



Publication date: April 22, 2020

ENVIRONMENTAL FRIENDLINESS OF LIVING IN WOODEN HOUSES FOR A PERSON ON THE NORTH OF RUSSIA

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Abstract

The main function of a dwelling is to protect people from adverse meteorological influences (cold, wind, atmospheric precipitation) by creating an artificial human habitat during periods of work, rest, sleep, and restoration of vital energy. Centuries of experience show that wooden dwellings provide comfortable conditions for a long stay of people. In the North of Russia, timber is a traditional building material. The main reasons for the loss of wooden buildings are biodegradation and fires. The experience of operating objects of wooden architecture, built 200-360 years ago, confirms the high potential of the natural biostability of wood.

Keywords: tree, earth, man, building, society.

I. INTRODUCTION

With the modern development of the construction business, it is possible, under any meteorological conditions, including in the Far North, to create an artificial favorable, healthy, constantly comfortable, ecological human environment in the dwelling. This can be achieved by taking into account climatic conditions and terrain, directions and intensity of winds, rational orientation of residential buildings to the cardinal points, the use of durable building materials and structures with low thermal conductivity, without toxic emissions that pose a danger to humans and the environment, as well as a device in dwellings of hygienically expedient life support systems - heating, ventilation, etc.

In order for a residential apartment to be comfortable, convenient and meet the hygienic and social needs of the family, it must have:

- healthy microclimate;
- the required composition of the premises;
- dimensions that meet hygienic standards;
- rational planning;
- proper sanitary facilities;
- good lighting.



The microclimate in dwellings consists of the temperature of the air and surrounding surfaces, humidity and air movement, the complex effect of which on the body determines the so-called thermal comfort.

II. METHODOLOGY AND RESULTS

As a result of the systematic implementation of complex expeditions by the Institute of Art History of the Academy of Sciences of the USSR, materials were collected that made it possible to draw up a map of the main types of Russian peasant dwellings in the north. Building traditions in the formation of dwellings have also been identified, which can be traced in the preserved huts of the 18th century, according to archaeological materials, graphic images and written sources.

However, all expeditions were limited to architectural measurements, both of individual huts and planning decisions of populated areas, without touching on the issues of durability of buildings, analysis of the reasons for their preservation.

The volumetric-planning and constructive solution of a residential building largely determines the quality of ventilation, the temperature and humidity mode of operation of the premises, the reliability of elements and their interface, the possibility of simple replacement of failed parts during repair and reconstruction, etc. These factors determine the durability of a wooden building.

In the North of Russia, the following types of residential wooden buildings were mainly operated:

- four-walled. The four-walled hut is a typical Russian peasant's house in the North. It consists of one insulated cage and a small canopy covering the entrance from bad weather. The hut, square in plan, on a low basement, was cut down from pine logs, with moss embedded in the grooves between them, under a single, straight gable roof. From the inside, the logs are smoothly hewn to the height of a man's height. The floor is made of carefully fitted chipped plates. A large adobe stove on a wooden platform is placed in the corner near the front door, which was the largest volume in the interior. The ability to meet the multifaceted needs of a peasant family has made this type of stove a must-have in every home. The heat capacity of the furnace ensured uniform heating of the living quarters, created a "drying regime, thereby excluding biological damage to structures;

- five-walled. The five-walled hut, instead of one living room in the front, has two - a hut and an upper room, which are completely isolated from each other with independent doors from the common entrance. This solved the issue of living quarters with an increase in the peasant family. Various methods of placing the stove did not change the general principles of planning the hut. The layout of the house was based on the traditional layout of residential and utility log cabins in a peasant house - a courtyard. Ahead - a hut, then auxiliary rooms (closets, cages) and a barnyard. All buildings are interconnected by passages, passages, staircases, are located one after another on one longitudinal axis and were a rectangular log volume under a common gable roof;

- six-walled. Along with the four-walled and five-walled hut, six-walled houses are widely used in Russian folk architecture. The structural basis of this building is the connection of six main walls (two are located parallel to the street and four perpendicular to it). The peculiarity of the six-wall layout is the presence of three isolated rooms along the front line of the building. The yard is located behind the house on the same longitudinal axis as the house.

There are many factors that make life and simply staying in a wooden building much more enjoyable and rewarding than staying in any other.

First, natural wood naturally releases phytoncides. These are purely natural substances with an extremely useful property: they in every possible way suppress any activity of fungi and various harmful microorganisms. This quality is especially distinguished by conifers, which contain 2-3 times more phytoncides. This largely explains the many recommendations for visiting pine and deciduous forests.



The second important factor that ensures the environmental friendliness of wooden houses is the ability of wood to maintain a comfortable level of humidity in the room. This leads to a sharp decrease in the number of diseases and a more pleasant state of health.



Do not forget about the property of wood to absorb atropotoxins. These are harmful products of human life. The consequence of this process is easy breathing, a much rarer occurrence of all kinds of headaches and other symptoms of a poor state of the body.





Fourthly, the environmental friendliness of log houses is largely based on the absence of various toxic components during their construction, which cannot be said about most other building materials. This is quite natural, because the wood is of natural origin. Moreover, even the products of its processing, for example, rounded logs, are also absolutely environmentally friendly and safe. This has become one of the main reasons that this particular type of sawn timber has gained such popularity in recent years.



Another extremely useful property of wood should be noted - its dielectric characteristics and the complete absence of any radiation background.

III. CONCLUSION

As a result, we can single out the main positive properties of wood from the point of view of ecology:

- release of phytoncides;
- maintaining humidity;
- absorption of atropotoxins;
- construction without toxic additives and harmful substances;
- dielectric properties;
- no radiation.

Given such a long list of advantages, which, of course, is not exhaustive, it is not surprising that wooden houses have become so widespread and popular.



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ЭКОЛОГИЧНОСТЬ ПРОЖИВАНИЯ В ДЕРЕВЯННЫХ ДОМАХ ДЛЯ ЧЕЛОВЕКА НА СЕВЕРЕ РОССИИ

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Аннотация

Основная функция жилища - защита людей от неблагоприятных метеорологических воздействий (холод, ветер, атмосферные осадки) путем создания искусственной среды обитания человека в периоды работы, отдыха, сна, восстановления жизненной энергии.

Многовековой опыт показывает, что деревянные дома обеспечивают комфортные условия для длительного пребывания людей. На севере России древесина является традиционным строительным материалом. Основными причинами гибели деревянных зданий являются биологическое разложение и пожары. Опыт эксплуатации объектов деревянного зодчества, построенных 200-360 лет назад, подтверждает высокий потенциал естественной биостойкости древесины.

Ключевые слова: дерево, земля, человек, здание, общество.