

WAYS OF USE OF NATURAL FORMS IN ARCHITECTURE

To find optimal architectural forms-structures by the basic indicators one can go on the way to improve traditional types of the forms-structures, and the development of fundamentally new solutions. The way of the realization is to construct the necessary forms on the basis of mathematical or experimental methods of borrowing these forms in the nature.

The structure of the form and its material are tightly connected with the functional tasks of the form in any solution of nature. At the same time, the saving of material in natural constructions is achieved not so much by reducing the mass as by finding a geometric form in which this material is capable of working the best.

The active involvement of geometric methods in solving the problems of modern architecture is due to its internal needs. The main one is the finding of rational proportions of areas and volumes, the implementation of an optimal cutting of surfaces on the elements, the establishment of geometric criteria for evaluating the compositional quality of curvilinear forms, etc.

There are three basic approaches to designing structures based on natural analogues:

1. Symbolic form of construction with limited functionality.
2. Buildings of universal functional value as an analogue of the abstract natural form.
3. Buildings of a wide functional purpose using specific large-scale natural forms.

Each of these approaches has its own positive and negative aspects. In the first case, most often these are the exhibition halls of a specific purpose. The positive effect is achieved by the expressiveness of architectural appearance but at the same time it is not possible to use the positive properties of constructive schemes of natural analogues. Otherwise, it is not possible to achieve rational architectural expressiveness due to the incommensurability of the natural analogue and the structure itself with a sufficient universality of structure and the full use of the constructive advantages of natural analogues.

Conclusion: the main problem the architect face with is the problem of search of the optimal relationship between the architectural image of the building and the constructive realization of the natural analog.