

The Reasons of Entrance Axis Change of Religious Buildings in Isfahan: A Case Study in Sheykh Lotfollah Mosque

Abbas Alipour¹, Tahereh Pournasir²

¹Assistant Professor, Agriculture and Natural Resources Research Center of Mazandaran, Iran;

²MSc. student of Architecture, Rouzbahansari Institute, Iran

Abstract

What is important about entrance is the effect of this atmosphere on the circumference physical environment. The reasons of the change of entrance axis of religious buildings in Isfahan are the main objectives of the current study. For detailed analysis, we chose some religious buildings of Isfahan so that they could be a background for further studies. Descriptive analytical approach is used as the research method in this study which analyzed designed environments for entrances and the backgrounds of the buildings. Results show that the Rotation and curvature of the entrance corridor of mosques in Isfahan is not only for importance of Qibla, but it might be for prayers to see a shining spiritual place after passing a Narrow and dark corridor into the praying place.

Keywords: axis change, rotation of entrance gate, traditional architecture, religious buildings, Isfahan

Introduction

Entrance environment is more important than other elements of a building and it has Special Privileges too. Besides the main function as a visual and Conceptual Communication space, it is a Space Interface between a building and urban environments. An important point about Evolutionary process of designing entrance environments is that in the beginnings these environments consisted of one environmental element called (Dargah). But gradually and after a historical process it increases to seven elements (Jelo khan, pish taq, dargah, dalan, eyvan and sabat). Therefore, the entrance is not only a communication environment but it has social- cultural functions as well. Many of the entrance environments have not been designed only to meet simple needs but social- cultural and behavioral- moral patterns had important effects on them. Entrances have been designed based on different patterns such as easy or difficult accesses to interior spaces, making connection between huge and public buildings with urban spaces (Pirnia, 2008, p.39). One of the earliest elements in designing entrances is the look of facades specially the portico at the top of the gate. It seems that from the second half of the first century AH, some of the important buildings such as mosques were decorated. Entrances had various social concepts such as method of access, invitation type, cultures and beliefs of Iranian people which were effective and impressive in the concept of Persian traditional buildings. The art of architecture follows specified principles and it has strong connection with culture, behavioral patterns and values of the societies. That is why Architectural styles of each period reflect the art and culture of that period. The changes of architectural styles come from lifestyle changes of the societies. These architectural changes are necessary for dynamic architecture to meet new demands of the society. As it was mentioned before entrances have physical and functional roles and natural-social, religion and cultural systems of the society affect them (Honarfar, 1965. P.38).

Discussion

The changes of entrance axes are divided into two main categories. The first changes of entrance axes are happened in the way of courtyard into house of domes which can be seen in all religious buildings in Iran. The second and the rare changes are those different and drastic changes

of entrances which can be elements of new style of architecture such as (bazaar Kashan mosque, Sheych Lotfollah Isfahan, Imam mosque of Isfahan, Savarnaqi mosque of Isfahan, Rahimkhan mosque, Seyyed mosque, Roknolmolk mosque, mosque and school of Shahid Motahari and Imam mosque of Tehran). In the first category, people cannot enter to the house of domes directly through the central axis of courtyard even when the entrance is located right in front of the central axis. About the second category the change of axis is much dominant as we face the axis change when accessing to the courtyard. These two types of changes were considered by some researchers and the reason of those changes might be for keeping privacy.

To clear the subject, we can carry out a same study on houses, gardens and caravans. There are similarities between entering to a traditional house and reaching the interior space and entering and reaching the courtyard in religious buildings. But, the important point is that houses and gardens are private buildings and designing long corridors is for keeping privacy of the family but mosques are public buildings and the corridors cannot be for keeping privacy. The reason of the changes might be for coordinating the bazaar axis with the Qibla axis and the street. The buildings of bazaar are located next to each other inconsistently because of the necessity of being in direction of Qibla axis. The rotation of entrance space is to be in direction of bazaar and street axis and the Qibla. A forth arch Perpendicular to the axis of the street is designed and mosque building is located close to the forth arch in direction with the Qibla. Being in direction with Qibla can't be the absolute reason because we can enter to the courtyard through the forth arch easily and directly. The long corridor of the Shey Lotfollah mosque must be for other reasons. To understand the reasons of these changes of entrance axis in religious buildings we should study on the type and location of the entrance and its effective factors. Our main question is what is the main reason for entrance change in traditional buildings of Isfahan especially Sheykh Lotfollah mosque.

Background of the study

In past entrances were designed based on equipments, cultures and beliefs of the society. Entrance spaces in traditional buildings of Iran are very important as we can see the evolutionary process of the Iranian architecture in them (sultan zadeh 1993, p16).

To understand the basic principles in entrance designing we can refer to past works. One of the most important entrances which have both Religious and social and cultural aspects is entrance of mosques. The first mosque of Muslims was a simple building alongside a courtyard (Pirnia 1997, p.32).

The gates of early mosques were opened onto the street and the courtyard of the mosque. The mosques built by Muhammad was in direction with Mecca (qibla) and the next mosques have been built in direction with Qibla (Yilmaz, 2011,p.82)

With the increasing influence of Islam and mosques with the pattern of Muhammad mosque now we can see the entrance gate and wall of mosques have been increased. In past there was no specific place for entrance and the mosques were located at the center of bazaars and main streets. The increase of entrance gates was possibly for easy access of people to the mosques. The increase of footwork of people made mosques a social place as well (Soltanzadeh, 1993, p.34).

From the 5th century to now an entrance in direction with Qibla is considered for the mosque which is the most effective place of mosques. But centuries later in 9th century the axis of entrance gate of mosques. At that time a mosque was designed that its Qibla axis was inconsistent with the street direction and the space of mosque was located at 90 degree angle with the bazaar. This change of the entrance was the first change in an entrance gate happening in Kashan square mosque. This building belongs to Jahanshah period in the second half of 9th century AH. There have been researches on entrance gates, the effective factors the evolutionary process and Decorative elements

but there is no comprehensive research on the reasons of entrance axis changes which made the author to work on this issue.

Research questions

- Q1. What are the effective factors on entrance axis changes?
- Q2. What are the religious beliefs effects on entrance axis changes?
- Q3. Does geographical location of mosques affect entrance axis changes?
- Q4. What are the effects of adjacent streets and buildings on entrance axis changes of mosques?
- Q5. What are the entrance ways to the Iranian mosques?

Research hypotheses

- H1. The connection of adjacent areas is the effective factor on entrance axis changes.
- H2. The Geographical location of the building is the effective factor on entrance axis changes.
- H3. The Qibla direction is the effective factor on entrance axis changes.
- H4. Financial affairs are the effective factor on entrance axis changes.

Research objectives

Main objective

This study aims to find the answer for entrance axis changes and the possible reasons in traditional and religious buildings of Iran such as (Bazaar Kashan Mosque, Sheych Lotfollah Isfahan, Imam Mosque of Isfahan, Savarnaqi Mosque of Isfahan, Rahimkhan Mosque, Seyyed Mosque, Roknolmolk Mosque, Mosque and School of Shahid Motahari and Imam Masque of Tehran).

Subsidiary objective

It seems that trying to find the connections of adjacent walls and buildings of mosques can be helpful. The necessity of being in direction of Qibla coming from religious beliefs of Iranian people can be another effective factor of the changes which worth to work on. The position of the mosques to the adjacent streets should be studied because of Non-parallel position of mosques. Studying on the connections of mosques to the bazaars which is an element of traditional architecture of Iran can be helpful.

Methodology

Out research method is Analytical descriptive method which analyzes entrance axis spaces of traditional buildings of Iran (mosques) to find the reasons of the changes of entrance axis spaces. To find the answers we should a scrutiny study on the effect so that we can find the reason.

The research is carried out with studying on entrance axis changes using previous hypothesis. We chose samples which have similarities and differences and in all of them we can see the entrance axis changes. The similarities of geographical location of buildings help us to have a specific process of researching.

Description of variables

In this research, we have studied the religious factors of Iranian people such as necessity of cleanness to enter a mosque which is the house of God in Muslims beliefs and necessity of a mosque to be in direction with the Qibla. The connections of adjacent walls and streets to the mosque and their effects of on the mosques are control variables of this research and by studying on those variables we are trying to find the effects of control variable on entrance axis changes.

Statistical population

Isfahan, Tehran and Kashan are main statistical societies and the mosques with entrance axis changes are our main goals in the research, mosques such as (Bazaar Kashan Mosque, Sheych Lotfollah Isfahan, Imam Mosque of Isfahan, Savarnaqi Mosque of Isfahan, Rahimkhan Mosque, Seyyed Mosque, Roknolmolk Mosque, Mosque and School of Shahid Motahari and Imam Masque of Tehran). Most of the mentioned mosques are located in Isfahan so Isfahan is considered for further studies of this research. This research aims to provide a background for further studies on this subject.

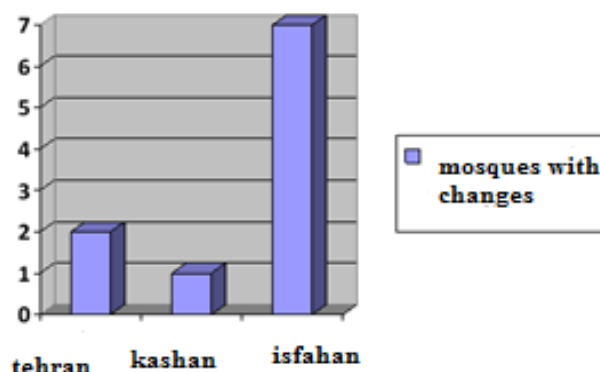


Figure 1: Cities with mosques with entrance axis changes

In selecting the society, we face two types of variables:

- a - Specific and individual traits of mosques
- b - Traits of mosques with entrance changes

In individual traits, type of entrance, rotation and type of connections are considered and in general traits of the mosques, the main axis of the mosques which is in direction with Qibla is considered to study. Our Assessment criterion is the similarities of samples.

Research tools

Our research tool in this paper is observation and observing events to the mosque's entrances and surveying effective elements on entrance axis changes such as adjacent urban streets, observing available maps and documents of the targets buildings about cultural signs. Reading books on traditional buildings of Iran.

The first step is to describe the place and the buildings and to determine the type of building material, rotation direction of the entrance and the adjacent urban streets. In this way we use maps and pen and papers to record the observations such as situation of the entrance of the target mosque.

Our results show that the adjacent streets were rotated to the direction of Qibla. In old architecture of Iran building were designed based on city climate, wind and sun direction. Based on Dr Pirnia research Isfahan is located southwards but the Qibla (Mecca axis) is south west, so the architectures rotated the entrance porch to the south west and an angle was created between the mosque's axis and the street axis. Architectures used this angle beautifully. This happened to Sheykh lotfollah mosque and imam mosque in Naghsh jahan square in Isfahan. Map tools are used to have a detailed measurement. The sale of all maps is linear as there was no map with specific scale so the most appropriate scale was linear scale.

In the following figure, the direction of city and Qibla can be observed.

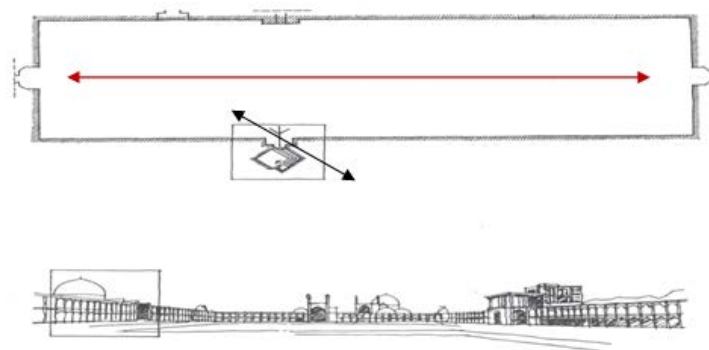


Figure 2: Naghsh Jahan square and the angle between the square and the Qibla axis

The reasons of entrance axis change of Sheikh Lotfollah mosque

- Sheikh Lotfollah mosque
- The history of Sheikh Lotfollah mosque

Sheikh Lotfollah is one of the Periphery buildings which was the exclusive mosque of Shah Abbas (Richter, 1984). It was built with direct order of Shah Abbas and it is one of the most beautiful religious buildings of the world (Soun, 2009).

It is located in east of the square. In Qajar period, it was severely damaged and it was rebuilt in Rezashah period (Jafarian, 2007, p.4). The exterior tile works is for 1916. The dome is 32 meter and it took 17 years to build (Jafarian 2007, p.5). The difference of this mosque with other mosques at that period is that Sheikh Lotfollah mosque has no courtyard and Minaret.

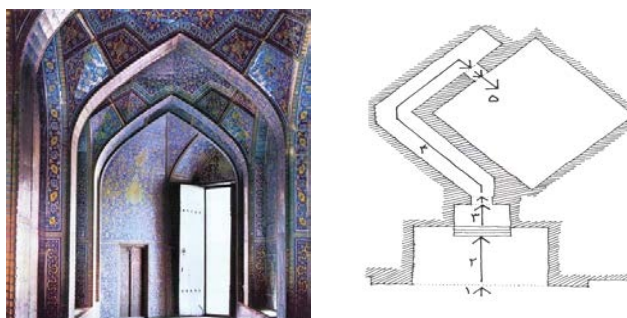


Figure 3: Sheikh Lotfollah mosque

The history

The oldest historical evidence is on a tile work in basement Bedchamber which dates back to 1011 AH. The entrance inscription dates back to 1012 AH and the inscription of the dome is for 1025 AH. The altar is for 1028 and the exterior facade of the dome shows 1917 and 1915 repairs.

This mosque is designed and built with order of Shah Abbas. The architecture was Muhammad Beza, the master of Hossein Bazar Isfahani. The Calligraphers were Alireza Abbasi and master Baqirnia and some poems of Sheikh Bahaiee and Sheikh Lotfollah can be seen on the inscriptions.

Effective historical- social factors of the mosque

After immigration of Sheikh Lotfollah to Qazvin to be immuned from Ottomans attacks Shah Abaas appointed him as the servant of Imam Reza Harem and after some years invited him to Isfahan and he built a mosque in honor of his holy father in law on the ruins of Jelokhan mosque in front of Aliqapu palace. The mosque is called Sheikh lotfollah.



Figure 4: Sheikh Lotfollah mosque

Physical changes

This building is built in 11 AH on ruins of Jelokhan mosque. In Qajar period a large part of the facade and dome and gold bars was damaged. In 1917 the facades and dome of the building was repaired based on main tile patterns. The main changes applied between 1917-1929 is as follows:

Replacing pavement with stone floor coverings, wooden windows were replaced with metal one to provide the appropriate light for the basement. There was a beautiful 8 angles pool which was always full of water and the pool was removed in Qajar.

Climate

Isfahan is a warm and dry city located in Central Plateau the city has low humid and it is the reason of Wide temperature variations close 20c. This city has warm and dry summers and cold and dry winters.

Climate traits of the mosque

With consider to height of the dome, a vertical ventilation can be applied in the mosque to create desirable air in lower part of the mosque. With the small inputs on the top of the dome, the hot weather gets out and a better airflow is created. The long shadow over the dome makes the walls and ceiling cooler. The lower floor has short ceiling and in inappropriate air conditions it can be a place for setting up religious classes.

Table 1: Considered principles in hot and dry regions

Type of materials	Type of plan	Type of ceiling	Direction	Connection to the ground	Number of windows	Using natural Ventilation	Texture	color
High temperature capacity	Compressed	Dome	South to south east	On the ground	Low	Low	Compact	Light

Building periphery

As we know mosques are located in direction with Qibla and with regard to the position of Isfahan and the inconsistency to coordinate the mosques with adjacent texture, the mosque has a compound shape. The Sheykh lotfollah mosque has a simple shape and it is in coordination with Regular geometric texture of the Naghshjahan square.

The connection of the physical space

The mosque has Simple geometric forms, the main space or the dome has a Simple geometric forms too (square shape). The Intermediate space place the mosque on Axis 45 ° to the

Qibla. The attractiveness of the mosque is for the Naghsh jahan square and the lower space of the dome and the spaces in between. We can describe it as follows:

The observer is guided through the first entrance of the mosque from the huge space of the square and then he goes up some stairs and reaches the second entrance. Then before entering to the mosque he faces a small space and then he enters the doorway and after a 90° rotation and reaches to the interior space of the mosque. The doorway makes passengers to forget the world outside. After 40 steps into the doorway he can enter to the bedchamber.

The position of the city

The Sheykh lotfollah mosque was directly in connection with the government and it was a place for religious ceremonies and that is why it was located in front of the Royal Palace to carry out two main duties:

- Being in center of the social- financial affairs
- To keep the balance of Naghsh jahan square as it was located in front of the loyal palace

Access to other buildings and urban elements

The Sheykh lotfollah mosque is a unique mosque as the huge Naghsh Jahan square is like the courtyard of it. Its Length to width ratio is 1 to 3 not 1 to 2 as other mosques. The function of this mosque is as a city function. It is a place to pray and hold religious ceremonies and it is a social place as well.

In Congregational mosque, the whole building must be in direction with Qibla. But mosques locating in bazaars, the mosque is surrounding with the bazaar and the entrances are in coordination with adjacent texture. Sheykh lotfollah is surrounded by Naghsh Jahan square and it is in coordination with the adjacent texture and accessing to the house of domes is possible with a rotation. In this mosque, only the house of domes is in direction with Qibla.

Interior and exterior connection

This mosque can be a private mosque and its entrance is in front of the Naghsh Jahan square but it has similarities with other mosques in Isfahan as follows:

- Using compound shapes to create the Geometric shape (principle of combination)
- Using orthogonal shapes in Geometric shape of the building (principle of simplicity)
- Using perfect Geometric shape (principle of aesthetics)
- Creating a limited function entrance for the mosque (principle of connection)
- Determining the main entrance in ultra-urban mosques
- The closeness of mosque to the adjacent texture (principle of combination)
- Making itself different from the adjacent texture (principle of region)
- Being close to bazaars and main square of the city

Interior space of the building

This mosque has a main closed space called house of domes which is the main and communicating space between the entrance and the house of domes and it has no courtyard and minaret. This mosque is a single huge building as professor Arthur said it is like a private praying room rather than a public mosque. Like shah mosque it has a 45° rotation in the corridor to be in direction with Qibla. This rotation cannot be seen because of the rotational shape of it and its closeness to the facade of the mosque. The plan of the dome is like it is located on a 4 angles space which can be increased to 8 angles to sustain the Gravitational force of the mosque. Professor Robert Hillen said that Sheykh lotfollah was a private praying room in the period of the first Shah Abbas and it broke many traditions of religious buildings as it has no minaret and bedchamber. The parts of mosque are as follows:

- Entrance and corridor
- The doorway of bedchamber
- Lower space of house of domes

The long facade and being between two compact made the 45° rotation unseen. It keeps the balance of the square as it is located in front of royal palace. It has no courtyard that might be for locating in bazaar, public and private function of the government.

Structural features

The dome of Sheykh lotfollah mosque is one of the domes of Safavid era that is suitable for small courtyard but the dome's height is enough tall to be seen from the square. Curvature of the dome from the bump point was turned inward and created the top of the dome. The diameter of walls which was measured from windows is 70.1 cm and the interior walls are created from an Octagonal. Isfahan style of dome designing is simple and stem of the dome is taller than Turkish style and it makes them much glamorous. In this school of dome designing Finial are simpler and tinier too. Domes and finials of Sheykh lotfollah are as same as previous designs.

Conclusion

As it was mentioned, entrances are one of the most elements which show the beliefs and cultures of a historical period and they are designed based on equipment and beliefs of its time. Climate and religious ceremonies and beliefs of Iranian can be seen in Iranian architecture not only in huge buildings but in small buildings too. Entrances of Iranian buildings have been changed in different times but it has its own traits. Mosques physical system of Isfahan school has been evolved especially those mosques built with order of governments.

The evolution of this system has been carried out by ways such as rotation in entrances, increasing length of doorway. As most mosques are built in angle 45°, it only can have a small view of the adjacent buildings. The style of Sheykh Lotfollah mosque show a great intelligence of architecture as the design of this mosques makes a great view and it removes the axis difference of the pathway. Prayers cannot see the direction change at all and. How did the architecture do this?

Our research shows that rotation in entrance axis of the mosque was carried out in the best way and it removed the axis difference of the pathway. And, the rotation is not only for being in direction with Qibla but it is for creating a shining spiritual environment for prayers after they passed a small and dark doorway.

References

- Behzadfar, M. (1997). Mosque architecture and urban view, Tehran.
- Bolkharighi, H. (2009). Basics of Islamic architecture, Tehran.
- Doostimotlagh, P. (2009). Entrances History, 2.
- Hazarfar, L. (1965). National monuments in Isfahan, pp.427-464.
- Pirnia, M. (2007). Style of Iranian architecture, Memar publication.
- Pirnia, M. (1997). Style of Iranian architecture, Memar publication, 5th edition, Tehran, Soroosh danesh publication.
- Pirnia, M. (2010). Mosques, Iranian architecture, Islamic period, SAMT publication.
- Soltanzadeh, H. (2011). Mosque in Samarkand, Journal of Architecture and Culture, 43.