International Journal of Modern Achievement in Science, Engineering and Technology (IJSET)
ISSN 3023-459X
DOI: 10.63053/ijset.116

A Study of the Role of Yazdi Bandi Painting in Iranian Architectural Decorations

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ARTICLE INFO

Keywords:
Yazdi Bandi Painting, Iranian Architecture, Dome Decorations, Yazdi Bandi Geometry

ABSTRACT

This study examines the impact and role of Yazdibandi painting on Iranian architectural decorations. First, Yazdibandi painting and its features are introduced and then the impact of this type of decoration on Iranian architecture is investigated. This study emphasizes the cultural and artistic relationship between Yazdi painting and Iranian architecture, and examines the influential factors and its role in beautifying and decorating buildings¬Finally, this article discusses the importance of preserving and promoting this valuable art to preserve the cultural identity and Iranian architecture, and examines the executive strategies for preserving and expanding the Yazdi Bandi painting in Iranian architecture, and in addition, shows how the Yazdi Bandi dome was formed and executed

Introduction

The progress, progress, and expansion of the art of names over the years has created a wide range of two-dimensional and three-dimensional geometric patterns in the architecture of names, and among them, Iran has played an important role in the development of geometry in the architecture of the Islamic world. Geometric decorations are one of the principles of Iranian architecture in the Islamic era, which has been used in many magnificent works and its artistic cultural heritage. Decorative motifs in the form of two-dimensional in Textiles, pottery, and in architecture in the form of geometric tiles (knots) or plants and masonry inscriptions have been used in the entrances of buildings, arches, porches, and mihrabs, and sometimes in the form of three-dimensional motifs (Karbandi) in the form of muqarnas, formalism, and Yazdi bandi can be seen in the sky of the halls, the interior of the domes, and in the form of half-work in the cover of arches and porches.Yazdi Bandi is a Persian word for the interior dome and the decoration of the porch[2]. "Yazdi Bandi" is originally the Iranian type of wall or ceiling decoration that is used to evenly connect the rectangular frame of the building with the vaulted roof. However, Yazdi banding is not only used as the interior decoration of the dome. Rather, it can also be seen on porches. For example, there was a general belief that whether in individual buildings or in large complexes, Yazdi bandi played an important role in the arrangement of Iranian architecture. In this regard, we decided to test the usability and suitability of these interior dome decorations. For many years, the painting "Yazdi Bandi" was used as an ornamental painting for interior spaces. In history, Yazdi bandi has never been considered as a structural model[3] Despite numerous studies on these Iranian decorations, its architectural morphology, typology, geometric texture, and even technical vocabulary have not yet been fully determined. It is possible to study the characteristics of this Iranian painting in order to find contemporary concepts for the traditional designs and principles of decoration of architectural styles. In addition, this geometric pattern can be used comparatively in the analysis and understanding of the basis of different types of Iranian architectural decorations. On the other hand, it can be said that this geometry is one of the main features of the Iranian architectural composition. The use of geometric motifs formed in the past for architecture Native is not consequential. However, the search for innovative geometries has been one of the most interesting topics in contemporary architecture.[4] Decorative geometry is used in Iranian architecture in two ways: scientific and practical. The science of geometry has theoretical foundations, and its practical dimensions include conceptual, philosophical, and mystical methods that Iranian architects have used in creating architectural masterpieces. However, the study of the impact of geometry on the formation of Iranian architecture has received much less attention. have been.

2- Research Methodology

The present article is a fundamental-theoretical research article. Our learnings about the relationship between architecture and geometry are mainly based on interpretive studies, this study was carried out in the form of a historical-interpretive study with data that has been collected in accordance with the history, art and science of architecture using available resources and information in libraries, and our focus in this research is a promising image that is abundant in Iranian architecture can be done. This article tries to present various approaches and interpretations related to the existence and application of geometry in Iranian architecture. In this context, the painting "Yazdi Bandi" is introduced as a symbol of one of the ornamental elements of Iranian architecture.

Figure 1: Yazdi Bundi in the Abbasid House, Kashan, Iran

3- Persian Dome

Iranian design is an art form full of spiritual and intellectual meanings that are manifested among its endless motifs. The decorations of the domes represent the sky, heaven, and the lower layers of the "seven heavens."

- Domes consist of surfaces or surfaces and backbones that distribute loads on the plate or along the backbone.
- Surface domes: Resistance times with uniformly distributed loads are most efficient.
- Back-to-back domes: They have a greater capacity to withstand asymmetric loads. These domes vary depending on how the loads are directed to the ground. Accordingly, domes are divided into seven primary subsystems, "bowling" domes[1], and muqarnas domes. The determining factor of these subsystems is the way in which loads are distributed along the surfaces or axis of the domes and the sub-division of their surfaces.

3.1. Geometry of Persian domes

3.1.1. Application

Two distinct definitions of the word "Karbandi" are common in Iranian architecture, the first is related to the traditional architect Asghar Sharbaf, who considers the origin of this word to be the combination of two terms of work in the sense of all the three-dimensional motifs of Muqarnas, formalization of bowling and Yazdi bandi, in addition to the term "closure" which means the tension and weaving of geometric shapes, in another definition that is quoted from Larzadeh and Bozorgmehri. The meaning of Karbandi is considered to be the same as formalism.[7] It is noteworthy that in this article, what is meant by Karbandi is the definition that Shaarbaf has provided. In the following, the definition of formalization and other types of

[1] Bowl making: a covered decoration in Persian architecture that consists of the combination of several pendants [6].

Karbandi has been discussed.

3.1.2. Muqarnas

One of the oldest and most valuable descriptions of muqarnas as an architectural element belongs to Kashani, an Iranian scientist in the ninth century AH. The structure of the muqarnas consists of horizontal rows in which the units of the muqarnas of four small domes and the concave are placed next to or on top of each other on these rows. Researchers believe that the earliest examples of muqarnas are referred to as pseudo-muqarnas. It is found in northeastern Iran and North Africa [8].

3.1.3. Formalization

Formalism in the word is the combination of two formal terms, which means to draw and draw, in addition to closure, which means geometric weaving and tension. Formalism is a type of arch that arises from the intersection of the arches that start from the work and lead to the upper shamseh[9], which in some cases is decorative and in some cases burdensome, as mentioned earlier. Scholars in this field consider the two terms Karbandi and Formalism to be synonymous with each other and refer to a kind of structure covering the roof, including the beamsof crossed arches under a specific type of arc from which the skeleton of the roof cover is created, as formalism. One of the oldest complete examples of formalization can be seen in the architecture of the Grand Mosque of Nain and in the Grand Mosque of Córdoba.

3.1.4. Shamsa

It literally means the sun and is one of the main elements in the works of Iranian architecture, which is placed in the highest part of the work. In various foreign sources, the titles of the great medal of the polygon at the end of the arch and the star-like polygon have also been introduced. A shamsa is a decorative, symbolic, and abstract motif of the sun used in illumination. In Islamic art, a shamsa (Arabic: shamsa) is an intricately decorated rose or medallion used in many contexts, including manuscripts, carpets, ornamental metalwork, and architectural decorations such as under domes.

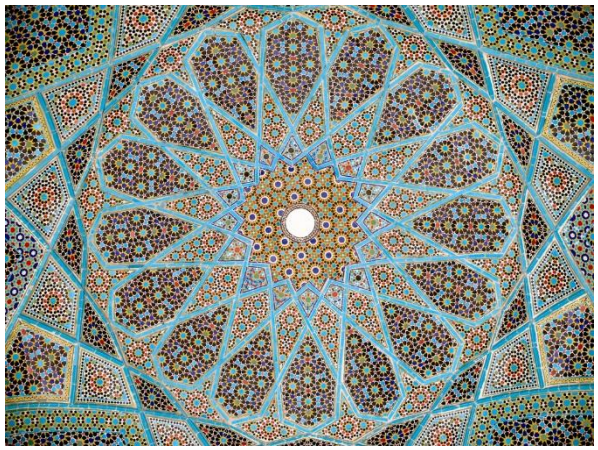


Figure 2: Shamseh Roof Dome Hafez (Shiraz).

3.1.5. Bed

The geometric shape of the flat is the only horizontal element in a variety of workloads. It can be used in regular or irregular forms. Regular shapes in the form of three-legged plates, like four-legged, five-legged, etc. can be seen.

4- Yazdi Bandi

It is difficult to define Yazdi bandi because a person such as "Master Larzadeh" and "Saeed

Fallahfar" have classified it as an inter-formal category of bandi and muqarnas [11], on the other hand, "Master Sharbaf" categorized the Yazdi Bandi dome as one of the group of Karbandi domes [12], Dehkhoda says in his dictionary: "Yazdi bandi is a decorative element that is used in arches in terms of construction[13], the native use of the Yazdi dome is mainly seen in the inner dome and mostly at the entrances of mosques and large houses. The geometric plan of the Fakhri chest is part of a complete sun, the image seen on the curved surface of the Yazdi dome. For example, in the pictures, there are three work plans, in each of which a part of a whole sun is soaked. The two-dimensional map shows the chest of Fakhri. The focus of this study is a promising pattern that has been abundant in Iranian architecture for many years. The Yazdi Bandi dome has been used as a decorative pattern for interior space in its history and has never been considered as a structural pattern [11], the base unit of this dome, a row, or path, consisting of smooth fine-grained diamond-shaped modules of different sizes and with very small star-shaped pieces flat and horizontal in between.It is. Each row is woven into its upper and lower rows. Yazdi domes transfer loads along the diagonal boundaries between the diamond-shaped modules, and along the surface between these lines. It does, it is in harmony. The change in the curvature of the Yazdi domes causes sound playback, which is the basis for the formation of the general form of the dome. This audio playback improved with each diamond work[6], and the Yazdi Dome paved the way for a greater number of Persian-style dome decorative structures in the Islamic world, such as the dome of the tomb of Khwaja Ahmad Yasui and the Taj Mahal. Most of the exterior decorations of this dome do not have any kind of array, however, the interior of the dome is magnificently decorated with patterns, bricklays, and plates.

Figure 3: Three examples of the oldest Yazdi bands of Iranian architecture. From right: 1. Timurid Hall (Isfahan), 2. Imamzadeh Darb Imam (Isfahan), 3. Tomb of Mirzad (Natanz)

4.1- Yazdi Bandi Geometry

It seems that the geometry and pattern of the structures of Yazdi Bandi's work are largely influenced by the formalization of Bandi and Muqarnas. In Figure 4, the Karbandi of Asmaneh Hasti at the entrance of the Jame Mosque of Yazd is a pseudo-Yazdi example whose geometry can be considered as another origin of Yazdibandi. In Figures 6 and 7, three different examples show Yazdi bandi belonging to the Kashan Bazaar and the Chahar Bagh School of Isfahan, all of which have in common the existence of the geometric shape of the Fakhri chest, but they have a two-dimensional and three-dimensional geometric structure and different instruments[14], showing a type of Yazdi bandi belonging to the Kashan Bazaar, the analysis of its characteristics shows that the basis of its geometry and astra ketch is derived from formalism Is. This type of Yazdi is divided into two types in terms of its constituent instruments, the first type of this type of Yazdi is without a horizontal shape and without a flat plane in Figure 4 and the second type has a horizontal flat shape in Figure 5. The second type of Yazdi bandi in terms of geometry, drawing method, and method of construction has different

characteristics from type 1 Yazdis and is more similar to muqarnas such as the Chaharbagh school in Isfahan.

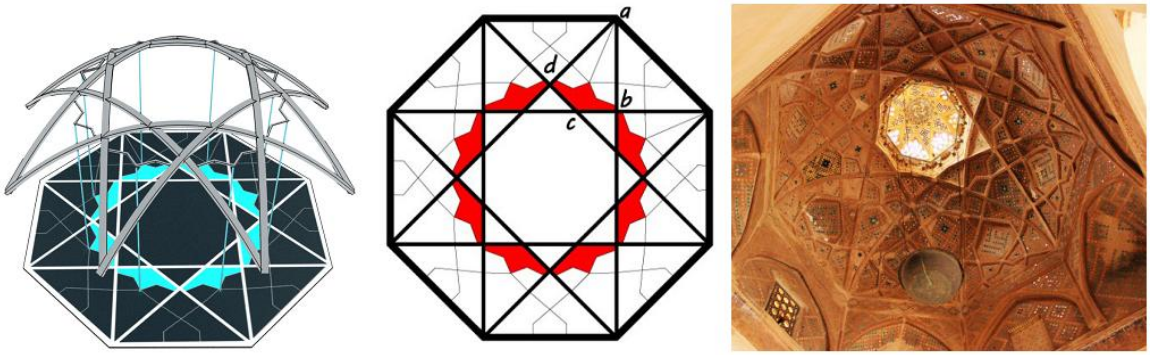


Figure 4: Crushing of the geometry of the vestibule entrance to the Jame Mosque of Yazd.

Figure 5: The first type of Yazdibandi. Right: 1. Chahar Souq Bazaar of Kashan. Left: 2. Timcheh Bakhshi Bazaar, the second type of Yazdibandi of Chaharbagh School in Isfahan.

4.2. Drawing and Execution of Yazdi Bundi

In the aforementioned treatise on geometric decorations, the role of mathematicians cannot be ignored. In general, Iranian mathematics, unlike Greek mathematics, can also be called "professional mathematics" due to the relationship between theory and practice [15], and the works of Al-Bozjani's student, who recorded the text of his meetings with masters and architects in discussions about solutions to construction problems, can be proved to be correct.

However, Yazdi banding comes in a variety of sizes and types, however, some geometric properties have been frequently used in their composition design. But, no two examples are exactly the same. Visually, the pattern analysis of the samples showed three categories of morphology, each with different geometric properties and architectural characteristics.

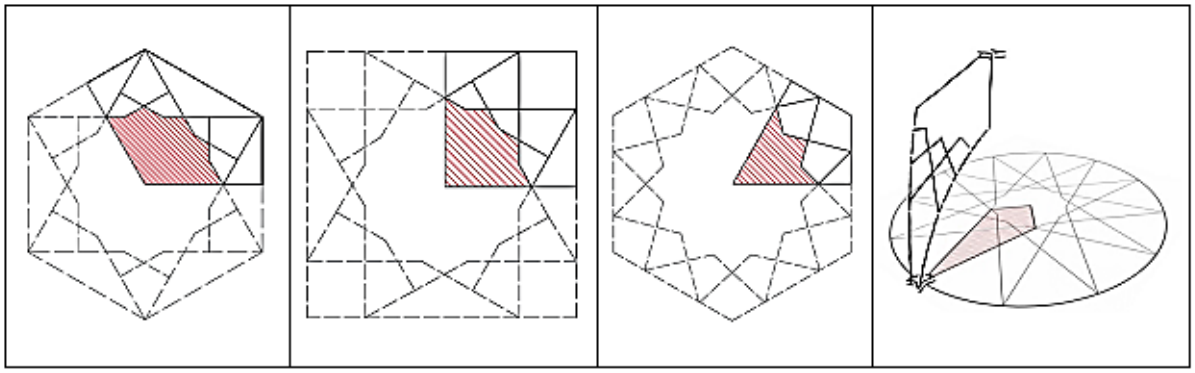
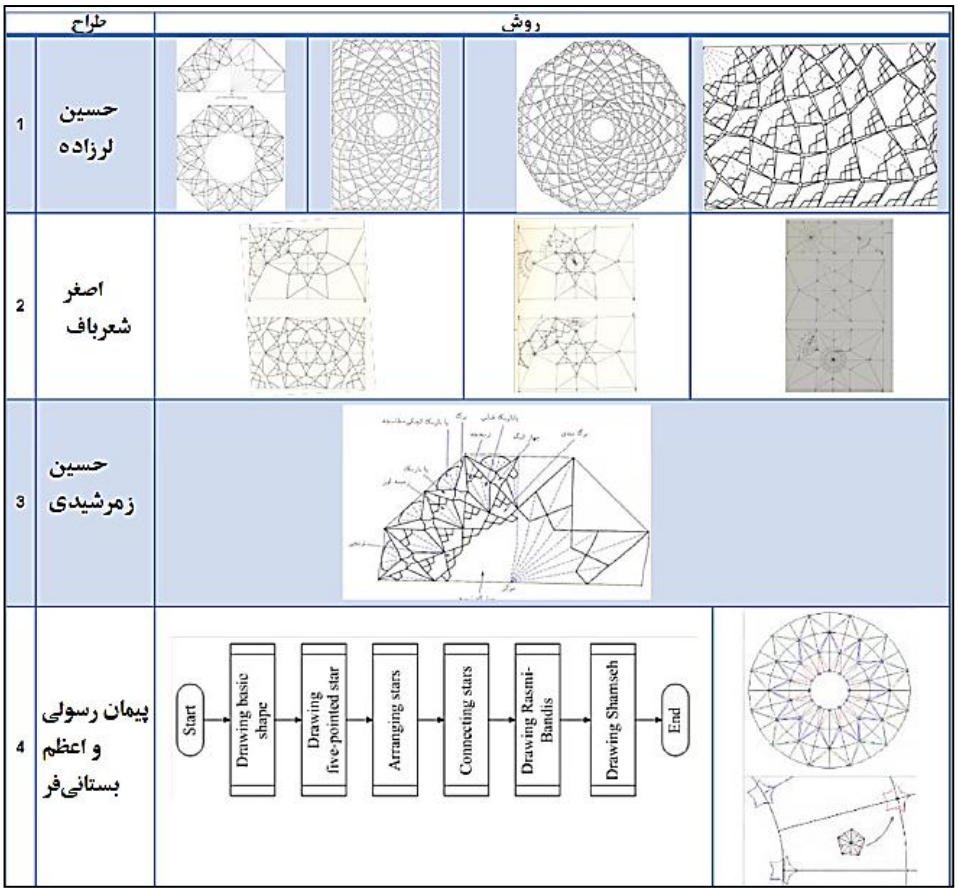


Figure 6: Two-dimensional map and three-dimensional figure of Fakhri's chest

geometry.

Table 1. Different methods of drawing Yazdi bandi (images taken from Aga Khan Archive, MIT, (www.Archnet.org, n.d.)



4.3. Yazdi Band Construction Method

The Yazdi dome consists of several rows (layers) that are themselves made up of elements. Among these basic elements, we can distinguish between "stars" and "pabariks". Stars and pabarics make up cells. Cells are in the form of small pieces of arches. Cells are the most important component in the construction of the Yazdi dome. Because they make the "body" of Yazdibandi. Middle elements can be used to combine cells, although they are not essentially necessary and can be omitted.

Figure 7: Yazdi Band Construction of Kashan

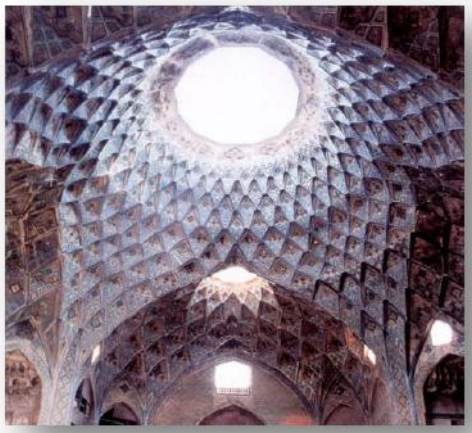


Figure 8. Amin al-Dawleh Timcheh, Kashan Bazaar

5- Conclusion

Yazdi bandi covering, along with formalism, bowl-making, and muqarnas, is one of the types of karbandi in the architecture of the domes of Iranian buildings. Yazdibandi's condition for a work is considered the geometric existence of "Fakhri's chest", and with this assumption, it is possible to consider two karbandi domes in the southern nave of Isfahan Jameh Mosque as well as the entrance vestibule of Yazd Jameh Mosque as the origin of the shapeGiri introduced the geometry of the Yazdi bandi coating, which has been referred to as "pseudo-Yazdibandi". In these two examples, for the first time, as a result of the crushing of the geometry of the work tools, the geometry of Fakhri's penis, which is the main characteristic of Yazdi Bandi and can be seen in all instances, has been created. By analyzing the geometry and instruments of the observed samples, it can be theorized that in the Yazdi element there has been a geometric change, transformation or adaptation or the structure of formal instruments or muqarnas and the common denominator of all the collected samples and also the necessary condition for considering Yazdisbandi as a work is the geometric existence of the Fakhri chest, as a result of the classification of the types of Yazdis based on its similarities It has been done with formal and formal designation. As a result, the present article showed that Yazdi painting, as one of

the important and influential elements in the decoration of Iranian architecture, has a significant role in the beautification and decoration of buildings and also shows a deep cultural and artistic relationship with Iranian architecture. Preserving and promoting this valuable art can help preserve and strengthen Iranian cultural and architectural identity. Therefore, it is necessary to identify and implement executive strategies to preserve and expand the Yazdi painting in Iranian architecture.

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