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## **PRESERVING THE WOODEN HOUSING ESTATE AS AN IMPORTANT PART OF YENISEISK HISTORICAL AND ARCHITECTURAL ENVIRONMENT IN XIX–XX CENTURIES**

**Abstract:** *Yeniseisk is a historic Siberian city having kept the wooden housing estate dated from 18 – 19 centuries. In present time the wooden farmstead estate dominates in the historic part of Yeniseisk built in 19 – early 20 centuries. Most of the houses are the historical environment objects. There are a lot of old low engineering improvement houses to be inevitably replaced. Whereas new construction objects will be located in the preserved area of monuments and in the zones of housing estate regulation, their design must be controlled.*

**Keywords:** *architectural legacy, cultural heritage, a monument of architecture, wooden housing estate, variety, preservation.*

### **Introduction**

Yeniseisk is an ancient Siberian city one of 115 historical cities with Russian monuments. In 2000 the historic center of the city was included in the preliminary list of the World heritage of UNESCO. The central part of the city with more than 120 buildings being cultural heritage has been preserved without essential changes. Ancient stone cathedrals, stone and wooden civil buildings include their number.

During preparation for the four hundred-anniversary of Yeniseisk the program of complex restoration of a historical part of Yeniseisk has been developed. Within this program cult and civil stone buildings are being restored. There is quite a different situation with wooden architecture objects (Gevel, 2016).

Yeniseisk is a unique city still keeping traditional quarter planning structure of the historical center and the farmstead type of housing estate developed in 18-19 centuries. At the same time Yeniseisk is a typical historical Siberian city with the problems similar to many historical cities of Russia having kept ordinary wooden housing estate of the 19<sup>th</sup> and early 20<sup>th</sup> century.

These problems are the following: a large number of the emergency wooden dwelling; the territories of the wooden housing estate deprived of the engineering facilities (water supply and the sewerage) and a large number of the wooden houses which are not the architectural monuments protected by the law.

The historic city center main dwelling stock consists of one or two-storey wooden houses built in the second part of XIX – in the beginning of XX century (Fig. 1)

About 60 houses having historical and art value are recognized as objects of cultural heritage (Perechen..., 2018).

The most part of houses are ordinary objects of the historical environment. Officially these houses are not of value but nevertheless together with the recognized objects of cultural heritage they largely determine the originality of the historical part of Yeniseisk.

One of the problems of ordinary wooden housing estate in the historical part of Yeniseisk is its gradual degradation. Many old houses with low level of engineering improvement need repairing.



Figure 1. Wooden houses in the historical center of Yeniseisk

Some of the units are classified as dilapidated and emergency housing. Due to the considerable physical and moral wearing they are subject to neither reconstruction nor capital repairs. It is reasonable to construct new buildings in their place (Gevel, 2016, Merkulova, 2015).

It should be noted that the problems of historical wooden buildings preservation exist in many Russian cities – Arkhangelsk, Vologda, Tomsk, Irkutsk, and some others (Ivanov, 2007). Tomsk and Irkutsk have adopted and partially implemented municipal programs for the wooden architecture preservation. The similar program has not been developed for Yeniseisk.

In this regard, according to K. Shumov, the head of control servicing in the town-planning activity field of Krasnoyarsk region, serious research work on studying the historical environment quality in Yeniseisk is necessary (Shumov, 2015).

Development of the main requirements to the new or reconstructed objects of architecture and their fixation in regulative documents have to become researches result (protection zones project and town-planning regulations of cultural heritage objects areas protection).

### **Methodology**

This study is aimed at finding ways to preserve the “genetic code” of the Yeniseisk historical residential environment.

The study suggests:

- studying the experience in preserving historical and cultural heritage wooden housing estate in the cities of Russia and abroad;
- studying typological, architectural and artistic aspects of the Yeniseisk historical wooden residential housing estate which can become the basis for the development of “The recommendations for the residential buildings design in the Yeniseisk historical part”.

This document has to include the architectural and construction requirements being obligatory for builders concerning the physical sizes, a large-scale and proportional system of houses, the composition of facades principles that is the parameters and usage will allow to introduce new buildings to historically developed environment harmoniously.

Requirements for the architectural appearance of newly built buildings should be normative and based on an objective analysis of the historical environment existing characteristics in which reconstruction activities will be carried out.

### **Measurement and analysis**

Research of typological and architectural and art aspects of the Yeniseisk historical wooden housing estate is carried out at architectural design department at SFU School of architecture and design.

The following aspects are studied: the architectural and spatial organization of historically developed wooden housing estate, planning and functional types of inhabited wooden houses, features of their architectural décor. For some years in summer, the first year students of the architecture faculty studied old wooden houses in Yeniseisk, performing their architectural measurements.

With the assistance of students and teachers of architectural design department work over illustrated catalog "Wooden architecture of Yeniseisk. Objects of cultural heritage" is conducted.

The main information about historical wooden houses will be concentrated in the catalog (historical reference, description, dimensional drawings of plans, facades, details of facade decoration, photos).

The description of constructively-planning and volumetric-spatial characteristics of wooden houses of Yeniseisk is made on the basis of systematization and analysis of the materials collected during the practice period. Their facade characteristics, features of architectural decoration have been revealed.

The tables, which present the typical scheme of houses, variants of the composition of street facades, proportions of windows and articulation of window crosses have been composed.

A number of log structure load bearing walls, an entrance lobby position or the first floor stair were traditionally put into the basis of layout characteristics. The urban houses having the complex layout were selected into a separate group. The volume and spatial characteristics include the shape of the roof and the number of storeys. The number of roof slopes and their direction referring to the main façade were taken as the type definition basis: gable roof (longitudinal and cross section), hipped (longitudinal and cross section) and with mezzanine.

The studying of wooden houses of Yeniseisk has shown that the main types of houses closely connected with traditions of wooden national architecture were created in the course of adaptation to a city way of life of the traditional peasant dwelling. It is a rectangular timber structure with a number of internal bearing walls (from one to three). Internal bearing walls are absent in the simplest option.

The number of storeys, the shape of the roof, the presence of a mezzanine, veranda, attached parts, etc. are referred to the volume and spatial characteristics of wooden houses.

As a rule, the main volume of the house is supplemented by extensions that allows improving functional qualities of the dwelling to create more favorable conditions for accommodation in the house.

Entrance lobby and storerooms were built to the main number of one-storey houses. The staircase leading to the first floor was built in to the separate annexe in two-storey houses. The

glazed verandah location in the first floor is common for two-storey houses. Houses in Yeniseisk have a hipped or gable roof.

The window is the basic modular element playing an important role in composition of Yeniseisk houses facades. A compositional scheme of the facades is based on a clear and quite repeated rhythm of window openings. The ground and first floors windows are located on a common vertical axis. The uniform rhythm of the facade windows is sometimes interrupted by the introduction of greater width windows.

Double or three-part windows were placed in a middle part of a facade or in its side parts. Windows in Yeniseisk wooden houses vary in size, window openings shape completion, window covers articulation and window frames decor (Figure 2).

The size of the window openings depends on purpose of the floor on which they are located (residential or utility). In two-storey houses the first residential floor windows always have bigger sizes than the ground floor windows where were not only residential rooms but housewifely ones.

The main element in the facades composition of Yeniseisk old wooden houses is window casings (Fig. 2).

Therefore, it is necessary to keep window casings (in modern interpretation) and window opening decoration of the houses being designed for the historical part of the city.



Figure 2. Windows in Yeniseisk wooden houses vary in size, shape completion window openings, articulation of window covers, decor window frames

The results of the study have been used in educational design. A program-specification was developed for design residential houses of the historical city center.

One of the main requirements was the need to take into account local building traditions when developing the project. At the same time, projects should meet the modern needs of residents, have all the necessary amenities and be energy efficient.

The main parameters for the design were set in the task: the location on the site (along the existing building line); dimensions in terms of the main volume, number of floors and height of

the designed buildings. The recommendations were provided for the proportions of the windows, the articulation of window covers, the form and material of roofs.

One of the student projects performed according to established requirements and recommendations is given in Fig. 3.

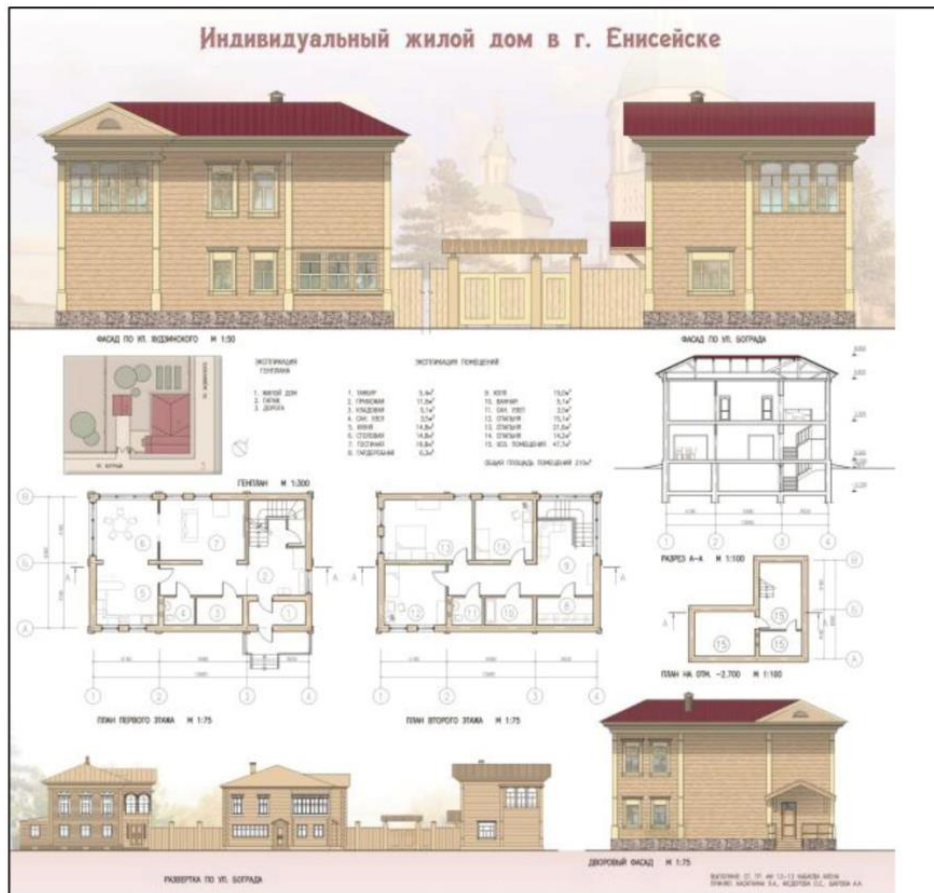


Figure 3. The wooden residential house design for building in Yeniseisk. Author A. Emashkina

## Conclusion

When developing a typology of the houses intended for construction in a historical part of Yeniseisk it has been considered that there is a problem of employment of the population in the city.

Therefore, development of travel and private business can become an important factor of the city progress, the solution to its social problems.

In addition to the traditional 1-2 apartment houses (single-family house, duplex house) it is possible to design houses combining residential and guest functions, houses with premises intended for professional or individual work activities of the owners.

In the ground floor you can organize a bakery, a small diner craft shop, selling souvenirs etc. In the composition of the residential homestead it is possible to design a small detached house for tourists.

The typological diversity of housing projects will expand the possibilities to fill the lost fragments in the blocks of the Yeniseisk traditional wooden housing estate. Residential houses with additional functions can contribute to the employment of the population.

Conceptual designs worked out by the students can become the first step towards the development of a series of typical residential house designs for construction both in the historical part of the city and beyond its boundaries.

The next step towards the preservation of the wooden housing estate could be the construction of several "model" wooden houses instead of lost ones, as well as the production development of wooden building structures and materials to be used not only in the historical center but also in other districts of the city.

The wooden houses relating to housing stock form the most extensive and at the same time most problem part of Yeniseisk historical wooden building. For elaboration of the keeping strategy it is necessary to make the list of all wooden architecture objects within preservation zones. This list has to include not only objects of cultural heritage of federal or regional importance and the revealed objects of cultural heritage, but also ordinary objects of the historical environment. It is necessary to inspect an ordinary wooden housing estate, identify the share of the objects which are in satisfactory condition, demand capital repairs or restoration of facades, the shabby buildings which are subjected to demolition.

By results of inspection development of the program for routine maintenance and capital repairs of the buildings which are both in municipal and in a private property is possible.

Historically, as a rule, people with low incomes living in wooden houses do not have the funds for their current and capital repair.

In this regard, it is necessary to develop a mechanism to implement assistance to houses owners being in need of repair or reconstruction, as well as motivate them to use authentic technologies and materials.

While designing and constructing new buildings on the sites having been exempted from the old and unsuitable for further operation buildings it is necessary to follow preliminary developed recommendations for design of residential buildings in the historical part of Yeniseisk.

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