The Main Trends in Architecture Formation of Modern Residential Complexes in the Market Conditions of Kyrgyzstan

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Abstract. The evolution of the development of residential structures in Kyrgyzstan allows us to state that the level of development of technologies and changes in the format of public consciousness has a direct impact on the formation of the architecture of modern residential complexes in the new market conditions.

1. Introduction – research structure
1.1. Purpose of work
Based on a generalized analysis of the residential structure of Kyrgyzstan to determine the main trends in the formation and development of the modern residential architecture complexes.

1.2. Research objectives
Analysis of domestic experience in the formation and development of the residential environment of Kyrgyzstan; to determine the prerequisites for the emergence and objective problems of the formation of residential complexes as a new social and residential unit; to determine the strategic principles of the perspective development of the architecture of modern residential complexes of Kyrgyzstan.

1.3. The relevance of research
The architectural and construction practice of recent years has shown that the residential environment of Kyrgyzstan is developing in the form of a hierarchy, the economic development, the political situation in the country and the social-demographic development of society directly influenced to the creating new concepts of residential architecture (Figure 1). However, the analysis revealed that an important role in the formation of modern housing is appear also the technical side, which is dictated by the era of modern information and technological advances, replacing the century of scientific and technological progress and discoveries.

![Figure 1. Development of dwelling environment of Kyrgyzstan [1]](image)

This affects all stages of the implementation to the architectural object, from the planning to the final touches of the design working-out. Based on this, have been conducted research the results of which
showed features of changes in the development of the residential environment, which in architectural practice is commonly distinguished as historical periods. Connection with this, the relevance of this research is determined, associated to the main trends in the formation and development of the architecture of modern residential complexes in the market conditions of Kyrgyzstan [1].

To achieve the goal and objectives of the research, were used such methods as historical and architectural analysis, field observation, the study of literary sources and scientific works. Was also used the complex method of analysis based on statistical data (Figure 2), functional planning, architectural and spatial, constructive and engineering solutions. Theoretical and experimental modeling of a modern type of residential education in Kyrgyzstan was developed [2].

![Figure 2. Dynamics of construction of residential complexes in the period from 2000 to 2018](image)

2. Prerequisites for the formation of a modern residential complex

The dwelling, as the first and main type of building of the Kyrgyz, in the entire history of development goes back many centuries. Initially, it was a yurt, associated with the nomadic life of the Kyrgyz people. However, for the past 100 years, the population of Kyrgyzstan has been sedentary, which has led to a variety of permanent residential buildings ranging from low-rise to high-rise, from simple to complex, from typical to modern, individual, etc. Today we see the popularity of not just a multistory residential building, already a residential complex, where should be provided all types of services, the so-called “service”. The development of scientific and technological progress has affected all levels of the architectural and construction industry, thanks to it was carry out multistory construction in a short time and many families were provided with living space [1]. All time brought with it new changes, scientific discoveries reached other, more refined, heights that affected all areas of activity. The consciousness of people has changed so much that reflected not only on professional achievements, but also at the household level. Research and analysis have shown that, along with changes in lifestyle, the needs of the population arise and improve. A new optimizing dwelling system characterized by “space-time stability”. Residential complexes, as a mass phenomenon of urban reality, the foundation of which housing and public services elements are being synthesized, and as a specific architectural-town-planning problem in large cities of Kyrgyzstan at the turn of the 21st century, as a natural reaction to the chaos caused by the change of political situation and market economic differentiation of society [1]. Against the background of significant changes in the way of life of the population and the steady development forms of public services in different periods of time, various principles of the functional-spatial organization of the residential complex dominated, which predetermined a large variety of specific planning solutions of modern residential complexes. It contains the specifics service consumption in the context of taking into account the original development conditions. In a case of different interrelation of public and residential structures forms, city transport network and a number of essential factors, is important to create difficult architectural compositions, which combining the principles of planar and fierce functional zoning. To
develop flexible building methods of various heights and configurations; enlargement of the integrity of the overall composition and a combination of contrasting architectural scales.

The evolution of the residential complex and the analysis of spatial development have shown the interrelation formation of the residential complex and such social factors as the activation of urban social life based on the differentiation of production activities and the cultural needs of society. Based on research of the public service system in the aspect of a new type of residential complex, as well as its expected changes, it was possible to evaluate the structure of the residential complex in terms of modern requirements for the development of diversity to meet the needs and identify trends in future development [3].

3. Prospects for the development of residential complex architecture

In the process of research, were determined the current trends formation of residential complexes as a paradigm, which have founded as the following structure: urban planning and spatial and social-economic trends in the formation and future development of residential complexes in Kyrgyzstan. Based on the foreign and domestic analysis of modern architecture of residential complexes, as a hypothesis can give the following urban planning and spatial trends in the formation and development of residential complexes [4].

3.1. The trend of intensity (polycentricity)

Is based on the intervention of trade, entertainment and social and business functions taking into account sociocultural factors, in the living space (Figure 3). Each of these functions causes an architectural-spatial and functional diversity of the living environment and may well become a center of gravity.

3.2. The trend of autonomy (Figure 4)

Carried out in terms of functional diversity, as well as its light in a limited area of residential complexes; the aspect of autonomy must considered as a factor in creating a highly efficient self-sustaining ecological system.

3.3. The trend of functional-typological intensification of the courtyard space

In the modern sense interpreted in step with the change in human nature and its needs (Figure 5). Courtyards have become more diverse and landscaped, the cause of which was the increase in functional criteria of residential complexes.
3.4. The tendency of the typological diversity of residential structures, implying the work from the general to the particular, express both the general urban planning solution of the entire residential complex and each cells individually (Figure 6). The implementation of this trend will improve the comfortable and spatial characteristics, as well as lead to a variety of living environment.

As for social and economic trends (Figure 6), it can confirm, that a dwelling intended for habitation, always and under any circumstances, carries in itself initially all the same social information. Consequently, the formation and development of the architecture of modern residential complexes fundamentally influence by the social structure and processes taking place in society, which have allowed putting forward the following trends [2].

3.5. The Social-demographic trend
Number and age of the family condition social-demographic trend, which means the creation of a housing unit.

3.6. The Market and economic trend
Formed by the dependence of functional-planning solution of housing and communal services on the economic status of residents and their field of activity.

The economic objectivity of the society predetermines the architectural and planning configuration of the residential cell (apartment area) and the housing estate as a whole - from the open service structure to the closed one. Residential and public spaces need to zone in accordance with the necessary measures, if the type of activity of the residents has constant contacts with visitors from the outside environment.

Thus, a comparative analysis of the concepts of classification of marketable dwelling allows recommending using in the typology of commercial and social dwelling its division into four main groups, differing in the level of both architectural and planning solutions, the complex of services provided and the basic design approach in accordance with the socially-property class of the population:

3.6.1. The Social dwelling (potential of the public sector and social group of the unprotected layer of the population, 30%) acceptable for families with low incomes, veterans of the Second World War, families of the fallen events of March 24, 2005 and April 7, 2010, families of military and police officers, doctors, teachers, etc. which provides state assistance. The classic form of social housing economy class. The main project principle is the implementation of state programs, at the expense of standard design and industrial housing (Figure 7).

3.6.2. The Social-commercial dwelling (potentially middle class, 40%), acceptable for families with moderate and average incomes, a classic form of comfort-class mass dwelling. The main project principle
is to make a profit at the expense of an improved version of the standard design, minimization and rationalization of space, equipment, costs, energy and resources (Figure 7).

3.6.3. The Comfortable commercial dwelling (middle class, 20%), intended for families with high incomes, the classic form of business class commercial dwelling. The main project principle: making a profit through individual design, creating a highly comfortable living environment - apartments, services, the most convenient and attractive elements of the home (space, equipment, furniture, Figure 7).

3.6.4. The High-quality commercial dwelling (upper class, up to 10%), intended for members of the social elite. The fundamental design principle: making a profit through individual-exclusive design, creating a highly artistic living space with an original and unique way, the uniqueness of engineering, technical solutions and all elements of the home (Figure 7).

![Figure 7. Social-economic trends](image)

4. Conclusions
The value of residential complexes in the urban infrastructure has a number of advantages, reflecting the perspective development of residential buildings in the environment of the surrounding context. The use of foreign practice in the construction of residential complexes gave a good experience in the development of housing architecture of Kyrgyzstan. Over the past decades, the housing stock has undergone significant changes due to the peculiarities of these transformations, first of all, architecture - as one of the main indicators of changes in the appearance and volume of the building leads to new developments in the construction industry and architectural activity. Consequently, over time, the types and types of housing changed, the basis of which was the development of public awareness, the requirements for comfortable and safe living, the growth of technical, industrial and information progress (living conditions and engineering equipment of an apartment), etc. All these factors affected the change in the typology of housing in the modern structure of the development of the architecture of Kyrgyzstan, as well as in the formation of a new living space in a market economy.

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