

## **Facades of Historic Shop-Cum-Houses in Colonial Cantonment Towns in Bengal Presidency, India**



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### **ABSTRACT**

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The historic quarters are an integral part of the urban fabric of a city and grant identity and character to it. These are the containers of both tangible and intangible cultural heritage. The market places of Colonial Cantonment towns in Indian sub-continent are one such type of settlement which are the display houses of architecture, art, social interactions, community participations and life style habits of the occupants at the time of their establishment. These historic urban landscapes are hubs of trade and commercial activities and showcase their transformation over the years. One of the unique typologies of structures which evolved with Colonization were the shop-cum-houses. This paper focuses on the shop-cum-houses as built heritage within the market places of Colonial Cantonment towns in the Bengal Presidency of India. This research paper studies the architectural elements and features on the facades of these structures within the Sadar Bazaar areas and analysis the evolution of the architectural style over the decades. The analysis is done through the survey of level II and III during which physical features were documented. The study reveals the impact of global architecture on the local craftsmanship and styles along with some characteristic features that were found persistent throughout granting identity to these historic landscapes.

## **1. INTRODUCTION**

The historic quarters of a city are rich in cultural heritage. The old structures embedded within the urban fabric recite the story of built heritage and the traditions and customs they have been supporting [1]. The architectural styles and techniques involved in these structures, that have withstood the test of time, have many lessons for the present generations to study and cherish. With an intention to conserve these historic quarters, their structures and identity, it is important to rationally understand and study the built heritage of these historic urban landscapes.

Categorizing the historic cities in India on the basis of reason for evolution, one such type are the Colonial Cantonment towns. These settlements were established with the advent of the British in India. The reason for settlement of these 62 garrisons was largely administrative and militaristic [2]. Thus, the prioritized structures were the offices, barracks and residential buildings. These areas were confined within certain limits and located strategically near the native areas. For comfortable survival, there was a need of a support system for the British troops, officers and their families which could possibly be catered only by the 'native' traders and merchants [3]. For this, there were market areas established across the cordon sanitaire [4].

The Cantonment towns primarily comprised of three areas: The administrative zone, the civil lines and the market area [5]. The physical and urban character of these three areas was different from each other, particularly the market places. These market areas were also unlike the traditional Indian

market spaces which are conventionally a single street with highly animated commercial activities. These markets were a cluster of streets for not only performing the commercial activities, but also serve as the residential area for the native traders and their families. These market places, commonly known as the *Sadar Bazaar* area, was a pivot of the economic activities. It was a work-cum-residential area for the traders and merchants [6].

During the 19<sup>th</sup> Century, the vernacular techniques of construction were prevalent and that is what one can find in these towns [7]. The popular construction material was burnt brick that was laid in lime and powdered burnt brick mortar. The thick walls, high ceilings, ventilators and perforated screens were some of the elements that made the structure climatically comfortable. The planning aspects like courtyard planning, well-lit and aerated rooms, also contributed to the overall physical and thermal comfort within the buildings. The jack arch roof construction was used for stronger roofs that could hold wider spans [8]. Later constructions employed the method of supporting of the roof over the wooden joists and heavy iron girders. These construction technologies have resulted in strong structures that still stand integrated within the urban fabric of these heritage towns.

The built forms within these market areas evolved over time according to the human needs, change in lifestyle and influenced by the global shift in architectural styles [9]. This evolution is evident in not only the planning, but also on the front facades of the various constructions. This study aims to highlight the features of the shop-cum-houses within the *Sadar Bazaar* areas by studying their facades and discussing their

evolution. The aim also includes highlighting the built heritage contained within the *Sadar Bazaar* areas and its conservation. This research paper intends to be used as a comparison with other similar historic urban landscapes across the globe.

## 2. METHODOLOGY

The *Sadar Bazaar* area of the Colonial Cantonment towns are containers of the tangible and intangible cultural heritage [10]. For the purpose of recording the built environment within the *Sadar Bazaar* areas, these are being studied as the historic urban landscapes as defined by UNESCO and tangible elements are analyzed considering the intangible attributes associated with them [11].

The study involves the analysis of the built heritage for which the facades had to be studied. As the existence and evolution of the structures and architecture are dependent on the socio- economic, socio-cultural and administrative forces along with other global factors, the literary information of the area under consideration was kept as the base for the study.

In the Colonial India, Bengal presidency possessed some of the major administrative seats and thus was considered important [12]. Cantonment towns from among these seats were selected for the purpose of this study. The Cantonment towns that are vibrant, important military stations, still work as the main commercial areas for the present city or were important establishments, were analyzed. These are the *Sadar Bazaar* areas of Ambala Cantonment, Meerut Cantonment, Agra Cantonment and Karnal. These stations fall in the composite climate zone of India thus making common ground for analysis.

As part of the documentation and mapping of the area under study, it is required to study the tangible elements of the area under study hand in hand with the intangible aspects as they are a resultant of the social behavioral pattern and collectively affect the urban fabric of the city. In order to document the tangible heritage of the various *Sadar Bazaar* areas, the following features were studied:

- Natural systems, Geomorphology, Hydrology, Topography
- Patterns, Clusters, Spatial Organization
- Visual Relationships
- Vegetation
- Circulation and Transportation Systems
- Water Features, Natural & Constructed
- Buildings- Mass, Scale, Form, Details
- Structures- Bridges, Walls, Tunnels
- Vocabulary of Urban Art, Sculpture, Site Furnishings, Objects

With the aim to get document the built forms and study their architectural elements along with their evolution, the level II and level III surveys were carried out. For survey of level II, the following aspects were documented so as to map the intangible aspects:

- Festivals, rituals
- Traditional music, dance, performance
- Spiritual worship, pilgrimage
- Iconic shared places, symbols that embody the shared urban image
- Places of memory, marking events, joy & suffering, commemoration of past events
- Traditional practices
- Urban and ex-urban farming, food plants
- Local cuisine, harvesting places

Traditional arts and crafts, gathering place for materials, work places for production

For the purpose of carrying out the level III survey, structures were identified that were either or all of the following:

- (1) Structures that have negligible or no modifications and are in their authentic form.
- (2) Structures with architectural elements that are pure representations of a particular era or architectural style.
- (3) Structures that show evolution of an architectural style or shift from one style to another.

The level III survey was carried out through documentation of the areas and built forms. Questionnaires and schedules were prepared for recording the view of the stakeholders. The owners and/or the occupants of the structures identified were interviewed to gather the information regarding the age, purpose, use, performance and history of the structure. The photographs and interviews were correlated to furnish the information regarding the built form in question.

To gather information from the other stakeholders, a sample size was worked out according to the local population. The various parts of the day categorized as working hours, busiest/ peak hours and thin/ low occupancy hours were selected over the working day and weekend for the purpose of data collection. The data achieved from survey, through interviews and photographs, in the background of the literature helped develop the analysis.

## 3. TYPES OF BUILDINGS

As mentioned earlier, the *Sadar Bazaar* area is primarily a commercial cum residential area that was established for the traders and merchants to live and carry out commercial activities [13]. The streets in hierarchy form sectors and neighborhoods that were largely occupied by people belonging to the same family, religion, occupation or caste. These commercial activities were carried out in the market streets dedicated to a common function or trade [14]. The shop-cum-houses were the perfect structures for the purpose. The area is thus dominated by the shop-cum-houses on the periphery of the streets.

Besides these, there were some elite families that resided within the area. The residential buildings of this richer class were very different from those of the traders and were influenced by the bungalows of the British [15]. The number of these lavish houses called the *havelis* was confined as the number of elite families in a town was also limited [16]. The area also comprised of other ancillary and utility structures, the typical features of which are discussed below:

### 3.1 Shop-cum-houses

Lined up along the streets of the market, typical shop-cum-houses are two to three storied structures with shops on the ground floor and upper floors reserved for residential use [17]. A narrow stairway leads from one edge of the shops to the upper floors. A number of shop-cum-houses were lined up adjoining each other and connected through a common passageway. The balconies of the upper floors protruded out from the facade to shade this passageway. The balconies were supported by heavy iron girders and/or stone brackets. In some cases, iron brackets can also be seen. The shops on the ground floor opened directly on the road through this elevated

passageway.

The first floors typically had two, or at times three rooms along with an open courtyard. The balconies covered with sloping roof run on all the facades abutting the street(s). These balconies are mostly semi-covered shade providing utility areas that help control the extreme climate and aerate the interior spaces. Figure 1 and 2 show the typical elements of shop-cum-houses. The courtyard creates the stack affect to keep the rooms cool are well ventilated too [18]. A narrow flight of steps leads to the upper floor or the terrace. The second floors, if exist, generally have one room less than the first floor.

### 3.2 Havelis

The elite families had bigger pieces of land for their residences and did not opt for the shop-cum-houses style of structures. Their residences show the influences from features and of the bungalows that were used by the British families. This style of residences were the *havelis*. The *havelis* had a front garden and at times a porch or a garage for parking the horse cart. Cladded in exposed brickwork, the ornamentations reflected the European tastes along with the local craftsmanship. The *havelis* were typically two to three storied high structures placed along some patches of open space. Similar to the bungalow style, the servant quarters were lined up on one of the boundary walls of the plot [19].

The layout of these buildings was not consistent and varied in terms of number of rooms and luxury spaces, like dance and party hall. The plan reflected the tastefulness of the owner which was an influence of the interactions with the British officers and their families although the construction techniques and basic features were local.

The wide and aerated rooms were mostly interconnected and opened into the courtyard or a verandah. These buildings had one or more courtyards that were responsible for the light and ventilation of the rooms along with cooling the interior spaces with the stack effect that they created [20]. The balconies in this typology got converted into enclosed gallery that served as a sit out and utility space. This gallery protected the rooms from excess heat and cold during the harsh climates.

### 3.3 Other residential buildings

Besides the residential buildings for the traders and the elite, there were other residential buildings as well. These were two to three storied structures with architectural features similar to the shop-cum-houses. These structures had low boundary wall and no or small compound other than the built form. These independent residential units were less popular in the *Sadar Bazaar* areas as largely the residents were traders and merchants and thus the shop-cum-houses were convenient and popular. But the population from non-trader occupations constructed independent residential buildings [21].

Another typology that can be seen is the *Kothis*. These were popular among the traders that needed to store goods as well as trade on the ground floors reserving the upper floors for residential spaces, similar to the shop-cum-houses.

### 3.4 Health care buildings

The healthcare buildings were few but prominent within the built fabric. Neither functionality, not architectural style was compromised for the construction of the health care buildings.

The structures were usually two storied high with well-ventilated and well-lit rooms attached to balconies [22].



Figure 1. A typical three-storey high shop-cum-house in Ambala



Figure 2. A shop-cum-house in Meerut

### 3.5 Places of worship

The occupants at the time of establishment and development of these areas were Hindus, Muslims and Sikhs. Thus, one can find prominent places of worship for all three religions within the urban fabric [23]. The demographic and religious shift post- independence in many of these towns has resulted in the neglected condition of many of the *Masjids*. It is also noted that the Sikh and Hindu temples have been renovated and thus modified over the years, loosing authenticity in many cases. The *Masjids* that are in use, have been renovated but with less modifications due to strict planning as per orientational constraints and religious beliefs. Figure 3 shows an old mosque within the bussy commercial stree.



Figure 3. The existance of an old mosque in dialapetated state overpowered by the surrounding buildings

The *Masjids* that are not is use are being occupied by



families of different religious beliefs that reside within the building following the only ritual of ‘lighting a lamp’ twice a day in the main chamber of the forsaken part of structure. These structures are the most authentic examples to be studied for the Century old architecture and construction practices that were followed. The gates and walls of these structures still bear the original writings and frescos in some cases (Figure 4).



**Figure 4.** Remains of frescos and carvings still visible on the entrance arch of an old mosque in Ambala Cantonment’s *Sadar Bazaar* area

### 3.6 Educational buildings

These self-sustainable areas also possessed educational buildings for the ‘native’ Indians. These structures were ornamental yet highly function oriented (Figure 5). The buildings generally possessed central open spaces for assembly and play area for the pupils. Well aerated and well-lit classrooms with spacious corridors defined these structures and made them more climatically viable and comfortable. Most of these structures are still intact in their original form with little or very little modifications. The major shift in use from past to present in these buildings is that during the yesteryears, these schools and colleges were the only choice of the population and thus, they were more vibrant, and choice of the elite as well as the commoners. While in the present scenario, people have more options and better prospects for education and thus, these schools are left for only lower middle class.



**Figure 5.** A late 19<sup>th</sup> Century school building within the *Sadar Bazaar* area

## 4. KEY FEATURES OF FACADES

Focusing on the shop-cum-houses within these areas, there were some key features that characterize them. These burnt brick structures were mostly two or three storied high. The walls were typically fifteen to twenty-one inches thick thus giving depth to the doors and windows beyond keeping the interiors cool [24]. The oldest known brick is found to be klin burnt brick of 10 inches by 5 inches by 4 inches in size which is slightly bigger than the present standard brick. The end of 19th Century structures are made in bricks with the present standard dimensions of 9 inches by 4.5 inches by 3 inches. The facades of shop-cum-houses do not demonstrate these sizes as the facades are plastered. The bricks are laid in lime mortar mixed with brick dust and were plastered with the same. For additional strength, roughly an inch long, thin flakes of hay were added in the plaster. The structures were strong and many of them are still in use. In the initial constructions, jack arch roofs were constructed. Later, the roof was made of bricks laid on wooden joists and iron girders. The ground floor had no abutments but the first floor projected around five feet towards the street creating a covered passage below. Typically, there were no windows on the ground floor. The doors of the shops were wide, folding collapsable wooden doors. A small door can usually be found opening to a narrow staircase leading to the upper floors (Figure 6). In case of buildings with smaller facades, this door can be seen at an edge and in case of broader buildings, this door is found in the middle of the facade.



**Figure 6.** A highly ornamental door leading to staircase for the upper floors

The construction style and materials have not been consistent through the decades. Some consistent factors like climate and other shifting factors like change in social stratification based on religion and caste, social interactions and harmony and financial factors were responsible for influencing the architecture for individuals and society [25]. The architecture involved can be seen evolving with the passage of time, thus changing the profile and character of the later constructed shop-cum-houses. The evolution was in terms of layouts, character and was reflected on the façade treatments as well.

## 5. EVOLUTION OF FACADES

The social and cultural transformations in the society along with other global influences, have an impact on the art and architecture of a region [26]. Since the establishment of the Colonial Cantonment towns, the society underwent various

cultural, social, administrative and economic changes. These had an impact on the local architecture. For the purpose of study of the evolution of the facades, the time period has been divided into three parts:

#### Late 19<sup>th</sup> Century

Many important Cantonment towns were established in the later half of the 19<sup>th</sup> Century. Study of structures from this period gives an insight of the first-hand architecture of the time of their establishment.

#### Early 20<sup>th</sup> Century

This phase began to reflect the social disagreement and revolt. It is interesting to note the impact of the same on architecture.

#### Middle 20<sup>th</sup> Century

This phase covers the time frame from 1940s to 1960s. The Indian society underwent a great change during and post-independence. The administrative, religious, caste ratios and economy showed a shift and thus a change is found in the architectural style. The structures reflect an amalgamation of the facades reflecting nostalgia and on the other hand, quest for new.

### 5.1 Facades during late 19<sup>th</sup> Century

The shop-cum-houses constructed during the latter half of the 19<sup>th</sup> Century were mostly two and at times three storied high. The facades had no abutments but only protruding balconies which were projected around 5 feet towards the street creating a covered passage below. These balconies were supported on the iron girders and wooden joists. In some structures, iron brackets were further provided between the girders and the perpendicular wall.

Most of the later constructions have a crown moulding running at the edge of the wall and the balcony roof (Figure 7). This feature is although missing in most of the early constructions. In few cases, the rim is found to be decorated with carved wooden plank.

The wide, double panel wooden doors on the ground floor are typically found in this phase. The presence of multiple doors ensured the adequate light and ventilation within the shop. The door lintels were semi-circular arches with square ventilators in the middle.



Figure 7. The doors opening on the street

The balconies were covered with sloping roofs with corrugated metal sheet covering supported on timber framework. Decorative bargeboards were made out of metal sheets. The railings were made with solid iron thin rods making fine repetitive geometric patterns. Multiple wooden posts were provided either equally spaced (Figure 8), or alternate posts were closely placed. The upper part of the

balcony had wooden louvers that ensured ventilation but blocked the sun. Some examples show the addition of wooden louvered shutters in the balcony.



Figure 8. A typical shop-cum-house with features of late 19<sup>th</sup> Century

These, semi-covered balconies not only served as additional space, but also control the harsh climatic conditions. As these balconies were always in shade, the rooms were cooler during the harsh summer months.

The parapet walls on the terraces were done with perforated brick pattern. The base had elaborate patterns in customized brick shapes and sizes. The basic pattern of the base was a concave moulding style.

There are yet some variations that were noted. It is found that in certain structures, the lintels were straight and the ventilators were broader and rectangular with perforated ornamental feature called *jali*. These *jalis* are a common feature found in the traditional architecture in other parts of the country as well. The air when passes through these *jalis* gets compressed and then expands thus cooling down noticeably.

There are examples where the main entrance is more elaborate. This type had pilasters around the main door with indentations that create interest.

The different patterns show that beyond the functional aspect, this element is also being used for aesthetics [27]. In this case, the pilasters are found along with an elaborate cornice with corbels. The detailing is found to be both geometrical as well as floral.

### 5.2 Facades during early 20<sup>th</sup> Century

In the beginning of the 20<sup>th</sup> Century, there was less modification in the facades but later, this phase shows a shift in functionality within the shop-cum-houses reflecting on to the facades. In the earlier phase, the balconies began to be covered with less of wood and more of iron trellis. The posts were still of wood but the structures show the replacement of wooden lowers on top with iron trellis. This was straight horizontal members with no ornamentation. The patterns in the railing also show variation, the dense geometrical patterns now were replaced with more organic and floral patterns. At times these showed figures of Gods as well.

The parapets on the terrace began to move from perforated brick wall to ornamental solid walls (Figure 9). The various structures show how these were being experimented in profile. The walls were made flowy at times and in some, the height variations were created at the crown.

The windows in this phase were elongated and made a noticeable difference to the façade. The window frames were basic but door patterns show variations in different cases. The exterior plaster was kept basic and plain. Few facades have



additional flutings and plastering around the windows and doors.



**Figure 9.** A shop-cum-house from early 20<sup>th</sup> Century with ornamentations



**Figure 10.** An ornamented shop-cum-house from early 20<sup>th</sup> Century

The upper floors or the residential areas began to lose the balconies towards the middle of the 20<sup>th</sup> Century and instead the rooms were protruded out towards the street (Figure 10). This provided more space in the interiors. The windows of the rooms now opened straight out on the street below. These windows were wide and less ornamented but it had elaborate pilastering details. The pilastering was done around the window profiles and on the edges as well as flat surfaces of the structure. These pilastering motifs were organic as well as geometrical. The floral patterns along with geometric borders—there was a new method of expression found in the pilasterings on the decorative entrances in some of the constructions. The motifs of wall decoration with flowy fabric, floral motifs and birds and animal caricatures were most common. We see examples where the motifs of Gods are inserted in the railings and parapets. The facades during this period had prominently placed religious motifs. These symbols were found on largely Hindu and seldom Sikh occupied residences.

### 5.3 Facades during mid-20<sup>th</sup> Century

With the loss of the balconies, the exterior walls were exposed against the harsh climate. The elements on facades that developed as solutions were the shading devises (Figure 11). These were the horizontal or vertical sleek slabs protruding out and running through the façade; or at times free-standing elements supported on the projection on the ground floor to those on the top floor. In some of the examples, the windows alone had horizontal and vertical shading devices.

The facades in this phase can broadly be categorized into

two types;

- i) more elaborate and decorative facades
- ii) facades with climate responsive elements

The facades during this phase, show more climate responsive architectural elements particularly the shading devices. The fenestrations had horizontal sun shades over and below the windows. The ventilators were mostly visually separated from the windows due to these shading devices. The window frames had patterns mostly geometrical and some showed the art nouveau influence. Perhaps, there are many examples where the window frame was more decorative and geometric in shape. The ventilators were now perforated and ornamental with geometric patterns or patterns inspired from natural motifs particularly the Sun.



**Figure 11.** Shading devices seen on the front facade of a shop-cum-houses

This phase shows a shift from functionalism to pluralism. The facades of certain shop-cum-houses shows high ornamentations while the others still follow the functional approach to façade treatment focusing on the basic structure and shading devices.

## 6. CONCLUSION

The characteristic features of 19<sup>th</sup> Century are based on two primary principals, namely: The use of new construction materials and the use of various historical styles. With the Industrial Revolution in Britain, iron and glass had become the new construction material [28]. The structures in these Colonial Cantonment towns show the prolonged influence of the same. Iron girders were used as construction material to support the timber joists in the roof. Iron brackets were commonly used to support the balconies and the roof of balconies. The railings were made out of fine geometric patterns in iron. The other popular construction material was the coloured glass. The coloured, textured glass generally used in small sizes, in the doors and ventilators was a good solution

for aesthetics, privacy and light in the interior spaces. The use of glass in the buildings here, particularly the *havelis* and shop-cum-houses gave it a character and aesthetic appeal.

Unlike the West, the use of timber was not ceased [29]. Rather well seasoned timber continued to be an important structural member for supporting the roof slabs. Timber was also seen as a material for aesthetics. The timber carvings around door frames are found in the early constructions. Later, timber was used in minimalistic sections to rightly represent the Modern style.

While the use of exposed brick as the skin of structures was popularizing in the later part of 19<sup>th</sup> Century, certain structures in these Colonial Cantonment towns, are found to follow the trend. Although this style did not popularize in these areas. In the 20<sup>th</sup> Century structures, the patterns and motifs on the parapets, boundary walls, ventilators etc., reflect the influence of the art nouveau movement. These were mostly influences from patterns of sun, phases of moon and waves. The local influence of religious demonstrations, lead to the use of holy symbols as well. The middle of the 20<sup>th</sup> Century sees shift from factionalism to pluralism with a mixed culture of having ornamented facades and basic functional facades. The financial condition can be counted as a force driving to the selection [30].

From the above discussion, it is found that the *Sadar Bazaar* areas of Colonial Cantonment towns are true cases of historic quarters worth studying the evolution of architecture. They need to be considered as a typology and conserved accordingly.

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