



BUILDING AND STRUCTURE SAFETY ISSUES

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Abstract: In the article, the development of the level of effective use of capital construction, construction structures in the greater hajm, which is currently being implemented, has stimulated a very rapid acceleration – the continuous improvement of the types of structures and the hom objects made from them. Therefore, the methods of their calculation, design and restoration are also improving.

One of the ways to increase the efficiency of construction is to increase its readiness as much as possible on the basis of compactification of structural drawings and typification of structures, while the other is to ensure that these buildings are competitive, high - quality, comfortable and functionally comfortable.

Key words: buildings, civil buildings, structures, engineering structures, construction ditch.

Citizen and industrial buildings and structures have certain definitions and concepts in terms of their appearance, functions of spatial indicators and requirements for them. Below are the relevant definitions and concepts to express this issue in a soda and understandable way.

A building is an above - ground structure designed and adapted for the work of a person, having an inner space-space.

A structure is a set of all devices built by people to meet the material and spiritual needs of society.

Engineering structures are structures that are used in practical work activities that are not related to buildings. These include; dams, bridges, television tower, tunnels, Metropolitan, large-scale containers that store various products, etc.

Buildings can be formed from the following parts according to their structure:

volumetric elements, that is, large parts of the volume of the building (separate rooms, sanitary cabins, etc.k.);

constructive elements, that is, the main parts that determine the structure of the building (foundations, walls, beams, floors between closures, roofs, etc.);

building objects, that is, relatively small parts that make up a structural element (brick, concrete, mirror, steel, fittings, etc.).

The main requirements for buildings include:

Compliance with the task – that is, whatever process (purpose)the building is intended for, it must fully meet the requirement of this process (for living, convenient to work, adapted to rest, etc.).q.

Compliance from the technical side-i.e. external influences on the building people (low or high temperature, precipitation,wind, etc.k.) to be able to keep up with it, to be strong and superior, to maintain the qualities of exploitation for a long time.

The appearance of the building – to be chosen in accordance with the requirements of architecture and artistry, its exterior (exterior) and interior (interior) appearance should be beautiful, cozy, harmoniously combined with the environment.

It is envisaged that it is economical – that is, to reduce labor costs in the construction of buildings and structures, saving building materials and time.

The building constructions described above are influenced by several different external and internal forces, the definitions of which include:

External forces—the specific gravity of the elements (parts) of the building, the force of action of the wind (temporary loads), the effects on the result of an earthquake, accidental breakdown of its equipment and other;

Environmental influences include external temperature (leads to a change in the linear dimensions of the structure), atmospheric and soil moisture effects (leads to a change in the properties of building materials), the influence of the direction of air flow (leads to a change in the micro-climate inside the room), the influence of sunlight energy (building material physical – leads to a change in technical characteristics), the influence of aggressive chemical compounds in the air (leads to absorption and degradation of the structure), biological effects (microorganisms and worm –worms suck the structure), violation of the normal acoustic regime in the room from the effects of noise inside or outside the building.

There are various factors that affect residential and industrial buildings, which negatively affect the life expectancy, strength of the building, as well as the microclimate inside the building. With this, the condition of the building can remain in an accident state until the specified period of normative service. With this, the level of technical condition of the building becomes an object that must be studied from the point of view of life safety. At the same time, the buildings themselves also have a number of effects on the external environment. These factors are divided into external and internal types, depending on their origin and degree of influence. Factors affecting buildings as well as the effects of buildings on the external environment are shown in Figure 1.

Internal factors include the following, in addition to the factors shown in Figure 1 (they are directly caused by human-made errors):

in the design process;

in the process of preparing the construction at the plant;

under construction;

in the process of exploitation.

Incorrect project solution in the design process, a designer's error, insufficient data on external loads, the state of construction structures and production and operating conditions, lack of experimental data on the physical and mechanical properties of natural absorption and some arteriales and the intensity of their Real absorption (or not at all), incorrect modeling of building function and disregard for various other negative factors

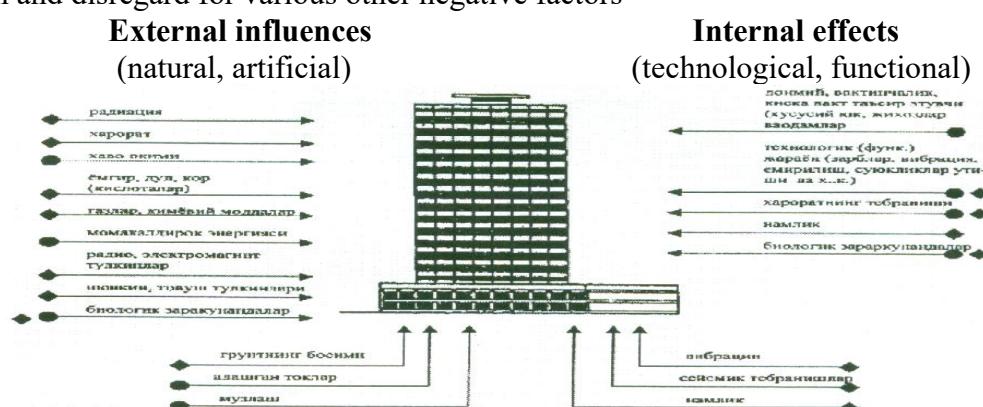


Figure 1. Influences on the building (external and internal).



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In the process of preparing a structure at the plant, defects of various types found in the construction structure, inconsistency of the dimensions of the structure, violation of the mode of preparation of items, and in the process of storing the finished product and transporting it, the structure can receive various deformations and defects.

The effects found in the construction process include low workers' qualifications, deviations from the project solution, non-attendance of construction, non-compliance with the necessary technical conditions in the course of construction work, improper laying of elements in the assembly process, incorrect laying (or in some cases not at all) of seismic, temperature seams, the conduct of work in winter times withoutk.), rusting of iron elements in buildings that have not been completed for a long time, etc.k. enters.

Failure to carry out timely repair and preventive work in the process of operation, incompatibility of the project solution with the operation process, inoperability of the system of providing information about their technical condition and necessary in the process of using the premises, age of the building and the structural elements that made it up, violation of the exploitation process, neglect of the population, etc.k. can lead to negative consequences.

We will dwell in detail in the chapters of the next textbook on some of these factors (in particular, the earthquake characteristic of the Central Asian region).

The main source of environmental poisoning is sulfate (SO₂) is gas, which is produced from the combustion of fuel products. SO₂ oxidizes rapidly in air, converting sulfate dioxide to SO₃, and combining with air to form sulfuric acid SO₄. It is known that sulfuric acid forms an aggressive environment that absorbs building materials (chemical Action, Figure 1).

There are some types of lichens and fungi that slowly absorb stone and concrete structures, separating a sour substance from itself (biological effect, Figure 1). As a result of such biological effects, bending deformations begin to appear in wooden structures under conditions of a certain temperature and humidity (23-25%).

Iron tolerance is determined by the intensity of corrosion (rust) (decrease in thickness, mm/Year size), in moderately aggressive environment (0.1 mm/year). The cross-sectional surface of the structure is reduced by 5% in the process of operation for 25 years. In an aggressive environment, however, this figure reaches 20-25% in the same time frame.

Studies show that under Faraday's Law, 1 A Current absorbs 9.12 kg of iron, 33.8 kg of lead, in 1 year when exposed to constriction. Apparently, stray vines are very dangerous for construction construction.

The factors listed above reduce the reliability of the building structure, which is determined slowly or suddenly in the project.

As a result of this, during the entire exploitation, significant changes in the elements of the construct appear under the influence of various factors, which, as a result, lead to a violation of the distribution of internal forces.