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Engineering And Construction Problems in The Field Of Preservation And Protection Of Historical Buildings

Assoc. Kasimova S.T., Assoc. Talipova N.Z.,
Assoc. Omonova D.F., Ubaydullayeva D.F.

Abstract. Engineering and construction problems in the field of protection of historical and ancient buildings are not few and often they are very complex. In the article, the tasks of permanent protection of buildings are aimed at solving in the general situation, various methods of temporary and permanent protection in the restoration practice, issues about the efficiency of building protection works are reflected in the article.
Key words: Architectural monument, restoration, methodology, preventive measures, temporary protection, permanent protection, theory of restoration, deformation, construction.

Preservation of architectural monuments has recently become public. The main attention paid to the characteristics of buildings before reconstruction is that during the reconstruction of buildings with new tasks in mind, preservation of their previous appearance as much as possible is the only serious goal. Over the centuries, the artifacts become old and start to deteriorate. That is why they have to be repaired.

The urgency of modern problems encountered in restoration work, the rise of this issue to a new level, and the rich and varied experience accumulated in the field of restoration strongly require its detailed analysis and deep generalization. Historical and practical material, which includes unique examples and long-standing traditions, is the basis for great work on the creation of the theory of restoration. Most of the rules of the foundations of the theory and methodology of restoration are of particular interest to modern local architectural specialists who are increasingly solving the problems of adaptation of the historical environment and restoration of the central parts of old cities.

The main task of restoration is to preserve historical and cultural monuments, which will allow future generations to understand the continuity of culture. The restoration of buildings and structures is considered a very complex task, which requires the joint work of various specialists and, first of all, restoration architects, construction engineers and technicians, as well as archaeologists.

Among the architectural monuments, there are few buildings and structures built at the same time. Therefore, before starting the restoration work, it is necessary to know exactly the construction time and character of each part of the building based on the documents and drawings obtained in kind. The restorer should know not only the typological features of the structures of certain historical periods, but also the building constructions, that is, it is necessary to determine the style and design features characteristic of different architectural schools. Thus, in order to restore the original appearance of the building, it is first necessary to obtain indisputable evidence of the changes that the building has undergone. If we can use any new materials during the repair and reconstruction of the building, it is very important to use materials similar to those used during the construction of the monument as much as possible during the restoration. Restaura ts yes during used to materials that's it to the period characteristic color, shape and structure we give need

Preventive work is important in the protection of architectural monuments, and is an intermediate link in the field of technical measures that serve to eliminate the danger to the condition of the building and increase its durability.

Timely and correctly implemented preventive measures will improve the condition of the building, prevent the development of erosion processes, create favorable conditions for carrying out complex conservation and restoration work, and have a decisive impact on the volume of future restoration work and financial costs.

Various issues may arise in the course of work on the protection of monuments. From a technical point of view, they can be divided into three main areas:

warning works of the object of atmospheric precipitation, lightning strikes and sh.o'. (moisture, fires, fungi, parasites) is associated with the use of various means that prevent erosion from events, prevent

mechanical and chemical damage to the external or internal finish of the building and the elements related to ease of use;

related to maintaining strength and covering temporary strengthening of the building structure and its individual elements. In such a situation, the size and characteristics of works are determined by the technical condition of the structures and the level of possible danger;

Protection of the area where the object is located. Tampering with it or discarding it can lead to dangerous consequences in the future. In this case, the main task is to prevent the consequences related to the shifts and vibrations of the building foundation, the imbalance of soil bodies, the turbulent effect of water, and the growth of plants.

The effectiveness of building protection works is closely related to regular monitoring of the condition of the building and timely detection of dangerous sources of erosion.

Technological protection measures can have temporary or permanent features. In both cases, the tools used are related to the program of works for the protection of the monument.

The restoration practice has different methods and styles of temporary and permanent protection, and the more strongly the object is in a damaged state, the more complicated these problems are.

Measures for the temporary protection of architectural monuments and other valuable stone buildings are of great importance in restoration work. Such activities are carried out in emergency situations or in case of economic stress (lack of funds to carry out necessary restoration works).

Temporary measures are mainly aimed at stopping the development of erosion processes or neutralizing the foci of erosion of stone foundations for a certain period of time and protecting materials and structures from the effects of erosion factors. An example of this can be the temporary protection of the building from the effects of atmospheric precipitation, the protection of the foundations from the effects of seepage water.

Preventive measures or prophylactic strengthening are often used in order to maintain the existing condition of the building and to prevent structural changes and deformation of the floors before the start of restoration work using appropriate technical means.

It also includes preventive measures in objects or structures whose technical condition belongs to the 3rd or higher categories. The purpose of these measures is to partially or completely unload the weakened elements, to fix and strengthen the elements that are excessively deformed, bent, bulged or cracked.

The problem of temporary protection or strengthening of stone structures always arises during the repair and construction works, especially during the cleaning of the layers formed on the monument, renovation, arrangement of new doors and windows and expansion of the old ones.

Removal of excess elements, replacement and strengthening of weakened or damaged elements creates the need for temporary protection of one or another part of stone structures. Therefore, temporary works on protection and strengthening constitute one of the main sections of repair and restoration activities that require serious preparation.

Preventive measures cannot completely stop the development of the corrosion process inside the material of the structural element, and only postpone the time when the accident occurs, which requires more careful control of the object chain, analysis of the causes of its damage and corrosion, technical documentation to constantly protect or strengthen the structures. and enables the development of a method based on

The work related to the permanent protection of the monument is almost always combined with the engineering-construction work, and their proper organization plays an important role in the process of strengthening and strengthening the buildings in a dangerous situation.

Engineering and construction problems in the field of protection of historical and ancient buildings are not few and often they are very complex. In a general situation, work on permanent protection of buildings is aimed at solving two main tasks:

elimination or weakening of factors whose sources are outside the building and which pose a threat to the building;

to protect the object or increase its resistance to the effects of erosive factors.

The implementation of measures for permanent protection is closely related to the initial research and development of the protection project in each case, as well as the selection of technical means that should be used in each case without harming the historical value of the monument.

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The set of measures for permanent protection involves the use of various technical and organizational means. Protection-restoration technical measures applied to the object itself, with permanent characteristics, can be seen as an extrinsic and intragenic intervention.

In order to prevent further deterioration of the monument due to the influence of the environment, especially climatic factors, in order to preserve the materials or structural system of the monument in its original state, extrogenic activities mainly involve the use of permanent protective measures outside the object.

In most cases, such measures are used to protect valuable remains of stone walls, parts of buildings or their complexes, sometimes entire buildings of unique historical or cultural importance, especially if their preservation is not related to the creation of an appropriate microenvironment, scientific research or the provision of opportunities for permanent exposition.

Technical measures involving introgenic intervention aim to eliminate internal erosion and its sources by restoring damaged, weakened and other weak stone structures to their original structural and operational functions.

Also, the need for introgenic intervention may arise due to the fact that the elements are intended to be adapted to perform new functions, increase their bearing capacity, and change the operating conditions of the structure compared to the original purpose.

Such specific activities are also carried out in situations where there is a need to change the spatial scheme taking into account new constructive requirements.

References:

1. Prutsin O.I. , Romashevsky B. , Borusevich V. "Architectural-historical environment". M., Stroyizdat, 1990.
2. Grazhdankina N.S. "Architectural-building materialy middle Asia" Tashkent, Uzbekistan, 1989.
3. N.Z. Talipova, "Methodology of restoration works" Instructional manual.
4. Tashkent 2014 y.