

# Mobile housing design: overview of current trends

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**Abstract** – *The relevance of using mobile housing is substantiated, its classification is based on an own version of a mobile home (transformer type).*

**Keywords** – design, designing mobile housing, mobile houses of container type, modularity of mobile housing, transformation, adaptation, environmental friendliness, using renewable energy sources, energy saving houses.

## I. Introduction

The dwelling house stopped being a simple scenery for the city for a long ago, buildings are creating in order to fit the modern rhythm of life. Modern architecture is much more "smarter" and varied. One of the main trends of our time is increasing popularity of mobile housing.

Mobile housing is an alternative option for solving the problems of building urban structures. For the installation of moving houses, as a rule, does not require capital fixing on the ground, and after the displacement of the mobile settlement is the fastest process of updating the earth's bioresources. In addition, during using mobile buildings (including kinematic ones with transformation and adaptation), the flexibility of the settlement system and the degree of architectural and construction response to different changes (socio-economic, demographic) increases.

Today, using mobile housing in Ukraine has become particularly relevant in connection with the problem of massive population migration from the eastern regions of the country and the Crimea. However, residential mobile products, to a large extent, are represented by foreign manufacturers.

Modern socio-demographic conditions in Ukraine and the level of provision of housing for people of different types and quality provide possibility of active development of mobile homebuilding. At the same time, the use of mobile housing in Ukraine differs by the limited functionality and typological diversity.

## II. Species diversity of mobile housing

In Ukraine, mobile houses are traditionally used mainly as a temporary housing.

There are the following main types of mobile housing:

A) by type of transportation:

- self-propelled – with non-accessible chassis and engine, similar to automobile;
- with the possibility of towing;
- without wheels, ie transport vehicles.

B) for structural and technological features:

Designed from bulky elements (container and superblock), and from flat and linear elements( Fig 1-3).

Container and superblock are formed from block-containers of high factory readiness, often with complete set of engineering devices and furniture. Such buildings are put into operation immediately after delivery [1].



Fig.1 Mobile housing KODA by Kodasema

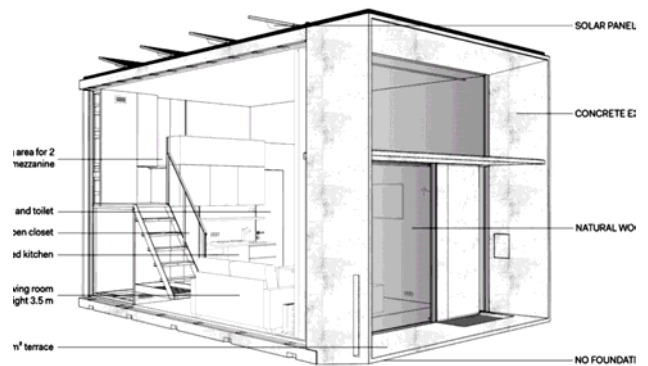


Fig.2 3D model of mobile housing KODA by Kodasema

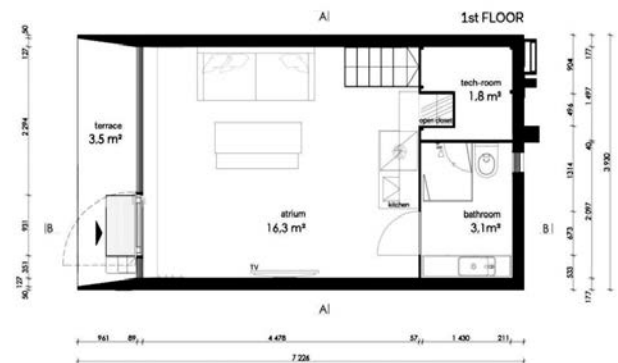


Fig.3 Typical pan of mobile housing KODA by Kodasema

There are the following main types of transformation of mobile homes:

A) with the change of external parameters in the process of building the house in stages, by adding to the main module additional volumes through special connecting elements;

B) with the change of internal parameters, by redeveloping the interior space with the help of transforming partitions. This changes the area and the proportion of premises, functional zoning and the relationship between the premises;

B) combined, which applies the principles of external and internal adaptation.

Depending on the methods of adaptation, the following main types of transformer houses are distinguished:

- Made up – that is, those that are made up of special constructions;
- pneumatic – houses with elastic fabric fencing, supported by excessive air pressure;
- retractable – with special retractable elements of walls and ceilings;
- cassette – for which characterized high-density complementary design elements [2].

### III. Author's project of mobile housing for the place with a complex terrain

The proposed project of mobile housing transformer-type provides integration of the following functions ( Fig 4-6):

- zone of cooking and eating (kitchen-dining room);
- wardrobe;
- a bathroom;
- a bedroom

The main goal of the developed project is to create an ecological, ergonomic and at the same time comfortable, small-sized environment for life.

Moving panels used in the design of mobile housing allow the complete closing of translucent slots and thus guarantee full safety for its residents. The front and back panels can be operated in the form of terraces.

The project is made of sandwich panels, which make it possible to quickly mount the house on a selected plot of land.



Fig.4 Visualization of mobile housing №1

The advantage of the proposed mobile home project is the easy adaptation to the place with difficult terrain.

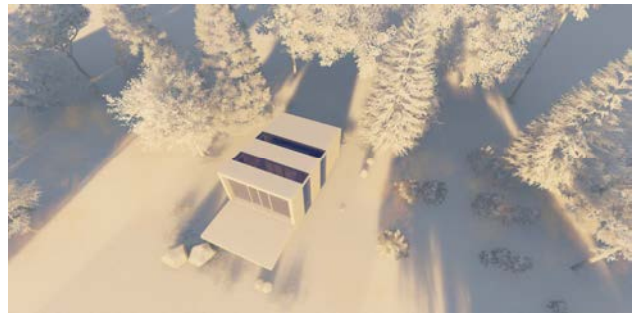


Fig.5 Visualization of mobile housing №2

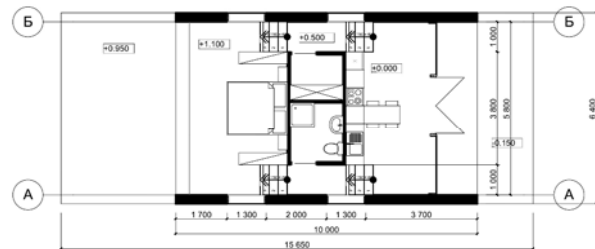


Fig.6 Plan of mobile housing

### Conclusion

The development of the mobile housing industry has a wide range of practical applications, and is particularly relevant in connection with the problem of mass migration from the eastern regions of the country and the Crimea. Therefore, the market of domestic mobile housing should increase its typological range, which should first of all conform the ecological, ergonomic and energy-saving requirements.

### References

- [1] V. Vasilishin, “Trends of development of mobile housing”, [Electronic resource] / Vasilishin V., 2017 – Access mode: <http://naukam.triada.in.ua/index.php/konferentsiji/35-shosta-mizhnarodna-praktichno-piznavalna-internet-konferentsiya/63-tendentsiji-rozvitku-mobilnogo-zhitla>
- [2] V. Mironenko, “ Mobile housing as functional-typological variety industry of modern housing construction”, [Electronic resource] / Mironenko V, 2015- Access mode: <https://cyberleninka.ru/article/n/mobilnoe-zhilie-kak-funktsionalno-tipologicheskaya-raznovidnost-industrii-sovremennogo-domostroeniya>