique high window detail with mosquito net

5.2.5 Modification & Extensions

By the course of time the pure ‘Bangla Batton’ houses are changing in material culture and organizational pattern. The age old symmetric layout is being replaced by complex functions. Space requirement of the users is increasing hastily and extension is essential. Most of the inhabitants are adding and extending the form but due to lack of proper acquaintance adopting recent construction style. As an outcome the ethnicity of this longstanding architecture is almost gone (Figure 8). It is stated above that unlike recent masonry structures this modular house pattern has an inherent quality to adopt. By investigating the geometry extension and modification is possible without harming its entity.

Figure 8: Extension & restoration without respecting the traditional spatial sequence & modular construction.

Figure 9: Timber post replaced by concrete post with bamboo reinforcement
5.3 Bangla Batton House as a Cultural Symbol: Key Determinants

Studying the present state and the users’ perceptions a synthesis of information is developed. Here, the key determinants represent the ideas evolved during the long-term occupancy of this age-old house from users’ acceptance, environmental aspects and construction methods.

Table 2: Key determinants of shaping the Bangla batton house form with design issues

<table>
<thead>
<tr>
<th>Key Determinants</th>
<th>Design Issues</th>
<th>Idea Evolved</th>
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<tbody>
<tr>
<td><strong>Socio Cultural Determinants</strong></td>
<td>Ownership &amp; adoptability</td>
<td>Elegant Image reflecting a particular group of Urban society</td>
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<td></td>
<td>Privacy</td>
<td>1. Presence of Inner court</td>
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<td></td>
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<td>2. Pond for house hold purpose in Backyeard</td>
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<td>3. Kitchen a re located at the back end.</td>
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<td></td>
<td>Age and gender</td>
<td>1. Individual room arrangement.</td>
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<td></td>
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<td>2. Larger room for house owner</td>
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<td></td>
<td>Family Growth</td>
<td>Prohibition for future extension</td>
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<td></td>
<td>Owner’s profession</td>
<td>Presence of Outhouse for professional practice to ensure public access.</td>
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<td></td>
<td>Cultural Symbol</td>
<td>North-eastern graphical patterns used for ornamentation, usually seen in tribal groups.</td>
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<td><strong>Regional Microclimate</strong></td>
<td>Earthquake Vulnerability</td>
<td>1. Light Weight Construction</td>
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<td>2. Low rise structure.</td>
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<td>3. Base Isolation</td>
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<td>Heavy Monsoon Rainfall</td>
<td>1. Compact Planning of rooms for maximum shelter.</td>
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<td>2. Interlocking pitch roof.</td>
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<td>3. Extended Semi outdoor.</td>
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<td>4. Extension of roof ends</td>
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<td>5. Long Drop Walls to save walls from driving rain.</td>
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<td></td>
<td>Temperature</td>
<td>1. Double Roof attic</td>
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<td>2. Extended shading</td>
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<td>3. Thermaal Insulator walls</td>
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<td>Moderate Airflow</td>
<td>1. Louvered Gable end on roof edge</td>
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<td>2. Triangular high window with mosquito net.</td>
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<td>3. Larger window for cross ventilation</td>
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<td>Stable Of structure</td>
<td>1. Shallow brick foundation</td>
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<td>2. Lighter upper on heavier lower part.</td>
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<td><strong>Construction Technology</strong></td>
<td>Availability of material</td>
<td>1. Timber frame structure for availability of wood</td>
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<td>2. Use of vegetable fibers in wall.</td>
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<td>3. Variety of materials used like wood, cement, steel, brick, lime stone, mud</td>
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<td></td>
<td>Rapid Construction</td>
<td>1. Modular planning</td>
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<td>2. Prefabricated construction, assembled on site.</td>
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<td></td>
<td>Easy Maintenance</td>
<td>Modular construction, any part can be modified any time.</td>
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6. Issues of Survival of Historic Landmarks:

6.1 Present conditions and Threats
Though most of the Bangla Batton houses are occupied by inhabitants but they are under at high risk of destruction. Some of the structures are vacant and on the way of demolition. A number of threats were identified by researchers which fear the survival of these cultural heritages:

6.1.1 High land price and rapid urbanization influencing owners to cell the plot for new construction.
6.1.2 Change of profession has changed space utilization causing inappropriate space modification and reuse.
6.1.3 Ignorance on historic significance of the structures.
6.1.4 Lack of knowledge on traditional construction technology causing serious damage of existing structure through improper modification of the structure .Insensitive repairing loosing the true character of the house.
6.1.5 Absence of combined conservation and preservation policy from authorities to save these cultural properties.

6.2 Conservation and Preservation: A Sustainable Approach
An extensive work of conservation and preservation of these historic structures are the only solution to protect them from complete destruction. A common platform is necessary to involve different stake holders including local government, community people and owners to save these national properties. That is why; a sustainable preservation policy is the most effective way. Strict development policies should be undertaken by Government or local authority like City Corporation. This would be a good idea to empower a local agency to
monitor these historic structures and provide additional supports to any conservation or preservation works related to them. However, a group of local construction workers should be trained to familiar with the construction process for appropriate repairing, modification. Adaptive reuse of abandon structures is also an important issue for future preservation strategy of threatened buildings. For future sustainability structures can be used as small scale museum, library, and medical centre to ensure both financial support and use of structure. Above all, proper research should be conduct by universities, archaeological department to document, to research the value of the their ethnicity and build a platform for future activities to save these cultural assets.

7. Conclusion:
The research was conducted in order to document a threatened housing technology ‘Bangla Batton Houses’ and reveal its cultural significance in context of Sylhet. As Moll & Greenberg (1990) have suggested, ethnographic methods are a means of tapping local points of view, households and community. So analyzing this particular architectural style through ethnographic methodology can be more helpful to understand the interaction between people, environment and architecture of this particular context. This study to find the nature of Bangla Batton can be lead to an in depth study to comprehend local culture and architecture of Sylhet context in a new manner. The outcome of this research also shows that Bangla batton House form is one of the best examples of architectural innovation to mingle socio-environmental responsiveness with modern housing technology. This style truly reflects the adaptive nature of native cultural forces which transformed into architectural living environment. At the end it is this expected that this platform will inspire future researchers, conservators, and policymakers to work for the survival of these historic landmarks.

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