

Study of the impact of contemporary architecture on Islamic motifs (or geometric patterns) in mosques

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Abstract - One necessary point in constructing biological life of people is the existence of common roots among a certain class of people. In one hand, these common roots such as beliefs are equal in one part of the world, so it conducts architecture's developing path through the same way in that part of the world, and on the other hand, it fills all concepts of architecture with value significance. Perhaps it is due to this point of view which considers architecture of each part of the world as an identity for that part. In the modern era especially in the field of ideas' interaction, the process of globalization needs to apply some elements in biological society which play a dominant role in people's beliefs, and what will be more desirable than architectural signs in environment which are directly judged by all people. The architecture of mosques is regarded as the most prominent proof of architecture derived from Islamic art and instructions which can be the turning point of architecture's evolution in the field of Islamic art. In the present research, we have tried to study the instances of mosques' architecture in Iran and contemporary world based on analyzing intellectuals' perspectives toward Islamic art. Through this research, It is expected for researchers to tangibly comprehend the process of evolution in mosques and Islamic centers' architecture as the most fundamental sign of Islamic art in world and in the modern era, and to clarify that in comparison to various interests of world's designers and architects, which patterns of Islamic art hidden in these signs are more stable.

Key words: Islamic art, traditional architecture, contemporary architecture, mosque.

1. Introduction

Each piece of art can last for a long time when the creator uses deep and strong rules to create it. Due to close relationship with art, architectural works are not exceptional. If the rules used in architectural works of each part of the world are derived from ordinary people's beliefs, they will have more desirable results in improving the architecture of that section. Muslim artists and architects through using Islamic concepts have created outstanding works whose value and stability have grown up through the passage of time. This value and stability is all due to using Islamic instructions in providing architectural works. Because the dome is drawn toward the sky, the tree of heaven (Tuba) was the most appropriate motif to decorate its inner surface. A prime example can be seen in the Dome of the Rock and its full universal tree that grows from an Islamic perspective from top to bottom" (Azhand, 2009:34). In the field of studying the process of evolution in Islamic architecture, several analysis have been done by eastern and western philosophers and researchers in which all of these analysis concluded an undeniable reality and that is deep and rich concepts hidden in Islamic instructions in the field of architecture. "reluctancy to iconography in Islam, has two aspects: on one hand it guarantees and confirms the greatness of man's eternal, and on the other hand, nothing even a thing which partially or temporarily turns to an obstacle, should not separate man and the invisible presence of god" (Ahmadi Shalmani, 2011:83). Regarding the mentioned matter, it seems that in the evolution of cultures and interests of designers especially in designing Islamic religious centers, mosques of which are the significant samples of Islamic architecture, there are various patterns which have preserved their deep concepts and stability in contrast to interests of world other designers. Regarding this point, we have tried to do a research for achieving a small part of such stable art and Islamic architecture patterns through studying instances of architecture of mosques in all over the world. Recognizing such concepts and patterns can certainly help the dynamic process of growth and development of Islamic architecture.

2. Mosque architecture

The identity of Iranian architecture such as environmental, religious, instructional identity and symbolic patterns have created different forms in the historical process of architectural works. In reviewing past, in the first Hijri centuries, Muslim architects explored pre-Islamic architectural patterns, and if they were consistent with ideas, environmental and religious identity, they would be used and recreated depending on circumstances of time and place in each historical period. Meanwhile mosque architecture was a priority. Mosque Islamic architecture sketches the skill of Muslim artists and artistic elements and images which possess various spiritual dimensions (Pour Jafar, 2011). Concerning the man as an important viewer of past architectural works, dense urban context and interwoven in the central plateau of Iran, domes, balconies, minarets, Views covered with colored lines, written inscription with spatial organization of the central space counted as the spatial features of mosque architecture in Islamic period. Muslim architect follows Iranian architecture in Islamic era which was based on principles taken from religious beliefs, image shaping and religious instructions, and pictorial forms taken from environmental, instructional and religious identities have been always taken into consideration. The first mosque in the Islamic world was designed by the Prophet in Medina with a chamber pattern using the trunks and branches of trees, and built with the help of companions. Since the place chosen to be a worshiping place in every time or every religion can change through the change in culture and it can receive those changes in accordance with the new religion and continues its material and spiritual life and holiness (Kaboli, 1997). As an instance in Iran, the Zoroastrian temple was considered as the pattern of the first mosques following formal changes in the first centuries after Islam and chamber pattern gradually is integrated with central spatial organization before Islam, and the mosques are designed with the pattern of central yard and chamber, while religious beliefs were matching the pattern of central yard. Images and symbols used before Islam and taken from religious identity survive even in post-Islamic works in accordance with religious beliefs, and these religious beliefs or other arts related to architecture such as sculpture have attracted the attention of Muslim architect to a religious identity and we can more or less observe its manifestation in post-Islamic geometric designs. Since the context, significance, aim and the process of idea to form is rooted in religious architecture, then this idea is in the form of a mosque originally taken from the architecture of Medina mosque. No message or Visual expression can be independent on its particular time conditions or its environmental situations. Time is one of the most important factors which make the architect recognize the identity and symbols manifested in his work (Iranmanesh, 1997). This attitude doesn't confirm using current materials for recreating past forms, because the natural features of each material and its technical structure would show the method of using that material in architectural elements and recreating last factors with the old forms as the symbol of collective memory with the current materials as a hidden structure is considered as an inappropriate solution.

3. physical- content concepts of mosque architectures

In the first century AH, the main parts of a mosque consists of vast space, Mihrab, Minbar and ordinary yards decorated with beautiful space creation. Following developments in prophet period in Medina or next centuries, these parts were necessary criterions for Muslims' worshiping place. At that time, there was no stable form for any of the part, however, there was a special design allocated to some parts such as Mihrab or Minbar. There was an apparent order in internal space similar to chamber form where there were located many vertical columns with monotonous decoration under the roof, and as the time passed, other basic parts also were formed in the completed structure of mosque architecture (Gerabar, 1997). Central organization followed with big yards having one, two or four porches and one central dome are considered as the basic changes of mosque's primitive pattern in Iranian architecture. Many architectural features such as dome and minaret in mosque building are related to next centuries which added identity to the spatial pattern and organization of primitive mosques. The symbols of decoration had different images in different periods. Mosques' decoration in Safavid period's social system started to flourish and then it was descended to a lower level in Qajar era and they find a simple symbol in the scale of town and city.

4. The conceptual origin of mosque's physical elements

The construction of mosque from the first patterns till now, were followed with basic physical elements appeared in different time and place conditions based on original conceptual structure. In Phenomenological study of these elements, we can point to the following concepts:

Table No. 1-the conceptual origin of mosque's physical elements

Physical element	The conceptual origin
Entrance porch	Calling and inviting Doorway with visual imprinting and colors in lofty structural, urban transformation and construction of the mosque, the space of presence, passing, pause, connecting the urban scale to architectural scale, the location and its impression symbolically shows the way of communicating mosque with people.
Inscription	Written expression of divine verses in the form of colored motifs, direct contact with the worshiper emphasizing divine instructions
Porches	Pause and visual gravity, order, defined by size, shape and position, high, Arch different in shape and being in the axis of symmetry of the patio, the patio and the inner yard relationship, formal narration of meaning hidden in the background
Dome	Origin of structural form rooted in identity of pre-Islamic Iranian architecture. After Islam the symbol and polishing done with lots of decoration; from the internal perspective, visual and conceptual transcendent to the sky from external perspective, a sign of visual glory of Muslims' worshiping place
Mihrab	On one hand focusing on individual, direction and divine return and on the other hand, transcendental direction and connecting heaven and earth to the dead by sinking, sinking and centralizing
stem	Dome seen from human sight, raising the dome, the location of inscriptions and decoration, a place for light shining
Yard	Worshiping place, praying, prayers' deliberation
Minaret	In the past release of call to prayer to the far places, today symbolism
patio	A big yard, enclosed space without coverage, based on the identity of the architectural environment, play a decisive role in the hierarchy of outdoor, semi-open and closed

(Source: Pour Jafar, 2011)

5. The analysis of instances from modern architecture of Iran and world mosques

In this part, we have tried to present some remarkable features of world mosques:

5-1- the evolution of mosque architecture using East Asia style (china)

Why there is the title Chinese style in mosque architecture in asia is because all changes in east Asia mosque architecture is mostly done in china, and the main changes are as follows:


- rotation of main axis (construction) and the big entrance door of yard for prayers
- minarets, moon sighting chambers, dome and Mihrab

Table No.2- instances form east Asia mosque architecture

No.	The work and the name of the architect	location	Remarkable features of the work	sample
1	Quran Islamic academy, designer: Dong Ri Zhao	Beijing, china, 1957	1- Four floors suitable with usage 2. The placement of worship (mosque) on the first floor 3. three domes as a symbol of Islamic architecture in work	
2	Kao Lun mosque designer: A.M. Kardy	Hong Kong 1984	1-the main yard located in ground floor 2-smaller yard located in upper floor for ladies 3-the main dome and four minarets covered with marble	
3	Abu Bakr Al-Sedigh mosque designer: Abdol Majid Hajidar	Kuala Lumpur, 1982	1-A triangular site 2-The height of square-like central lobby equals three floors 3-very large openings without columns implemented in the lobby 4-a golden dome followed with a single minaret	
4	Brunei Dar-o-Salam School mosque designer: Edris	Begawan, Brunei, 1995	1-Covered with tiles derived from Islamic Dome 2- The minarets are a symbol of architecture of Islamic mosques 3-a separate yard for men and women	
5	Islamic center and Al-Azam mosque designer: Abdol Majid Hajidar	Malé, Maldives, 1984	1-The existence of dome and minaret in the work 2-the easy access of main mosque from outside 3-using white as the dominant color and arches	
6	Singapore mosque designer : the special board of construction and development	Singapore 1977	1-internal design 2-a central skylight derived from Islamic domes 3-minaret and a red onion-like dome	





(Source: authors)

Table No.3- instances form east Asia mosque architecture

No.	The work and the name of the architect	Location	Remarkable features of the work	sample
1	Fooladshahr Mosque designers: Mohammad Ali Badri Zade, Hadi Mirmiran	Iran, Isfahan, Fooladshahr, 1972 Hijri	1-various views in outside layers 2-using tiled roof for light entry 3-using modern materials such as concrete 4-minaret or the place of prayer calling is implemented in a different form	
2	Shah Khaled airport mosque, Hellmuth T Obata and Kassabaum	Riyadh, 1983	1-The major use of the geometry especially equilateral triangle 2-using concrete and steel for building mosque dome 3-the form of mosque is a hexagonal plan	
3	Shah Feisal mosque, designer: Abdol Vahid al-Vakil	Islamabad, Pakistan, 1988	1-Unique design (pyramid shape) 2-no dome (dome implemented in tent shape) with concrete shell 3-The triangular prayer hall 4-The four minarets, associating cubic form of Kaaba 5-capacity of 300 thousand worshippers	
4	Dadamyar mosque designer: Hiren Patel	Ahmadabad, Hindustan, 2002	1-designing in residential district with high density 2-concrete modern materials 3-presenting a rough texture covered with concrete, no tangible minaret	
5	Al Qubaib BED Engineering company plan	Doha, Qatar 1998	1-with special dome in the Persian Gulf 2.Replacement of old mosque 3. The shell is similar to the old building with modern facilities like indoors	
6	West Bank mosque, Halku Department of Architecture	Amman, Jordan, 1980	1- a large central dome 2- The main structure of the mosque concrete-framed 3- The dome with concrete shell 4- The form of the work evokes a shape of a ship 5- There are concrete fountains and elements	






(Source: authors)

Table No. 4- instances from architecture of Europe mosques

No.	The work and the name of the architect	Location	Remarkable features of the work	sample
1	Turkey national mosque, designer: Behruz Chinichi	Ankara, turkey, 1985	1-a plan rotated around the main axis of other buildings 2. The absence of dome and minarets 3-the big central skylight derived from Islamic architecture domes forms 4-planned on the ramp	
2	Abubakr Sedigh mosque, arch consulting plan	Shutter, Albania, 1995	1-several domes and skylights 2-tall minaret 3-integration of Islamic architecture and 16 th century ottoman architecture in plan	
3	Sharif-o-din white mosque, designer: Zelatko Ouglin	Visoko, BosniaHerzegovina, 1980	1-a single minaret 2-the dominant color of the work is white 3-new geometry and design within residential texture 4-a relative emphasis on height comparing other buildings	
4	Vackucha mosque, designer: Camel Zukich	Sarajevo, Bosnia Herzegovina, 2005	1-high and glassy minarets 2-focusing on the height of the work 3-modern and glassy materials for reducing visual weight of the work 4-modern and new form and white as the dominant color	
5	Glasgow Central Mosque	Glasgow, Scotland, 1983	1-central yard decorated based on arabesque style 2-a dome-like skylight with a special geometry derived from concepts of Islamic art 3-beautiful minarets with brick color as the dominant color 4-emphasising height and grandeur of the mosque	
6	East London mosque, consulting designer: John Geel	London, England, 1985	1-minarets similar to Islamic architecture 2-dome 3-titled entrance 4-beautiful brickwork	

(Source: authors)

Table No.5- instances form architecture of America's mosques

No.	The work and the name of the architect	Location	Remarkable features of the work	sample
1	New York Islamic center, designer: SAM	Network, America, 1991	1-the central big dome 2-using height and grandeur in great amount 3-using arabesque designs and frames with new materials	
2	Beit-o-Salam, designer: Nasir Ahmad	Toronto, Canada, 1992	1-using dome and minaret in the work 2-using white as the dominant color 3-the dignity of the construction 4-the special geometry used in minaret of the work	
3	Venezuela mosque, designers: Oscar Brachu, Zoha Fayaz	Caracas, Venezuela, 1993	1-dome and minaret 2-emphasising height 3-integration of modern and Islamic architecture 4-inviting using a platform extending from street to dome	
4	Coco Yambu mosque,	Myakka, Colombia, 2007	1-using the concepts of mosques' Islamic architecture 2-islamic arches 3-combination of red as the favorable color	
5	Bob-o-Aleslam	Tacna, Peru, 2008	1- using the concepts of mosques' Islamic architecture 2-nice white minarets and domes 3-creating beautiful porches suiting area climate 4-a sample implemented by Islamic architecture in Latin America	

(Source: authors)

6. How the intellectual basic principles of traditional mosques are shown in modern structures?

The principles which are available in traditional mosques and can be applied in modern structures are generally as follows;

- An attempt to achieve monotheism
- The main direction toward monotheism and God
- Unity in meaning and body
- Considering background
- An attempt to achieve perfection
- Order and symmetry and harmony in the body, meaning and function
- Justice and balance in the whole and the part
- Considering the blessings and utilization of natural factors and natural and Islamic motifs
- Lack of individuality and anonymity in work
- Construction as an act with a devotional approach

7. Conclusion

Religious places designed based on religion in every part of the world are always in priority due to the close relationship with deep beliefs and concepts accepted by all people. Accordingly the researchers emphasize that in order to introduce and recognize the culture of each nation, we must refer to architectural works of that nation. So regardless of all discussions around architecture's traditional works, it is needed for researchers to pay more attention to cultural items and the concepts hidden in these works especially religious works. If the stable concepts and patterns of religious constructions are correctly used and recognized, then two important goals can be achieved, the first one the architectural evolution process of each area will not lose its original way taken from deep thoughts, and second it can be provided to desirably integrate new technologies with traditional patterns to create new constructions and repair traditional works. In the present research we have tried to discuss a small part of concepts and principles of Islamic art and architecture which can be an opening way for researchers who are interested in Iran's Islamic culture and art.

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