

TO THE QUESTION OF WOODEN HOUSES BIO EFFICIENT IN CANADA

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The problems of resource efficient and bio-efficient are considered, at building and exploitation of wooden houses. The varieties of house-building are considered and progress trends are certain.

Actuality. Concrete and brick houses, built in Canada at the end of 20th century have a term of service from 50 to 150 years on condition of complex repair each 30 years and selective – each 15 years [1]. As these requirements are made a default, the vital functions of house, possibly, are abbreviated in once or twice. Also it should be noted that active urbanization in the modern world results in the necessity of building of new dwellings and public buildings. Thus, before long a requirement will appear in mass building.

Research purpose. To study energy efficient, resources efficient and bio efficient of wooden house-building. To define their advantages and failings, their role in the modern ecological going near planning and building of wooden houses.

Exposition of basic material. Energy is a resource, which needs any society for possibility of heating, illumination, work of transport, connection, productions et cetera.

A house loses energy mainly as a heat: through walls, windows, ventilation.

To the coefficient of heat conductivity:

0,56 $\text{Wt}/(\text{M}\cdot\text{K})$ continuous ceramic brick;

0,70 $\text{Wt}/(\text{M}\cdot\text{K})$ malmbrick;

0,47 $\text{Wt}/(\text{M}\cdot\text{K})$ ceramic air-brick;

1,68 $\text{Wt}/(\text{M}\cdot\text{K})$ the reinforced concrete

As visible from a list, the reinforced concrete possesses the least capabilities in withholding of heat.

Technology of warm house from a brick will demand the additional warming from outdoor exteriority of matherial by either the flags of warming with re-enforcement on top by a net and causing of plaster or editing of warming and his ceiling outside by the ventilated facade.

Wood has a much less coefficient of heat conductivity, what brick 0,09 $\text{Wt}/(\text{M}\cdot\text{K})$, I.e. it well retains warmly in a house [2].

On the energy supply of dwellings and public buildings in countries with a temperate climate outlaid near third of all of consumable energy, thus potential of energy-savings in a housing sector is very great.

Methods of possible economy of energy:

+ Temperature control

+ Use of renewable energy sources

In central Europe annual arrival of sun radiation makes 1.1 mWt/h[3], in the districts of Sahara - 2.3 mWt/h[3]. In Russia arrival of sun energy on the horizontal surface changes from 0.7 mWt/h[3] in the north to 1.5 mWt/h[3] on a south.

Potential of sun energy in Canada (1,15 milliards tone of conditional fuel in a year) approximately in 2 times higher than today's consumption of fuel[4].

There is gross potential of wind energy in Canada - 40 trillion mWt/h in a year[4]. This size is the substantially more proper sizes of technical potential of organic fuel. To failings it is possible to take instability, recurrence and distributing unevenness on territory; the use of sun and wind energy requires therefore, as a rule, the accumulation of the got energy.

- Accumulation of energy

Energy from sources acts unevenly. A man anymore consumes energies in a sunset-to-sunrise in winter, in summer and in the day-time. Thus, for help the accumulation of energy comes is transformation of it and delivery to necessary time. For today the most perspective method of the protracted conservation of energy in a house is storage of it as hydrogen, got the hydrolysis of water, in metalhydrid accumulators. Advantages is a last consist in low explosion-hazard and small volume[5]

Energy of Biomass

Biomass – it is renewal organic matter, generated plants by photosynthesis. Divide vegetable and animal offcuts. At incineration of biomass maintenance of carbon dioxide in an atmosphere remains unchanging.

Resources efficient of project

Modern society is directed on the non-permanent use of commodities. The problems of utilization of hard domestic offcuts and problem of dumps sharply stand in our country. A decision consists in repeated utilization of wastes as the second raw material.

Bio efficiency. Bioclimatic house

In to industrial times of dwelling built using withstand folk traditions and old architectural receptions. It is possible to watch building connection with an external environment – landscape. Mainly for building materials of that locality were utilized, where house was built.

In the days of the industrial structure of city mass were built on concrete boxes which resulted in the wipe out of natural landscape. Follow to mark that height buildings possess enormous weight which presses earths on a surface, resulting in possibility of changes of soil. A wooden house weighs in five times less than as compared to the concrete house of the same size and is more seismically steady, it can be built practically on any soil.

An area round a house is seated improves plants hygienical terms and aesthetic qualities of environment. Especially green belts are needed for cities in which most territories are busy at buildings and roads. At the insufficient amount of parklands on-the-spot earth, it is necessary maximally to utilize territories of roofs of buildings.

A sound-proofing of houses in cities must be on an order higher, than in rural locality. In particular case it touches wooden multistoried buildings. On results voice tests, conducted in the laboratory of acoustics of the Toronto university, the sound-proofing of wooden houses does not yield the sound-proofing of houses from concrete panels [6].

One of major properties of wood is ability to renew air in an apartment, and also to support optimum humidity, that prevents appearances of dampness in a house. Brick or concrete buildings of this ability do not have.

Norms of fire safety

At building of wooden houses it is necessary strictly to observe the norms of division of territory on the belts of fire safety. Limit of fire-resistance of stand between apartments and nature which upon a corridor of identificent must to the normative documents. In addition, in all of rooms it is necessary to have the sprinkle system.

In wooden multistoried buildings, built in Halifaks , which are populated in May, 1996, the internal side of wood is edged gipseous panels for providing of fire-resistance. Thus a necessity falls off for editing of srinkle[6].

Building of wooden multistoried buildings treats on 5-20% cheaper as compared to expenses on building of concrete panel houses.

Conclusion

Different kinds of efficient – it is a parameters , which allow rationally to use natural resources. Modern technologies enable to build dwellings, which, at first, would provide deserving life of man, and secondly, would reduce their negative affecting environment.

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List of literature

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3. Brubeck S., Swallowcrow S, « Inside program of Ecological dwelling» Halifaks, Solo publisher, 2008 , 218p
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Анотація

ДО ПИТАННЯ БІОЕФЕКТИВНОГО ДЕРЕВ'ЯНОГО ДОМОБУДУВАННЯ В КАНАДІ

Шкурскі С.

Проблема ресурсозберігаючих технологій досліджена на прикладі розробок дерев'яного домобудування . Показується варіативність наукових дослідницьких експериментів в динаміці розвитку.