

Preservation Status and Architectural Features of Historical Residential Structures in Bukhara's Old City District

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Abstract: This article analyzes the architectural features and preservation status of traditional residential buildings located in the historical center of Bukhara. Using examples from Mehtar Ambar, Arabon, and Khoja Nurobod Streets, the study examines spatial layouts, decorative elements, functional zones, and restoration status. Dwellings from the late 19th and early 20th centuries are evaluated through the lens of traditional Bukhara architecture, including carved plaster, niches, and courtyard-based layouts. The research offers recommendations for preserving this heritage within the context of modern urban development.

Keywords: Bukhara, historical houses, architectural analysis, preservation status, restoration, national architecture, courtyard layout.

Introduction. The old city district of Bukhara is considered one of the oldest and most historically rich areas in Central Asia. The residential buildings and other historical structures located in this area have been preserved over many centuries and, to this day, continue to retain their architectural and cultural significance [1].

The old part of Bukhara stands out for its distinctive architectural style, narrow streets, and historical monuments. The city was one of the major hubs along the Great Silk Road in Central Asia, and this heritage is still evident today through its numerous surviving monuments [2]. The historical center of Bukhara boasts an approximate 2,500-year history and retains architectural landmarks from the Samanid, Karakhanid, Timurid, and Shaybanid periods. Today, many of Bukhara's monuments are protected by the state and contribute actively to the development of tourism infrastructure [3].

The Government of the Republic of Uzbekistan, together with international organizations—particularly UNESCO—has been undertaking significant efforts to preserve and restore Bukhara's historical monuments [10]. Although many of the city's monuments are well preserved, some structures have suffered damage due to natural aging, climatic effects, and the passage of time. Therefore, restoration work has been regularly carried out with the support of both state and international funding [9]. For example, since the 2010s, restoration projects have been completed on a number of madrasas and mosques in Bukhara, including the Mir-i Arab Madrasa and the Poi Kalon architectural ensemble.

Bukhara is one of Uzbekistan's most important historical and cultural centers, and its old city was inscribed on the UNESCO World Heritage List in 1993. As a major center along the Great Silk Road in Central Asia, the city flourished for centuries as a hub of trade, religion, and culture. The historical monuments of Bukhara continue to astonish visitors with their unique architectural style, ancient streets, and well-preserved structures. Among the most significant

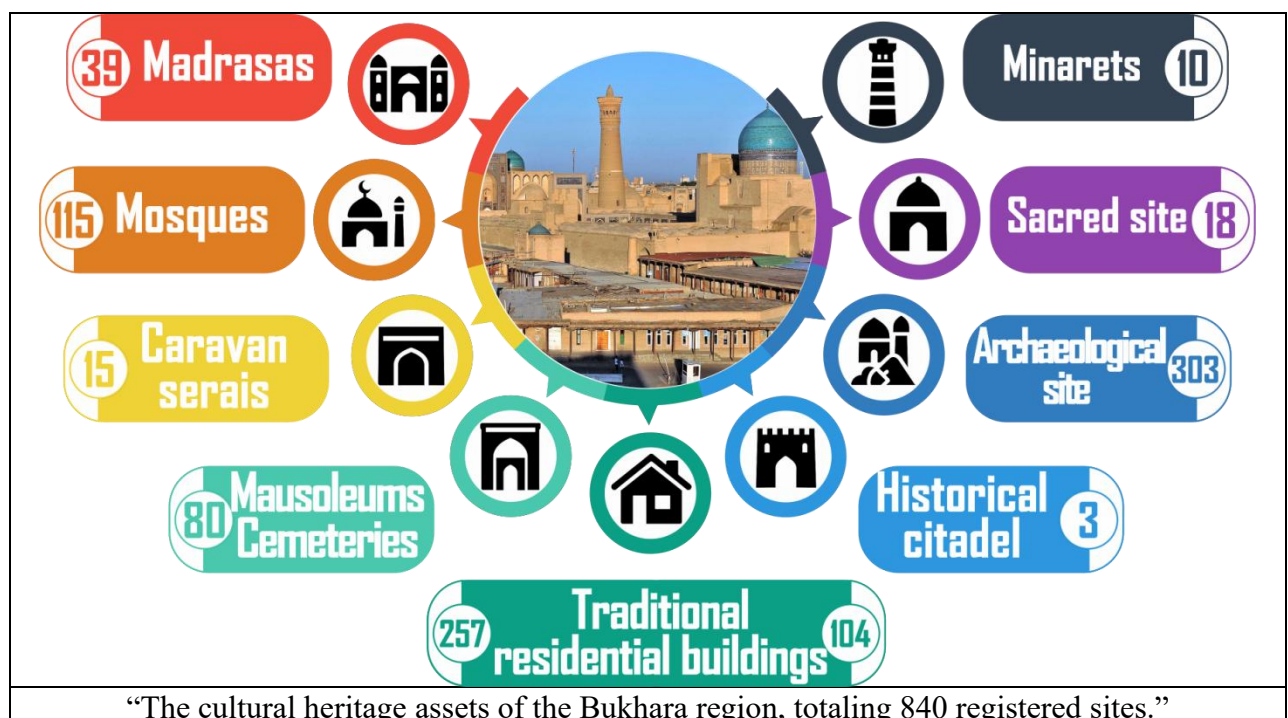
historical landmarks of the city are the Ark Fortress, the Samanid Mausoleum, the Labi-Hauz ensemble, the Poi Kalon architectural complex, the Magoki Attori Mosque, the Abdulaziz Khan Madrasa, the Mir-i Arab Madrasa, and the Abdullakhan Tim trading dome.

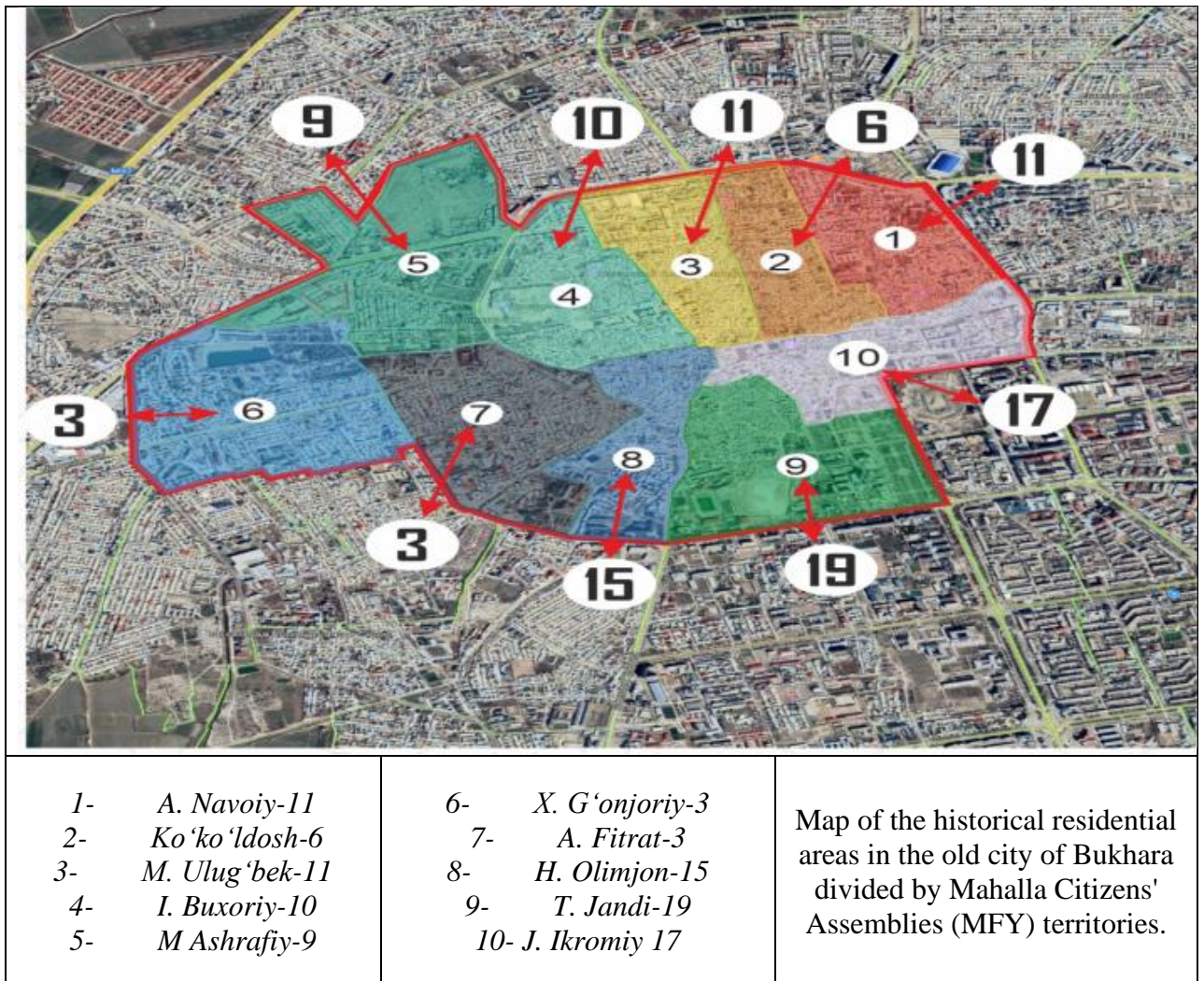
Main Part. Today, the general structure of historical and cultural urban planning and landscape design in Bukhara is included in the official register maintained by the State Inspectorate for the Protection of Cultural Heritage Sites. In particular, a total of 997 cultural heritage objects—890 within Bukhara city and its surrounding areas—have been placed under state protection. These sites are classified according to their level of significance into two categories: those of national importance (188 sites) and those of local importance (702 sites).

The composition of cultural heritage sites in the Bukhara region encompasses a wide variety of structures. These include 39 madrasas, 115 mosques, 15 caravanserais, 4 domed trading arcades (tim and toqi), 80 mausoleums and cemeteries, 16 reservoirs (hauz), 1 sardoba (water cistern), 10 minarets, 28 dakhmas (funerary towers), 5 gardens, 3 city fortresses (shahristan), 4 citadels, 303 archaeological sites, 18 pilgrimage sites, 18 cemeteries, 16 wells, 2 bathhouses (hammams), and 257 traditional residential houses. Of these, 104 are classified as historical residential buildings located within the historical center of Bukhara.

Between 2015 and 2019, scientific research was conducted on 104 residential buildings located in the historical center of Bukhara that are under state protection. Field surveys carried out in various neighborhoods revealed that 56 percent of these residences have preserved their original condition. Their volumetric-spatial configuration, architectural-compositional solutions, and interior decorative elements have retained their historical character.

Additionally, in the late 19th century, numerous public buildings were constructed in Bukhara, and it was observed that their architectural design was comparatively simpler and less ornate than earlier structures [4]. This development had a certain degree of influence on the architectural formation of the historical residential buildings selected as research objects [5].





In studies conducted by N. Fayzullaeva, the current state of residential buildings in Bukhara's historical center was examined extensively. According to the research findings, more than 150 historical residential houses located in this area were systematically registered by address, and over 60 of them underwent direct measurement and documentation. The studied houses were categorized based on their structural and artistic characteristics, and for each category, appropriate methods of restoration and conservation were developed [6].

Another important finding is that certain architectural solutions within the historical center of Bukhara were found to be closely linked to Islamic philosophy. This philosophy is reflected in the spatial separation of male and female areas within the dwellings, as well as in the number of doors and windows, the design of niches, and interior decorations. Based on these observations, Fayzullaeva proposed that the preservation and restoration of historical houses should be guided by the principles of Islamic philosophy.

Within the framework of our research, the following information presents analytical data on the current condition and preservation status of the historical residential buildings that were surveyed and documented during the study [7].

House No. 45, Mehtar Ambar Street, Old City of Bukhara. This historical residence is located in one of Bukhara's ancient neighborhoods and is based on the composition of traditional two-courtyard houses. The volumetric-spatial integrity of the building has been preserved by approximately 75–80%. The house contains key living quarters designed for both summer and winter use, including ayvans (verandas), basements, and service rooms.

The main volume of the residence is formed by the summer reception room (mehmonxona), which is in good condition and retains its distinctive architectural appearance. Although modern

repainting has been carried out in the interior parts of this summer room, traces of ancient ornamentation are still visible beneath the surface. In particular, the aged patterns and decorative bands along the walls have faded over time, yet their architectural value remains evident.

On the northern side of the summer room, a formerly existing high veranda has been partially preserved; its columns and upper elements have been restored using modern materials. The lower-level service spaces, including the summer kitchen and the guest quarters (*xonaqoh*), have not been preserved or are currently being used for other purposes. In their place, simple auxiliary structures have been constructed.

House No. 9, Arabon Street. This historical residential building is located in the ancient central part of Bukhara and belongs to the typology of traditional two-courtyard houses characteristic of Bukhara's vernacular architecture. The building's architecture and interior decorations have preserved rich historical layers. Dating from the late 19th to the early 20th century, the house originally belonged to a prominent artisan family.

The exterior façade is built of brick and is distinguished by its simplicity. The double-arched wooden entrance doors are adorned with metal (nail-head) decorations, a distinctive aesthetic element typical of Bukhara houses. Small-sized windows are embedded in the wall, reflecting a concept of security and protection in the exterior appearance of the structure. The presence of air conditioning units and exposed electrical wiring on the façade indicates traces of modern repair interventions.

The interior courtyard features a spacious and well-organized composition. At its center, a flower garden and paved brick pathways are present. On the eastern side of the courtyard lies the guest room with a veranda, while the western side houses service rooms. The veranda's wooden columns are decorated with high-quality woodcarving. The veranda walls retain ornamental panels, *muqarnas*-style niches, and *sharafa* (decorative bands). Between the wall panels, gypsum carvings executed in geometrical symmetry and traces of colorful mosaic paint in certain areas have also been preserved. One wing of the courtyard includes a summer guest room, which is among the most richly decorated parts of the building.

The interior structure and decorations of the summer guest room are particularly noteworthy. The ceiling is made of wood, constructed using the traditional *vassa* and *bolor* system. Decorative wooden latticework and carved elements are preserved between the ceiling panels. The space between the ceiling and the wall includes geometric *sharafa* ornaments. The room's walls are whitewashed and covered with gypsum panels in shades of gray, among which *tokchabandon* (multi-tiered niche shelves) and symmetrically arranged niches are incorporated. These *tokchabandons* are deeply carved, showcasing intricate ornamentation and exceptional craftsmanship.

On both sides of the guest room, two-story shelving niches are arranged in a beautiful geometric rhythm. Their red-and-black coloring reflects historical authenticity. The windows are designed to admit sacred natural light from above, with the illumination regulated through gypsum lattice screens. Visible cracks in the walls and areas where plaster has fallen off indicate that parts of the structure are in need of modern repair.

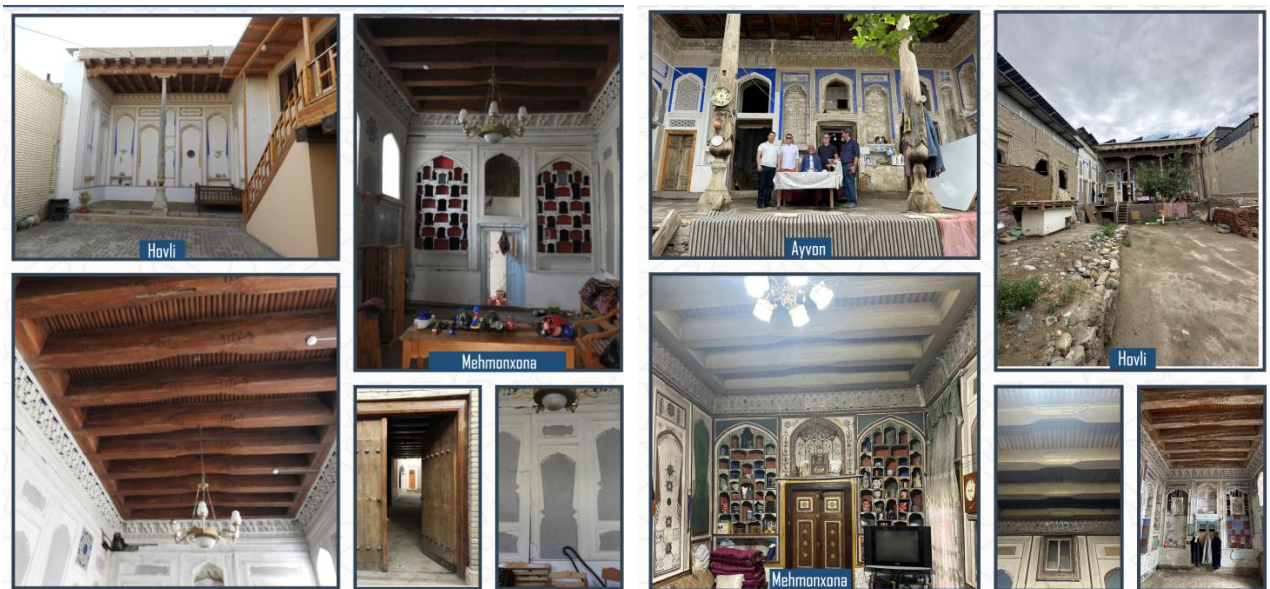
House No. 79, Khoja Nurobod Street, 19th Century. This historical residential building is located in the central part of Bukhara, within one of the city's ancient neighborhoods [8]. Constructed in the early 19th century, the building currently requires significant scientific and practical restoration; nevertheless, it retains rare characteristics of traditional Bukhara architecture. The overall spatial-compositional layout of the house, its decorative elements, interior functional zoning, and user-adapted modifications make it a valuable object for architectural documentation and study.

The most notable room in the building is the guest hall (summer reception room), which features decorations typical of the classical Bukhara style. The ceiling is constructed of wood and

features a complex interlaced beam structure. The wooden components are painted in red and brown tones, with intricately carved patterns etched onto their surfaces. The walls are adorned with carved gypsum decorations, paintings, and polychromatic pigments. Numerous arched niches (*ravokli chuqurchalar*) are symmetrically arranged along the walls, historically used for storing religious and domestic items.

This section of the study systematically analyzed the preservation status, architectural characteristics, and protection strategies of historical residential buildings in the old city of Bukhara. First, a general description of Bukhara's cultural heritage sites, including their statistical status and the number of state-protected objects, was provided based on official data. Based on the scholarly research conducted by N. Fayzullaeva, more than 100 historical residential houses located in the historical center of Bukhara were studied in detail and mapped by address. Their structural configurations, decorative features, functional uses, and preservation conditions were identified.

Particularly, traditional elements specific to Bukhara architecture—such as *xona-i tobuston* (summer room), *xona-i zimiston* (winter room), *madon* (central hall), *nim-ayvon* (half-veranda), *tarchona* (side corridor), *hovli* (courtyard), and *ko'kalam* (green space)—were analyzed in accordance with historical norms, and practical recommendations were developed for their adaptive reuse.



House No. 9, Arabon Street

House No. 79, Khoja Nurobod Street

Conclusion. This study focuses on analyzing the architectural features, preservation status, and protection approaches of residential buildings located in the historical center of Bukhara, with particular attention to the challenges of safeguarding cultural heritage and integrating it into modern urban life. The research revealed that most historical residential structures have retained their original architectural forms, decorative styles, and compositional solutions. In particular, elements such as summer reception rooms, wooden verandas, gypsum niches, carved panels, and geometric ornaments vividly reflect the national identity embedded in Bukhara's traditional architecture.

These features are not only of aesthetic value but also embody principles of Islamic philosophy, social customs, and functional spatial organization. For instance, the spatial separation of male and female areas, the use of *sharafa* (decorative bands) and gypsum lattice screens for lighting control, exemplify the ecological and social harmony inherent in historical architecture.

Moreover, the research found that some historical houses built during the 19th and early 20th centuries reflect the aesthetic values of that era. Service areas and auxiliary structures were constructed in line with the residents' practical needs, enabling these homes to adapt to modern

usage. However, improper restoration practices, unsystematic use, and violations of architectural standards have placed some buildings at risk of losing their authentic identity.

The results of the study indicate that the preservation of historical residential buildings must go beyond mere restoration. It is essential to harmonize these structures with contemporary tourism, cultural services, and other forms of social infrastructure. The historical houses of Bukhara should not be viewed solely as museum pieces or monuments but as viable spaces for modern living and service provision. However, such integration must be carried out in accordance with established norms and supported by scientific and methodological foundations.

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