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Window in Iran Islamic Architecture with Emphasis on Role of Light

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Abstract

Presence of light during history and in various architectural oeuvres, in addition to functional aspect, as factor for illumination and life conferring to daily activities, it has been abundantly addressed from spiritual aspect and in doctrinal discussions of religions. During Islamic epoch, light was manifestation of god existence and for this reason, it is respected and deemed as sacred. Islamic architecture particularly in Iran has a special emphasis on the light. This study is carried out by descriptive analytical method. Results showed that window as the inlet of light preserves light presence hierarchy ,also in symbolic and mystical concepts like excellence, upward tendency and establishing a spiritual space in architecture, each one has been manifested in some way or another.

Keywords: Window, Iran Islamic architecture, Light.

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Introduction

In architecture, light and illumination of light and daylighting components are most expansive components which derive from Iranian knowledge, ability and relish. In fact, in architecture of different ethnical groups, fenestration is a practice which has a considerable contribution in forming appearance of buildings and conveying concepts and architectural features and suggest the modern changes and unbridled freedom in formation of building components, distresses and sometimes bring about a form of uniform and callous vein with regard to culture and etiolates the role of window in the architecture. Beauty of building hinges on light and illumination, and whether mystical or apparent, light bring the environment into view, therefore, one can see the role of light in the art highlighted and one can draw on this life conferring component in architecture as a daylighting and fenestration tool (Abadi, et al, 2016).

In the belief of Iranian, the representation of light has a long background. Religions such as Zoroastrianism, Manichaeism and Mithraism which existed in Iran at the past, before entry of Islam to Iran, one used light symbol as illuminating their own teaching. Quality of light and shade in any architectural oeuvre can have a special meaning and application and finally special influence, and this is architecture that draw on these influences for attaining to this goals in mental creativity. Consequently hefty amount of light and darkness volume serve as design tool to make the building ravishing, attractive and harmonious (Nasseri, 2011).

Light in Islamic thinking is very sacred and respected because it is manifestation of god existence and based on preference of mystical aspects over physical aspects of light use in building, it is cornerstone of Islamic aesthetic architecture and it is referred to as the main purpose of movement from darkness to light. Light and architecture are interrelated themes. At the past, architectures have found the importance of light in architecture and innovated smart methods for using light in buildings. In Iranian architecture, light was not used in a single method, yet it is used in different manners (Najafi, 2013).

The extent of light used in building hinges on type of building and its functionality. Maybe some spaces are used only in day or night, therefore, one should pay attention to these issues when selecting light for the building. The daylight shining amount can be overhauled by curtain, glass type and size of window. Sunlight shining hours is given and one cannot alter the sunlight hours and direction, however, artificial light can be overhauled as desired at different directions. In this paper, one deals with the role and application of light and fenestration in Iran Islamic architecture through descriptive analytical manner.

Study objectives

Examining window in Iran Islamic architecture by emphasis on role of light

Examining light in architecture as illumination factor which confer life to daily activities

Examining the role of light as mystical symbols and the sign of presence of god in Islamic architecture

Study questions

What role has the window as light inletting factor in Islamic architecture?

Has light any role in architecture as illumination and life conferring factor of daily activities?

Is light as a mystical symbol and sign of god presence in Islamic architecture?

Light and illumination

Light means illumination and includes tangible, mystical or spiritual lights. In various religions like Zoroastrianism, Jewish and Christianity, light has been at centerpiece as a salient and metaphysical

component. Light confers being and gives rise to recognition and it is tool for understanding which everything leads to it. In a philosophical speaking, it is final cause of existence (Sohrvardi, 1996).

Presence of light in various architectural oeuvres, during various historical epochs, in addition to performance aspect, as a factor for lighting and life conferring to daily activities, it is also addressed from spiritual aspect and in doctrinal discussions of religions (Mahdavinejad, 2012).

Sun, sky and earth, direct sunlight shining to building based on hour, day, year and position of windows may penetrate for a short duration to building inside. Sunlight direction of shining and condensation varies by earth's rotation. Natural light in light is the most important source of illumination. Although natural light derives from sun shining, however it penetrates through three different sources to the building inside. Eye evidence based on sun presence is a biological necessity as long as sunlight doesn't impair normal chores, its presence in the building is welcomes. Earth rotation around the sun engenders sever light changes which its amount can be overhauled by variety of awnings and curtains. Dimensions and position of fenestration is specified by functionality of building inside. A residential venue may have long, short, wide windows or skylight. Such diversity in windows position and size is not induced due to obviating monotony, yet it is produced for engendering pertinent shad for bringing texture, color and shape into view.

Light is an active factor in introducing space. Le Corbusier says about light and shadow that architecture is accurate and dazzling artistic play of medleys of objects made in the light. Human eye is created to see the forms in the light, this is shading that reveals the forms for human eye (Vafi, 2002).

Sunlight as the most fundamental and salient source of light in human residence place is the center of attention and from the beginning to date the natural light has been penetrated to human housing in some way or another. At the past and Iran traditional architecture openings and windows have been used in a pretty and efficient manner that conferred a particular manifest to external and internal space and a manifestation of Iranian architecture is demonstrated in every single window and sash windows are among masterpieces of traditional windows. Sash window serve as privacy and manacles the view from outside to inside and vice versa and it confers a particular beauty to inside space. This beauty is not restricted to visual view. The window is designed and placed with regard to room proportion and important and position of its placing in the entire building, and therefore it reveals the importance of backstage confined area (Elahi, 2014).

Daylight and importance of using it in Iranian architecture and shaping the internal spaces are highly important. By emergence of Islam the importance and use of daylight in buildings especially mosques as the most important buildings of Islamic architecture increased. In mosques, the daily light in addition to functional aspect, is deemed as mystical sigh and a sign of god presence which arouses humbleness in front to of his lord. Thus it is attempted for using daylight for shaping mosque spiritual arena, to use Iranian traditional architecture components for guiding it better (Bemanian, 2014).

In burned city from third and second millennium B.C from traces of houses that their walls until beneath the ceiling have remain one can note that every room is connected to outside through a door and they lacked window, in Elam epoch nearly 1300 and 1400 BC also an example of glass window is obtained which included pipes of glass paste which are framed beside each other which used certainly for illuminated building. One of oldest evidences of door and window in Iran architecture can be found in median strongholds at oeuvres of Sharokin epoch. From Assyrian reliefs one can identify apertures on the towers.

In various religions, ardor of turning toward light for worshiping god was existed and still exists. In Islamic worldview also daylight is very important. Thus, Islamic artists always attempted to use as much as

possible the light as the symbol of divine unity. Iranian architectural spaces were always fraught by visual and spiritual manifestations of light that the manifestation of these spiritual and ornamental aspects can be observed well in mosques architecture as most salient Islamic building (Najafi, 2013).

Window concept

Window is one of components which play a salient role in shaping the building in Iranian architecture in structure of Iranian traditional buildings window, the attention to cultural features in terms of visual and sentimental connection between building inside and outside space is effectively observed (Motaqedi & Fouladi, 2014).

Window use in building tend to be derived from airflow, giving light and seeing outside landscapes without flustering house inhabitant privacy. In the regions with sever sunlight, the window should tally with light severity. Netted windows bring about a balance between outside and inside light, a balance that when viewed from inside, baffles sever sunlight and thwarts eye tiring induced by outside sever light. The designs used for netted windows are often so that overhauls the room inside light. Netted windows distributes outside severe light and tunes it and once the outside light is not severe it inlets all of it to the room. Sometimes one used glass for netted windows (one refers to netted doors as door and window) door and window and wooden netted apertures, or of clay or plaster are blocked in winter with oiled paper and it is opened in summer.

Function of netted surface of sash windows was supplying inside space light revealing outside space, curtailing sunlight intensity and warmth and establishing beauty in building façade. Sash window color glasses bring about colored lights and thwart the annoying insects (Memarian et al, 2014).

Islamic architecture

Architecture is reflection of thinking, worldview and in general human vision and it reflects the themes inspired from his vision. If human mind is featured by name and mentioning of god, his architecture expression also is a means for mentioning him and turn the attention of neglecting men toward salient concepts to be his guide during his mundane and otherworldly life. Transformation in awareness is springboard of transformation in architecture. Awareness is understanding and architect directly provides an area full of gift and boon for men. His expression which carries concepts based on gratitude suggests the understanding of right. This architecture is related to excellence and has power and opposite to it is architecture of downgrade.

Islamic architecture is deemed as a sacred architecture which its beauty hinges on the center of human tasks which links the sky and ground (Shafiei et al, 2014).

Native architecture masterpieces have extensive dimensions which can be studied in various contexts and by identifying their authentic patterns, to build new building based on fundamental principles and in accordance with new time and place conditions. Architecture of each land is an outcome of convictions, culture, climate, industry in that region. Thus, architecture is a full manifestation of tastes, facilities, knowledge and deftness of those who created it (Memarian et al, 2014).

Light position in Iranian thinking

Belief of migrator Aryans who migrated to Iran led to construction of a lot of fire temples in Iran as centers for religious ceremonies. These structures was designed based on circle and square geometry, two eternal shapes which have deep insinuation in Iranian beliefs, as the square refers to earthy issues

and circle symbolizes heaven and sky. The combination of these two refers the earth and sky. Ascendance of human mind from earth to heaven changed the tendency toward fire worshipping to sun worshipping and the fire symbols was replaced with sun symbol (Arjmandi, 2011).

After entry of Islam to Iran the light found a special position in the building. Islamic worldview is linked to natural light that can detach architecture from ground and draw it near higher world. God deems himself the light of earth and skies (Surah Nour, 35). The world has no meaning without light of god and the various objects cannot be distinguished from each other. In another place, he deems the light in contrast with darkness, the light that makes distinct and the light that confirms. Bring them out of darkness to the light (Maida, 6) Iranian used to have natural repugnance to darkness. From long time ago, romp of light over devil darkness is one of main features of Iran old religion (Shaygan, 2004).

The most pivotal cornerstone of Sohrevardi's enlightenment wisdom is based on light. By him, divine light is shined on all of being and any phenomenon received it attuned by their own talent and thus, the light has some degrees in terms of severity and weakness. Islamic savants had consensus that higher world figures all are of light. In other world, savant and artist ascent and remove the matter from themselves to step in light realm (Bolkhari, 2009).

In Iranian architecture, metaphor of light brings about metaphysical meaning, and it is eternal presence of god. Light is always an endowment from heaven, sky, truth and understanding, even if it is concealed sometimes in shade or darkness (Javani, 2010). Light element is used for conferring diversity to urban area in the form of porch, sabat, and overhauling the light and shading. Sabat also has shading and also provide a cool position for by established circulation. Existence of adobe dome shadow and arch ceiling in desert cities and overhauling light and shade in it visually requites the opening shortage external walls. City in various hours of day finds various epiphanies and the sky color reflects from sunrise to sunset in its general texture and reveals a special character. The light concept has evolved during centuries and managed to confer a live quality and influences on spirituality on architectural form. Iranian architect with simultaneous ideological and practical view regarding light managed to create a special type of aesthetics. Certainly light for any space creates character and vein. The first influence on light as illumination is its spread in space. Space creation occurs not only through walls, but also through light, order and perspective. It is acquired not only by stone, riser and console balcony, but also by establishing illumination. The facades are indebted their view not only to fenestration and plasterwork but also to the light (Bohem, 2014).

Window in Islamic architecture

Mosques architecture is the first position of epiphany of Islamic and Iranian art which it is a venue for communicating with god. Architects use not only material aspect of light, but also its doctrinal symbol for building mosque which is deemed as religious architectural symbol. Thus, for establishing holy space in mosques one has used tools and approaches which better reveals light reflection and redirection. Thus using sporadic use of light, layering the light, space, color and use of indirect light and in general bringing about shading, they engenders different epiphanies which added the spiritual feature of mosques (Kashmiri et al, 2013).

In architecture of small and great buildings, light is considered as important components always influenced the architecture and construction of buildings and even the city. In Iranian traditional architecture, contemporary architecture, modern architecture and a lot of architecture styles always light components is deemed as the fundamental factor beside other features of building and even at renaissance epoch and onward in important buildings such as Charter church, Europe advanced gothic style the light is introduced as the only important factor which describes the building. Iranian architecture

also has used the light as a practical component throughout its history and the light whether natural or artificial has been used by light controlling components such as sabat, Jamkhaneh, aperture, Roshandan, Shabaak etc. (Shayan, 2004).

Using light in Iranian traditional architecture wasn't monotonous, at the beginning the light was moderated then it entered in the building. For doing so, architects tried to use innovative technics and very simple components to the best for using light. Building components which are drawn on for using natural light in traditional architecture are studied in two aspects. First group, light wells which assume mostly the task of transferring light to the inside and second group light controller which play the role of overhauling entering light to the building. Iran varying weather, sharp and bright sunlight, wind and raining, storm and special religious convictions postulated that buildings in addition to door and window, curtain or netted window for shrouding building inside. These nets fetter the light intensity and allow poorer light. Deviation of light due to hitting designed margins of net spreads the light and helps in uniformity and distribution of light (Pirnia, 2001).

In some parts Iran the sunlight intensity abounds, in these regions, netted door and windows bring a balance between outside and inside light, a balance that balks the severity of light and thwarts the tiredness of eye from severe light. Thus, the designs used in the setup of these components are often so that overhauls the room inside light. This kind of windows cause sunlight enters the room adequately not more nor less. Similarly, sash windows surface are ornamented by variety of various roles and with colorful and simple glasses and bring about innovative combinations in this vein, the tallying between these geometrical networks and colorful lights gives rise to ravishing beauty (Qiabkelo, 2008).

Kashan Tabatabaei house window

In buildings which use of window in walls was not possible like bazars and other public buildings, the architectures made apertures in Karbandi (central circle) which are named as Roshandan, which allow the pertinent ventilation in the best manner. Soshandans were in the form of pavilion and it is made perpendicular to Karbandi and some of them are of glass, some of them have polygonal context.

Roshandan, Yazd Dowlatabad garden building

Skylights are called Horno and because near dome tip it is not possible to perform the dome like its other parts, therefore, around dome tip, they don't feel the aperture, thus, the established aperture at the top of arch undertake the daylighting practice. For coverage of bazars, one used mostly Horno apertures for lighting and ventilation (Bemanian & Nikodel, 20140).

Horno of Isfahan Sheikh Lotfollah mosque

One refers to small window which is placed usually above the door or at its both sides for taking lighting and supplying free air for closed areas as Rozan (aperture). Rozan is a small chamber which in addition to lighting practice assumes the ventilation (Soltanzadeh, 2007).

Rozan of Isfahan Sheikh Lotfollah mosque

Conclusion

Window is one of the most important components in architecture which have existed from the beginning to date and took a special position in Iranian architecture. In fact, the existential reason of wind in Iranian Islamic architecture was featured by doctrinal, social and physical aspects. Doors and windows in Iranian architecture are factors that have great effect in combination of architectural volumes and areas.

By studying the daylighting at various spaces, one may have the impression that in addition to supply assuage and mental health by using natural light, among various concepts like guiding from a space to another and direction, path determination, concentrating and emphasizing light, division of integrated space to separated areas, tradition of lighting from any kind of utility, determining the degree of importance of every area with severity of light and darkness used in it, change from darkness to light and engendering diversity, light presence hierarchy preservation and in symbolic and mystical insinuations, like excellence and upward tendency and establishing a spiritual area in architecture, each one have been manifested somehow.

Islamic architecture especially in Iran has a special emphasis on light. Inside a mosque is similar to light which is crystalized as mundane figures and remind the light verse. In Iran, due to severe sunshine in majority of this land and air transparency at elevated regions, light experience and need to living, bright areas was a part of Iranian life throughout history. Light is salient component of Iranian architecture and not as a physical component, but as a symbol of divine wisdom and symbol of existence. Light is a spiritual presence which penetrates in solidity of material and dignifies it and makes it beautiful and adequate to be place of human soul whose essence also has the roots in light realm, realm of soul.

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