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**Traditional Rural Architecture in Eastern
Black Sea Region: Case Study on Rize-
Fındıklı-Hara Village**

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Traditional Rural Architecture in Eastern Black Sea Region: Case Study on Rize-Fındıklı-Hara Village

Seda Cengiz

Abstract

The Black Sea region is a mountainous area in the North part of Turkey. The settlements of the region were built on the mountains and plateaus. In the region, annual precipitation rate is higher than the country average. It has the widest forestland of the country. Without any dispute, these climatic and geographic conditions has also shaped the living habits of local people and built environment. Fındıklı, located on the Black Sea Coast, is a small distinct near Rize, Turkey. The nearby settlements of county provide spectacular examples of traditional housing; however, the central Fındıklı itself does not have any traditional housing. The local area consists of villages, and settlements are located near rivers. Due to the geographical condition of the land, the districts are scattered. Some individual buildings are isolated from the others. In the scope of this research, Hara Village in the Fındıklı distinct is studied. The rural architectural examples can be classified as temporary and/or permanent occupation. This study comprises of a typological analysis of permanent occupation of rural houses in Hara Village. These rural houses were constructed and used by the *Laz* population, an ethnic group in the region. Houses were constructed as timber frame system using *gözdolgu* (cell-filled) a construction technique unique in the region. A grid system of approximately 20x20 cm was created in the timber frame using thin timber laths. Monolithic river stones were inserted into the grid gaps and fastened with lime mortar. The inner faces of the walls are covered with timber boards, while the outer faces are left as uncovered. Therefore, the construction system can be seen on these outer faces of the walls. The inner separation walls were built again using timber boards placed between the timber posts. Timber frame and *gözdolgu* (cell-filled) construction system has created a unique housing architecture in Eastern Black Sea Region of Turkey. This paper aims to define the architectural characteristics of the rural houses in Eastern Black Sea Region by emphasizing on the construction system and focusing on Hara Village.

Keywords: Cell-filled technique, Timber frame, Traditional houses, Vernacular.

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Introduction

Black Sea Region is the northern side of Turkey, located along the south coast of Black Sea. Fındıklı is in the extreme east distinct of Rize, which is a city of Eastern Black Sea Region (Figure 1).

Figure 1. *Fındıklı County/Rize City of Turkey)*



The City mostly consists of highlands, around 3920 square kilometers, and a 80 kilometer long coastline. The coastal band has more lowlands because of the alluvial deposits that streams bring (İnanç, 2010).

Although Fındıklı covers an area of 409 square kilometers land, because of the extreme land conditions, settlements are concentrated in the coastal band and plateaus around Çağlayan and Arılı rivers (Figure 2).

Figure 2. *Locations of Fındıklı Center and Hara Village*



The climate and topography of the region is highly humid and mountainous. Unlike the other parts of the Black Sea coastline, the mountains on the eastern side rise steeply from the coast, separating the land into steep mountainous bands. The region, especially the coastline, receives abundant rainfall, and has a mild climate, creating the most extensive forest areas of the country. Due to the steep, high terrain, humidity rapidly decreases in the inner land bands. While the coastal band has the highest precipitation rate and has mild climate, the inner areas have very cold winters and dry-hot summers. This variation forms the vernacular architecture.

The population in Fındıklı County mainly consists of *Laz* people, an ethnic group of Turkey with its own language distinct from Turkish.¹

Like all Anatolia, population of the villages increases in summer months and on county side in winter. Because of this, irregular housing is widely seen in the regional urban centers. Unfortunately, this unplanned housing, extending towards the villages, threatens the traditional architecture in recent decades.

Rural Architecture in Eastern Black Sea Region

In the countryside, in Turkish vernacular architecture, timber and stone are the most commonly used materials. Because of the high humidity of the region, stone masonry was used for the walls separating the living place from the ground, such as foundation walls, basement floor walls, storehouse walls and barn walls. These stone walls can be built as rubble wall, pitched-face wall or ashlar stone wall (Figure 3). For the upper levels, timber is commonly preferred with or without stone.

Figure 3. *Köseoğlu House, Exterior Walls, 2014*



¹ Mutlu, M. 2015. Manager of Civil Registration Office of Fındıklı. Personal Interview.

Timber is less resistant to humidity, but it is abundant in the region, inexpensive and highly processable. The chestnut tree is used due to its higher resistance to moisture, but the alder tree, ash tree and beech tree can also be used.

For these buildings, timber is used for most purposes, such as load bearing system, interior walls, finishing, ornamentation, doors, windows and roof covering (Vural, 2005).

The amount of timber used for the upper levels of the rural houses varies according to zones. Because of the topography of the region, the upcountry zone is less accessible; therefore, a simpler architectural system is used for this zone -plateaus- and more complex architecture for the coastal zone. In the plateaus, the humidity is higher than the coastal zone due to forest density. Thus, for the vernacular architecture, incondensable timber examples are preferred to stone ones (Zorlu and Faiz, 2012). We can classify the construction systems in the Eastern Black Sea Region houses into three main types: Timber Masonry, Timber Frame and Stone Masonry.

In the coastal zone of the region, Timber Frame Architecture - frequently *gözdolgu*/cell-filled system- is used while in the upcountry zone -plateaus- Timber Masonry Architecture is common (Figure 4).

Figure 4. A Timber Masonry House from Şavşat Plateau-Artvin (<http://bit.ly/2joDgtp>)



In Timber Masonry System, horizontal timber boards or timber beams are put on a stone masonry foundation and basement floor wall. These timber pieces are joined at the corners using two special nailless techniques, known as *boğaz geçme* (Figure 5) and *kurt ağzı* (Figure 6).

Figure 5. *Boğaz Geçme Joint, Köseoğlu House, 2014*



Figure 6. *Kurt Ağzı Joint, Köseoğlu House, 2014*



In upper zones -higher than 2000 meters from sea level, Stone Masonry Architecture is preferred, because no trees grow here, and the resistance of heat conductivity of stone is higher than timber.

Timber Frame System in Eastern Black Sea Region

“Timber Frame Architecture is a construction technique often seen in Turkish traditional architecture. It is seen as stuffed with timber (*dizeme-dizeleme* technique), with brick, with mud, with stone, with stone and timber (*gözdolgu* technique). All these types are named as *hınış* in Turkey, means timber frame architecture stuffed with a material.” (Cengiz and Bayazitoğlu, 2014).

Timber Frame System is the most common construction system in Eastern Black Sea Region rural architecture. Like other construction types seen in vernacular architecture in the region, stone masonry is used for the foundation and the basement floor walls. This prepares a level for the timber-frame system (Eldem, 1987).

The main timber beams are placed on this stone level. These timber beams join on the corners as *boğaz geçme* or *kurt ağzı* techniques. The main posts rising from these beams also bear the separate indoor walls. This

composition enables the legibility of the room locations (Figure 7). These load-bearing elements transfer the load to the masonry foundation walls.

Figure 7. *Köseoğlu House, Hara Village, Fındıklı, 2000*



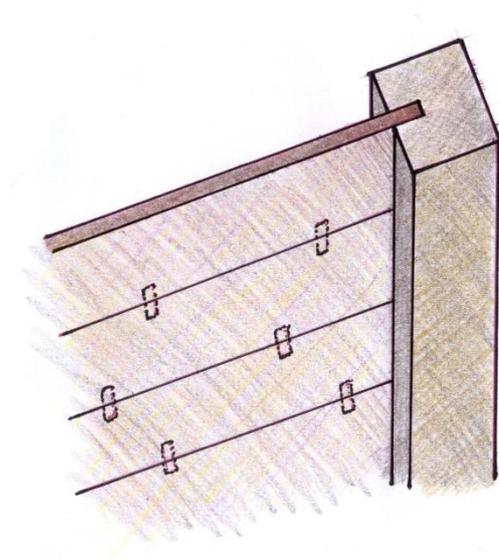
In the region, there are three types of timber frame system. The wooden board-filled system is usually used for inner walls, and for the secondary buildings such as *serenders* (elevated storehouses typical for the region) (Figure 8).

Figure 8. *Serender, Köseoğlu House, 2012*



In this system, longitudinal hollows are carved into the posts, and wooden boards 2.5 to 6 cm thick, 25 to 35 cm wide are aligned between two posts along the hollows. These boards are attached to each other with wooden tenons (Figure 9).

Figure 9. A Sketch of Wooden Board-filled System



Second type is called *muska* (triangular) system. This system is usually seen around Trabzon City in Blacksea Region. It is a kind of timber frame system stuffed with diagonal timber laths and stone pieces (Figure 10).

The third, and less common, type is brick masonry, plastered or *çakatura* techniques. *Çakatura* can be classified as an earlier type of cell-filled (*gözdolgu*) technique. The timber frames are filled with vertical timber laths, approximately 5 to 12 cm apart. These laths can be divided into two or three parts with timber beams, filled with crushed stones, mud and straw (Figure 11).

Figure 10. *Unfilled Muska (Triangular) System (Özgüner, 1970)*



Figure 11. *A House with Cakatura Construction Technique in Saat Village, Fındıklı, 2014*



As the other types are rare, this paper focuses on *gözdolgu* (cell-filled) construction system.

Cell-filled/Gözdolgu System

The examples constructed with *gözdolgu* (cell-filled) system are seen in the northeast of Turkey, the Eastern Black Sea Region. The technique employs vertical load-bearing timber studs, supported with diagonal piers. These primary bearer studs -the timber frame system- are placed on a stone

masonry wall, as seen in all of the construction systems in the region. Because of the slope, this masonry wall provides a basement floor on one side of the building. The posts and beams of the timber frame system are joined at the corners with *boğaz geçme* and *kurt ağzı* techniques.

In addition to this primary structural system, there are the secondary studs spaced about 20 centimeters apart, and between two studs, horizontal timber laths act as shelving (Figures 12 and 13).

Figure 12. *Partial Exterior Gözdolgu wall, Köseoğlu House, 2002*



Figure 13. *Şevki Orhon House, Saat Village, Fındıklı, 2014*



“This grid timber system -mostly made of chestnut tree- is filled with square formed one-piece stream stones and gypsum mortar. Interior walls are made of plain timber-chestnut tree wood or alder wood-. The look of the chestnut tree woods darkened by time, the white mortar and the stream stones with various tones of grey is the invariant of the Eastern Black Sea rural architecture” (Cengiz and Bayazitoğlu, 2014).

This grid system is usually built with locally cut trees. These trees are rolled to the construction site, where the wood is. Immediately after the primary load-bearing system is put in place, the roof construction can begin. This is one of the advantages of the timber-frame system. In the region, after the construction of the exterior walls and the roof, the rest of the construction may continue several years, according to the economic status of the owners.²

Because of the highly humid climate of the Eastern Black Sea Region, the materials used in architecture, it is important to have systems that protect the building from moisture (such as wide eaves) and provide ventilation.

Traditional Plan Types

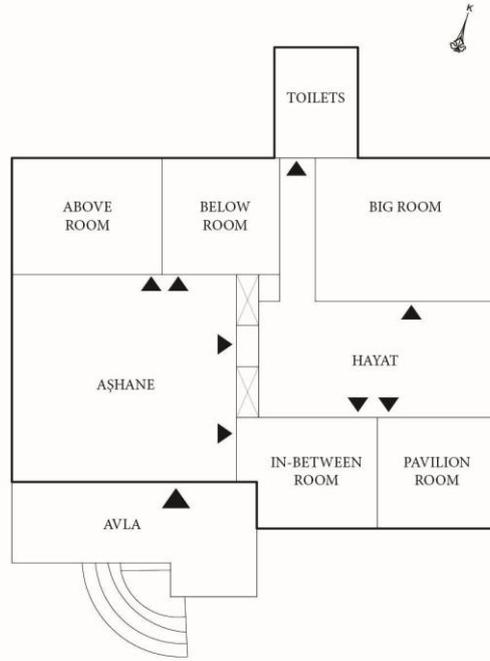
Housing culture reflects the time-place relations, living habits, family structures of the local people (Batur and Öymen Gür, 2005).

Because of the topography of the region, although settlements have existed on the coastal band for centuries, construction techniques only started to develop with the growth of transportation. Architecture on coastal band became more sophisticated than the inner regions, due to craftsmen working in boatbuilding on the coasts, who were responsible for ornaments being included in the constructions.

In the plans, architecture in plateaus -the inland band- shows differences, houses on coastal band of Eastern Black Sea Region -from Trabzon to Hopa- usually have the characteristics of same plan type (Çevik, 2014).

“House” has been shaped by daily living habits over centuries in the region. The construction craftsmen never needed to draw a new plan type, because the inner layout has been tried, experimented and perfected over time. All rooms have their own function, reserved for specific people, also, there is a large area seen all of the plans, that serves various needs of the family as a whole (Özgüner, 1970) (Figure 14).

2. Cengiz, C. 2014. Personal Interview; Cengiz, F. 2014. Personal Interview.

Figure 14. *Köseoğlu House, Hara Village, Fındıklı*

Although all houses are shaped according to this plan type, the layout in terms of size and number of the rooms depended on the economic status of the owner family (Sözen and Eruzun, 2001).

Courtyards are not seen in the region, because they evolved in hot climates and collective settlements (Özgüner, 1970). Entrances usually face south in order to get maximum daylight. It is clearly seen from the plans that the vernacular plan type was shaped according to local lifestyles.

In an agricultural region, local people spend the most of the day outdoors; as a consequence, there is a transit space -a threshold- in front of the houses, called *avla*. The *avla* is reached from the forecourt, usually by 6-7 stairs. This space was created by shifting the entrance wall inwards (Figure 14).

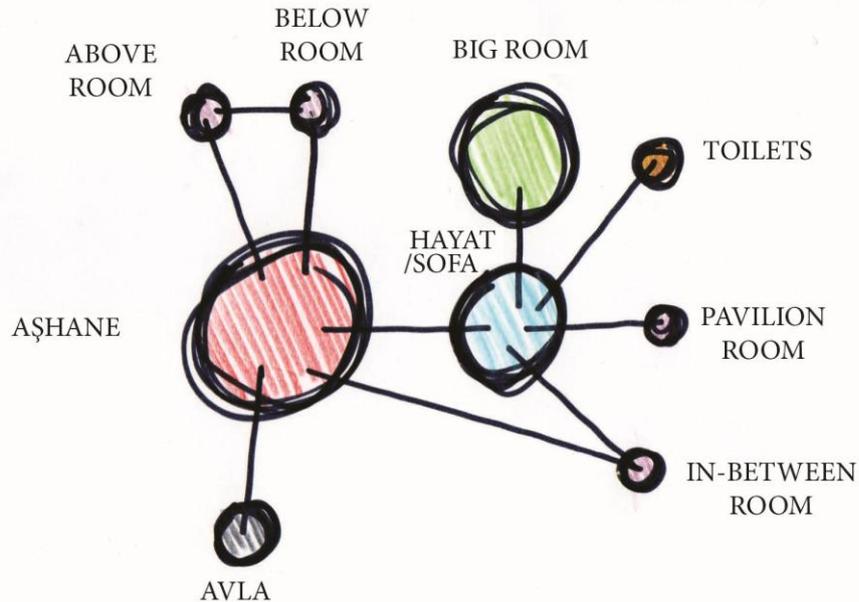
This leads into the *aşhane* -the cooking place- with a high threshold. This place is the center of life in the house. Eating and chores such as cooking and collective work occur in here. In its original condition, the place has a compacted earth floor, uncovered ceiling, and a fire in the middle. The family would spend most of the day around this fire. Today, these places are covered with wood finishing both on the ground and ceiling, and used as living rooms, as in previous times (Figure 15).

Figure 15. *Aşhane of Köseoğlu House, 2015*



There are two centers of these vernacular plan types; one is the *aşhane* and the other is the *hayat*, which is a secondary living room. These two centers are planned first and then the other rooms are designed around them. The *Aşhane* is placed on the higher side, and *hayat* is placed on the lower side, with a view down the slope (Sözen, Eruzun; 2001) (Figure 16).

Figure 16. *Traditional Plan Type*



The rooms opening on the *aşhane* are known as the ‘above room’, ‘below room’ and ‘in-between room’. The above room and below room are adjacent to each other immediately opposite the main entrance of the house.

In this culture, these two rooms are specified for the parents and the youngest children. The in-between room is for grandparents -the oldest members of the family-, because of that the room has easy access to both *hayat* and *aşhane*.

There are three rooms opening to *hayat*; in-between room, the pavilion room and the big room. The pavilion-room is located in the corner of the house and has windows on both sides, for maximum daylight. This room is usually assigned to newlyweds. The big room is the guest room, which has a sofa, a fireplace and a closet, and a corridor, which connects it to the toilets, through the *hayat*.

In addition to these, every house has a raised storeroom next to it. These storerooms are called as *serender* in Turkish, which means cool place (Figure 8). *Serenders* are graceful wooden constructions that have stone masonry foundation and ground floor walls, a raised wooden storage floor and a hipped roof covered with tiles. Here, crops are dried and stored for use throughout the year. They are an integral part of Eastern Black Sea traditional architecture.

Traditional Houses in Hara Village

During the study, many houses have been analyzed, some have been studied in detail on plan layouts; also interviews have been conducted with owners, local people and local craftsmen. This part of the case study focuses only on the traditional houses in Hara Village, which has a population of 277 and consists of 107 households and 5 quarters.³

These traditional houses have been evaluated according to their plan layouts, common and distinguishing characteristics.

All evaluated houses are currently used as residences, and were constructed with traditional techniques, according to the traditional plan layout.

One of these houses, Köseoğlu House (1890) (Figure 17) is located on a slope with its *serender*. It dominates the tea-tree gardens, located on the east side of the house. As seen in local architecture, it has stone masonry foundation and basement walls, supporting *göz dolgu* (cell-filled) and timber filled ground floor walls. Many changes have been made by the owners over the years. The biggest user interventions were made before 1970. With these interventions the below-room became used as kitchen, the *aşhane* was covered with wooden finishing on the floor and ceiling, and the toilet mass was replaced with briquette.

³ Mutlu, M. 2015. Manager of Civil Registration Office of Fındıklı. Personal Interview.

Figure 17. *Köseoğlu House with its Serender, 2013*



Cahit Kitapçı House (1770) (Figure 18) is the most important house in Hara Village. This is because the house is the only one with original compressed earth floor in the *aşhane*, and original wooden slats on some of the windows. These slats, used inside the wooden shutters before flat glass became common in the region, have been preserved on the east side of the house.

Figure 18. *Cahit Kitapçı House, Hara Village, Fındıklı, 2014*



The house was constructed as timber-frame filled with wooden boards, on a stone masonry foundation and basement floor wall. In the plan, the house shows the characteristics of the vernacular plan type, and it is about the same size as Köseoğlu House.

Besim Alişan House (Figure 19) is also an example of traditional architecture in the region. This smaller house has bare walls inside, so the cell-filled system can be seen from inside, too.

Figure 19. *Besim Alişan House, Hara Village, Fındıklı, 2014*



Yaşar Alişan House (Figure 20) and Orhan Tüfekçi House (Figure 21) have different construction systems from the others. Some parts of the ground floor walls of Yaşar Alişan House are cell-filled below the window sill and wooden board-filled above the window sill.

Figure 20. *Yaşar Alişan House, Hara Village, Fındıklı, 2014*



The owners of Orhan Tüfekçi House said that the house had been constructed while they were struggling with economic problems. Because of that, the construction process had taken years, and different materials had been used. The basement floors are stone masonry and cell-filled, while the ground floor walls are variously cell-filled, wooden board filled and *çakatura*.

Figure 21. *Orhan Tüfekçi House, Hara Village, Fındıklı, 2014*



Çakatura is a construction technique that is disappearing because it is vulnerable to deterioration. In Hara Village, it is seen only in Orhan Tüfekçi House. An abandoned *çakatura* house (Figure 11) was observed in Saat Village in Fındıklı.

Conclusions

In Eastern Black Sea Region, we can classify the construction systems of rural houses into three main types: Timber Masonry, Timber Frame and Stone Masonry. The amount of timber used for these houses varies according to zones. Because of the topography of the region, the upcountry zone is less accessible; therefore, a simpler architectural system is used for this zone and a more complex architecture for the coastal zone.

Timber frame architecture, mostly cell-filled (*gözdolgu*) is seen on the coastal zone, from Hopa to Trabzon. This system consists of both stone and timber.

In the plateaus, the humidity is higher than the coastal zone due to forest density. Thus, the incondensable timber examples, Timber Masonry houses are common.

In upper zones, higher than 2000 meters from sea level, Stone Masonry Architecture is preferred, because no trees grow here, and the resistance of heat conductivity of stone is higher than timber.

In the plans, architecture in the inland band shows differences, houses on coastal band of Eastern Black Sea Region -from Trabzon to Hopa- usually have the characteristics of same plan type (Çevik, 2014). Hara Village has many house examples of this traditional plan type.

Despite all, irregular housing is widely seen in the regional urban centers. Unfortunately, this unplanned housing, extending towards the villages, threatens the traditional architecture in recent decades.

On this paper, it is studied in a limited neighborhood. For conservation of rural architecture in the region, deeper researches and studies should be conducted. In order to do this, restrictions should be placed to minimize user's interventions immediately. Likewise, the traditional plan type mentioned in the study and its evolution through the years should be described clearly for transmission to the future generations.

In addition, although the region is famous for its rainfall and dense forests, today it is nearly impossible to find thick section trees. For this reason, forests are needed to supply trees, in order to be used for restorations.

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