

# A Walkalong Heritage and History: Refurbishment of Piary Das Road

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*Abstract—Historic buildings were built in times when energy performance standards of the buildings and the lifestyles of inhabitants were not as challenging as today. This creates the need to retrofit historic buildings to suit modern standards. This paper focuses on the refurbishment of historic residential buildings in Piary Das road of Dhaka city. Most of the buildings of the area were erected on the either sides of a road having authentic façade and decorative elements, which are mostly two storied. Those Heritages of Piary Das Road contribute significantly to the value of the Dhaka city by branding the city's character and giving pleasure to the inhabitants of this old city. This approach would enhance the dwelling availability of this area where greater social diversity is needed and higher population density can be beneficial. However, historic buildings often lose their unique outer appearance as in refurbishment work. Energy efficiency and architectural heritage are two contradictory issues. It is essential to accommodate these two issues in such a way so that the achieved result can meet today's requirements and preferences of the energy efficiency; simultaneously can promote the preservation of the historical building for a future generation.*

## 1. Introduction

Piary Das road is a significant and historical site in Old Dhaka, Bangladesh. The site is almost more than 150 years old and comprises of buildings with colonial essence. The buildings at Piary Das Road are of no outstanding quality as such but together they make up a group which provides a unique setting, pattern and image to the area. Several layers of socio-economic phenomenon have overlapped in the area; that has passed through at least three Politico-religious phases. However, the signs of British Colonial Period (1757 – 1947 AD) clearly prevail now and a few sparsely located Muslim period edifices all over the area may be seen. Piary Das road was named upon a renowned landlord and famous lawyer Piary Das of British-Colonial Period. He was rewarded as one of the “RaiBahadur”, a title of honor bestowed during British rule in India, for his excellent service and bravery. In 1916 he became the Chairman of Dhaka Municipality. Piary Das road area is a part of Sutrapur Thana and group C of the Capital city Dhaka.

This part of the traditional city of about half a km length is more than 200 years old and at present has a predominantly colonial flavor. Most of the buildings of the area were erected on the either sides of a narrow, serpentine road, which are mostly two storied. There is no doubt about the importance of Piary Das Road as a cultural heritage. The deteriorating historic sites and artifacts in Piary Das Road deserve very particular attention within a sustainable architectural approach, with regard to sustainable energy development and historic building protection.

Demand for energy efficient buildings are increasing constantly and the market follows these changes by constructing new buildings and refurbishment of the existing building to suit modern standards. Often demolition and rebuilding costs less than proper retrofit of historic buildings to achieve better energy performance. But retaining existing elements of construction in historic buildings with the improvement in their thermal performance is a principle for heritage conservation. The building refurbishment works required suitable materials, retrofitting techniques and research. The differences between refurbishment of new building projects and historic buildings should be recognized properly. Energy efficiency and conservation of historic buildings are two controversial issues. It is important to address some solutions in order to solve impact of energy conservation and maintenance of architectural heritage.

## 2. Historic Buildings

Conservation of the architectural heritage is a fundamental issue for modern society. Heritage of Piary Das road contributes significantly to the value of the Dhaka city by branding the city's character. The need of preserving historical construction is not only a cultural requirement but also a developmental demand. Architectural conservation deals with issues of prolonging the life of architectural character and integrity, such as form and style, its constituent materials, such as brick, glass, metal and wood.

Most remaining historic buildings of Piary Das road have mortar construction and authentic facades and decorative

elements which are valuable characteristic traits of the buildings and have to be preserved.

**Beauty Boarding:** Beauty Boarding is one of the most significant buildings of Piary Das road. It was the first press of newspaper “Sonar Bangla” and later used as boarding cum café. Eventually, it became the gathering place of artists, authors, columnist, journalists and many more creative people. (Figure 01)



**Figure 01: Beauty Boarding**

**KachariBari:** It is the most well preserved historical building among all the buildings around Piary Das Road. Kacheri means court and bari means house. So, cumulatively Kacheri Bari means house of court. It was the court-house of ZaminderDhankora, a famous lawyer. The house was abandoned at the beginning of Pakistan period. At present it is used as the store-house of vegetables and different raw materials. (Figure 02.b)



**Figure 02: (a) BaniBhaban(b) Kacheri Bari**

**BaniBhaban:** An old building of more than 150 years, was previously used as the Zaminder house. At present it is used as dormitory of staffs of Jagannath University. (Figure 02.a)

**Sir Sena Khan House:** The residence-palace of Zamider (landlord) Sena Khan. Having a central courtyard surrounded by room compartments this building is a unique sample of colonial architecture. But now it is in a vulnerable condition and in immense need of conservation.

**Sudhir Chandra Das Lodge:** The road is named on Sudhir Chandra Bose, son Of Shirish Chandra Das, a well-known figure in particular area. (Figure 03)



**Figure 03: (a) Sudhir Das Lodge (b) Alam Villa**

**RadhakarBhaban:** It is a nearly 100 years old building with beautiful proportion, ornamentation and uniqueness. But unfortunately it is in a very vulnerable condition and need to be preserved with proper measures. It was intended to be used as the residence of Radhakor Family but at present it is used as a press in spite of its susceptible condition.

**GouroNitayBigrohoMandir:** A 100 years old Hindu temple, having authentic and extraordinary reflection of proportion and it is historically important as priest from different region occasionally come to devote and offer their offerings to the respected statue of the Gods. Currently, the ground floor is being used as an advocate’s chamber and temple. The first floor is being used as the dormitory of priests.

### 3. Refurbishment Measures for Historic Buildings of Piary Das Road

In historic buildings refurbishment process should only be introduced if they do not alter the unique character of the building or increase the risk of long-term deterioration to fabric or façades. In this process sometime historic building need to compromise its comfort level or preservation of historic authenticity to some extent. To increase energy performance some valuable details of building are lost or need to be replaced by imitations. For example when the building is insulated from the outside to control heat exchange, such refurbishment leads to lost attractiveness and historic character.

Energy efficiency can be greatly improved without touching the building construction through

- Optimization of the performance of the building envelope.
- Intelligent operation and management of a HVAC.
- Changing the door and windows.
- Improving building air tightness.

Historic buildings built before current building codes. This issue increase heat gain and demand proper heating, ventilation and air-conditioning system and decrease occupant comfort and indoor air quality.

Walls can represent most of the building envelope area and an essential part of any historic building energy retrofit. Post-insulation of outer walls is the most challenging and most

energy effective measure for historic buildings. Major problem have to face historic building with brick facades. Retrofitted building often lose the unique outer appearance because outside insulation is applied and façade materials and details are hidden by the cover of insulation layer and modern finishes. It is necessary to find ways to reduce energy consumption in historic buildings without destroying their cultural value and identity.

In our study area of Piary Das Road, most of the remaining historic buildings have Brick with lime-mortar plaster, which allow us to ensure refurbishment work without destroying the unique appearance and identity of those historic building.



**Figure 04: Refurbishment of old heritage buildings without changing the unique appearance and aesthetics.**

Again modern insulation material would make it possible to insulate buildings from the inside without losing much space. But the problem with such refurbishment process is moisture point. The walls of historic buildings have to be well ventilated to let the moisture evaporate from the construction and not to be trapped in the pores of the bricks or other construction material.

Each historic building usually has its specifics, but some general statements can be made about historic building of Piary Das Road.

### 3.1. Visual Properties of Historic Buildings

Most of the buildings belongs the style of Indo-sarassenic style, a hybrid architectural style of Mughal and European followed in the middle of colonial period. Buildings in the Piary Das road reflect a much harmonized blend of local and foreign architecture.

Common foreign features are following.

- Brick with lime-mortar plaster
- Rectangular pilaster
- Rectangular pilaster broken by ribbed kiosks
- Semicircular Arches
- Triangular pediments over Greek column
- Battlement parapet

- Trefoil window
- Molded plinth
- Rusticated wall
- Foliated decorative motif
- Corinthian capital
- Arched entry
- Iron railing
- Springer

Common Local features are following.

- Overhanging Eaves
- Wooden lattice
- Verandah

### 3.2. Features of the Building Module

In Piary Das road a common and tentative module of building can be found as the main feature and proportion of this module use in different building according to its use. From top to bottom the features are Battlement parapet, shortly extended Roof line, wooden rafters, Decorative motif above lintel level, Arched doorway, arched window, Iron Railing, Iron Column, Wooden lattice and Molded plinth. (Figure 05)



**Figure 05: Common building module**

### 3.3. Material and Construction

The prime construction material brick have been molded in different shape according to the need of surface articulation e.g. rounded, angular arched, pointed semi-circular, and curvilinear. Angular brick missionary has been used in the area between the soaring point and the crown of the arch. Lime mortar has been used primarily as binding material. Roof stands mostly on wooden rafter and purlin, cast iron I-beam was used occasionally. Brick imitating stone quoins or plaster depicting wooden door and window pattern is a notable feature in the buildings. Cast iron brackets, ventilators, window grill, balusters had been extensively used.

### 3.4. Ornamentation

Wherever British brought materials, such as, cast iron, neat cement, lime and concrete and blended it with the local design and style. The use of local floral patterns alongside carved stucco figures decorations are found in these buildings. Corinthian column, pediment arch, colonial projection, moulding and several other colonial ingredients were used. Fabulous cast iron made floral ornamentation is observed in almost in every building. Use of highly decorative wooden lattice of floral and patterned motif is seen in most of the buildings. They are basically hanged from the bottom of the first floor level. (Figure 06)

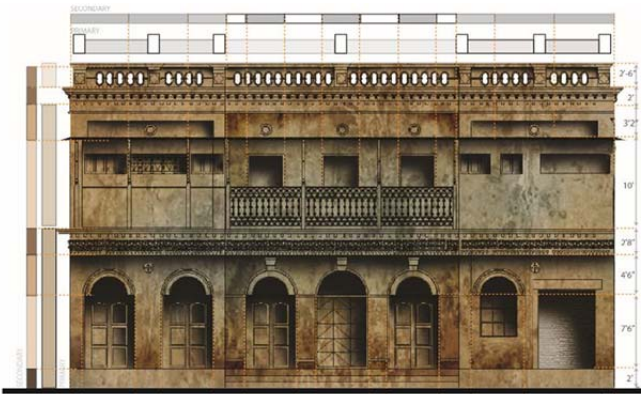


Figure 06: Gouro Nitay Bigroho Mandir (use of Building Module)

The majority of the houses have similarity in their façade having two or three equal spans, decorated with balcony. The obstruction of neighbouring houses which were build later without any planning with huge depth and massive look, due to urban density, are very restrictive parameters of this area. The potential of roof and courtyard for improvement is high.



Figure 07: Modification of Piary Das road to achieve energy efficiency keeping the heritage values untouched

Some points of attention need to be taken into account while introducing retrofitting process in historic building of Piary Das Road:

- The surface of the roof can represent around 50% of building's envelop and that receives solar radiation the most. a responsive design of the volume of the roof might control the solar access of the lower levels, improving the performance of the whole building.
- On the other hand, natural ventilation is crucial in the climate and it is especially important in historic buildings, because it reduces the moisture in the walls to an acceptable level.
- Most common practice in the retrofitting of historic buildings is based on the improvement of the envelope that it is generally un-insulated. When insulating during the retrofitting of the historic building, it is critically important to consider the constraint of the building itself as the uniqueness of the building, the characteristics of its materials, the climate in which it resides and the specific building methods that were used in its construction.



Figure 08: Retrofitting historic buildings to suit modern standards

Due to the physical configuration of this area, the building blocks work as a whole not only in terms of structure but also in terms of thermal performance. It is because of this reason the impact of refurbished houses on neighboring buildings is remarkable. Improvement in some buildings can positively influence others, if linking elements are provided, such as openings on the mediator walls.

### 4. Conclusion

Heritage buildings must not only be a historic monument but also an active factor in contemporary life. Cultural and historical heritage demands serious considerations regarding its conservation, adaptation, modernization and enhancement. Every field of activity needs planning and when it comes to the point of history, it must be taken sincerely. The use of cultural heritage as a tool to respond to the rapidly changing socio-economic conditions becomes one of the major focus points of the cities which are historically rich. There is a lack

of understanding of historic building performance in modern context and a lack of connection between good research, standards, guidance and practice. Historic buildings require different assessment and practice to enhance energy performance with the control of moisture when retrofitted because those are vital for human health.

Increase of energy performance in historic buildings is limited by preservation requirements and in most cases it is impossible to achieve modern energy performance standards in historic buildings. Energy performance certification for historic buildings is not mandatory at this moment, but constantly changing climatic conditions will tend this into an unavoidable need in the nearest future. Considering those issues it is high time to take necessary steps to conserve and preserve those historic building through proper refurbishment procedure to encourage and promote heritage conservation as well as to connect past with present and ultimately with future.

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