

A Comparative Analysis of the Overall Body of Sheikh Lotfollah Mosque in Isfahan with Sultan Ahmad Mosque in Istanbul (based on a Body Analysis Approach)

Abstract

The mosque is a manifestation of the arts, in which not only does religion meet with art, but it also has the most important manifestations of Islamic art and its distinctive features. The body connection of the mosques to the geometry and motifs used in them, the unity and manifestation of the oneness of the unique Creator in the physical body texture, is one of the essential factors in the formation of spiritual identity and sacred culture. Iran and the Ottoman Empire in the Safavid era, due to differences in religion, political rivalries, and European influence in both countries saw new relations and cultural and artistic influences became tight. Understanding the structural features of the architecture of the Safavid and Ottoman era, studying the mosques of Sheikh Lotfollah and Sultan Ahmad (as a case study) and how to apply the concepts and elements of architecture, as well as considering the architectural practices of the region and geographical location, the relationship of the bodies and spaces to each other and the positioning of the mosque building bodies and their relation to each other is also important. The present research is accomplished via descriptive and analytical methods and relying on library resources. The findings of the research indicate that despite the mystery and patterns of the whole building in Islamic buildings and the difference between the two mosques, we still encounter a display of harmony and many decorations. Therefore, the form and procedure behind each decoration are in line with Islamic values and concepts and express unity and accord.

Research aims:

1. Investigating the relationship between the body of mosques and their geometric features in order to revive the original identity of Islamic architecture.

2. Studying the geometry used in the physical elements and designs of the two mosques of Sheikh Lotfollah and Sultan Ahmad Mosque.

Research questions:

1. What are the differences and similarities in terms of physical elements and their relationship with each other in the two mosques of Sheikh Lotfollah and Sultan Ahmad?
2. What geometric features are visible in the physical elements and designs of Sheikh Lotfollah Mosque and Sultan Ahmad Mosque?

Keywords: Sheikh Lotfollah Mosque, Sultan Ahmad Mosque, Architecture.

Introduction

A set of categories such as the art of worship or sacred can be seen in mosques. The architecture of mosques is based on inspirations from the concepts of divine theology to create a space that combines the world of heaven (world of meaning) and the world of nature (world of appearance and quality) and creates a unified spiritual space. Because art is intertwined with symbols and symbols are a collection of the nature of art, domes, goldsmiths, altars, columns, pulpits, Muqarnas, etc. that are integrated in the architectural structure of mosques in the form of architectural materials and the architectural structure is reflected in the body and spirit. It offers. In essence, statues have textures, motifs, texts, light, mystery, and so on. Each meaningful pattern has a different meaning and function depending on its shape and position.

Mosque architecture in Islam is the main feature in establishing communication and unity between people and plays an important role in conveying religious concepts. Therefore, engravings as important pillars of mosques are the main component and express an internal purpose or a factor to establish Communication with God. Geometry is the basis of engraving, which as one of the most important factors in the creation of Islamic and Iranian architecture has also influenced the architecture of several historical periods outside of Iran. The study of the geometry of engravings is especially important when it is necessary to study the architecture of mosques as places of worship of God, which is also the subject of this study. The effect of geometric properties of patterns and diagrams is enhanced by this definition. The geometric shape of the nave and the pictures of the mosque are important for Muslims and have the greatest effect on creating the

meaning of the sacred space with the main body of the mosques. These geometric patterns and motifs are seen in Safavid and Ottoman mosques and are related to the body of the mosques.

Most studies of Islamic architecture and sacred spaces are concerned separately with the geometric shape, geometric patterns, and mosques. Theoretical principles of applying the geometric state of the architecture of buildings should be examined. The structures studied in this research are identified and introduced with a special methodology and include a brief history of the geometric state of performance, stylistics and the study of similar examples. The hidden aspects of science, art and mentality of artists with higher education, despite extensive research on this field and various valuable aspects of these Islamic places are still unknown. Therefore, the study of these aspects of Islamic art is still of interest to scholars. The concept of light in the body of Sheikh Lotfollah Mosque has been studied according to theories of Suhrawardi. Important applications of geometric patterns and drawings in Islamic architecture and art have been analyzed. The approach of these studies is different from the approach obtained from a new perspective that has studied the geometric patterns of Sheikh Lotfollah and Sultan Ahmad mosques so far because these mosques have not been studied yet and the current research in this field is new.

Regarding the background of the present research, it should be said that no independent research with this title has been written so far. However, some studies have studied the architecture of these two mosques, but no comparative study has been done in this regard. The present study deals with these states and geometric patterns in relation to the main body of the mentioned mosques. The sense of coherence in these buildings, despite the differences in the type and use of engravings and geometric designs in the two mosques is observed. Cohesion is maintained in mosques regardless of time and place. Important points of buildings and details of their general dimensions are discussed. At first glance, the two buildings are architecturally different, but in the hidden layers, they have completely unique principles in Safavid and Ottoman Islamic architecture. Their properties are thoroughly analyzed according to the geometric state and the design of the body and the hidden characteristics of the geometric conditions. Also, the assignment of the applied geometric method in this research in relation to the analytical approach makes it different from similar examples and grants it an Islamic identity, and the geometric characteristics of the work and its creative application are revealed. Also, other properties and concepts help revive the authentic identity of Islamic architecture in every area. The final conclusion of the sculpture assessment approach is that the sculptural characteristics of a building depend on political, cultural, social, and economic conditions. The geometric features of the patterns and drawings of the architectural structure, as well as how these concepts and their components are used in mosques should be examined from the following aspects by a sculptural approach.

This research has been done by descriptive and analytical method by relying on library resource data and seeks to examine the role and drawings of mosques in terms of similarity and differences according to the

approach of the body. The type of data in this study is historical and qualitative. The resulting data is used in a principled way to develop general knowledge and present the unknown and discover the nature of the goals of the phenomena. The present study scrutinizes the relationships between variables and uses the results of principled research to improve and apply existing methods, structures and patterns. All questions and hypotheses are tested using evidence to advance artists and architects in the field of Islamic culture and art.

References

- Akadiri, P. O., Chinyio, E. A., & Olomolaiye, P. O. (2012). Design of a sustainable building: A conceptual framework for implementing sustainability in the building sector. *Buildings*, 2 (2), 126-152.
- Behling, Sophia and Stephen. (2010). *The First Beam*, translated by Shima Safi, Tehran: University Jihad Publishing Organization. [In Persian].
- Bowyer, J. L. (2007). Green building programs-Are they really green ?. *Forest products journal*, 57 (9), 6.
- Cabeza, L. F., Rincón, L., Vilariño, V., Pérez, G., & Castell, A. (2014). Life cycle assessment (LCA) and life cycle energy analysis (LCEA) of buildings and the building sector: A review. *Renewable and sustainable energy reviews*, 29, 394-416.
- Chel, A., & Kaushik, G. (2018). Renewable energy technologies for sustainable development of energy efficient building. *Alexandria Engineering Journal*, 57 (2), 655-669.
- Citerne, F., Goldsmith, D., & Beliveau, Y. (2014). Overview of International Green Building Rating Systems. In *50th ASC Annual International Conference Proceedings*. – Associated Schools of Construction.
- Fowler, K. M., & Rauch, E. M. (2006). Sustainable building rating systems summary (No. PNNL-15858). Pacific Northwest National Lab. (PNNL), Richland, WA (United States).
- Good, C., Andresen, I., & Hestnes, A. G. (2015). Solar energy for net zero energy buildings – A comparison between solar thermal, PV and photovoltaic – thermal (PV / T) systems. *Solar Energy*, 122, 986-996.
- Gratia, E., & De Herde, A. (2004). Natural cooling strategies efficiency in an office building with a double-skin facade. *Energy and buildings*, 36 (11), 1139-1152.

Gu, L., Gu, D., Lin, B., Huang, M., Gai, J., & Zhu, Y. (2007, September). Life cycle green cost assessment method for green building design. In *Proceedings of Building Simulation* (pp. 1962-1967).

Ilha, M. S. O., Oliveira, L. H., & Gonçalves, O. M. (2009). Environmental assessment of residential buildings with an emphasis on water conservation. *Building Services Engineering Research and Technology*, 30 (1), 15-26.

Kukadia, V., & Hall, D. (2004). *Improving air quality in urban environments: Guidance for the construction industry*. BRE Bookshop.

Matthews, E., Amann, C., Bringezu, S., Fischer-Kowalski, M., Hüttler, W., Kleijn, R., ... & Schandl, H. (2000). *The weight of nations. Material outflows from industrial economies* World Resources Institute, Washington.

Mozaffari Qadiklaei et al. (2017). "Review of two-skinned views in different climates of the world", the third national conference on air conditioning and thermal and refrigeration facilities. [In Persian].

Ofori, G. (1998). Sustainable construction: principles and a framework for attainment-comment. *Construction Management & Economics*, 16 (2), 141-145.

Ortiz, O., Castells, F., & Sonnemann, G. (2009). Sustainability in the construction industry: A review of recent developments based on LCA. *Construction and building materials*, 23 (1), 28-39.

Peng, J., Lu, L., & Yang, H. (2013). An experimental study of the thermal performance of a novel photovoltaic double-skin facade in Hong Kong. *Solar Energy*, 97, 293-304.

Pitt, M., Tucker, M., Riley, M., & Longden, J. (2009). *Towards sustainable construction: promotion and best practices*. Construction innovation.

Shameri, M. A., Alghoul, M. A., Sopian, K., Zain, M. F. M., & Elayeb, O. (2011). Perspectives of double skin facade systems in buildings and energy saving. *Renewable and Sustainable Energy Reviews*, 15 (3), 1468-1475.

Shen, L. Y., Tam, V. W., Tam, L., & Ji, Y. B. (2010). Project feasibility study: the key to successful implementation of sustainable and socially responsible construction management practice. *Journal of cleaner production*, 18 (3), 254-259.

Singh, A., Berghorn, G., Joshi, S., & Syal, M. (2011). Review of life-cycle assessment applications in building construction. *Journal of Architectural Engineering*, 17 (1), 15-23.

Thilakaratne, R., & Lew, V. (2011). Is LEED leading Asia ? : an analysis of global adaptation and trends. *Procedia Engineering*, 21, 1136-1144.

Ugwu, O. O., Kumaraswamy, M. M., Wong, A., & Ng, S. T. (2006). Sustainability appraisal in infrastructure projects (SUSAIP): Part 2: A case study in bridge design. *Automation in construction*, 15 (2), 229-238.

Yahya, K., & Boussabaine, H. (2010). Quantifying environmental impacts and eco-costs from brick waste. *Architectural Engineering and Design Management*, 6 (3), 189-206.

Zimmermann, M., Althaus, H. J., & Haas, A. (2005). Benchmarks for sustainable construction: A contribution to develop a standard. *Energy and Buildings*, 37 (11), 1147-1157.