

Research Paper

Continuation of the Previous Artistic Style with the Change of Government in the New Era

Case example: investigation and comparative study of the Al-Kadhimiya shrine with the buildings of the 9th century AH

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Abstract

Shrines, as part of the most magnificent works of Islamic art, not only play an essential role in the social life of cities but also reflect the architecture and arts of their time. Sometimes, these buildings are grouped and have been constructed over various periods. In the present study, the shrine of Al-Kadhimiya is examined. The Al-Kadhimiya shrine complex, located in Baghdad, includes the tombs of two Shiite Imams. The construction of this complex began in the ninth century. The oldest inscription in this collection dates back to 1519 AD. According to historical evidence, the structure was built during the Safavid period. However, the construction rules, proportions, and principles of covering the space, as well as the design of the dome and the surrounding porch, incorporate pre-Safavid (Azeri) and Timurid art styles. This raises the question: how can a comparative study of the dome of the Al-Kadhimiya shrine with similar examples from the Timurid period prove that the change in artistic styles is a gradual process and not necessarily subject to changes in government? Therefore, this study examines the following hypothesis: the historical discontinuation of governments does not directly affect the architectural structures related to the subsequent period, which instead follow a gradual developmental course. This article employs a historical research method and comparative analysis. It compares the Al-Kadhimiya shrine with two complexes: the shrine of the eighth Imam of the Shiites in Mashhad, Iran, and the tomb of Shah Nematullah Vali in Kerman, Iran, as well as other Timurid domes. The results indicate that architectural techniques and structures are not necessarily updated with changes in government but follow a gradual process.

Keywords: Change of artistic styles, Timurid period, Safavid period, Al-Kadhimiya shrine, Dome and surrounding archway.

INTRODUCTION

The sanctity, noticeability, and activeness of the shrines of the Shiite Imams in terms of pilgrimage and tourism [1-3] have caused the historical aspect of these collections to be neglected [4-5]. The architectural and historical significance of these sites is often overlooked due to the focus on land use, crowd management, and the needs of contemporary pilgrims. This neglect is even more pronounced when considering the primary cores of formation and the

gradual development of these collections in contrast to the extensive physical developments of recent years. Additionally, the author notes that the historical nature of these collections highlights the originality and antiquity of the pilgrimage tradition.

Most research conducted on shrines focuses on the historical development, events, and figures associated with them, often adopting a descriptive approach. One of the most significant shortcomings of previous studies is the lack of analysis of existing data to better

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understand the relationship between architecture and the factors influencing it.

The Al-Kadhimiya shrine complex houses the tombs of the seventh and ninth Imams of the Shiites. Originally located within the Iranian Empire during its construction, it is now situated in Baghdad, Iraq. Like other shrines, this complex has been neglected in historical and physical studies. The physical changes and numerous constructions from various historical periods make this shrine complex valuable for study. Detailed examination of these physical changes, and their correlation with different periods of government, reveals differences in these parallel developments. This article aims to provide a comprehensive understanding of the shrine's physical evolution, identify the primary core of its existing structure, and present a hypothesis on the gradual evolution of artistic styles in contrast to the sudden changes in government periods.

According to historical documents, the dome of this complex was built during the reign of Shah Ismail Safavid but structurally follows the principles of the Timurid period. This research aims to prove the hypothesis that changes in government do not directly influence artistic and architectural styles of subsequent periods. Unlike the abrupt change of rulers, these styles evolve gradually.

RESEARCH METHODS

The research method of this article combines historical research with comparative analysis. This analytical approach is necessitated by the lack of comprehensive information and historical documents. The writer conducted field studies and referred to documents such as inscriptions in the shrine and travelogues to identify the Al-Kadhimiya shrine complex. To determine the construction date of the existing dome, a comparative study was performed, analyzing the components and geometric features of buildings with similar structures. The study focuses on the shrine of Imam Reza (AS) and the tomb of Shah Nematullah Vali due to their similarities in function and structure with the Al-Kadhimiya shrine. Both complexes feature significant constructions from the late Timurid and early Safavid periods, making them suitable for comparative analysis relevant to this study.

Besides, he studied the proportions of the building plan to recognize its construction period.

The background of the study

Due to the significance of Islamic architecture, numerous studies have been conducted on its various

aspects, including urban planning. The architectural knowledge of historical buildings from different Islamic periods has been of great interest to architects, artists, and researchers. In relation to the subject of this article, the existing research can be classified into the following three areas:

- Studies of religious buildings of Shiite Islamic architecture

Masoudi ASL Et Al., [2] examined the importance and position of shrine architecture in the Shiite sect by studying the architectural principles and foundations of shrines to discover and recognize their common qualities. The results indicate that, despite being built in different periods with varying functional roles, shrines share common principles such as naturalism, symbolism, introversion, and regular geometry. Another survey focused on the historical evolution of the shrine of Khwaja Abu Nasr Parsa, exploring the reasons for the development and evolution of this historical monument [6].

- Studies on historical monuments in the Timurid period

Regarding studies on historical monuments from the Timurid period, Saremi and Hasangholinejad have conducted research focusing on the mosques of this era [7]. In his book titled 'Archaeology of Afghanistan: From Earliest Times to the Timurid Period,' Allchin examines and identifies historical monuments from various periods, including the Timurid era in Afghanistan [8]. In the Timurid Century, Melville examines the culture, art, and architecture of the Timurid period [9]. Another related book, 'The Timurid Architecture of Iran and Turan,' seeks to showcase the activities and structures, including shrines, constructed during the Timurid period [10].

- Studies related to the shrine of Al-Kadhimiya

Kareem in his dissertation on the shrine of Kadhimiyn deals with aesthetic issues and different strategies for the development of the historic site of the shrine [11]. Much of the research focuses on an urban scale, aiming to address issues such as urban identity, redevelopment of historical sites in the vicinity of the shrine, and its reconstruction [4-5]. Recognizing historical monuments has been crucial across various social, economic, geographical, and cultural fields. Therefore, addressing this significance is essential. However, existing studies have not adequately explored the impact of rulers on the construction

process and the geometric and structural analysis of Shiite architectural buildings. Thus, this study aims to test the following hypothesis: The historical continuity of governments does not directly affect architectural structures related to subsequent periods; rather, their evolution follows a gradual process. The case study focuses on the shrine of Kadhimiyn in Baghdad.

FINDINGS

An overview of Baghdad City, Al-Kadhimiya neighborhood, and shrine complex

Baghdad held the distinction of being the largest city in the world from 775 to 935 AD, likely becoming the first city globally with a population exceeding one

million. [12] The Al-Kadhimiya neighborhood, situated along the Tigris River in the northwest of Baghdad, is today the oldest neighborhood in the city [13] (Fig. 1- 3). The Al-Kadhimiya Historical Site is situated in the Al-Kadhimiya area, a northern neighborhood west of the Tigris River, approximately five kilometers from the center of Baghdad. Originally an independent city, Al-Kadhimiya later integrated into the expanding city of Baghdad as a prominent neighborhood [12]. Al-Kadhimiya features a prominent structure at its center, characterized by two tall domes housing the tombs of the seventh and ninth Shiite Imams. Surrounding the domes and archway, the shrine includes a mosque, known as the Safavid mosque, located to the north of the dome chamber. A U-shaped courtyard encircles the dome, along with adjacent rooms [5] (Fig. 3).



Fig 1. Aerial photo of Baghdad



Fig 2. Al-Kadhimiya neighborhood and its connection with the Tigris River and the location of the shrine in the center of the neighborhood



Fig 3. The tissue around the shrine has been destroyed in recent years, causing the shrine and the surrounding body to rupture (<https://earth.google.com/web>)

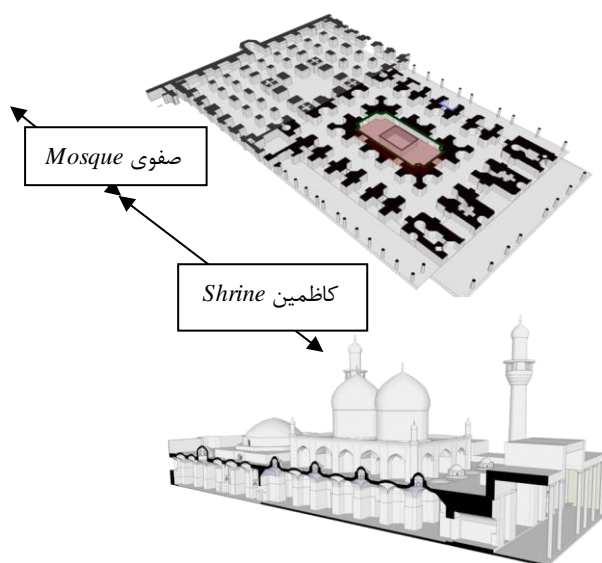


Fig 4. 3D plan of shrine and mosque (the technical office of the Faculty of Architecture of Shahid Beheshti University)

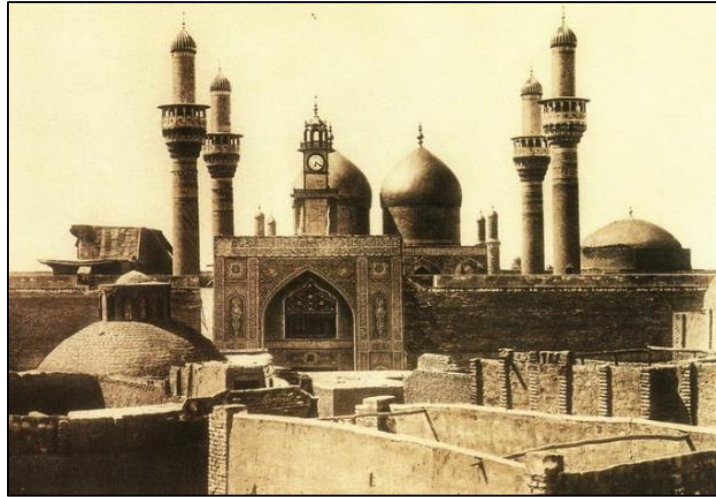


Fig 5. View of the shrine from the west, 1925 (<https://www.meisterdrucke.ie/>)

The course of the historical-physical transformation of Al-Kadhimiya City and its holy shrine

When Baghdad was selected as the capital during Mansour's caliphate, there were gardens near the city [12]. In 762 AD, Mansour chose this garden as his family tomb and named it the Tombs of the Quraysh. Later, in 795 AD, the seventh Imam of the Shiites arrived in Baghdad from Medina by order of Harun al-Rashid and was assassinated in 799 AD. He was interred in a plot he had previously acquired at the Tombs of the Quraysh [14-15]. The ninth Imam ordered the construction of a tomb atop the shrine of the seventh Imam. He himself was martyred in 835 AD and buried near the grave of his grandfather, the seventh Imam. Following these events, the Tombs of the Quraysh came to be known as Al-Kadhimiya [15].

In 947 AD, under the order of Mu'izz al-Dawleh, the original building was demolished and a magnificent tomb was reconstructed. Subsequently, Azd al-Dawleh Dailami oversaw significant expansions and alterations to the shrine in 979 AD, solidifying Al-Kadhimiya's stature as a city adjacent to Baghdad. In 1049 AD, a massive fire ravaged Baghdad, spreading to Al-Kadhimiya and causing extensive damage to the holy shrine. It was later rebuilt and restored by Arsalan Basasiri [16]. In 1173 AD, the courtyard and shrine suffered damage from flooding caused by the Tigris River. Al-Naser al-dinullah undertook repairs during this period. Additionally, in 1211 AD, he transformed the rooms surrounding the courtyard into a school of religious sciences [17]. During the invasion of Baghdad by the Mongol Hulagu Khan in 1258 AD, the city of Al-Kadhimiya was looted and set on fire. Two years later, Atamalek Jovini rebuilt and restored Al-Kadhimiya during his rule in Iraq. A century later,

Sultan Oveys Jalayir erected two domes over the holy tombs instead of one. In 1374 AD, the Tigris River overflowed, causing significant damage in Al-Kadhimiya. Most of the reconstructions and repairs of the shrine occurred during the Safavid period. In 1519 AD, Shah Ismail Safavid demolished all existing buildings of the shrine and erected a magnificent structure, complete with a courtyard, an archway, and two new tiled domes. He also constructed a mosque with sturdy columns north of the shrine, known as the Safavid Mosque [16].

In 1635 AD, Shah Safi constructed four minarets at the corners of the courtyard. Agha Mohammad Khan Qajar, in 1796 AD, covered the balcony of the south porch and the two domes of the shrine with gold. Naser al-Din Shah visited Al-Kadhimiya in 1870 AD and described it as follows: 'There are many unused gold bricks in the holy dome of Askarain; they are busy gilding the porches of Kadhimiyn. The gold used for the dome belongs to the late Agha Mohammad Khan.' [18]

Based on historical accounts, the shrine has endured a tumultuous past. Its proximity to the Tigris River and location in a city marked by inter-sectarian conflicts within Islam have been pivotal factors contributing to its repeated damage and the diversity observed across its construction periods. Although the earliest documented construction of the shrine dates back to the late 8th century AD, successive reconstructions have obscured much of its original historical evidence. The oldest surviving artifact in the shrine is a mosaic tile inscription in Thuluth script, located at the entrance porch of the surrounding archway known as the Shah Ismail porch on the eastern side, dating to 926 AH (1519 AD). (Figs.6-7)



Figs 6-7. the inscription of the entrance porch to the surrounding archway - on the eastern side of the shrine, dated 926 AH known as the Ivan of Shah Ismail. There are Pictures of the current situation and the image that is related to the wainscots before digging and replacing them with stone.

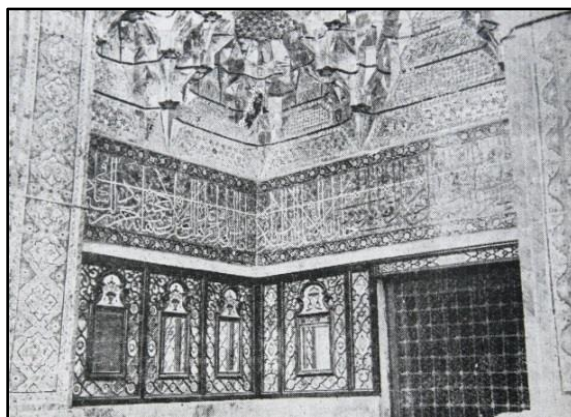


Fig 8. the image of Ivan Shah Ismaili after the interventions of the Qajar period and before the removal of wooden plinths and replacing them with stone in the contemporary period [19]

DISCUSSION

This section employs a comparative study method, beginning with an exploration of the significance of religious architectural complexes during the Timurid and early Safavid periods. It then delves into the key structural aspects of these complexes. The architecture of the Shah Ismail Safavi period is subsequently examined as a transitional phase. Examples include the architecture of Imam Reza's shrine, Shah Netalalah Vali's complex from the Timurid period, and other domed structures with structural similarities to Shah Ismail's era. The structure of the dome at the Kadhemiyn Shrine is described, and its components are compared with architectural exemplars. Finally, the section concludes by analyzing the golden proportions evident in the shrine complex, thereby establishing a chronology of construction for the dome, its surrounding portico, and the northern mosque.

Comparative physical study and analysis with similar buildings

The period of domination of the Azari style is related to the Ilkhanid period (1253 to 1335 AD) and the Timurid period (1322 to 1506 AD)

For a comparative study between this compound and other buildings, understanding the artistic style that influenced the art and architecture of its construction period is crucial. The Azari period of Iranian architecture marks the beginning of construction and physical development for many pilgrimage complexes. In Mubarak Ghazani's history, Khajeh Rashid al-Din explains the philosophy behind the construction of Abval-Albar in the words of Ghazan Khan: 'We should conduct ourselves as Muslims, as Islamic customs are far superior to Mongol customs.' Previously, in Khorasan, he had visited the holy city of Toos and other saints, remarking, 'Those who have lived righteously have a

blessed place of martyrdom and a tomb. How can they be considered dead? Their death is superior to others' lives. Although I am not virtuous, I seek to emulate them by constructing an Abval-Albar as my tomb. [20]

Ghazanieh represents a significant development in Ilkhanid architecture, centered around the tomb of its founder, aimed at meeting the city's essential needs and establishing its identity [21]. In addition to the tomb of Ghazan Khan, Rashid al-Din lists the other architectural facilities of the Ghazanieh complex as follows: 1. Jame Mosque, 2. Shafi'i and Hanafi schools, 3. Sufi lodge, 4. Orphanage, 5. Observatory, 6. Clinic, 7. Library, 8. Court, 9. Director's house, 10. Pool house, 11. Bathroom [22]. Thus, the fundamental essence of many pilgrimage complexes and their surrounding service buildings can be identified through the structural patterns prevalent during that era.

Structural features of architecture in the Timurid period and Azari style

During the Timurid period, the construction process accelerated significantly, leading architects to adopt standardized models and utilize consistent structural and architectural elements.

Frequent protrusions and indentations in the plan

The construction of two-shell and three-shell domes not only served to roof the buildings but also responded to the significance of formal and symbolic aspects on an urban scale within the complex. Most Azari-style complexes featured centrally located tombs, aligning geometric centrality with visual prominence in the city skyline, necessitating the construction of tall domes [8], [23].

Ghazan instructed engineers and observers that the dome of his tomb should surpass the height of Sultan Sanjar's dome in Merv from the Seljuk period, making it the tallest dome of its time. [21]

Shah Ismail Safavi period buildings

According to the author's remarks in the historical study section of the Al-Kadhimiya plan, the overall structure of the shrine, characterized by two adjacent domes, a surrounding archway, courtyard, and Safavid mosque, reflects the era of Shah Ismail Safavid. However, the design elements employed in the Al-Kadhimiya shrine may draw from patterns established during the Timurid period.

Tabriz, the initial capital of the Safavid government, stands as one of the foremost artistic centers of the pre-Safavid era, known as the Azari period. The establishment of neighborhoods like Rabe

Rashidi and Ghazanieh with a centralist structure during the Ilkhanid period, along with the presence of renowned artists such as Kamaluddin Behzad (1455 AD in Herat to 1535 AD in Tabriz) from the Timurid period, underscores the continuity and connection between Azari and Safavid artistic styles.

The development of a unique and distinct artistic style from previous periods requires time. Authority and control over an entire empire, and the resulting cultural output, form the foundation for artists to express new desires and needs. Therefore, the artistic style of the first ruler of a dynasty often reflects a blend of existing styles rather than an entirely new creation.

Early Safavid buildings (sixteenth century AH) feature relatively tall minarets, a characteristic shared with many buildings from the Timurid period. The upper elevations of these structures suggest they can be regarded as stylistically bridging the Timurid and Safavid periods. Each building exhibits traits from both eras, showcasing Timurid tomb architecture within the evolving Safavid style, marking a transitional phase from Timurid to Safavid architectural traditions [24].

The authors utilized the shrine of the eighth Imam of the Shiites in Mashhad, Iran, and the tomb of Shah Nematullah Vali in Kerman, Iran, for a physical comparison with the Al-Kadhimiya shrine, alongside significant buildings of the Timurid period. This comparative analysis focused on examining the structural elements of the dome chamber and conducting geometric analyses of the intricate architectural plans, tracing the developmental processes of these complexes.

The shrine of the eighth Imam of the Shiites

The Razavi shrine, also known as the shrine of Imam Reza, is the resting place of Ali ibn Musa al-Reza, the eighth Imam of the Imami Shiites. Located in the heart of Mashhad in Khorasan Razavi, Iran, it holds profound reverence among Imami Shiites as a sacred pilgrimage site. The oldest sections of this shrine date back to 1213 AD.

During the Timurid period, Shahrokh Mirza expanded the shrine complex in 1418 AD by adding structures around the original dome. In 1467 AD, the Goharshad Mosque was built to the southwest of the dome chamber [25]. (Figs 9-10)

Tomb of Shah Nematullah Vali in Mahan

The tomb or dargah of Shah Nematullah Vali, located in Mahan city in Kerman province, dates back

to the Timurid period. The main structure of the tomb includes Dome No. 1 and its surrounding archway, which was built in the first half of the fifteenth century AD under the patronage of Ahmad Shah Bahmani Deccani. During the reign of Shah Abbas Safavid I, Dome No. 2 was constructed adjacent to the original dome chamber archway, replacing the earlier dome destroyed in an earthquake. The current outer dome, a two-shell structure with 12 internal stiffeners [1], was built during the Qajar period. (Fig 11)

A few other examples of Timurid dome chambers

The cities of Tabriz and Herat wielded significant influence during the Timurid period, and their artistic

style principles persisted into the Safavid era. Examples such as the domes of Eshratkhaneh-e Samarqand, the shrine of Khajeh Abu Nasr Parsa, the Goharshad Tomb, and Khajeh Ahmad Yasavi (Figs 12-15) exemplify the elongation of dome drums and the use of three-shell dome chambers, which were prevalent during this period. The two domes of the Al-Kadhimiya shrine adhere to this architectural pattern [26].

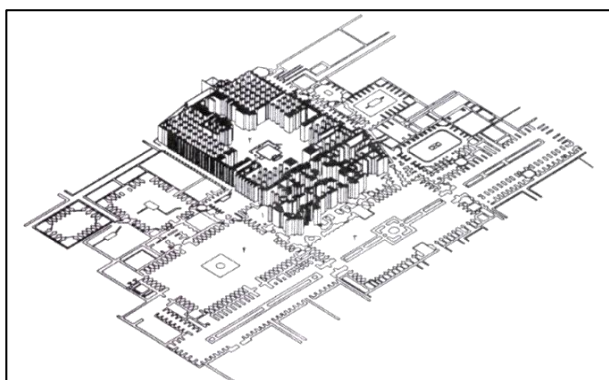


Fig 9. Three-dimensional isometric complex of the shrine of Hazrat-e Reza
The marked section shows the Timurid period (expansion around the original building and Goharshad Mosque) [25]

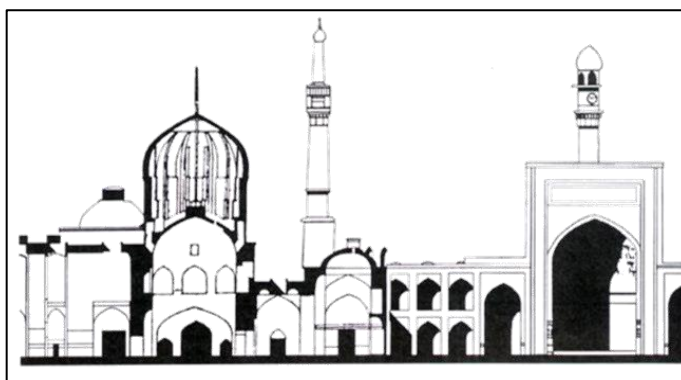


Fig 10. A section from the shrine of Hazrat-e Reza [25]

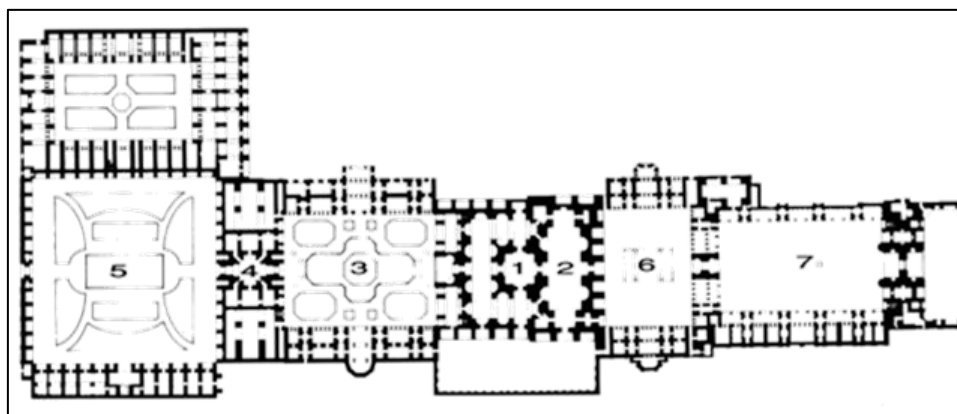


Fig 11. Shah Nematullah Vali Collection. 1. Dome chamber 2. Shah Abbasi archway 3. Vakil-ol-Molk [2]¹ courtyard 4. Shahneshin mansion 5. Atabak courtyard 6. Shah Abbasi courtyard (monography archive of Shahid Beheshti University Faculty of Architecture)

¹ Mohammad Ismail Khan Nouri was first in the service of the Crown Prince in the court of Tabriz in 1845 AD. He became the ruler of Kerman.

• **Dome Chamber of Al-Kadhimiya Shrine**

Each of the two domes of the shrine features an internal structure consisting of 16 brick internal stiffeners connecting the lower and upper shells of the dome. Four of these internal stiffeners are connected, while the remaining 12 are distributed evenly in four quarters of the dome. An arch spans between the two dome chambers, encircled by a surrounding archway (Figs 16- 18).

By comparing the dome chambers and their surrounding spaces of the mentioned Timurid examples with the dome of the Al-Kadhimiya shrine (AS), similarities can be observed in terms of both form and structure.

- One of the features of Timurid architecture is the building of the dome itself on a high drum.
- The dome has two or three shells. (The dome of Al-Kadhimiya shrine initially had two shells, and in

the contemporary period, due to the need to strengthen the structures of the lower shell, concrete shells were built between the two original shells.)

- Brick internal stiffeners between the two shells of the dome
- Placing the dome on top of four pillars with many indentations and protrusions
- Attachment of archways around the dome chamber. The surrounding archway around the Al-Kadhimiya shrine has a more regular geometry and integrated space formed based on the development of previous experiences in the Mashhad shrine and other pilgrimage spaces.
- Attaching a mosque to the northern side of the dome, such as the formation of Goharshad Mosque in Mashhad.

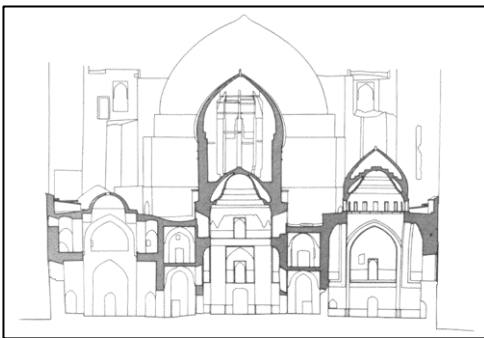


Fig 12. section from the dome of the burial site of Khajeh Ahmad Yasavi in Turkestan

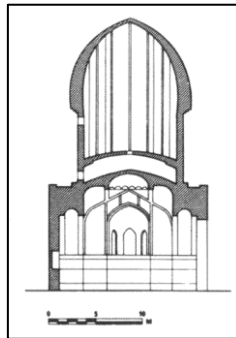


Fig 13. section from Goharshad Tomb in Herat

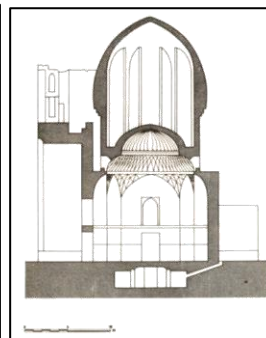


Fig 14. Shrine of Khajeh Abu Nasr Parsa in Balkh

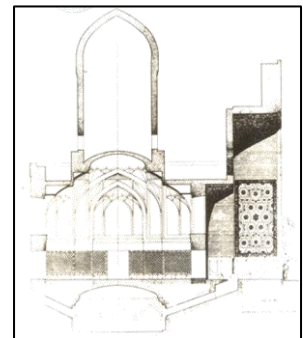


Fig 15. the dome structure of Eshratkhaneh-e Samarqand (Samarqand's brothel) (27)

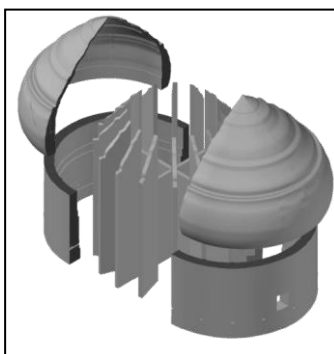


Fig 16. Details of the structure of one of the Al-Kadhimiya shrine (Personal archive of Mohammad Hussein Labani).

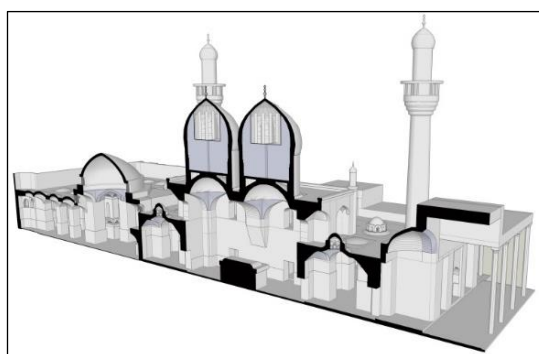


Fig 17. Cross-perspective of the Al-Kadhimiya shrine, the space inside the domes and their internal stiffeners (the technical office of the Faculty of Architecture of Shahid Beheshti University)



Fig 18. the arch between the two domes is evident in this image.

Comparative structural study of the mentioned domes

• Investigating the proportions of domes

To assess the proportions of the dome chambers, the ratio of the combined height of the dome and drum to the diameter is considered. The height of the drum is measured from the base of the lower dome arch. Figures 19 and 20 indicate that the domes of the shrine of the eighth Imam of the Shiites and Shah Nematullah closely resemble the proportions of the dome at the Al-Kadhimiya shrine. (Fig 21)

Comparison of the structural units of the dome of Al-Kadhimiya shrine with the dome of Shah Nematullah Vali

The dome of the Al-Kadhimiya shrine exhibits a striking structural similarity to the shrine of Shah

Nematullah Vali (Figs 22-24). This unique resemblance is not observed in other domes, suggesting a simultaneous architectural influence between the two structures. It raises the possibility of a shared connection between the architects of both buildings, or even the involvement of a single architect. This structural affinity can be analyzed in two distinct parts:

Following the dome chamber, there is a surrounding archway acting as a buttress. The key structural unit forming this is a central small dome flanked by two half-domes on each side, a form and structure shared by both the Al-Kadhimiya shrine and the complex of Shah Nematullah Vali. This unit not only serves as the foundation for the surrounding archway of the dome chamber but also plays a crucial role in the hierarchical access to the dome for pilgrims. Structurally, it enhances the building's durability by acting as a protective ring around the dome. In each unit's center, both buildings feature a skylight to provide natural light to the porch. (Figs 25-27)

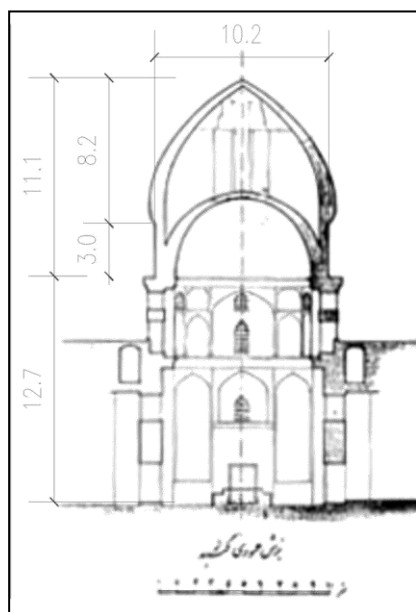


Fig 19. Rise of the dome of the threshold of Shah Nematullah Vali
 $1.37 = (10.2 / 14.1)$.

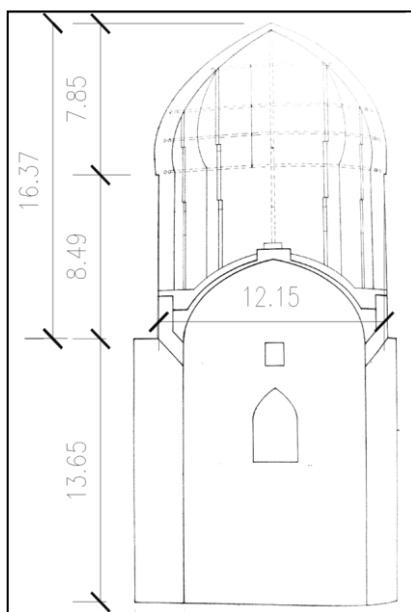


Fig 20. Rise of the dome of the shrine of Hazrat-e Reza (AS)
 $1.34 = (12.1 / 16.3)$.

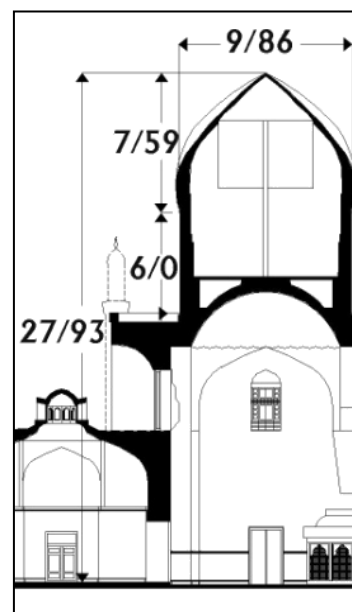


Fig 21. Rise of the dome of Al-Kadhimiya shrine (AS)
 $1.37 = (9.86 / 13.6)$.

In addition to the aforementioned structural unit, the four corner walls surrounding the dome chambers of both the Al-Kadhimiya shrine and Shah Nematullah

Vali's shrine exhibit striking similarities in structure. This resemblance is closely tied to the structural unit discussed in the previous section. (Figs 28-29)

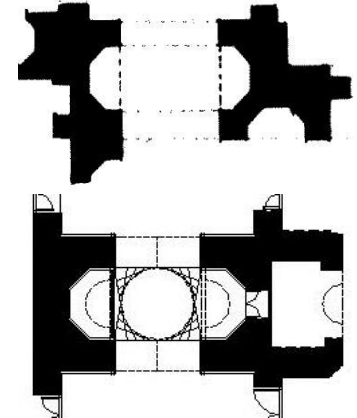
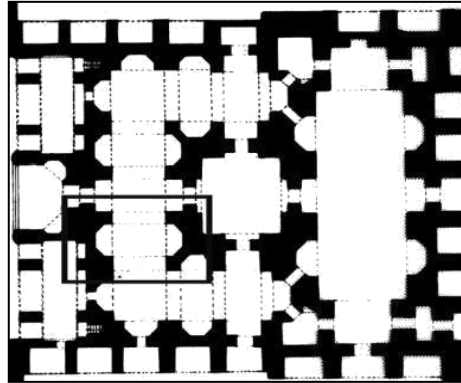
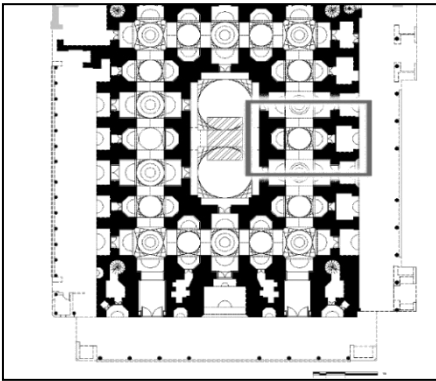


Fig 22. Structural units forming the surrounding archway of the dome of Al-Kadhimiya Shrine (the technical office of Faculty of Architecture of Shahid Beheshti University)

Fig 23. Shah Nematullah Vali's shrine (monography archive of Shahid Beheshti University Faculty of Architecture)

Fig 24. Compare the two mentioned units together



Fig 25. the skylight in the middle of the surrounding archway's structural unit around Shah Nematullah's complex.

Fig 26. the skylight in the middle of the surrounding archway's structural unit around the Al-Kadhimiya shrine.

Fig 27. the portico around the dome of Shah Nematullah

(<http://dendooniha87.blogfa.com/post/146>)

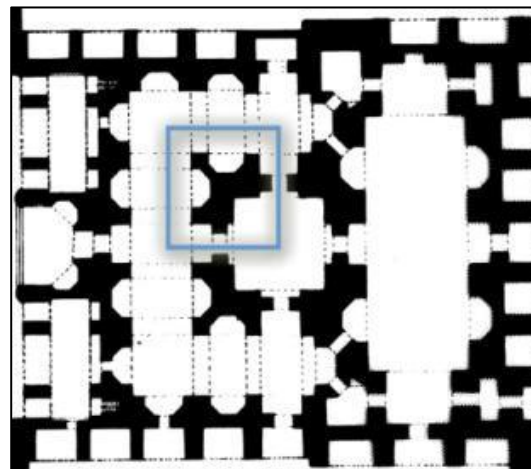
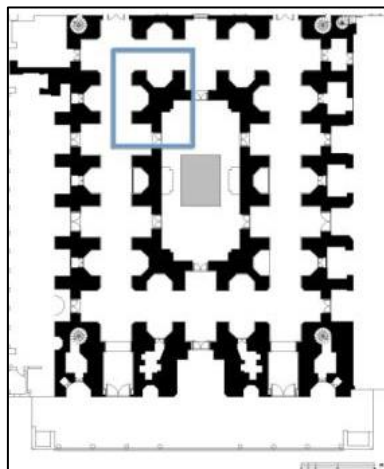


Fig 28. Dome chamber of the Al-Kadhimiya shrine

Fig 29. Dome chamber of Shah Nematullah Vali's shrine

The structural unit that forms the central core of the complex

Due to the evolution of Iranian architecture across different periods, noticeable differences emerge in the formation of structural units. When comparing the proportions and structural systems of the Al-Kadhimiya shrine with Shah Nematullah Vali's shrine, similar structural units are evident in both buildings. These units, comprising the four walls of the dome and the controlling surrounding archway, establish the overall form of the building. This structural similarity suggests a unified architectural mindset and design approach at a specific historical period.

Golden proportions

Geometric analysis of architectural structures aids in delineating their construction periods. The authors assert that employing Iranian golden proportions in spatial design has been essential in Iranian architecture, albeit with variations across different periods. The prevalence of these proportions fluctuates, with the Timurid period showing the highest usage, while later periods favored modular networks. Analysis of the Al-Kadhimiya shrine plan reveals the application of golden proportions in the design of the dome chamber and its surrounding archway, exemplifying this practice. In contrast, the

Safavid mosque within the complex exhibits less utilization of golden proportions. (Fig 30)

Periodization of the current condition of the shrine based on the geometric analysis

The Timurid period showcases a distinctive architectural trait characterized by numerous indentations and protrusions. This design contrast between the shrine complex's primary components—the dome chamber and the surrounding archway with the Safavid mosque—demonstrates the Safavid architect's adherence to the original proportions of the dome and its preceding surrounding archway. Therefore, an initial geometric analysis of the layout reveals three distinct construction periods in the shrine's history:

1. The walls that are filled with color number 1 in map guide are the oldest parts of the current status of the shrine (in Azari style). Today, the Safavid structure of the shrine has been rebuilt on the same walls.
2. Safavid mosque with Safavid architecture style.
3. Attached walls to the northern and eastern parts of the building and made a change in the main entrance; a wall with 30 cm thickness was added to the front part of all of them. This wall protruded about 30 cm from each side of the Safavid porch and made it smaller and beveled in the Naseri porch and made it bigger.



Fig 30. Investigation of the golden proportions in the dome, the surrounding archway, and the Safavid mosque.

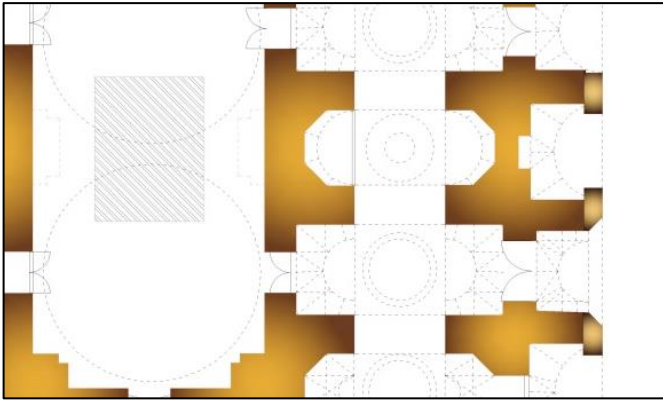


Fig 31. the Safavid entrance porch was blocked during the Nasserite period and the Nasserite porch to its south

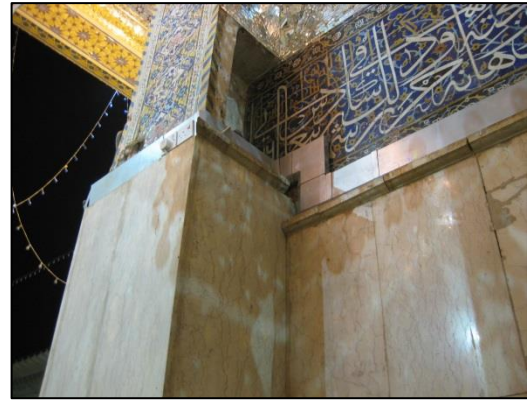


Fig 32. Protruded wall of the Safavid porch, Inscription 926 AH is hidden behind this wall

CONCLUSION

The diversity and evolution across multiple construction periods present a challenge in accurately periodizing Shiite shrines, highlighting significant points in understanding Islamic architecture. Understanding the historical structure of these buildings contributes to a more precise and comprehensive definition of the periods in Iranian architecture. Based on inscriptions and historical records, the current structure of the Al-Kadhimiya shrine dates back to the early Safavid period, with subsequent additions made during later periods, notably during the reign of Naser al-Din Shah Qajar.

In a comparative study involving structural and geometric analyses, it was determined that the layout and proportions governing the plan of the shrine are characteristic of the Timurid period. This finding underscores that the construction period of the original core of the shrine's current form does not align with historical accounts based on governmental changes. It confirms that the architectural techniques and overall design patterns that define the structure do not necessarily evolve solely in response to changes in governmental leadership.

This phenomenon is particularly noticeable during the initial phases of each governing period. In the context of this article, the continuation of Timurid stylistic elements into the early Safavid period can be observed in the construction of the Al-Kadhimiya shrine. Thus, it can be argued that the architecture of the shrine exhibits a profound connection with its preceding artistic era on both macro (structural formation of the shrine and its surrounding buildings) and micro scales (proportions of the dome, surrounding archway, and courtyard). However, its present form crystallized during the Safavid period.

This study contributes significantly to the architectural community through new empirical

research on the evolution of Shiite architectural monuments and their relationship with contemporary governments. It emphasizes the importance of accurately periodizing shrines and identifying their foundational architectural elements. By considering artistic styles alongside historical governmental periods, this study aims to better understand historical monuments. It suggests that the dominance of an artistic style across diverse geographical regions and climates fosters unity. Future research could explore shrine decorations on a smaller scale and investigate the shrine's connection to urban environments on a larger scale.

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