Spectrum Journal of Innovation, Reforms and Development
Volume 21, November, 2023 | ISSN (E): 2751-1731
Website: www.sjird.journalspark.org

OPERATIONAL RELIABILITY OF RECONSTRUCTED BUILDINGS-STRUCTURES

Saxiba Mirzababaeva
Mirzababaeva Sakhiba Mirzaakbarovna, Fergana Polytechnic Institute
s.mirzaboboeva@ferpi.uz (ORCID 0000-0002-6183-4688)

Abstract
The article talks about the decrease of their initial performance indicators during the use of buildings and structures, and as a result, the quality of structural elements deteriorates. it is analyzed that it gradually decreases, as a result, the service life of the building is reduced, it approaches its limit value, and it gradually reaches its failure limit. It has been proven in the construction practice that the service life of the buildings and structures provided with sufficient maintenance during the operation period is sufficiently increased, and in many cases it serves to prevent dangerous breakdowns and accidental accidents.

Keywords: building, structure, reconstruction, operation, reliability, repairability, durability, boundary, capital repair, urban development, element.

Introduction

From the time of commissioning of all newly constructed buildings, their exploitation indicators decrease and this process is irreversible. Therefore, in accordance with the Decree of the President of the Republic of Uzbekistan PD-4947 of February 7, 2021, it is necessary to continuously provide technical service to the buildings and structures during the period of their use, in order to prevent their deterioration. , it is possible to include this research among the current works to ensure that operational reliability is maintained, and the period of safe normal service is extended. In this place, it is of great importance to carry out current and perfect repairs on time, to eliminate the defects that have arisen. Reconstruction and capital repair of existing buildings and structures is one of the important directions of the construction industry, which has its urban planning and socio-economic aspects [1-5].

As a result of inspection of the technical condition of the buildings and structures in use, defects, laths, damages, cracks, deformations, distortions in their load-bearing and barrier structures are identified, the causes of their origin are studied, the actual work of the elements is compared with the project solutions, the actual the value of the loads is compared to the calculated values, the obtained results are analyzed, and the actual technical condition of the object is assessed; in cases where the identified defects cannot be avoided, constructive measures aimed at restoring the working capacity of structures - reliability of operation - practical recommendations on their strengthening or replacement will be developed.

In the study of research works on the topic, scientific research works of several scientists were established [3-22].

Methods:

A number of requirements are imposed on any construction object. They are expressed in the form of a certain set of quality indicators of this object. Comparing reliability with the category of quality, it can be determined that quality has a somewhat more general character. Reliability is a lower category than quality, because it represents only one aspect of quality: it shows the efficient operation of the building, taking into account a number of indicators that depend on operational factors. Technical and economic indicators are taken into account when determining the service life of construction structures and the entire building.

Time is the most important component of reliability. The service life of the same building structure depends on the selected structural scheme and working conditions.

The main factors affecting the reliability of construction structures and buildings in general can be conditionally divided into three main groups: design, construction and use. Defects in construction structures and even the cases of building accidents are now taken into account in many developed countries, where the high quality of construction and installation works is a decisive factor for the reliable operation of the building. Table 1 presents statistical information on the occurrence of building accidents and serious defects in a number of countries.

Table 1

Reasons for low reliability	Number of accidents and defects in buildings, %			
	Bulgaria	Hungary	Poland	Russia
Errors and omissions: in the project	21	41	21	13
in construction	57	31	59	69
in use	22	28	20	18

As can be seen from the table, on average, more than half of all accidents and malfunctions occur due to low-quality construction and assembly works.

Conclusion:

Various researchers have studied the causes of damage to construction structures and their reliability during the design, construction and operation period, and it was determined that the following are the main factors influencing their reliability:

1. Insufficient consideration of concrete production environment and operational factors in design.
2. Lack of accurate experimental data on the rate of decay of certain construction materials and changes in their physical and mechanical properties during operation.
3. Low level of quality control of raw materials and materials brought to factories producing construction structures, violation of product production regimes.
4. Author's control of the quality of construction - assembly work is insufficient.
5. Violation of technical conditions during construction works.

6. Allowing deviations from project solutions.
7. In the assembly process, removing the elements from the project location or installing them completely incorrectly, poor-quality execution of connections, lack of assembly ties.
8. Non-observance of technical conditions during construction works in the winter season.
9. Corrosion of installation details and joints made of metal, appearance of cracks in reinforced concrete elements (especially in objects whose construction has not been completed for a long time).
10. Absence of systematic planned and warning repair system of used buildings.
11. Age of the building - wear and tear, strong physical decay of load-bearing and barrier structures.
12. Violation of operating rules.
13. Long-term preservation of unfinished buildings. Inadequate protection of structures from the external environment during conservation.

It should be noted that according to the results of the research of the reliability of building structures, it is not possible to determine the main laws of predicting the long-term durability of the structures of buildings and structures.

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