ISSUES OF REMOVING DEFORMATIONS IN FOUNDATIONS AND FOUNDATIONS

Mirzaakhmedova Ugiloy Abdukhalimjanovna
Fergana polytechnic institute, senior teacher
mirzaahmedova@fer.uz (ORCID 0000-0001-5227-1089)

Abstract: *The article presents deformations in the foundations and foundations of buildings, their causes, operation measures, and problem solving issues.*

Key words: *service life of buildings, periods of operation, subsidence of foundations, freezing of soils, strengthening of foundations.*

The strength and stability of buildings largely depends on the load-bearing capacity of foundations and foundations. The soil layer located under the foundation and receiving loads from it is called the base. The foundation can sink under the influence of loads from the foundation and changes in its properties.

Subsidence of the base under the foundation of individual columns and walls of civil buildings should not exceed 0.002 of the distance between these parts.

Certain scientific researches are being carried out in our republic in the directions of development to check the technical condition of the buildings in use, to identify the deformations that have occurred in their main load-bearing and barrier structures, to analyze their causes and to eliminate them. It is known that the condition of the foundations and foundations of the building is of great importance in increasing the service life of the building. From experience, in most cases, in cases where adequate and scientifically-based technical maintenance is not performed during operation, foundations and foundations of buildings are damaged, in some cases subsidence, uneven deformation, cracking, corrosion and even dangerous breakdowns occur. In such cases, as a result of the use of various methods, restoration of the required performance indicators of foundations and foundations necessary.

It is necessary to strengthen the foundations of buildings during the operation period, when there is subsidence and excessive deformation of the foundations of the buildings due to various reasons. The main purpose of strengthening foundation soils is to increase their load-bearing capacity by artificially strengthening them. For this, in construction practice, methods of silicification and electrosilication, thermal burning, laying of sand-gravel cushions under new foundations are used.

In order to silicify the base soils, injectors - steel pipes with a diameter of 19-38 mm are lowered under the base of the foundations and the mixture is injected through them under a pressure of 0.3-0.6 MPa. Injectors are placed under strip foundations from both sides, and in cases where the width of the foundation base is wide, the injectors are placed in an inclined position. During electrosilication, a constant electric current is sent to the strengthening soil, as a result, it accelerates the movement of the mixture

absorbed into the soil and allows to increase its amount up to 20%. The thermal method is used to strengthen loess-like sedimentary soils, in which air flow heated to 600-8000 C is sent to the soil through heat-resistant pipes [1-10].

Table 1. Normative requirements for operational performance of foundations and foundations.

Factors to consider in the design, selection and evaluation of foundations and foundations	Regulatory operational requirements for foundations	Structural elements of foundations that meet operational requirements
1. Permanent and temporary loads. 2. Indicators of strength and deformability, composition and moisture content of foundation soils. 3. Atmospheric precipitation. 4. Seepage waters, including underground waters with erosive properties. 5. Freezing and freezing of the base soil.	1. Strength and priority. 2. Design the foundation taking into account the load-bearing capacity of the foundation, the level of groundwater and the depth of freezing of the ground. 3. Reliable protection of foundations and foundations from atmospheric precipitation. 4. Protection from the effects of underground water and erosive environment. 5. Protection of foundation soils from freezing and freezing.	1. Load-bearing elements designed and built taking into account the strength and freezing depth of the ground 2. Forming the base from natural soil or artificially reinforced soil 3. Horizontal waterproofing and construction of a bridge 4. Construction of vertical waterproofing and protective coating against erosive environment 5. Lowering the level of underground water by drainage method (in soils with low filtration rates - kf<0.5 m/day)

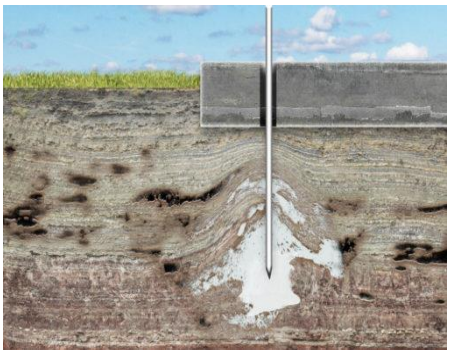
Methods such as cementation, restoration of concrete and reinforced concrete flanges, expansion of the base, strengthening with piles are used to strengthen the foundations of buildings and structures.

It is advisable to strengthen foundations made of stone and brick by cementing. In this case, holes with a diameter of 25 mm are opened in the body of the foundation, through which a cement mixture with a composition of 1:1 (cement-water) is absorbed under a pressure of 0.3-0.5 MPa. In cases where cementing is not possible, the foundation concrete and reinforced concrete flanges are reinforced. In this case, the minimum width of the concrete flange should not be less than 15 cm. Reinforced concrete flanges can be restored on one side or on both sides. Their minimum width is 10 cm, and they are connected to each other with anchors with a diameter of 20 mm.

By increasing the width of the base of the foundation, one- or two-way adjustable banquettes are formed. The width of the banquette should not be less than 30 cm at the

bottom and 20 cm at the top. The load-carrying capacity of reinforced and reinforcing parts of foundations is reinforced as a result of calculations and based on requirements.

The method of restoration of new foundations is used in cases where the integrity of the soil at lower levels than the existing foundations is disturbed, as well as to stop the deformations of buildings and structures that increase intensively over time.



At present, in the construction practice, the methods of creating pile foundations and placing them under the existing foundations are also being implemented. When strengthening damaged foundations of existing buildings and structures, it is necessary to pay special attention to protecting their structures from the influence of underground water. For this purpose, effective waterproofing works are required [11-23].

REFERENCES:

1. BNR 2.02.01-98. Foundations of buildings and structures. - T. 1999, -144 p.

2. Abduxalimjonovna M. O. et al. Assessment of the Service Life of Reinforced Concrete and Steel Elements //Texas Journal of Engineering and Technology. – 2022. – T. 9. – C. 65-69.

3. Mirzaakhmedova U. A. LOSSES OF PRESTRESS FROM SHRINKAGE AND NON-LINEAR CREEP OF CONCRETE OF REINFORCED CONCRETE ROD SYSTEMS //Miasto Przyszłości. – 2022. – T. 24. – C. 286-288.

4. Mirzaakhmedova U. A. ISSUES OF INCREASING THE OPERATIONAL RELIABILITY OF EXISTING BUILDINGS AND STRUCTURES //Spectrum Journal of Innovation, Reforms and Development. – 2022. – T. 8. – C. 341-347.

5. Takhirovich M. A., Abdukhalimjohnovna M. U. Protection Of Reinforced Concrete Coverings //The American Journal of Engineering and Technology. – 2021. – T. 3. – №. 12. – C. 43-51.

6. Takhirovich M. A., Abdukhalimjohnovna M. U. Connecting The Elements Of Reinforced Concrete Structures Protection Of Reinforced Concrete Coverings //The American Journal of Engineering and Technology. – 2021. – T. 3. – №. 12. – C. 6-13.

7. Mirzaakhmedov A. T., Mirzaakhmedova U. A. Algorithm of calculation of ferro-concrete beams of rectangular cross-section with one-sided compressed shelf //Problems

of modern science and education. Scientific and methodical journal.–2019. – 2019. – T. 12. – C. 145.

8. Mirzaakhmedov A. T., Mirzaakhmedova U. A., Maksumova S. M. Algorithm for calculation of prestressed reinforced concrete farm with account of nonlinear operation of reinforced concrete //Actual science. International scientific journal. – 2019. – T. 9. – №. 26. – C. 15-20.

9. Mirzaakhmedova U. A. Study of The Porosity of a Light Aggregate Produced From Dune Sand with Oil Refining Waste //Miasto Przyszłości. – 2022. – T. 29. – C. 371-374.

10. Mirzaakhmedova U. A. CALCULATION OF REINFORCED CONCRETE ELEMENTS OF COMPLEX CROSS-SECTION WITH A TWO-DIMENSIONAL DISTRIBUTION OF TEMPERATURE AND HUMIDITY //Scientific-technical journal. – 2022. – T. 5. – №. 1. – C. 33-36.

11. Mirzaakhmedov A. T., Mirzaakhmedova U. A. Prestressed losses from shrinkage and nonlinear creep of concrete of reinforced concrete rod systems //EPRA International journal of research and development (IJRD). – 2020. – T. 5. – №. 5. – C. 588-593.

12. Mirzaaxmedova O. A. et al. Binolarning konstruktiv elementlarida uchraydigan shikastlanish va deformatsiyalarni bartaraf etish //INTERNATIONAL CONFERENCE ON LEARNING AND TEACHING. – 2022. – T. 1. – №. 8. – C. 209-215.

13. Ogli X. A. M. et al. Engineering Training Of Territories In Planning And Reconstruction Of Large Cities //The American Journal of Engineering and Technology. – 2021. – T. 3. – №. 12. – C. 20-25.

14. Мирзаахмедов А. Т., Мирзаахмедова У. А. Алгоритм расчета железобетонных балок прямоугольного сечения с односторонней сжатой полкой //Проблемы современной науки и образования. – 2019. – №. 12-2 (145). – C. 50-56.

15. Mirzaakhmedova U. A. Inspection of concrete in reinforced concrete elements //Asian Journal of Multidimensional Research. – 2021. – T. 10. – №. 9. – C. 621-628.

16. Abdukhalimjohnovna M. U. Failure Mechanism Of Bending Reinforced Concrete Elements Under The Action Of Transverse Forces //The American Journal of Applied sciences. – 2020. – T. 2. – №. 12. – C. 36-43.

17. Abdukhalimjohnovna M. U. Technology Of Elimination Damage And Deformation In Construction Structures //The American Journal of Applied sciences. – 2021. – T. 3. – №. 5. – C. 224-228.

18. Мирзаахмедов А. Т., Байматов С. И. Прогнозирование надежности и долговечности энергоэкономных строительных конструкций //INTERNATIONAL CONFERENCE ON LEARNING AND TEACHING. – 2022. – T. 1. – №. 8. – C. 181-184.

19. Мирзаахмедов А. Т., Байматов С. И. РАСЧЕТА ЖЕЛЕЗОБЕТОННЫХ ЭЛЕМЕНТОВ ПРИ ОДНОМЕРНОМ РАСПРЕДЕЛЕНИИ ТЕМПЕРАТУРЫ И ВЛАЖНОСТИ //INTERNATIONAL CONFERENCE ON LEARNING AND TEACHING. – 2022. – Т. 1. – №. 8. – С. 204-208.

20. Mirzaahmedov A. T. et al. Algorithm For Calculation Of Multi Span Uncut Beams Taking Into Account The Nonlinear Work Of Reinforced Concrete //The American Journal of Applied sciences. – 2020. – Т. 2. – №. 12. – С. 26-35.

21. Mirzaahmedov A. T. et al. Accounting For Non-Linear Work Of Reinforced Concrete In The Algorithms Of Calculation And Design Of Structures //The American Journal of Engineering and Technology. – 2020. – Т. 2. – №. 11. – С. 54-66.

22. Mirzaakhmedov A. T. Optimal Design of Prestressed Reinforced Concrete Strap Fram //Miasto Przyszłości. – 2022. – Т. 29. – С. 375-379.

23. Мирзаахмедов А. Т. Оптимального Проектирования Стержневых Систем С Учётом Нелинейной Работы Железобетона //Central Asian Journal of Theoretical and Applied Science. – 2022. – Т. 3. – №. 4. – С. 64-69.