

# Investigation of the footprints of ecological criteria in a historical minority mansion in Kayseri Talas

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## Abstract

Societies have reflected their cultures and lifestyles through the environment they have shaped. This is also true for minority groups in society. Environmental problems arise due to the use of all resources for cheap and fast production without considering the result of technological developments. Changes in nature, which form the basis of many disaster scenarios, also require urgent measures to be taken in many areas. Efforts should be made to minimize the damage to the environment. In this context, as in many other fields, the number of studies on ecology and sustainability in the field of architecture is increasing day by day. Ecological building designs are the most important reflection of this. In this direction, the development of certification systems and the promotion of ecological structures come to the fore. The research looks at the concepts of ecology and sustainability from a different perspective and traces the ecological architecture through a residential building belonging to minorities that can be qualified as a historical cultural heritage and located in the Yukarı Talas locality of Talas district of Kayseri. In order to produce sustainable designs in places where life is lived, it is considered important to consider the way in which human beings shape the environment in which they live in the historical process, also in minority architecture. Within the scope of the study, the mansion in Talas, Kayseri, which was built in the 19th century and passed from an Armenian family to a Turkish family in the process, was evaluated within the scope of today's ecological architecture criteria and it was found that a significant part of these criteria was met in this building. The mansion is discussed in terms of ecology, energy, economy, indoor environmental quality, health and welfare, innovation, management, land use, transportation, renewable technology, water, environmental pollution, CO2 emission, material and waste criteria. In the study; It has been determined that there are ecological approaches to the historical minority mansion. With reference to the findings, suggestions have been developed to produce ecological, nature-friendly and energy efficient structures for today and the future.

*Keywords:* ecological architecture, Talas, minority architecture, Karaman Mansion,

## 1. Introduction

The living spaces produced throughout the ages have been shaped in line with human needs. Especially the need for shelter has been one of the most basic needs of humanity throughout the ages. All structures built by human beings to meet their spatial needs have been the elements that affect and are affected in the entire ecosystem, especially in the immediate environment, both during the construction and usage process. With technological developments, man has chosen to

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change the nature in which he lives by interfering and created the threat of extinction. Reversing this situation has brought about the production and use of products that are compatible with the ecosystem and do not pollute the environment. Mankind has started to seek solutions to environmental problems in today's world. The production and use of buildings, which have a large share in the energy consumption of the earth, has begun to be reconsidered. The integration of the buildings with the natural environment and minimizing the harmful effects on the environment, resulting in the buildings becoming a part of the ecosystem, revealed the concept of ecological architecture. At the same time, producing designs that are compatible with the environment and do not harm the ecosystem are among the most basic goals of ecological architecture. Natural or minimally processed, biodegradable and renewable material for a livable environment, is tried to create sustainable structures where rational solutions are produced by calculating the energy consumed by the buildings from the project stage to the production stage, from the use stage to the demolition stage. The use of local materials, the use of systems fed by nature without harming the nature, the positioning from the street, the shaping of spaces by reference to the sun are some of the sustainable design inputs. It is possible to see the traces of the criteria in traditional houses. When the construction technique used in traditional houses is examined in terms of local material selection, settlement on the land and space organization; They guide the energy problem in terms of design and construction techniques. Traditional housing, produced on the basis of efficient use of resources, is produced without harming the nature; includes sustainable and ecological features (Gezer, 2013; Parlak Biçer, et al. 2020).

In the literature; Traditional Safranbolu Houses were examined in terms of layout, planning features and building materials (Gezer, 2013). Traditional Houses in Burdur, on the other hand, were evaluated in terms of harmony with the topography, preservation of the green texture, building form, space organization, building envelope, and materials (Çetin, 2010). In another study, the traditional stone dwellings in Ayvalık, which has similar climatic conditions, and the city of Oxford in England, were compared (Kıstır, Kurtoğlu, 2018). Traditional houses in İzmir FoçaKozbeyli settlement, topography, climate, green texture, etc. criteria related to the physical environment, location, form, material, etc. analyzed in terms of structural criteria and energy recovery aspects (Taşçı, Pekdoğan, 2018). In a study by Parlak Biçer et al. (Parlak Biçer, et al., 2016); in Kayseri-Talas, two historical buildings were handled in the light of CIB criteria, with ecological architecture and sustainable design aspects (Parlak Biçer, et al., 2016). In another study, In Safranbolu, the role of social sustainability in the protection of the historical environment was emphasized and the results were evaluated (Ayten, 2016).

In the literature, besides the studies on the housing function, there are studies on the area with different functions and/or sizes. Çorapçioğlu (Çorapçioğlu, 2016) discussed the protection of the "Sinan II SuDeğirmeni" (water mill) known as the industrial heritage and the granaries with their original functions in the context of their historical, cultural, technological and ecological values. In the study, which deals with the historical urban texture of Istanbul-Eyüp (Ulubaş, Kocabaş, 2016); site management plan studies have been carried out on Eyüp's historical texture as a sustainable urban conservation tool. In a study in which sustainability in public spaces in the historical environment was examined with the example of Süleymaniye Mosque (Arslan, et al, 2016); Süleymaniye and Vefa region were discussed, their historical importance was explained, the design criteria determined by the existing urban texture were mentioned, and the analysis of public projects for the revival of the region was made (Arslan, vd, 2016). In a study by Parlak Biçer et al. (Parlak Bicer, et al., 2018), a building in the former American College campus in Talas, Kayseri was examined in terms of ecology criteria. As a further study of this, Parlak Biçer and Akdağ (Parlak Biçer, Akdağ, 2020) examined the footprints of ecology criteria for a total of four buildings, two used as guesthouses by Erciyes University in the American College campus and two in the former American hospital and school lodging buildings.

In a study conducted in Konya; The situation of Mengüç Street, which is located in the only and last protected area in the city center, was examined before and after the Rehabilitation Project (Yanar, 2016). In another study, in which the sustainability of the traditional street fabric is discussed in Niğde; Yavaşcan et al. (Yavaşcan, et al, 2016). Ten residences located on Kadioğlu Street are discussed. The traditional Diyarbakır house has contributed to another study area, which is examined under the title of materials and resources of LEED v.3 and v.4.1 certification systems, in terms of certification (Tuna Taygun, 2019). In the study of Parlak Biçer et al. (Parlak Biçer, et al., 2020); 10 traditional houses built on the same dates in Kayseri Talas district were evaluated comparatively within the scope of international building certification systems criteria. In a study, in Mersin; the design components of traditional Mersin houses are handled with ecological approaches (Gündoğdu, Birer, 2021). In the study, 30 traditional houses; It has been investigated in many ways such as floor height, carrier system, materials used in construction, roof form and material, topography, choice of direction, vegetation, building form, spatial organization, building envelope, use of renewable energy resources (Gündoğdu, Birer, 2021).

It has also been determined in the literature that ecological production concerns many actors in the construction industry, from designers to contractors and users. It also covers the design, production and use processes of a building. The ecological criteria applied in buildings in Turkey have been derived from different certification systems used in developed countries. The common focus of these certification systems is; to describe structures that do not harm nature, are compatible with their environment, consume less energy and, if possible, can produce their own energy. Buildings that were produced in the periods before ecology was positioned in the field of architecture can also be evaluated in this sense within their own conditions and with the common definitions of certification systems. Moreover, it would not be wrong to say that some of the foundations of the concept of ecological architecture, which is expressed within the framework of certain rules in contemporary life, are based on inferences from historical buildings.

In this study, the historical city of Kayseri, the historical city of the Central Anatolian Region and the center of commerce, the town of Talas, where the minority population was densely populated and rare examples of minority architecture, was also seen in the location selection of American Board schools. The house, whose construction was completed in 1879 in Yukarı Talas, and whose first owners were members of the Armenian minority, was evaluated in terms of ecological architectural criteria. The points where the features of the examined building coincide with the principles of today's ecological architecture are examined and its features that can be evaluated in the context of ecological architecture are discussed. As a result of the study on the residence, it has been seen that the structures belonging to the minority architecture produced with traditional methods, met most of today's ecological architecture criteria, during the period when the concept of ecological architecture did not form a literature infrastructure yet. With the study, it is aimed to contribute to the necessary literature in order to reflect this to today's technologies by researching the ecological traces in historical buildings produced with traditional construction techniques.

## **2. Materials and Method**

Within the scope of the study, the mansion, which is one of the minority architectural examples, located on Yukarı Talas Fırın Sokak and whose architectural drawings were made, was examined. Together with the plan drawings obtained, the residence was examined on site and evaluated in the light of the common criteria of certification systems. The mansion, whose original character is generally well preserved, is among the surviving structures in Yukarı Talas; It is very important in terms of being a single example with its features such as area usage size and number of floors. While there are many residential buildings built by the Armenian and Greek minorities living in Yukarı Talas, the floor plan drawings of the house, which is one of the few examples that survive today, were made and visual documentation was carried out on site. In this study, first of all, the literature, which constitutes the conceptual framework for the subject, was searched and studies were carried out on ecology, ecological architecture, sustainability and ecological approaches. The

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data obtained from the field study and plan drawings were examined in the light of the ecological approaches reached as a result of the literature review, and the findings for the housing were revealed and evaluations were made.

### 3. International Certification Systems and Ecology

The purpose of establishing certification systems is the effort to create unique standards for countries. Climatic data, culture, social life, level of development and construction methods differ according to different countries. Six certification systems, namely BREEAM, LEED, Green Star, CASBEE, DGNB and IISBE, have been accepted in most of the World Green Building Council (WGBC) member countries (Özgören, 2010). The common points where the evaluation criteria of these systems meet; It is seen that he focuses on energy, ecology, indoor environmental quality, environmental pollution and water issues. In addition, the economy is among the DGNB criteria (KingSturge, 2009). There are also differences between the evaluation methods of certification systems that are similar to each other, and the handling of different criteria with different scoring systems (Cheng, Venkataraman, 2013). While measuring with a building comparison technique made according to LEED, EPA (Environmental Protection Agency) standards for the water efficiency criterion, BREEAM calculates the per capita consumption value over m<sup>3</sup>/year. In terms of energy efficiency, when BREEAM and LEED are compared, BREEAM seems to be more challenging. When all certificate systems are examined, it is clear that there are differences and similarities. This has not made any of them a superior or more unsuccessful system. It is necessary to choose the systems that are suitable for the region where the building is built, the budget and the socio-cultural structure (Özgören, 2010).

The certifications emphasize ecology and sustainability. The term ecology was first used by Henry Thoreau in 1858, but no definition was given. It was later derived by Ernst Haeckel in 1866 from the ancient Greek words oikos=home-space and logos=science (KışlalioğluBerkes, 1994). Over time, ecology has become a popular field of study in many different disciplines. In the field of architecture, research and studies have been carried out on the subject and the concept of ecological architecture has emerged. It is aimed to produce an architecture that is compatible with the natural environment as much as possible by encouraging the economical use of energy and non-renewable resources, behaving sensitively to people and nature, and choosing materials compatible with nature, so that future generations can live at least in today's conditions, taking into account their past data with ecological architecture (Dedeoğlu, 2002). Therefore, in order for a building to meet the ecological design criteria, the building should not be imposed on the environment, but should create integrity and harmony with the environment (Fletcher, 1999, Dedeoğlu, 2002).

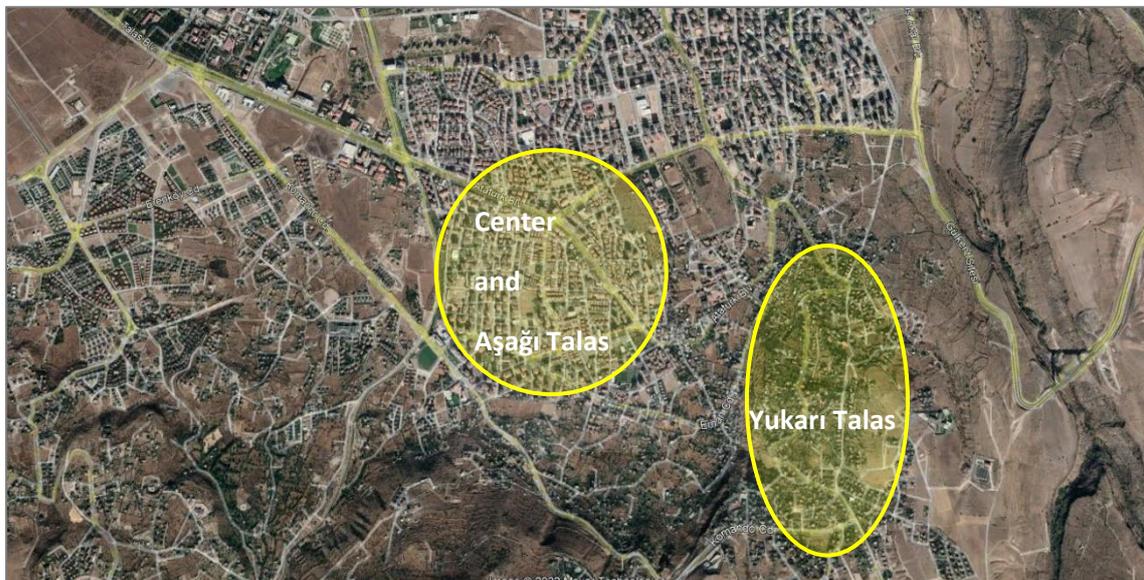
The fact that the building is in harmony and integrity with the environment has differed from the developments over time, especially with the beginning of the industrial revolution. The industrial revolution has caused significant changes in the building sector. This change has been effective in the construction sector, from construction techniques to building materials. Like every change, this situation has also brought about new problems. Rapid production and new materials started to be used, another system that will come after it, for example, problems related to building physics, and while using different materials for problem solution, situations that negatively affect the health of living things have begun to emerge. In this changing and developing process, the solution of the negativities has been tried to be found with ecological approaches (İnanç, 2010; Parlak Biçer et al., 2016, Parlak Biçer, Akdağ, 2020). As a result, the importance of sustainability and ecology concepts has increased, and these concepts have gained popularity in the academic environment. This issue, especially in housing, which constitutes a large part of the production activities in the building sector; It has come to the fore with issues such as low-cost fast production, easy transportation, use of natural and harmless resources to human health, and energy efficiency. Sustainability and ecology have gained great importance especially with the criteria of efficient use

of energy and the protection and correct use of natural resources, and studies on this subject have increased rapidly (Hoşkara, Sey, 2016; Parlak Biçer et al., 2016, Parlak Biçer, Akdağ, 2020).

Recently, with the increase of energy problems in almost every field, it is seen that the CIB (Fr: Conseil International du Bâtiment: Eng: International Council for Building) criteria are also taken into account in conventional and traditional construction methods and evaluated as an input that shapes the process in the design and production stages (Bozdoğan, 2003, Parlak Biçer, Akdağ, 2020). The reports prepared by the CIB in the construction sector are important in terms of guiding the sector and determining the boundaries (İnanç, 2010; Parlak Biçer et al., 2016, Parlak Biçer, Akdağ, 2020). The aforementioned organization has set out criteria related to ecological structures and especially residences, and these criteria have been widely accepted. In this context, within the scope of the study, the example of minority architecture in Yukarı Talas was examined and evaluated within the scope of ecology and sustainability within the framework of the common criteria of CIB and other certifications. In this context; Through the Karaman Mansion, which has been selected specifically for Talas traditional housing texture, issues such as the relationship established with the context and the natural conditions of the topography, the effects of the natural data of the environment on the design within the scope of ecological standards, the use of materials and sustainability are discussed. In the study, it has been tried to show the way for today and the future by drawing attention to the increase of awareness in ecological architecture and its benefits, especially for minority housing.

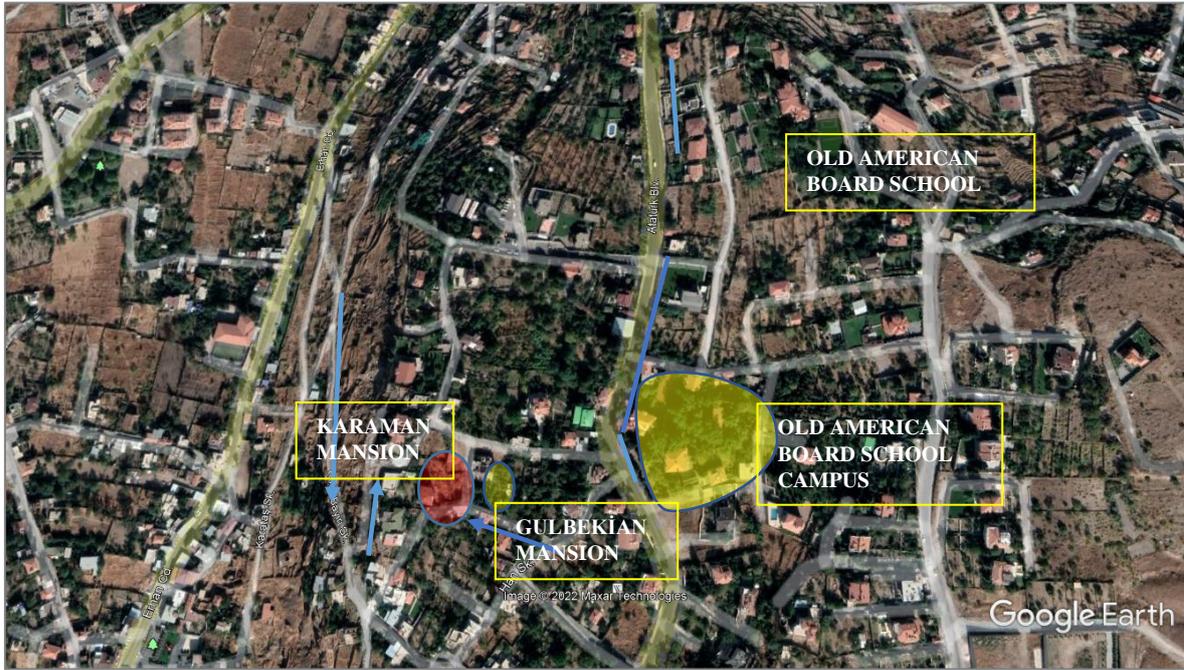
#### 4. A Minority Housing; Karaman Mansion

Talas, one of the central districts of Kayseri city, is divided into two as Aşağı (down) and Yukarı (upper) Talas. The part located on the skirts of Mount Ali is known as Yukarı Talas, and the part located on flatter areas is known as Aşağı Talas (Map 1). Due to the higher altitude of Talas, where the continental climate is dominant, the effect of east and southwest winds is more than Kayseri. The height difference between the Aşağı and Yukarı Talas also causes the climate to become harsher in short distances. It is known that the water channels on the skirts of Ali Mountain and the natural sheltered structure of the region against the winds were effective in the selection of the region as a settlement during the historical periods. In particular, the topographic structure of Yukarı Talas and the easy workability of the soil properties are among the factors that contributed to the preference of the region as a settlement in the past. Because of these features, Talas has hosted different ethnic communities and has become a settlement with a rich cultural heritage where Armenians, Greeks and Turks, Protestants, Orthodox and Muslims live together.



Map 1 Talas town center and Yukarı Talas (Google earth pro, 2022)

Yukarı Talas has also been an important region for the American missionary. Talas American School and Hospital, which was established to raise the children of Greek and Armenian families living in the region, is one of the important structures. Karaman Mansion, which is a hundred meters away from these structures, is accessed from the narrow streets of Yukarı Talas, via Fırın Street (Map 2). Another important building adjacent to the mansion, which has a nascent garden to the east, is the physically devastated Gulbenkian mansion. It is located at the same distance from Atatürk Street, which is the main transportation axis today, as it was in the past. It draws attention as a surviving structure within the old and dilapidated housing texture around it. It is possible to attribute this to the fact that the biggest reason for this is that the building has not changed hands and that every owner has kept the building in active use.



Map 2 Karaman Mansion, Yukarı Talas (Google earth pro, 2022)

Karaman Mansion (Figure 1, 2), which is named after its first owners examined in the study, is one of the structures built in 1879 in a multi-national and religious ethnic structure. The change of ownership of the property, which is common in the minority residences, is also encountered in the Karaman Mansion. In the Cizye Defterleri dated 1834, the known person from the Karamanoğlu family, who was seen to reside in the neighborhoods where Karye-i Talas Millet-iRumiyan lived in Mahale-İ Yukarı (Cömert, H., 2010), is Gabriel Karamanoğlu. Robert Haroutunian reported that; his great great grandfather Kapriel Karamanian and his wife Gulkadin Khoubesserian were owner in Karaman Mansion. They had three children: Takuhi Karamanian Baliozian (1855-1936) Bedros Karamanian and my great grandfather Artin Karamanian (1860-1936) (Haroutunian, 2022). According to the land registry records (15.05.1947, 74 volumes, 103 pages, 01 rows and 07.05.1946, 176 volumes, 76 pages, 10 rows), Ohannes Karamanoğlu is the known owner of the property in the deed (Figure 3, 4, 5, 6). Afterwards, the mansion is seen under the ownership of Ahmet Karamancı and Kaniye Fevzioğlu. From the Fevzioğlu family, it was seen that it passed to Mehmet Ulutopçu by purchasing and to Mehmet and Mithat Ulutopçu by inheritance (Parlak, R., 2020). The current owner of the house is Ruşen Parlak. As it can be understood from here, the situation of being sold to many people in the old mansions is rare in this mansion. This situation; He ensured that the 143-year-old mansion was transferred to the present day with less damage and even without the complete destruction/partial destruction of other historical houses.



Figure 1, 2 Karaman Mansion (Parlak Biçer, 2020a) (Şenalp, 2019)



Figure 3, 4 Photos of family members living in Karaman Mansion (figure 3 was taken circa 1901. Artin (Haroutune) Agha Karamanian is holding his daughter Zaruhi KaramanianJamjian (1899-1992), Standing is Nectar Chalikian Karamanian (1880-1915), seated is her mother Sultan Gulbekian Chalikian with her grandson Kapriel Karamanian (1905-1970). Nectar and her two son Garbis and Kapriel are in the figure 4). Information and visuals of the person living in the mansion, the grandson who lives in New York were provided) (Haroutunian, 2022).

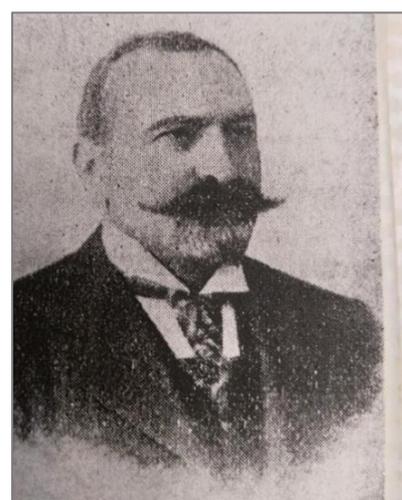


Figure 5, 6 Photos of family members living in Karaman Mansion (figure 5 Artin Agha Karamanian sitting His daughter Mary and son Garbis standing next to him. Kapriel standing in the back. Figure 6 Loghvet Baliozyan (1851-1899), was married to Artin's sister Takuhi Karamanian (1856-1936). He was an educated man. The Ottoman Government sent him to the US for an important meeting in Philadelphia. While he was in the US, he got sick and died in New York City in 1899) (Haroutunian, 2022).

While the minority population in Kayseri and its surroundings make a living through trade (Yılmaz, A. (ed), 2016), the Karaman family dealt with the trade of different goods, especially livestock, to Istanbul, especially to the palace, during the Ottoman period. It is said that there are also entrance privileges to the palace (Teke, 2019). The family's living standards and income levels are high even for where they live, especially considering the high incomes of minorities in Yukarı Talas. The buildings, which are still known as "KaramanBayırı" (Figure 7), were built in the period with the aim of providing access to the mansion in Yukarı Talas (Haroutunian, 2022), especially for their own vehicles, as well as for their immovable properties, and also to shorten and improve the transportation of all the people from a steep slope and a long transportation axis. construction works are also known. In addition, Karamans tried to create a livelihood for the poor minority families of the region by creating the terraced topography of Yukarı Talas and contributed to the development again (Teke, S., 2019). Despite the reconstruction works and commercial successes of the Karaman family in the region, it is not as well-known as the Gülbenkians, another Armenian family from Kayseri-Yukarı Talas.

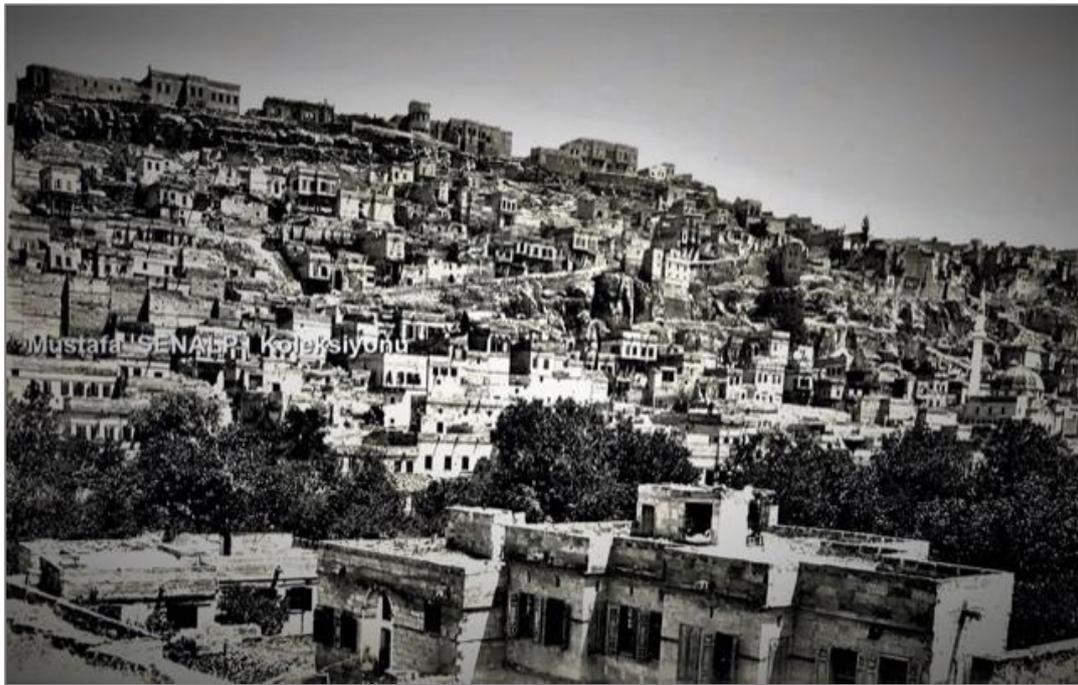


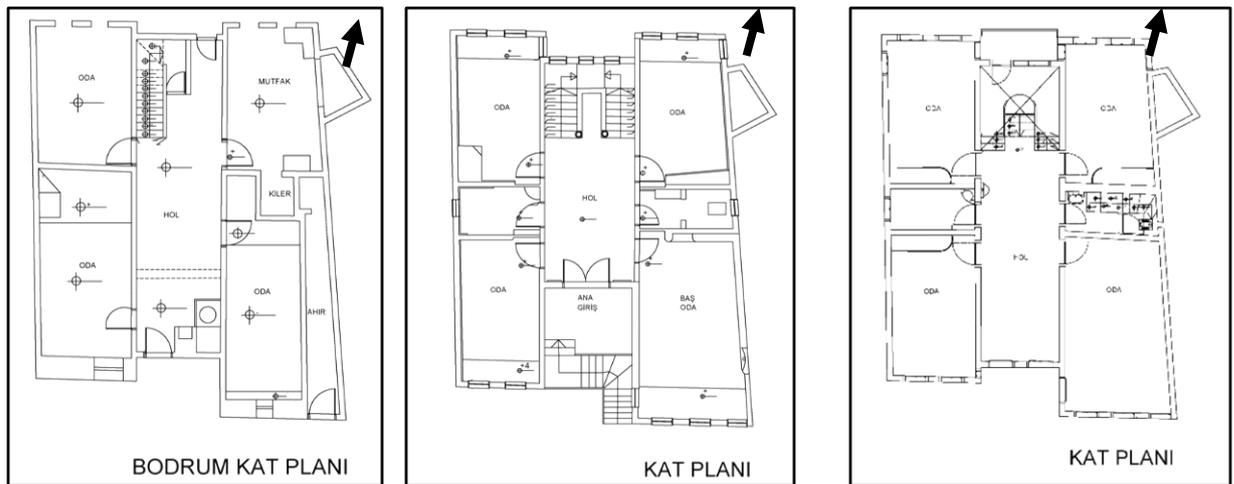
Figure 7 KaramanBayırı and Yukarı Talas (Şenalp, M., 2019)

Gulbenkian residence (Figure 8), located to the east of the land where the Karaman mansion is located, belongs to the family of Kalust Sarkis Gulbenkian, known as "Mr. Five Percent," in international business circles thanks to his oil shares. Although he was born in Istanbul, Gulbenkian (URL 1, URL 2, Tchamkerten, Astrig, 2017) is also relative to the Karaman family. As a result of the economic, political and war conditions of the period, both families settled in the USA by following different paths.



Figure 8 Gulbenkian mansion (Parlak Biçer, 2019)

The main entrance to the garden of the building is in the direction of the garden gate on Firin Sokak. At the garden level, there are places frequently used by those who serve the residential life, such as the outbuildings, barns, and kitchens of the building (Figure 9). There is a secondary use staircase descending below this level and there are two small rock-carved warehouses where the residence is used as a cold storage. In one of these warehouses, there is a “şirahna” (the local pronunciation of the word şirahane for using grape jam and wine), where grapes collected from the residential garden and other vineyards are crushed and their juice is extracted. There is also a door opening to the north garden section from this level in order to facilitate the life intertwined with the garden (Figure 9). These spaces, which are at the same level as the garden and street level, are not used for the main entrance. The main entrance is provided from an upper floor, which is reached by ostentatious stairs (Figure 10). There are four large rooms around a large hall on the main living floor, and two service areas, one of which is thought to be used for the service of the prepared food in the basement kitchen, and one is the place where a toilet was added later. The upper floor is reached by a two-armed staircase. On the upper floor, there are four rooms around a large hall (Figure 11). There is a wooden staircase leading to the roof of the building from one of the two small spaces between the rooms. It is thought that the roof and this ladder were added later by the second users.



Figures 9, 10, 11 Basement, Main and First Floor Plans of Karaman Mansion (Parlak Biçer, 2020b)

The main spaces of the building, like the main entrance of the building, are oriented to the north and south. This situation is also reflected in the facade layout. On the south façade facing Mount Ali, two or three window openings were made on both main floors, depending on the size of the meanders. The entrance and the space above it are emphasized by pulling in (Figure 12). There are also openings on the northern façade of the building. However, it is less in number compared to the south facade (Figure 13). There are no openings on the east and west facades of the mansion (Figure 14, 15). There are no window openings on the western façade as it is a single storey adjacent building. The absence of windows on the eastern façade of the building, which overlooks the garden area, suggests that the first users of the house wanted to build another house in the future. Because it is seen that the necessary labor has been done in order to add to the carrier parts on this facade.



Figures 12, 13 The south and north facades of the mansion (Parlak Biçer, 2020a)



Figure 14, 15 The silhouette of the mansion with Mount Ali and its east facade (Parlak Biçer, 2020a)

Local stone material was used as construction material in Karaman mansion. This material is seen not only for the carriers of the building, but also on the garden walls as a divider (Figure 16). It is thought that the roof of the building was created by the second users with metal elements. Because it is seen that the historical houses in Talas had a terrace roof when they were first built,

and these terraces were turned into roof shapes such as cradles and hipped roofs by closing them with sheet metal later on (Figure 17). Stone, which is the main construction material, was used in the load-bearing walls and partition walls by cutting it to a certain size, as well as being used in different parts of the building by processing a single piece for decorative purposes (Figure 18). This type of usage is encountered in the direction of the three-armed stairs, which reach the upper floor from the main entrance floor, facing the main entrance door and hall. There is a total of two street gates, one which is thought to be in use, and one left by brickwork, which reinforces the impression that another residence is planned to be built next to the mansion in the future, at the transition of the mansion to the streetatan garden. While an arch is made of cut stone in the garden corner, which has been closed for use (Figure 19), a single piece of stone jamb and lintel can be seen in the used one (Figure 20).



Figures 16, 17 Use of stone as building material on exterior walls and interior stairs (Parlak Biçer, 2019)



Figures 18, 19 The use of garden gates on Firin Street (Parlak Biçer, 2019)

There are stairs leading to the main entrance of the mansion, an arch above the main entrance that also carries the floor, and a single piece of cut stone on the main entrance door with outstanding workmanship (Figure 20). The fact that the color of the stones around the main entrance of the building, which also emphasizes the entrance, is different from the stones used throughout the building, shows that these stones were obtained from a different quarry in the region (Figure 21). On the main entrance door, there is the construction year of the building, which is integrated with the ironwork. These details are also decoratively reflected on the rose window, which is used for the illumination and ventilation of the space, located on the entrance door (Figure 22). Stonework can also be seen on the items made as a single piece for squeezing grapes and detailed with embroideries on them (Figure 23).



Figures 20, 21 Residence Main Entrance and Main Entrance Gate (Şenalp, 2019)



Figures 22, 23 Rose window detail including the construction date and monolithic stone pool (Parlak Biçer, 2020a)

Wooden beams were used as carriers in the main entrance and first floor floors of the building. While stone covering material was used on these beams on both the main floor and the first floor,

wooden sweat ceiling was applied as the ceiling covering (Figure 24). Based on the wooden decorative ornaments on the ceiling of some residential buildings, which were restored by the municipality, it is thought that this mansion also had ceiling decorations and disappeared over time due to weather conditions, people's dismantling, and moving to another place. The wood used as a beam on the load-bearing walls also acts as a lintel on the window openings. Windows are made of wood in a double-opening manner (Figure 24, 25). There are wooden shutters on the outside of the windows (Figure 25). These blinds, especially located on the north facade windows, contribute to protection from the cold in winter (Figure 26).



Figures 24, 25 Room interiors located to the south and north (Parlak Biçer, 2020a)



Figure 26 Karaman Mansion (Parlak Biçer, 2022)

## 5. Ecology in Karaman Mansion

While the use of machines and high-tech products is mostly seen in the buildings used today, it is seen that the ecological criteria are met without harming the environment and transforming the environmental conditions into an advantage in the traditional historical buildings. The relationship between nature and the way they are positioned in the regions and buildings where the historical texture is located constitutes the starting point of sustainable design solutions. Climatic conditions,

topographical features and cultural factors in living spaces affect the settlement, form, orientation, dimensions and spatial organization of the building in traditional settlements (Parlak Biçer, et al., 2020). It is thought that this situation is also seen in minority architecture. In this context; the mansion, which is discussed in the study, has been discussed under the common criteria of international certification systems, especially the criteria set by the CIB (CIB, 1999). Topics that certification systems combine; There are 15 topics in total, including ecology, energy, economy, indoor environmental quality, health and welfare, innovation, management, land use, transportation, renewable technology, water, environmental pollution, CO2 emissions, materials and waste (Parlak Biçer, et al., 2020). Karaman mansion has been examined over these determined topics.

In Yukarı Talas region, there are buildings with larger gardens. It has been determined that the entrance doors of traditional houses are located in the direction of the sun's rays. The south façade is the façade that benefits from the sun's rays at the highest level. This ensures that the snow in front of the entrance gate melts quickly during the winter months. Consisting of basement, ground and first floors. By examining the plan schemes of the building, it was tried to obtain information about the ecological architectural traces. In the living culture of the region, the basement floor is used as service spaces, the ground floor is used as a winter floor, and the first floor is used as a summer floor (Parlak Biçer, et al., 2020). Karaman mansion also has these features. Benefiting from the rock structure of the region, the presence of rock-carved spaces accessed from the basement in the mansion prevents the food from being damaged by being less affected by the heat in the summer and the cold in the winter, that is, from the outside weather conditions. In addition, the fact that these places are isolated from daylight can provide suitable conditions for use as cold storage. Therefore, energy usage can be saved. The fact that daylight can be adequately received by all buildings at any time of the year is also an energy-saving feature in the building (Table 1).

It is seen that there are fewer and smaller openings on the northern façade of the mansion. In addition to having more openings on the south façade, the skylights on the upper part of the main entrance door of the mansion and in the south rooms are positioned for natural ventilation in the rooms heated by the sun in summer. There are also wooden shutters that provide cold control, especially on the north facade (Table 1).

While stone was used on the walls, wooden material was used on the floors. Although some of the buildings have hipped roofs that were added later, the soil flat roof application is seen in the period when all of them were built. Wooden materials are used in the decoration of the ceiling coverings, door and window joinery of the buildings (Table 1).

The title of economy, one of the criteria of international certification systems, aims to consider the efficiency to be taken in every decision during construction activities. An approach available in the Karaman mansion, which is an example of Talas minority architecture, is to ensure that the building can be expanded by making additions. This situation allows the same users to use the same structure for many years, even as families get bigger and smaller. It is possible for the mansion to be evaluated within a sustainable approach, thanks to the fact that the changing systems can be easily integrated into the structure and the construction systems allow this (Table 1).

Passive energy is utilized at the highest level in the mansion. The window shutters used in the building provide the indoor environmental quality. The shutters are opened and closed by the user to provide sun and cold control. The skylights, which provide air circulation in the interior, are another ecological trace detected in the mansion. In the summer months, the heated air in the middle sofa and rooms is evacuated through the skylights, increasing the indoor air quality. In addition, in the context of providing interior comfort conditions and realizing health and welfare criteria, the manpower is utilized at the highest point in the mansion examined. Because aspects such as the high number of applications that require building maintenance and the effectiveness of life in connection with the garden encourage people to move. The barn located on the ground floor

also contributes to the heating of the main room of the mansion, which is in plan type with a middle and inner sofa. With its interior sofa plan, it is ensured that the sun's rays reach the interior parts of the building (Table 1).

In ecological building designs, the innovation criterion is of great importance in order to emphasize the importance of buildings using new systems that give importance to research and development. In the mansion, which is in the minority architecture, maintenance should be done because if the roof maintenance, which must be applied at certain times of the year, is not done, it will cause water to leak and cause the wooden carrier floor to lose its strength over time. This type of building maintenance implemented by building users is innovative (Table 1).

In ecological criteria, attention is paid to the balance between land use, green and building area, the non-use of agricultural lands and their proximity to social facilities. The fact that the examined host uses the products obtained from his own garden as food has revealed the necessity of a large garden (Table 1).

Within the scope of transportation criteria, the use of public transportation vehicles and bicycles is encouraged in today's ecological structures, and the use of vehicles that do not consume fossil fuels is supported. It is seen that the transportation with the barn section under the Karaman mansion is provided by using animal power and that the family has built the "KaramanBayırı" that bears its name and the transportation vehicles used enable them to travel short distances (Table 1).

In terms of renewable technology and water use, the mansion, which is provided by using passive systems, has been an efficient example for the stone material to be used for heat storage and when the building has completed its life. From the point of view of water use, saving water in the use of water is an important issue in contemporary ecological structures. In the follow-up, high efficiency is aimed with irrigation and use as fertilizer from wastewater. Since the mansion was built, the lack of infrastructures for drinking water and wastewater enabled ecological solutions to be produced on the basis of buildings. Thus, collecting rain and snow water in wells and using it for drinking and garden irrigation has become an ecological approach. There are two drinking water wells both in the garden and inside the mansion (Table 1).

In order to prevent environmental pollution, it is necessary to use renewable energy sources in buildings and to apply ecological criteria from the production of the materials used to their transportation. Since all of the applications in the examined mansion were carried out with the use of natural products, there is no application that will cause pollution of the environment. Looking at the CO<sub>2</sub> emissions; There is no CO<sub>2</sub> emission problem thanks to the energy obtained from renewable sources during the construction period of the mansion (Table 1).

The use of materials is a criterion that covers all the products used at every stage of the construction of a building and concerns all other criteria of ecology. It covers many areas from the production of a material used in the building using renewable energy, to the harming of its wastes to the environment, to the arrival distance to the construction site. The use of local materials in accordance with environmental data stands out in Karaman mansion. Considering the energy use of the mansion and especially the construction material forming the carrier system and the selected carrier system; The use of cut stone, which is a local material, by local masters in traditional construction systems overlaps with many of the ecological architectural criteria. It was observed that extra energy and manpower were not used for the transportation of the stone, which is the main material of the building. In addition, the heat retaining feature of the stone is a right decision in terms of balancing the temperature differences between summer-winter and day-night. When examining in terms of human health-material relationship; it has been observed that the mansion was produced from natural and untreated materials (stone, wood, etc.). Ecological approaches can be observed especially in materials used in decoration and fine construction. The use of natural wood in roofs, floors, ceiling coverings and door and window joinery are appropriate choices in

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terms of both air quality and thermal conditions within the scope of ecological criteria. It is known from the plans that the interventions to be made by the current owner of the building, Parlak family, will not use negative materials that do not prevent the breathing of the buildings and do not spoil the originality of the building, especially in the paint applications used in the interior. Sustainability will be ensured in the building with conscious homeowner approaches (Table 1).

In international certification systems, waste is one of the common topics from the construction process to the use stage and recycling of the products formed after the end of the building's life. The main goals are to reduce the amount of waste that will occur by saving on material usage and to make the used material recyclable. Choosing materials that do not harm the environment in the mansion ensures that the wastes do not harm the environment, and also obtaining energy from organic-based wastes obtained from animals ensures that the resulting wastes are converted into energy. The fact that the materials used in the mansion are natural and organic have also brought about that they do not harm the nature, can be mixed with nature when necessary and can form a harmonious integrity with nature. It is also possible to reuse and recycle the materials used. In this way, it is possible to reuse materials with almost no material loss. Therefore, the ecological and sustainable state of the mansion is strengthened (Table 1).

In terms of economy, initial production, maintenance and repair costs, energy use and cost are prominent topics related to the concept of ecology in the building and construction sector. In the mansion examined, the stone and wood used as production materials have a long service life and the maintenance-repair requirement and cost is low, provided that the necessary precautions are taken, as well as minimizing the transportation and labor requirement due to the fact that the materials are obtained from places close to the construction site. It enables it to be evaluated economically in terms of cost, usage and maintenance and repair costs (Table 1).

In terms of ecological criteria, at the planning stage of a building, its useful life, cleaning and maintenance, and usage costs are important. In old buildings, there is continuity of maintenance and repair at each layer, depending on the use. However, no serious renovation and maintenance has been done in the Karaman mansion, except for the first users. It is seen that today's building owners will carry out this process. The terrace roof, which is observed to be frequently preferred especially in the examples of Yukarı Talas civil architecture, was not preferred by the second users of this building during the repair, since it requires frequent maintenance and could not provide sufficient insulation, and the wooden gable roof was incorrectly applied instead. With this annex on the roof, instead of periodic maintenance and repair for roof-related problems, repair works and material renewal were carried out only in case of need, depending on the wear, deformation and wear that may occur over time. Although it contributed to the sustainability of this structure, it was not enough and it was an inappropriate intervention to the original architecture (Table 1).

The relationship between function and aesthetics is seen by the CIB as an important ecological criterion (CIB, 1999). It is seen that the function of the mansion shapes its form and design. The stairs built to highlight the main entrance of the mansion and the outward mass effect on it show that the building function was planned with aesthetic concerns. In addition, the formal searches and decorations that can be read on the main entrance components placed in the direction of the dominant view and approach give clues about aesthetic concerns. The opposing windows of the mansion, which open to meet the prevailing wind, are another design that contributes to the general ventilation (Table 1).

**Table 1**Karaman Mansion Ecology Criteria Review

Criteria	The condition of the Karaman Mansion
<b>Ecology</b>	*It will set an example for ecological architectural buildings.
<b>Energy</b>	*Energy from organic-based waste *Wood
<b>Economy</b>	*Material that can be used again in the same function *Building system that allows adding locations
<b>Indoor Environmental Quality</b>	*Material selection *Bound of the building *Window sizes *Upper windows *Contribution of solar control with wooden shutters to heat control
<b>Health and Wellbeing</b>	*Feeding with natural products without additives
<b>Innovation</b>	*Opening the way for technological developments with the reference taken from historical buildings
<b>Management</b>	*Building maintenance management *Expandable build system *Usage management
<b>Land Use</b>	*Surrounding green space
<b>Transportation</b>	*Location close to main transportation axes
<b>Renewable Technology</b>	*Energy from organic-based waste *Wood
<b>Water</b>	*Finding wells where rain and snow waters are collected
<b>Environmental pollution</b>	*Renewable energy sources *Providing with energy efficient applications
<b>Co2 oscillation</b>	*Renewable energy sources
<b>Material</b>	*Choosing materials that do not harm nature
<b>Waste</b>	*The materials used in the construction do not harm the nature and can be recycled *The ability to use the stone material repeatedly in the same function

## 6. Conclusions

Yukarı Talas is a location where there are unique examples of minority architectural examples, generally on the basis of residences. In general, within the small-scale housing texture, Karaman mansion is planned on a relatively large land located in Yukari Talas locality. The mansion meets the criteria of ecological architecture with its many features from the choice of location to the settlement using the elevations on the land, from the production of local materials by local craftsmen to its orientation.

It is hoped that the Karaman mansion study, which is evaluated through the CIB and certification systems criteria, will guide the future studies in sustainability and ecology. It is clear that the studies on minority architectural examples made on the basis of Karaman mansion will contribute to the inclusion of Turkish architecture in the studies of world ecology criteria. It is expected that the examination will be encouraging in terms of creating an architecture that can meet ecological requirements by combining the truths of the past with today's possibilities, techniques and technology. It is hoped that the data obtained from the study will contribute to the development of existing techniques and technologies on the basis of ecology, in particular minority architecture.

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## Resume

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