



The position of Green Space in Improving Beauty and Quality of sustainable Space of City

Mina Bakhshi

Received: 30.07.2015

Revised: 28.09.2015

Accepted: 5.10.2015

ABSTRACT

The ever-increasing growth of urbanization, irregular population growth, multiplicity of motor vehicles, extra use of fossil energies, expansion of constructed buildings and separation of cities from the nature, as well as the environmental instability and problems, urban views are changing from valuable ecological areas into disconnected, inefficient areas in a way that every day the nature trace gets weaker and weaker. One of the conditions of making desired urban spaces is to connect urban spaces with the nature. It seems necessary to present some ideas for strengthening this connection and directing the cities towards getting as dynamic as possible. The methods compatible with nature include green roof, green walls and green corridors designs which make a kind of dynamic relationship between cold, spiritless urban frameworks and natural frames. They are of great importance in prompting urban space quality not only as an aesthetic element but also as a vital one in air pollution critical conditions. On the other hand, the importance of green space as one of the dimensions of urban landscape is in a degree that it improves the quality and beauty of sustainable city. Therefore, the green space can be considered as one of the significant areas in the quality of urban spaces.

The main aim of the present study is improving the quality and aesthetic of urban space and sustainable city through green space. This has a great help in achieving applied principles in the sustainable city landscape design. The methodology is descriptive-analytical utilizing library search, sources books, and textbooks reviewing.

Key words: sustainable development, sustainable city, green space, aesthetic, urban space

Introduction

The ever-increasing growth urban population has caused some changes in the structure and performance of urban and surrounding lands. Among the most important physical – spatial effects of urbanization growth are the destruction and use change of green spaces. The urban green and open spaces are regarded as nature remainders which have borne qualitative and quantitative changes due to irregular urban development, and these changes have brought about many ecological, economic and social effects. Regarding their various applications, urban green space plays an important role in promoting life quality of the citizens and, therefore, it is a key factor in the formation of desired urban spaces. Hence, urban design with the focus on land use has become very important in determining shares and standards for public availability and improving people's life quality. Urban green spaces and parks are also regarded as an index of societies' development. The most important effects of green spaces (urban parks) are temperature modification, partial humidity increase, air freshness, and dust absorption. Therefore, enjoying green space applications (urban parks) in cities for citizens to spend their free time and have a direct contact with natural environments as one of the proposed

applications is an inevitable necessity. For Le Corbusier, urban green spaces are of great importance and he believes that nine out of ten residential urban space units must be green spaces. In a beautiful sentence Paul Klee states that having a relationship with nature is the most essential condition for an artist. An artist is a human being and he is the nature itself; he is an entity in natural spaces (Antoniades,2003).

Cities as the main consumers and distributors of goods and services have turned to the central points of sustainable area. However, most cities waste surrounding resources by excessive consumption of present resources. The ecologic destructive consequences would expand further the geographic borders as the result of increase in resources consumption and dependency on commercial economy. The main focused point presented in scientific meetings and official institutions was the sustainability in the frame of sustainable development, sustainable urban development and finally a sustainable city.

Theoretical Basics of the Research

In order to prepare a suitable theoretical framework for studying the issue, it seemed necessary to briefly discuss the main concepts used in this study and their relationship as well as the research methodology in the order of appearing in this research:

Author's Address

Master of Urban Design, Tehran University.
Email: Minabakhshi1390@gmail.com



Urban Space Definition

Urban space, as architecture and urban development scholars believe, is beyond its physical space and geometrical elements. In a general definition, urban spaces include the living spaces of all citizens which are, consciously or unconsciously, passed to achieve different goals. Martin includes the streets, boulevards, squares, parks, and the building that define those spaces in urban spaces and in the domain of urban design studies. Lang, too, states that public areas consist of the spaces between buildings as well as some spaces inside the buildings. The urban space is not an empty space between buildings; it is a concept including physical environment, activities, events, and the relationship between them. According to Cullen, urban spaces are the most important places for presenting social events and making them important (<http://www.also.org>).

Green Space Definition

Green spaces are plant communities including trees, shrubs, bushes, flowers, grass, and other plant covers which are made to preserve mental and physical health of human beings and to activate natural ecosystems in some parts of the lands inside or outside cities with the aim of improving the quality of the environments for people. Urban green spaces are some parts of urban open spaces whose natural and artificial areas are occupied by trees and other plants which are retained, looked after, and/or established under the supervision and management of the humans with regard to related norms, rules and specialties in order to improve biological, environmental and welfare conditions for citizens and non-rural population centers

Green Roof Definition

A green roof is in fact a roof upon which plants grow. The plant diversity of such a structure can vary from a roof covered with artificial grass to a roof garden covered with plants used in landscape design. Greening the roof needs some carefully-selected plants resistant against the rough, spiritless environment of the roofs in some conditions like the shortage or lack of water, climate factors, freezing, sea and land breeze, etc. The types of selected plants differ depending on different climates and weather conditions. A green roof or a roof garden is the extreme combination of components and the nature. The executive details of such a roof are not much different from those of ordinary roofs, and include thermal and moisture insulation, waterproof covers, sand, and sealant. There must also be some materials and elements capable of retaining moisture drainage as well as

providing situations to take care of the plants (based on the standards) in building construction (<http://www.Modern Architecture.com>).

Green Wall Definition

Green walls resemble a vertical garden, and might be either inside or outside buildings. Professionally, a green wall is a live wall that can be combined with aquatic elements such as pools and fishes. It can also combine with cooling systems in houses as some kind of evaporative ventilation or as a part of water functional system (<http://www.Modern Architecture.com>).

Humans' Relationship with Green Spaces

The relationship between human beings and plants and also their interest in them date back to many years ago and perhaps since the primary men era. During history, using plants has passed a very extensive evolutionary path and has caused lots of scientific derivations. In this regard, since the Medes entered the Iranian plateau, they have always been diligent in developing green spaces and growing plants so that Iran was known as the country of flowers and nightingales in that time. Unfortunately, plants have been recently disregarded in our country. Therefore, increasing people's knowledge of green spaces is a necessity that prevents city destruction catastrophe due to environmental pollution. Hence, taking into consideration the role of green spaces in humans' lives as well as making people more interested in trees, flowers and grass is a very important task.

The Green Spaces' Role and Mental Importance on humans' lives:

The beauty and art manifestation is the best refuge for humans' spirits.

Using some elements with soft tissues

Some trees release a material, named phytoncid, which has a pleasant effect on people.

Preventing air pollution through absorbing harmful solar radiations and the dust existing in air.

Oxygen production: green spaces are the most important sources of producing oxygen.

Weather modification, temperature decrease and partial humidity increase.

Noise pollution reduction: trees and shrubs are effective in reducing air pollution.

Beauty creation: the beauty of cities and their suitability for living owe the green space beauty creation.

Urban architecture: green spaces are regarded to be private spaces for spatial division and making protection. They also play the role of catalysts to connect and join the structures.

The relationship between architecture and green spaces

The relationship between human constructions is investigated in two scales: macro (country planning) and micro (architecture and urban development) ones. In macro scale, natural geography is taken into consideration in order to organize constructions based on natural, economic, social, and even political conditions and the relationship between humans and nature in manifested in the form of architecture and urban development (Ebizadeh,2009).

Green architecture which is known as sustainable architecture is a macro term, addressing some architectural techniques, all having environmental views. It has been formed with the idea of respecting the nature. Green architecture is not actually a new trend since it had basically appeared in many ancient civilizations and traditional architectures including Iranian traditional architecture (Farshchi et al, 2008). Besides, a common systematic example of green architecture is seen in Feng Shui with the same Chinese Installation art. Today, following the negative consequences of the industrial world including the ever-increasing air and environment pollution, reduction of natural resources as well as the energy crisis, retaining world natural resources has become one of the biggest concerns of people in this era. But green architecture with the aim of seeking a way to minimize negative effects of buildings on the environment, is in fact some effort to become compatible and harmonious with nature, and by increasing the efficiency and optimizing consumptions, it is used in constructions in the best way. Achieving this goal can be possible with a little insight. For example, in a green building which is in line with nature, some materials with no harm for nature are used and they not only do not pollute the environment but also return to the natural cycle. A building made of environmental materials which is constructed firmly becomes part of the nature. To make such a building, providing some easy access to public transportation as well as suitable paths for bike riders and pedestrians is considered because it would minimize using automobiles. In addition, the building's direction is towards natural light and free energy, but what is important in these buildings is to provide a way for nature to enter the building by, for example, introducing some mixed decorations and filling them with the green space.

The relationship between city frameworks and green spaces

Regarding the traces of plants' presence in urban environments and the current shortage of it as a problem, some ways of entering plants into developed and urban environments need to be sought. Green walls and roofs are among the best choices. Being simple and easily seen, green walls have more advantages than green roofs, and installing them is getting easier every day due to modern design and technology (Shelly,2006).

The pattern of green spaces in urban margins is as follows: the surrounding green belt as well as green arcs and green axes.

Urban green space classification:

Urban green spaces are on the one hand classified as private and public, and on the other hand as specialized and non-specialized ones.

Urban private green spaces (private gardens)

Urban public green spaces

Specialized green spaces (amusement parks, botanical parks, zoos, training gardens)

Non- specialized green spaces (squares, streets, playgrounds, etc.)

In urban green space classifications some different ideas of various forms exist but in general, urban spaces can be briefly classified as:

Urban district parks

Urban zone parks

Wide parks

Marginal parks

Gardens, divisions, green bands, and house gardens

Decorative green spaces

Connective green spaces

Green space belts

City gardens

Due to their various forms and structures, trees and plant covers play an important role in shaping urban spaces. Moreover, the existence of trees and green spaces in front of buildings considerably decreases the state of city boring and lifeless (Moughtin et al,2007). Since last decade, designers have shown their designing art in most urban parks by creating inanimate objects and then painting them with various flowers and plants. It means that beautifying and symbolizing have been dominant over creating an active green space with an acceptable ecologic outcome which has been without necessary investigations of its possible combination with Iranian traditional garden-making (Ferry,2004).

The green roof position in urban framework quality

1. The management of retaining rain water: by absorbing 75% of rain water, green roofs



decrease negative effects of heavy metals in domestic sewage that enter the canals.

2. Recycling and supplying water for irrigation

Decreasing heating (by adding thermal insulation and mass) and cooling (through evaporative cooling) loads, especially if they are glasses and work as a greenhouse or inactive solar heating system. According to a study by Bass Brad I (2005) in Toronto University, green roofs can significantly decrease the waste of heat and consuming energy in winters.

1. Decreasing the effects of greenhouse gases
2. Environmental diversity of urban live creatures (plants and animals) as well as providing residence for birds
3. Taking care of the earth crust and preventing the ultraviolet rays
4. Improving and freshening the air, decreasing the temperature, tempering the hot weather. By absorbing carbon dioxide and producing oxygen, green roofs purify the weather (only 5/1 square meters of green grass roofs can eliminate 2 kg nitrogen in air each year.)
5. Green roofs play an important role in developing stable buildings for sustainable development.
6. Preventing building fire
7. Decreasing electromagnetic radiation effects
8. Decreasing sound reflection and transfer (decreasing noise pollution): green covers decrease the sound up to 40 decibel.
9. Green roofs supply human health by providing a peaceful environment in crowded urban areas, improving weather quality, and providing a new space for entertainment activities and holding ceremonies.
10. Making a new space for agriculture and improving food security in cities

The position of green walls in urban framework quality

Space saving: gardens are placed vertically not to occupy the ground surface. It is suitable for city apartments and terraces.

Insulation: a short distance between the main and the green walls keeps the temperature rather stable.

Beauty: green walls give a distinct style to buildings and rooms.

Saving energy consumption: green walls can decrease the need to ventilation systems and, therefore, the energy consumption in buildings. Their cooling effect lessens the heat in buildings.

Air quality: as a live purifier, it keeps deformed pollutants.

Love for nature: feeling healthy as a result of companionship with plants

Water recycling: plants can purify little pollutions such as gray waters, and work as a live purifier to separate heavy particles in waters.

Green spaces: increasing urban green space and decreasing urban heat island effects.

The Sustainability Definition

Sustainability is applied extensively for global descriptions in which human and natural systems at the same time can continue their life in a very further future. The sustainability concept born by political processes aims to pay attention to the most demanding needs of the present times such as economic development for overcoming poverty, protection of environmental benefits, cultural equality and diversity to empower the local society (Amin Zadeh,2008).

Sustainable development

The commonest definition of sustainable development has been presented by Brundtland Commission that defines the sustainable development as: the development that can answer the present generation's needs without limiting future generation's facilities to meet their needs. The United Nations has also defined the sustainability in 1991, as the developmental sustainable policy is the policy that its practices results in positive advantages through natural resources consumption could continue for predictable times.

Alkin defines four features of sustainable development as looking at future, environment, equality and contribution. About contribution index he states that we have faced with difficulties and problems in economy development without political contributions many times. Decisions about the development is successful provided that in decision makings and the practical procedure of their implementation the individual's roles taken into account too. Presently the contribution has turned to the common feature of all developmental methods (Moughtin,2010).

Urban sustainable development

The research on urban sustainable development is possible through three economy, social, and environmental factors. In urban sustainable development conference (URBAN21, Berlin, July 2000) the life quality improvement of life in a city considering ecological, cultural, political, institutional, social, and economy factors without

causing difficulties for future generations (Pour Mohammad Reza et al,2007).

Sustainable City

Each individual and institutions have described the sustainable city based on specific aspects. For instance, according to Herbert in a preliminary definition which only considers environmental aspects, a sustainable city is organized in way that all its citizens do not damage the environment while meeting their own needs and improving the environmental conditions, without endangering environmental life of other people in now or in future. In another definition which describes the relationship between environment and economic dimensions: a sustainable city is one that the improvement and quality enhancement of people's life is gained through a harmony with improvement and health preserving of ecologic systems and in such a city the industrial foundation of a healthy economy, the well-being of human systems and ecology are granted. Jenckes and Dempsey presented a comprehensive definition of sustainable city: Sustainable cities are efficient and independent regarding economic perspective and from social perspective they are justice-oriented and help environment protection in all natural ways. It can be claimed that the principles of a sustainable development are briefly as following:

- 1) Considering renewable resources like wind or sun energy
- 2) Less consumption of non-renewable and polluters energy like fossil fuels
- 3) Pay attention future generations
- 4) Pay attention to environment and reducing its pollution and also considering environmental cycles.

From environmental view point, a sustainable city is one in which there is the least consumption of non-renewable energy, the least wasting and the least destructive effects on the environment, keeping on its present efficiency toward more sustainable city.

The Role of Green Space in Sustainability

The most important effects of green space in cities, is their environment efficiency which gives meaning to cities as an environment for human society and stand against the side effects of industry and misusing of the technology to increase the environmental quality of cities. At the present time, urban design is of great importance from environmental dimension and is considered as most essential sustainable development component. The rapid increasing of population has resulted in consumption of natural resources, environment

destruction, and air pollution, while protecting the environment is a public responsibility for every one according to 81th principle of Iran's constitution . Reducing air pollution, sound pollution, temperature adjustment, increasing relative humidity, air stylizer, and absorbing dust are other effects of green space in cities, but the whole effect of green space in cities make them being unavoidable in the cities, so that without greenhouse cities it won't remain sustainable. Therefore, if green spaces be taken as an essential part of cities or cities' services, they would be separated from society's needs consequently the green spaces must be created, from quality and quantity perspective, in proportionate with physical space of city, buildings, roads, streets, psychological need of society, free time, hygienic needs and city ecology to have a constant environmental efficiency as an active green space.

The body and aesthetics indexes

Although the body of each city is the most superficial layer and the most public area of activity and spatial structure of the city, it manifests the whole economy, political, and cultural relations ruling over that society. In fact, present interactions or oppositions, organizing or disorganizing in the society is presented in the body of the city in the most tangible way. A sustainable city need social activities consistent with a democratic society whole heartedly which attract the government attention to citizens' rights in which individuals are able to cooperate in the citizen society.

The Emergence and Evolution of Aesthetics Concept

Reviewing theories on aesthetics philosophy first applied by Plato, indirectly, up to now. He proved that the concept of aesthetics refers to both subjective and objective aspects. Some experts believe that aesthetics is something subjective and believe that beauty does not exist in real world to be describes by defined conditions or roles. But it is a quality that the mind creates against some of its feelings and receptions, the German philosopher, believes that beauty is not the innate feature of objects but it's in the eye of the be holder, because it is the result of mental activity of a person who attributes beauties to the objects or find them in the objects. For the person who is able to find this beauty is everywhere finding it is an art. Some other believe the objective aspects of beauty. Beauty is one of the objective descriptions of the objects and they believe that human mind understand it by help of specific principles and regulations, like other knowledge that is understood

by related regulations (4). About aesthetics, Plato believed that the universe is created based on eternal forms and constant rules governing it, and is complete and perfect from discipline and organism perspective. Every simple thing is part of discipline and beauty is the fruit of such discipline. Human mind can understand the beauty (Benedetto et al,1993). In Aristotle time the term aesthetics was used kind of similar to its present meaning of today. At that time the term was applied as aesthesis. This term refers emotions and intuitive understanding and generally the conception was through senses(Karimi Moshaver, 2013).

Thomas Aquinas, philosopher and theologian, was one of the most influential scholars on common contemplation in the field of aesthetics. His ideas in medieval were to replace the experimental and inspirational conception of Aristotle for example concept applied by Plato (Benedetto et al,1993). After medieval the common contemplation on aesthetics from objectivism or subjectivism moved toward a combination of both and aesthetics was taken as a subjective-objective phenomenon. This trend is known by empiricism era. The leaders of this field were Hutcheson and Hume. Hutcheson stated that the root of beauty is both in the object and human at the same time(<http://www.also.org>). Hume divided aesthetics conception process in to two levels. Perceptual level by which we understand the quality of the objects and emotional level by which we understand the emotion from beauty or undesirable emotions (the same). Finally we could state that aesthetics is a subjective-objective concept and these two are inseparable.

The Main Points of Aesthetics Theories:

In the field of aesthetic three important contemplations have been stated since the beginning of the modern era which constantly been the focus of attention by architecture, urban and environmental designers.

Objective Aesthetics and a Creation in Environment (Rationalism) Objective aesthetics and a creation in the body of environment (rationalism)

The quality that is inherently in the environment body and it is independent of the supervision. The advocators of the this theory are rationalists who believe that some forms of the body have the quality independent of the time and believe that their continuation in the history is because of the different performances present in the environment body. Aldo Rossi (mandatory environmental beauty) and Christopher Alexander (nature order,

quality anonymous) are the main advocators of this contemplation.

The Subjective and Personalized Aesthetics

This contemplation considers the beauty as something subjective giving to the environment by the observer and has no relation with the body of the environment. The beauty depends on the observer's taste. Theorists of 1960s who investigated the issues in the urban designer and programing perspective are those who believe in this theory.

Beauty as a Receptive and Subjective-Objective Phenomenon (Experimentalism)

Beauty is a phenomenon formed by the combination and agreement of sensory data form the body and the environment from one side and the cultural concepts and mental competence and observers' awareness from other side. Donald Appleyard (reaction to three human positions: emotion, performance, interpretation), Jhon Lang (answering human needs) White and Jacobs (performance) Jack Nasar(sensory- interpretive) Brunelleschi and Rolph (place identity) are the theorists of this line (Alimardani,2011).

Urban Aesthetics

Considering the subject of this study, it is necessary to have a brief introduction on urban aesthetics. Based on the examinations and studies the beauty concept has two aspects of subjective and objectives which are taken into account in the study of urban Aesthetics that is the city's body, city's objectivity and people's subjectivity. In fact, by passing the time, urban Aesthetics not only have body and other visual characteristics but also it is a dynamic quality constantly growing and changing in relation to cultural, social, philosophical, and religious characteristics and the very city as the ground.

The concepts of aesthetics in its evolution have changed from visual attitudes toward conceptual and receptive attitudes. So that in one side, there is petresk style and on the other side, there are the conceptual attitudes toward urban aesthetics, for instance the theory of Norberg Shulz in relation to space experiment and beauty experience theory. Schulz believes that the study of space is the study of events and coincident in that place and claims that the collection of events, forms, texture and coloring form the identity of a place. They consider the space experiment as the experiment of space concept and the beauty experiment in the actual encourage of that concept(Norberg-Schulz,1981). Since reinforcing space sense and sense of

possession of the citizens to the city create a city with identity, the sense of identity is very significant in fulfillments of a sustainable city. Many factors are important in creating sense of possessions to a city among which having good memories from a place has the main role. Boyer introduces the beauty conception from the view of the altogether memories and the conceptual dimensions in the sense of joy(Boyer,1994).

Evaluation Methods and Creating Urban Aesthetics

About evaluation and creation of urban aesthetics, there are many different methods and procedures. The main classification in this regard is 1) evaluation based on people's conception, and 2) evaluation based on expert's ideas.

The expert approach convert physical characteristics of a city to formal parameters of the design (like form, line, variety, uniformity). The conceptual-oriented approach imagines the physical characteristics of the city face as stimulants which provoke the physiological reactions related to aesthetics through sensory- conceptive processes relatively direct or though interference in cognitive structures(clearness, mysterious). Both approaches believe that visual quality is created through interactions among physical features and conceptive- judgment process of human from the city (Karimi Moshaver,2013). The expert approaches are defined in relation to objective aspects of urban aesthetics and conceptual approach or people-oriented approach in relation to subjective aspects of urban aesthetics .

The Visual and Aesthetic Performance of Green Space in Cities

The ornament and desirability of cities for living and settlement owes to the beauty of the green space is its different forms. Green space balances the main unbeautiful parts of the cities as handmade structure natural system. The philosophy of the beauty and the city started in 19 century and it has been applied as memory making and beautifying the city spaces. "The urban aesthetics movement" is an advanced approach that has been applied and studied not only for the concept of beautifying but also as a social controlling tool through meeting people's need and satisfying them. The beautifying is a process which develops the urban quality and improves the urban life quality to achieve a healthy, cultural, and human-oriented city. A beautiful city is one that is formed based on environmental conditions and human needs in a logical and appropriate way and respects the life quality and the mentality of the people. The implementing

objectives of beautifying based on the contemplation of human-oriented city and beauty philosophy: improvement of performance and visual quality, creating especial effects, expending pedestrian sites, the works of art, three main parts of beautifying activities: 1) urban design, environment design and city view (the face). 1. Urban furniture: urban arts and visual quality must compete against other environmental factors to present its beauty and prove that it is even better. A part of human happiness and health depends on the quality of urban spaces and the social and psychological interactions and communications are resulted from aesthetics effects. Although green space in any scale and in any kind is eye-catching and beautiful, paying attention to design principles emphasizes the role of this concept.

Conclusion

The existed environmental crises have directed human beings towards the most comprehensive plannings in order to see more appropriate plannings and strategies for designing optimum urban environments and using natural and environmental endowments existed in urban spaces. It is essential to provide some grounds for human beings to move in a suitable, responsive environment and do their material as well as spiritual efforts for the continuity and survival of the nature. Promoting urban space quality and achieving national and international standards in urban environments must be emphasized. Conducted researches show that in order to live in optimum cities, our natural resources and green capitals must be protected and reinforced more than everything else. This way, we will have some green spaces in the hearts of our cities that can be regarded as entertaining places for the citizens. On the other hand, protecting and reinforcing them as entertaining spaces would return life and survival to these areas and bring about ecological performance and the beauty of urban space.

Considering important factors of urban green space and its leading role in urban sustainable development we can understand that in fact creating desired green space and improving the city view quality are effective in aesthetics, and on the other hand by considering the factors and important points of sustainable development and their relation with green space we can achieve the goals of a sustainable city by paying more attention to urban green space.

References

- Alimardani, Masoud, Rzaghi Asl. Sina, Vaezi. Mehdi, 2011. The Investigation of (psychological) evaluation and quality Analysis and environmental and city view Aesthetics, the first Regional Conference on Architecture and Urban Design, The Applied Higher Education Institution of Saghez.
- Amin Zadeh, Behnaz, 2008. the evaluation of cooperation position in urban view plans to present an appropriate process to revival the damaged texture, the articles on developing sustainable city, Tehran University Publication, Tehran.
- Antoniades, A. 2007. Poetics of Architecture, translated by Ahmad Reza I. 3rd, Soroush Publications, Tehran.
- Benedetto, Croce, Rohani, Foad, 1993. An introduction to Aesthetics, Tehran, The ministry of higher Education and Culture.
- Boyer, Ch. 1994. The city of collective memory, MIT press, USA.
- Ebizadeh, E. 2009. Architecture Framework and Hidden Angles of the Nature: A New Idea for Discovering the Hidden Angles of the Nature as well as Their Relationship with Architecture. M.Sc. Thesis in Architecture, Tehran, Iran University of Science and Technology, School of Architecture and Urban Development.
- Farshchi, H. R., Jourabchi, A. H. 2008. The Role of Natural Elements in Architectural and Urban Development Identity Granting. Iranian Architecture Congress Corpus, Kashan, Kashan University.
- Ferry, H. B. 2004. Urban Design (Towards a More Sustainable Form of Cities), Translated by Hossein Bahreini, Urban Processing and Planning Publications, Tehran.
- Karimi Moshaver, Mehrdad, 2013. the Approaches and Methods in Urban Aesthetics, Baghe Nazar, tenth Year, No. 24: 47-56.
- Moughtin, Cliff, Peter, Cheryl, Translator: Kaveh Mehrabani, 2007. The Green Dimensions of Urban Design, the process and Programing Company, p.25.
- Norberg-Schulz, C. 1981. Genius Loci: Paysage, Ambiance, Architecture, Brussels, Mardaga.
- Pour Mohammad Reza, Navid, Hamide, Sara 2007. Sustainability in Cities From the Past To Now, Haft Shar quarterly, No, 21-22, 5-22.
- Shelly. James 2006. Experimentalism: Hutcheson and Hume, editor, Mashiet Allaey, Tehran Fahangestan Honar Publication.
- <http://www.architects.ir/document/11647/12186/portal.aspx>
- <http://www.also.org>
- <http://www.Modern Architecture.com>

