Types and Elements of Geo-plastics in Landscape Design

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ABSTRACT

Recently, a person has become a powerful relief-forming force. Drains and floods the territory, interferes with the life of the coast, creates mountains, pits, builds cities, changing the relief of the earth. This article considers the anthropogenic relief, i.e. relief created with the participation of man.

Keywords: relief, vertical planning, retaining wall, plastic, terraces, slopes, hills, relief difference, game relief, small hilly relief

Introduction

In landscape design, relief and natural surroundings are the main components to achieve the aesthetic expressiveness of an object. If possible, it is necessary to preserve and enhance the landscape features of the site by fixing the natural dominants of hills, capes, terraces without destroying them.

Artificially created hills, ridges, terraces and other landforms diversify the landscape. Landscape compositions, like any natural objects, have volume - a spatial form. The parameters of spatial forms - their dimensions, height, width, length, volume, slope angle - are objective and have a mathematical expression [1].

The subjective characteristics of complex forms include their dynamics, the effect of «fluidity», smoothness, fullness, united by the term «plastic». Plastic in landscape design also marks the properties of the relief of the site and complex three-dimensional compositions - rockeries, flower beds, plant groups. Plant compositions have an outline, or aerial line of crowns, which partially characterizes the plasticity of the entire group.

Speaking about the plasticity of stone and, especially, about the plasticity of the earth, they mean both natural and man-made forms. Geoplastics - architectural and artistic transformation of the relief, a kind of vertical planning. Man-made work with relief solves functional, aesthetic and environmental problems. Relief is the basis of any landscape [2]. Its character largely influences the architectural and planning solution of the territory, its three-dimensional composition, and emotional perception. In addition, it is the relief - whether it is a plain, smooth hills or steep slopes - that makes each site unique, not like the others.

Main Part

There are two types of geoplastics. In the first case, the natural relief is slightly corrected without violating its natural lines, giving the hills, terraces, slopes a more expressive, smooth or, conversely, a sharply defined,

geometrized profile. In the second case, the relief is created artificially by pouring ramparts, hills and terraces on an initially flat area. The artificial relief is fixed with retaining walls with stairs, ramps, grassy slopes.

The methods of plastic processing of the relief are determined by the concept of the project, which largely depends on the nature of the site and the technical feasibility of changing it. Artificial relief helps to solve both functional and aesthetic problems. With the help of bulk hills or ramparts, space can be divided into «green rooms», a fence or an economic zone can be masked, and more favorable microclimatic conditions can be created in the space.

The artistic merits of the artificial relief, its plasticity are revealed and emphasized by the play of light and shadow. In a small garden, it is rarely necessary to completely change the existing relief, even if it is badly disturbed during the construction process. More often we are talking about the use of soil excavated from the pit for the foundations of houses and other buildings, which is economically justified. With the addition of natural stone, other necessary materials and planting of plants, the artificial relief is transformed into rockery and can become the main attraction of the territory.

The relief can be used functionally in the improvement of territories. Earth embankments, ramparts, hills can perform noise protection functions, protecting buildings from the noise of city highways, children's and sports grounds. The use of relief differences makes it possible to delimit functional zones within the projected space of landscape design of territories.

The game terrain is created for kids games, cycling, skateboarding, roller skating, as well as the creation of ski slopes, for high-speed sports, etc.[3]

In addition to the functional solution, it is possible to use the relief decoratively in landscape design and landscaping. A small hilly relief with a lawn cover has a significant decorative effect. Increases the artistic expression of spaces and compositions of landscape design, with the use of retaining walls made of natural stone, decorated with green spaces [4]. Artistically processed relief (landscape geoplastics) gives the spaces of landscape design scale and clarity. With any change to the existing terrain, especially when creating artificial hills, it is important to consider the ways in which rain and flood water can drain through the drainage system. The main thing to remember when changing the relief is harmony and naturalness. After all, the best landscapes are those that seem natural against the background of the surrounding natural landscape.

The elements of geoplastics are:

retaining walls; stairs; terraces; artificial reservoirs; artificial hills; alpine slide; rock garden; rockery; fountains.

Geoplastics on flat areas is used in the following elements: arrangement of artificial (dug) ponds; arrangement of artificial hills; arrangement of flooded gardens.

Depending on the prevailing wind direction, the slopes are divided into:

- leeward, which are protected from the prevailing winds;
- windward, which are exposed to the winds.

To bring aesthetics to a garden or park, we recommend arranging hills.

We list some points on the arrangement of hills [5]:

- before pouring the soil, the fertile layer should be cut off in the zone of the future location of the hill;
- soil is poured in layers. Layer thickness 30 - 40 cm;
- each layer is carefully compacted and watered;
- the hill must withstand the winter and practically only a year later its further design is carried out;
- the height of the hills is usually taken within 120 - 150 cm, rarely up to 2 m;
- it is recommended to build hills with a slope of no more than 45°;
- it is recommended to use a geogrid or geogrid for more reliable fixation of the slopes of the hill;
- the upper part of the hill at the end of the formation is covered with a fertile layer of soil 10 - 20 cm thick.

An artificial reservoir should be arranged at the lowest point of the site. To give a more beautiful view to the site and the reservoir, we recommend arranging: a stream; waterfall; fountain with LED lighting. The drainage system allows you to save the geoplastic and prevent its rapid destruction. It is recommended to arrange drainage in such places:

- along slopes; at the foot of the hills;
- in the body of a retaining wall with water drainage into a drainage channel;
- in the area of flooded gardens.

Lawns are usually sown with lawn grass or partially sown to the natural vegetation of the site. Areas of a garden or park site that are intended for sports or walking are sown with a special grass complex consisting of 10 - 12 plant species. These herbs are more resistant to crushing and trampling. Plants are selected depending on the location of the site, climate, insolation, etc. Also, to speed up the design of the landscape, a special plant roll cover is used, consisting of a cotton mesh, vegetation and seeds of the corresponding vegetation.

Lawns and paths on the plots are arranged from: concrete tiles (suitable size 50 × 50 cm), a possible shape is rectangular, hexagonal, semi-oval or other shape; stone block [6-10].

Conclusion

Summing up, it can be noted that the natural existing relief is rarely completely favorable. In most cases, the relief still needs to be transformed, changed, or even formed a new design relief (for example, the creation of geoplastics), which meets the compositional requirements and meets the requirements for a comfortable stay on the territory. However, each type of terrain needs to find its own approach. Great art lies in balance, where design decisions strive to preserve the existing relief as much as possible and to use the features of the relief as an advantageous component of the landscape design project.

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