

The Position of Green Space in Promoting Urban Space Quality

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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. The main objective of this paper is to promote urban space quality through designing with nature. It significantly helps accessing the applied principles of desired urban space design. The research methodology is descriptive – analytical, using library studies as well as text and resource reviews.

Key words: Green Space, urban space, human, architecture

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 [1].

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:

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 (Pakzad, 1996). 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 (Golzar, 1999). Lang, too, states that public areas consist of the spaces between buildings as well as some spaces inside the buildings (Lang, 1995). The urban space is not an empty space between buildings; it is a concept including physical environment, activities, events, and the relationship between them (Madanipour, 2005). According to Cullen, urban spaces are the most important places for presenting social events and making them important (Cullen, 1998) [8].

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 [7].

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 [9].

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 [9].

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 [2].

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 [4]. 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 [3].

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 boringness and spiritlessness [6]. 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 [5].

The green roof position in urban framework quality

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.

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.

Decreasing the effects of greenhouse gases

Environmental diversity of urban live creatures (plants and animals) as well as providing residence for birds

Taking care of the earth crust and preventing the ultraviolet rays

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.)

Green roofs play an important role in developing stable buildings for sustainable development.

Preventing building fire

Decreasing electromagnetic radiation effects

Decreasing sound reflection and transfer (decreasing noise pollution): green covers decrease the sound up to 40 decibel.

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.

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.

CONCLUSIONS

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.

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