HERITAGE OF SOUTHWEST ASIA
Vol. 1, Issue 1
https://www.hsaj.ir

Research Article

Analysis of the Effect of the Concept of Archetypes on the Formation of the Geometry and Physical Proportions of the Catholic, St. Mary, Maryam Naneh, and St. Sarkis churches in Tabriz, Iran

Shahrzad Ainechi [1], **Shirin Kaleghpanah** [2]
1. PhD in Restoration of Historic Buildings and Textures, Art University of Isfahan, Isfahan, Iran.
2. MA in Architectural Engineering, Seraj Institute of Higher Education, Iran.

Abstract: Geometry, as one of the most fundamental principles in the formation and organization of architectural spaces, holds a distinguished position in religious and sacred buildings. This element not only serves as an ordering factor for the physical structure of architecture but also functions as a symbolic language that mediates the relationship between human beings, space, and the sacred. In every philosophical or religious school of thought, geometry is shaped according to its worldview, ontological concepts, and cognitive archetypes, thereby enabling the tangible manifestation of inner beliefs within architectural form. Within this context, worship spaces in Christianity—particularly churches—serve as loci of prayer and spiritual elevation, characterized by a specific order and geometry designed to reinforce their religious meaning and function. The present study aims to analyze the influence of the concept of archetypes, or collective archetypes, on the formation of geometry and spatial proportions in the historical churches of Tabriz. These include the Catholic Church (Azra-ye Tavana), St. Mary Church, Maryam Naneh Church, and St. Sarkis Church—each representing a distinctive synthesis of art, faith, and architectural knowledge within its unique cultural context. The research method is descriptive–analytical, based on a combination of library research, theoretical studies on archetypes and symbolism in sacred architecture, and field observations of the churches' physical structures. The study first examines the geometric structures and spatial proportions of plans, façades, and key architectural elements of the selected churches, followed by an analysis of their semantic and symbolic relationships with conceptual archetypes such as centrality, axiality, symmetry, light, and transcendence. The findings indicate that the presence of archetypes within the geometric structure of the churches not only organizes their spatial order but also imbues the architectural form with sacred meaning and identity. Consequently, the geometry of the churches of Tabriz can be interpreted as a symbolic language that bridges the material and spiritual realms, embodying an aspect of the spiritual experience through form and space.

https://doi.org/10.22034/hsaj.2025.548288.1004

Keywords:
Archetypes
Geometry
physical proportions
church
Tabriz

Received: March 25, 2024
Accepted: June 12, 2024
Published: June 20, 2024

1. Introduction

The church, at its most superficial level, can represent the shape of a cross, and the axes that make up the church can be considered a historical-religious symbol, consistent with the axes of the cross. What is evident in the structure of the church is the existence of a path to the afterlife. At the beginning of the path, the most worldly realm is displayed, and at the end of the path, the most otherworldly realm. The lack of connection and dependence between the world and the afterlife in this religion has led to the formation of the axis of the world to the afterlife

in churches (Fathi and Hamzehnejad, 2014: 60-66). Churches are places of worship and, therefore, are respected by people, and Christians have tried to build them in the most beautiful way possible. Most of these churches have unique architecture and are decorated with carvings, paintings, stucco, etc. Throughout history, the people of Tabriz have respected followers of monotheistic religions and religious minorities, and many of these individuals have lived in the city for years, building several churches for worship that are significant in terms of architecture and history. Architecture is the organization of space, and architects utilize various forms of knowledge for this organization, the most important of which is the knowledge of geometry. Geometry is a knowledge that deals with the relationships and characteristics between shapes and sizes. This knowledge includes the two concepts of number and shape. In many sources, the word geometry is equivalent to size and shape. (Khalaf Tabrizi, 1982: 702; Dehkhoda, 1998: 23559; Moein, 1981: 3258). The knowledge of geometry can be examined in three general categories: shape, numbers, and proportions. In this research, the geometry and physical proportions of the plans and elevations of several churches in Tabriz are discussed.

2. Research Background

Several studies have been conducted on churches, including the following:
Several studies have been conducted on church architecture (Simoni, 2015; Pourjafar and Shahidi, 2009; Burckhardt, 2011). Studies have compared aspects of church architecture and mosques or Islamic architecture (Mirmoradi, 2010; Ghochani et al., 2018; Noqrehkar and Tabatabaei Yeganeh, 2021; Akbari and Moulaii, 2019). Some articles have examined the comparative spatial structure and architectural arrangements of two or more churches (Momeni et al., 2010). Most of these studies on church architecture, especially in Tehran and Isfahan, have compared the architecture and geometric structure of churches and mosques. No comprehensive research has been conducted on the architecture and geometric structure of Tabriz churches, and the innovation of the above research is the study of the geometric structure and archetypal concepts of Tabriz churches for the first time.

3. Materials and Methods

The research method of the above research is qualitative and descriptive-analytical. To obtain the desired data, through library studies, existing documents and records in the field of church architecture, including plans, facades, and architectural elements of churches, have been studied and examined. The number of samples studied in the architectural design section is 4 churches in Tabriz, whose architectural plans were available to researchers. Next, the effect of Iranian architectural proportions and the use of geometric shapes on the formation of the plans and facades of Tabriz churches was examined.

4. Results & Discussion

The analysis of selected Tabriz churches revealed recurring geometric patterns and proportional systems that suggest the influence of archetypal concepts. Key findings include:

1. Geometric Structure

• Most churches exhibited reliance on centralized and cruciform plans, rooted in archetypal sacred geometry.

• Use of circles, squares, and equilateral triangles was frequent in plan layouts, symbolizing unity, balance, and harmony.

• The transition from square bases to domes through pendentives or squinches reflects a symbolic archetype of connecting earth (square) to heaven (circle).

2. Proportional Relationships

• Ratios close to the golden section and modular systems were consistently identified in the height-to-width and nave-to-aisle proportions.
• Vertical proportions emphasize ascension, aligning with archetypal ideas of spiritual elevation.
• Proportions were not arbitrary but repeated across different churches, suggesting a shared design language rather than isolated stylistic choices.
3. Symbolic Archetypes in Design
• The recurrence of archetypal forms such as the cross, dome, and axial symmetry indicates a symbolic continuity within Tabriz ecclesiastical architecture.
• Ornamentation and iconography were often secondary, while geometry itself carried the archetypal meaning.

5. Conclusion

According to the studies conducted on the churches of Tabriz, the following results were obtained: The main style of Tabriz churches is derived from Armenian churches. The characteristic of Armenian churches is the conical dome, which is built in the east-west direction, and the altar of the church is located in its eastern part. Armenian churches are usually cruciform, but some of them are built with a basilica plan. The architecture of Tabriz churches uses Iranian architecture and its combination with Armenian architecture. The geometric proportions of Tabriz churches are based on the Iranian golden proportions, which have their roots in mystical thoughts and sacred numbers. These geometric numbers and shapes are archetypes that have been used in science and art. The use of each of these archetypes has specific semantic concepts. The way these archetypes appear in works of art, including architecture, which is closely related to geometry and mathematics, is practically evident in the shape of the plan and facade of the churches. This has created a visual language, or golden proportions, in the components of churches.

Acknowledgments

The authors would like to thank Tabriz Islamic Art University for providing research facilities to complete this study.

Contribution of authors

The first author was responsible for conceptualization, methodology, and final editing. The second author was in charge of design, illustration, and data collection.

Conflict of Interest

None

Material and spiritual supporters

None supports

Access to materials and data

The raw data of this study are available to the authors and can be accessed upon request through correspondence.

References

Akbari, M., & Moulaii, M. (2019). The Impact of Parallel Aspects of Islam and Christianity on the Process of Converting Church to Mosque: During the Ottoman Era. *JRIA*. 6(4), 121-137. http://jria.iust.ac.ir/article-1-1112-fa.html [In Persian].

Andrikyan, A. (2022). The Role of the Religious Heritage of the Armenian Diaspora in the History of National Pedagogy (Using the Example of Turkey and Iran). *Main Issues of Pedagogy and Psychology, 22*(2), 66-81. https://doi.org/10.24234/miopap.v9i2.448

Ardalan, N., & Bakhtiar, L. (2015). *The Sense of Unity, the Role of Tradition in Iranian Architecture*. Translated by Vandad Jalili. Tehran: Royal Architect Science [In Persian].

Ardalan, Nader, and Laleh Bakhtiar. (2011). *The Sense of Unity: The Sufi Tradition in Persian Architecture*. Translated by Vandad Jalili. Tehran: Elm-e Memar [In Persian].

Avdian, S. (2024). *Armenian Churches of Iran*. Tehran: Naieri [In Persian].

Ayatollahi, H. (2001). *Book Iran - History of Art*. Tehran: Al-Hoda Publishing House [In Persian].

Baykusoglu, S. (2009). Research on Islamic Geometric Patterns. PgCert in the Teaching of Mathematics, University of Wolverhampton, *MODULE, TE4061*, 35-1.

Bemanian, M. R., Okhovat, H., & Baghaei, P. (2011). *The Application of Geometry and Proportions in Architecture*. Tehran: Hele: Tahan.

Burckhardt, T. (2011). *Fundamentals of Christian Art.* Translated by Amir Nasri. Tehran: Hekmat Publishing Institute [In Persian].

Carnoy, A. J. (2004). *Iranian Mythology*. Translated by Ahmad Tabatabaei. Tehran: Scientific and Cultural Publishing Company [In Persian].

Dehkhoda, A. A. (1998). *Dehkhoda Dictionary*. M. Moein & S. J. Shahidi (eds.). Tehran: Tehran Publishing and Printing Institute [In Persian].

Eliade, M. (2006). *Fundamental Sacred Texts from Around the World*. Trans. Mani Salehi Allameh. Tehran: Fara-Ravan, pp. 104, 17, 128 [In Persian].

Eliade, M. (1959). *The sacred and the profane: The nature of religion*. Trans. Willard R. Trask. New York: Harcourt, Brace & World, Inc., 229, 27-28.

English Wikipedia. (Accessed: 2025). *Saint Mary Church of Tabriz*. Retrieved from https://en.wikipedia.org/wiki/Saint_Mary_Church_of_Tabriz

Fathi Azar, S., & Hamzenejad, M. (2014). *The semantics of the axis in the mosque and church*. *Journal of Iranian Islamic City Studies*, *1*(1), 18–71. http://noo.rs/xYPiM [In Persian]

Gennon, R. (2005). *The meanings of the symbol of the cross* (B. Alikhani, Trans.). Tehran: Soroush. [In Persian]

Ghochani, M., Arabi, M., & Rostamian, N. (2018). Analysis and comparison of symbolic concepts of geometry used in physical elements of Islamic and Christian places of worship (Case study: Hakim Mosque and Vank Church in Isfahan). *Architecture, 1*(1), 1-13. https://memarishenasi.ir/fa/downloadpaper.php?pid=61%20&%20p=A [In Persian]

Golabchi, M., & Zeinali Farid, A. (2012). *Archetypal architecture: Fundamental stable patterns*. Tehran: University of Tehran Press. [In Persian]

Heydari, E. (1987–1990). *Project: Report on the rescue and reconstruction of the historical monument of Zorzor Church*. Tehran: Cultural Heritage Magazine Publications. [In Persian]

Hovian, A. (2001; 2005). *Armenians of Iran*. Tehran: International Center for Dialogue of Civilizations & Hermes Publications. [In Persian]

Jung, C. G. (1974). The archetypes and the collective unconscious. In W. J. Handy & M. Westbrook (Eds.), *Twentieth Century Criticism: Major Statements* (p. 205). New Delhi: Light Life Publications.

Karandi, A. (2015). *Study and morphology of decorative motifs of Vank Church*. Master's thesis, University of Tehran, Fine Arts Campus. https://www.magiran.com/p1723764 [In Persian]

Karang, A. A. (1972). *Antiquities of Azerbaijan*. Tehran: National Antiquities Association Publications. [In Persian]

Khakpour, M., & Kateb, F. (2017). Comparative religious study in Christianity and Islam with criticism of Titus Burckhardt's theories (Case study: Isfahan). *Scientific Research Journal of Nazar Art, Architecture and Urban Planning Research Institute, 14*(50). https://civilica.com/doc/665546 [In Persian]

Khalaf Tabrizi, M. H. (1982). *Definite argument*. Tehran: Amir Kabir. [In Persian]

Linger, M. (2009). *The book of certainty*. Translated by Z. Halji Mir Sadeghi. Tehran: Hermes. [In Persian]

Lawler, R. (1989). *Sacred geometry: Philosophy and practice*. Translated by H. Moeiri. Tehran: Cultural Studies and Research Institute. [In Persian]

Miller, W. M. (1981). *History of the ancient church in the Roman Empire and Iran*. Translated by A. Nakhsin & A. Arianpour. Tehran: Hayat Abdi. [In Persian]

Mirmoradi, S. S. (2010). Comparison of the geometric structure of church plans with mosques based on religious thoughts (Case study: Holy Sarkis Church in Tehran). *Architecture, 3*(17), 1-12. [In Persian]

Moein, M. (1981). *Persian language*. Tehran: Amir Kabir. [In Persian]

Mokhles, F. (2014). The structure of the Armenian Orthodox churches. *Journal of Art and Civilization of the Orient, 2*(5), 33–41. https://www.jaco-sj.com/article_8723.html [In Persian]

Momeni, K., Attarian, K., Zadeh Morad, P., Mohebian, M., & Tayebi, A. (2021). Comparative Comparison of the Principles and Ordinances of Christianity on the Spatial Structure and Architectural Arrays of the Churches of Armenia and Julfa of Isfahan. *SciJPH, 10*(20), 63-81. http://ph.aui.ac.ir/article-1-976-fa.html [In Persian]

Noqrehkar, A., & Tabatabaei Yeganeh, R. S. (2021). Evaluation of Architecture Dimensions (Conceptual, Functional, and Physical) of Crusading Churches from an Islamic Perspective. *JRIA*. *8*(4), 37-60. http://jria.iust.ac.ir/article-1-1397-fa.html [In Persian]

Norberg-Schulz, C. (2008). *Architecture: Presence, language, and place*. Translated by A. Seyed Ahmadian. Tehran: Niloufar. [In Persian]

Pourjafar, M. R., & Sharif Shahidi, M. (2009). *Church architecture*. Tehran: Simay Danesh. [In Persian]

Razi, H. (2003). *The Magi religion: Teachings, ceremonies, and fundamental beliefs*. Tehran: Sokhan Publishing. [In Persian]

Riyazi, M. R. (2015). *History of world art: All fields of art (except architectural drafting)*. Tehran: Technical and Vocational Textbook Compilation Office, Ministry of Education. [In Persian]

Serlo, J. E. (2009). *Culture of symbols*. Translated by M. Ohadi. Tehran: Dastan. [In Persian]

Sharifimoud, S. (2014). Studying the degree and type of influence of the decorations of the Armenian churches of Isfahan on the architecture of the Safavid period. *First National Conference on Architecture, Civil Engineering and Urban Environment*, 1–12. https://civilica.com/doc/269976 [In Persian]

Simoni, P. (2015). Architectural typology of Armenian churches in Iran. *National Conference on Native Architecture and Urban Planning of Iran*, Yazd. https://civilica.com/doc/544599 [In Persian]

Taghvaei, V. (2010). *Introduction to historical monuments*. Tehran: Iran Textbook Publishing Company. [In Persian]

Yahaghi, M. J. (1996). *A dictionary of mythology and fictional allusions in Persian literature*. Tehran: Soroush. [In Persian]

Zakerin, M. (2011). The Study of Sun Image on Iranian Ceramic Dishes. *Journal of Fine Arts: Visual Arts*, *3*(46), 23-34. https://dor.isc.ac/dor/20.1001.1.22286039.1390.3.46.3.2

Ainechi, S. & Khalegpanah, S. (2024). Analysis of the Effect of the Concept of Archetypes on the Formation of the Geometry and Physical Proportions of the Catholic, St. Mary, Maryam Naneh, and St. Sarkis churches in Tabriz, Iran. *Heritage of Southwest Asia, 1*(1), ID3. https://doi.org/10.22034/hsaj.2025.548288.1004