UDC 69.059.14

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FEATURES OF CONSTRUCTION IN CONDITIONS OF THE EXISTING DENSE BUILDING

Construction in the conditions of already existing dense buildings is a widespread phenomenon in modern Kazakhstan. Such conditions for the construction of buildings and structures have an additional number of difficulties for construction associated with the limited construction site, and necessitate constant monitoring of existing structures, the surrounding soil, the environmental situation in general, for high-quality preparation of the territory for new development and assessing the impact of new construction in the regime real time. Such monitoring is carried out by specialized organizations that are engaged in geotechnical research, design and includes a whole range of works, such as:

– monitoring of the formation of cracks in buildings around the object under construction;
– study of deformation structures of the object under construction and existing buildings;
– monitoring the quality of work performed in the zero cycle;
– monitoring the quality of erected structures;
– control over changes in the level of groundwater;
– fixing the change in the stress state in the structures of the observed buildings and in the soil mass.

During construction in conditions of dense building, a number of factors arise, the observance of which should ensure the quality and durability of the facilities being built and already standing buildings:

– the need to maintain the operational properties of facilities located near the construction site;
– selection of machines and mechanisms for a limited area of construction of an object, having small dimensions, high maneuverability, having a standard noise level, exhaust gas emissions, and having the appropriate certificates;
– the impossibility of locating a full complex of household and engineering structures on a construction site;
–development of special technological measures to optimize the construction processes of the object, including: a ban on the use of the impact method of driving piles, a ban on work at night, arrangement of pits and trenches with vertical walls with a device with special fastening structures, a ban in the autumn-winter period work on the development of a pit near the existing foundations, and those dug out in summer and autumn must be completed before the onset of frost;
– to reduce the impact of dynamic vibrations in the areas of installation of cranes, concrete feeding and other machines, special damping (damping and attenuating vibrations) engineering structures are erected;
– enhanced fire and general safety measures, zone markers, fences, awnings, evacuation passages, etc.;
– development of technological measures to protect the ecology of the facility under construction and existing buildings. If it is necessary to reclaim land, to prevent harmful emissions into the soil, water bodies and the atmosphere, special measures are developed that provide for the procedure for removing and preserving the fertile soil layer, to prevent harmful emissions by discharging wastewater into city networks, installing gutters and containers for garbage, etc.

Under the influence of additional loads from new buildings, deformations appear in the foundations of existing buildings, the external manifestation of which is inhomogeneous settlements and slopes of existing buildings. As a result, there is a redistribution of efforts in the

overground parts of the building, which can lead to the formation of cracks in them and even their destruction.

Buildings, depending on the structure, behave differently during construction and installation work in the adjacent territory. Therefore, it is recommended to conduct a survey of existing buildings, to determine their technical condition and the possible consequences of the construction of new structures. If it is necessary to strengthen the foundations, foundations and other structures of standing buildings or to erect a sheet pile fence around the entire perimeter of the excavation before the start of excavation, it is possible to install bored-injection piles in the body of the foundations to be strengthened. Measures to preserve the operational properties of the existing building are developed in the projects for the production of work before the start of new construction.

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