



TRACING THE ORIGIN OF JHAROKHA WINDOW USED IN INDIAN SUB-CONTINENT

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ABSTRACT

The Jharokha is a distinctive feature of the architecture of Indian Sub-continent of medieval times. The study of the built heritage features is a way to discover and know about the old culture and society. A Jharokha is an oriel window projecting from upper storeys of a building used in medieval Indian architecture. Jharokha window projecting from the wall face of the building in an upper storey overlooking a street, market or any other open space. This study aims to trace the origin of traditional Jharokha window used in Indian subcontinent. In order to do it, the available data and literature have been carefully reviewed and studied to draw inferences. This study shows that the trend of a protruding window similar to Jharokhas seems to be present in different regions with their regional architectural flavor. The Indian architecture has influenced by various empires, and a lot of external influences came to this region because of the trade route. The external and regional influences have been studied to investigate the Jharokha window origin and form. The 3rd century BC balconies in Mauriyan Empire seems to amalgamate with the windows of Islamic architecture and developed finally into a local window form in the shape of Jharokha. The style and features of Jharokha vary concerning the local material and techniques available. The different era and different regions adopted this window form according to their own needs and aesthetics.

KEYWORDS:

Jharokha; Indian Architecture; Oriel Window; Mashrabiya; Rawashin;

INTRODUCTION

The objective of this study is to trace the origin of traditional Jharokha window used in Indian subcontinent. It is an effort to explore the vernacular architectural feature. The beautiful ornamented historical houses, *havelis* and palaces are gems, which contain significant architectural features. The study of a single traditional element of Jharokhas in traditional dwellings, *havelis*, and other buildings give us a lot more information about traditional architecture and the lives of people of the past.

Jharokha is a decorated fenestration used in the Indian subcontinent. The definition of Jharokhas varies slightly in different architectural glossaries and encyclopedias. Jharokha is an architectural frame for the appearance of the emperor, but in houses, its use is as cantilevered balcony, its conventional shape is that of an overhanging oriel window supported by brackets or corbelling. A Jharokha is a type of overhanging enclosed balcony used typically in Mughal architecture and Rajasthani architecture and later used a lot in Indo-Islamic residential architecture.

Jharokha is a jaliied stone window projecting from the wall face of the building in an upper storey

overlooking a street, market, court, or any other open space. It is supported on two or more brackets, or corbelling that has two pillars and two pilasters or balustrade and a cupola or pyramidal roof, technically closed by jalis but generally partly open for inmates to peep out to see passing processions [1].

Gill et al. have researched Jharokha window, but it was specified only about the glazed tiles on it [2]. Al-Murahhem also did the investigation, but it was just about the construction [3]. Kaur did the same thing but only talked about the role of the window in providing light and natural ventilation [4]. None of those researchers studied the origin of the window so that it will be the focus of this research.

METHODOLOGY

This current research investigated regarding the possible origin of this specific window form and how it was opted and used in Indian Sub-continent. It is impossible to trace and map all the jharokhas so for this particular study Jharokhas of renowned structures, and places in the Indian subcontinent are considered. This research aims to study the traditional Jharokhas types and the variation within different era and

regions. It is an effort to explore traditional architecture. The conventional ways of thinking and buildings were much better than the present day. We are unaware of our very own traditional living pattern, material, and even traditional consideration while building.

The available data and literature have been carefully reviewed and studied to draw inferences to trace the origin of the window form. The projected bay window has been used extensively in different regions though not precisely similar to Jharokha but having a lot of similarities. The external and regional influences have been studied to investigate the Jharokha window origin and form.

TYPICAL STRUCTURE OF JHAROKHA WINDOW

The form and features of Jharokha window vary from district to district and even from one house to another in the same vicinity depending upon the taste of the resident. Some of the parts are standard in all Jharokha while others elements are additional and optional making one Jharokha different from another. A typical section of the Jharokha used in sub-continent is given in figure 1.

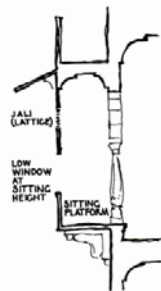


Figure 1 A typical section through Jharokha window [5]

The Jharokha is divided into three parts, i.e.:

- The base or support under the platform in the form of bracket or corbelling
- The platform and the elements it holds
- The canopy or pyramidal roof at the top

USES OF JHAROKHA WINDOW

Jharokhas used to protrude forward from the wall plane. It could be used both to enhance the aesthetics of the building itself or for a specific purpose. One of the most critical functions that could be found in old times, the window could provide privacy that allowed women to see the events outside without being seen by others. In Palaces, these windows could also be used to position archers and spies.

Jharokha is using due to

- Aesthetic appearance
- Climatic aspects
- Elevation treatment

The Jharokha window is not merely an aesthetic element; in fact, it also caters the function of privacy and had a thermal benefit over another kind of windows. The earlier constructions of the houses were kept as in

they used to provide natural heating & cooling with cross-ventilation. The jaalis and Jharokhas are not only for privacy and decorative purpose but also for ventilation. The Jharokhas acts as climatic moderator allow ventilation and restrict direct sun into the interior.

The main reason behind using Jharokha seems to be climatic as it protects the structure from direct sunlight and allows air to enter the main space. This fenestration used in hot and dry climate zone. The surface exposed to the sun minimized by repetitively using this element. The outer façade of the building used to be a layer with this kind of projecting overhang, jaalis and small openings in it works for ventilation purpose — the outer layer heated in the daytime and radiant heat back to the environment. If there are no layers to protect the building, it heats up because of direct sunlight into space. However, organizing secondary areas adjacent to outer layer it acts as transitional space, keeping the comparative coolness inside the primary spaces. The Jharokha not only protect the building envelope from direct sunlight but also provide shade to the area underneath. It is because of its form that no direct sunlight can enter into the building [4].

Batool mentioned Jharokha in passive techniques used to maintain thermal comfort in traditional buildings in Lahore. She elaborated that in detail that the traditional buildings sustained thermal comfort through architectural elements like jalis (screens), verandas, jharokhas (balconies), fountains, plants, chajjas (overhangs), courtyards and basements. The windows were unglazed but covered with jalis (screens) and opened into jharokhas (balconies) that allowed ventilation but prevented direct glare. The filtered amount of light able to enter into the building envelope [6].

ORIGIN AND INFLUENCES (JHAROKHA WINDOW) BALCONIES (MAURYAN EMPIRE)

There is no clear evidence of the origin of Jharokha window which tells when and where it is used for the first time. The balconies are used in Mauryan Empire in the third century BC as shown in figure 2, which comprise of western and northern India. The Jharokha window may be an extended form of these balconies.

In many glossaries, it is defined as a feature of Hindu architecture that is used extensively in Mughal architecture derived from Hindu architecture. It is a protruding balcony supported on corbels, with a hood placed on columns [7][8].



Figure 2 Multistorey structures and balconies during Mauryan Empire, 3rd century BCE

However, the Jharokha window seems to evolve and known in medieval times accurately. The influence the Mughal had on Indian architecture cannot be denied. They combined various Persian and Indian features in their buildings and developed a very refined style of architecture [9]. Jharokha might be one of that local feature which is highlighted after they used it in their grand structures.

JHAROKHA DARSHAN (MUGHAL EMPIRE)

There is no clear evidence regarding whether the Jharokha window used in residences originate from Jharokha Darshan or not. But it seems that from emperor palaces and houses, the Jharokha reaches to the people residence and then to the public homes. The Mughal emperors adopted the tradition of appearing before the balcony from the Hindu kings. It used to be a daily practice for the King of that time, where they have to look in Jharokhas to address their subjects. It was considered to be such an important tradition that no matter what the ruler has to appear and could not miss coming to the Jharokha even if he was ill. Darshan is a Sanskrit word which means “sight” and “beholding”. So it was a direct way of interacting with the audience or subject [9].

It was started during the rule of Humayun and continued by Akbar (1556-1605) and his successor until it was interrupted by Aurangzeb who put an end to it considering it against Islam. Fatehpur Sikri Akbar used to appear daily to his subjects at the Jharokha window at daftar Khana shown in figure 3(a). In New Cambridge History of India, it was said that after Humayun’s death, a person resembling the emperor used to appear at the Jharokha window in Delhi citadel till the young prince Akbar crowned [10].

The tradition was continued during the time of Jahangir (1605-27). Not only this, but Jahangir’s wife Nur Jahan also accompanied him at the Jharokha. Shah Jahan (1628-58) in his rule of 30 years never missed a single day to appear at the Jharokha. It was Shah Jahan’s failure to emerge at the jharokha during his illness in 1657, which led to rumors of his death. This ritual has put an end by Aurangzeb (1658-1707) in the 11th year of his reign [11].

In Agra Fort and Red Fort, the Jharokha faces the Yamuna, and the emperor would stand at the Jharokha to greet his subjects. At Lahore Fort, there is also a Jharokha Darshan at Diwan-i-Am as shown in figure 3 (b) used for the public appearance of the emperor. One can find different styles of jharokhas illustrated in Mughal paintings [12].

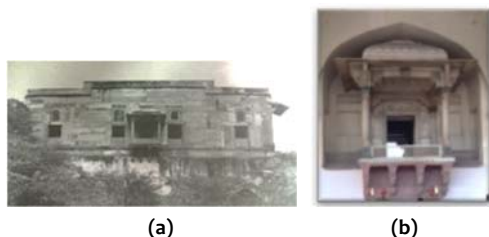


Figure 3. (a) Akbar’s jharokha, Daftar Khana, Fatehpur Sikri [13]
(b) Jharokha at Diwan-i-Am. Source: Author

Sikh rulers in their reign also opted the ritual of appearing at Jharokha. The Haveli of Maharaja Naunahal Singh at Lahore also has Jharokha window used for Emperor Darshan. The use of Jharokha in emperor’s residences and Havelis in earlier 19th century seem to lay the foundation of using Jharokha in houses of ordinary people.

RAWASHIN (MIDDLE EAST)

The oriel window can also be seen in the middle-east region. We also find bay windows having similarity with Indian Jharokhas in Arab architecture. The trend of the protruding window seems to be present in that era in different regions with their regional architectural flavor.

In Saudi Arabia, Rūshān is the name given to a projecting oriel window enclosed with carved wood latticework in this region. Al Rawashin, singular (Roshan) meaning is the planned wood cover for windows and exterior openings and carried on brackets of stone. It is a word of Persian origin, meaning the place permeated with light and it is the wooden structure, which is a crucial element of the building. It is a structure made of wood, and its units are decorated either floral or geometrical patterns as shown in figure 4 (a). Often this structure is cover with the upper floors of the building’s facade. Al Roshan has two functions main function that is useful for ventilation, lighting, and privacy of vision and aesthetics decorate the facades of the buildings [14].

Roshān is the projected wooden window in large cities in the Hijaz region of Saudi Arabia, Sudan and Egypt. Roshan is an old term for this kind of projected windows used in most of the traditional Muslim architecture. In the Mamluk era (1248-1516) the term “Roshan” was used in planning and building regulation documents of the Islamic cities. In Cairo, during this era, this type of window was flourishing under Islamic architecture. The Mamluk controlled the trade between India and Venice for more than 200 years. The trade route was considered as the domain between Egyptian and the Indian subcontinent, where according to some scholars experiences between artisans may have been exchanged as well. It might be possible that is how the concept of projected windows in Indian regions where it is amalgamated with the Hindu traditional feature of balconies [15].

Roshan is an old name and later the oriel wooden projected window named as Mashrabiya and shanshūl based on their use in different regions. This type of window used to be located on the second storey of a building or higher and lined with stained glass usually. It is mostly used on the street side of the building; however, it may also be used internally on the *sahn* (courtyard) side. The use of this specific window internally as well as externally is such a striking common feature of both Roshan and Jharokha window. It can assume the window feature and influence may travel along some Muslim invaders to the Indian subcontinent. The window is not just the only standard features between these regions, the central courtyard element

and many other features strongly depict the link and influence that used to be travel between these areas.

One of the main concepts of using Mashrabiya window was that it provides veils from the outside world and maintain privacy behind their cool shield of latticework [16]. These types of windows and the internal spaces created by using such windows were also considered as a private space for women whose need for privacy in older cultures. Another purpose and function of Mashrabiya are that from which it derives its name, and it was used to cool water and act as a screen in old times. The word "*mashrabiya*" comes from an Arabic root meaning the "place of drinking." The water placed inside porous clay pots was cold by the shade, and the open lattice of a Mashrabiya provided a constant current of air. It was the time when there were no mechanical means to deal with temperature and climatic condition. It acts as a window, curtain, air conditioner, and refrigerator at the same time. It was so intelligently designed that it was not only used to cater the strong desert sunlight but also cooled houses, water, and people in lands from India to Spain where, at certain times of the year, people hide from the sun as others seek shelter from the rain. A typical Mashrabiya window has been shown in figure 4(b) [17].

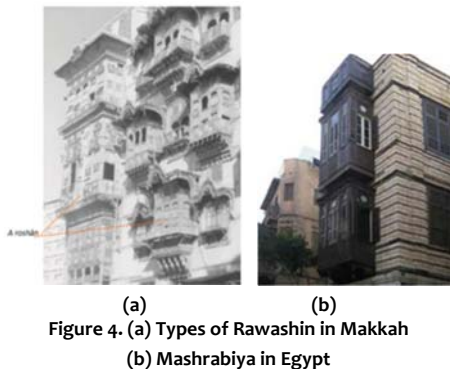


Figure 4. (a) Types of Rawashin in Makkah
(b) Mashrabiya in Egypt

The projected bay window also found in Iraq, Iran, and Lebanon too with their significant cultural influences in its form. It seems that with Muslim invasions and trade route the tradition of Rawashin or the Mashrabiya came to Indian architecture as Jharokhas. The critical function of this kind of window is privacy, and it is the basis of Islamic teaching as well. In the Islamic way of living privacy, it is the main characteristic feature in the house planning. The focus is to make a place that is private and secure from the outer world and open inwardly. The women are asked to observe *Pardah* (veil) from non-family members, and it is advisable to enter with permission of the owner prior coming into their place of residence. The element of Mashrabiya, Rawashin, and *Shanasheel* served well the purpose and concept of privacy in Islam. This kind of bay window and courtyard planning in residential structures found in numerous Islamic regions. The basic idea behind using the elements are same but often implement with the local cultural art influences.

Jharokha used in Indian sub-continent also

seems to be an extension of the same Islamic philosophy, though its form seems different regarding its decorative carvings and features. The Jharokha window is not an extension of the form of the window used in Islamic regions, but its conceptual idea seems borrowed from the Rawashin or Mashrabiya. Jharokha window has significant local and regional elements, which shaped its form that is unique in its way.

ORIEL/ BAY WINDOW (EUROPE)

An oriel window is a window or set of windows which arranged together and protrude from the face of a building. They are braced and supported underneath by a bracket or corbel. The Jharokha window seems an extension to the oriel window with regional cultural influences. The protruding form of the window at the upper floor of the building is a similar characteristic feature of both Jharokha and oriel window. An oriel window is a type of bay window originating during the Middle Ages in Europe and the Middle East as shown in figure 5. This type of window may have developed from a form of the porch—*oriolum* is the Medieval Latin word for porch or gallery. The oriel windows are designed and used to catch the movement of the sun, capturing light and bringing fresh air into Medieval architecture. One of the advantages of using bay windows is that it expands the interior living space without changing the footprint of a building. The silent features of oriel window are also quite similar to the Jharokha window:

- Project from the wall
- Does not extend to the ground
- Supported by brackets or corbels, often very ornate, symbolic, and ornamental in Medieval times
- Usually on upper floors



Figure 5. 16th century oriel window in the City of London

JHAROKHA OF INDIAN-SUBCONTINENT

The pre-partition India, which is ruled as one large state under Mughal and afterward has numerous structures decorated with beautifully carved Jharokhas. It is beyond this study scope to summarize all the buildings with Jharokhas in India or Pakistan through this research tries to trace down the historical background by covering some of the jharokhas built in the same era in different regions. The Jharokha windows and *bukharcha* were used continually in different periods in India. This kind of projected windows is used in almost whole India with some regional influences irrespective of the fact that they developed under the

Mughal, Rajput or Sikh emperor. Some Scholars quoted that Muslims incorporated the architectural element of the balconies in different regions. In the Sikh Architecture too balconies and windows can be seen in many residential and religious structures. Jharokhas were used at significant religious structures as well. The Wazir Khan Mosque located in Dehli gated, walled city Lahore is one of the oldest structure exist to date with jharokhas. It was built in seven years, starting around 1634–1635 AD, during the reign of the Mughal Emperor Shah Jehan [18].

There is two rectangular Jharokha at both sides of the entrance as shown in figure 6. They supported by the four concrete brackets and has a square projected roof. The Jharokhas also decorated with glazed tile similar to the entire mosque decoration. The canopy domes at Jharokhas has two finials each. Some scholars also relate the finials with the regional Indian architecture, which is opted by Mughal in their buildings at the domes or canopies.



Figure 6. Jharokhas at Mosque Wazir Khan
Source: Author

In the Mughal era, Jharokha is used for Darshan in forts and as a projected balcony on various buildings. Usually, the Jharokhas are associated with Rajasthani architecture because of some significant havelis with jharokhas that are built there in the late 18th and early 19th century.

In Rajasthani architecture, the projected balconies and jharokhas were an essential and typical element. It was used both as decoration and as a viewing platform. They are the type of open bay windows which consist of pillars or pilasters supporting the cupola or a pyramid roof and have Jalis made in wood or stone. These jalis perform three functions. Firstly, it allows sufficient light and air to enter into the room; secondly, the carvings on it gave it a decorative look from the exterior; and thirdly, one can peep into the streets without being seen, especially the Muslim women cherished every moment of sitting at the Jharokha who were not allowed to move about the road without the purdah. One could sit on the Jharokha and see passing processions, tamasha or just the market scene below [4].

In western India, Jharokhas were mainly used in Palaces, Havelis and Temples. Because of the latticework in its pane, they brought filtered light into the indoor space. It brings channeled cool air through its openings and jalis, thus catered the climatic conditions of Rajhistan area where weather used to

be harsh, and the air was dusty. The entire façade of havelis and temples used to be covered by projected windows and platform, so direct sunlight cannot be entered into the building. The typical jharokhas used in Havelis and Mahals of Rajhistan are shown in figure 7. The architecture of the Jaisalmer area is referred to as Indo-Islamic architecture. It has many Mughal features used with local architectural styles. According to the significant development of Jaisalmer area started during the reign of Mughals where after an initial fight with Humayun, the Bhattis maintained a cordial relationship with the other Mughal kings including marrying them with their daughters. It might be the reason of cross-cultural influences in art and architectural forms of western and northern India among Mughals and Rajputs [19].

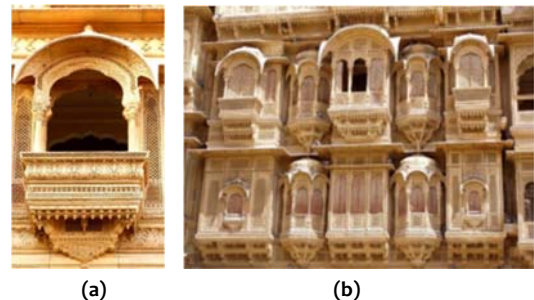


Figure 7. (a) Jharokha at Haveli at Jaisalmer (b) Jharokhas of the Patwon-ki-Haveli, Jaisalmer

The Jharokha form of the window used extensively in Jaisalmer havelis in the same period simultaneously it started using in Northern Indian regions.

The Haveli Zeenat Mahal at Dehli built by last Mughal emperor Bhadur Shah Zafar for a parental family of his wife Zeenat in a mid 19th century [20]. Though currently, it is dilapidated, the beautiful jharokhas are still intact. There are two rectangular jharokhas at each side with the entrance at the center. Each Jharokha is supported on four brackets and has a cusped arch with decorative motif at spandrel. The Mughal features are very obvious in this form of Jharokha.

The link of Delhi with Lahore cannot be undermined as both cities developed and flourished during the Mughal reign. In the Lahore region, there is no Mughal residential structure left to study its features. The Zeenat Mahal with Jharokhas shown in figure 8 gives the clear indication that Mughals initially used this tradition of using Jharokhas in their buildings and later continued in the form of projected window in Sikh architecture as well [21].



Figure 8. Jharokhas Zeenat Mahal, Old Dehli

Haveli Naunihal Singh at Lahore was erected under the patronage of Maharaja Ranjit Singh as a private residence for his grandson, Naunihal Singh. Haveli Naunihal Singh is the only preserved Haveli of Sikh period in Lahore. The Haveli is a lofty colorful structure with beautiful protruding Jharokhas. It has four Jharokhas at the front side, three with the configuration of a larger one at the center and smaller at sides at first floor as shown in figure 9. The central Jharokha which assume to be Jharokha used for Darshan is above the main entrance and is the largest one. The central Jharokha is as large as the entrance underneath. It has five panes and a deformed semi-hexagonal shape. Jharokhas from palaces and emperor's residences reached nobleman houses and Havelis and later to common man people houses in the late 19th century to the earlier 20th century.



Figure 9. Haveli Nau Nihal Singh

CONCLUSION

It can be concluded that the Jharokha window of sub-continent originates as a by-product of regional and external influences. The 3rd century BC balconies in Mauriyan Empire seems to amalgamate with the windows in Islamic architecture and developed finally into a local window form in the shape of Jharokha. The utility and functionality of using jharokha have the same concept of privacy for which bay windows were used with latticework in the gulf area. It shows how the architectural influences, philosophies, and elements travel to different regions through trade and invasions.

The form and features vary concerning the local material and techniques available. The aesthetics of different region also differ significantly so as the detailing of these Jharokhas. The jharokhas of Rajasthan are different from Jharokhas of Lahore. The different era and different regions adopted this window form according to their own needs and aesthetics.

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