

Course of Evolution of Minaret in Iranian Mosques

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Abstract: Minaret has been accepted as a component of the mosque and is known as a part of Islamic-Iranian architecture, but many researchers, have considered a starting point for its formation not from religion, but rather from other applications such as a guide or symbol to represent the tombs. What is certain is that this element has different forms in the history and has been used for different purposes. In this paper, evolution of Minaret in the history has been examined in terms of architectural, structural and philosophical aspects. The results showed that this course or process is strongly influenced by three factors. Meanwhile, regarding these changes, this process can be used for the construction of minaret in the contemporary buildings.

[Sarvnaz Salmanzadeh Ahrabi. **Course of Evolution of Minaret in Iranian Mosques.** *Life Sci J* 2013;10(2s):118-122] (ISSN: 1097-8135). <http://www.lifesciencesite.com>. 19

Key words: Minaret, Mosques, Evolution, Temple

Introduction:

Before Islam, the Temple was the most significant building in every town and village (Memarian, 250, 2011). In Islamic architecture, different shapes and symbols have been introduced as the features of Islamic architecture. For example, dome and minarets are important symbols of Islamic architecture and their usage is as important as the use of central courtyard, balcony or other decorations. Here this important question arises: Should today architecture students use these elements in the contemporary architecture with the same forms? Should these elements be changed according to the demands of today's life? (Mokhtarshahi sani, 2009).

The purpose of this study is to examine the reasons of the formation of minarets. Obviously, with the recognition of details and elements of the buildings architecture, an understanding or recognition of the history of architecture can be achieved from one hand that is led to the novel methods which can be used in the new buildings. This recognition can also help to study the typology of the architectural buildings, on the other hand (Hillenbrand,1998).

Research Literature:

Minaret, in its modern and conventional meaning, is a high building mostly with circular plan. This element which is known as Ma'zaneh among today people (one of the famous symbols of religious buildings), has long been used in Iranian architecture and urbanism. Scholars and theorist of architecture have provided different and sometimes conflicting topics on this element. As far as the root of Minaret is concerned, Pirnia has considered it as a guide along highways and desert or forest routes which later have become the tomb of its founder or famous people or has found a new function after a good or bad event (Pirnia, 2004).Kiani also knows Minaret as a place of light and a tall building which was generally

constructed beside religious buildings such as schools, mosques and tombs (Kiani, 2004, 20-21). Hillenbrand cites various reasons for the creation of Minaret, some of which are belfry, Alexandria Lighthouse and Road Guide column (Hillenbrand, 1998). As it is seen, reasons of the formation of minarets are important when the course of Minaret evolution is examined.

On the other hand, the architecture of minarets constitutes another part of their theoretical principles. In regard to architectural typology of minarets, it can be said that the three main components of base, stem or body, cap or crown along with two subsidiary components of staircase and skylight constitute the minaret (Kiani, 2000). The minarets in pre-Islamic era were cubic, but they have evolved a little in the Islamic period. In this period, the lower and upper parts of the stem becomes cubic and spiral circular, respectively (Javadi, 1984). For example, the minaret of the mosque of Samarra is a single minaret which its spiral staircase is located outside. There is a chamber with a window on the top of minaret probably for hanging lanterns. This minaret which has been built on a square base, on the one hand, is very similar to Firouzabad fire tower. On the other hand, some historians believe that it is reminiscent of former Ziggurats of Mesopotamia (Hoang, 1991). But, in general, minarets have been built as cylindrical, conical and polygons structures (Kiani, 2000).

The Architectural Findings

The review of the documents and studies on minaret and its history show that the first minarets mainly emerged in the areas with non-Islamic civilization history. In other words, the first mosques have been built in Saudi Arabia and Hijaz without minarets. Thus, it can be said that the minaret has not been considered as a basic element in first mosques. However, in the coming years, the mosque finds its position in the city centers of the Arabian Peninsula

and tall minarets are used to guide travelers (Itewi, 2007). In other words, in this period, the minarets can be divided into two categories based on the aim of construction: 1- The minaret as a symbol of its constructor's glory 2- Functional evidence for introduction of Islamic village or town. For example, Mutawakil Mosque in Samarra and Ibn Tolon Mosque in Cairo, Egypt are placed in the first category. These mosques had been built by Abbasid caliphs or their governors in conquered cities or nascent Islamic capitals. The minaret is built as a physical indication of the strength of Islam, especially the Islamic government alongside the mosque.

There are numerous examples of the second category. Among which are the minarets of Fahraj Yazd, Tarikhane Damghan, Saveh and Neyriz mosques which have been built within the first to fifth centuries AD and are known as the first instances of Iranian mosques. It should be noted that there was no minaret in the primary building of the first Iranian mosques such as Fahraj Yazd and Tarikhane Damghan and the minarets of these mosques have been added in the next periods (mainly in the Seljuk period). In this era, the minaret was located outside the mosque garth as a single vertical element, without ornamentation or with limiting brickwork in wall and generally had symbolic function of Ma'zaneh (a place for announcing the prayer times). But, of the Seljuk period, inspired by the geometry-oriented Iranian architecture and due to the new approach of the rulers of this era, the minaret becomes an inner element of the mosque, and minarets are built even in the old mosques of previous eras.

The attention toward minaret and the evolution of its use in the architecture of religious buildings is a gradual process which has been formed affecting by various factors. The public process and the most important factors in changing the shape and function of minaret in the Seljuk era and next periods can be stated as follows:

- The desire to build great and magnificent monuments with Islamic performance and flavor led Seljuk rulers towards the use of minarets as a tall symbol within the mosques and thus the minaret entered from margins into the context of mosques and religious buildings.

- The familiarity of rulers and architects with the magnificent pre-Islamic geometry-oriented Iranian architecture promoted the tendency toward geometry-orientation among architectural administrators, thereby the semi-organic pattern of earlier centuries was replaced by purely geometrical patterns.

- The single minaret was not applicable in the geometry-oriented pattern which was based on axial symmetry and also emphasized the sacred of blank space. Therefore, the double and multiple minarets

have been used in different parts of buildings (Heidari, 2008).

It should be noted that one of the ancient concepts of pre-Islamic architecture that was also promoted in the Islamic era was paying special attention to the space and its sacred meaning. In fact, after the Elamite period, the structural body and size of all buildings took only the function of a shell, and the heart or brain of the buildings was always an empty space which is a place for the presence of human, fire, water and other transcendental concepts. Therefore, in each of the components of architecture, whether the plan or the facade of the building, symmetry center and axis (which is the most important part of the building) were not occupied by the structural elements. Some examples of this form include:

Even number of columns in the facade of the Achaemenid monuments, location of the gateway at the center of symmetrical facades, the presence of three adjacent areas in the Sassanid monuments like Fire Temple of Firouzabad, location of this Fire Temple on the symmetry axis of the buildings such as Temple of Solomon Bed and Assyrian Palace, placement of doorways in Sassanids four-vault structures in each four direction and etc.

It is worth mentioning that this concept of architecture has also been manifested in Greek architecture in the form of even number of columns of the temples (two-column, four-column structures and etc.) and in multiple forms including odd number of doors and windows of the buildings (three-door and five-door) in the Islamic period. Thus, as the use of minaret in geometrical and symmetrical form is possible only where the Minaret is at the center and axis of symmetry, and this is incompatible with the sacred concept of the empty space, single minaret got two-minaret pattern in the process of making geometrical changes (Haman).

The Philosophical Results:

The use of symbolic artificial or natural elements is one of other ways used in temples to show the presence of light or the sun as a sacred element. It can also be seen in the temples of various religions such as Egyptian and Zoroastrian temples or Islamic mosques. The use of Obelisk and pylon entrances as artificial elements - which is a symbol of the presence of sacred sun and light in Egyptian temples - is an example of these kinds of symbolisms. In the Egyptian temples, Obelisks which were usually constructed or installed in pairs at the entrances of temples were considered as the symbol of rise and presence of sun (Rossi, 2004,184) and a sign or symbol of a place on which the first rays of sun shine (Remler, 2010,138) and they were considered either as a symbol of sun god or Ra.

Based on some of the remaining inscriptions, their golden and brilliant head were a means to summon

and keep the sun at the temple (Rossi, 2003,184). As far as form is concerned, these columns were affected by an astronomical phenomenon called sun pillar (Blackwell & Talcott, 2006, 62-67). Pylon or the entrance of Egyptian temples was also another architectural element which symbolically was providing the connection of sun and light with the temple. These entrances were consisted of two towers, middle part of which had lower height and its either sides were elevated and the entrance was located below the lower-height part and it has an undeniable resemblance to the Akhet (i.e. sun) in the Egyptian visual language. In the Egyptian visual language of hieroglyphs, AKhet was in the form of two hills that the sun rises in between them (Remler, 2010,6). Fire was also another symbolic allegory of the sun and sacred light in the temples which was used in the Zoroastrian, Hindu and ancient Greek temples. (Noss, 1984). In pre-Islamic Iran, Zoroastrian was praying five times a day towards the direction of light, which could be sunlight or the light of fire.

Fire, is the hallmark of the presence of Ormazd (Mohammadi, 115:2009) and its role in the worship rituals of Zoroastrians was led to the formation of temples and four-vault structures. The term of Minaret was regarded as a column of light in Islamic architecture, based on the root of its meaning which is "a place to set fire" or "a place to shine light" (Ardalan & Bakhtiar, 2000). The spirituality-oriented perspective to the light is an issue that can be seen in the views of different religions and also in the writings of sages, mystics, *Mote'allehin* in traditional societies. In the view of religions, light has a metaphysical and sacred principle and a sacred and spiritual nature (Ghoddusi Farr, 2009).

In Zoroastrianism, the interpretation of universe, angelology, the fire position and interpretations of the term (Khorneh) are based on the light. In Judaism, the light is the first creature of God. In Christianity, Christ or God is the light and the father of lights and Christ, i.e. God has been living in the light. The light has also a special position in Islam as God has been mentioned in the Holy Quran as the light of the heavens and the earth, and God calls the Quran a light (Surah Noor, Verse 35). Such an approach to light with a spiritual expression in the temples of different religions has been considered as a symbol of God's presence.

The Structural Findings :

The greatness-orientation of rulers and their desire for constructing high, majestic and grand buildings required the use of newer construction technologies. Obviously, the previous methods are not adequate for construction. On the other hand, the mosques are built with covered porches rather than

bedchambers. Since Seljuk era, this caused that the minarets were built as pairs on the main entrance or porch (Kiani, 1995, 21). This means that both minarets are located both sides of the room.

The Structural analysis of the vault show that the structural performance of vault is the transfer of ceiling loads to columns and piers. During this process, the vertical load of the building weight is converted to lateral loads. It is evident that the lateral load in huge vaults can lead to thrust of basis and destruction of the vault. Therefore, throughout the history of architecture, different methods have been used to address this deficiency. Some of them include: the use of multiple vault together (Parthian architecture), the use of bulky pier and lateral vault alongside the arch (Sassanid era), the use of large or multiple columns (in Roman era) and the use of earth retaining wall (in Gothic architecture). One of the innovative measures in this regard is the use of minaret on the basis of vault which has been used in Islamic architecture such that the thrust force of the porch opening vault is converted into vertical and horizontal forces. The vertical force is counteracted by the reaction force of basis, but the manifestation components such as bar (rod) with narrow column which develop an excessive force are used to reduce the horizontal pressure forces (Momenpoor et al, 2011). In fact, the load resulting from the weight of minarets, as a point load, can effectively resist against horizontal forces of the vault.

4. Discussions

As was noted, it is not possible to present a certain reason for formation on finials (minarets). It seems that the various architectural, structural and philosophical reasons all are important in the formation of minarets. Especially in hermeneutic point of view, the reasons of the present study for the existence of finials are imminent. However, the exact review of the formation of minarets reveals that the architects were trying to perform some changes in minarets to solve the problems caused by development. Diagram 1 shows the process of change. This means that the architectures changed the shape or the number of minarets. It can be effective in contemporary architecture of the mosques and the temples. Naturally, following the structural development and existence of new materials, it seems that it is possible to change the dimension, shape and the number of finials again, just as in the past where the changes were to some extent that the place identity was not changed and maintained its original status. This issue should also be considered in the present situation.

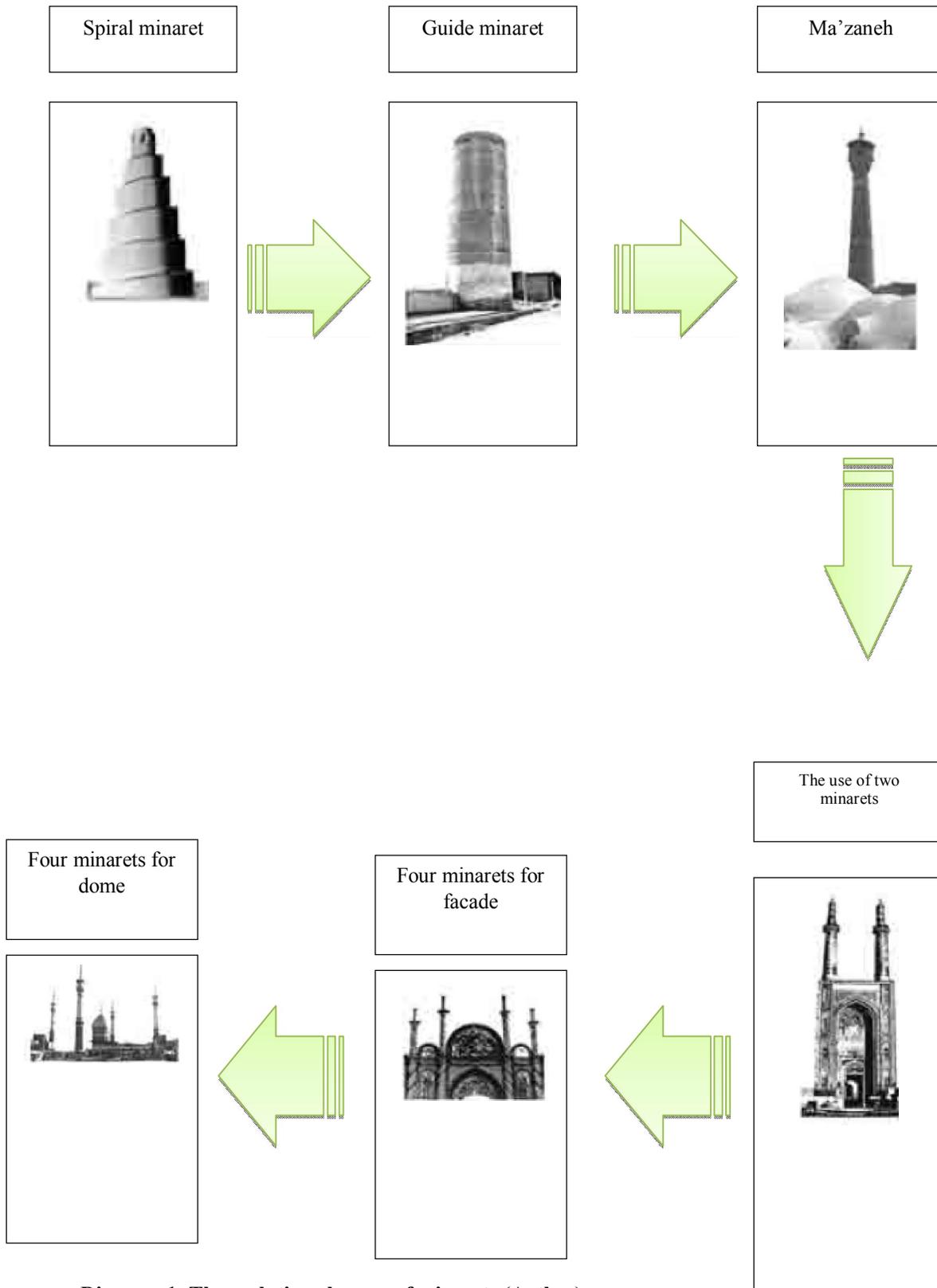


Diagram 1: The evolution changes of minarets (Author)

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1/8/2013