



ARCHITECTURE OF THE CITY OF SAMARKAND IN THE YEARS OF INDEPENDENCE

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Abstract

Carefully observing the architectural structures and complexes, urban-planning ensembles and creative works created during the years of independence of the Samarkand region and the city, we feel the harmony of their inherent wonders and natural landscapes, intermediate, consistent architectural order, high architectural order and a high architectural sense of folk applied art. Unfortunately, these important and high architectural qualities are currently insufficient for the environment of buildings and structures created in some cities, district centers and villages.

Keywords: architecture, physical accessibility of housing for people with disabilities, Samarkand, housing conditions, climatic factors living conditions, project technologies housing needs.

INTRODUCTION

Today, the issue of a new life in our country, strengthening the foundations of a new society, forming a bright civic spirituality, creating a comfortable life for the broad masses of the people is extremely relevant for us. The effectiveness of the large-scale reforms we are implementing in all spheres of our life is inextricably linked, first of all, with improving the way of life of the people, in-depth study of our rich historical heritage, preservation of our traditions and customs, development of culture, art, science and education, and most importantly, with the change and rise of public thinking.

The creation of modern types of residential areas and the increase in the volume of housing construction in this regard give rise to problems of using fertile agricultural land for the construction of residential areas and the associated effective use of available land and material resources. The solution of these problems requires, on the one hand, an increase in the density of residential buildings, and on the other- the organization of spatial solutions of residential buildings erected in cities and villages, based on modern requirements and the use of high-performance building materials. In addition, during the construction and operation of residential buildings, it is necessary to introduce energy-efficient types of them into the practice of design and construction.

METHODS

The increase in the density of residential buildings is associated, on the one hand, with an increase in the number of floors of residential buildings being built, and on the other hand, with the widespread use of low-rise and mixed housing projects with high density. As you know, the majority of the population of the Samarkand region lives in rural areas. The situation observed in recent years indicates that new industrial and agricultural enterprises being built in rural areas demonstrate high rates of population growth in district centers and small towns of the region. These factors make it necessary to build modern and comfortable residential buildings in these territories, which are typical for urban



construction, as well as the construction of mixed-residential buildings along with medium and multi-buildings with a high building density.

The factors discussed above and the effective use of fertile land in the conditions of the Samarkand region and cities make it necessary to develop certain requirements for design and volumetric solutions of residential buildings and require a new approach to the organization of residential areas from the point of view of urban planning. Also, the creation of favorable microclimatic conditions in residential premises dictates a direct connection of residential premises with the open environment. The organization of collective courtyards in medium - sized and multi-residential buildings and the provision of low-rise residential buildings with open courtyards contribute to the revival of the traditional way of life.

The socio - economic conditions, natural and climatic factors of the formation of residential buildings in the city of Samarkand and the region, the local construction base and its impact on the formation of residential buildings are considered.

In the social life of the Samarkand region, the demographic structure of the population, that is, its ethnic composition, age distribution and family structure, is of great importance when designing housing and creating its promising types. Socio-demographic studies create the basis for scientifically based design of projected residential buildings and apartments and the development of a nomenclature of their mass types of construction in cities and villages, contribute to the creation of comfortable and modern solutions for residential buildings for each city or village.

When designing residential premises, it is important to take into account natural and climatic factors. Under the constant influence of natural and climatic factors, planning decisions of residential buildings are made. The natural and climatic conditions of the Samarkand region are characterized by a great variety. But there are also general conditions for this variety, and they are characterized by a sharp continental climate, dry air and excessive solar radiation. For example, for the Samarkand region, the amount of solar radiation is about 3000 kcal / sq. cm. Another important aspect of the climate is characterized by dry weather and a small amount of precipitation. Especially in the summer months, you can observe very dry and hot weather. The dryness of the air is determined by the fact that in the summer period atmospheric processes prevent the formation of clouds that bring precipitation. In total, you can observe as many as four seasons on the territory of the region. If in the summer months there is a need to protect and cool residential premises from excessive solar radiation, then in the winter months there is a need to protect and heat residential premises from cold wind.

The continentality of the natural and climatic conditions of the region is characterized by sharp fluctuations in the weather during the year, months, day and night. The annual amplitude of temperature indicators is +25 and even more. In Samarkand, the average temperature in January is about 0 degrees, and the average temperature in July is about +30 degrees. The continentality of the climate is also observed in the sudden moderation of cold air in winter.

Climatic conditions and the richness of landscapes have a great influence on the planned volume structure of settlements and the formation of settlements-settlements. In regions with rich landscape conditions, it is much easier to organize amenities when designing your home, and in regions with harsh



landscape conditions, on the contrary, the importance of holding special events for the arrangement of green spaces is important. Taking into account the natural and climatic conditions of the territory of the region in the process of architectural design is closely related to the relief, landscape and geographical structure of the territories. Thus, the territory of the region can be divided into the following climatic and landscape zones: 1 - the western territory (deserts and steppes); 2 – foothill oases; 3 – mountainous areas.

The aspects characteristic of the climate of Central Asia, namely hot and dry summers and relatively cold winters, require solving a number of problems on the part of designers. Designers are required to protect buildings from the winter cold, as well as protect them from the hot summer air. While in summer the main problem is aimed at avoiding excessive solar radiation, in winter it will also be necessary to take measures to effectively use solar radiation. In winter, effectively using solar radiation, it is possible to increase the temperature of the internal environment by several degrees. At the same time, it is important that we protect buildings from cold winter winds by using summer breezes to ventilate buildings. The solution of energy-efficient buildings depends on the interaction of these factors.

Currently, residential buildings being designed and built create a number of problems for the environment associated with inefficient use of energy resources and unjustified depletion of natural resources. The use of energy resources and environmental damage are closely interrelated. This dependence is aggravated by the development of the economy, the construction of new industrial enterprises, the expansion of cities and villages, population growth, the creation of settlements. One of the solutions to the problem is associated with the widespread use of energy-efficient technologies for heating, cooling, ventilation and lighting of houses, the effective use of local natural and climatic conditions in the formation of residential premises.

It is urgent to develop new design solutions that provide an optimal level of energy and natural resources use for the formation of thermal and visual comfort of residents living in residential premises. Such solutions require an integrated approach to design.

Of great importance in the formation of the architecture of residential buildings is the presence of a local construction base and its technical capabilities. Based on these capabilities, it is possible to ensure the creation of structural systems and the development of construction equipment for current and future residential building projects. The future form of residential architecture, the formation of dwellings is closely related to the material conditions of each specific environment.

RESULTS AND DISCUSSIONS

Currently, the use of cast (monolithic) reinforced concrete structures is widespread in housing construction. The use of cast structures in residential construction in the conditions of the Samarkand region provides high earthquake resistance of buildings and prolongs their operational life. This leads to a significant reduction in the cost of antiseismic and shockproof measures compared to prefabricated structures when using cast structures.



In the near future, the practice of using cast-iron structures is expected not only in medium-and multi-storey residential buildings, but also in low-rise residential buildings being built by region. The frame system is widely used in low-rise residential buildings. (great opportunities are provided by the use of local materials, such as raw bricks and suspension, as a wall filler.?) Architecturally, the use of cast structures leads to the enrichment of the architecture of the exterior of buildings, providing a variety of planning solutions for residential premises. The widespread use of frame structures allows you to reduce the construction time and carry out residential construction without minor capital investments. Thanks to this, it is possible to dramatically increase the efficiency and quality of housing construction. In addition, the use of local building materials will allow you to build high-quality and inexpensive residential buildings based on unique architectural solutions in each region of the region.

Currently, enterprises for the production of wall panels and roofing materials made of light composite materials are organized in many districts. As an example, we can cite the enterprise "Okhalik", created in the Samarkand district. This company produces sandwich panels, which are made of composite materials. At new small enterprises of a similar construction industry based on new technologies, the development of light frame wall structures, beam panels, staircase elements, sanitary equipment and other modern structures is being established. With the help of this material, you can quickly and efficiently build residential buildings.

Currently, one of the topical issues on the agenda is the use of energy-efficient materials in the construction of residential buildings. A lot of experience in this field has been accumulated in foreign practice.

The use of passive design technologies in the formation of residential premises that are energy-efficient and effectively use local natural and climatic conditions contributes to the creation of a favorable microclimate. The existing local landscape, the erected buildings, the external coverings of buildings and the materials used in them on the basis of passive design technologies serve to create comfortable conditions 24 hours a day and in four seasons of the year.

In traditional residences, living rooms are organized around the perimeter around an open courtyard. In order to protect residential premises from solar radiation, much attention was paid to the orientation of windows and doors. In addition, the plants were used to protect against solar radiation. Living rooms must have through or corner ventilation. The following measures were carried out to create microclimatically favorable conditions in residential premises:

- The living rooms have sufficient aeration and are formed around the courtyard;
- The orientation of the living rooms is organized in such a way that they are protected from sunlight in summer and using sunlight that is below the horizon in winter;
- The courtyards are landscaped and irrigated;
- The walls of the living rooms are made of local building materials with thickness levels that slowly transfer heat and cold.

In our study, the effectiveness of projects was compared based on the following requirements:

- Connecting the living rooms with the courtyard;
- Organization of summer rooms;



- Function and organization of the yard;
- The ability to create different types of apartment types and lock them.

Since 2005, large-scale construction of low-rise residential buildings with an area of 6 acres has been launched in the region according to standard projects in rural areas. A review of standard houses built in 2009-2015 shows that these projects, along with certain achievements, have serious drawbacks. In general, the design functional solution of the apartment is at the proper level, and the common room, kitchen and hallway are sufficiently separated from the quiet area, that is, from the bedroom area. The entrance hall, the kitchen, the common room and the summer veranda have good connections. One side of the wall of the building has no windows, and there is a chance that two residential blocks will be blocked.

In the historical dwellings of the city of Samarkand, it is necessary to specify the following features: around the courtyard, summer and winter living rooms are located opposite each other – summer rooms are oriented to the north, winter rooms are oriented to the south. Usually, living rooms are placed on three sides of the courtyard, and auxiliary rooms are placed on the fourth. The windows of the outer courtyard face the street, and the windows of the inner courtyard face the courtyard. The outer walls of the courtyard will be windowless. Winter living rooms are built much lower in height than summer ones. Summer rooms are usually built over the park. The greenhouse serves not only as an additional room in the house, but also as a source of cold air for the living room. The greenhouse provides cool air to the living room in summer. Also, the cool air coming out of the greenhouse serves to moderate the microclimate of the courtyard. There is an entrance hall between the two living rooms. In the hallway, a masonry of marble stones is arranged.

CONCLUSION

The study of the use of medium-rise residential buildings shows that houses of this type have a number of disadvantages in terms of the volume structure of the project:

- ✓ Firstly, these houses do not correspond to the social and demographic structure of the population;
- ✓ Secondly, the local natural and climatic conditions;
- ✓ Thirdly, the way of life and the traditional way of life of the local population.

Studies of houses that have been formed over the past years show that for residential areas, achieving harmony of urban and rural areas with modern society and the environment, that is, achieving harmony "person-family-society-home-natural environment", is an extremely difficult task. The complexity of the problem also lies in the fact that even when design solutions are developed on the basis of all urban planning and construction rules and regulations, the above-mentioned shortcomings are manifested in practice during the operation of houses.

Currently, there is a need to revise this practice based on modern requirements. Based on the experience of the last century, we have set a goal to critically consider socially oriented residential and social service infrastructure. Most of the small districts in the city were organized on the basis of 4-5-storey houses, and in some cases 9-storey houses were built along the main streets. Our critical view is based on modern principles, focusing primarily on the issues of energy efficiency in architectural and



design solutions of residential cells, the organization of summer rooms and the number of floors in residential premises.

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