

## **Greening of Urban Landscape Design with Modern Methods**

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**Abstract:** The article examines the problems of designing and organizing the urban ecological environment. The article deals with some current problems related to the lack of landscape environments in cities, as well as considers modern methods of beautification of areas in this area. The established principles of landscape design can be used in the educational process of universities where this course is available during the professional training of future landscape designers.

**Keywords:** ecological design, landscape design, vertical landscaping, modern materials.

### **1. Introduction.**

Today, in modern large cities, the preservation and improvement of the environment surrounding people is a very urgent problem. Greening of urban areas has a beneficial effect on the physical and mental state of human health. In the period of strong growth of cities, increasing rhythm of urban life and development of urban transport, streets, courtyards and parks are required to be provided with more green spaces.

The problem of lack of green plants is related to large cities and especially to areas where factories and factories are concentrated or densely built. Many construction companies build houses and other structures very close to each other in order to make more profit, without following the standards set by the Code of Conduct. In most cases, the relevant organizations turn a blind eye to these violations.

A modern way to solve the problem of lack of green spaces in such areas is to create vertical greening. Special studies have shown that in order for the comfort of the environment surrounding a person to be at a high level, there should be a sufficient amount of green massifs in the environment. These parameters can be significantly controlled by landscaping city streets and courtyards. Green plants also improve the microclimate.

### **2. Materials and Methods.**

When the whole city turns into a monotonous gray color, the lack of plants is not only an aesthetic problem, but also an environmental problem. Lack of green spaces has a negative impact on the local microclimate. Compared to rural areas, the air temperature in the cities has already exceeded the average temperature by 7 degrees, and the humidity level has decreased significantly. Scientists have proven that even if the area of greenery is not large enough, it affects temperature and humidity. Green areas absorb heat energy in the summer and lower the surrounding air temperature.

It is known that trees, bushes, flowers and grass play an important role in cleaning the air from dust and heavy metals and saturating it with oxygen in big cities. Year by year, the number of

factories and cars that emit toxic gases into the air is increasing. It is green plants that cost 3.5 billion. for more than a year, it has been releasing oxygen for the life of all creatures on our planet. It is considered that the size of the green space allocated for one city resident should be 20 to 50 m<sup>2</sup>. It is almost impossible to meet these standards, given the increasing density of residential areas as a result of population growth. Also, the factor affecting the number and types of green plants is their geographical location, and especially the climate of this area.

Green spaces play a key role in shaping the architectural environment of the city. This directly affects the ecology and aesthetics of the human habitat. Choosing the right types of green plants according to their aesthetic characteristics allows to develop people's taste and culture [1].

### 3. Results and Discussion.

Landscaping ways.

*Flower beds.* One of the most popular ways of landscaping are flower beds, without which it is difficult to imagine a modern urban landscape. They are annual and perennial according to their shape and decoration style. An important requirement for the formation of flower beds is not only the correct selection of plants, but also its creation in a certain style. Only then will flowerbeds enrich the landscape of the city [2,7].

*Regular flower bed.* The main feature of a regular flowerbed is the simultaneous flowering of flowers present in this flowerbed (Fig. 1). In most cases, regular beds are used in the urban environment to add beauty to its appearance. They are distinguished by the strictness of the composite design, the symmetry and accuracy of the forms.

*Irregular flower bed.* An irregular bed differs from a regular bed in its free design (Fig. 2). It is not difficult to create an irregular flowerbed in the garden area, and it looks natural and light. Planting perennial, simple flower plants in this type of flower bed is the best option. Try to choose the right plants according to their flowering period so that they bloom throughout the summer season, so that your flowerbed will always please everyone. In addition, perennial plants (flowers) do not require you to rearrange the beds every year.



Figure 1. A regular bed



Figure 2. Irregular bed

*Vertical flower bed.* A vertical bed is a living work of art. Such a miracle leaves few people indifferent. Perhaps everyone would like to see such a three-dimensional flower bed in their garden. Unfortunately, designing a vertical bed is a very difficult task. First of all, the frame of the flowerbed is created, which is the basis of the future flowerbed. Then special vases are installed on the frame and plants are planted in them [4].



Figure 3. Vertical bed

*The lawn.* A lawn is a natural or artificial green area covered with grass. According to their creation, lawns are divided into two groups: naturally formed and specially created lawns. It is divided into the following classification types according to the fields of application: ornamental and sports lawns [3].

Landscape lawn includes the following types of coverings:

*Parterre lawn* - they are of high quality, the grass is velvety, the color is uniform, the surface is very flat, the height is low, and the leaves are dense. The use of this type of lawn by the landscape designer against the background of the fountain and decorative ponds, which are the main architectural devices of the garden, is considered his achievement. The main condition for using such a lawn is that the area of the lawn should be larger than the area of other elements of the composition (Fig. 4).



Figure 4. Parterre lawn

*An ordinary lawn,* this lawn is also known as a park lawn. Its fields of application are squares, gardens and parks. This dense, broad grass cover is distinguished by its perenniality, high temperature resistance, and mechanical damage.



Figure 5. A simple lawn

*Moorish or flowering lawn* looks like a colorful mosaic (Fig. 6). For such a lawn, 8 to 30 types of low-growing, low-maintenance annual, bulbous and seed-bearing field plants are grown. According to experts, it is appropriate if such a lawn is used in landscaping open fields or artificial water bodies.

*Grassland, or otherwise, grasslands* are similar to the *Moorish lawn*, but simpler than it (Fig. 7). 3-5 different types of perennial plants are planted in large areas of parks. The characteristic aspect of this lawn is its lack of attention.



Figure 6. Moorish or flowering lawn



Figure 7. A meadow, or else a lexical lawn

*Sports lawn.* This grass cover is grown with a specific purpose, i.e. to play football and golf, which are sports. Such lawns are resistant to heavy loads and bad weather.

*Arrays.* A large number of trees and shrubs in the green area are massifs. They are the main nucleus of the park, they improve the sanitary-hygienic task and microclimate of the area. Long-lived and strong plants are planted in such an area.

*Composition of groups.* This type of landscaping is used to create beautiful landscapes in free-plan and open-air parks.

If the composition of a large number of groups is used in the design of the park, it is recommended to make them the same in order to avoid the diversity of the overall appearance. It is recommended to use mixed groups for observation areas (Fig. 8). It is very effective to plant ornamental and coniferous plants in this area, but the biological characteristics of each plant species should be taken into account when designing them [6].



*Figure 8. Composition of groups*

*Line composition.* Plants designed for greening roads, boulevards and parks are placed in one or more rows along a straight or curved line at a certain distance.

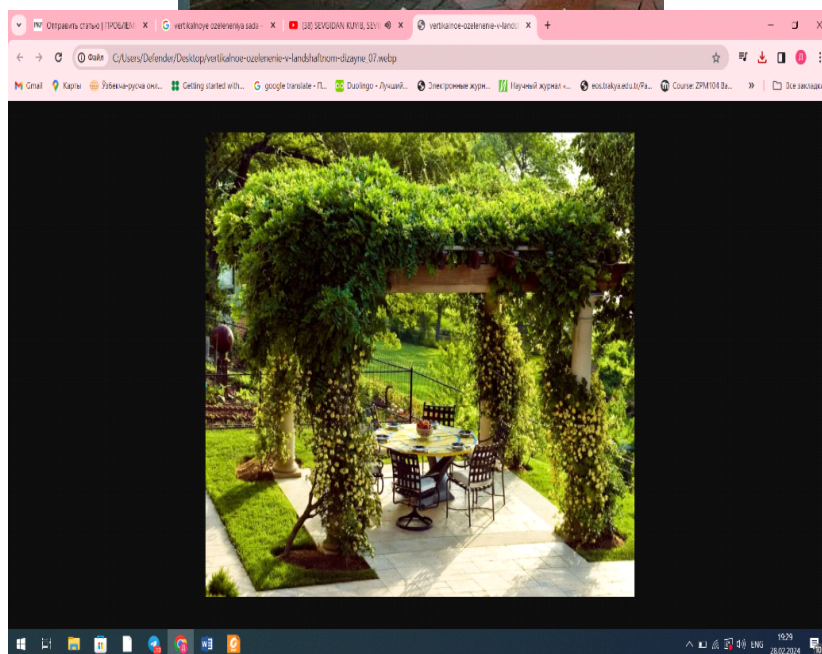
The composition of rows made of trees is used along the paths in parks and gardens. An avenue in this form is called an alley. Alleys are divided into open and closed types. For open alleys, trees whose crowns grow upwards are chosen, and for closed alleys, trees whose crowns grow to the side and create shade along the paths are chosen.

*Green fences.* This type of landscaping is used to separate road surfaces, to frame (wrap) fields and flower beds. Green hedges are not wide, rows, low height trees and shrubs. According to the task, they should be impenetrable, so when planting them, the plants are planted densely, usually in two or three rows.

According to the shape, the fences are divided into free-growing and shaped. Free-growing green hedges are made up of abundant shrubs. They will be beautiful with their natural appearance. Green fences are made of densely branched bushes. Shapeable green fences can be given any type of shape.

Depending on the type of plants, green fences are divided into soft and thorny, evergreen and deciduous.

*Vertical landscaping* is a method of changing and improving the landscape by placing landscape objects in a vertical direction. Due to the lack of green spaces in modern cities, the method of vertical greening is gaining more and more popularity. Vertical landscaping has many advantages. It is difficult to exaggerate the decorative role and aesthetic value of vertical landscaping. Lianas, climbing plants and other plants used in vertical landscaping decorate gazebos, pergolas and arches of wonderful architectural forms (Figure 9). Green walls create shade, protect the garden from external influences, give the garden a sense of mystery and romance.



*Figure 9. Vertical landscaping in amazing architectural forms using the method*

Today, the method of vertical greening is used to beautify and improve the condition of the area together with the goal of giving aesthetic beauty to the area.

*Green roofs.* If there will be low-rise buildings in the yard, it is possible to organize greenery on the roof of this building. Thanks to the green roof, the temperature inside the building can be significantly reduced from overheating and cooling. In this case, it is important to properly organize the irrigation, drainage and roof waterproofing system (Fig. 10).



Figure 10. An organized green roof on a low-rise residential building

#### 4. Conclusion.

A well-planned landscape design can make any plot of land look beautiful, and landscaping plays a big role in that. A skillful combination of trees, shrubs, flowers and ground covers allows you to give new forms to areas that need to be greened. In addition to its aesthetic appearance, landscaping protects against noise, dust and provides air purification.

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