

## ANALYSIS OF FOREIGN AND DOMESTIC EXPERIENCE IN DESIGNING HISTORICAL LOW-RISE RESIDENTIAL BUILDINGS

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### ABSTRACT

The article discusses foreign and domestic experience in designing low-rise residential buildings in the historical part of cities. A comparative analysis of the functional and planning organization of traditional low-rise residential buildings is carried out, similar in their national traditions and natural and climatic conditions are revealed.

**Keywords:** traditional low-rise residential buildings, fachwerk, wooden posts, clay, half-timbered, Iranian house.

The architectural monuments that have survived to this day are authentic works of art that have entered the treasury of world culture. They have been studied for many years by historians, archaeologists, architects, art historians, ethnographers, orientalist and other specialists.

The buildings of the historical period are poorly studied in domestic and foreign practice. Information about them is fragmentary, scattered and covers only a small fraction of the preserved architectural monuments. Therefore, neither economic growth nor scientific and technological development should be carried out at the cost of the loss of the cultural identity of the people, which is connected with tradition, with culture and with the experience accumulated by them throughout historical development.

We analyze historical low-rise residential buildings in Germany, Russia, Iran and Iraq. The history of the appearance of the half-timbered house in Germany goes back to the distant Middle Ages.

The word "fachwerk" (German: fachwerk) is of German origin. It consists of two parts – Fach – panel, section, Werk – structure. Already by the middle of the XII century, fachwerk buildings were being built everywhere in Germany, but the heyday of this unique style fell on the XVI century. According to the numerous preserved samples, it is possible to observe how in different epochs the fachwerk and architectural trends fashionable in those years were combined: Renaissance, Baroque and Gothic. The panels of the German fachwerk house consisted of wooden posts and beams, the space between which was filled with adobe (a mixture of clay, reeds and other improvised material). [1]



**Pic. 1. Fachwerk. Germany 15th century.**

Narrow high roofs also contained living quarters, they were decorated with balconies-bay windows, which gave the house a special charm.

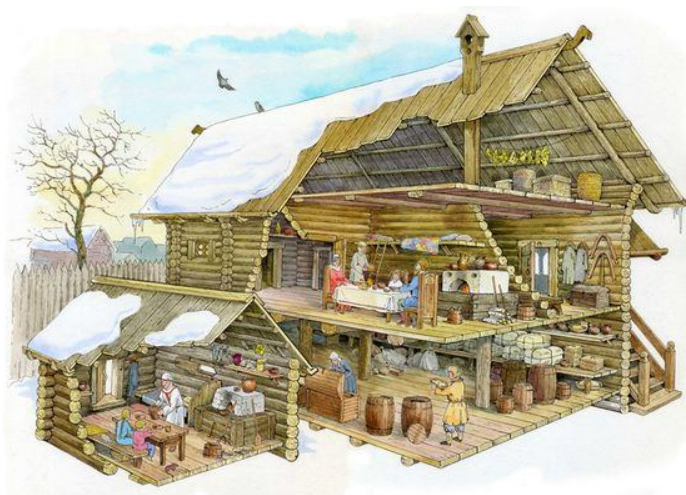
To expand the space in the room, enterprising Germans came up with the idea to build so that each floor was wider than the previous one and "hung" over it by about half a meter. This overhanging floor also protected the lower ones from moisture. Subsequently, the characteristic protrusions became one of the distinctive features of the fachwerk as an architectural trend. XIII – XIV centuries in Europe, frame construction received a special development. The gradual accumulation of construction experience, the improvement of carpenters' skills (this was helped by the development of shipbuilding), as well as the desire to save wood and other factors led to the appearance of the fachwerk construction method in Germany in the XV century. The German name of such houses suggests that such structures were built only in old Germany. However, this is not the case at all. Old fachwerk buildings can be found in Holland, Austria, Switzerland, in Scandinavian countries, even in France where such a technique was called "colombage". In England, they also built houses with a wooden frame: they were called "half-timbered" or "timber-frame". [5]



**Pic. 2. Vintage (fachwerk) half-timbered house in the Czech Republic**



The chopped hut remained the symbol of an individual dwelling in Russia for centuries. The Old Russian word - "istba, istobka" (heated room) is mentioned in chronicles from the 10th century. The concept covered a fairly wide range of buildings from chicken four-walled (without a chimney) buildings to two-tiered wooden choir. It had the shape of a square or rectangle with sides from 4 to 9 meters long. Square houses contained one interior, and rectangular houses were divided by an inner wall into two volumes (five walls). The main volume had a square cross-section, the narrower one served as a canopy. The townsman's house was no different from a peasant's dwelling. [4]



**Pic. 3. Residential building Novgorod 13th century**

In the second half of the XIX century, the rapid development of capitalism in Russia, the abolition of serfdom and the desire of newly enriched merchants, industrialists of non-noble origin, wealthy officials and successful intellectuals to feel like landlords - brought to life new types of individual housing - a country mansion (year-round residence) and cottages (seasonal residence).



**Pic. 4. Schmidt Mill Saratov renovation**

In Central Asia, there are several types of national dwellings that differ from each other in many ways. These can be traditional houses of settled peoples and nomads, plains and mountainous areas, large and small cities, as well as dwellings belonging to one or another ethnic group.

In the lowland regions of Central Asia, traditional dwellings did not have sharp structural differences. The main building material here was loess - a thin loam containing lime carbonate in its composition. Loess was mixed with water and, thus, loess dough was obtained, or, as it was also called "loy", which was used for the construction of adobe walls and the manufacture of various building materials: burnt and raw bricks, as well as "guvalya", which is oval lumps up to 30 cm long. In addition, the layer was used as a binder solution, and its mixture with straw was coated with roofs and plastered walls. The most widespread on the plains of Central Asia were brick walls and walls made of one- or two-row wooden frame filled with masonry from guvalya or raw. [4]

Consider the national houses of Iraq and Iran, whose architectural features have similarities and much in common. One of the most important and at the same time amazing common features of ancient Iranian and Iraqi dwellings is that the locals did not attach almost any importance to the exterior of the house, while the interior was decorated with special care and care.

In Iran, the construction of residential buildings was a rather complicated process associated with national customs, cultural environment and religious traditions. In some Iranian cities, even today, you can find ancient national houses surrounded by high blank walls with a large wooden door, behind which there is a "hashti" – the entrance group of small central domed rooms typical of Iran. It is here that the host receives guests. Hashti is followed by a narrow, usually dark and curved corridor, the main purpose of which is to prepare the guest for the perception of the most important visual effect – the entrance to the front yard. Just imagine how a beautiful and spacious courtyard suddenly opens up before the eyes of a guest coming out of the darkness, around which living rooms are located behind arches, double doors and windows with colored glass. [3]

Often the Iranian house had another courtyard – the back, which was often connected to the front yard. In the hot season, ottomans were put up in the backyard, on which Iranians rested in the shade of trees. In rich houses there could be several backyards, where recreation areas and home workshops were arranged. If the dwelling did not have a backyard, then on summer evenings people could relax right on the roofs of houses. In addition, the traditional houses of Iran were divided into male and female halves, and such a division could be carried out both by zones and by floors. Rural dwellings rarely had several floors and courtyards, so there was no such division in them. The villages located in the mountainous regions of the country were distinguished by very compact dwellings, which were also very close to each other. [3]

The ancient Iraq villages were a disorderly cluster of huts equipped with a flat roof and a rather low wooden door that served as a window at the same time. Most often, such dwellings had only one room, the interior of which was simple and unpretentious: an earthen floor, a pair of mats serving as both a seat and a bed, a clay hearth and pottery. Working equipment was also stored here, young livestock were kept, and in some cases, a donkey. [3]



The townspeople and well-to-do villagers of ancient Iraq lived in houses built of unfired bricks, previously dried in the sun. The exterior and interior layout of these dwellings were approximately the same as those of the traditional urban houses of Iran, which were described above.

### CONCLUSION

After analyzing the foreign and domestic experience of traditional residential houses, we can summarize the following: many national houses of Germany, Russia, Iran, Iraq and Central Asia, which are very similar in architectural, planning and design features, which is explained not only by the close proximity and similarity of climatic conditions of these countries, but also by common cultural, historical and religious origins.

The traditional dwelling of these countries is characterized by the following features: the predominance of a closed type of house with a courtyard surrounded by family premises, clear zoning of the space with isolation of the guest area from the intimate family, the grandeur of the courtyard and the main rooms (living room, halls, loggias, lobbies), the enfilade arrangement of living rooms with their division into summer and winter, the presence of large basements, as well as utility rooms that provide comfort of living.

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