



Technology Of Elimination Damage And Deformation In Construction Structures

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ABSTRACT

The study found that the necessary maintenance work should be carried out in the first 7 days after the completion of concreting in reinforced concrete structures, which significantly increases the penetration in concrete, the formation of cracks, decreased strength, load bearing capacity of structures.

KEYWORDS

Structures, deformation, damage, methods of strengthening structures, technical condition, structural elements

INTRODUCTION

During the years of independence, large-scale construction work has been carried out in our country. In addition to new modern buildings, the study and analysis of the technical condition of existing buildings in the

reconstruction and modernization, as well as the elimination of damage and defects in them has become one of the main tasks of today's builders - engineers.

METHODS

Measures will be taken to strengthen and replace structural elements that have been identified as having dangerous, unacceptable defects and damages to meet the regulatory requirements.

With the help of existing methods, it is possible to bring the technical condition of buildings and structures to a level that meets the requirements with some success. The following are common methods and ways to strengthen the structural elements of buildings and structures.

Steel, concrete, reinforced concrete, including fiber concrete, are used to reinforce metal structures, and wood is used for temporary reinforcement.

Steel structures are reinforced as follows: by the addition of additional structures and elements; by placing additional bonds - in the form of ribs, diaphragms, gills and funnels; by increasing the cross-sectional area of the elements; by strengthening the junction nodes; as a result of increasing spatial virginity. In addition, the following methods, which fall into the category of "special measures", can be used: to determine the strength reserves that are not taken into account, to change the value and loading scheme of loads affecting the structure and elements, etc. [1].

The following methods are common in the reinforcement of reinforced concrete structures: for foundations and columns - by restoring the reinforced concrete flange (ring); torkret concreting method - walls, etc. b. For constructions; by increasing the cross section

of the structure; by means of metal drawers and coatings; by installing and concreting additional reinforcement sinks and nets.

Methods such as the formation of reinforced plaster, the restoration of new brick cladding, reinforcement with reinforced concrete cladding, reinforcement with steel flanges, arches and girders are widely used in the reinforcement of stone-brick structures. There are increased requirements for materials used in the reinforcement of defective structures, which must have the performance and properties specified in the standards.

Strengthening of structures should be carried out on the basis of practical recommendations developed as a result of technical inspections, rules, procedures, schemes and solutions set out in the reconstruction and overhaul projects. Completed works are accepted in the manner prescribed by the norms and a special act is drawn up for them.

Technical inspections, analysis of their results, identification of the causes of defects in structures, study of the actual operation of structural elements, assessment of their technical condition, improvement of methods for reliable elimination of cracks, deformations, damage and distortions, and provided the opportunity to develop methods and solutions that are completely new in terms of quality, reliable and easy to implement [2].

RESULTS AND DISCUSSION

The following is a description of the solutions and methods developed and proposed for the reinforcement of the main load-bearing and barrier structures of buildings, partially introduced into construction practice.

As mentioned above, defects in stone-brick structures of various appearances can occur; the most common of these are the formation of vertical and oblique cracks, deflection, erosion, and erosion. The complication of such defects and injuries in the reinforcement of stone-brick structures must be completely eliminated.

This situation needs to be fully taken into account in the ongoing constructive strengthening measures. Reinforcement of stone-brick columns and partitions with steel and reinforced concrete flanges is a widely used method, which significantly increases the load-bearing capacity of the element [3].

Reinforcement by means of steel flanges is carried out by means of angle profiles and fastening bars made of sheet steel and a cement mixture. To protect the steel elements from corrosion, they are plastered with a mixture of M50-M100 on a metal mesh 2-3 cm thick.

Angle profiles with a shelf size of 50-75 mm are used for reinforcement, rails with a cross-sectional size of 40x5 - 60x12 mm or reinforcement bars with a diameter of Ø12-28 mm are used as clamps. Reinforcing clamps are provided to tighten the reinforcing flange skin.

Reinforced concrete flanges of class V not less than 12,5 Ø10-16 mm vertical rods and Ø6-10 mm clamps are used. The distance between the blocks should not exceed 15 cm, the grade of concrete should not be less than the mark of the brick. The thickness of the reinforced concrete flange is 4-12 cm. Concreting is done in a mold.

Stone-brick structures are also reinforced with reinforced plaster. In this case, a layer of plaster with a thickness of 2-4 cm is applied several times by hand from the mixture M75 - M200, using a mixture pump or by the method of torcreting.

In local defects, it is also possible to reinforce the injured area itself; in which steel clamps are installed and the brickwork is reinforced by injection using a cement mixture.

The load-bearing capacity of walls and foundations is enhanced by the restoration of the cladding and the use of reinforced - reinforced concrete cladding. Coatings can be restored on only one or both sides of the skin. Reinforced concrete coverings are made of concrete nets with a thickness of 4-12 cm, class V7.5 - V15 and steel mesh of Ø4-12 mm wires [4].

As it is known from construction practice, one of the most difficult issues in the reconstruction of buildings and structures is the elimination and elimination of damage and deterioration caused by prefabricated reinforced concrete elements; however, this issue is one of the most common problems in practice and requires a concrete solution. To date, a number of experiments have been accumulated to solve this problem, which cover the main types of prefabricated reinforced concrete structures.

In the dry hot and climatic and seismic conditions of Uzbekistan, solving these problems becomes more difficult. Construction practice has shown that in the first 3-7 days after the completion of concreting of cast-in-place reinforced concrete structures, the lack of necessary maintenance leads to the formation of penetration cracks in

the concrete, a sharp decrease in strength, resulting in a significant decrease in load-bearing capacity [5].

Even during use, the dry hot climate has a significant negative impact on the structural elements of buildings, which is evident in inspections. In the structural elements used under direct solar radiation - cases of premature cracking, erosion and deterioration

of roof structures, wall panels, parts of open structures have been reported in practice. The following are the schemes of reinforcement of cover beams, slabs (Fig. 1.2).

As a result of earthquakes, load-bearing and barrier structures of buildings are subject to various degrees of damage, cracks are formed in them, an increase in deformations is observed [6,7].

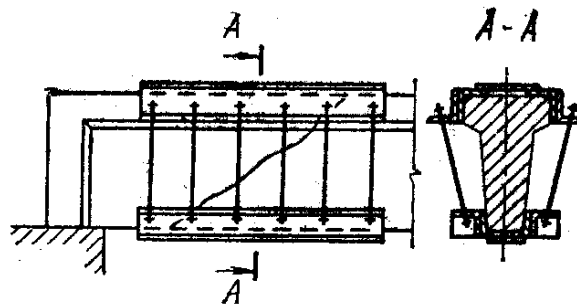


Figure 1. Scheme of reinforcement of prefabricated reinforced concrete roof.

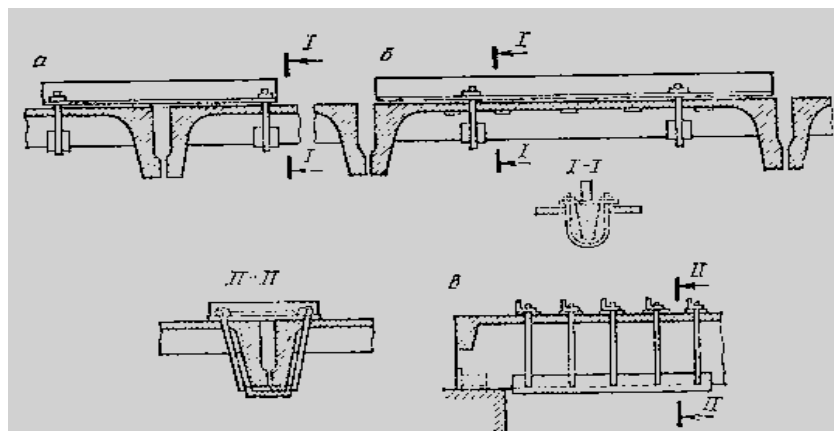


Figure 2. Scheme of reinforcement of cover plates.

CONCLUSION

The conditions of the construction site have a decisive influence on the main parameters of buildings and their structural elements during the period of operation, determine the nature

and scale of the damage, distortions, cracks and deformations that occur.

Therefore, this situation needs to be taken into account in the development of reinforcement methods in the elimination of identified shortcomings [8].

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