SPACE ANALYSIS OF TRADITIONAL WOODEN MOSQUES IN SAMSUN IN KAVAK TOWN, MIDDLE PART OF BLACK SEA REGION, TURKEY

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Notes: All the photographs in the article were taken by Zeynep Uzun in 2015 and 2016 and the maps were created by using ARCGIS, Google Earth and Global Maker and also the available database of Turkey.

ABSTRACT

Wood has been the most popular construction material for centuries in Turkey, the middle part of the Black Sea Region, which owned a vast forested area. Samsun province is the richest city in terms of religious wooden architecture heritage with its identified 114 wooden mosques. Five traditional wooden mosques have been chosen as study area and documented in Kavak district, which is located in the south of Samsun. These mosques, used for prayer especially on Fridays, religious holidays and funerals, have been built using various construction techniques and belonged to different periods. In this research, the wooden mosques are studied considering their relationship with environment and nature, shape of mass, plan scheme and interior and exterior architectural features. It is observed that these mosques have direct relation to the nature, especially water sources and forested area, and they are located far from the settlements in walking distance.

The documentation is based on site survey drawings and interviews with religious officials, users of the mosques and theologians to understand the religious rituals of the region. Until recently, the wooden mosques in Kavak have been studied only by art historians and theologians in detail about the values of mosques' art history. In this article, Kavak region mosque will be analysed through architectural perspective for the first time.

Kavak mosques have some conservation problems such as intervention and lack of volunteers, bad climatic conditions and deterioration of the wood materials. In this research, it is aimed to create awareness on religious architectural heritage in Samsun, Kavak, which is a source for conservation studies by offering a database.

Keywords: architectural features, Black Sea region, exterior, interior, Kavak, Samsun, space analysis, wooden mosques

1 INTRODUCTION

Samsun region, which has been chosen as settlement area from 4000 BC [1], hosted many civilizations such as Hittites, Kingdom of Pontus, Byzantine Empire, Danişmends, Anatolian Seljuk State, Mongols, Trebizond Empire, Anatolian Beyliks and Ottoman Empire in different periods in the historical process [2]. In Samsun province, located in the middle part of Black Sea region, wood has been one of the main construction materials as Samsun has broad forested areas. The wood was used not only for structural system but also for other needs of the buildings like ornaments and movable architectural units. Wooden architecture tradition was seen in the city and rural areas of Samsun. Nevertheless, big part of the timber architecture heritage in Samsun city centre was seriously damaged by many disasters like '1869 Big Fire', Erzincan earthquakes in 1939, 1942, 1943, etc. [3]. As a consequence of

that, a historical architecture fabric in the city centre could not survive today, but in the rural areas of Samsun there are still civil and religious architectural heritages, which represent the tradition of using wood in the district.

Two wood construction techniques that use block timber walls (log walls – çanti) and timber framed walls (using wood pieces, stones, fired bricks or adobe bricks as filling material) have been identified, which were used for civil architectural buildings in the rural areas of Samsun.

There is limited academic research about religious wooden architectural heritage in Samsun city centre. ‘Büyük Camii’ (Grand Mosque) is known for being the first building constructed with wood. Yet when the wooden one was completely destroyed in 1869 big fire, the mosque was rebuilt in the same place as masonry [3]. However, existence of wooden religious buildings in rural areas refers to this architectural heritage in the region.

Samsun province is the richest city in terms of religious wooden architecture heritage with its identified 114 wooden mosques; the number is decreasing, as stated in recent studies, in the rural areas. Among them there are some wooden mosques that have especially high historical value and reflect the original construction techniques. Göğceli Mosque (1206) was identified in Carsamba town of Samsun by P.I. Kuniholm in the last quarter of 20th century. The age of Şeyh Habil Mosque (1205–11, Çarşamba) and Bekdemir Mosque (1596–99, Kavak town), which was analysed in the scope of this research, were also clarified by dendrochronological analysis [4].

2 STUDY AREA AND RESEARCH METHODOLOGY

Kavak, located in the south of the city, is one of the 17 towns of Samsun province (Fig. 1). The district, where the altitude is between 600 and 700 m, has rainy climatic condition in every season. The forested areas of Kavak mostly consist of broad-leaved trees, and two rivers called Mert and Kürtün Rivers pass through the district [5].

The reason for choosing Kavak as study area is that six mosques in it belong to different building periods and were built with various construction techniques in detail. Until recently, the wooden mosques in Kavak have been studied only by art historians and theologians focused on mosques’ values of art history [6–9]. In this article, mosques in Kavak region will be analysed with architectural perspective for the first time.

This article is aimed to reveal the similarities and diversities between the studied mosques based on their architectural features and to create a typological database that will be a basis for further studies about Samsun.

This research, which is an on-going study as master thesis in Yıldız Technical University, Department of Architecture – Units of Architectural Conservation conducted by Aynur Çiftçi

Figure 1: Samsun province in Turkey – Kavak town in Samsun.

as advisor, investigates six mosques: Bekdemir Mosque (1596–99), Tatarmuslu (Dere) Mosque (18th century), Dere (Değirmencili) Mosque (19th century), Çakallı (Kasımzade Ahmed Sofi) Mosque (19th century) and Koşaca Mosque (18th–19th century). Alagömlük Köyü Mosque in Kavak was detected in earlier field study, but this mosque was left out of the scope for this research temporarily because of bad weather conditions in the last field study.

Research work included written-visual sources and documentation study in archives of the related official institutions was completed first and then in the field study detailed survey drawings and photographic documentation have been done. Interviews were conducted with theologians and local people about religious rituals, usage of the mosques and building restoration dates. Analysis about location and distance was done using Global Mapper, Google Earth and ARCGIS software. The relation of wood with design is also studied in another research which is focused on analysing construction techniques of these mosques.

3 SPACE ANALYSIS OF THE MOSQUES

Kavak mosques, which are known as ‘Cuma Mosques’, have different characteristics from little masjids in neighbourhoods. This mosque type was built for congregating believers in the local community who visit mosques especially on Fridays, religious holidays and funeral days.

By analysing the spaces of these mosques, we have tried to evaluate the mosques in a detailed way in the context of Islamic religious rituals and architectural design principles, and their relationship with nature and the relationship between human and nature are also evaluated. For this aim, six wooden mosques in the field were scrutinized under five topics: location of the buildings, shape of mass, plan schemes and interior and exterior architectural features, by analysing the mosques’ location in the region, covering from major components to the smallest architectural elements in the buildings.

3.1 Location of the Mosques

The most important factor, which effects the orientation of mosques, is the direction of ‘qibla’ towards the Kaaba in Makah. In Samsun province, this direction makes 170° angle in north axis [10]. Due to this positioning rule, south walls called ‘qibla wall’ and main entrances should be in the north facade.

In this part, the relation of the mosques with topography and settlement areas was discussed under location of the mosques in the built environment and nature sections. The mosques in Kavak district, which has 735.59 km² surface area, are located mostly in the south of the town (Fig. 2).

3.1.1 Mosques’ location in terms of the built environment

Cuma Mosques served as holy centres for several village people, especially on Fridays, and they are built in equal distance in each village. In Table 1, information about mosques’ current locations, their coordinates, original and new buildings surrounding the mosques and their relation to the settlement areas are given (Table 1). In ‘Relation with Settlement Area’ column, villages that used the mosques in the beginning and the distance from the mosque to these villages are given. These dimensions calculated as air distance and topographical distance were not known clearly.

Figure 2: Location of various mosques (because of the wideness of the area, main elements are given in the map).

Table 1: Location of the buildings in the built environment.

Name	Date**	Address	Surrounding Buildings		Relation With Settlement Areas	
		Coordinates	Original	Recently Built	Villages' Names	M-V.C. Distance
Bekdemir Mosque	1596-99	located in one km distance to the Asarcık – Kavak way	<i>historical fountain</i> (documented in 1995)	a new concrete mosque, toilet and <i>sadirvan</i>	Bekdemir V. (removed from unknown location) *	centre of the Bekdemir Village
		41.01907,36.11430				
Tatarmuslu Mosque	1796?	located on the way of Kavak-Asarcık, close to two big egg factories built recently	an old masonry remain walls	–	Tatarmuslu V.	1.10 km
		41.05572,36.07614			Tabaklı V.	1.87 km
					Domsunlu V.	1.99 km
Dere Mosque	1806?	located in 2,5 km distance to the Samsun – Ankara way	<i>imaret, fountain</i> (not certain)	toilet annex	Değirmencili V.	1.01 km
		41.15791,36.09146			Kazancı V.*	3.45 km

Cakalli Mosque	1899?	located on the way of Samsun-Ankara way, in the centre of Cakalli town	Cakalli Han (13th century), Cakalli Bridge (1882/83)	fountain	Çakallı V. *	Centre of the Çakallı Village
		41.13905,36.11540				
Kosaca Mosque	18th – 19th?	On the way of Kavak-Asarcık	–	fountain and toilet annex	Kosaca V. *	0.4 km
		41.01500,36.16080				
<p>* Questionnaire studies have not been finished as to understand which villages used these mosques.</p> <p>** Identifying building dates of the mosques by dendrochronological analysis except Bekdemir Mosque is still in progress and written dates are not certain. Official permissions were taken for the analysis of these mosques to clarify it.</p> <ul style="list-style-type: none">– <i>Building names written in italics</i> do not exist today.– Abbreviations = M: Mosque , V: Village, VC : Village Centre– Coordinates were given as (x,y)						

3.1.2 Mosques' location in terms of natural aspects

Kavak district, due to its geographical location, has broad forested areas and two important rivers in its boundaries called Mert and Kürtün Rivers. In Table 2, the mosques' locations, distances to each other and their relation with woodland, forests and water sources are shown (Fig. 2).

When the usage of land is investigated in the context of its relationship with nature, it is clarified that the mosques were built on two types of topography as flat and sloping land. To prevent wood's moisture deterioration and keep them always dried, buildings are lifted from the ground and the consisting gap was used as original storage space.

Oaks are used as main construction material in the rural architectural heritage as they are the widespread trees in the field. It is observed that some trees were planted by locals near the mosques and some of them have grown up naturally.

Spaces near water sources were preferred as location area for the mosques. It has direct connection as flowing water is required for ritual ablution (*abdest*), which is an obligation before praying (*namaz*) in Islamic belief (Fig. 2). The importance given to water in Islamic and Anatolian culture also has impact on Kavak mosques' names. Tatarmuslu and Değirmencili Mosques are called by locals 'Dere Mosque' (River Mosque) because of their closeness to the rivers.

3.2 Shape of mass, plan scheme, and interior and Exterior architectural features

In this section, six Cuma mosques were studied based on their shape of masses, dimensions and interior/exterior architectural features. The wood mosques in Kavak have semi-open and closed spaces. In Islamic architecture literature, main closed prayer places are called *harim* (Figs. 3 and 4), separated space from the *harim* is called *mahfil*, semi-open spaces are called *revaq*, and when *harim* is full and the prayer has already started semi-open or closed spaces for late-coming people are used, which are called *son cemaat revağı*. In the

studied mosques, *mihrap* always shows the *qibla* direction, *minber* is situated at the right of the *mihrap* and *vaaz kürsüsü* is generally on the left of the *mihrap*. All these architectural units were built with wood.

Interior and exterior spaces in Kavak mosques constituted ornaments that were made with wall fresco (*kalemişi*) directly on wood (Figs. 3 and 4), wood carving (*ahşap oyma*) and outstanding wooden tracery (*ajur*) techniques on architectural elements like wall, ceiling, *mihrap*, *minber*, *vaaz kürsüsü*, window shutters, sculpted wood capitals and doors.

On the load-bearing wooden walls, there is limited openness for lightening and ventilation in the inner spaces of the mosques, and on the entrance facade there are openings just for double-wing doors. Only Bekdemir and Koşaca Mosques have window shutters in the study area.

In the exterior spaces of Kavak mosques, some architectural elements are observed near them: water units as fountain and *sadirvan* for ritual ablution. Being different from the other

Figure 3: Koşaca Mosque *Harim*

Figure 4: Bekdemir Mosque *Harim*.

Figure 5: Bekdemir Mosque.

Figure 6: Dere Mosque.

mosques, Çakallı Mosque has coffin rest, which was moved from a historical fountain to use it as coffin rest. All Kavak Cuma Mosques have cemetery called *hazire*, which are located close to the buildings. Some of the graves have historical gravestones.

In Table 2, for the studied five mosque spaces, numeric analyses (width, length, height, space areas) were done and usage capacity and comfort requirements were determined by these results (Table 2). While calculating usage capacity, a standard area for a person during prayer was taken as 0.84 m^2 ($1.20 \times 0.70 \text{ m}$) [11] and *harim*, *mahfil* and *son cemaat revağı* spaces are considered as praying places. *Revaqs* spaces were not included in this analysis. On the plan drawings, *mahfil* spaces on the upper floor underlined with a frame and main space dimensions were given. (Table 2).

4 EVALUATIONS AND CONCLUSION

When the mosques, which were analysed in detail under the topics above, are investigated about their architectural features, the assessment shows that these religious buildings in Kavak rural areas have some common but different characteristics.

Table 2: Plan scheme and numeric data of the mosques.

DERE MOSQUE	
	- number of floor	2
	- <i>harim</i> height	363 cm
	- <i>mahfil</i> height	174 cm
	- <i>harim</i> area	58 m ²
	- capacity of <i>harim</i>	41 people
	- <i>mahfil</i> area	18 m ²
	- capacity of <i>mahfil</i>	18 people
	- <i>son cemaat revak</i> area	34 m ²
	- capacity of <i>son cemaat revak</i> (scr)	24 people
KOŞACA MOSQUE	
	- number of floor	2
	- <i>harim</i> height	532 cm
	- <i>mahfil</i> height	281 cm
	- <i>son cemaat revak</i> height	247 cm
	- <i>harim</i> area	36 m ²
	- capacity of <i>harim</i>	25 people
	- <i>mahfil</i> area	22 m ²
	- capacity of <i>mahfil</i>	20 people
	- <i>son cemaat revak</i> area	26 m ²
ÇAKALLI MOSQUE	
	- number of floor	1
	- <i>harim</i> (original) height	323 cm
	- <i>harim</i> (annex) height	298 cm
	- <i>son cemaat revak</i> height	326 cm
	- <i>harim</i> area (total)	67 m ²
	- capacity of <i>harim</i>	63 people
	- <i>son cemaat revak</i> area	21 m ²
	- capacity of scr	14 people
	- total capacity	77 people
	▨ : qualified annex space	

	<table> <tr> <th colspan="2">TATARMUSLU MOSQUE</th></tr> <tr> <td>- number of floor</td><td>1</td></tr> <tr> <td>- <i>harim</i> height</td><td>272 cm</td></tr> <tr> <td>- <i>son cemaat revak</i> height</td><td>267 cm</td></tr> <tr> <td>- <i>harim</i> area</td><td>42 m²</td></tr> <tr> <td>- capacity of <i>harim</i></td><td>37 people</td></tr> <tr> <td>- <i>son cemaat revak</i> area</td><td>23 m²</td></tr> <tr> <td>- capacity of <i>son cemaat revak</i></td><td>27 people</td></tr> <tr> <td>- total capacity</td><td>64 people</td></tr> <tr> <td>- <i>revak</i> area</td><td>62 m²</td></tr> <tr> <td colspan="2">* <i>harim</i> and <i>son cemaat revak</i> spaces were made units in unknown date.</td></tr> </table>	TATARMUSLU MOSQUE		- number of floor	1	- <i>harim</i> height	272 cm	- <i>son cemaat revak</i> height	267 cm	- <i>harim</i> area	42 m ²	- capacity of <i>harim</i>	37 people	- <i>son cemaat revak</i> area	23 m ²	- capacity of <i>son cemaat revak</i>	27 people	- total capacity	64 people	- <i>revak</i> area	62 m ²	* <i>harim</i> and <i>son cemaat revak</i> spaces were made units in unknown date.							
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About general location of the mosques in the area, it is observed that five of six mosques are located in the east of the town. Among them only Alagömlük Köyü Mosque, which could not be studied in this research, is located close to the Kavak town's northwest boundary (Fig. 2). While analysing the relation of the mosques' locations to each other, the results show the closest distance is between Dere Mosque and Çakallı Mosque (2.92 km) and the farthest distance is between Koşaca and Alagömlük Köyü Mosques (28.62 km).

Bekdemir Mosque, which is known for being moved to its current location in 19th century, and Çakallı Mosque are located in the village centres. Other three mosques have been built in the rural areas and far from the settlement centres. The closest mosque to the village centre is Koşaca Mosque and the distance is about 400 m. Dere Mosque has the longest distance to the Kazancı Village centre (3.45 km), which is one of the villages that has used Dere Mosque since its beginning.

Figure 7: Tatarmuslu Mosque.

Figure 8: Çakallı Mosque.

Figure 9: Koşaca Mosque.

In light of this information, these mosques, which were used especially on every Friday by neighbourhood people, were all deliberately located in walking distance from the villages.

In the result of the studies about mosques' location in terms of natural aspects, it is observed that all mosques are located in a wood yard, and in terms of their location, it can be observed that they have close relation with the nature directly. It can also be said that the tradition of planting trees in *hazires* (cemetery) strengthens this impact.

Mert and Kürtün Rivers are the most effective natural elements in Kavak suitable to locate the mosques, considering the need of water during religious rituals.

Every mosque except the one in Bekdemir Village has a river close to them. This detection supports the argument of moving Bekdemir Mosque from a place near the river to the village centre where it was located earlier. By being different from the other mosques, Bekdemir Mosque is situated on a sloping land and because of that the building has a basement floor. This information also strengthens this thesis.

Based on the result of the plan schemes' numeric analyses, a table was created as to indicate *harim* and *revaq* typology of the mosques, the biggest or smallest *harim* spaces and ground floor areas. In the last column of the table total capacities are given to emphasize which mosque has more, or less, spaces for prayer (Table 3).

In the field study, it is observed that the mosques in Kavak do not have lightened inside spaces and there is no window opening in the entrance walls. Bekdemir and Çakallı Mosques are illuminated by several lamps inside but the other studied mosques do not have lighting equipment.

Another architectural characteristic feature of these buildings is their ornaments. Bekdemir and Koşaca Mosques have the most decorated *harim* spaces, having lots of paintings drawn directly on the wooden walls, ceilings and interior architectural elements (Figs. 3 and 4). The aesthetical approach of these mosques can be seen on window shutters in *harims*. When the windows are closed with shutters, other ornamented drawings are also shown.

In this article, it has been clarified that the wooden mosques in Kavak were built with understanding of ecological design and construction techniques.

Table 3: Result of space analysis of the mosques.

	floor number		harim shape $\sqrt{\quad}$			harim area	total floor area*	revaq shape $\sqrt{\quad}$			total capacity
	1	2
DERE M.		●	●			57 m ²	110 m ²	●			83 people
KOŞACA M.		●			●	36 m ^{2**}	84 m ²			●	64 people
ÇAKALLI M.	●			●		67 m ²	88 m ²		●		77 people
TATARMUSLU M.	●				●	42 m ²	65 m ²			●	64 people
BEKDEMİR M.		●			●	51 m ²	109 m ²			●	82 people

* total floor area = *harim* + *mahfil* + *son cemaat revaq* spaces
 ** min and max values are in black frames.

Although studied mosques in Kavak were certified in 1995 (Bekdemir Mosque), 2001 (Dere and Çakallı Mosques), 2004 (Koşaca Mosque) and 2013 (Tatarmuslu Mosque) and need to be conserved as cultural properties by Samsun Regional Council of Conservation (Samsun Kültür Varlıkları Koruma Bölge Kurulu), they still have some conservation problems which are caused by a few interventions (bad climatic conditions, deterioration of wood, unqualified window openings, absence of doors, removal of partition wall, etc.) and lack of volunteers.

By applying the same analysis, which was practised on five wooden mosques, on 108 other wooden mosques, which are located in Samsun province and have similar conservation problems, a typology study and database are recommended. It is hoped that this research will be a good source for documentation and conservation studies of the religious architectural heritage in the area.

ACKNOWLEDGEMENT

We would like to thank Mr M. Alan (Samsun Regional Council of Conservation), Mr E. Çörekçioglu (Samsun Directorate of Foundations), Mr Y. Can, Mr E. Nefes, Mr S. Bayraktar (OMU Faculty of Theology and Department of Art History), local religious officers, Kavak local people and Mr Mustafa Güner (GNR Architecture Office).

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