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INFLUENCE OF CIVIL SAFETY ON THE DESIGN OF CONSTRUCTION OF RESIDENTIAL COMPLEXES

Civil safety is one of the most important factorsin the design of construction of residential complexes. This is due to the fact that residential complexes are the place of residence of a large number of people, and their safety is important.

The influence of civil safety on the design of residential complex construction is developed in the following aspects.

Construction site selection. Selecting the location of the housing estate, is necessary to consider the risks of emergencies such as fires, floods, earthquakes, man-made disasters, etc. For example, building an LCD in areas with high seismic activitynear industrial enterprises or in places where flooding is possibleis not recommended.

Architectural and planning solutions. Developing the architectural and planning solutions of the housing estate, is necessary to provide the safety of residents in case of emergencies. Such measures include:

Creation of safety evacuation routes from the building in case of fire or other emergency.

Installation of fire alarm and fire extinguishing systems.

Ensuring of safe operation of utility systems such as electricity, water and sewage.

Availability of shelters in case of emergencies.

Life Support Systems. Designing the life support systems of the residential complex, is necessary to provide the possibility of their operation in an autonomous mode in case of disconnection of centralized networks.

Population training. The population should be trained according to the rules of behavior in emergency situations.

In Ukraine, the requirements for safety of residential complexes are regulated by the following normative documents: «Fire safety regulations in Ukraine» (Building code B.1.1.7-2016).

«Building regulations of Ukraine. Safety of people in emergency situations. General requirements" (Building code B.2.2-4-2009).

"The system of ensuring safety of construction projects. Loads and impacts. Regulations of design" (Building code B.1.2-2:2006) and "System of ensuring safety of construction objects. Deflections and displacements. Design requirements" (State standards B.1.2-3:2006). Compliance with the requirements of these regulatory documents will ensure the safety of residents of residential complexes in case of emergencies.

Here are some specific examples of civil safety issues, how they could be taken into account while designing the construction of residential complexes:

LCDs often have fire alarm and fire suppression systems installed to help to prevent the spread of fire in incidentswith fire.

Housing developments often have evacuation exits that allow residents to leave the building safely in incidents with fire or other emergency.

Housing developments often have underground or ground shelters that residents could use in case of emergencies.

Consideration of civil safety issues in the design of the housing development is an important factor that contributes to the safety of residents.

It is important to note that the issues of civil safety in the construction of residential buildings are relevant not only for Ukraine, but also for the whole world. Recently the world has seen increasing in the number of emergencies such as natural disasters, man-made disasters, accidents and terrorist attacks.

According to this, ensuring the safety of residents of residential complexes is becoming more and more relevant.

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DEFINITIONS OF INTEGRATED SAFETY IN CONSTRUCTION

Currently, much attention is paid to solving problems of life safety, industrial safety, environmental safety, radiation safety, fire safety, and explosion safety.

In recent years, when considering safety issues, the term “comprehensive safety” has begun to be used, as the safety of various objects or types of production and economic activities in conditions of the combined action of various types of hazards.

The definition of this concept in different fields of activity varies greatly and this causes a certain confusion in terminology, in setting tasks and, ultimately, does not contribute to increasing the safety level of certain objects.

This is especially important when considering an object whose safety must be ensured. For example, it could be a source of danger or the object itself, which should be safe. The safety object can be an entire industry, for example, construction or nuclear energy; in other cases, the objects are a specific structure, for example, a residential building or a physical phenomenon, or an electromagnetic hazard.

There are several definitions of this concept:

“Comprehensive safety” is the safety in conditions of the combined action of various types of danger.

“Comprehensive safety system” is a system that simultaneously performs several safety functions, reducing the risks associated with various types of hazards.

“Comprehensive security assurance” is the coordinated interaction of engineering and technical systems, facilities and personnel involved in preventing unauthorized actions and ensuring the safety of people in emergency situations, implemented in design solutions.

From the above mentioned definitions it is clear that they formulate the concept of integrated security in the most general form, in relation to any object or type of activity.

Construction activities occupy a special place in solving the problem of integrated safety.

In relation to construction activities, it is proposed to consider the concept of comprehensive safety at three levels:

- comprehensive construction safety;
- comprehensive safety of the construction site;
- comprehensive security of a building or structure.

Based on this, the comprehensive construction safety means such organization of construction activities that ensures the formation of a safe and comfortable environment for human activity. At the same time, on the one hand, the created construction projects have such impacts on the environment that comply with certain established standards, for example, with the so-called “green standards”. In this case, we can talk about environmental protection, or, more precisely, about environmentally friendly construction, which ensures the safety of the external environment for the construction site.