

## REPAIR, RECONSTRUCTION AND WISE USE OF BUILDINGS AND STRUCTURES

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### Annotation

The article analyzes the repair, reconstruction and rational use of buildings and structures.

**Keywords:** Reconstruction, operational indicators, technical inspection, moral obsolescence, physical obsolescence, conservation, modernization, overhaul, restoration, technical re-equipment, expansion of existing enterprises, repair, strengthening of structures.

### Introduction

During the years of independence, unprecedented work has been done in the field of reconstruction of buildings and structures. In particular, the Main Department Store in Tashkent - Chorsu Shopping Center, Alpomish Sports Palace - Exhibition Hall, Construction Technical School - Institute of Chemical Technology, Children's World Store, Tashkent Hotel, Turkestan Hotel and others. The Cabinet of Ministers of the Republic of Uzbekistan and the First President of the Republic I.A. Hundreds of magnificent lyceums and colleges, thousands of secondary schools have been reconstructed and brought up to modern standards by implementing a number of Karimov's decrees (1,2,3). Many sports facilities have been reconstructed and built, especially for the development of children's sports.

Reconstruction and technical re-equipment will significantly reduce capital expenditures compared to new construction and cover costs 2-2.5 times faster. Reconstruction has played an invaluable role in improving the appearance and unique appearance of our cities. In particular, during the years of independence, the unrecognizable change in the appearance of our city was due to the large-scale reconstruction and modernization work. Landscaping and landscaping works are being carried out on a large scale. Reconstruction has a complex character and should be carried out taking into account the long-term prospects



of the city, region, enterprise. Otherwise, only the work done today will create a number of difficulties in meeting the needs of future reconstruction.

This complexity is important not only from a technical and architectural point of view, but also from an economic point of view. Reconstruction of residential, public and industrial buildings is usually carried out in conditions of high density. This does not allow the use of a complete set of construction machinery and equipment, the organization of storage space to create a standard stock of 5 materials and items. The existing dimensions of the crossings can also be very difficult to bring to the structure (especially large ones). There are also serious difficulties in locating load-bearing mechanisms for convenient installation in the assembly area. In the case of removal or installation of structures, sometimes the use of cranes is not possible at all, and it is necessary to look for a simpler design solution to the problem. A number of proposals are being developed and implemented for such cases, based on the use of both traditional and new solutions, constructions made of high-strength materials.

Reconstruction of buildings and structures is associated with the restoration and strengthening of the performance of load-bearing columns. This work, in each case, requires a different approach than the new construction. It should be noted that the assessment of the technical condition of buildings and structures, the conclusion that they need to be repaired or strengthened, as well as their suitability for further operation, is based only on the technical inspection of a particular object. It is important to monitor the condition of existing buildings and structures during operation. An example is a comprehensive study conducted for more than 15 years at the Ostankino Tower of the Moscow Television and Radio Center. This research includes the study of the deformation of the foundation, the work of the tower concrete, the observation of the stretched wire ropes, the study of the vibration parameters of the structure.

The experience of researching the radio and television tower built in Almaty is also of particular interest. The work was comprehensive and began with a study of its model. For the first time, a tower with a base of 18.5 m and a height of 372 m was built in a mountainous area with high seismicity.

The mass of the metal structure used in this case is about 5,000 tons. At present, the quality control service for the manufacture and installation of building structures in the country is not sufficiently organized. In particular, regular inspections of the condition of unique buildings and structures in operation,



prevention of possible adverse events (uneven drowning, various injuries and defects, etc.), or take the necessary measures during the start-up. This will extend their service life and leave them in good condition for future generations. In this regard, the relevant ministries, local governments register existing architectural monuments, unique buildings and structures, introduce a document (passport) with technical specifications for each of them and study the technical condition over time, ie monitoring. 'specializes in transmission it would be expedient to conclude economic contracts with research and project organizations. There is no denying that this event is extremely important in view of the fact that the variety and volume of transport has increased significantly, the impact of anthropogenic factors has increased, and in conjunction with natural disasters such as earthquakes and strong winds.

Great experience has been gained in all major cities of the country in the reconstruction and modernization of old buildings. Especially in the capital Tashkent, the work done during the years of independence is enormous and provides sufficient scientific and technical opportunities for large-scale research. In this regard, the materials presented to you in this brochure mainly reflect the experience of reconstruction work in Tashkent.

During the reconstruction, it is necessary to solve the engineering and technical tasks based on the level of spiritual or physical deterioration of the buildings. Spiritual obsolescence occurs as a result of volumetric, structural solutions or functional obsolescence of the building's engineering equipment, or all three classifications together do not meet modern requirements and the growing demands of people, ie the price of the building at the time of construction (apartments, hospital wards, laboratories, etc.).

The last decade has seen a significant shift in the pace of urban housing construction. 95% of the work on standardized projects must be carried out in strict compliance with the requirements of regulatory documents. Some relative changes in housing design standards (1957, 1962, 1971, 1985, 1989) have made it possible to create houses of different generations of standardized design. Physical wear and tear is the result of a decrease in the initial technical properties of the structural elements of the building during use (strength, durability, insulation ability, etc.).

As mentioned above, the obsolescence of a building and its structural elements means the deterioration of their technical condition, which reduces their cost. Based on the analysis of the results of inspections of building renovations, the



type of technical measures for renovation, such as capital repairs, modernization or reconstruction, is selected: Technical measures for the preservation of architectural monuments are based on their conservation (protection) or reconstruction. Overhaul means the elimination of physical deterioration of structures, the restoration of engineering equipment improving the physical and technical properties (strength, fire resistance, heat, sound and water insulation) and replacing equipment without changing the design or architectural solutions of buildings.

### **Modernization**

In addition to the complex work carried out on the overhaul, in addition to the work on the interior redesign of the building, in some cases, radical changes are carried out without changing its size and appearance.

Reconstruction is the most complex form of reconstruction of a building, which involves the restoration and improvement of quality of structures, replacement of engineering equipment, redesign, in some cases the size of the building (adjoining building, construction, reduction of floors, etc.) and its external is to change its appearance.

### **Preservation (Preservation, Preservation) –**

A set of technical measures to protect and strengthen the existing form of architecture without altering (even partially) the appearance or interior of architectural monuments.

### **Restoration of Monuments - (Unlike Conservation)**

Is the only way to protect monuments from damage, allowing them to make certain changes or additions to the object being restored, which are necessary for its preservation and use.

The purpose of the reconstruction is to update the historical and architectural-compositional solutions of buildings by means of renovation-preservation, reconstruction, complete reconstruction, improvement of urban environments and others. Reconstruction of existing enterprises with the reconstruction of existing workshops and service facilities, as a rule, without expanding the main premises, changing the nomenclature of products and improving capacity, quality and production. and increase its technical and economic level based on the achievements of the ITJ (scientific and technical process) and improve their



working conditions and protect the environment, mainly without increasing the number of workers.

Technical re-equipment of existing enterprises - introduction of advanced equipment and technologies in some productions, shops and sections, mechanization and automation of production, modernization and replacement of obsolete equipment, including physically obsolete equipment, their technical and economic complex measures to raise the level of education.

The goal is to accelerate production, increase production capacity, improve quality, increase labor productivity, save material and fuel and energy resources, and more.

### **Expansion of Existing Enterprises**

the construction of new shops and additional production, as well as the expansion of existing separate shops of main and auxiliary production in order to create additional production capacity on the territory of existing enterprises or their adjacent areas.

Repair of structures is the restoration of their operational characteristics and classification by eliminating one-sided deviations, defects and distortions.

Reconstruction of a structural element is a change in the design or layout of a building frame (barrier) due to changes in technical re-equipment requirements and operating conditions.

Technical condition is a set of features of a structure, including its protection against compliance with standards and conditions, fire resistance, heat, sound, noise insulation, etc...

- 1) Satisfaction - the building meets the requirements of operating conditions and standards without repair, reinforcement or reconstruction;
- 2) changes that require repair or reconstruction to meet the requirements of standard operating conditions and standards;
- 3) unserviceability - it is not technically possible or economically feasible to restore the operational classification of the structure and it is necessary to replace some elements, sections (parts) of the building or all the structures of the carcass.

### **Reinforcement**

Aimed at increasing the load-bearing capacity of the structure as a whole or some of its elements (heat, sound, etc.)





a set of measures.

Structural reliability is the probability that a structure will operate without damage during its normal service life.

Standard service life is the period specified by the standards, during which the structures must meet the operating conditions and requirements.

### **Natural Confirmation of Structures**

A way to compare the design of structures, steps, signs, lengths and shears of elements, dimensions and location of fasteners (welds, bolts, fasteners, etc.), the nature of determining the size, location of defects and failure of elements. measuring with. Structural inspection is an inspection of the structure of a building or structure in order to obtain information about the technical condition of the structures required for the development of the project of repair, strengthening or reconstruction.

### **Conclusion**

Measures taken to partially or completely change the functional function of buildings and structures, to install new efficient engineering equipment, to beautify the territory of the building, to bring it into line with the high standards of the time are called reconstruction. It will be part of a complex of industrial enterprises, urban areas, housing estates, social and cultural institutions. Redevelopment includes redevelopment, increasing the height of the rooms, partial separation and replacement of structures, as well as the upgrade, implementation of adjacent devices and preference for the facade of the building.

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