Windows: A Source of Ventilation in Islamia College Buildings

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Abstract

Window is an important element of building used to achieve the ventilation, light admission and view. The size, style and material consider the architectural movements. Islamia College Peshawar, an architectural heritage, represents best utilization of architectural elements in a balanced and proportionate way. Windows play a very significant role in the setting of Islamia College's architecture. Four different styles of windows are built in Islamia College buildings: Arched windows, Screen or decorative windows, rectangular windows and ellipse shaped windows. These windows are added for provision of natural light, ventilation and view.

Keywords: *Islamia College, arched windows, ellipse shaped windows, architecture*

Introduction

The Islamia College Peshawar buildings are one of the architectural heritage of Colonial period. It is one of the oldest educational institutions of the Country founded by Nawab Sir Sahibzada Abdul Qayyum and Sir George Roose-Keppel in 1913 (Imrana, 2016; Muhammad Ayub et al., 2013). The College building represents the amalgam of Mughal and Gothic architectural style. In Islamia College Peshawar buildings' architectural symmetry is well achieved by placement of doors and windows. These elements not only help in the architectural setting of buildings but also add in availing best ventilation, light admission and view.

Windows are the most important element and one of the most significant components in shaping the character and façade of the building (Ching, 2014). They are an aperture in the wall or in the ceiling of a building. The main functions and performance of windows are ventilation, view, entrance of daylight and sunrays, heat insulation and condensation,

sound insulation and decoration. They are usually installed in a manner to add up in the architectural embellishment and symmetry of a building (Imrana 2016).

Aim of Study

Records of historical buildings are not only significant in their own right as accounts of declining heritage and culture but also because they document the architectural periods and styles of a specific time period. In this context very little documented record has been found on the architecture of the Islamia College building. A preliminary study on Islamia College building by Muhammad Ayub et al. (2013) has based on the conservation of the College building. The scope of their work includes, repair and rehabilitation of the domes, deteriorated arches of reception hall and roof treatment. Their work demonstrated the significance of conservation of historical buildings and also defined the methodology adopted in the conservation work. However, the study does not address the architectural styles in reference particularly the window styles adopted by its initial builders.

Therefore, the present study aims to present a brief analysis of the historic windows of Islamia College Peshawar to highlight the architectural style and designs of the windows. The study examined the window types, material, adopted style, sizes and their installment with accordance to purpose of the lodgings or rooms. For this purpose this study selected the windows of Main College Hall, the College Mosque, hostels and offices.

Historical Background

Conventionally windows were used for two purposes: ventilation and illumination (Matus, 1988). But along with that they also serve numerous other functions that add a lot to the impression of a building and the ease of its occupants. These functions include the view, outside sounds, communication and simply being aware of the outside surroundings (Ching, 2012). Window openings have a long history of their development. Differences in climate, culture, materials and structural methods have always played a vital role in determining the size, style and treatment considered suitable at any specific

time as well as corresponding to architectural movement fashion and traditional skills (Chudley & Greeno, 2008).

In prehistoric times caves were selected with openings towards sun. It showed the importance of light and ventilation. Early cave paintings also show windows images. Light was probably admitted through pipe holes in the walls and roof vaulting (Fletcher, 1975). Cave paintings had also shown images of early windows. Architecture of Ancient Egypt and Western Asia show small openings or incisions because of the religious and ceremonial reasons and to keep the interior cooler. As the sunlight is the vital requirement in any space so the day light was admitted through roof incisions or through pierced stones grills in clerestories found between the outer and inner rows of columns (Beckett, 1974). In ancient Greek the rooms were built around a courtyard which totally vanish the construction of windows in their architecture, since each room was lighted by a door to the central, row of columns in the courtyard (Friedman, 1995). In early Gothic era the windows remained comparatively small as a Romanesque style but later the vertically elevated windows were developed with the emergence of a new type of architectural system. In England and France window's size was large due to the adaptation of pointed arch and development of Gothic vaulting. While, in Europe the appearance of larger windows coincided with increasing facility in the art of colored glass making and decorating. Later in Gothic architecture the use of uncolored thin glass made the interior space lighter (Beckett, 1974).

Windows in Islamia College Buildings

Windows play a very important role in the setting of Islamia College's architecture. Similar to the colonial windows that were placed nearest the exterior wall surface, resulting in a deep interior, the same style is adopted in this construction (Imrana, 2016). These windows are symmetrical on the exterior and interior. Following Four different styles of windows are built in the College buildings:

- Arched windows
- Screen or decorative windows
- Rectangular windows

- Ellipse shaped windows

Table 1: Windows Styles used in different areas of Islamia College Peshawar Buildings

Areas	Width of Windows	Height of Windows	Type of Windows
Mosque	4.'0"	6'.0"	Arched Shaped
Ross Keppel Hall	4'.0"	8'.0"	Arched Shaped
Class Rooms	4'.6"	7'.6"	Arched Shaped
Class Rooms	9'.0"	8'.0"	Rectangular Shaped
Offices	2'.6"	4'.6"	Arched Shaped
Front Façade	2'.6"	4'.6"	Arched (Decorative)
Hostel	3'.0"	4'.0"	Ellipse Shaped
Collegiate School	4'.0"	5'.0"	Ellipse Shaped
Residential Area	4'.0"	5'.0"	Ellipse Shaped

Arched Windows

In Islamia College buildings arched shaped windows are used in the College mosque, Roos Keppel Hall, offices and class rooms creating an exciting and spacious effect in the area. They are casement type of windows having hinges on sides. All the windows have double panes (Plate 1). They open in inward direction, inserted with small glass panes through which light and view can be obtained and when opened provide full ventilation as well. Each window is divided into two parts: the lower part is rectangular in shape with the two sash panels which can be opened while the arched shaped upper part of the window has fixed glass panes. They are used in the lower portion of the hall. Size of these windows is 4ft in width and 8ft in height as shown in (Table 1). Same type of window is provided on the upper portion of the hall as well (Imrana, 2016).

In the College mosque arched shaped windows are added in prayer hall. They are installed with glass panes. Same type of arched windows were used in other places of the

buildings but with the passage of time and due to the changing requirements and need of the institution the outer look has been changed.

Screen or Decorative Arched Windows

Windows with decorative edging at the top is another style used in the building to add beauty in the exterior. The cut work is made by bricks. The brick mullion and brick edging at the four sides of window is used. This gives a frame and depth to the window and also helps in protecting the interior spaces from direct sunrays and rain (Plate 2). They are created in the center of blind arches. The size of these windows is 2.6ft x 4.6ft. The same window style is used in library area. These windows are added at the front edges of eastern and western block of main building and library (Imrana, 2016).

Towards the south of eastern and western block, windows are created for the ventilation of small rooms creating a symmetrical balance. On the pillar towards the west side another similar type of window frame is added. The space is filled with fret work of clay brick material and from the back the window is covered with bricks. The main purpose of this window is decoration.

Rectangular Windows

This is the most general type of window. These windows are larger than arched windows used in the building. These are wooden frame windows in rectangular shape. These windows have three parts: 1) upper part consists of three ventilators; 2) the middle part has four panel sash casement style window and 3) the lower part has fixed glass section, giving the central part an elongated look (Plate 3).

These windows are used in recreation center and class rooms which keep them well ventilated. To create cross ventilation in the interior, windows are placed opposite to each other. In educational buildings such kinds of window placement not only keep the interior well ventilated but also provide light and give the interior a spacious look. The windows are placed to create symmetrical balance in exterior facing. Grills are later on added to the windows.

Ellipse Shaped Windows

Ellipse shaped windows are frequently used in the rest of the Islamia College buildings such as hostels, residential areas, library and academic blocks. In these windows the top edge of the wall is in ellipse shape although the window frame is rectangular (Plate 4). The remaining area at the top is plastered. These are casement type of windows with two panes inserted with glass. In hostels these windows are grilled at the exterior wall for security and protection. These windows are also added with wire gauze.

Supplementary or additional windows are installed in the arch spaces to enclose the area for different purposes (Plate 5). These windows are supplemented with metal grills and wire gauze. Steps show that originally it was an open space and now one of the arches is used as door way and the other as window.

Some of the hostel façades are enhanced by adding a *Jahroka* type of bay window commonly used in Mughal period and in the *Sethi Houses Peshawar*. They are provided in warden lodges right above the main hostel gates. These wooden *Jahrokas* are extended outward and supported by iron brackets. The whole structure is divided into three parts: the center and the two sides. All these sides can open fully (6a and b).

Discussion

The excellence of windows in a building is considered by the use and comfort they give to residents of the building and the confrontation they have to decline (Benjamin, 1975). Comfort involves characteristics like utility, natural light permissible in the building which depends on the number and size of windows, and the heat that is permissible to enter the building due to the windows. Research has shown that at least 20% of the wall space should be occupied by windows for ease and practical working environment (Fitch & Bobenhausen, 1999). They further state that insertion of glass in windows provides optical as well as psychological relief from "a highly structured and unnaturally monochromatic experience" (p.116). Provision of these facilities helps in better feeling and production of better work. In buildings used for educational purpose, natural light is far preferred over artificial light. Windows of Islamia College, in every area are well

provided in terms of light admission, air circulation, view and overall psychological effect of brightness.

Conclusion

In Islamia College's buildings the Pointed Gothic style and Ellipse Shaped windows are used. These pointed style windows are installed in the main Islamia College building to add symmetry with the pointed doors and arches. These pointed windows are either built in wooden panels with glass insertion or screen windows for decorative purpose. Rest of the Islamia College's buildings are added with ellipse shaped windows.

References

Ayuba, M., Alib, Q., Shahzadab, K., Naseerb, N., and Shoaib, M. (2013). Conservation of Islamia College Building in Pakistan. *Procedia Engineering 54,* 465 – 471.

Beckett, H. E. and Gosfrey, J. A. (1974). *Windows Performance, Design and Installation.* Crosby Lockwood Staples*:* RIBA Publications Limited.

Fitch, J. M. and William Bobenhausen. (1999). *American Building: The Environmental Forces that Shape it.* New York: Oxford University Press, Inc.

Friedman, D. (1995). Historical Building Construction: Design, Materials, and Technology *(*2nd ed.). W W Norton and Company, Inc. New York.

Benjamin, A. (1975). *Elements of Architecture*. Da Capo Press Inc.

Ching, Francis D.K. (2014). *Building Construction Illustrated.* (5th ed). John Willey and Sons. Inc. New Jersey.

Ching, Francis, D. K. (2012). *A Visual Dictionary of Architecture.* (2nd ed.). John Willey and Sons. Inc. New Jersey.

Chudley, R. and Greeno, R. (2008). *Building Construction Handbook.* 7th ed. Elsevier Ltd.

Imrana, S. (2016) Archetictural and Decorative Features of Islamia College Buildings Peshawar. Ph.D. Dissertation. College of Home Economics, University of Peshawar

Matus, V. (1988). *Design for Northern Climates*. New York: Van Nostrand Reinhold Company.

Fletcher, B. S. (1975). *History of Architecture*. (17th ed.) Athlone Press London.

Figures

Plate 1: Islamia College Peshawar, Arched Shaped Windows

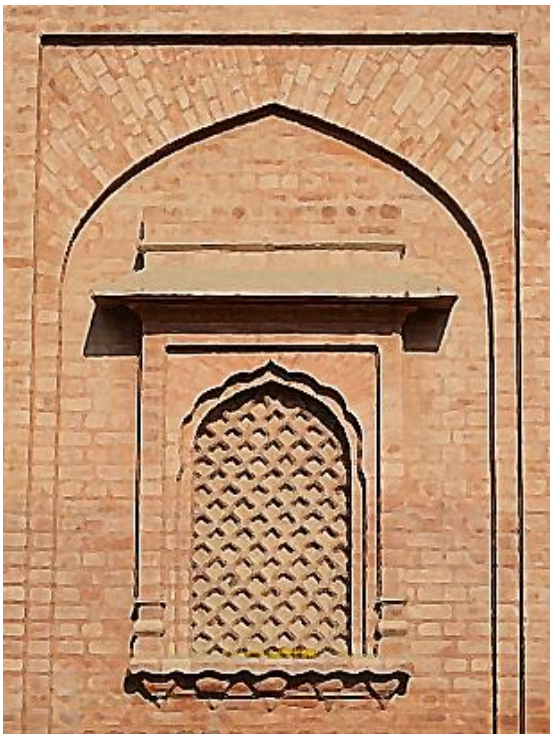

Plate 2: Islamia College Peshawar, Arched Shaped Decorative Window

Plate 3: Islamia College Peshawar, Rectangular Shaped Window

Plate 4: Islamia College Peshawar, Ellipse Shaped Window

Plate 5: Islamia College Peshawar, Supplementry Window

Plate 6a: Islamia College Peshawar, Jharoka window of the hostel (Outer View)

Plate 6b: Islamia College Peshawar, Jahroka window of the hostel (Inner View)