Geometrical Analysis of Tiling Patterns in Azari Style: The Case of Tabriz Kaboud Mosque

Seyyedeh Faezeh Miralami¹, Sahar Sayyadchapari¹, Mona Laleh¹, Zahra Poursafar²*

¹Department of Interior Architecture, Islamic Azad University of Lahijan- Iran.
²Department of Architecture, Fouman and Shaft Branch, Islamic Azad University, Fouman- Iran.
*Corresponding Author: Zahra Poursafar. Email: z.poursafar@yahoo.com

Received: 2018.03.10   Accepted: 2018.04.25

Abstract

Background: The Tiling patterns are magnificent display of decoration in Islamic period. They transform the dusty and dreary facades to splendid and ornate ones. Due to ideological factors and elements of Azari style decorations, geometrical patterns and vegetative designs became prevalent and pervasive in religious sites like mosques. The objective of this study is an investigation of the tiling pattern, as an amazing work of architecture in Tabriz Kaboud mosque, which is constructed according to Azari style. In this research, the geometrical patterns of tiling as the main part of decorations in this mosque are investigated and analyzed.

Method: The research is based on a descriptive analysis method. Data and information are collected based on documents library and field study. Then, polished and brushed, the study resulted in an illustrative conclusion.

Findings: In religious buildings such as mosques, geometry represents ‘divination’ in Christian theology and ‘Unity with God’ or ‘Tawhid’ in Islamic terminology. Tiling patterns of Kaboud mosque, mostly hexagonal, circular, square and triangle, form architectonic features which recount a story, a representation of divination or unification with the One.

Keywords: Tiling, Azari Style, Tabriz Kaboud Mosque, Islamic Architecture.

Introduction

Nowadays Decoration and configurations of the Islamic buildings are an interesting subject for the researchers. It seems pointless to discuss about the Islamic architecture without engaging in decorations and ornamentation. According to Jamali and Marasi (2012), tiling patterns are the manifestation of spiritual and mystical ideas and concepts which Iranian employed in decorating their mosques and religious sites. According to Alipour and Dahar (2013), as a locus of unity or divination, mosque has an exceptional place in Islamic architecture of Iran. No wonder the most memorable architectures of Islamic period in Iran, are mosques which geometrically are the supreme formations. In dictionary ‘mosque’ is defined as a place for prostration, invocation, and devotion; it creates sense of humility and modesty in human beings. Tiling patterns are but inseparable constituents of mosques. Tiling craftsman finds a congruency in designing a mosque with Holy Names tiling patterns. Islamic artist incarnates and projects a spiritual life and a sense of divination; he employs geometry to represent the elegance and grace of his spirituality and oneness with God (Assarzadegan, 2011). Tabriz Kaboud Mosque is the unique example of the supreme art of tiling, with a turquoise blue which creates a pleasant sense of divination in the viewers. This study evaluates the lines and geometric forms employed in tiling patterns of Kaboud Mosque.

Method

This study employs two methods to reach to a qualitative conclusion. In the first, a descriptive analysis method is based on documents and librarian information, the experience of various subjects, and classification of documents; and the latter is based on direct observation.
and filed studies of decoration and ornamentation of the building in architectonic terms.

Problem Statement
Iranian architecture styles are divided into two periods of before and after Islam. Architecture of the pre-Islamic period includes Parthian and Persian Empires and architecture of post-Islamic period includes Khorasani style, Azarbayjani style, Razi style, Isfahani style, and Tehran style (Pirnia, 2007).

The Art of Tiling in Islamic Architecture of Iran
Stones, bricks, plaster, and tiles are the most common tools and the basic decorations in the Islamic architecture. Meanwhile, the art of tiling is a valuable ornament of Islamic architecture. Types of tiles include Moaraq tiles, seven color tiles, golden shade tiles, enamel tiles, Moqarnas tiles, and Moa'qali tiles. (Jahanbakhsh and Sheikhinariani, 2015) One might divide the tiling designs to the following:

- Vegetative Designs (Arabesque ivies, Khataee flowers, shrubs, bowls and plates and vases of flowers)
- Landscape Architecture
- Geometrical Forms and Designs
- Orthographic Designs (Nasta’liq script, and Thuluth script) (Rahaee et al., 2014)

Tiles are the most outstanding decorative elements in Islamic architecture of Iran. Since the Ilkhanids period almost all the buildings have tiles as its decorative constituent. (Bukani, 2015) According to Bemanian, Momeni, and Soltanzadeh (2011), decoration and ornamentation of buildings are decisive factors in thriving of Islamic architecture of Iran. Throughout the ages, Iranian architecture has been subjected to three varieties of decorations which are brickwork, stucco or plastering, and tiling. Moreover, Iranian architecture is attributed to be the first in using tiling techniques in decoration and ornamentation of buildings (Wilber, 1955).

The tiling are used abundantly in decorating mosques, along with the other decorative elements (Jahanbakhsh and Sheikhinariani, 2015). Decoration in Islamic architecture is influenced by Koranic recommendation and its invitation to beauty and elegance; verse 31 of Al-‘Araf Sura points out “Oh son of Adam, adapt to adornment and ornament in every mosque.” For that reason, Islamic artistry emphasized on adorning of mosques and religious sites to create a sense of divination and oneness (Majidi and Qorbaninia, 2015).

In Islamic arts, decoration is a representation of spirituality (Bemanian et al., 2011). Sacred art represents presence of and closeness to God: In other words, it is rooted in human nature and transcends the limits. Moreover, tiling patterns are the most valuable manifestation of sacred arts which is rooted in Islamic mysticism (Jamali and Marasi, 2012). Despite the fact that tiling patterns played a vital role in the aesthetics of Islamic architecture, they also made buildings persevering and enduring against climate change and natural phenomenon like wind, rain, and cold (Amirqiasvand, 2003).

Azari Style
Azari period began with Ilkhanid rule in 13th century Iran. Architecture of Azari period was influenced by geometrical patterns (Seljuk Empire) (Wilber, 1955) and monuments of the former period. (Lashkari et al, 2009). The Ilkhanid dedicated their architectural efforts to decoration. They were innovative in decoration of walls, ceilings, and minarets by bricks. (Zadqanad and Mehrabi, 2014)

The distinction of the building construction and its decoration occurred for the first time in Azari style. Before that, decoration of a building was done at the same time with the construction in Razi period (Pirnia, 2007). However, in Azari period the decorations were added to the brick body of buildings which is called Amood (decorations added to facades after the construction of a building is done). The acceleration of constructions leads to modular techniques (repetition of the similar elements) to build more in less time (Houg and Martin, 2007). In this way, employing bricks in exterior façade were reduced and were replaced by terracotta and tiles in main parts of structures like porches and domes (Pirnia, 2007). Some architectonic characteristics of this period include:

- Excessive use of cutting tiles (mosaic)
- Seven-colors tiles and clay tiles in the second period (Pirnia, 2007)
- Excessive use of entanglement of tiles and bricks
- Excessive use of ornaments (Mirbakht et al., 2015)

The importance of Geometry in Architecture
Any architectural design basically is geometrical. Both architecture and geometry involves lines, shapes in space, and surfaces; in other words, any analysis of a work of architecture is more or less an investigation into its geometry. (Alipour and Dahar, 2013) The principles of geometry have been employed in different styles of architecture. (Vaqar, 2015) The western theoreticians of architecture usually have singular manners towards employing geometry in architecture; moreover, they engaged with the primary and complete shapes like circle and square, and also engage in proportional systems such as ‘golden visible stage’ system. According to Alberti, fine architecture merges and fuses...
proportions, and it depends totally on pure geometry (Saadat and Mirmoeni, 2013)

According to Noghrekar (2014) geometry is divided into two branches of ‘the emotional geometry’ and ‘the logical geometry’. The emotional geometry is perceived through visual sense and tactual sense; and the logical geometry is relevant to understanding and cognition; therefore, the emotional geometry is an opening to the geometry of logic. Circles, triangles, squares, and hexagons are considered the completed-fundamental shapes in geometry. Triangle is used as the basis of entering the geometry of logic; and theoretical foundations of the geometry of logic is illustrated through the triangle. Square has four equal sides and four equal angles. A square is formed by two triangles.

When a third triangle is added to these two, the result is a graphic shape. The scope of space is an outstanding characteristics of circles. Moreover, equal diameters, and the power of maneuver and movement in the same place without creating any contacts in surrounding area are other features of circles. A hexagon is a six sided polygon or 6-gon and is made of equilateral triangle (Block et al., 2014).

**Tabriz Kaboud Mosque (Blue Mosque)**

Tabriz Kaboud mosque is swan song of Azari style which is being known as IslamFiroozeh. Due to diaphoretic blue tiling, this old mosque is known as Kaboud (livid, grey) (Ebad, 2013, p.946)

The construction of this mosque dates back to the year 870 AH. It seems that this date represents the completion time of the tiling of the mosque entrance (Kabirsaber et al. 2014). This mosque is a multi-functional building as "mosque and tomb" or "monument mosque" since the south part of this mosque dedicated to the tomb of Jahanshah and his family members (Torabita, 2000).

**Fig. 1 The back façade of Kaboud mosque, Tabriz (Source: Ebad, 2013)**

**Fig. 2 The plan and perspective of Kaboud mosque, Tabriz (Source: Hajighasemi, 2005)**

**Results**

Ideological factors did spread religious sites like mosques with Azari style architecture, and then vegetative designs, geometrical forms, and inscription became pervasive. (Majidi and Qorbaninia, 2015) According to Kabirsaber, Mazaherian, and Peyrovi (2014), most researchers of the history of Islamic architectures believe that tiling patterns of Kaboud Mosque, qualitatively and quantitatively, in fusing bricks and tiles, is the pioneer of ceramic engineering in ancient Iran. Tiling patterns of Kaboud Mosque are done professionally and with supreme elegance which makes it distinct in Islamic architecture and is called ‘Islam Firoozeh’. (Hosseinpourmizab, 2012)
The most outstanding feature of Kaboud Mosque is employing mosaic tiles to form geometric shapes with simple arabesque designs. In other words, this construction is a visual encyclopedia of various geometric forms and shapes inside and outside of the mosque. There are examples of the geometric forms of tiling patterns of the mosque in the Table 1.

<table>
<thead>
<tr>
<th>Title</th>
<th>Tiling Patterns</th>
<th>Tiling Geometry</th>
</tr>
</thead>
<tbody>
<tr>
<td>The tiling above the western entrance to the small yard</td>
<td><img src="image1.png" alt="Image" /></td>
<td><img src="image2.png" alt="Image" /></td>
</tr>
<tr>
<td>A sample of tiling with Kufic script on the inner walls of the nave.</td>
<td><img src="image3.png" alt="Image" /></td>
<td><img src="image4.png" alt="Image" /></td>
</tr>
<tr>
<td>In the base of the eastern and western yard; the wall column</td>
<td><img src="image5.png" alt="Image" /></td>
<td><img src="image6.png" alt="Image" /></td>
</tr>
<tr>
<td>The base plinth in the large courtyard whose walls and the columns overlooking to the chambers.</td>
<td><img src="image7.png" alt="Image" /></td>
<td><img src="image8.png" alt="Image" /></td>
</tr>
<tr>
<td>The remaining of columns and the opening of the main chamber’s ceiling.</td>
<td><img src="image9.png" alt="Image" /></td>
<td><img src="image10.png" alt="Image" /></td>
</tr>
<tr>
<td>The wall corners and right-side ceiling; the same as the left-side of entrance.</td>
<td><img src="image11.png" alt="Image" /></td>
<td><img src="image12.png" alt="Image" /></td>
</tr>
</tbody>
</table>
Conclusion

Mosques are the religion buildings which give the impression of man’s unity with God; Islamic ideas and concepts often have created the quality to the generation of excellent arts to the rising of human beings from the material world to the spiritual one. Employing the colorful and elegant-designed tiles are the aesthetic features of Iranian mosques which likewise are considered as the most valuable symbol of Islamic art and architecture. With more precision in the lines and shape of these tiles, the hidden geometry can be found which are formed from the completed and fundamental geometrical shapes. The geometry of tiling patterns in mosques signifies reaching from plurality to unity, likewise the other sciences have this one objective of unity. In the examined sample from Kaboud Mosque, it can be concluded that the fundamental geometrical forms are hexagonal, circular, triangular and square shapes which are involved in shaping the tiling patterns, and each of the existing forms from one point and then a circle begin.

References


Noghrekar, AH. Human perceptual interaction with geometric spatial ideas in architecture, Tehran: Amirkabir publication, 2014.


Saadat S, and Mirmoeni M, The geometry in mosque architecture, the third international conference of architecture, 2013.


Vaqar Sh, evaluation of Geometry of minarets in Tehran during the Pahlavi period under the influences of beliefs, International Conference on architecture, urban planning, civil engineering, art and the environment, 2015.
