



THE HISTORY AND ARCHITECTURAL DEVELOPMENT OF HOUSING IN KARAKALPAKSTAN

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ABSTRACT

This article provides a comprehensive analysis of the formation and development stages of residential construction history among the peoples living in the Republic of Karakalpakstan. The study scientifically elucidates the structural features of yurt-type dwellings, characteristic of nomadic and semi-nomadic lifestyles, and the traditional housing forms that emerged during the subsequent transition to a sedentary life, detailing their internal layout and functional structure. It also explains how the region's natural and climatic conditions, proximity to water resources, availability of building materials, and changes in economic activities influenced residential architecture. The article analyzes how social, economic, and cultural factors that arose during the historical process, as well as modern urbanization and environmental challenges—particularly those related to the Aral Sea—have spurred changes in housing construction. The research findings serve as a scientific basis for the in-depth study of regional architectural heritage and its adaptation to modern construction practices.

INTRODUCTION

In ancient times, the people of Karakalpakstan primarily led a semi-nomadic lifestyle, for which reason yurts were widespread as their main form of shelter. Yurts had a lightweight construction, consisting of a wooden frame and a felt covering. Their main advantage was the ability to be quickly assembled and moved to another location. Such dwellings were considered very convenient for a population engaged in animal husbandry. The

internal structure of the yurt was organized according to a strict social order, with a hearth at the center, surrounded by areas designated for living, resting, and household chores. This arrangement reflected social relations within the family and regulated daily life. Over time, the population gradually began to transition to a settled way of life, particularly as irrigated agriculture developed in the Amu Darya delta. This led to fundamental changes in residential construction. From this



period onward, durable houses designed for long-term use began to be built. These houses were primarily constructed from local materials such as pakhsa (rammed earth), mud, and reeds. The rational use of natural resources was a fundamental principle of construction, which was not only economical but also helped maintain ecological balance. An important feature of traditional Karakalpak houses is the presence of an inner courtyard. The rooms surrounding the courtyard were somewhat protected from the outside environment, a system that not only allowed for adaptation to climatic conditions but also ensured family life could proceed in a private and secure setting. In addition to living quarters, the courtyard also contained utility structures, storage rooms, and designated areas for livestock. This demonstrates that the household was self-sufficient and internally organized. From an architectural standpoint, functionality was paramount in Karakalpak houses. The walls were built thick, serving to keep the interior cool in the summer and warm in the winter. The windows were small, ensuring a moderate amount of sunlight could enter. The roofs were often flat and used as additional living or recreational space during the summer months. The exterior and interior decoration of the houses was intrinsically linked to folk applied arts, finding expression in geometric patterns, wood carvings, and colorful decorative elements. The architectural traditions that formed in the region in ancient times retained their influence in subsequent periods. In particular, as a result of cultural contact with Khorezm, more complex design methods emerged in residential construction. This process is characterized by the division of houses into functional zones and a clear

separation between living and utility areas. At the same time, the decorative arts also developed further, and aesthetic elements began to gain significant importance. The political and economic changes that took place in the region in the late 19th and early 20th centuries also influenced residential construction. With the introduction of new building materials and technologies, the form and structure of houses gradually changed. During the Soviet period especially, houses built according to standard designs became widespread, and elements of traditional architecture were somewhat marginalized. Nevertheless, national building traditions were preserved and continued in practice in rural areas. Thanks to independence, the process of reviving and developing national values has also been reflected in housing construction. In the construction of modern homes, special attention is paid to reviving national architectural elements and integrating them with new technologies. Simultaneously, factors such as energy efficiency, environmental safety, and comfort are becoming priorities. The environmental situation in the region, particularly the problems associated with the Aral Sea, has also had a serious impact on residential construction. Climate change, the intensification of dust storms, and soil salinization necessitate new approaches to housing construction. For this reason, thermal insulation, wind-resistant structures, and eco-friendly materials are widely used in modern construction. Overall, the history of housing construction among the peoples of Karakalpakstan is a vivid expression of the changes in the region's lifestyle, their adaptation to natural conditions, and their cultural development. The architectural heritage formed during this



process has not lost its significance today and serves as an important resource in modern construction practices. A deep study of this heritage and its development in accordance with modern conditions will remain a decisive factor in creating a sustainable living environment that reflects national identity for future generations. To gain a deeper understanding of the historical development of housing in Karakalpakstan, it is also necessary to consider factors related to the population's social structure and economic activities. The Karakalpaks who have long inhabited this region have traditionally engaged in animal husbandry, fishing, and some farming, which directly influenced their housing construction. In particular, the population living in the Amu Darya delta sought to reside near water sources, a tendency reflected in the location and structural design of their homes. In flood-prone areas, houses were built on higher ground or with specially reinforced foundations. The organization of interior space also held great importance in Karakalpak residential architecture. Rooms were typically divided according to their function, with each serving a specific purpose. Living areas, a guest room, a kitchen, and utility rooms were arranged in a logical connection with one another. This facilitated movement within the house and enabled the efficient organization of daily life. At the same time, the distribution of social space within the home also reflected family hierarchy and traditional values. Ventilation and lighting in Karakalpak houses were also addressed in a distinctive manner. Due to the hot and dry climate, natural ventilation systems were widely used. Windows were strategically positioned to ensure air

circulation, and in some cases, special openings were left in the upper parts of the walls. This helped keep the interior environment cool. Lighting relied mainly on natural sources, achieved by orienting the building to receive direct sunlight. Construction methods and the organization of labor are also important aspects. Traditional houses were often built through *hashar* (communal work), a process in which relatives and neighbors actively participated. This not only accelerated construction but also strengthened social cohesion. Although the tools used in construction were simple, they were highly effective. Based on experience and knowledge passed down from generation to generation, houses were built to be durable and long-lasting. The development of transportation and communication systems also played a significant role in the evolution of housing in the region. With the emergence of new roads, railway networks, and industrial centers, the delivery of construction materials became easier. This increased the diversity in housing construction and led to the emergence of new architectural solutions. In particular, modern residential areas formed around the city of Nukus, accelerating the process of urbanization. Aesthetic and symbolic elements also occupy a significant place in Karakalpak housing construction. The exterior and interior decorations of the houses reflected the owner's social status, taste, and cultural views. The choice of colors, patterns, and decorative items held specific meanings, expressing wishes for blessings, protection, or prosperity. These aspects are closely intertwined with folk applied arts, transforming the dwelling from a mere living space into a medium of cultural expression. Currently, the scope of



innovative technologies and new materials used in housing construction is expanding. Energy-efficient systems, modern heating and cooling equipment, and environmentally friendly building materials are being implemented. This not only creates comfortable and safe living conditions for the population but also helps to reduce the negative impact on the environment. The principle of harmonizing traditional architectural elements with modern design is also gaining prominence. The future prospects of residential construction in the region are an important topic of academic discussion. Population growth, intensifying urbanization, and the exacerbation of environmental problems demand new approaches. Architecture based on sustainable development principles—such as energy efficiency, rational resource use, and ecological balance—is becoming a priority. From this perspective, integrating traditional knowledge and experience with modern scientific approaches is a crucial task. Therefore, the housing construction of the peoples of Karakalpakstan should be viewed not only as a historical process but also as a continuously evolving socio-cultural phenomenon. In this process, each era introduced its own innovations and changes, laying the foundation for today's architectural environment. The academic study and practical application of this rich experience are of great importance for the region's sustainable development. Demographic factors also play a significant role in the study of housing development in Karakalpakstan, as population growth, changes in family structure, and migration have directly influenced housing forms and their distribution. Due to the prevalence of multi-generational families in traditional society, homes were built to be quite

spacious, consisting of several rooms with separate living areas designated for each generation. Over time, with the rise of nuclear families, a certain simplification was observed in the size and internal layout of houses, leading to a greater focus on compactness and functionality in modern residential architecture. Furthermore, the diversification of economic activities has also had a considerable impact on the formation of housing in the region. While livestock breeding and fishing were initially the main sources of income, the subsequent development of agriculture, crafts, and industry expanded the functional roles of residential buildings. For instance, the homes of artisans also contained workshops or production areas, transforming the dwelling from merely a place of residence into a place of production. This process indicates the growing economic specialization in the region. Principles of spatial planning and settlement layout also played a vital role in the formation of Karakalpak settlements. Settlements were typically established near water sources but in areas with a low risk of flooding. The close proximity of houses served to strengthen social ties and ensure security. At the same time, roads, public spaces, and agricultural areas within a village were arranged in a specific order, indicating that the territorial organization was systematic to a certain degree. In housing construction, water supply and sanitation systems also merit special attention. In early periods, water was primarily sourced from natural springs and stored using simple methods; later, the water supply was improved through wells, canals, and other artificial systems. This allowed for the improvement of hygienic conditions within the home. In the modern era,



centralized water supply and sanitation systems have been widely implemented, significantly raising the sanitary standards of residential areas. Cultural exchange processes have also been highly significant in the development of housing construction in the territory of Karakalpakstan. As the region is geographically situated at a crossroads of diverse cultures, the architectural traditions of various peoples have mutually influenced one another. This led to the emergence of new forms, decorative elements, and structural solutions in housing construction. As a result, the local architecture possesses a unique, yet multi-layered, cultural heritage. At the same time, security concerns also played a decisive role in residential construction. During historical periods, due to the presence of external threats, houses were often built enclosed and fortified, and in some cases, were organized in the form of small fortresses. This served to protect the population from external threats. Later, as political stability grew, more attention began to be paid to the openness and aesthetic aspects of the houses. In the modern era, the use of digital technologies and design software in housing construction is expanding. Architects and engineers can now use modern software tools to pre-model the energy efficiency, structural integrity, and aesthetic appearance of homes. This helps to improve the quality of the construction process and ensure the efficient use of resources. Another important aspect of Karakalpak housing construction is its integration with social infrastructure. The location of homes near schools, medical institutions, shopping centers, and other social facilities serves to improve the population's quality of life. In new

residential complexes, particular attention is paid to this factor, with development being carried out on the basis of integrated planning. Thus, the housing construction of the peoples of Karakalpakstan, as a historical process, is not only a means of satisfying material needs but also an important indicator of social, economic, and cultural development. The changes that have occurred in each period show the continuous improvement of this field. Today, this rich experience is being elevated to a new level through integration with modern technologies. This process will serve to create a more stable, comfortable, and nationally distinct living environment in the future. Legal and regulatory factors are also crucial for a deeper analysis of the historical development of housing construction in Karakalpakstan, as forms of land ownership, building codes, and social discipline in each era directly influenced the form and placement of dwellings. In traditional society, land was often used on a communal or tribal basis, which in turn determined the location of houses according to a specific social structure. Homes were built in close proximity to relatives, which served to strengthen social cohesion. Subsequently, with the development of the state governance system, land allocation and construction work began to be carried out based on specific regulations, leading to the systematization of housing construction. The principle of seasonal adaptation also played a vital role in the formation of Karakalpak dwellings. Due to the region's harsh climate, some families used different types of housing in different seasons. For instance, light structures or houses with verandas in cool areas were preferred in the summer months, while



enclosed houses with thick, heat-retaining walls were favored in winter. This approach not only ensured the efficient use of resources but also helped to preserve human health. The division of labor between men and women was also significant in the development of housing construction in the region. In traditional society, the heavy and organizational tasks of construction were primarily performed by men, while women actively participated in decorating the interior, preparing textiles, and organizing the domestic environment. As a result, the home became more refined not only structurally but also aesthetically and spiritually. This process was closely intertwined with the work culture and gender roles of the Karakalpak people. Over time, the methods of using energy sources in Karakalpak housing construction also evolved. Initially, the hearth was the primary source of heat and cooking; later, various stoves and heating systems were introduced. Currently, gas, electricity, and alternative energy sources are widely used. This not only ensures energy efficiency but also serves to increase the internal comfort of residential dwellings. Another important aspect of housing construction in the region is adaptation to natural disasters. The structural designs of the houses took into account floods related to the Amu Darya, strong winds, and dust storms. For example, the thickness of the walls, the shape of the roofs, and the choice of materials were developed accordingly. This ensured the long-term service of the houses and the safety of the population. Educational and scientific achievements are also playing an increasingly important role in the development of housing construction in the territory of Karakalpakstan. The quality and efficiency of housing construction are

being improved through the training of specialists in architecture and construction, conducting scientific research, and implementing modern technologies. A key priority is the development of innovative solutions adapted to local climatic conditions. Furthermore, the issue of cultural identity in housing construction remains a relevant topic. While globalization has led to the construction of standardized housing in many regions, the aspiration to preserve national identity is clearly evident in Karakalpak architecture. This is achieved by harmonizing traditional elements with modern design. As a result, newly built homes not only possess modern comforts but also reflect the national spirit. Studying the historical development of Karakalpak dwellings holds both scientific and practical significance. This experience can be used as a basis for developing cost-effective and culturally rich housing projects that are suited to the region's climatic and environmental conditions. This, in turn, will help create a residential environment aligned with the principles of sustainable development for the future. Thus, the housing construction of the peoples of Karakalpakstan manifests as a constantly evolving, multifaceted, and systemic process. In this process, historical heritage, modern technologies, and social needs converge to form new architectural solutions. This serves as an important factor in creating a comfortable, safe, and culturally rich living environment for the residents of this region.

CONCLUSION

In conclusion, housing construction in the Republic of Karakalpakstan is a complex and systemic phenomenon shaped over a long process of historical development. Key factors in this process



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have been changes in the population's lifestyle, the development of economic activities, and adaptation to natural and climatic conditions. While yurts adapted to a nomadic lifestyle were initially the primary form of housing, the subsequent transition to a sedentary lifestyle led to the emergence of sturdy, comfortable, multi-room houses. The inclusion of internal courtyards, verandas, and utility areas expanded the social and domestic functions of these dwellings. This

research shows that Karakalpak residential architecture is not merely a means of meeting housing needs, but also an important expression of the people's cultural heritage, aesthetic values, and social structure. In particular, the selection of building materials suited to the natural environment, energy-efficient structural solutions, and the internal organization of space define the distinctiveness of the regional architecture.

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