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REINFORCEMENT OF FOUNDATIONS WITH INJECTION PILES

Arefiev V.V., *student gr. ICE-452*
Scientific adviser – **Karpyuk I.A.,** *Ph.D., Associate Professor (Department of Bases and Foundations, Odessa State Academy of Civil Engineering and Architecture)*

Abstract. The article discusses effective options for strengthening foundations in the construction of buildings in cramped urban environments.

Relevance. During the long-term operation of buildings and structures, structural deformations occur. During the construction of buildings on soft soils, the main causes of deformations are uneven precipitation, causing destruction of the foundations themselves, walls, columns, ceilings. In such cases, reconstruction of buildings is necessary.

Materials and methods. Reconstruction may be associated with increased loads on existing foundations, destruction of the foundation masonry or a decrease in its waterproofing properties; deterioration of the stability conditions of foundations or soils in their basis; increase in soil deformation; continuous development of unacceptable structural movements, uneven compaction of weak, peat or bulk soils due to changes in the hydrological regime of the territory or uneven loading of these soils; violation of the structure of soils during pumping of water from basements, seismic, widespread decrease or increase in the groundwater horizon in the central part of the city in connection with the construction of utility networks, construction of new ones corresponding to existing ones near old buildings; installation of buried structures (garages, passages, tunnels), etc.

The main factors when choosing a reinforcement technology are factors related to the structural features of the building, the state of the soil at the base and the equipment of the organizations carrying out the work.

In complex cases of reconstruction, as a rule, several technological methods are used. So, for example, partial traditional relocation of foundations can be performed in conjunction with injection technologies. The proposed technology should ensure reliable long-term operation of the building. In difficult engineering and geological conditions of cities with a large number of unique monuments, an appropriate arsenal of technological methods is needed to strengthen the foundations and foundations.

The construction of new buildings near existing without prior strengthening of the foundations of old buildings leads to the destruction of

the latter. Errors in the construction of foundations of old buildings, errors in assessing the properties of soils led to the need to strengthen both the foundations themselves and the soils in their foundations.

All traditional technologies for strengthening the foundations and foundations were reduced mainly to increasing the footprint of existing foundations. The increase in the area of the soles of foundations is achieved mainly through the creation of reinforced concrete clips.

Expanding the sole of the foundation without preliminary crimping is ineffective. Therefore, in our opinion, the following work execution technology is an effective device for expanding the soles of foundations. Drilling a well; an injector is immersed in the well; served under high pressure injection solution carry out the rise of the injector with its simultaneous rotation. Rotation of the injector allows you to form a pile of the desired diameter. An important factor in strengthening the soil mass or strengthening foundations using inkjet technology is the ability to support high pressures.

Findings:

The main advantages of inkjet technology in soft soils: the ability to work in any adverse soil and in confined spaces; ecological purity of all technological operations.

This method of reinforcement will prevent the development of uneven precipitation and save the building.

References:

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