



## COMPARATIVE BODY ANALYSIS OF SHEIKH LOTFOLLAH MOSQUE IN ISFAHAN AND AHMED MOSQUE IN ISTANBUL

Received August 24<sup>th</sup>, 2020 | Accepted January 11<sup>th</sup>, 2021 | Available online June 15<sup>th</sup>, 2021 |  
DOI <http://dx.doi.org/10.18860/jia.v6i3.10112> |

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### ABSTRACT

A mosque is a manifestation in which religion meets with art, demonstrating the most distinctive features of this art. Among the structural analysis approaches in architectural science, body analysis is critical, especially while the conceptual characteristics are considered. The positioning of the mosque building bodies and their relation to each other is also essential. The study aims to realize the geometry of motifs in Islamic architecture contemplated in many scientific and artistic disciplines from the perspective of body approach and understand the pattern on which this creative adaptation is made. In the Safavid era and the Ottoman Empire, Iran, due to its religious approaches, political rivalries, and European influence, saw new relations, and their cultural and artistic influences became tight. To understand the structural features of the architecture of the Safavid and Ottoman era, Sheikh Lotfollah and Sultan Ahmad mosques were studied (as a case study), considering their body analysis as a route to investigate the application of concepts and elements of Islamic architecture, as well as considering the architectural practices of the region and geographical location. Obtained results provided the relationship of the bodies and spaces to each other. Despite many differences, there are some distinct similarities in the body of the studied mosques due to the mystery of the motifs that unite the whole building in Islamic buildings. There is a display of homogeneity and dominance of decoration over the form. The one behind the decoration is in line with Islamic concepts and values. It is a message of unity and solidarity.

### KEYWORDS:

geometry of motifs, mosque, Safavid architecture, Ottoman architecture, body approach

### INTRODUCTION

The collection of artifacts can be seen in mosques, including worship or sacred art. The mosque architecture seeks inspiration from the concepts of divine theology to create a space that combines the world of heaven (the world of meaning) and the world of nature (the world of face and property) and creates a unified spiritual space. Since art is interwoven with symbols and symbols are the essence of art, the dome, the goldsmith, the altar, the columns, the pulpit, and the Muqarnas are embedded in the architectural framework of the mosques as the architecture material form. The architectural structure is built within the body and represents its spirit, so it is constantly involved. The bodies have texture, motif, color, text, light, mystery, and so on. Meaningful motifs each have a different meaning and function depending on their shape and location[1].

In Islam, mosque architecture has a fundamental character in communicating and creating unity among the people. It also plays an essential role in transmitting religious concepts. As an integral part of

mosques, motifs are an indispensable component. Every motif is one of its main pillars, expressing an inner purpose or a factor to communicate with the creator of the work around it. The basis of many of these motifs is geometry, one of the most critical factors in the formation of Iranian and Islamic architecture, which has influenced the architecture of various eras outside Iran. It is a testament to the importance and necessity of studying the geometry ornament, especially when the mosque architecture is examined as a place of worship. By these definitions, the influence of the geometrical properties of the motifs is enhanced. The geometry of mosque motifs has always been important to Muslims in that it has had the most significant impact on creating a sense of sacred space with the main body of mosques. In the Safavid and Ottoman mosques, these geometric motifs have been observed and associated with the body of the mosques [2].

Most studies in Islamic architecture and the sacred spaces deal separately with geometry, geometric motifs, and mosques. In this study, identifying the building has been tried to obtain the appropriate pro-

portions for geometric motifs. The theoretical foundations of the application of geometry to architecture also need to be examined. The case study buildings in this research are identified and introduced with a specific methodology, including a brief history of the geography of the work, stylistics, and the study of similar examples. Despite much research into this area and the various and valuable aspects of these Islamic sites, the hidden parts of science, art, and what these high-educated artists have in mind are unclear yet [3]. Therefore, the study of these Islamic artistic aspects is still under the attention of scholars. The concept of Lights in the body of Sheikh Lotfollah Mosque has previously been studied according to Suhrawardi's theories. Essential uses of geometric motifs in Islamic art and architecture have also been analyzed. The approach of the previous studies differs from this one which the approach is the geometric patterns of the Sheikh Lotfollah and Sultan Ahmad Mosque. Those mosques have not been studied so far, so it can be acknowledged that current research seems novel in this respect.

Understanding the wisdom of Islamic art is impossible without regard to the Quran and prophetic doctrine. These two sources of Islamic art are well represented in the form and content of Islamic architecture, especially its mosques. The mosques of Sheikh Lotfollah and Sultan Ahmed are prominent examples of precise and systematic order, with geometry and mathematics in their structure and body, which have many mysteries.

During the flourishing Safavid period, the mosque of Sheikh Lotfollah, with mosaic tiles, fine Muqarnas, without a "courtyard" entrance and minaret, also has a staircase and is not similar to other mosques. The absence of a seraglio (Harem) and an entrance courtyard has put the mosque to the symmetrical requirements of the Naqsh-e Jahan Square (the mosque facing the Aali-Qapu mansion) in a way that ultimately leads to the inability of any courtyard or apron to be used for prayer [4]. On the other hand, the Sultan Ahmad Mosque, with its general characteristic of Ottoman period decorations, uses stone as the most commonly used plaster and tile material, which is built to adorn the interior. Its exterior has distinct dimensions with a few decorations. The tall stone porches, rectangular courtyards with surrounding porches all intersect with half-domes, and columns are characteristics of this mosque. The main space due to semi-domes is much broader than the Iranian mosques. The two mosques, with their particular style of mystery, and with two different approaches to the body and decoration of cultural and governmental differences, embody a single concept; therefore, the purpose of this study is to introduce two works with specific methodology and hidden geometry invaluable works of Islamic architecture. It is also worth examining the architectural body of the buildings based on geometric motifs and the use of geometry, which all together present a mosque with a spiritual sense to the audience.

The geometries found in the plans, facade, and cross-section (in harmony) are based on uniform shapes. This research attempts to approach this goal and place the geometric motifs about the main body of the mentioned mosques. Despite the differences in the type and implementation of the geometrical motif and design in the two mosques, the sense of unity in these buildings has not disappeared. Unity in mosques is also maintained regardless of time and place. In this step-by-step work, the essential points of the building are mentioned, and the overall dimensions are discussed in detail. The two buildings seem different at first glance from the architecture of that era. Still, in the hidden layers, they have unique principles in Islamic architecture, one in Safavid Iran and the other in Ottoman Turkey. Their properties are thoroughly examined concerning the geometry and body design, and the hidden features of the building's geometry are analyzed. Also, the specificity of the geometric method used in this research concerning the analysis approach distinguishes it from similar specimens, gives it an Islamic identity, and discovers the geometrical features of the work and its creative application alongside it. Other features and concepts can significantly help to revive the authentic essence of Islamic architecture in any era.

In the body evaluation approach, the body characteristics depend on economic, social, cultural, and political aspects. In this perspective, it attempts to examine the geometrical features of the architectural structure motifs and how these concepts and their elements have utilized the mosques by the body approach from the following aspects:

- the relationship and position of the bodies with each other
- investigation and comparison of body elements with each other
- investigating the economic, social, cultural, political, and climatic role of the Mosques and the difference between the two governments in that time

Therefore, one must first explain what the body is and its impact on the art of mosque architecture and then discuss the geometry of motifs and their place in Islamic architecture extensively. The differentiation and similarity of the motifs need to be explained and presented based on the body approach in the mosques of Sheikh Lotfollah and Sultan Ahmad.

## METHODS

This research examines the geometric motifs of mosques in terms of similarity and distinction concerning the body approach. In this study, the data type is historical, and it is mainly qualitative. The data obtained by the fundamental method is used to extend the general knowledge and reveal the unknowns and discover the nature of the objects of phenomena. It also examines the relationships between variables and uses fundamental research results to improve and

complement existing methods, structures, and patterns. All questions and assumptions are analyzed to make it possible for artists and architects to develop in Islamic art and culture.

## DISCUSSION

### MOSQUE ARCHITECTURE AS AN ART IN ISLAM

Islamic art derives its essence from the Islamic ideology and seeks to spiritualize human life, which is best achieved in architecture, especially mosque architecture. The general structure of buildings is about material things, while the mosque building serves material and material space to create a spiritual atmosphere. Shrines have been the most eloquent type of human architecture in history, built on the standards and concepts of the world. They have sometimes been the manifestation of pure human thoughts and feelings, in which the most basic human spiritual needs have been addressed [5].

Considering the elements and based on the principle of monotheism, the Muslim artist also seeks to exemplify this transcendent truth in artworks. The mosque architecture is the most obvious example of the harmony of the whole building and the unity between the building components and the created space. Also, the primary manifestation of unity in plurality and plurality in unity is a factor in Islamic ornamentation. Thus, Islamic architecture is sometimes the manifestation of the most extraordinary philosophical-divine thought that is unique. Kashf Al-Asrar's says: The mosques are the houses of God on earth, as the stars shine for the planet, the mosques also illuminate for heavenly creatures. In Islam, religion and the world are united, and it is manifested in the coordination of the mosque throughout the complex.

### ANALYSIS OF BODY-FORM INDICES

#### Locating The Mosque

Studying the prophetic template and the way of reforming the pre-Islamic cities, especially Medina and the formation of the first Islamic cities, is vital for realizing Islamic values in the new urbanization. The operation radius and the access degree to the mosque are defined by the approximate area in which each mosque is built for its inhabitants. Providing easy, desirable, and safe access to the mosque is of the utmost importance in locating mosques. After the spread of Islam in West Asia, the need for cities that fit the Islamic lifestyle created cities that could represent a new way of life and showcase the glory of Islam [6]. A prominent example of such Islamized cities is Istanbul, whose design is reminiscent of the Byzantine capital. In contrast, the city council has domes and minarets of comprehensive mosques surrounding them. But nowadays, the interconnectedness of the mosque with the urban contexts is very much reduced. Apart from the developments of the modern era and the formation of functionalist perspectives, and the separation of functional areas in the city's contemporary design, various

problems such as the presence of multiple doors in the mosque have made the designers uninterested in it. The most important of these problems are security problems, interfering with the urban context of the mosque's functions, interference of other activities with the mosque, and dimming the mosque's privacy and non-compliance with it.

#### The Shape and Form of The Mosque

The subtle and straightforward form of the Prophet's Mosque emphasized purity and impartiality. It was appropriate for many functions, including congregational prayer. The mosque does not have a sacred center inside it, and its altar (Mihrab) is only to show the Qiblah and protect the Imam standing in front of the believers. Unlike the church, the rows of believers are transverse rather than deep; the space inside the mosque is like one of the many sections around the sacred site of Mecca. The concept that distinguishes the mosque from other exhibitions provides the opportunity to form different activities in the mosque [7]. Complex forms and segregation of spaces into small sections eliminate the possibility for people to use them collectively. Absolute uniformity of space, such as lounges with integrated ceilings and large dome houses, also removes the possibility of various activities happening simultaneously, making the space virtually unified so that functional areas cannot be separated. In the past, the simplicity of the mosque form did not limit it to a particular function, and it was easy to conceive of many functions. The element that separated the functional areas in the mosque was the functionally inscribed columns of the mosque and used to separate functions. This magnificent order, unlike usual, was provided in a simple space, and the simplicity of the mosque made this exact order unlikely.

#### Outdoor and Indoor Spaces

After Qiblah moved from Jerusalem to Mecca, Muslims created a new seraglio (Harem) instead of the northern one on the south side of the mosque, leaving a courtyard between the two Harems in the yard. The mosque courtyard thus became the identity that existed in most mosques. The central courtyard of the mosques for the interior unit of the mosque somehow played the role of the outer space, and the external relationships between the walled masses and the public space are defined in this area. Besides being a space for mosque activities, the mosque's courtyard is a joint between the urban spaces and the mosque's nave and provides a hierarchical entrance for the nave with the porch and entryway. Mosques that do not have such a space face difficulties separating the mosque's identity from the outside.

#### Decorations and local elements of the mosque

The motifs and ornaments of various nations' art, sometimes sophisticated, delicate, and occasional-

ly simple, with different quality, quantity, and materials, are presented in different combinations and in the form of an animal, human, plant, geometric, abstract, and line art. In the Islamic era, decorative motifs and their composition have a special place. Because of the prohibition of human and animal images, geometrical and plant motifs have grown and varied in various works of art such as architecture, bookmaking, pottery, metalworking, textiles, etc. Architectural decorations, especially mosques, are among the most prominent decorations of the Islamic era, including the minaret, dome, porch, and more. Each of these elements has its particular aspects presented in different Islamic lands with regional characteristics. The influences of adjacent areas also lead to the emergence of mixed arts. So that native decorations combine with imported elements to create a new style [8].

### **Geometry and application of numbers in Islamic architecture**

In every aspect and form used in Islamic architecture, especially in mosques, one can see the geometry and precise mathematical calculations. This discipline and mathematics are based on the Qur'an, the source of Islamic thought in which physical and structural fundamentals are expressed in the form of one of the critical infrastructures of the Islamic ideology: magnitude. In Islamic narratives, the term is equivalent to mathematics, which designs the essential structure and geometry behind Islamic art, especially in architecture, also known as all aspects of Islamic art. Magnitude means size and measurement, and Islamic architecture is a divine recreation of divinity because geometry and mathematics are closely linked to the concept of value. The artist who is the creator of Islamic architecture is the exemplar of the form in abstract and material dimensions.

### **THEORETICAL DISCUSSION**

In the early days of Islam, the body-based role of the mosques was not significant. But over time, the mosque was also able to function as an influential element in Islamic cities. The physical impact of the mosques has become increasingly significant in that it has at times identified the mosque as an Islamic city, giving meaning to the urban environment and providing readability, direction, and even wayfinding. Looking at what comes to mind from the mosque's decorations, the geometry of the motifs has a particular position. Due to the different patterns in the design of the Safavid and Ottoman mosques, there are different views on the geometric motifs and decorations in the mosque body form. Space in architecture is beautiful when space-specific attributes harmonize with space functions (form and function coordination). It is the principle that is most evident in the study of traditional and ancient architecture. The meaning of harmony and conformity of form and function in architecture is consistent with the overall philosophical conception of

harmony (form and content) in the practice of cognition and any artistic expression. To realize the traditional concepts of architecture with a particular cultural perspective, one must note that these concepts have evolved. Rather than a mere body of work, an architectural work reflects a series of thoughts and accounts of how people lived their lives. Every space in architecture, regardless of its shape and size, can convey and remember some concepts.

It becomes even more profound when a rich culture is behind the creation of spaces. Such a space is enriched and inspiring either in the functional relationships of space and psychological perception, the selection of materials and underpinnings, and adaptation to the spiritual needs. Searching for and understanding the cultural symbols and signs of Iranian architecture can help identify and certify specific cultural values and concepts prevalent among the people. Some ideas in people's everyday lives are transmitted to others through body elements, which are themselves determinant social-cultural bonds and form the public intellectual space through people's minds. In other words, physical elements represent cultural-social-religious values and concepts as a means of exchange between the inhabitants of a city. Among the highly regarded buildings in Islamic cities are the mosques and the architecture of the mosques. In these spaces, the decorations, which always have many meanings and are composed of different geometric and non-geometric motifs, are unique. In every period, the architecture of the Muslims has benefited from the geometrical principles and exact system of mathematical proportions (especially in Iran). The geometry and golden fit played a vital role in the investigated mosques' construction, shape, and spatial elements. Islamic scholars and architects paid great attention to geometry. The architect works to apply geometrical principles to create beauty and solidity in the construction of the mosque. Understanding this function can play a significant role, in addition to the culture, sociology, and economics of that period, restoring and conserving the historical monuments of these mosques that would not have been possible without re-reading the geometric proportions of a memorial.

Social, cultural, and some climate factors influence the formation of the body elements of the mosques and change how they are used. Differences in some of the features in the mosque body in Islamic lands affected by these factors make a difference in the geometry and geometric design of the mosques. Still, despite international and geographical differences, the motifs employed therein also share commonalities. They are concerned with organizing the shape and structure of the form and use, including the Sheikh Lotfollah mosque in Isfahan and Sultan Ahmed Mosque in Istanbul.

The origins of the geometrical motifs of these two mosques can be examined from two perspectives: form and content. In the case of form-physical view, it has regular stylistic components derived from the concept of geometry in Islamic architecture. From a con-

tent perspective, it reflects the themes of belief. The architecture of the Sheikh Lotfollah mosque with Safavid architecture is very intricate and intertwined with the motifs of the Sultan Ahmad Mosque, influenced by the Hagia Sophia Mosque and the Byzantine cathedral plans with simpler geometry and complexity in height focus on circular shapes. Different motifs, such as geometric designs, are common in the two mosques, executed in other divisions, compositions, and colors. Still, despite the contradictions, the viewer's feeling is not different, and both mosques provide a peaceful sense. It is because of the mystery in the motifs that, in addition to decorative overlay, are symbolic and transcendent meanings of a mystical and contemplative nature, symbolizing unity.

This mosque is associated with the architectural works of Sinan, the great architect of Ottoman Turkey, whose main works are between 1550 and 1575 AD. In the building of Sheikh Lotfollah Mosque, you can find spaces and trends similar to the rooms and trends created in Istanbul mosques. However, in Turkey, no example can be seen that matches the flexible and exact structures embodied in the Sheikh Lotfollah Mosque. In Istanbul, it is more preferred to use large angled pendants used in round arches in multiplicative arches. In this case, they have followed the pattern of Hagia Sophia, which was common a thousand years ago. But this moderation and strict observance of rules and sizes, which create a monolithic and almost dense space, are not in conflict with the skillful subtleties of architecture. For example, such precision and elegance in Sheikh Lotfollah Mosque can be seen in the inner corridor on the other side of the head in the hanging and beautiful entrance porch, which is located in the square. The corridor has a narrow path that has created a passage with three curves; this passage instills a mystical feeling by creating a light shadow space.

In Sheikh Lotfollah Mosque, there is an agreement between a world of excitement, silence, and peace. The glory has represented the rich taste and aesthetics and can have no source other than religious faith and heavenly inspiration. Compared to Sultan Ahmad Mosque, this mosque has no courtyard, minaret, and porch, and also due to the closure of the four walls, the mosque is somewhat dark. Although the mosque is oriented precisely towards Mecca, it has an angle to the Naghsh Jahan square, which a porch hides its entrance, and this angle. This porch, instead, faces the square and the main points of the compass. A corridor with a short roof that connects the porch and the domed arch is hidden from both, includes these contrasting axes. It also draws human attention to a conflict that could easily have been avoided. Therefore, it can be concluded that the conflict is intentional. The Islamic architect, to show the light, must first acknowledge its absence.

For this reason, it passes the visitor in the corridor (darkness) and the next stage, if a person enters the nave directly from that ocean of light (Naghsh Jahan Square with arches around the square that reflect light and illumination Doubles), not only does not see

anything, but there is also the possibility of falling due to the presence of stairs. If the lights currently installed in the hallway are turned off, the available lights are only to guide and identify the tiles around the windows. Even at the end of the second corridor, almost absolute darkness prevails. First, the darkness in this place creates two states in the audience; Lack of light (God) and urgent need for him; secondly, the eye has the opportunity to get used to the darkness to some extent and to adapt to the less light that exists inside the nave compared to the abundant light in Naghsh Jahan Square. By creating the most beautiful place to make light and color, and presenting it in the most attractive roles in the audience, a feeling and a phenomenon is created a similar to it in Bach's musical cantatas where he says with the most beautiful song in much more beautiful words: "We "We are all just shadows." Because only where there is light can there be shadow. Or, in the most beautiful poem of Hafez, he says: "I see the light of God in the ruins of Moghan" because the ruins of Hafez are the place of God and this light is the light of God. The purpose of the tasteful designer of the mosque construction was only to present God's existence and the light of God to the viewer, who has succeeded in achieving that goal in the best way.

Both mosques have used common body elements in Islamic architecture, such as the entrance, the dome, and the altar, to instill a sense of unity and spiritual space. But at the same time, there is a difference in how the body elements are used and arranged. In the Sultan Ahmad Mosque structure, the mosque exterior with the repetition, half-domes, the central dome, and the installation of minarets demonstrates the belief in the principle of unity. But in the Sheikh Lotfollah Mosque architecture, this belief is expressed through the use of the inner dome (the dome space with the motifs interconnected and the circular motions to the center). In Islamic mosques, the body and geometry used are integral, and they are not separated. The geometry used in mosques has a direct connection with its body. It is not merely decorative and is associated with the physical body. They have both created mosques side by side, and the absence of one makes meaningless sense and physical defect. The individual features of these mosques and the geometry of their construction distinguish them from the rest of the buildings and convey deep concepts that are consistent with Islamic themes and ideas.

Both mosques were built by order of the rulers of their time and especially to symbolize the power and political influence of the rulers. Both mosques reflect the religious characteristics of the rulers, which are illustrated by the use of inscriptions with specific verses. Climatic features can also be seen in the Ottoman architecture being influenced by Byzantine school and Safavid architecture, affected by earlier styles in Iran. The motifs of these two mosques have features such as symmetry, balance, repetition, the principle of time and place, subordinate to the whole, infinite expansion and reduction, and centralization. The primary

function of the motifs is to coordinate with the mosque body and induce the presence of God based on the principle of unity.

#### BODY FEATURES OF CASE STUDIES

##### SHEIKH LOTFOLLAH MOSQUE IS A PERFECT SYMBOL OF ISFAHAN IRANIAN ARCHITECTURE

Isfahan school is the latest style of Iranian architecture. It was not originally from the city of Isfahan but grew up there, and the most prominent buildings of this style were built in Isfahan city. The first period of this style began shortly before the Safavids came to power in the time of the Qarqyunloo, and the end of the first period was simultaneous to Muhammad Shah Qajar. The second period is the time of regression (degeneration) of this method, which started in the Afsharid period and was followed by the Zandian era. Still, the complete recovery began in the time of Muhammad Shah. From then on, the Isfahan style did no longer find a substitute. Although it was attempted not to break the continuum in Iranian architecture, this art no longer followed evolution. The most noticeable features of Isfahan style architecture are simplified designs in most buildings, spaces, or quadrants; simple geometry and versatile shapes and lines; utilizing the same organs and sizes and simplicity of the design as evidence in the buildings [9].



Figure 1. Outside view of Sheikh Lotfollah Mosque in Naqsh-e-Jahan Square

Sheikh Lotfollah Mosque, one of the most beautiful works of Isfahan architecture, is located on the eastern side of the historical square of Naqsh-e-Jahan and in front of the Aali-Qapoo Mansion (figure 1). Unlike the traditional pattern of Iranian mosques, the building lacks a courtyard and a minaret. One of the features of this rotating mosque is the square shape of the prayer house concerning the axis of symmetry of the entrance, which aims to regulate the entry to the Qiblah. The spatial displacement of the dome and asymmetry can be observed in the entrance view of the building. Surprisingly, this difference not only did not cause any perturbation but also added to the aesthetics of the building and made it a unique one [10]. The front porch of the mosque is located on the east side of the square based on a specific geometry so that the location of the building entrance divides the square side into two parts with golden proportion to each other.

#### Decoration and structure analysis

According to some scholars, this mosque is an example of realized art or expression of wisdom, such as mosque architecture in the sense of direct expression of mysticism. In Isfahan school mosques, which were formed under a political power and had a predetermined design, it is expected that all or previous arrangements will be thought out by the architect with due regard to the ruling intellectual system.

In Islamic architecture, there is a relative relationship between the concepts and their underlying functions of architecture with the forms that express the body content.

In general, this relation between the higher-order of existence with the lower-order of existence can be seen in the analogy world and example as God's relation to other phenomena. Thus, the concepts and content of art are within the work of art and not with it and are outside it and not separate from it, and this relationship is the relative manifestation of meaning in the form. Hierarchy in architecture attempts to express the concept of the transition and the gradual aspect of the perception process. The principle of order is to organize and combine spaces and elements based on some of their functional body properties that give rise to a hierarchy of how elements are placed, used, or viewed.

In the school of Isfahan, the Shiite intellectual background provided the necessary ground for the emergence of all aspects of the hierarchy in architecture. In the Sheikh Lotfollah architecture, a form of visual hierarchy has been used to transform one form into another and to facilitate the conversion more accessible for the viewer to see. The spatial hierarchy can be observed at three noticeable levels:

- Spatial classification between inside and outside that emphasizes the boundaries of space.
- Body classification between component body and whole body shows the path from component to a whole and simple to complex.
- Classification of drawings and arrays from base image to the whole image

The hierarchy in this mosque exists in the form of a journey from the outside (horizons) to the inside (egos), a cycle from disorder to order and from defect to perfection. Designed within the framework of the Isfahan School, the mosque has gone so far as to embody the Hajj rituals and the mosque structure, which is sacred and has a hidden geometry. The structure is rooted in the coded numbers, semantic, and exponential weight, so the mosque is an inside versus other spaces known as outside.

The plan is arranged and balanced around the Qiblah in the mosque. The entrances, porches, primary, and sub-spaces are valued accordingly. The interiors are calibrated by value and position, being placed on the map. The altar, the worship spaces, and the main porch, which are the entrance to the guesthouses and domes, are at the heart of the main axis of the court-

yard with Qiblah. Doors, sub-porches, entryways, and other interiors lay in the transverse axis of the courtyard with Qiblah. The service spaces are located in and around the transverse axis of the yard. The communication spaces are located in the corners and farthest from the central axis. Sanitary facilities and sanctuaries are as far away as possible from the main courtyard and central courtyard and are positioned around the entrance gates and sub-yards.

Analyzing the mosque's space from the upper plan, it is seen that the principle of spatial hierarchy and design of the entrance is as a beginning of the mystical way of prayer that is of particular importance. The entrance also influences other spaces, and the view of the courtyard and other areas of the mosque can be improved by moving from the mosque entrance to the angled corridors. This is due to the gradual angle of the prayer's path along this corridor, which results in the purity of nature, intent, tranquility, and particular temperament. A detailed scheme of the plan from different viewpoints is shown in figure 2.

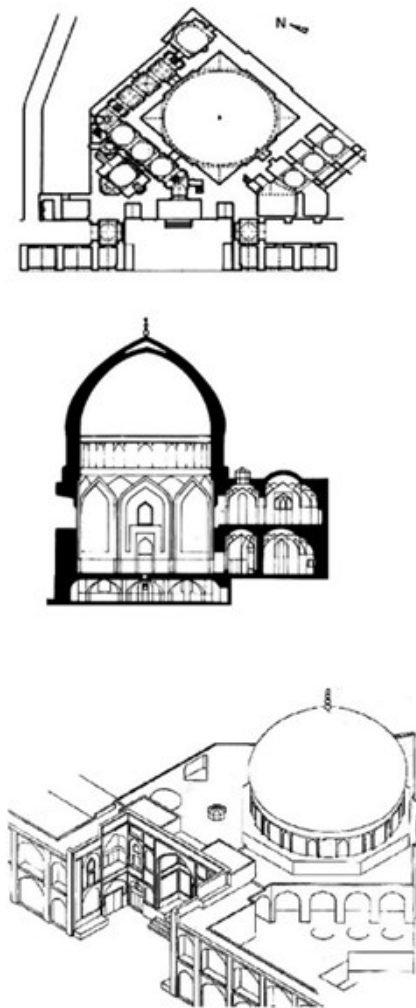


Figure 2. Scheme of the Sheikh Lotfollah mosque's plan from different viewpoints

Some have suggested the necessity of turning the mosque towards Qiblah because of the more complex entrance system. The prayer space is the main pillar of the mosque's structure and is represented by a seraglio or dome, which has a specific and precise meaning. Therefore, the altar element is considered to be the identity of the prayer space. The altar is a niche-like part that symbolizes the Qiblah and the presence of the Prophet.

#### Role of motifs and inscriptions

One of the most abundant motifs on the four sides of the Sheikh Lotfollah Mosque is a star. These stars are quadrupole from bottom to top and become a five-pointed star at the highest point in the wall. These motifs beautifully retain the number 9 so that if each of the four full stars is added to a star, the number 9 is again obtained. The drawing approach of the motifs in the Sheikh Lotfollah Mosque's dome is that there is a Shamsah in the middle of the dome and after Shamsah, 8 (or 9) rings are formed around it, and there are 32 peacocks in each ring to expand the ring outward. There are 18 inscriptions inside Sheikh Lotfollah Mosque. So as eight ones in the eight mosque walls, eight in the rhombus under the dome, and four in two rows under the dome (figure 3). Summing the digits of 18, 9 is obtained.

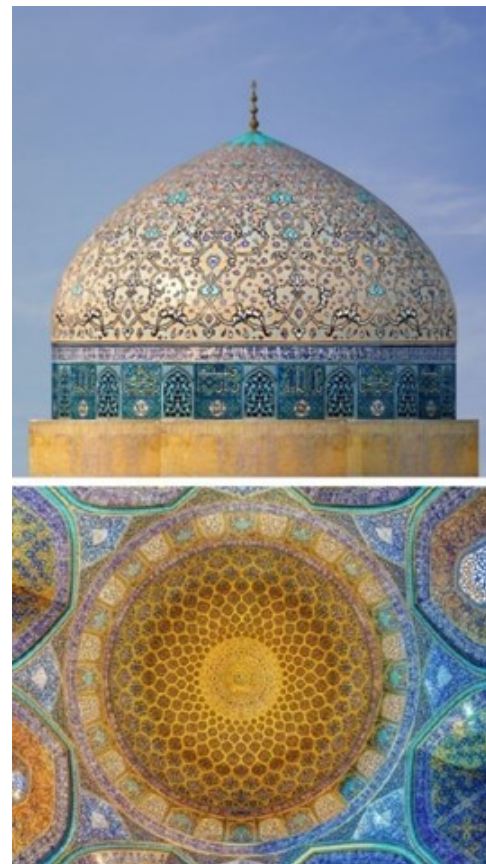


Figure 3. Dome of Sheikh Lotfollah mosque

On the other hand, these inscriptions use the verses of the Quran. More details of the inscriptions and motifs in both exterior and interior sectors are observed in Figures 4 and 5.

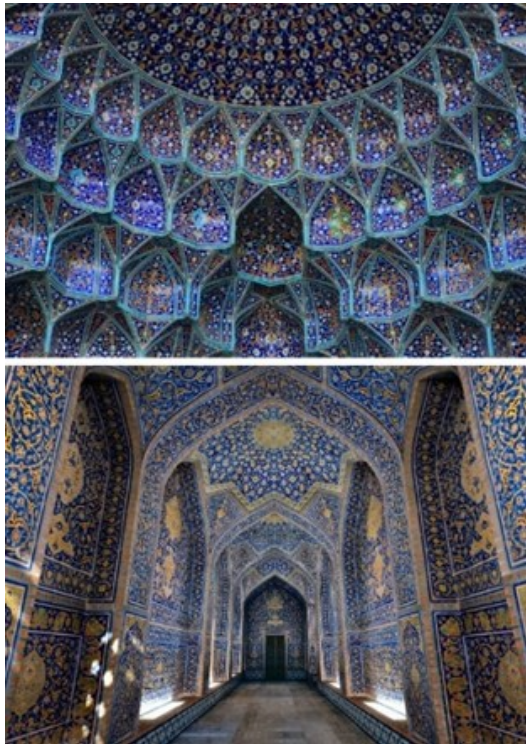


Figure 4. Tile and motifs of Sheikh Lotfollah mosque

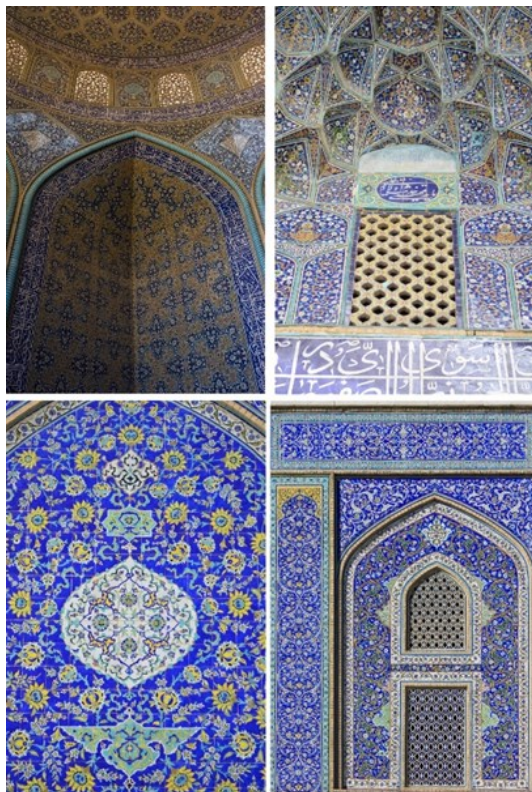


Figure 5- Patterns and inscriptions of Sheikh Lotfollah mosque

#### SULTAN AHMED MOSQUE AS A PROMINENT OF OTTOMAN ARCHITECTURE

Ottoman mosques have three main styles: multi-dome style (grand mosque built to imitate Hagia Sophia); single-dome mosques; mosques with verandas in the style of Azerbaijan (Tabriz). Multi-domed mosques are usually built in major cities and capitals and are used for formal ceremonies (e.g., Eid al-Fitr prayer). They have a large seraglio with multiple domes. One of the features of Ottoman architecture that imitates the Byzantines is the use of skylights in the neck section of the dome. Next to the seraglio shrine, it has three porches. Some bed sheets have regular columns. Next to the seraglio space, the mid-space is built with three porches. Some seraglios have regular columns. The single-dome mosques have a simple plan as a square seraglio with a central dome. In the middle of the Ottoman period, with the arrival of Iranian artists to the Ottoman government, mosques with porches became popular [11]. The three porches of the Roman style of the palace turn into three porches around the mid-space. Thus, one of the developments in the Ottoman period is the conversion of the porch to the veranda, e.g., the mosque and the school of Sultan Murad Ahmad I in the 8th century A.H. The main features of the Ottoman architecture is: wide and spacious central dome; seraglios on either side of the dome; central dome and numerous side domes; attention to the exterior; utilization of minarets in the Byzantine style (figure 6).

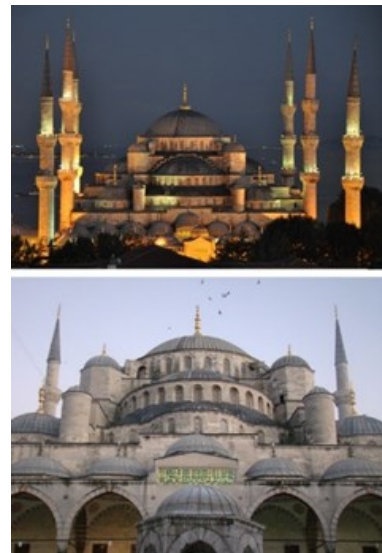


Figure 6. The exterior of Sultan Ahmed Mosque

The Sultan Ahmed Mosque was built between 1609 and 1617 by Ahmed I, consisting of a central dome and half-domes around it, the only mosque in Istanbul with six minarets. Located in downtown Istanbul, its location is known as Horse Riding Square and has several entrances. A spacious courtyard, a dome prayer house with ablution facilities on each side, and a row of



arches in four courtyards merged for unity. The mosque is the last great mosque of this classically privileged period and reflects the royal ambition. One of the tall stone entrances of the mosque has two gold-colored metal inscriptions on the green background [12]. The stone mahogany of this shrine is made of honeycomb and sometimes eight-pointed flowers. The design of the six-pointed star is also one of the designs in Mogharnas. Inscriptions are the most prominent decorations that attract the general viewer earlier than any other decorations due to the direct messaging feature. Islamic signs are white, with an azure and reddish background; brick-like yellow can also be seen in parts of the background. The mosque courtyard is rectangular, and around it are porches that all intersect with half-domes and pillars. The half domes of the courtyards are covered with white plaster, and parts of it are painted in red, with Islamic and geometric motifs. The history of using small domes on arches in Iranian and Ottoman architecture dates back to the Seljuk period. But in Ottoman architecture, a different system uses regular movement around the courtyard on the porches and attaches to the main dome and half domes [13].

#### Analysis of The Structure

The space of the Sultan Ahmad Mosque is much larger than the veranda mosques due to the use of half domes. The use of multiple windows in the mosque interior, the presence of many lights hanging in the dome center, and the very luminous and beautiful atmosphere demonstrate a human passion for beauty, and indeed his passion for paradise, which lies in his essence and nature and human has it in the depths of his being. Beauty is a reminder of the spiritual right from which human originates and helps to return to that ever-present reality. The domes are adorned with magnificent Islamic and Khatai motifs. The blue color of the mosque has added to the spirituality of the space with the illumination of the lights. Alongside each half-dome, colored glass windows incorporate geometric and chaotic patterns. The influence of color and light on Islamic architecture is undeniable. This is of great significance and is one of the essential factors in the spiritual space of the mosque [14].

In this mosque, sacred art has boycotted illustrations that can be in disagreement with the divine essence. On this basis, the architect has been able, with the help of form and decoration, to carry out the message of Islam, which is to avoid imagery. Underneath the dome, semi-domes have created various forms and have provided some fragmentations in the general form that confuse the viewer. But what unites this ornament is that it is shown in a neat structure using the centralization pattern of the half-domes and the main dome. It looks like there is a complete order in different galaxies that all glow in the sky at the same time.

So Islamic lines, besides being visually appealing because of their precise fit and high formability,

have both symbolic and mystical meanings. The space below the dome is white, covered with bergamot and reddish-white backgrounds and white Islamic signs and circles with chrysanthemums in the reddish-blue background. Some domes in the earrings are Hussein, Ali, Hassan, Abu Bakr, Omar, and Othman. Here too, spaces are full of mysteries created through motifs, colors, and shapes. These motifs place the human being in a spiritual perspective. In this emotional decoding, solitude, silence, presence, and forgetfulness come to the human being. It manifests its meaning in the form of a mystery, and there is a genuine relationship between the form of the unknown and the hidden meaning. The face of the unknown is a manifestation of an esoteric meaning [15].

Located just opposite the Hagia Sophia Mosque (formerly the Church of the Holy Sacred Wisdom of Christians), according to the creators' wishes, the Blue Mosque has dominated the skyline of the Old City of Istanbul. The mosque was deliberately built in front of the Cathedral of the Holy Wisdom to show that Ottoman and Islamic architecture can compete with everything Christians have built.

According to the mosque plan (Figure 7), it can be seen that the base of the mosque is cubic. The overall image of the mosque is one of the complete visual images that guide the viewer's eye to the dome's peak. It is hierarchically visible like a journey from the outside (horizons) to the inside (egos) in the Sheikh Lotfollah mosque.

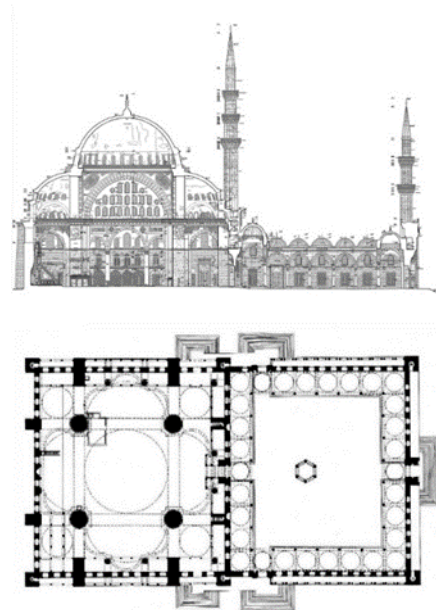


Figure 7. Plan of Sultan Ahmed mosque

There are two modes of Ottoman architecture that are most prominent in this mosque: the low-rise dome and the dome-shaped plan, and the other is the number of minarets. The unique decorative use of the minarets in the corners of the mosque is a feature of the architecture of the Ottoman mosques, which somehow recognizes the complexity of its peripheral

texture and creates a strong perspective on the viewer (Figure 8).



Figure 8. Interior view of Sultan Ahmed mosque

#### Decorations Evaluation

The main characteristic of decorations in this historical period is the use of stone as the most commonly used material over plaster and tile to decorate the interior of the building. The exterior of the mosque is of magnificent size, but its decoration is tiny. The view of artists in such mosques rests on the principle that the interior should be beautifully adorned as a place of worship by utilizing motifs. The most magnificent parts of the mosque are tiled [16]. At the end of the 16<sup>th</sup> century and the beginning of the 17<sup>th</sup> century, rich color diversity was observed in the tile workshops. Grape twigs, artichokes, plums, pomegranates, cloves, mint, bunches of flowers, violets, hyacinths and jasmine, cedar, tulips, and leaves are the prominent motifs with shades of colors such as red, sea coral blue, purple-blue, black, green being used in them (Figures 9 and 10).

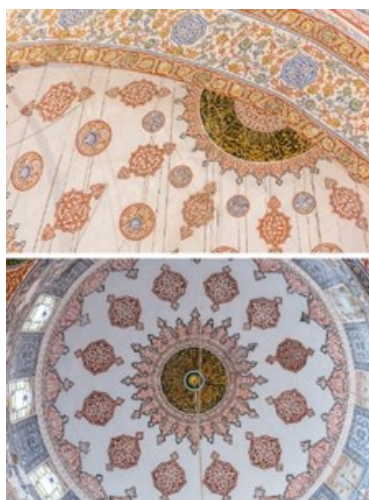


Figure 9. Decoration of dome and half-domes

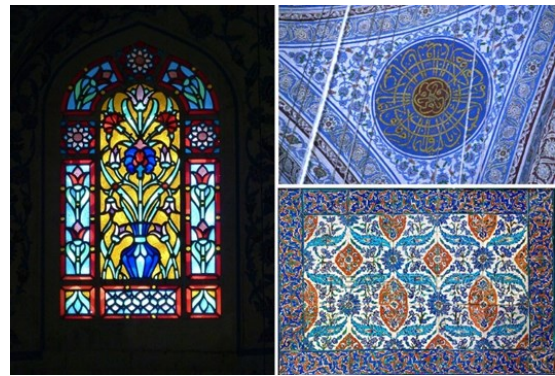


Figure 10. Different types of ornament in Sultan Ahmed mosque

#### CONCLUSION

In the Sheikh Lotfollah Mosque building, various arts are intertwined that, besides the aesthetical aspects, they have helped conceptualize its components and elements. It can be claimed that the Muslim architect has permanently been attached to an extra-terrestrial spring when creating beautiful buildings such as the Sheikh Lotfollah Mosque. A distinctive feature distinguishes this mosque from other Islamic mosques in the shadow of transcendent truth and order in every line and motif. Each symbol with the code in it not only finds a reality beyond this world but also descends from one place to another in a visual way to express the transcendent meaning.

Sheikh Lotfollah Mosque is one of the most important monuments of the Safavid era, and Sultan Ahmad Mosque represents one of the masterpieces of Ottoman art. In both of these buildings, the artist's effort was to bring the building beautifully and to sanctify the space. Creating a mosque is to depict the spiritual state of mind and bring peace to the worshipers. But the decorations of each have accomplished this purpose differently. The original structure and the different forms in both mosques have not eliminated the principle of unity. The artist of Sheikh Lotfollah mosque decorates the whole space as a sign of beauty and tranquility, and therefore enjoys the motifs in all parts of the building; the courtyard, arches, verandas, arches, and so on are all covered with decoration. But in the Sultan Ahmed Mosque, the whole space is of stone. The decorations of the courtyard of the mosque are tiny compared to that of Sheikh Lotfollah. Most of the Islamic signs and Khatai motifs are below the dome and in the main area of the Sultan Ahmad Mosque. The azure and blue colors of both mosques are noticeable to a great extent. Red and yellow are two colors that the artists use in each of these two religious buildings. Scarlet red at the Sultan Ahmed Mosque and Yellow Mosque at Sheikh Lotfollah Mosque has been used as the most popular colors. Both colors may be symbols of light and holiness, but depending on the culture of the land.

Interestingly, yellow has not been used in the Sultan Ahmad Mosque, and in the same proportion, Scarlet red, except in minimal areas, has no place in

Sheikh Lotfollah Mosque. The use of Islamic signs and Khatai and inscriptions is a commonality of the two mosques executed in different divisions, compositions, and colors. But this difference does not make the viewer feel different, and both mosques induce tranquility in humans. This is due to the mystery of the motifs that unite the whole building in Islamic buildings. Despite the difference between the two, there is a display of homogeneity and dominance over the form. The form behind the decoration and Islamic concepts and values is a message of unity and solidarity.

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