

**МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
НАЦІОНАЛЬНИЙ УНІВЕРСИТЕТ БІОРЕСУРСІВ І
ПРИРОДОКОРИСТУВАННЯ УКРАЇНИ
ІНСТИТУТ МЕХАНІКИ ТА АВТОМАТИКИ АПВ НААН
ДЕРЖАВНИЙ БІОТЕХНОЛОГІЧНИЙ УНІВЕРСИТЕТ**



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Список використаних джерел

1. Дерев'яні конструкції. Основні положення : ДБН В.2.6-161:2017 – [Чинні від 2018-02-01]. – К.: Мінрегіон України, Державне підприємство «Укрархбудінформ», 2017. – 117 с. – (Державні будівельні норми)
2. Design of timber structures according to Eurocode 5. Handbook 2. 2008.

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RECONSTRUCTION OF UKRAINE AFTER THE WAR

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4th year student of the Faculty of Construction and Design of the National University of Life and Environmental Sciences of Ukraine Thousands of houses in Ukraine were destroyed by Russian missiles and shells. But after the war, all the affected cities will be rebuilt. The government claims that the new housing will be reliable and safe. Instead of typical "panels", houses with modern architecture, equipped with bomb shelters, will appear.



To restore the destroyed infrastructure of Ukrainian cities, the government is considering the example of a country that lives under the constant threat of war.

Since 2004, Israel has been using regulations according to which new houses are built with bomb shelters. Shelters are built separately for old houses.

The design of the new building must be carried out with a reinforced underground parking or an underground floor with two exits. Ihor Nikonov, the founder of the KAN Development company, believes that the presence of a bomb shelter in a building should be prescribed in the State Building Regulations.



Photo 1. Bomb shelters must have two exits and ventilation

The National Union of Architects suggests making underground rooms in new buildings with a dual purpose. Yes, in peacetime, they can accommodate exhibition halls, cafes, which will guarantee the maintenance of premises in good condition. During the war, the user will have to transfer them under bomb shelters.

Modular houses instead of "Khrushchev" and high-rise buildings

Ukrainian houses should become safer and more reliable in the future. In such buildings, protection against breaking windows, fire protection of structures, energy efficiency and autonomy will be provided.

In addition, the experience of the war showed that high-rise buildings cannot guarantee a quick evacuation from the upper floors. Therefore, when designing districts, priority will be given to low-rise residential buildings with cozy yards and parks.

During construction, it is necessary to use modular structures. Modern European technologies provide that most structures are pre-manufactured at the factory.

The basis is a prefabricated reinforced concrete frame and ready-made wall panels, with already installed insulation and windows. This technology (prefab house) is used for the construction of residential quarters in Sweden and Denmark.



Photo 2. High-rise buildings are dangerous during evacuation

The National Union of Architects notes that if earlier 5-story buildings were built using a frameless method, relying only on the strength of the material itself, then frames need to be made for new buildings. Even if one wall is knocked out, the frame will ensure that the main concrete structure is not damaged.

During the large-scale reconstruction of the infrastructure, architects insist on changing the appearance of the streets built with the same type of "panels".

The interior of new buildings must be standardized, but their facades are unique, for example, for each neighborhood.

Terms of construction and price of apartments

Experts assume that it will take from 3 to 7 years to restore cities. At the same time, it is impossible to determine the budget at the moment. It can be calculated on the basis of actually developed projects.

When using modular and prefabricated structures, the construction period of a new house will be 6-9 months.