

# Forms of landscaping modern architectural environment

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**Abstract.** The urbanization of territories, changes in the lifestyle of the population, significant deterioration of the environment require a change in the traditional approach of the formation of urban and architectural space. In view of the limited time budget of the modern city dweller, it is necessary to revise the existing system of active green recreation, bringing it as close as possible to the space for life and work. Because of the limitations of territorial resources and aggressiveness of the external environment, the trend of green space "green building". This concept involves the active formation of several types of landscaping at the same time. That requires a special approach to the design of the "green" object. The article deals with the levels of the complex of factors that are necessary in the design of ecological space at various stages.

## 1. Introduction

Today, such factors as the depletion of natural resources, climate change, global population growth in cities, entail a change in the usual forms of architecture [1,2]. This is especially true of the office and residential real estate market [3]. Speaking about the requirements for modern construction, in addition to taking into account the development of infrastructure, appearance, urban characteristics, it is becoming increasingly important to ensure the environmental component in non-traditional manifestations (aesthetic, functional, spiritual and others). Architecture becomes non-scale to man. In this connection, the need to consider the main characteristics of modern housing comes to the fore: environmental friendliness, energy efficiency, and as a consequence, efficiency [4].

Environmental degradation is often associated with a significant lack of landscape component within the boundaries of the anthropogenic environment [5]. Today, this problem is of global importance and is fully understood not only by the population, but also by the professional architectural environment.

In view of this, there is a special direction – "green" construction, the main paradigm of which is the qualitative improvement of the human environment.

Implementation of the principle of environmental safety of construction is based on a systematic approach to the analysis of interrelated environmental, architectural, urban, structural, technical, technological and engineering solutions [6,7]. The stability of the construction object at the present stage should be provided by a set of natural, social, spiritual factors [8]. This can be achieved by various architectural and engineering solutions. However, the implementation of the principle of sustainability requires a comprehensive system approach to design.



## 2. Subject, tasks and methods

Greening, as an integral component of the modern urban environment, is undergoing structural changes. Today, the traditional approach to gardening is more aesthetic functions. At the same time, the positive impact of gardening not only on the psychological state of a person, but also on his physical well-being was repeatedly noted [9]. Today, however, the improvement of environmental characteristics of any component of the human environment (household, labor or recreational) can not be deprived of this component.

Landscaping, as an object of research, is a natural alternative to the art-natural environment, is considered as one of the criteria for assessing the sustainability of the construction object. At the same time, special attention is paid to the comfort of the architectural space [10,11].

## 3. Results and Discussion

Traditionally, landscaping is associated with a territorial resource. In the practice of town-building design provides for the improvement of land areas for the purpose of aesthetic and harmonization of the environment. In this aspect, the main role is given to the formation of the composition. Landscaping involves its mandatory landscaping. In this case, green spaces are aimed at the formation of the traditional "horizontal" landscaping [11].

Depending on their importance in the system of urban planning of the territory, green spaces of settlements are divided into the following types:

- suburban;
- intracity;
- local.

Suburban green spaces are located in relative proximity to the administrative boundaries of the city, in consequence of this and received its status. In view of this, their main focus is environmental recreation and leisure. Green areas of this type are divided into common areas (forest parks, recreation areas, Logopark, Hydropark and others), territories of limited use in view of their special significance in the system of landscaping and urban planning (reserves, national parks, green buffer zone from the water intake stations and wastewater treatment plants, stationary objects of special purpose areas for collective use and horticultural non-commercial partnership).

However, today it becomes necessary to talk about the organization of access to short-term recreation in the system of active recreation of the urban population. In fact, the organization of the lifestyle of the population does not allow even with the close location of green spaces to fully use them for leisure activities. In this regard, special importance is given to green areas of intra-urban and local importance.

Thus, according to the report "on the state of the environment in Moscow in 2014" at the end of 2014, the area occupied by green spaces in Moscow is 30050.1 hectares. such indicators are achieved due to the presence of large green areas concentrated in different administrative districts (VAO, CJSC, Sao), despite the fact that 20 districts of Moscow have insufficient landscaping, and another 8 – critical.

In turn, The intracity green spaces are aimed at meeting the needs within the territorial boundaries of the city. They are distinguished by the inclusion in the urban development, in consequence of which they are compact. Plantings of this type are also divided into the following groups: General use, aimed at the organization of daily leisure and recreation of the population (includes parks of culture and recreation (KPI), urban gardens, squares, boulevards, green streets, plantings in the establishment of administrative and public purpose), limited use, aimed at meeting the requirements for landscaping environment of a group of persons or a particular user. As a rule, in this case, the area with limited access of persons is planted, for example, in preschool institutions, educational institutions, research institutes, industrial or industrial enterprises, residential areas and microdistricts, with individual houses.

Greening of the territory is considered as one of the criteria for assessing the sustainability of the construction site. Of particular importance here is the nearest green areas [12,13]. However, not once

noted their quality failure for the system of urban recreation. However, with the standard percentage of landscaping in 10-20% (as the ratio of green area to the area of the local area and is determined by the requirements of SP 42.13330.2012 "urban development. Planning and construction of urban and rural settlements" as the ratio of green area to the area of the local area), the provision of the natural component of medium – rise development is about 2-4%, and in multi-storey building-about 0.5-1.2%. It should be noted that the provision of the natural component of the building is not proportional, and depends on the number of floors of the building. In this regard, the upper floors of the buildings are completely devoid of the natural component. However, this is not reflected in the existing rules.

On the basis of this, we can talk about the lack of compliance of the environment with the comfort requirements [14]. Today architectural space for each person cannot be depleted acomponentname [15]. In view of the changes in the principles of architectural and urban development of the environment, it becomes necessary to include "green" components directly into the space of buildings [10, 16]. Complex landscaping of the architectural environment can be presented in different variants, each of which has a formative role [17].

Typologically, objects of "green" architecture can be low-rise, medium-rise, multi-storey and high-rise buildings. In view of this, it becomes impossible to rely on common requirements for the design of the environment when forming a green object.

According to the traditional existing classification of green spaces with the account of the spatial-environmental aspect, the external urban space developed by the anthropogenic urban environment is represented by various types of plants and forms of landscaping, includes the following components: the environment and the internal space of buildings.

The natural environment (outer space) represents naturally formed landscape elements of the environment [18]. Presents a variety of species of plants and greening the environment, taking into account the climatic, ecological and environmental conditions in which plants grow.

The interior space of the buildings forms the landscaping of the architectural interior environment. Due to the significant differences in the physical and technical characteristics of the in-Terri-Tory environment can be represented by several types:

- winter garden,
- container gardening,
- use of stabilized and artificial plants.

Container gardening can be used in the landscaping of the architectural space subject to the conditions of the environment, specific requirements of plant growth. From the standpoint of interior decoration landscaping is undergoing significant changes associated with its formal manifestations, though it is a traditional form of landscaping architectural space.

A special case of container gardening can be considered hydroponics, as a variant of the device of vertical gardening of the interior with the use of plant life support system. However, when using this type of landscaping, it is also necessary to comply with the requirements for the environment from the plant. This type of landscaping has both aesthetic and environmental characteristics.

Stabilized plants in the interior can be used with minimal observance of environmental conditions, and significantly different in the direction of reduction from those necessary for their natural growth. This approach to gardening works primarily from the standpoint of visual comfort and is not aimed at maintaining the environmental characteristics of the environment.

#### 4. Conclusions

The formation of "green" objects is necessary as sustainable construction projects that meet the requirements of sustainability and safety, it is advisable to conduct based on the environmental approach to design. This involves the formation of a biopositive environment, taking into account 2 active users.

Ecological and environmental approach to the formation of "green" buildings requires taking into account a set of factors:

- natural and climatic conditions;

- urban nature of the environment;
- architectural specifics of the form and types of buildings;
- functional-typological character of buildings;
- in terms of green space;
- locations in the structure of the green facility;
- height of space;
- green room orientation;
- dendrology of plantings;
- factors of formation of optimized bisred conditions for the functioning of two users-human and plant;
- nature of space operation;
- design of object equipment of space;
- nature of engineering equipment;
- constructive and technical aspects of the design.

The specificity of the object of research is that it becomes necessary to form a space of complex construction, caused by the integration of qualitatively different environments in a single architectural structure.

The design of "green" buildings requires a systematic approach to the formation of an integrated architectural and landscape space and involves the development of several structural levels:

Level 1-systematic approach to the formation of the urban environment;

Level 2-system approach to the formation of architectural space;

Level 3-systematic approach to the formation of the landscape environment;

Level 4-a systematic approach to the formation of constructive and technical structure.

An integrated approach to the formation of a "green" object requires the designer to take into account multiple factors, including the following: natural environment and climate, ideological, social, bioecological, physical, technical, functional, technological, economic, compositional and aesthetic [19] and ethno-cultural [20-22] conditions.

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