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Research Article

Investigation of The Architectural Features of Traditional Houses: Samsun-Havza Case

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ABSTRACT

The Havza district of Samsun province is home to rare settlements that have preserved their cultural, socioeconomic, and architectural heritage through to the present day. The characteristics of these settlements are considered cultural heritage and should be preserved to guide future generations. In this context, the study was conducted on 10 traditional houses located in Bahçelievler and Ilıca neighborhoods. Five houses were selected from each neighborhood that are representative of unique construction techniques and material usage. Recent reinforced concrete structures were excluded from this study. The physical assessments of the settlements were conducted through on-site inspections and photographic documentation. The traditional houses were analyzed in terms of construction techniques, materials, and structural conditions. The study concluded that preserving the existing architectural fabric and improving current conditions through traditional construction techniques is essential.

Keywords: Traditional house, Architectural features, Samsun-Havza, Construction techniques

Geleneksel Evlerin Mimari Özelliklerinin İncelenmesi: Samsun-Havza Örneği

ÖZ

Samsun ilinin Havza ilçesi kültürel, sosyo-ekonomik ve mimari mirasını günümüze kadar koruyan ender yerleşim yerlerine ev sahipliği yapmaktadır. Bu yerleşim yerlerinin özellikleri kültürel miras olarak kabul edilmekte ve gelecek nesillere yol gösterici olması için korunması gerekmektedir. Bu kapsamda Bahçelievler ve Ilıca mahallelerinde yer alan 10 geleneksel ev üzerinde, her mahalleden kendine özgü yapım teknikleri ve malzeme kullanımını temsil eden beş ev seçilerek bir çalışma yapılmıştır. Son dönemdeki betonarme yapılar bu çalışmanın dışında tutulmuştur. Yerleşimlerin fiziki değerlendirmeleri yerinde incelemeler ve fotografik dokümantasyon yoluyla gerçekleştirilmiştir. Geleneksel evler, yapım teknikleri, malzemeleri ve yapısal koşulları açısından analiz edildi. Çalışmada mevcut mimari dokunun korunması ve geleneksel inşaat teknikleriyle mevcut koşulların iyileştirilmesinin önemli olduğu sonucuna varılmıştır.

Anahtar Kelimeler: Geleneksel Ev, Mimari Özellikler, Samsun-Havza, Yapım Teknikleri

I. INTRODUCTION

The unique and characteristic structures, materials, and construction techniques of traditional architecture hold significant cultural heritage and value. However, changing conditions brought about by urbanization, economic factors, and technological advancements have not only hindered the construction of such structures under contemporary conditions but also led to the disuse and eventual disappearance of existing buildings constructed with traditional techniques [1]. Various studies have emphasized the importance of traditional architecture in maintaining cultural identity and continuity [2, 3]. Yet, the challenges posed by modern development trends often result in a loss of these historically significant buildings.

In shaping architectural structures, various factors such as climate, geographical location, building materials, and beliefs play a critical role. These factors are particularly influential in determining the facade and plan layout of residential buildings [4]. Traditional houses exhibit distinct plan types and structural elements depending on the region they are located in. Studies on traditional Turkish houses suggest that spatial organization and design are closely related to the cultural and environmental context [5].

The term "Turkish House" used today primarily refers to examples from the Ottoman Empire, specifically those dating back to the 17th century. Due to changes in usage, construction materials, and various other factors over time, many examples of civil architecture, particularly traditional houses, have not been preserved [6]. In Turkish houses, the concept of creating spaces at a human scale is predominant. Based on this idea, the functional living space is defined by an upper limit. Elements such as cupboards, doors, and windows are placed below this limit, while features like shelves can extend beyond it [7].

In the context where traditional architecture developed in Anatolia, the accumulated knowledge in material traditions played a significant role in shaping new architectural traditions. Particularly in terms of building materials and technology, wood and stone reached widely accepted standards. The spaces, tools, and products developed and enriched with these materials offer a remarkably rich heritage [8, 9]. The integration of local materials and construction techniques in traditional buildings has been recognized as a crucial factor in the preservation of architectural authenticity and sustainability [10]. For example, Rapoport [11] emphasizes the role of vernacular architecture in adapting to environmental conditions and cultural practices, while Oliver [12] highlights how traditional building techniques can provide insights for sustainable architecture.

As in other provinces of the Black Sea region, wood is widely used in Samsun due to the abundance of forested areas. However, due to major fires in the history of Samsun, not many wooden structures in the city center have survived to the present day. Nevertheless, the majority of traditional architecture consists of wooden buildings [13]. The residential architecture in the Samsun region has developed under the influence of both the Eastern Black Sea and Central Anatolia regions. In the villages, square-plan houses elevated with rubble stone to protect from ground moisture are common. The northern facades of these structures often feature wooden railings and balconies. In the interior regions, such as Ladik district, traditional Anatolian architecture is represented by houses made of adobe, rubble stone, and lath-and-plaster. In Havza and Vezirköprü districts, wooden structures are prevalent [14]. Typically, these buildings are two stories above ground level. The facades are constructed of rubble brick, with interior partitions made using lath-and-plaster. The second floors often include projections, sometimes supported by two wooden columns, while in other cases, they are reinforced with iron rods. The hipped roofs, covered with traditional Turkish tiles, have wooden eaves. Inside, a central hall, or "sofa," is present, with other rooms opening onto this space. Wood is commonly used in both flooring and ceilings [15].

In this study, a total of 10 houses were examined, with five selected from each of the two neighborhoods, Bahçelievler and Ilıca, surrounding Havza district in Samsun province. The construction techniques,

materials, and structural conditions of these buildings, which were constructed using traditional methods, were thoroughly investigated to document their current state and highlight the importance of their preservation.

II. FIELD STUDY

A. SAMSUN PROVINCE AND HAVZA DISTRICT

Samsun is located in the central part of the Black Sea region, along the middle stretch of the Black Sea coast. It is bordered by Sinop to the west, Ordu to the east, and Tokat and Amasya to the south. The relatively lower elevation of the Black Sea Mountains in Central Black Sea region facilitates easy land and rail connections between Samsun and the Central Anatolia region, enhancing the city's significance. The name "Samsun" is believed to have originated from the Greek word "Amisos," although it is also suggested that the name has pre-Greek origins. Similar to neighboring Amasya, it is understood to be of Anatolian origin. The current name "Samsun" is derived from the Turkish dominance of the 7th and 8th centuries. In Western sources, the city's name appears as "Sampson." During the Ottoman period, the city was referred to as Samsun, while the district was named Canik. In the late 19th century, Samsun was administered as a subprovince within the Trabzon Vilayet. After the establishment of the Republic, it became a province bearing its own name and has since become a symbol of the War of Independence. [8].

Havza is a district in the Samsun Province. It features a terrain that is partly flat and partly mountainous. The district center is situated in a valley surrounded by mountains on three sides. Havza is located on a major road and railway that connects the coastal provinces of the Central and Eastern Black Sea regions with the Central Anatolia, Western Anatolia, and Marmara regions. To the east, it is bordered by Kavak and Ladik; to the west, by Vezirköprü; to the north, by Bafra; and to the south, by Merzifon and Suluova districts of Amasya [9].

Today, Havza has 98 neighborhoods. In Havza and its surroundings, 8 neighborhoods were selected for analysis, focusing on 5 traditional houses in each neighborhood in terms of construction techniques. The neighborhoods examined were chosen to encircle the Havza district, and they are as follows: Bahçelievler, and Ilıca. Samsun Province is seen in Figure 1 (a), and Samsun Province Havza District can be seen in Figure 1 (b).



Figure 1. Location of Samsun Province on the map of Türkiye and Location of Havza in Samsun Province

A. 1. Neighborhoods in the Study Area

Construction technique, material and structural condition analyzes of the selected houses in Bahçelievler, and Ilıca neighborhoods located within the borders of Havza district were made.

A. 1. 1. Bahçelievler District

In Bahçelievler District, five traditional houses were examined according to construction techniques (Figure 2). It was observed that the construction techniques used in the examined houses were created with a brick or adobe filling material system inside a wooden frame.

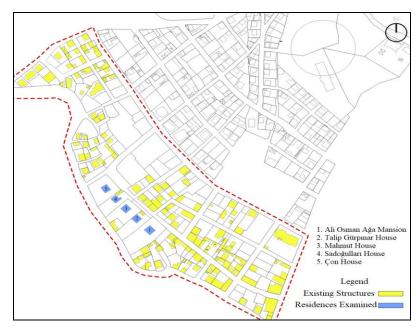


Figure 2. Locations of the Houses Examined in Bahçelievler Neighborhood

Ali Osman Ağa Mansion

The structure was built on a raised masonry stone base, with fired brick and adobe infill used between the wooden frame on the ground and first floors (Figure 3). Fired bricks were arranged in various patterns, such as herringbone and straight, creating an aesthetic and unique facade. The building has plaster that was applied while preserving the wooden skeleton frame, but over time, parts of the plaster have fallen off. The house has two external doors. The main entrance door is located approximately 80 cm above the ground, beneath the bay window of the structure. This entrance door is a wooden doubleleaf door with an original design. The rear facade entrance door is also elevated from the ground and is a single-leaf wooden door. On both sides of the entrance door, there are symmetrical wooden sash windows. Wooden sash windows are repeated throughout most of the building. All windows in the building feature window head decorations. The windows in the bay window differ from the other windows of the building; they are more decorative and taller. The wall ornamentation above the bay window indicates that the structure was built with aesthetic concerns in mind. The windows of the building are symmetrical and aesthetic. The wooden sash window on the rear facade has been replaced with a single-leaf PVC window (Figure 4). The roof of the rectangular-shaped structure is a hip roof covered with traditional Turkish tiles.



Figure 3. Ali Osman Ağa Mansion



Figure 4. Ali Osman Ağa Mansion window and window top ornament examples

Talip Gürpınar House

The Talip Gürpınar House was built on a raised masonry stone base, with fired brick and adobe infill used between the wooden frame on the ground and first floors (Figure 5). The fired bricks and adobe were arranged in various patterns, such as herringbone and straight, creating a unique facade. The building features plaster applied while preserving the wooden skeleton frame; however, over time, some parts of the plaster have peeled off. The house has two external doors. The main entrance door is at ground level, located beneath a bay window. It is a double-leaf wooden door with a horizontal window above it. On the other side of the facade with the main entrance, there is a wooden double-leaf door beneath a wooden porch, which is believed to have been added later and is located 10 steps above the ground, covered with traditional Turkish tiles. The building has two bay windows. Beneath the bay window on the left side facade, there is a flat window. Throughout most of the building, wooden sash windows are repeated (Figure 6). On the ground floor, there are flat windows in addition to sash windows. The windows on the first floor feature window head decorations. The middle window decoration of the bay window above the entrance door differs from the other window decorations of the building; it is more decorative and taller. The area above the bay window was constructed using a wooden masonry method without the use of wall infill material. The windows of the building are symmetrical and aesthetic. The roof of the rectangular-shaped structure is a hip roof covered with traditional Turkish tiles.



Figure 5. Talip Gürpınar House



Figure 6. Talip Gürpınar house guillotine window examples

Mahmut House

The Mahmut House was constructed on a masonry stone foundation, with stone, adobe, and brick infill within a wooden frame on the ground floor and fired brick and adobe infill between the wooden framework on the first floor. The building has plaster applied while preserving the wooden skeleton frame; however, over time, some parts of the plaster have deteriorated. The house has one external door. The main entrance door is at ground level and located beneath a bay window. It is a double-leaf wooden door. On the rear facade of the entrance, the wooden frame structure is visible in the middle of the first floor; however, due to the considerable damage to the building, it is thought that the wooden framework system continues in the damaged area on the first floor.

Most of the windows in the building are repeated wooden sash windows. The window levels on the ground floor vary. The windows on the first floor are symmetrical and feature window head decorations, although these have been damaged over time. The middle window decoration in the bay window above the entrance door differs from the other window decorations of the building; it is more decorative and taller. Above the bay window, a triangular wooden masonry method was employed without the use of wall infill material. The roof of the rectangular-shaped structure is significantly damaged but is a hip roof. The roof is covered with traditional Turkish tiles.



Figure 7. Mahmut House

Sadoğulları House

The Sadoğulları House was built on a masonry stone foundation, with the ground and first floors constructed using the wooden "Bağdadi" method within a wooden framework. In the section believed to have been added later, the ground floor was built with solid brick masonry, while the first floor was constructed with fired brick infill within a wooden framework. The building features plaster applied while preserving the wooden skeleton frame, but over time, some of the plaster has deteriorated. The house has two external doors. The main entrance door is 12 steps above the ground, located under a balcony covered by a metal porch on the first floor. The entrance door is a double-leaf wooden door. There is also a single-leaf wooden door on the first floor that is exposed and cannot be accessed from outside. A horizontal window is located above the entrance door. On the front facade where the entrance is located, there are two symmetrical windows beneath the ground floor level, indicating the presence of a basement. Since entry into the building was not possible, the use of the basement area is unknown. On the rear facade of the entrance, there is a single-leaf entrance door located 7 steps above the ground. Next to the rear entrance door is a veranda under a metal porch accessible from the interior. Most of the windows in the building are paired wooden sash windows that repeat throughout. Due to numerous additions on the rear facade, this side does not appear symmetrical or decorative. In the section of the building that was added (where solid brick masonry is used on the ground floor and fired brick infill within a wooden framework is used on the first floor), the windows are flat. Generally, the windows of the building are symmetrical. The roof of the structure is a hip roof, covered with traditional Turkish tiles (Figure 7).



Figure 7. Sadoğulları House

Çon House

The structure was built using fired brick and adobe as infill materials between the wooden frame on both the ground and first floors. The fired bricks were arranged in different patterns, such as herringbone and straight, to create an aesthetically pleasing and unique façade. The building has two entrances. Due to the recent commencement and subsequent suspension of restoration efforts, the doors are currently missing. Both entrance doors are at ground level. The entire building features repeating wooden sash windows that are symmetrical, with decorative elements above each window. The window above the main entrance door opening is taller and serves as a distinguishing feature of the entrance. On the side façade, there is an area thought to have been a bathhouse. Additionally, a modern brick extension has been added to the continuation of the side façade. The rectangular building has a hipped roof, covered with traditional Turkish tiles (Figure 8).



Figure 8. Çon House

A. 1. 2. Cevizlik District

Five traditional houses in Cevizlik District have been examined according to their construction techniques (Figure 9). It was observed that the construction techniques used in these houses were timber frame and timber masonry methods.

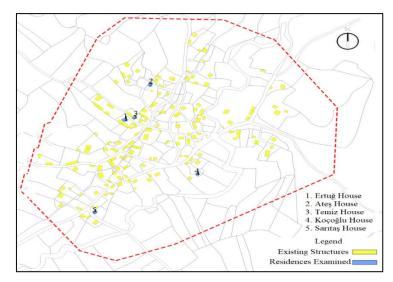


Figure 9. Locations of the Houses Examined in Cevizlik Neighborhood

Ertuğ House

Ertuğ house was built with a rubble stone system on the ground floor and a timber frame filled with fire brick material on the first floor. On the ground floor front façade, a hybrid construction technique was employed by using fire brick material within a timber frame instead of the rubble stone system. The fire bricks were arranged in a herringbone pattern to create an aesthetic and unique façade. The front façade of the ground floor is plastered. On the left side of the building, the ground floor beams have been extended to form a cantilevered projection on the first floor. The house has one external door. The main entrance door is three steps above the ground level and is located under the bay window. The entrance door is a double-leaf wooden door, with a square window above it. On the ground floor front façade, there is a flat wooden window. On the first floor, the wooden sash windows are aligned and symmetrical. The roof of the rectangular-shaped building is a hipped roof. The roofing material used is Turkish-style tiles (Figure 10).



Figure 10. Ertuğ House

Ateş House

Ateş house was constructed with a rubble stone system on the ground floor and a timber frame filled with fire brick material on the first floor. The fire bricks were arranged in a herringbone pattern, creating an aesthetic and unique façade. The front façade of the ground floor is plastered. The house has a single external door. The veranda is elevated three steps above ground level, while the main entrance door is at the same level as the ground. It is located beneath the bay window, which is supported by brackets. Above the entrance door, there is a sheet metal canopy elevated by wooden posts, which is inconsistent with the original structure. The entrance door is a single-leaf wooden door, with single-leaf wooden windows on either side. A flat wooden window is used on the front façade of the ground floor. The windows on the first floor have been replaced with PVC windows, which are inconsistent with the original structure. The rectangular-shaped building has a hipped roof, and the roofing material used is Marseille tiles (Figure 11).



Figure 11. Ateş House

Temiz House

Temiz house was constructed with a rubble stone system on the ground floor and a timber frame filled with fire brick material on the first floor. A hybrid construction technique was chosen for the front façade of the ground floor, using fire brick infill within a timber frame instead of the rubble stone system. The fire bricks were arranged in a herringbone pattern, resulting in an aesthetic and unique façade. The front façade of the ground floor is plastered. The house has a single external door. The main entrance door is three steps above the ground level and is located beneath the bay window. The entrance door is a double-leaf wooden door, with a small rectangular window beside it. Flat wooden windows were used on both the ground floor and the first floor. The windows are aligned and symmetrical. The rectangular-shaped building has a hipped roof, covered with traditional Turkish tiles (Figure 12).



Figure 12. Temiz House

Koçoğlu House

The building features a masonry stone system on the ground floor, while the first floor is constructed using a timber frame filled with wooden masonry materials. The entire structure is covered with plaster, though over time, some sections have deteriorated and peeled off. The house has three exterior doors. In addition to the main entrance, there are two single-leaf wooden doors on the first floor, opening onto a balcony made of wooden projections. The main entrance door is at ground level and is a double-leaf wooden door. The first floor features wooden sash windows. The roof, which is rectangular in shape, is a hipped roof covered with traditional Turkish tiles (Figure 13).



Figure 13. Koçoğlu house left side facade and guillotine window

Sarıtaş House

The building was constructed with a masonry stone system on the ground floor and a timber frame filled with fire bricks on the first floor. On the front façade of the ground floor, instead of the masonry stone system, a hybrid construction technique using fire bricks within a timber frame was preferred. The fire bricks were arranged in a herringbone pattern, creating an aesthetically unique façade. The building lacks plaster. There are two exterior doors. Due to the sloped terrain, the structure appears as two stories from the front façade and as a single story from the rear façade, with ground-level entrances on both sides. The main entrance door, a double-leaf wooden door, is located beneath a cantilevered bay window supported by brackets. The rear entrance is a single-leaf wooden door. A veranda, supported by wooden posts, was created under the alaturka tile roof at the rear, just below the roofline. In some parts of the building, damage was repaired with bricks, which are inconsistent with the original structure. Wooden casement windows are used on both the ground and first floors, aligned symmetrically. The roof of the rectangular building is a hipped roof, covered with traditional Turkish tiles (Figure 14).



Figure 14. Sarıtaş house

III. RESULTS AND DISCUSSIONS

The examination of traditional houses in the Samsun-Havza region revealed significant insights into their construction techniques, material use, and overall structural integrity. As expected, the majority of houses investigated were constructed using a timber frame system with a mixture of adobe, brick, and stone infill, consistent with traditional Black Sea architectural practices. The analysis was conducted on 40 houses in total, with Bahçelievler and Ilica neighborhoods being the primary focus.

The houses in both neighborhoods exhibit a wide range of construction materials, particularly a combination of stone and timber, which aligns with the geographical characteristics of the region. It was observed that in many cases, the first floors were elevated using rubble stone to protect the wooden frames from ground moisture, a common practice in areas prone to dampness. The timber frames were filled with fire bricks arranged in aesthetically pleasing patterns, such as the herringbone design, which not only served a structural purpose but also enhanced the visual appeal of the façades. However, damage to the materials over time, particularly to the wooden elements, has been a significant concern, with improper repairs (e.g., using modern brick) altering the original design.

One of the most prominent architectural features identified was the use of bay windows, which were supported by wooden brackets. These projections, coupled with wooden sash windows, added to the aesthetic complexity of the structures. Symmetry was a key aspect of the window arrangement, contributing to the overall harmony of the façades. However, in some cases, the replacement of original

wooden windows with PVC or modern materials has disrupted the visual coherence and historical authenticity of the buildings.

The roofing materials predominantly consisted of alaturka tiles, typical of Turkish vernacular architecture, and were laid over hipped roofs. Despite their durability, several roofs showed signs of damage due to weathering and lack of maintenance, particularly in structures that had not undergone recent restoration efforts.

The study identified numerous instances where traditional construction techniques had been compromised due to unsympathetic restoration or neglect. For instance, some houses featured modern interventions that did not align with the original design principles, such as the use of brick in areas originally constructed with timber. These alterations not only impact the visual integrity of the houses but also present structural challenges, as the modern materials are often incompatible with the traditional construction methods.

IV. CONCLUSION

This study has explored the architectural features, construction techniques, and material usage of traditional houses in Bahçelievler and Ilica neighborhoods of Samsun's Havza district. The findings highlight the significance of traditional timber frame construction and the aesthetic patterns achieved with infill materials such as brick and adobe. The careful use of local resources, combined with techniques like stone elevations to protect wooden frames from ground moisture, underscores the adaptation of architectural practices to the regional climate and geographical conditions.

The research reveals that the original structural integrity and aesthetic quality of these houses have been altered over time due to various factors, including unsympathetic restorations and the replacement of original materials with modern alternatives. Such interventions have compromised the authenticity and historical value of the traditional buildings, posing challenges for their preservation.

To maintain the cultural and architectural heritage of the region, it is recommended that restoration efforts prioritize the use of traditional materials and methods. Establishing guidelines for interventions and encouraging local participation in preservation initiatives can help safeguard these structures for future generations. The study not only contributes to the documentation and analysis of the Havza district's traditional architecture but also offers a framework for future conservation strategies that respect the historical and cultural context of the area.

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