

Enhancing the Visual Comfort of Citizens Emphasizing Sustainable Iranian Architecture Patterns

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ABSTRACT: Visual comfort is one of the most important issues and concerns of architects, urban designers, urban planners, landscape architects, designers and environmental psychologists. Enhancing the visual quality of the city and the welfare of citizens is more than a matter of planning and urban design; and now, the orientation of urban planning in its various fields is achieving sustainable development. Iranian architecture, in spite of the multiplicity, diversity, and complexity of the buildings is an example of sustainable architecture design. Due to the use of non-fossil fuels and renewable and clean energy, organic growth and importance of the site in order to respect the environment, Iranian architecture today could be a suitable model for architects and urban planners to advance and promote the welfare of citizens in urban visual problems. This paper is seeking to promote the welfare of visual comfort of citizens in the use of stable patterns through an analytical approach with the aim of clarifying the status of Iranian architecture as a model for sustainable architecture. The results of this research showed that implementing such factors of sustainable Iranian architecture as hospitality, avoidance of uselessness, Niyareh , self sufficiency, and introversion as a model in constructing buildings can notably be influential over the visual comfort of the citizens and maintenance of urban landscape.

Keywords: Iranian architecture, sustainable architecture, visual comfort, architectural patterns.

INTRODUCTION

Unlike many studies and experiences on the form of modern cities and their visual structure, there are no desirable, scientific, and generally accepted principles defined yet. Also by increases in the size of cities, combinations of towns and suburbs, the development of highways, incorporation of a variety of moving vehicles and pedestrians, increase of speed in urban areas, development of high-rise buildings, the development and diversification of transport, the multiplicity and diversity of urban furniture and the like, some new conditions have emerged that that make achievement of aesthetic goals in cities difficult (Tabasi & Ismaili, 2012). Over time, the effects and outcomes of visual pollution are increasing and there is no warning sign that shows the

level of this type of pollution in the city's squares to make citizens aware. Many metropolitan cities are not visually beautiful: ill-fitting buildings are along the streets that are full of cars and humans. Audio and visual pollution which can be seen in the cities is one of the main reasons for the decrease of work efficiency among citizens. In other words, many confrontations and conflicts that occur in the city are influenced by urban pollution, especially visual and auditory pollution (Mahmeli Abyane, 2011).

The positioning of urban structures, shape and form of urban spaces, squares, parks, alleys' facade, streets, buildings, signs, urban design, telecommunication network design, urban subway and bus stations, and finally urban graphic, must all be studied in the framework of art and artistic activities. Art and architecture are associated with the city structure;

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and its negligence in cities is a significant cause of visual abnormalities. Existence of inappropriate and abnormal physique plays an important role in encouraging abnormal behaviors among the society members because environment influences on the behavior of its inhabitants, and physical environment impose some new social patterns and roles to the residents and strengthen some existing behaviors and undermine others (Caboli Farshchi et al., 2013).

Iranian architecture has features that are of value in comparison with other countries, especially such features as suitable design, exact calculations, correct form, coverage, observing the technical issues of the building, high ivans, tall columns, and a variety of ornaments that each of them represents a majestic architecture that is simple, but reflects effective visual quality of Iranian architecture. In addition, Iranian architecture is formed in different locations with full consideration to all climatic, social and cultural factors, and due to the use of non-fossil fuels and renewable and clean energy, organic growth and respecting the environment. This type of architecture can today be regarded as a suitable model for architects (Farshchi, 2010).

Literature Review

The studies in this regard are as follows:

A research entitled "Explanation of visual improvement indicators in cities, by visual health approach, in Mashhad" was undertaken by Tabasi & Ismaili in 2012. This study aimed to explain the characteristics of the visual culture of the city and its adjustment to the visual requirements of the holy city of Mashhad. It was conducted by considering the nature of an Islamic- Iranian city. The results showed that in order to escape their faint appearance, modern cities require technical studies in terms of perspective, theoretical aesthetic aspects of Iranian architecture and the foundation of civilization and history.

In another study, conducted by Rafieh Farshchi, entitled "Explaining the principles of sustainable architecture in Iranian architecture" in 2010, applied principles of sustainability in the construction sector were introduced and studied how to apply them in Iranian architecture. The results showed that sustainable design strategies based on science and technology of designers and architects offer various methods to be implemented in buildings. But, what is certain is that all of these methods aim to establish a number of principles, including energy conservation, harmony with the environment and climate, reducing the use of resources and meeting the needs of residents. Therefore, to achieve these objectives, architects must consider whole-oriented architecture where all the principles of sustainable architecture are embodied in a whole process (which leads to building a healthy environment) and this is what happened in Iranian traditional architecture.

An article entitled "The study of the influence of new

technologies in architecture of Iranian new constructions to achieve a sustainable architecture" by Falahat & Jafari (2013). This article tried to provide solutions for achieving sustainable architecture through the study of the influence of technology in new buildings' architecture. The new buildings that benefit from new technologies also have their Iranian identity.

Also, in connection with visual indicators of cities, an article with the title of "Enhancing visual comfort of citizens with an emphasis on local patterns of the skyline in the urban landscape" was completed by Amir Caboli Farshchi, et al. in 2013. This paper discussed the role of high-rise buildings in urban landscapes with the aim of clarifying the dimensions of the problem. The evaluation of the skyline placement in the city can be studied from different perspectives. Finally, this article provided strategies for placement of a proper skyline and a cohesive whole at the beginning of Imam Khomeini St. in Mashhad which can improve the physical quality, and enhance the visual comfort in this street.

Regarding Iranian architecture, there is an article entitled "The roof, canvas and people; reviewing and criticizing the proposed principles of Mr. Pirnia for Iranian architecture" written by Qayoumi Bidhendi & Abdollahzade (2012). With regard to Iranian architecture that proposes some principles from the perspective of professor Pirnia, the general competence of these principles for explaining Iranian architecture was measured. Authors criticized the motives of professor Pirnia for his opinions, and also reviewed the assumptions and implications of the study.

MATERIAL AND METHODS

In this article, a descriptive-analytical approach was used as the base of the research, and for better understanding of the subject. For collecting data, observation and extensive library studies were conducted as well as analyzing other written sources including articles and related theses to the subject of the study. In order to start a scientific study, the authors first referred to expert texts and global experiences. While taking advantage of the main methods and approaches used in these texts and experiences, influential factors on improving visual comfort with regard to Iranian sustainable architecture were presented in this article.

Visual Comfort

For living, visual comfort of the city is one of the critical components of safe manmade environments because the city is a large house, and as the home, must have some characteristics and advantages in order to make life more enjoyable and comfortable. The city should also have some qualities and characteristics for providing comfort, convenience and peace. Also, the city, like the home, should be a warm, sincere and pleasant environment as much as possible in order to provide a good life. Visual comfort can

be described for places that- due to the best quantity and quality of the conditions and information they provide- have been used in a healthier, safer and more desirable way. In this respect, higher social or official supervision is also provided. Indicator components as required in this regard, including the visual pollution (visual disturbances) and symbol pollution (environmental information and legibility) were examined.

Visual Pollution (Visual Disturbances of Views, Sizes and Elements)

Views of the cities are continually exposed to millions of people, and more than anything else, the spirits of people are affected by these visions. This figure could be fully weighted as music, literature and painting, or accompanied by confusion. It can adversely affect the urban behavior and communication activities. Organizing the figure of the city that plays an essential role in urban design is actually a part of a container that allows behaviors, activities and communications occur in it. From the viewpoint of some experts, view of the city is the morphology of the city.

This means that the shape of the city includes the physical tissue, administrative and industrial operations, and total buildings that represent the space of urban phenomena. In this regard, Lynch uses the term "adapted space" that physically accommodates the activities (Bahraini, 1999). Gordon Cullen raised this issue by introducing the "Art of relationship" in man-made environments. He argued that the difference in meaning is between being large and being raised in proportions of the relationships. In fact, there is art of proportions, as there is the art of architecture. This is due to the rational order in all the elements which are used in the development of environment. Buildings, trees, nature, water, traffic, advertising signs, etc. should be connected to each other in order to display that art succeeds because the city is an exciting event in the environment (Cullen, 1998).

Symbolic Pollution (Environmental Information and Symptoms)

Generally, the quality of human life depends on a variety of messages received from their surrounding environment. This is because the nature of the environment that forms the mind and biological characteristics of human. Salingaros in his article titled as "Urban spaces and areas of information," brings up the question that what things cause the usage or avoidance of urban spaces? In response to this question, he refers to the background information and symbols that increase or decrease the quality of urban space, and links it to the social logic which is in correlation with those realms of information. Thus, this situation is focused on the success of urban space. For example, symbols, signs, and in other words, landmarks, from the experts' point of view, are important factors for identifying different parts of the urban landscape. Thus, people, especially those who are not familiar

with the environment, and the newcomers can feel secure and find their way through communicating with these landmarks (Maurer, 1994).

Signs (symbols) of man-made urban environment may have an indirect or symbolic social role and make people perpetuate in their history and town. Monuments, traditional neighborhoods, streets, squares, and in general, urban landmarks remained from near and far ancestors are signs that help existence and dependence will be regained (Salingaros, 1999).

Iranian Architecture

Iranian architecture has more than 6000 years of history, and till now has widespread special monuments in its vast borders from Afghanistan to the north of India and from China and Syria to Egypt. Some design elements which were found in Iranian architecture endured for two thousand years. The most important aspect of these elements was the tendency to show greatness, utilizing the simple and large shapes wisely, absolutely stunning stability with arrays of decorations such as high arches, decorative spiral columns, and a variety of painted images. Undoubtedly, some of the oldest styles still remained. Iwan that is seen in the rocky tomb of Median and Achaemenid appeared again in the temple of the Parthian, Sassanid, and in Islamic eras, it was applied in the mosques. Likewise, the four arched architecture that is the old pattern of Iranian architecture can be still seen in the construction of many mosques, tombs and monuments around the country. Four Ivan aprons that emerged during the Parthian era had become a kind of dominant style since the fourth century in order to beautify Islamic religious buildings (Ghaffari & Ghaffari, 2010).

Although there were some Interruptions and lapses as a result of temporary internal conflicts or external violations, Iranian architecture has kept its integration. No building is dingy in Iranian architecture, even the pergolas in the gardens are generally glorious and the smallest caravanserais are really charming. Most of the Iranian structures have a clear and explicit expression and display in which a combination of grandeur and simplicity arise expressiveness and immediate feelings, while the decoration of the building and its accurate patterns make the observation sense to take the careful consideration.

Pirnia (2003), Iranian architect, articulates the following general principles:

People orientation: that means respecting the balance of human organs and building spaces, and considering the human needs in the construction. Always and everywhere, architecture has been an art depending on the life. This is more than anywhere else In Iran. As always architectural arrangements were in the hands of life. At any time, it has been the life style that shaped the agenda and style of architecture.

Avoidance of uselessness: Iranian architecture tried not to do

useless actions and to avoid profusion. These principles have been observed before and after Islam.

Niyaresh: The word Niyaresh refers to the knowledge of building stability, construction technology and construction (science of materials). Old architects had a careful attention to the Niyaresh of building and did not consider it apart from aesthetics.

Self-sufficiency: Iranian architects were trying to obtain the needed materials and structures from the closest locations so that they were self-sufficient for materials. Thus, the construction work had been done more quickly and the building became more compatible with the surrounding nature. At the time of renewal, all the materials were always available.

Introversion: Basically, it has been very effective in organizing the different areas of a building, especially the traditional houses. One of the beliefs of Iranian people is valuing private life. The sanctity and dignity of Iranian people has made the Iranian architecture introvert (Qayoumi Bidhendi & Abdollahzade, 2012). According to these basic principles of Iranian architecture, we could bring back Iranian visual beauty to the contemporary architecture and urban planning, and create persistent and lasting monuments which are in line with sustainable objectives for future generations

Sustainable Architecture

With a general viewpoint, the principles of sustainable architecture include designs which are based on the consumption, preserving the life cycle of biological life, and human comfort (Jin Kim, 2003). To achieve these principles, some strategies are proposed to pave the way for a type of sustainable development and architecture which is consistent with the viewpoints of the professionals in this field. The following points are the most significant ones (Town and Country Planning Association (TCPA), 2006):

- Designing according to the climate;
- Creating a favorable microclimate;
- Static heating, cooling, and lighting;
- Using renewable energy;
- Creativity in architectural designs;
- Utilizing materials, construction and manufacturing techniques;
- Protecting and enhancing natural values;
- Architecture as a living organism;
- Efficiency of space;
- Designing based on human comfort.

However, these strategies suggest the concepts are mandatory and necessary as the major principles of sustainable development, and lack of attention to them will put the architecture and construction industry in the process of

reversed sustainable development. Also, some of them will be proposed to another submitted strategy. For example, if the design is done with no regard to climatic factors, the use of renewable energy such as solar or general administrative policies, with no consideration of the environment and conserving natural resources, not only the building will be against the sustainable values, but also the costs of building and infrastructures will increase. On the other hand, according to the holistic view of sustainability, where natural environment, the socio-cultural environment, and the health care community are considered, these buildings with such features will affect their surrounding environment including neighboring buildings and the neighborhood, tracks and routes available. However, the adverse effects of such buildings will influence the society beyond the level of a single building. Another viewpoint considers sustainable development as: "By maintaining a balance between technology and improvements in health, economic and social conditions, sustainable development deals with both basic needs of developing countries and improving the quality of life in industrialized societies in order to make the human settlement in the city or a smaller scale become sustainable for a long period, decrease the damaging effects on the environment, and making life, working conditions, and job status pleasant". (Muller, 2002).

Sustainability in Architecture of Iran

Iranian architecture had some principles since a long time ago. These principles are: 1) People orientation, that means respecting the balance of human size and building size, and considering the human needs in the construction, 2) Avoidance of uselessness, 3) Niyaresh: that referred to the knowledge of building stability, construction technology, and building construction, 4) Self-sufficiency, that meant the elements must be native, 5. Introversion, one of the most important Iranian belief was valuing private life and the sanctity and dignity of Iranian people (Pirnia, 2003).

Since the traditional architecture of Iran has many indicators of sustainability, it is needed to examine this architecture from both macro and micro perspectives. At the macro scale, such concepts must be discussed as the location, structure, texture, density and distribution, distribution of streets and alleys, and the organic order in the context. The important indicators of micro-scale are also visible in Iranian architecture, including the orientation of the climate, green areas, introversion and extroversion, passive solar systems and equipment, construction materials, forms, roofs, walls, openings, color and so on.

RESULT AND DISCUSSION

The present study analyzed the environmental elements and symbols based on Iranian sustainable architecture. It

was concluded that existence of symbols is the form of information and environmental signs can increase the quality of urban environment and enhance individuals' interactions in the society. The result will be a better urban landscape, and entrance of society members into unknown and unfamiliar places with more feeling of security and relaxation, by use of signs and symbols. Regarding the analysis of such factors as visual pollution and symbolic pollution from the viewpoint of the citizens' visual comfort, it was revealed that urban landscapes are seen by the citizens, and influence over their moods and relaxation. Lack of paying attention to these factors in designing and constructing buildings leads in citizens' misbehavior, disturbance in their activities and communications. Regarding the similar researches with this article, it can be mentioned that Tabasi, & Ismaili (2012) analyzed the urban elements for provision of visual comforts for citizens, according to visual requirements of a religious city like Mashhad. The result of their research revealed that color- as an influential measure in visual comfort- affects urban form and increases the visual comfort of citizens. Moreover, lightning in internal and external environment- as another influential factor on visual comfort- affects positively and enhance visual comfort of the citizens.

In the study of Caboli Farshchi, et al. (2013), it was concluded that the skyline, as a factor in urban landscape, is influential in improving the visual comfort of the citizens. Moreover, the status and position of skyline in the city was stated to be influential over city's integration and unity. However, the present study focused on Iranian sustainable architecture and considered such factors as hospitality, avoidance of uselessness, self-sufficiency, and introversion as influential factors which maintain domestic architectural patterns in Iran, and influence over visual comfort of the citizens.

CONCLUSION

Visual structure of each city, although it is apparently the most superficial and is the broadest area which includes the constituent structures of the city, is the most visible manifestation of the communities residing in it that represents physical interactions or conflicts, organization or chaos in society. Therefore, irregularities and anomalies in the body of each city are signs of the irregularities in its architecture and lack of attention to the aesthetic aspects of the history and civilization. Iranian architecture has been realized in different locations with full consideration of all factors including climatic, social and cultural factors and has been designed to respect the environment because of utilizing non-fossil fuels, using clean and renewable energy, organic growth, and respecting the site. Nowadays, Iranian architecture can be considered as a suitable model for architects in order to achieve a visually comfort environment.

ENDNOTES

Niyareh is the knowledge of building stability, construction technology and construction (science of materials).

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