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THE USE OF SEA CONTAINERS FOR PRIVATE COUNTRY HOUSE CONSTRUCTION

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Working building materials for private house construction in Belarus are reviewed. The use of sea containers for private country house construction is analyzed. The example of a block-containers house built in Belarus is given.

Nowadays more and more people want to be closer to nature and move away from the hustle and bustle of a city and as a result they move to live outside the city. Today bricks, gas silicate blocks and expanded clay concrete blocks are the most popular building materials in Belarus. The houses built of these materials require additional interior finishing.

There has been an increasing tendency to fall back on various types of original construction to reduce its cost. Sea containers construction is one of them.

Containers construction is a novelty in private houses construction, which is popular in Western countries. Today it is the best alternative to conventional construction in Belarus.

Container houses are as good as silicate block, brick or wood houses in quality and excel at constructional features on some occasions. Container houses building costs 20–50 % cheaper, needs a short period of construction along with no seasonal fluctuation. A container house is a full-fledged dwelling private house, warmed both inside and outside, with all the necessary facilities (heating, water, electricity, drainage, ventilation), along with any kind of interior and facade finishing, any planning and interior design, which can be put into practice at any customer's request. It is warm and comfortable all year round indoors [1].

A multi-roomed, multi-storied, comfortable dwelling private house or office building can be constructed of containers.

Only three 40-footed containers are necessary to get a 100 m²-120 m² area house (fig. 1). The construction of such a house will take from 3 to 4 months. Container house construction for private needs does not require any complicated technological processes. It is only necessary to purchase one or two blocks of containers, which are placed near or at an angle to each other (for example, like the letter "T"), or mounted on each other [2].



Fig. 1. Container construction

To make the facade more complicated and create an aesthetic appeal, you can slide two containers relative to each other or push the container push the container, erecting a spacious living room with maximum glazing in between.

Since containers are for maritime needs they are engineered to withstand bad weather conditions. Steel of such containers is galvanized and profiled, which provides reliable protection against corrosion, as well the area

is ready for finishing. The interior walls are made of lumber. Molded plywood is used as the main building material. Plywood is treated with various compositions to overcome the growth of mould or fungus.

Due to the fact that the weight of containers is only from 2.3 to 4.0 tons the load on the foundation is not so huge. Post footing fits well for container building. [3]

It is necessary to make weatherproofing if the living in the house is planned to be all year round. Weatherproofing can be made by any heat-insulating material (expanded polystyrene, mineral wool, basalt wool, etc.). However, the question arises: which side of the container should be insulated – outside or inside. Both outside and inside can be insulated, but to make the right and final choice, it is necessary to take into account some additional points due to the fact that metal is rather a specific material, fundamentally different from other materials for its high thermal conductivity, absence of porosity and high propensity to corrosion. If the house is used only in warmer months, it makes sense to insulate the outside part. If the house is used in all seasons, the best solution is to insulate it from the inside, avoiding thermal bridges.

If desired, the exterior walls are sheathed with siding. It also can simply be painted with metal paint in a juicy bright or discreet color with the help of spray or draw all over the facade [4].

This type of construction has long been popular in many countries of Europe and America, and is increasingly finding its application in Belarus. The example of such a house built in the Minsk region is shown in figure 2. The metal structure was used as a foundation. Then on it with the help of a crane were installed two block containers already insulated and sheathed with wood. Then with the help of a crane two block containers already insulated and sheathed with wood were fixed on it. The installation process took 2 days. Then the works on the communications connection (water, sewer, electricity) were carried out. The total area of the house is 32 m² [3].



Fig. 2. Container house built in Minsk region

Conclusion. In view of the foregoing considerations it is logical to assume that container private house construction is developing rapidly. Such a construction is gaining popularity due to such advantages as low cost, fast construction time and availability of materials. Private country houses are built increasingly of containers in Belarus today.

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