

TYPES OF RESIDENTIAL BUILDINGS AND THEIR SPECIFIC FEATURES

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Abstract. This scientific article analyzes the role of residential buildings in modern architecture and urban planning systems, their main types, and the functional, structural, and planning characteristics specific to each type. Residential buildings, as human living environments, are closely connected with social, economic, and environmental factors, and their proper selection is an important factor in urban development. The article discusses the characteristics of single-family houses, multi-storey buildings, block-sectional, corridor-type, and gallery-type residential buildings. It is substantiated that each type of residential building is formed depending on population density, climatic conditions, land resource use, and infrastructure opportunities. In addition, the development of modern ecological and “smart home” concepts is also analyzed. The results of the study show that the optimal selection of residential building types not only improves living comfort but also contributes to the sustainable development of the urban environment. This article has scientific and practical significance for specialists and researchers in the field of architecture and construction, and it substantiates the necessity of applying modern approaches in residential building design.

Keywords. residential buildings, architecture, urban planning, multi-storey houses, block-sectional building, corridor system, gallery-type houses, ecological building, smart homes, construction system, planning, climatic factors.

TURAR-JOY BINOLARINING O‘ZIGA XOS TURLARI

Annotatsiya. Ushbu ilmiy maqolada turar-joy binolarining zamonaviy arxitektura va shaharsozlik tizimidagi o‘rni, ularning asosiy turlari hamda har bir turga xos bo‘lgan funksional, konstruktiv va rejalashtirish xususiyatlari ilmiy jihatdan tahlil qilinadi. Turar-joy binolari inson yashash muhiti sifatida ijtimoiy, iqtisodiy va ekologik omillar bilan chambarchas bog‘liq bo‘lib, ularning to‘g‘ri tanlanishi shahar rivojlanishining muhim omili hisoblanadi. Maqolada yakka tartibdagi uylar, ko‘p qavatli binolar, blok-seksiyali, koridor tipidagi hamda galereyali turar-joy binolarining o‘ziga xos jihatlari yoritiladi. Har bir turar-joy binosi turi aholi zichligi, iqlim sharoiti, yer resurslaridan foydalanish va infratuzilma imkoniyatlariga qarab shakllanishi asoslab beriladi. Shuningdek, zamonaviy ekologik va “aqli uylar” konsepsiyasining rivojlanishi ham tahlil qilinadi. Tadqiqot natijalari shuni ko‘rsatadiki, turar-joy binolarining optimal tanlanishi nafaqat yashash qulayligini

oshiradi, balki shahar muhitining barqaror rivojlanishiga ham xizmat qiladi. Ushbu maqola arxitektura va qurilish sohasidagi mutaxassislar hamda tadqiqotchilar uchun ilmiy-amaliy ahamiyatga ega bo'lib, turar-joy binolarini loyihalashda zamonaviy yondashuvlarni qo'llash zarurligini asoslaydi.

Kalit so'zlar. turar-joy binolari, arxitektura, shaharsozlik, ko'p qavatli uylar, blok-seksiyali bino, koridor tizimi, galereyali uylar, ekologik bino, smart uylar, qurilish tizimi, rejalashtirish, iqlim omillari.

Introduction. Residential buildings are architectural structures that form the primary living environment of human life activity and are directly related to the socio-economic development of society. The acceleration of urban development processes, population growth, and the need for efficient use of land resources require the development of various forms and types of residential buildings. From this perspective, studying the specific types of residential buildings is one of the urgent scientific issues in modern architecture and construction.

Residential buildings have historically evolved in accordance with social needs, climatic conditions, and technological capabilities. Today, single-family houses, multi-storey buildings, block-sectional, corridor-type, and gallery-type residential buildings are widely used. Each type is distinguished by its functional structure, planning solutions, and operational characteristics.

In modern architecture, ecological sustainability, energy efficiency, and the creation of a comfortable living environment for people have become key directions. Therefore, scientifically analyzing the types of residential buildings is of great importance in their effective design and in determining future urban development.

Methodology. In this scientific research, a comprehensive methodological approach was applied in the study of the specific types of residential buildings. The theoretical basis of the research consisted of scientific literature on architecture and urban planning, regulatory documents, and modern construction practices. In addition, system analysis, comparative analysis, and generalization methods were used to analyze the formation and development trends of residential buildings.

Through system analysis, the main types of residential buildings (single-family, multi-storey, block-sectional, corridor-type, and gallery-type buildings) were studied in interrelation. The comparative analysis method made it possible to compare the structural, functional, and planning characteristics of each type of residential building. As a result, their advantages, disadvantages, and areas of application were identified.

Furthermore, graphical and schematic analysis methods were applied in the research process to visually examine the structure and layout principles of residential buildings. Empirical observations contributed to studying the practical condition of residential construction in modern urban areas.

This methodological approach made it possible to conduct a scientifically grounded analysis of residential building types and determine their role in modern architectural development.

Literature Review. Scientific studies on the specific types of residential buildings show that this field develops at the intersection of architecture, urban planning, and construction engineering. In the relevant literature, the formation of residential buildings, their typology, and modern development trends are widely discussed.

In many scientific sources, residential building typology is classified based on functional, structural, and planning criteria. In particular, differences between single-family and multi-storey buildings, their impact on the urban environment, and their social efficiency have been analyzed in detail [1].

Some studies highlight the economic efficiency of block-sectional and corridor-type residential buildings and their advantages in high-density urban areas [2]. This approach justifies the need for efficient land use in urbanization processes.

Gallery-type residential buildings are also considered as solutions adapted mainly to hot climate conditions, characterized by natural ventilation and lighting advantages [3].

Modern literature emphasizes the growing development of the “smart home” concept based on ecological sustainability and energy efficiency principles [4]. This increases the importance of innovative technologies in residential building design.

In addition, some studies examine the socio-psychological impact of residential buildings, analyzing the relationship between living comfort and human health [5].

Overall, the literature review shows that a comprehensive study of residential building types reveals not only their architectural but also their social and environmental significance [6].

Main Part. Residential buildings are the main structures that meet the living needs of the population in modern architecture and urban planning systems. Their types are formed depending on social requirements, economic opportunities, climatic conditions, and territorial planning principles. Each type of residential building is distinguished by its structural solution, functional composition, and operational efficiency.

Residential buildings are one of the most important components of modern architecture and urban planning systems, as they simultaneously meet social, economic, and environmental requirements as human living environments. The types of residential buildings have been formed in the process of historical development and have become more complex and advanced today as a result of urbanization, population density, and technological progress. Each type of residential building differs in its structural solution, planning system, operational characteristics, and conditions of application.

Single-family residential buildings are one of the oldest and most natural forms of living, mainly designed for one family as low-rise structures. In the design of such buildings, the main focus is on functional comfort, adaptation to climatic conditions, and ensuring private space. Single-family houses are usually constructed together with a land plot and have a clear zoning of living, recreation, and utility areas. The main construction requirements include seismic resistance, thermal insulation, and the efficiency of natural lighting and ventilation systems. This type of building allows for full satisfaction of individual human needs and creates living conditions in harmony with the natural environment. However, their main limitation is the requirement of a large land area.

Multi-storey residential buildings represent the main direction of modern urban planning. The increase in population and the limitation of land resources have led to the wide development of this type of building. Multi-storey buildings are generally higher than three floors and are equipped with complex engineering systems such as elevators, centralized heating, and water supply systems. Their main advantage is the ability to accommodate a large population within a small land area. In construction, structural strength, seismic safety, and operational stability are defined as key requirements. In addition, modern multi-storey buildings increasingly use energy-efficient technologies, “smart home” systems, and ecological materials. At the same time, due to high social density, the level of privacy in such buildings may be relatively lower.

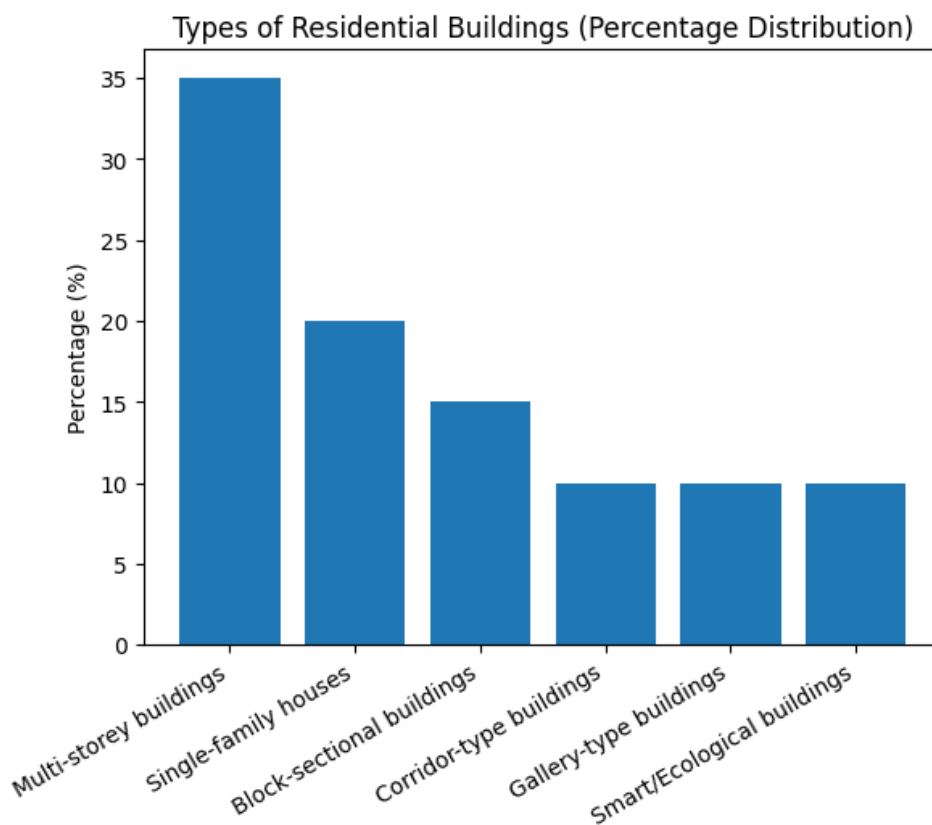


Figure 1. Percentage diagram of residential building types

Block-sectional residential buildings are considered an improved form of multi-storey housing. They consist of several independent sections, where each section has a separate entrance, staircase, and sometimes an elevator system. This structure ensures high flexibility in planning, as different-sized apartments can be placed within each section. Block-sectional buildings are effectively used in high-density urban areas and are well integrated with urban infrastructure. Their main advantages are functional diversity and high construction efficiency.

Corridor-type residential buildings are based on a system where access to apartments is provided through a common corridor. Such buildings are often used as student dormitories, hotels, or temporary accommodation facilities. Their main advantage is economic efficiency in construction and effective use of space. However, this system has drawbacks such as a lower level of privacy and higher social noise. Nevertheless, corridor-type systems are a convenient solution for large population flows.

Gallery-type residential buildings are organized through external open walkways (galleries). This type of building is especially suitable for hot climate conditions, as it provides maximum opportunities for natural ventilation and lighting. The gallery system increases the energy efficiency of the building and improves the indoor microclimate. Such buildings have an open and aesthetically appealing architectural appearance, creating a more comfortable living environment. However, since external corridors are exposed to climatic conditions, they require additional protection and appropriate material selection.

In modern architecture, **ecological and smart residential buildings** are gaining special importance. These buildings are equipped with energy-efficient technologies, renewable energy sources (solar panels, wind systems), and automated control systems. Based on the “smart home” concept, lighting, heating, security, and communication systems are controlled automatically. This approach not only improves living comfort but also reduces environmental impact. At the same time, such buildings play an important role in the sustainable development strategies of modern cities.

In general, each type of residential building has its own functional purpose, structural solution, and application conditions. Proper selection and design of these buildings play a crucial role in improving urban planning efficiency. Modern trends, however, are driving the development of next-generation residential buildings focused on ecological sustainability, energy efficiency, and improving the quality of human life.

Comparison Table of Residential Building Types

No.	Type of Residential Building	Main Characteristics	Advantages	Disadvantages
1	Single-family houses	Designed for one family, low-rise, with land plot	High privacy, good environmental conditions, flexible planning	Requires large land area, expensive infrastructure
2	Multi-storey buildings	3 or more floors, multi-apartment housing	Efficient land use, high capacity, developed infrastructure	Low privacy, high density
3	Block-sectional buildings	Composed of independent sections	Flexible planning, variety of apartment layouts	Moderate construction complexity
4	Corridor-type buildings	Access to apartments via a common corridor	Economically efficient, space-saving	Low privacy, higher noise levels
5	Gallery-type buildings	Access via external open gallery system	Natural ventilation and lighting, energy efficient	Exposed to climate conditions, requires protection
6	Ecological / smart homes	Equipped with modern technologies	Energy efficient, automated systems, high comfort	High construction cost

Classification of Residential Buildings Based on Comfort Level. Residential buildings are one of the main environments of human life activity, and their architectural-planning solutions, engineering systems, and sanitary-hygienic conditions have a direct impact on the quality of life and well-being of the population. Therefore, in modern urban planning and architectural practice, classifying residential buildings according to their level of comfort is of significant scientific and practical importance.

Residential buildings are generally classified into several main categories based on comfort level: low-comfort buildings, medium-comfort buildings, and high (elite) comfort residential buildings. In this classification, the main criteria include planning solutions, room area, completeness of engineering systems, energy efficiency, sound and thermal insulation, and proximity to social infrastructure.

Low-comfort residential buildings usually meet minimum standards and form an economically affordable housing stock. In such buildings, rooms are relatively small, and engineering communications (hot water supply, central heating, ventilation) may be fully or partially provided. This category of housing is mainly intended for the low-income segment of the population.

Medium-comfort residential buildings are the most widespread category. These buildings have relatively convenient planning solutions, room sizes that comply with standards, and fully provided engineering systems. Such residential buildings are equipped with elevators, central heating, water supply, and sewage systems, ensuring sufficient living conditions. This category is considered suitable for the middle-income population.

High-comfort (elite) residential buildings are designed based on modern architectural solutions and innovative technologies. These buildings feature spacious and functional layouts, high-quality construction materials, energy-efficient systems, and automated control technologies (smart home systems). In addition, they include supplementary facilities such as security systems, underground parking areas, recreational zones, sports and playground areas.

Classification of Residential Buildings Based on Comfort Level

No.	Comfort Level	Main Characteristics	Engineering Systems	Planning Solutions
1	Low comfort level	Minimal living conditions, simple construction materials, small rooms	Partial central heating, limited water supply, basic ventilation	Standard and simple planning, dense room arrangement
2	Medium comfort level	Standard living conditions, functional rooms, relatively quality materials	Full water, gas, and electricity supply, central heating, elevators (in multi-storey buildings)	Optimal planning, ergonomic room layout
3	High comfort level (elite)	High-quality materials, spacious rooms, aesthetic and modern design	Automated systems (smart home), energy-efficient technologies, advanced security systems	Individual design, flexible planning, functional zoning
4	Premium (luxury) level	Exclusive architecture, premium materials, maximum comfort	Fully automated control systems, smart security systems, alternative energy sources	Author-designed projects, unique architectural solutions

In the classification process, environmental factors are also becoming increasingly important. In particular, proximity to green areas, the possibility of natural ventilation, efficient use of solar radiation, and the application of energy-efficient materials enhance the overall comfort level of a building.

In conclusion, the classification of residential buildings based on comfort level serves as an important scientific basis not only in architecture and construction but also in the development of urban planning policies. This approach plays a significant

role in improving the quality of life of the population, ensuring social equity, and achieving sustainable urban development.

Conclusion and Recommendations. The classification of residential buildings based on comfort level is one of the important scientific and practical directions in modern architecture, urban planning, and construction engineering. The conducted analysis shows that the comfort level of residential buildings is determined not only by their external appearance or construction materials, but as a complex system including planning solutions, engineering communications, environmental conditions, and social infrastructure.

The differences between low, medium, high, and premium residential buildings are mainly expressed through the quality of living conditions, energy efficiency, and the level of technological equipment. Low-comfort buildings meet only basic requirements, while medium-comfort housing satisfies the essential needs of the majority of the population. High and premium category buildings, on the other hand, are aimed at maximizing the quality of life, where modern “smart home” systems, advanced security solutions, and energy-efficient technologies are widely implemented.

The results of the study also show that with the improvement of the urban population’s living standards, the demand for comfort is continuously increasing. Therefore, in the design of residential buildings, not only economic aspects but also environmental sustainability, climate adaptability, and factors positively affecting human health are gaining significant importance.

Based on this, the following recommendations can be proposed:

Firstly, it is necessary to further improve unified national standards and regulations that define the comfort level of residential buildings. This will help ensure consistent quality control of buildings and guarantee adequate living conditions for the population.

Secondly, the use of energy-efficient and environmentally friendly construction materials should be expanded. This not only increases economic efficiency but also reduces negative environmental impacts.

Thirdly, the implementation of “smart home” systems and the development of digital control technologies in modern residential buildings can significantly enhance living comfort to a new level.

Fourthly, urban planning policies should pay special attention to the integration of residential areas with green zones, playgrounds, recreation areas, and social infrastructure.

In conclusion, the proper classification of residential buildings based on comfort level and the application of scientifically grounded approaches in this field are of great importance in improving the quality of life, ensuring sustainable urban development, and creating a safe and comfortable living environment for future generations.

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