



# Housing Construction: Stages of Development and Modern Trends

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## Abstract

The purpose of the study is to determine the specifics of housing construction at various stages of its evolutionary development in the context of the needs of the population in socially acceptable housing conditions. The methodological basis of the study is systematic, abstract-logical approaches and economic-statistical analysis. The main results are presented by the substantiation of the main stages of the development of housing construction, its technological and economic features in different socio-economic conditions, as well as the identification of trends in the development of this area in Ukraine, taking into account the housing needs of the population and the real possibilities of the economic system for their satisfaction. The emphasis is on maintaining the relevance of the housing problem in the country for a long time, the limited resource base on this and the uncertainty of the prospects for resolution due to the complex socio-political situation in the country and its regions. The global experience of financing housing construction is generalized, its elements are substantiated, acceptable for Ukraine. Recommendations for the further development of the sphere of housing construction, taking into account the achievements of the countries of the world, are described.

**Keywords:** Housing, Housing policy, Living conditions, Trends in development.

## 1. Introduction

Under the influence of social evolutionary changes, the concept of economically feasible trends in the development of construction, the quality of housing, its main functional purpose and the level of comfort are gradually transformed. The root cause of these changes is the transformation of industrial relations, inherent in various socio-economic systems, which directly affect the housing relations between people in the process of production and the appropriation of these goods. It is the changes in the nature of industrial relations that caused relevant changes in the directions, forms and traditions of housing construction. It is important that its development in any country be synchronized with the dynamics of residential needs and real solvency of the population, as well as the mechanism of mortgage lending for housing.

Actual development problems of housing construction are presented in scientific publications of domestic and foreign scientists, considering it from methodologically different positions. Research is dominant in which housing construction is an integral part of the country's economic complex, which significantly influences the macroeconomic situation and at the same time reflects the state of the economy and social sphere of any country. Socio-economic aspects of housing development are mainly presented in sectoral studies, in close connection with the assessment of the effectiveness of transformational changes, the reform of construction as an industry, the development of its new organizational and legal forms.

The latest research presents theoretical, methodological and applied principles of housing development in the context of the tasks

of forming a balanced housing market with an emphasis on the specificity of the mechanism of interaction of demand, supply and housing prices. It was established that the main obstacles to the development of housing construction in the country are related to the low efficiency of state development programs in this area and mortgage lending, as well as the process of investment and guaranteed housing. Particular attention of scientists deserves problems of energy efficiency of housing construction, its advantages and disadvantages in the context of macroeconomic development of the country and the transformation of trends of influence [1, pp.5-13].

The social context of this scientific perspective is represented by the justification of the directions of influence of the socialization processes, social mobility and stratification on the change of housing needs of different population groups and their model of behavior, as well as the idea of acceptable housing standards. [2, pp.174-185; 3, pp.126-139]. The specialists of the Ptoukha Institute for Demography and Social Studies of the National Academy of Sciences of Ukraine investigated the nature of the transformational changes in housing conditions in the context of the priorities of the state housing policy, as well as their assessment from the point of view of the public interest. The results of the study on the directions and possibilities of implementing the European norms of social housing in Ukraine, as well as the implementation of the right to social housing in Ukraine, are of great social significance. [4, p. 105-114].



## 2. Main Body

Actualization of housing construction problems in European countries took place in the XIX century as a result of intensive growth and expansion of the industrial segment of the economy. Initially, these problems were considered only in socio-political terms, and in the future - in a broad socio-economic context. Scientific interest in the economic and social problems of the development of housing construction on the part of domestic science was in the XX century in connection with changes in the system of production relations.

The origins of housing construction are found in the primitive communal system in the form of primitive residential buildings using natural materials (wood, stone). Somewhat later, the variety of types of residential buildings was mainly due to their functional purpose - for the dominant layers or exploited. At the same time, the building experience was actively accumulated, as evidenced by the constructions with the use of considerable expenses of human physical labour and the complication of the composition of building structures [5]. The next stage in the development of housing construction is due primarily to the achievements of technique and technologies used in constructions and materials. Expansion of practical needs in new types of buildings stimulated the emergence of holistic construction complexes. Depending on the changing economic and spiritual demands of social life, various architectural styles were formed that differ in their forms, types of structures and their constructions.

For a long time, the architectural forms of Vitruvius (Roman architect and engineer of the second half of the 1st century BC) were considered perfect. They fully corresponded to the needs of their time (requirements of Baroque, Classicism, Gothic, Romanesque style, etc.), since they focused on such parameters as strength, benefit and beauty. In the period of modernism in the conditions of the distribution of modern building materials, architectural forms did not always correspond to the functional purpose of the buildings. If earlier they depended mostly on the material used, then there was a dependence on the claims of the customer or his creative idea. As a result, the architecture of the world began to develop in a variety of styles, forms and trends [5]. During the ages of ancient Rome, residential buildings had to embody the greatness of the empire. To this end, the technology of construction was gradually upgraded, the range of engineering structures widened. The construction of large-scale buildings required all new technologies and building materials. Building on developed rational methods and available technical equipment, construction has gained a gigantic scope. In overcrowded towns, there were multistory dwellings for the poor [5].

In the era of feudalism, housing construction was actively developing through the replacement of the work of slaves with the work of craftsmen-professionals. It was during this period that local conditions and traditions had a more significant impact on the construction than during the slave period. In the countries of Western and Central Europe with the renaissance of cities (at the end of the X century), the stone housing construction, aimed at the construction of two-three-story houses with workshops and benches, begins to develop [5,6]. The development of housing construction is closely linked to the culture of the Renaissance. It originated in Florence and developed in the XV-XVI centuries in many countries of Europe. This was the result of the formation of a new type of bourgeois relations, the adoption of the principles of humanism, the replacement of builders with primitive means of production by educated architects. To form enough space in houses began to build high ceilings, spacious rooms [6].

The new stage in the development of housing construction is closely linked to the development of capitalism in the XIX century. He distinguished himself by building high-rise residential buildings using metal, glass and reinforced concrete. In this period, the cities were intensively built up, in which aristocratic neighbour-

hoods and impoverished neighbourhoods were combined. The development of housing construction during this period was influenced by the production of cast iron, steel and the use of metal as the main building material. This made it possible to erect buildings using decorative and artistic elements. In European countries and the United States, the construction of multi-storey residential buildings became more active, and the first skyscrapers appeared. During the era of industrial construction, with the use of unified typical elements, there is a further reduction in the cost of construction based on its comprehensive mechanization with the use of local materials [6]. The experience of post-socialist countries has shown that it is industrialization promotes the active construction of unique structures.

In the middle of the twentieth century, in connection with the aggravation of environmental problems, new innovative directions of construction arose, including well-known forms of eco-architecture. Its main features are the reproduction of the elements of the landscape and the use of natural materials. The construction of ecotourism is based on an integrated combination of state-of-the-art technologies and environmental protection requirements based on energy efficiency. Creating stand-alone systems of life support with alternative energy sources allows you to achieve significant energy savings. In addition to the efficient use of environmentally friendly building materials and alternative energy sources, this type of construction is oriented towards the fullest possible disposal of waste. No less important is the aesthetic appearance of the buildings, its facade, as well as the adjoining territory, taking into account the functional specificity of these objects [6].

In the XX century, a new direction in construction emerged, conceptually similar to eco-architecture, known as organic architecture. Its main principles are: effective spatial solutions and the individual nature of construction; integration into the natural environment; minimization of purely industrial methods of erection of buildings; use of predominantly natural building materials. The use of such approaches in construction provides the effect of unity with nature [7,8]. This direction was further developed in the form of so-called "bioclimatic architecture". It is based on a set of effective design solutions that allow you to create comfortable living conditions with minimizing energy use, mostly based on its renewable sources. The office tower in Tokyo in the Nara region (1994) embodies the typical features of this area, including the presence of a glass facade, terraces, loggias, green garden, sun-screen blinds [9,10]. These architectural trends propagate the ideology of human unity and nature, balanced development of construction and the natural environment.

Significant evolutionary development was experienced in construction technology. The oldest of them is brick construction, which provides high operational properties of buildings (strength, high thermal and moisture resistance). And although this construction lasts a long time, because it depends on climatic conditions, but brick houses are characterized by higher indicators of hygroscopicity and sound insulation, heat resistance and environmental safety. A number of advantages have a panel construction, which is distinguished by the relative cheapness and high rates of construction (usually 7-8 months). Modern panel construction technologies are being improved, which makes it possible to significantly improve the heat and sound insulation of buildings. However, because of the technological features in them virtually impossible to redevelop [11,12,13]. Recently, monolithic-frame technology has become widely used in Ukraine. The comfort of living in such buildings depends largely on building materials. Along with the monolithic frame, monolithic technology is used, which involves special insulation of buildings and is characterized by high seismic resistance of buildings. At present, the combination of panel and monolithic frame technology has led to the emergence of a team of monolithic frame technology as the most promising in the segment of economy class housing.

At present, housing construction in Ukraine is developing in a market environment, experiencing a significant impact of systemic socio-economic disruptions and instability factors. First of all, the limits of the scope of those financial and lending mechanisms, which are usually used to address the acute housing problems of the population, primarily the mechanism of mortgage lending, is given. Against this backdrop, the activity of state and commercial structures in the field of new construction decreases and the pace of modernization of an outdated housing stock slows significantly. The housing problem in Ukraine causes the emergence of new social expectations in connection with decentralization processes against the backdrop of budgetary constraints, instability of the national monetary unit and a significant decline in the purchasing capability of the population. In today's socio-economic conditions, the need for affordable housing remains rather high in the country due to the low level of housing provision of the population, the lack of a market for municipal rental housing. In general, the housing market of the country does not meet the requirements of the developed market environment, as it is under the influence of inflation processes, monopolization and oligarchization of the economy, the instability of the stock market and uncertainty about the prospects of economic growth. The country's high debts to its European partners only worsen the situation in this area.

Problems of housing construction in Ukraine remain the least regulated at the state level. More than 90% of the available housing stock has been put into operation at the end of the last century, with its recovery rates approaching nearly a hundred years (the average lifetime of residential buildings is about 50 years). In Ukraine, the low level of housing provision is maintained for a long time against the background of preserving the high share of housing stock built during the prewar and postwar period (30-50 years of the last century) for the projects of the first massive developments.

The basic indicators of housing construction in modern Ukraine are significantly inferior to those of the Soviet period. In particular, in the last Soviet decade Ukraine has commissioned from 17.3 million square meters (1980) to 19.2 million square meters (1985) of housing each year. During 1981-1985 years, 92.2 million square meters of housing was put into operation (an average of 18.4 million square meters annually), in 1986-1990 years - 99.5 million square meters (19.9 million square meters annually), with the main volumes of housing construction carried out at the expense of public funds [14, p.177].

Socio-economic transformations in the country and the establishment of a market model of the economy radically changed the situation in the field of housing construction, the definition of its priorities and sources of funding. First of all, it should be noted that the state has essentially lost the position of the main subject of the formation and implementation of housing projects, depriving the sphere of housing construction of the necessary state control. The main consequence of these changes was a significant reduction in the volume of housing construction since the 1990s. In 2000, the lowest construction rates were observed - the volume of commissioning of housing was only 5.5 million square meters. In the next period, during 2000-2003, the volume of construction of apartments did not change significantly [15]. Because of the improvement of the socio-economic situation in 2004-2007, an increase in the volume of housing construction was carried out due to increased solvency demand from the population. Restoration of the volume of housing construction in subsequent years was mainly due to the funds of private investors. It should be noted that a significant share of the population of Ukraine has unsatisfactory living conditions with a high level of overpopulation of homes or lack of necessary comfort. The worst housing conditions with a low level of comfort in the rural population. Researchers draw attention to the fact that the population of the country positively assesses housing conditions against the background of a lower self-esteem of property and social status [3]. In this context, the quality of housing and housing conditions are important indicators

of the well-being of the population and one of the elements of the quality of life. Since residential construction meets the basic needs of a person and performs important social functions, the need for priority of its development is beyond doubt. In any socio-political and socio-economic conditions, the state of the housing stock, the level of its wear and tear and modernization is an important characteristic of the country's total capital. The capital of each household is the availability of a separate home.

In practical terms, housing construction in Ukraine has actually been transformed into a highly profitable business due to high and unreasonable prices, which are often higher than foreign analogues. The main objective of the sphere of housing construction was to satisfy the interests of private developers in obtaining super-profits, ignoring the real financial capacity of the population to solve their own housing problems. In 2008-2009, as a result of the global financial and economic crisis and a sharp decline in the standard of living of the population, the decline in housing construction has resumed. For 2000-2013, about 62-95 thousand apartments were put into operation and 105-120 thousand apartments for 2014-2016. During January-September 2017, 84.4 thousand apartments were commissioned at their average area of 80.2 m<sup>2</sup> (71.7 m<sup>2</sup> in urban areas and 105.2 m<sup>2</sup> in rural areas) [15, p.13]. The volume of housing put into operation during January-September 2017, in Ukraine, amounted to about 6.9 million m<sup>2</sup>. This is 21.4% higher than the same period last year. However, in 2016, this figure more than doubled to the peak in 1987 (21.3 million m<sup>2</sup>) [15]. In connection with the deterioration of the economic situation in the country in recent years, the housing stock is being updated at a slow pace. The lack of necessary investment, the reduction of the aggregate incomes of the majority of the population and the limited volume of lending are attributed to it. Unfortunately, there are no grounds for optimistic forecasts for the near future due to the imperfection of the housing lending mechanism, the lack of real sources of income growth and the intention to invest in this area in the near future.

In recent years, Ukraine has seen an increase in regional uneven housing construction due to increased differences in socio-economic potential, permanent population size, and available financial resources. If the volumes of new housing in Ukraine amounted to an average of 162.1 m<sup>2</sup> per 1000 population, then in the Kiev region 713.7 m<sup>2</sup>, in Kirovograd region - 33.6 m<sup>2</sup>. Interregional differences between the maximum and minimum volumes of housing construction in the country are 21.2 times [15, p.4]. The main trends of housing construction in Ukraine characterize the dynamics of built apartments in terms of permanent population. In 2000, this indicator per 1,000 population averaged 1.3, in 2017 - 3.0 apartments. It is clear that this is not enough to effectively solve the housing problem in the country, given the problem of preserving the outdated housing stock. For comparison, it should be noted that the number of built apartments per 1000 population in 2012 was: Belarus - 6.0; Finland - 5.8; France - 5.5; Kazakhstan - 3.5 [16, p.200]. Consequently, housing construction as an important area of economic activity now reflects the general tendencies of the country's socio-economic development, existing limitations, risks and problems. At present, the effective solution of these urgent problems lies in the area of the formation of new investment flows in this area, a significant revitalization of the financial institutions and increasing the purchasing power of the population due to changes in wage standards.

All countries of the world have undergone certain stages of formation, development, transformation and reformation of housing construction and modernization of housing policy. Most of them pursued a policy aimed at supporting this area of economic activity, while stimulating the strong involvement of private entities in providing these services to the population so that the housing problem was solved as quickly and efficiently as possible. This experience is useful to Ukraine because its use provides the necessary competitive environment and transparency in this area. Particular attention should be paid to world experience and the tech-

nology of investment in the housing sector, depending on the type of households, their composition and financial status. In Sweden, the state takes an active role in the process of new construction, modernization of an outdated housing stock and improvement of living conditions of the population, choosing policies that are adequate to the prevailing socio-economic situation in the country and the demand of the population for certain housing conditions [17, p. 45-48]. The special role of public administration bodies appears in supporting the construction of both the industry and the financing of individual socially significant projects.

In Germany, the government sees housing development as a source of job creation and an instrument for influencing other areas of economic activity. A significant share of housing projects is implemented within the framework of joint state-federal programs with the attraction of population funds, as well as local, regional and national resources. The basis for investing in housing is the following basic principles, such as state support, mortgage lending and savings contracts. The last element involves building savings banks. According to German law, these organizations only lend, other financial transactions are prohibited [18]. The main sources of funds of such banks are the population's contributions, fees for using the loan, as well as funds paid by the state to construction organizations, if the depositors have made the necessary funds in the accounts for a certain time. Housing loans are provided to depositors only after the expiration of the period, when they contributed to a specified amount of the contract. Thus, potential borrowers do not have to prove solvency. Interest rates are rigidly fixed for the duration of the contract. Depositors of building savings banks are informed about the areas in which and who their deposits are used.

Particular attention deserves the experience of developing housing construction in the US, although according to experts, the state's attention to the solution of housing problems in this country is much lower than in European countries. In particular, if in the US social housing has about 2% of the population, then among the Europeans their share reaches 20% [18,19]. However, the United States has established an extensive system of mortgage lending, which provides new impetus to the development of this area. Lending involves both the state, which provides funds for cheap housing, as well as mortgage structures, which mainly finance medium and high-rise housing construction. In total, the mortgage market of the country includes a large number of financial institutions, including credit associations, insurance companies, pension funds, mortgage, savings and commercial banks. Due to the coherent interaction of these structures, an extensive system of financing housing construction in the country and providing it with the necessary credit resources was created. In many countries, the vital role of the catalyst for housing construction is played by permanently operating credit institutions investing in securities of corporate structures and the state, as well as lending operations with real estate and housing construction. In particular, the system of building societies established in the United Kingdom in the last century allows to significantly expanding the range of recipients of housing loans, even without membership in this organization.

At present, the social aspects of housing development and the formation of a socially oriented housing policy taking into account the needs and interests of different categories of population are becoming relevant. Countries in the world who were able to limit the spread of poverty and property inequality in the country have also made some progress in resolving housing problems. In particular, among the countries of the Visegrad Group, the Czech Republic, due to the lowest levels of inequality of income and poverty, has reached the first position in the assessment of housing conditions for 2005-2013 [20, p. 282-294]. Numerous studies have shown that socio-economic inequality, in the housing sector, is a significant obstacle to economic growth and social development. In many countries of the world, the state support system for young families is successfully operating, aimed at assisting in the acquisition of real estate property. In particular, in Finland, for this

purpose, they even resort to a limitation of the taxation of individuals, reduce the cost of purchased housing by 25-50% depending on the number of children in the family and provide a lower-rate instalment for up to 25 years [21, pp. 265-278]. Solving the housing problem is extremely important for young people who enter into an independent working life, although they do not have their own housing or the necessary funds to rent it in the segment of commercial housing. Implementation of the constitutional right of young people to proper living conditions is essentially delayed - they can only rely on their significant improvement in their mature age. In this regard, it is important at the state level to consider the issue of a housing stock that is not actually used or used seasonally, since it can be used to address socio-economic young families, especially in rural areas.

### 3. Conclusion

Housing construction has gone a long way in evolutionary development - from primitive forms of organization and management - to more complex and modern. In this way, there were significant technological, economic and social problems, new technologies of construction appeared and obsolete disappeared, economic mechanisms of influence on this sphere changed. The gradual solution of problems contributed to progressive changes in other spheres of public life, in particular, the formation of more comfortable living conditions of the population, the growth of its welfare.

Development of housing construction is one of the priority socially-oriented tasks of public administration in any country. The success of its implementation depends on how effective the market mechanism combines the efforts of the state and construction companies, citizens, and local authorities in expanding non-inflationary demand for quality housing and satisfying it with acceptable methods. European countries have made significant progress in housing construction. Their experience is useful to Ukraine in terms of efficiency and transparency of state regulation of this sphere, primarily mortgage lending.

In Ukraine, in the conditions of economic instability and social uncertainty, it is necessary to acknowledge the limitations of purely market mechanisms of influence on this sphere and the need for a new state housing development policy aimed at high standards of living conditions for different segments of the population, taking into account the world's achievements. Without updating the conceptual foundations and strategic directions of this policy in the face of limited public funding, one can only move away from the best European models and practices for stimulating the development of housing construction.

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