Osmanlı Mirası Araştırmaları Dergisi
Journal of Ottoman Legacy Studies
e-ISSN: 2148-5704
Cilt 13 Sayı 36, Temmuz 2026 / Volume 13, Issue 36, July 2026

Makale Türü/Article Types: AraştırmaMakalesi/Research Article
Geliş/Received: 20.12.2025
Kabul/Accepted: 14.04.2026
DOI: 10.17822/omad.133610

Atıf/Citation: Doç. Dr.E.Begüm Savçın, Arş.Gör.Özgür Algan " Kırsal Osmanlı Mirası ve Geleneksel Ahşap Camiler: Kuzeybatı Anadolu'da Çantı Tekniğinin Belgelenmesi". *Osmanlı Mirası Araştırmaları Dergisi* 13/36 (2026): 451-474.

Doç. Dr.E.Begüm Savçın[1], Arş.Gör.Özgür Algan[2]

[1]Kocaeli Üniversitesi Mimarlık ve Tasarım Fakültesi İç Mimarlık Bölümü, begum.savcin@kocaeli.edu.tr, https://orcid.org/0000-0001-5305-2267
[2]Kocaeli Üniversitesi Mimarlık ve Tasarım Fakültesi İç Mimarlık Bölümü, ozgur.algan@kocaeli.edu.tr , https://orcid.org/0000-0002-8656-6149

Rural Ottoman Heritage and Vernacular Timber Mosques: Documentation of the Çantı Technique in Northwestern Anatolia

Kırsal Osmanlı Mirası ve Geleneksel Ahşap Camiler: Kuzeybatı Anadolu'da Çantı Tekniğinin Belgelenmesi

Abstract: This study examines vernacular timber mosques constructed using the traditional Çantı technique in the Kocaeli and Sakarya regions of northwestern Anatolia. Based on interlocking wooden elements assembled without nails, the Çantı technique represents a distinctive yet under-documented component of early Ottoman rural architecture.

The research aims to document the current condition, architectural characteristics, and conservation status of selected mosque structures, and to evaluate their significance within the broader context of regional architectural heritage. The study adopts a qualitative methodology, combining field surveys, architectural measurements, photographic documentation, and archival research.

Six mosque structures were analyzed comparatively with respect to plan typology, construction systems, material properties, and restoration history. The findings reveal that these buildings share common features such as rectangular layouts, timber load-bearing systems on stone foundations, and limited window openings, while also exhibiting variations in elements such as minarets, women's galleries, and restoration interventions.

The study highlights the vulnerability of timber-based heritage structures to environmental conditions, natural disasters, and human interventions, emphasizing the urgent need for systematic documentation and context-sensitive conservation strategies. By providing updated data on the current state of Çantı mosques, this research contributes to the discourse on vernacular architecture. It offers a valuable reference for future conservation and restoration efforts.

Keywords: Çantı Technique, vernacular architecture, timber mosques, Ottoman rural architecture, architectural heritage.

Öz: Bu çalışma, Kuzeybatı Anadolu'nun Kocaeli ve Sakarya bölgelerinde geleneksel Çantı tekniği kullanılarak inşa edilmiş yerel ahşap camileri incelemektedir. Çivi kullanılmadan bir araya getirilen birbirine kenetlenen ahşap elemanlara dayanan Çantı tekniği, erken Osmanlı kırsal mimarisinin kendine özgü ancak yeterince belgelenmemiş bir bileşenini temsil etmektedir.

Araştırma, seçilen cami yapılarının mevcut durumunu, mimari özelliklerini ve koruma durumunu belgelemeyi ve aynı zamanda bölgesel mimari mirasın daha geniş bağlamında önemlerini değerlendirmeyi amaçlamaktadır. Çalışma, saha araştırmaları, mimari ölçümler, fotoğrafik dokümantasyon ve arşiv araştırmalarını birleştiren nitel bir metodoloji benimsemektedir.

Altı cami yapısı, plan tipolojisi, inşaat sistemleri, malzeme özellikleri ve restorasyon tarihi açısından karşılaştırmalı olarak analiz edilmiştir. Bulgular, bu binaların dikdörtgen düzenler, taş temeller üzerine ahşap taşıyıcı sistemler ve sınırlı pencere açıklıkları gibi ortak özelliklere sahip olduğunu, aynı zamanda minareler, kadın galerileri ve restorasyon müdahaleleri gibi unsurlarda farklılıklar gösterdiğini ortaya koymaktadır.

Bu çalışma, ahşap esaslı tarihi yapıların çevresel koşullara, doğal afetlere ve insan müdahalelerine karşı savunmasızlığını vurgulayarak, sistematik belgeleme ve bağlama duyarlı koruma stratejilerine duyulan acil ihtiyacın

altını çizmektedir. Çantı camilerinin mevcut durumuna ilişkin güncel veriler sunarak, bu araştırma yerel mimari üzerine yapılan söyleme katkıda bulunmakta ve gelecekteki koruma ve restorasyon çalışmaları için değerli bir referans sunmaktadır..

Anahtar Kelimeler: Çantı Tekniği, yerel mimari, ahşap camiler, Osmanlı kırsal mimarisi, mimari miras.

Introduction

According to the Turkish Language Association, the term "Çantı"[1] refers to timber elements prepared through an interlocking technique without the use of nails. In Doğan Hasol's *Dictionary of Architecture* (1998)[2], "Çantı" is described as a type of dwelling constructed by stacking wooden logs horizontally, particularly in forested regions. In such structures, logs with diameters of 15-20 cm are used, and interlocking joints connect the corners, while the roofs may be earthen, vegetated, sloped, or flat. Similarly, Sözen and Tanyeli (2017) define the Çantı technique as a construction method in which unprocessed or roughly shaped timber elements are assembled by stacking them one on top of another through interlocking joints[3]. These definitions show that the Çantı technique is a traditional timber construction system based on nail-free interlocking. In this study, the term "Çantı technique" is used interchangeably with "timber stacking system" to refer to a nail-free interlocking construction method.

Ayverdi (1966) describes Çantı structures as buildings constructed from long timber logs that are notched and interlocked without the use of nails, and refers to mosques built using this technique as "Çantı mosques." [4]These structures are also commonly known among local communities as "Friday Mosques"[5]. In buildings constructed using the Çantı timber technique, particularly in or near forested areas, nails are not employed. Consequently, numerous examples of both residential and religious structures built with this technique can be found throughout the Black Sea region.[6]

In forested regions, mosques built using the Çantı timber stacking technique represent important cultural heritage assets. However, these structures are increasingly at risk due to the inherent vulnerability of wood. As one of the long-standing timber construction traditions in Anatolia and the Black Sea region, the Çantı technique has been applied not only in religious architecture but also in residential buildings, burial structures such as kurgans and tombs, and rural facilities including granaries, storage units, and barns. Given that wood is an organic material, the lifespan of these structures depends directly on the timber's durability. For this reason, mosques, being collectively owned and maintained by local communities, have generally been better preserved than other types of structures.

Mosques constructed using the Çantı technique are also referred to as "Orhan Mosques," reflecting their association with the early Ottoman period. In this context, the present study also points to the processes of cultural and territorial transformation in the region during the formative phases of Ottoman expansion. The Çantı timber construction technique is widely observed in the Black Sea region and parts of Central Anatolia. It represents an important component of early Ottoman rural architecture. Historical evidence suggests that this technique was employed in the construction of places of worship in regions conquered during the reign of Orhan Gazi.

The Çantı technique allows rapid construction without the use of nails. It relies on stacked timber systems for fast building assembly. These structures, typically featuring small and limited window openings, were constructed efficiently and have survived for centuries. The origins of

[1] "Çantı", Türk Dil Kurumu, erişim tarihi 25.07.2025, https://sozluk.gov.tr/ .
[2] Doğan, Hasol, *Ansiklopedik Mimarlık Sözlüğü* (İstanbul: YEM Yayınları, 1998), 116
[3] Metin Sözen ve Uğur Tanyeli. *Sanat Kavram ve Terimleri Sözlüğü*.(İstanbul: Remzi Kitabevi, 1992), 55.
[4] Ekrem Hakkı Ayverdi. *Osmanlı Mimarisinin Ilk Devri (630–805 / 1230–1402)*.(İstanbul: İstanbul Fetih Cemiyeti, 1966), 120.
[5] Ahmet Ali, Bayhan, *Orta Karadeniz'de bir Türk İslam kenti: Ordu* (Ordu: Ordu Büyükşehir Belediyesi, 2023), 52
[6] Mustafa, Kaya. "Example Of Wooden Çantı Mosque In Guria Region Of Georgia: Zoti Mosque", *Anasay*, no. 25 (2023): 145. Erişim tarihi: 8 Ağustos 2025. https://doi.org/10.33404/anasay.1331362.

this construction tradition in Anatolia date back to earlier periods. One of the earliest examples is the Achaemenid burial chamber at Gordion (6th century BCE), built from cedar and juniper timber[7]. Another example, based on archaeological findings from İkiztepe, dates back to the Chalcolithic period (5000–3000 BCE)[8]. The tradition of timber construction among the Turks can be traced back to the Hun period. Evidence from the Pazırık excavations indicates that burial chambers were constructed using log-built (cribbed) techniques. Moreover, substantial quantities of timber materials have been recovered from settlements dated to the Göktürk and Uyghur periods[9]. In terms of religious architecture, the earliest known examples of Çantı mosques in the region date to the Seljuk period, including the Gökceli Mosque in Samsun-Çarşamba and the Şeyh Habil Mosque in Yaylacılar Village[10].

This study also engages with broader theoretical discussions on vernacular architecture and rural heritage production. Previous studies have mainly examined Çantı structures from descriptive and typological perspectives. This research adopts a broader conceptual framework. It interprets vernacular architecture as a product of local knowledge shaped by environmental, material, and socio-cultural factors.

Within this perspective, Çantı mosques can be interpreted not only as a construction technique but also as spatial manifestations of early Ottoman rural organization and community-based religious life. Accordingly, the study not only documents the current condition and architectural characteristics of selected mosque structures but also evaluates their significance within the broader discourse of heritage conservation and sustainability. By integrating field-based documentation with archival research, the study contributes to the limited body of literature on timber-based rural religious architecture in Anatolia.

The present study addresses the lack of updated and systematic documentation on Çantı mosques in the Kocaeli-Sakarya region, where existing research remains limited in both scope and recency. Accordingly, the study aims to introduce the Çantı technique as part of a long-standing Turkish architectural tradition and to document the current condition and architectural characteristics of these structures.

At the initial stage of the research, mosques previously documented through measured drawings were identified, and their current conservation status was examined, including whether restoration or reconstruction interventions had been carried out. The sample of the study consists of six mosques constructed using the Çantı technique in the Kocaeli and Sakarya regions that have survived to the present day. Among these, two mosques have been demolished, three have undergone restoration at different periods, and one has not yet been subject to any restoration intervention.

Archival research conducted at the High Council of Monuments provided access to pre-restoration visual documentation of one of the restored mosques. In the second phase of the study, field surveys were conducted, during which visual data were collected using digital equipment, and on-site measurements of the identified structures were recorded. Measurements were obtained using laser devices, and architectural drawings, including plans, sections, and elevations, were prepared in AutoCAD. The study primarily draws on Ekrem Hakkı Ayverdi's The First Period of

[7] Thomas, Eissing. "Der Blockbau : Konstruktion und Holzartenauswahl unter holzpysikalischen Aspekten", *Jahrbuch für Hausforschung*, no.59 (2014):227. Erişim tarihi: 15 Şubat 2026. https://www.researchgate.net/publication/283063091_Der_Blockbau_Konstruktion_und_Holzartenauswahl_unter_holzpysikalischen_Aspekten

[8] Aslıhan Yurtsever Beyazıt ve Burhan Gülkan ve Burçin Afşar. "İkiztepe Kazılarının Dünü Ve Bugünü". *Colloquium Anatolicum*, 23 (2024): 126–145.Erişim tarihi: 22 Ocak 2026. https://doi.org/10.58488/collan.1506216.

[9] Haşim, Karpuz. "Halk Mimarimizde Ahşap Yığma "Çantı" Yapılar", *III. Milletlerarası Türk Folklor Kongresi Bildirileri*, (Ankara: Başbakanlık Basımevi,1987), 165

[10] Kaya, *Zoti Mosque*, 145.

Ottoman Architecture as a key reference and builds on this foundational work by evaluating the current condition of the region's mosques.

1. Conceptual Framework

Turkish architecture has developed distinctive characteristics that vary across historical periods. In this context, the works of Turkish architects—especially those of Mimar Sinan—have made significant contributions to the world's cultural heritage. Mosques constructed using different building techniques have functioned not only as places of worship but also as important social and cultural centers within Turkish society[11].

In the Black Sea Region, where timber is widely available, wood has historically been used as a primary traditional building material in structures designed to meet everyday needs. It has been applied through frame, masonry, and hybrid systems. These structures were not limited to residential purposes; rather, they diversified according to spatial requirements shaped by social and economic activities[12].

The availability, durability, workability, and economic accessibility of wood have played a decisive role in shaping architectural forms. As a result, local communities were able to construct various types of buildings—including houses, storage units, barns, stables, and beekeeping structures—and establish their own living environments. The accessibility of timber directly influenced the development of rural architectural typologies. Within this context, mosques, as part of the religious architectural group, were also constructed using the *çantı* technique, integrating harmoniously with the regional fabric[13].

Considering that the Battle of Malazgirt opened Anatolia to the Turks, it is particularly noteworthy that, approximately a century later, mosques built entirely of wood, without nails, and using the *çantı* technique had already emerged. This development represents a remarkable stage in the evolution of architectural practices in the region[14].

1.1. The Çantı Timber Construction Technique

Çantı mosques are typically designed with near-square or rectangular plans, often featuring porticoes on the northern or lateral façades, and, in some cases, galleries (mahfil) along the side walls[15]. Field observations in the Kocaeli and Sakarya regions indicate that these mosques are generally situated on sloped terrain and constructed on raised platforms formed by rubble stone substructures, upon which timber beam systems are installed. Most examples lack minarets; however, in cases where minarets exist, later interventions are evident. For instance, the minaret of the Büyük Esence (Dağcuma–Cumaaltı) Orhan Mosque was damaged during the 1967 earthquake and subsequently covered with sheet metal, while the minaret of the Şeyh Muslihiddin

[11]Irham, Wlad, Nasution and Deniz Demirarslan. "Comparative analysis of mosque spatial features in Turkey and Indonesia", *Türk& İslam Dünyası Sosyal Araştırmalar Dergisi*, 11 (40), (2024):3, erişim tarihi: 22 Eylül 2025, http://dx.doi.org/10.29228/TIDSAD.75291.

[12] Çiğdem, Fortuna. "Samsun-Çarşamba'da Çantı Tekniğinde İnşa Edilmiş Ahşap Camilerin Belgelenmesi ve Vernaküler Mimari Miras Bağlamında İncelenmesi". Yüksek Lisans Tezi, Mimar Sinan Üniversitesi, 2018, 7.

[13] Oktay Gündoğdu. "Geleneğin Devamı Çorum/Bayat'ta Çantı Tekniğinde İnşa Edilmiş Camiler". İstem, Sayı: 43 ,(2024): 384 , erişim tarihi: 25 Ekim 2026, https://doi.org/10.31591/istem.1458936.

[14] Eyüp,Nefes. "Çarşamba'da Yıkılmak Üzere Olan Ahşap Camilerden Biri: Paşayazı Köyü" .*Uluslararası Sosyal Araştırmalar Dergisi.* 3(14), (2010): 386, erişim tarihi: 20 Ocak 2026, https://www.sosyalarastirmalar.com/archive/jisr-volume-3-issue-14-year-2010.html

[15] Ali Ertuğrul ve İrfan Dursun, "Düzce Yöresinde Fetihler Dönemine Nispet Edilen Camiler*", Düzce'de tarih ve kültür,* ed. Ali Ertuğrul,. (Düzce: Düzce Belediyesi Kültür Yayınları, 2014), 397.

Mosque was reconstructed in brick following earthquake damage[16]. The original construction dates of these minarets remain uncertain.

These structures are generally one or two storeys in height, with access typically provided via a stone staircase. In çantı timber structures, wooden members are joined at the corners through specially designed interlocking joints. The cavities carved into the timber to ensure a tight mechanical interlock at these junctions are referred to as "boğaz" (throats). The process of assembling wooden elements through these carved recesses, enabling them to interlock securely, is defined as the "boğaz jointing" technique. Within this framework, several joining methods—such as *karaboğaz*, *kurtboğazı*, and *çalmaboğaz*—are used to connect timber elements[17]. The mosques follow rectangular layouts, and their interiors are formed by timber load-bearing walls constructed using interlocking techniques, often incorporating central vertical posts connected through the kurtboğazı (dovetail-like) joint system. The prayer hall (*harim*) is usually arranged in relation to surrounding porticoes. Entry is provided from the courtyard through a double-leaf wooden door leading to the portico, followed by a second double-leaf door opening into the prayer hall.

The portico walls are designed as semi-open spaces, with lower sections enclosed by timber cladding over posts and beams. In contrast, the upper sections are articulated with rhythmically arranged, angled timber elements. In two-story examples, the upper floor plan generally replicates the layout of the ground floor. The gallery level (*mahfil*) features vertical posts of smaller cross-sections placed on floor beams. These posts often exhibit more elaborate decorative treatments compared to those on the ground floor, including carved ornamentation and transitions between square and polygonal profiles, while the capitals remain relatively simple.

Flooring in these structures is typically timber, often later covered with carpets, and ceilings are composed of timber lath systems. On the qibla wall, a modest mihrab is positioned alongside a similarly simple minbar, both harmonizing with the overall interior composition. Openings in the mosque walls vary in size and number, including windows located on the prayer hall façade as well as on the northern, eastern, and western walls. Larger openings generally feature vertically sliding sash windows, while smaller openings tend to employ fixed frames.

Given that these structures are located in regions with high annual precipitation, measures have been taken to protect timber elements from moisture and ground contact. Raised stone substructures are constructed by stacking large stones, effectively separating the building from the ground. Timber beams are then placed over this base using interlocking techniques, forming the structural foundation.

In the Çantı construction system, walls are formed by stacking unprocessed or roughly shaped timber elements through interlocking joints[18]. Depending on the level of timber processing, the technique can be categorized into log-stacking and plank-stacking systems[19]. To ensure tight connections between timber elements, notches—referred to as "boğaz"—are carved at joint points, allowing the elements to interlock securely[20]. When unprocessed logs are used, the technique is referred to as karaboğaz jointing, whereas processed timber elements assembled as planks are associated with the kurtboğazı joint system[21].

[16] Yusuf, Çetin. "Sakarya ve Çevresinde Osmanlı Dönemi Dini Mimari Eserler" (yüksek lisans tezi), Atatürk Üniversitesi. 1999, 63.
[17] Yusuf, Burak, Dolu. "Kocaeli ve Çevresinde Çantı (Ahşap Yığma) Teknikle Yapılmış Camiler". *Uluslararası Gazi Akçakoca Ve Kocaeli Tarihi Sempozyumu Bildirileri,* ed. Haluk Selvi ve M.Bilal Çelik, (Kocaeli: Kocaeli Büyükşehir Belediyesi, 2015), 1686.
[18] Sözen ve Tanyeli, *Terimleri Sözlüğü,*55 .
[19] Karpuz, *"Çantı" Yapılar,*167.
[20] Celal, Tuna. *Orta Karadeniz Bölgesinde Sahil Kesimi Geleneksel Mimari*. (İstanbul: Arkeoloji ve Sanat Yayınları. 2008), 104.
[21] Orhan, Özgüner. *Köyde Mimari Doğu Karadeniz*.(İstanbul: Dergah Yayınları. 2017), 72.

Beyond Anatolia, similar timber construction traditions can be observed in different geographical contexts, particularly in regions with abundant forest resources. These traditions are often preserved and exhibited in open-air museums, which provide valuable comparative insights into vernacular timber architecture. One notable example is the Dimitrie Gusti National Village Museum, which represents Romanian rural architecture. Established in 1936, the museum was based on the interdisciplinary field research conducted by Dimitrie Gusti between 1925 and 1935 and reflects the concept of a "sociological museum." The official opening took place on 10 May 1936 with the participation of Carol II of Romania, and it was opened to the public on 17 May.



Figure 1. Church 1722, Dimitrie Gusti National Village Museum, Photograph by the author, 2025



Figure 2. Church 1722 (dovetail), Dimitrie Gusti National Village Museum, Photograph by the author, 2025.

During the establishment process, not only buildings but also their users were relocated to the site together with their animals. This approach aimed to recreate the authentic context of rural life within an urban setting. The collection consists of original village structures dating from the 17th to the 20th centuries. These buildings were relocated from their original locations and

reconstructed within the museum area[22]. Figures 1 and 2 illustrate a timber church structure and its dovetail jointing detail from the Dimitrie Gusti National Village Museum.

Similarly, in North America, the development of log construction traditions was shaped by migration and cultural interaction. Although early French-speaking settlers may have been partially influenced by Indigenous communities, log-building techniques were largely transferred from Europe. These techniques were further developed and diversified in Canada. Fur trade workers in the St. Lawrence Valley contributed to the westward spread of regional construction practices. Meanwhile, English communities settling in Ontario introduced the Pennsylvania log-house tradition. Over time, these techniques expanded westward and northward, gradually replacing earlier building practices. Today, log houses remain widespread in Canada, although they are largely based on Pennsylvania-derived techniques[23].

In this context, the structures exhibited at Upper Canada Village provide concrete examples of this transformation. The log houses displayed here form part of the core collections of open-air museums across Canada. One structure, built in 1810 by a Loyalist settler, and another constructed around 1860 by a Scottish immigrant, allow for a comparative analysis of different periods and construction techniques. These buildings demonstrate refined axe workmanship and advanced corner-jointing methods[24].

In the European context, the Norwegian Museum of Cultural History (Norsk Folkemuseum) stands out with its extensive collection. The museum includes more than 150 reconstructed buildings relocated from both urban and rural areas. Its collection comprises 181 structures and approximately 768 building elements, representing different regions of Norway from the Middle Ages to the present. Founded by Hans Aall in 1894, the museum was opened to visitors in 1901[25].

A similar approach to preservation and display can be observed in the Seurasaari Open-Air Museum in Finland. Located on Seurasaari Island, the museum consists primarily of timber structures relocated from various regions of Finland. Some of the oldest log buildings in the collection date back to the late 17th century. During the modernization process in the early 20th century, many rural buildings were either renewed or demolished. As a result, structures at risk of disappearance were relocated to the Seurasaari Open-Air Museum for preservation and adaptive reuse[26].

These international examples highlight that timber stacking systems, such as the Çantı technique, are not isolated phenomena but part of a broader global tradition of vernacular timber construction shaped by environmental and cultural conditions.

1.2. Cultural Context of the Çantı Technique

The Çantı technique is widely observed in the Black Sea region and in parts of Western and Central Anatolia, and is particularly prevalent in the forested areas of northeastern Marmara. Religious structures constructed using this technique—often referred to as "conquest mosques" or "Friday mosques"—were rapidly erected during the period of territorial expansion under Orhan Gazi. These mosques were strategically located in areas accessible to several surrounding villages, serving as communal gathering points.

---

[22] "Wikipedia: Dimitrie Gusti National Village Museum", erişim tarihi: 5 Mayıs 2026., https://tr.wikipedia.org/wiki/Dimitrie_Gusti_Ulusal_K%C3%B6y_M%C3%BCzesi.
[23] Wonders William. C. "Log Dwellıngs In Canadıan Folk Archıtecture". *Annals Of The Assocıatıon Of Amerıcan Geographers*, Vol. 69, No. 2, (1979): 187, https://www.jstor.org/stable/2563065 erişim tarih: 29 Ocak 2026
[24] Wonders, "Log Dwellıngs In Canadıan Folk Archıtecture", 188
[25] "Wikipedia: Norveç Kültür Tarihi Müzesi", erişim tarihi 5 Mayıs 2026., https://en.wikipedia.org/wiki/Norwegian_Museum_of_Cultural_History,
[26] "Seurasaaren ulkomuseo" , erişim tarihi: 5 Mayıs 2026, https://www.kansallismuseo.fi/en/seurasaarenulkomuseo.

In Islamic practice, Friday is regarded as a sacred day of collective worship, during which communities gather not only for prayer but also for social interaction, mutual support, and the exchange of goodwill. Accordingly, mosques where congregational Friday prayers are performed are commonly referred to as "Friday mosques." In this context, the functional and spatial significance of these structures extends beyond religious use, encompassing broader social and communal roles.

The Çantı technique was not limited to religious architecture in the region but was also employed in residential buildings and storage structures. In settlements inhabited by the local Manav population, houses often included a dedicated "*Çantı room*." These rooms typically lacked windows, contained an open hearth, and featured two chimney openings at the roof level, which also functioned as sources of light and ventilation[27].

Over centuries, the region has experienced various waves of migration, resulting in a culturally diverse social structure. While Circassian settlements are predominantly located in the eastern parts of the Kocaeli region, communities of Georgian, Laz, Albanian, and Tatar origin are mainly found in the southern parts of the region. Both archival research and field surveys indicate that, apart from settlements inhabited by the Manav population, no examples of religious structures constructed using the Çantı technique have been identified in the southern parts of the Kocaeli and Sakarya regions.

2. Methodology

This study adopts a qualitative and comparative research approach. The primary aim is to determine and evaluate the current state of mosques built using the traditional Çantı timber stacking technique, one of the important construction methods of Anatolian architectural heritage.

The selection of case studies was determined based on three main criteria: (1) the use of the Çantı technique, (2) geographical location within the Kocaeli and Sakarya regions, and (3) accessibility for field documentation. Accordingly, six mosque structures were identified and included in the study.

Figure 3 shows the geographical distribution of the selected case study mosques in the Kocaeli and Sakarya regions. The spatial pattern indicates a concentration in forest-rich areas with sloped terrain. This distribution reflects the direct relationship between timber availability and the development of the Çantı construction tradition.



[27] Nesil, Erol. "Kandıra'da Halk Mimarisi" (yüksek lisans tezi), Selçuk Üniversitesi. 2014, 9.

Figure 3. Image obtained from Google Earth, 2026

Data collection was conducted in two phases. In the first phase, archival research was carried out using institutional records from the Kocaeli Regional Directorate. Archival photographs of the structures were accessed; however, due to copyright restrictions under Law No. 5846 on Intellectual and Artistic Works, original survey drawings could not be included. Therefore, all architectural drawings (plans, sections, and elevations) were produced by the research team based on field measurements.

In the second phase, field surveys were conducted, including on-site measurements using laser devices and photographic documentation. The analysis focuses on plan typology, construction systems, material characteristics, and conservation status. A comparative framework was employed to identify similarities and differences among the selected structures, enabling a systematic evaluation of the Çantı technique within its regional context.

According to Ayverdi (1966)[28], mosques constructed using the Çantı technique in the Kocaeli and Sakarya regions date back to the reign of Orhan Gazi. In the approximately sixty years following this foundational study, the region has experienced two major earthquakes: the Mudurnu Valley earthquake of 22 July 1967 (magnitude 7.1) and the İzmit-centered earthquake of 17 August 1999 (magnitude 7.4)[29]. Additionally, demographic changes and the increasing availability of local mosques in individual villages have reduced the functional necessity of these regional Friday mosques, leading to their gradual abandonment[30].

Archival findings indicate that the Şeyh Muslihiddin Mosque, Kocaeli Orhan Gazi (Işıklı) Mosque, and Büyük Tersiye Mosque have been officially registered and restored, while the Kel Ali Paşa Mosque has been registered but has not undergone restoration. The Döngelli Mosque, although registered, has been completely demolished. In contrast, the İncecik Mosque—located between the villages of Mancarlar and İncecik—was identified as unregistered. The data obtained during this study were shared with the relevant authorities, contributing to the initiation of its registration process.

3. Findings

Within the scope of the project, archival research conducted with permission from the Kocaeli Regional Directorate for the Conservation of Cultural Heritage (KVKBK) revealed that the Şeyh Muslihiddin Mosque, located in Büyük Kaynarca Village (Kaynarca District, Sakarya), was registered by the Bursa Regional Council for the Conservation of Cultural and Natural Heritage (KTVKK) on 11 September 1993 (Decision No. 3404), restored, and reopened for worship (Table 2).

The Kocaeli Orhan Gazi (Işıklı) Mosque, located in Bağlıca Village (İzmit District, Kocaeli), was registered by KVKBK on 14 April 2015 (Decision No. 1954) and has since been restored and remains in active use (Table 2). The Büyük Esence (Dağcuma–Cumaaltı) Orhan Mosque, located in Erenler District (Sakarya), was registered by KTVKK on 16 March 2011 (Decision No. 1878), restored, and reopened for worship (Table 2). The Sultan Orhan Fetih Mosque, located between the Döngelli and Kütükçüler villages in Kandıra District (Kocaeli), dating to 1302 and historically serving as a central mosque for approximately 15 villages, was registered on 20 November 2007 (Decision No. 195). However, the structure has since been completely demolished, and no restoration work has been initiated (Table 2).

[28] Ayverdi, *İlk Devri*,120 .
[29] Jordan, R. Muller, ve Atilla,Aydın ve , Frantzs, Maerten. "Investigating The Transition Between The 1967 Mudurnu Valley And 1999 Izmit Earthquakes". *Geophysical Journal International*, 154(2), (2003): 471–482, erişim tarihi: 17 Kasım 2025. https://doi.org/10.1046/j.1365-246X.2003.01968.x
[30] Ertuğrul ve Dursun, *Nispet Camiler*,398 .

The İncecik Mosque, located along the roadside between İncecik and Mancarlar villages (Dolu, 2015), has not been officially registered (Table 2). Ayverdi (1966) notes that, due to their timber construction, these buildings have deteriorated over time as a result of both natural factors and human interventions, including structural modifications and additions[31]. Present observations indicate variations among the mosques, particularly in terms of minarets and women's galleries (*mahfil*). While the Şeyh Muslihiddin Mosque and the Büyük Tersiye Mosque retain minarets, the Işıklı, Kel Paşa, Döngelli, and İncecik mosques do not. Women's galleries are present in the Şeyh Muslihiddin, Büyük Tersiye, and Kel Paşa mosques. Among these, the Kel Paşa Mosque has not undergone formal restoration but has instead undergone informal repairs carried out by local residents. Table 1 presents a comparative matrix of the selected Çantı mosques. The data confirm that all structures share rectangular plans and timber construction systems. Variations in minarets, galleries, and restoration status indicate different levels of transformation and intervention.

Table 1. Matrix of Çantı Mosques in the Kocaeli–Sakarya Region.

Criteria	Structure 1[32]	Structure 2[33]	Structure 3[34]	Structure 4[35]	Structure 5[36]	Structure 6[37]
Registration Status	Registered	Registered	Registered	Registered	Registered	Unregistered
Restoration Status	Restored	Restored	Restored	Not restored	Not restored	Not restored
Plan Type	Rectangular	Rectangular	Rectangular	Rectangular	Rectangular	Rectangular
Women's Gallery (*Mahfil*)	Present	Absent	Present	Present	Absent	Absent
Minaret	Present	Absent	Present	Absent	Absent	Absent
Cemetery (*Hazire*)	Present	Present	Present	Present	Present	Lost

Source: Prepared by the author.

Table 2. Evaluation of Registration Status

Name of Monument	**Registering Authority**	**Registration Date - Decision Number**
Şeyh Muslihiddin Mosque	Bursa Regional Council for the Conservation of Cultural and Natural Heritage (KTVKK)	11.09.1993 - 3404
Kocaeli Orhan Gazi (Işıklı) Mosque	Kocaeli Regional Council for the Conservation of Cultural Heritage (KVKBK)	14.04.2015 - 1954
Büyükesence (Dağcuma–Cumaaltı) Mosque	Kocaeli Regional Council for the Conservation of Cultural Heritage (KVKBK)	16.03.2011 - 1878
Kelpaşa Mosque	Kocaeli Regional Council for the Conservation of Cultural Heritage (KVKBK)	23.11.2016 - 2717
Döngelli Sultan Orhan Mosque	Kocaeli Regional Council for the Conservation of Cultural Heritage (KVKBK)	20.11.2007 - 195
İncecik Mosque	Not registered	Not available

Source: Prepared by the author based on data provided by the Kocaeli Regional Directorate for the Conservation of Cultural Heritage.

[31] Ayverdi, *İlk Devri*, 121.
[32] Structure 1; Şeyh Müslihiddin Mosque.
[33] Structure 2; Kocaeli Orhan Gazi (Işıklı) Mosque.
[34] Structure 3; Büyük Tersiye Mosque.
[35] Structure 4; Kel Paşa Mosque.
[36] Structure 5: Döngelli Mosque.
[37] Structure 6; İncecik Mosque.

Table 2 summarizes the registration status of the examined mosques. The data reveal inconsistencies in heritage protection, with some structures restored and others abandoned or unregistered. This indicates a fragmented conservation framework and emphasizes the need for systematic heritage management.

3.1. Şeyh Muslihiddin Mosque

The Şeyh Muslihiddin Mosque is located in Büyük Kaynarca Village, Kaynarca District of Sakarya Province. According to Ayverdi (1966)[38], the mosque is associated with Şeyh Muslihiddin Efendi, the father of Sinanüddin Yusuf Pasha, a vizier of Orhan Gazi. It is believed to have been commissioned by the Sheikh al-Islam during the reign of Sultan Orhan. However, a waqf document dated to the reign of Bayezid II (H. 902 / 1496–97 and H. 918 / 1512–13), along with archival records preserved in the Ottoman archives, indicate that the structure was commissioned by Mevlana Hacı Muslihiddin Mustafa bin Cüneyt[39]. According to these sources, Mevlana Hacı Muslihiddin Mustafa is likely to be the individual recorded as a *kıssahan* (court storyteller) during the reign of Mehmed II in H. 883 (1478–79). The earlier date mentioned in the waqf document (H. 902 / 1496–97) suggests that the mosque was constructed before this date, most likely between H. 902 and H. 918[40]. Muslihiddin Mustafa, who lived during the early Ottoman period, began his education in Konya under the Karamanids and later completed it in Edirne, the capital of the Ottoman Empire at the time. He was knowledgeable in Sufism and Islamic jurisprudence, as well as in music and astronomy, and was affiliated with the Zeyniyye order. Following his return to Konya, a mosque and a *khanqah* were constructed in Meram in his name by Karamanid ruler İbrahim Bey, and disciples were assigned to this institution, supported through endowments[41]. According to the waqf document, the patron of the mosque is identified as Mevlana Hacı Muslihiddin Mustafa bin Cüneyt, known as "Mevlana Hacı Kıssahan." The document specifies that the administration of the endowment was to be transferred first to the male descendants of the founder, and in the absence of male heirs, to his female descendants. If it is assumed that he was in his thirties during his service as a (*kıssahan)* in the reign of Mehmed II, he would have been approximately seventy years old by 1502. During this period, his mother, sibling, spouse, and two children passed away. His daughter and wife were buried near the Eyüp Sultan Shrine, in a mausoleum constructed for them. It is also noted that the family's origins trace back to the Kandıra district of the Kocaeli region, where several family members, including his mother, son, sister, and servants, were also buried[42].



Figure 4. Photograph by the author, 1998



Figure 5. Photograph by the author, 2025

The mosque located in Büyük Kaynarca Village was constructed along the stream bank. A new mosque has subsequently been built adjacent to the southern façade of the original structure.

[38] Ayverdi, *İlk Devri*, 123.
[39] Çoruhlu, Tülin., Sülüngür, E. Tülay. "Adapazarı Kaynarca Ilçesinde Bir 15. Yüzyıl Camisi (Şeyh Muslihiddin) ve Haziresi". *Sakarya Üniversitesi Fen Edebiyat Dergisi*, 7(1),(2005): 147–160 erişim tarihi: 25 Ocak 2026, https://makale.isam.org.tr/handle/123456789/176708
[40] Çoruhlu, Tülin. "Kocaeli yarımadasında erken Osmanlı camilerinden Şeyh Muslihiddin Camisi", *Uluslararası Gazi Akçakoca ve Kocaeli Tarihi Sempozyumu Bildirileri,* ed. Haluk Selvi ve M.Bilal Çelik, (Kocaeli: Kocaeli Büyükşehir Belediyesi, 2015), 1609–1633.
[41] Öngören, Reşat. "Muslihuddin Mustafa". *Türkiye Diyanet Vakfı İslam Ansiklopedisi* (Vol. 31)., erişim tarihi: 27 Ekim 2025, https://islamansiklopedisi.org.tr/muslihuddin-mustafa .
[42] Çoruhlu, *Şeyh Muslihiddin*, 1610.

The foundations of the Şeyh Muslihuddin Mosque are of stone, while the superstructure is entirely timber. The building was constructed using the traditional interlocking timber (çantı) technique, without the use of nails[43](Figure 4.). The structure, which has a rectangular plan, sustained damage during the 1999 earthquake when its minaret collapsed onto the roof. Exposed to precipitation until 2006, the building underwent rapid material decay. Restoration works initiated in 2009 were completed in 2010, after which the mosque was reopened for worship[44]. Figures 4 and 5 compare the condition of the Şeyh Muslihiddin Mosque before and after restoration. The images reveal both material renewal and structural stabilization. This indicates that conservation interventions have improved structural performance while partially altering original material characteristics. Figures 6 and 7 present the plan and sectional organization of the Şeyh Muslihiddin Mosque. The drawings show a rectangular spatial configuration supported by timber load-bearing elements. This confirms the structural logic of the Çantı system and its reliance on modular timber construction.

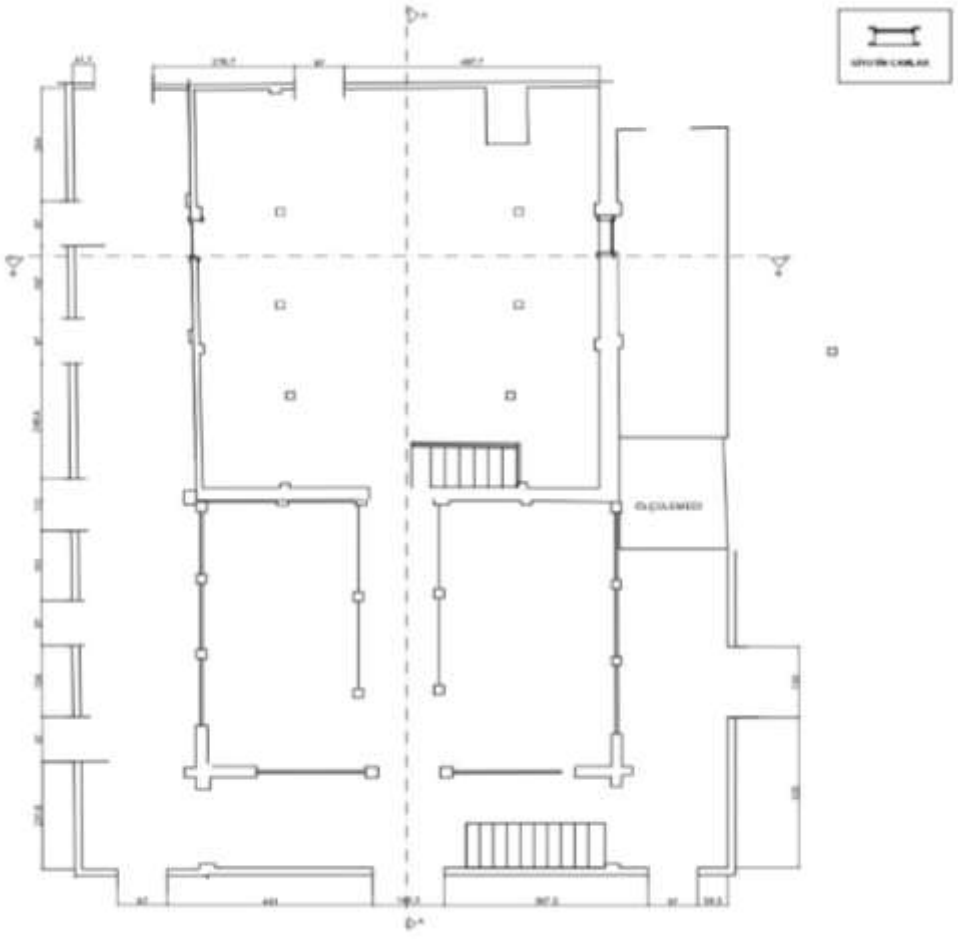


Figure 6. Ground Floor Plan of the Şeyh Muslihiddin Mosque
Drawing: Author 2025

[43] Çetin, *Mimari Eserler*, 61.
[44] Çoruhlu, *Şeyh Muslihiddin*, 1627.

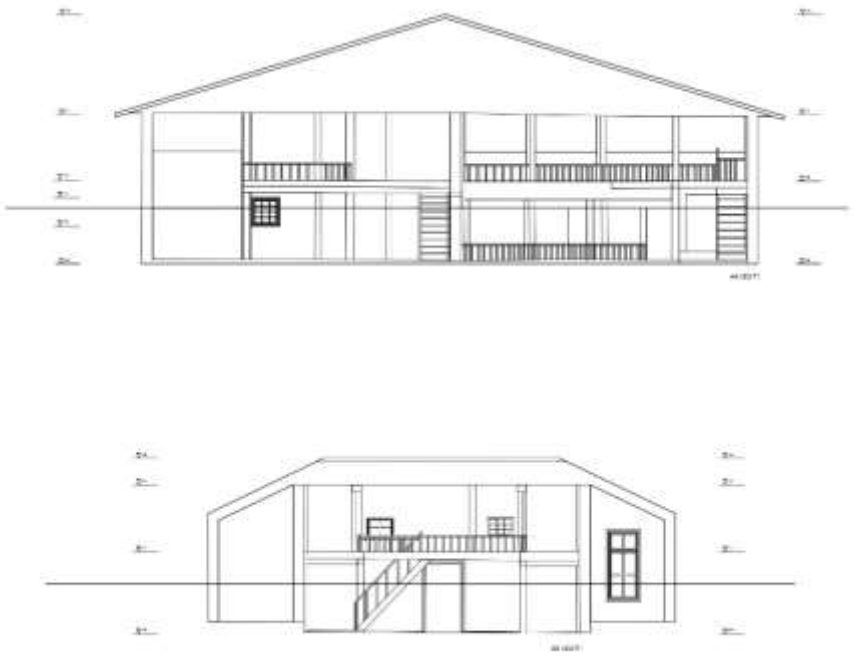


Figure 7. Sections AA-BB of the Şeyh Muslihiddin Mosque
Drawing: Author 2025

3.2. Kocaeli Orhan Gazi (Işıklı)

The Kocaeli Orhan Gazi (Işıklı) Mosque, located in Bağlıca Village of the İzmit District in Kocaeli, does not have a precisely documented construction date[45]. Figures 8 and 9 document the pre-restoration condition of the Kocaeli Orhan Gazi (Işıklı) Mosque. The images reveal material deterioration and structural weakening. This demonstrates the vulnerability of timber structures to environmental exposure and lack of maintenance.

However, based on its plan, material characteristics, and the use of the Çantı technique, it exhibits strong similarities to Friday mosques built during the reign of Orhan Gazi. The mosque is locally known as the "Işıklı Mosque" (meaning "Illuminated Mosque") due to a widely circulated belief among local residents that it emits light during religious nights[46]. The mosque was restored in 2016 and is currently in active use. Figures 10 and 11 illustrate the post-restoration condition of the Kocaeli Orhan Gazi (Işıklı) Mosque. The structure appears more stable and functionally restored. This suggests that conservation efforts have enhanced usability while transforming certain original elements.

3.2.1. Plan and Architectural Features

The mosque is a single-storey structure situated on slightly sloping terrain and is surrounded by a cemetery (*hazire*). It is constructed using a timber stacking system with *kurtboğazı* (dovetail-like) interlocking joints, placed on a rubble stone substructure. The building has a rectangular plan with external dimensions of 963 × 1482 cm.

Following restoration, the former portico (*son cemaat yeri*) has been enclosed with timber cladding. Access to this enclosed space is provided on the eastern side of the mosque through a

[45] Gülçin, Kahraman. "Ahşap Çandı Camilerin Mimarisi ve Koruma Önerileri: Kocaeli Orhan Gazi (Işıklı) Camisi Restorasyonu", *Mimarlık ve Yaşam Dergisi*, 8(4), (2023): 884, erişim tarihi: 15 Ağustos 2025, https://doi.org/10.26835/my.1255239 .
[46] Adem, Arı. "Işıklı Cami". *Kocaeli Ansiklopedisi*. Kocaeli Büyükşehir Belediyesi. Erişim tarihi: 28 Ağustos 2025 https://kocaeliansiklopedisi.com/Default/MaddeDetay/683.

later-added wooden door, which is covered by a projecting canopy. Within this enclosed portico space, semi-open sections resembling portico elements have been formed on both sides.

Entry into the prayer hall (*harim*) is provided through a double-leaf wooden door. The interior contains one timber-framed window on each of the eastern and western walls. The prayer hall measures 836 × 923 cm, with a height of 495 cm, resulting in a total area of approximately 77.2 m². Additionally, one window is positioned on each side of the mihrab on the qibla wall, although it is unclear whether these openings are original.

The flooring consists of original timber planking, and the walls of the prayer hall retain their original timber construction, with a thickness of approximately 10 cm. Figure 12 shows the ground floor plan of the Kocaeli Orhan Gazi (Işıklı) Mosque. The plan reveals a compact rectangular layout with limited openings. This reflects a spatial organization adapted to climatic conditions and material constraints.



Figure 8. Kocaeli Orhan Gazi (Işıklı) Mosque in its pre-restoration state. Photograph from the archive of the Kocaeli Regional Council for the Conservation of Cultural Heritage (KVKBK)



Figure 9. Kocaeli Orhan Gazi (Işıklı) Mosque in its pre-restoration state. Photograph from the archive of the Kocaeli Regional Council for the Conservation of Cultural Heritage (KVKBK)



Figure 10. Photograph by the author, 2025



Figure 11. Photograph by the author, 2025

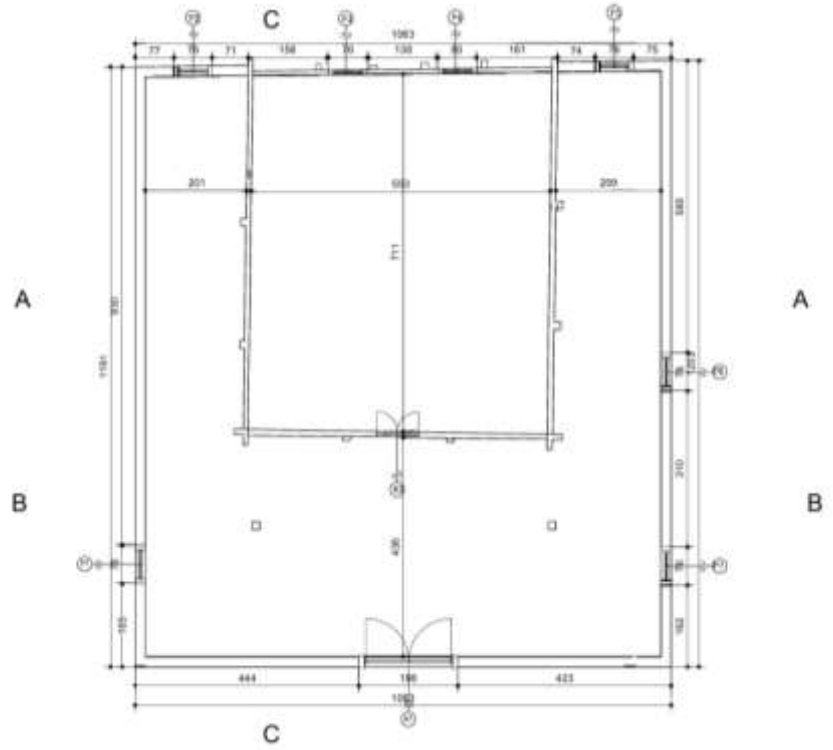


Figure 12. Ground Floor Plan of the Kocaeli Orhan Gazi (Işıklı) Mosque
Drawing: Author 2025

3.3. Büyük Esence (Dağcuma–Cumaaltı) Orhan Mosque

The Büyük Esence (Dağcuma–Cumaaltı) Orhan Mosque, located in the Büyükesence (Büyük Tersiye) neighborhood of Erenler District in Sakarya Province (Figure13.), was registered in 2011 by the Kocaeli Regional Council for the Conservation of Cultural and Natural Heritage (KTVKK) under Decision No. 1878. The mosque has since been restored and reopened for worship (Figure 14.). A cemetery (*hazire*) is located in its immediate surroundings. Figures 13 and 14 compare the earlier and current conditions of the Büyük Esence Mosque. The overall structural form remains largely intact. This indicates that restoration efforts have aimed to preserve the original architectural character.

3.3.1. Plan and Architectural Features

The mosque has a rectangular plan and consists of a prayer hall (*harim*) measuring approximately 687 × 1524 cm, preceded by a portico (*son cemaat yeri*). Access to the building is provided through a double-leaf wooden door on the eastern façade. A timber staircase provides access to the gallery (*mahfil*) level.

The structure is entirely enclosed in timber elements. In the portico section, load-bearing is achieved through rectangular-section timber posts, between which timber railings have been installed. The ceiling of this space is finished with a simple timber cladding. The preaching platform (*vaaz kürsüsü*) is modest in design. On either side of the mihrab, there are vertically sliding sash windows of varying dimensions. The maximum interior height of the structure is approximately 456 cm.

The roof is constructed as a gable roof and covered with tiles. The foundation system remains legible and has survived in a relatively intact condition. Both interior and exterior architectural elements have largely preserved their original characteristics. The floor structure is

supported by stone bases, with timber elements placed upon them. The load-bearing walls consist of timber elements interconnected using the Çantı (interlocking) technique.

The timber elements used in the walls vary in size, with approximate thicknesses of 10 cm, widths of 30 cm, and lengths ranging from 250 cm to 350 cm. Timber flooring elements are approximately 5 cm thick, 25 cm wide, and range in length between 180 cm and 250 cm. The structure is single-storey, with the gallery (*mahfil*) arranged as an intermediate mezzanine level. Figures 15 and 16 present the plan and spatial organization of the Büyük Esence Mosque. The drawings show a rectangular layout combined with a gallery (mahfil) system. This demonstrates both typological continuity and functional adaptation within the Çantı system.



Figure 13. Photograph by the author, 1998



Figure 14. Photograph by the author, 2025

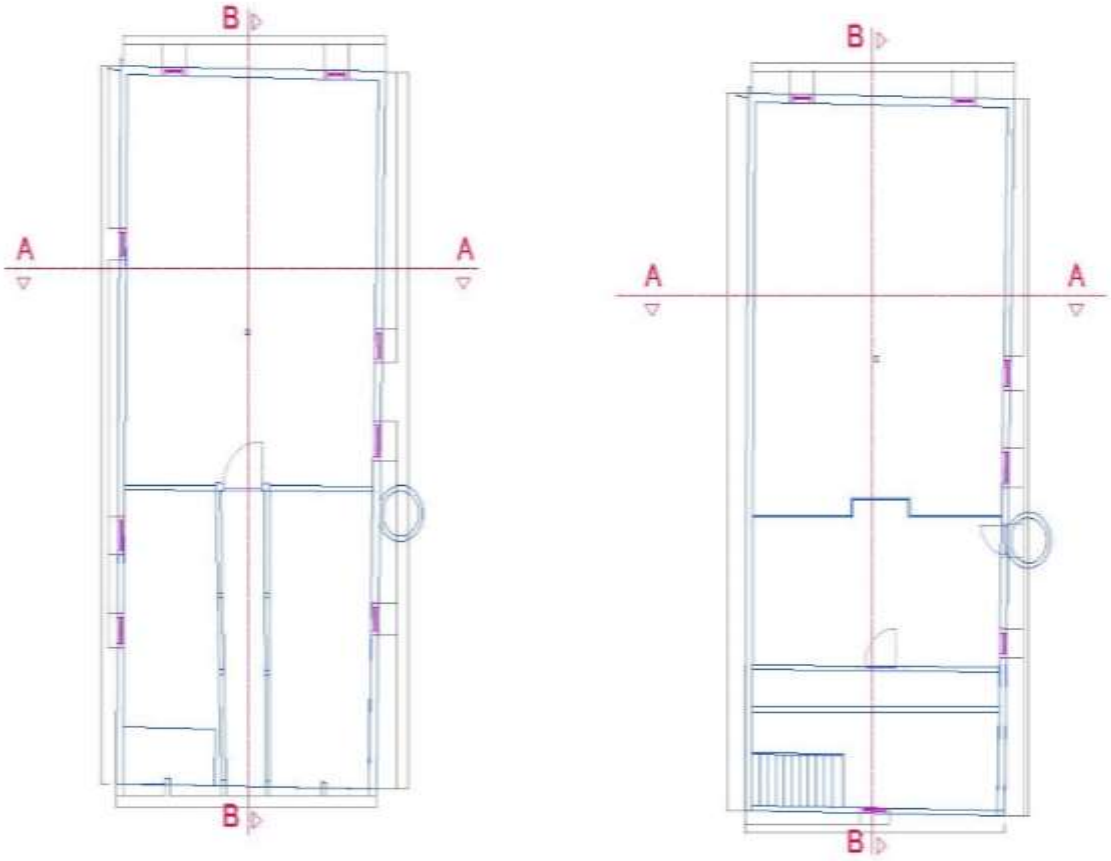


Figure 15. Ground Floor Plan of the Grand Esence (Dağcuma-Cumaaltı) Orhan Mosque
Drawing: Author 2025

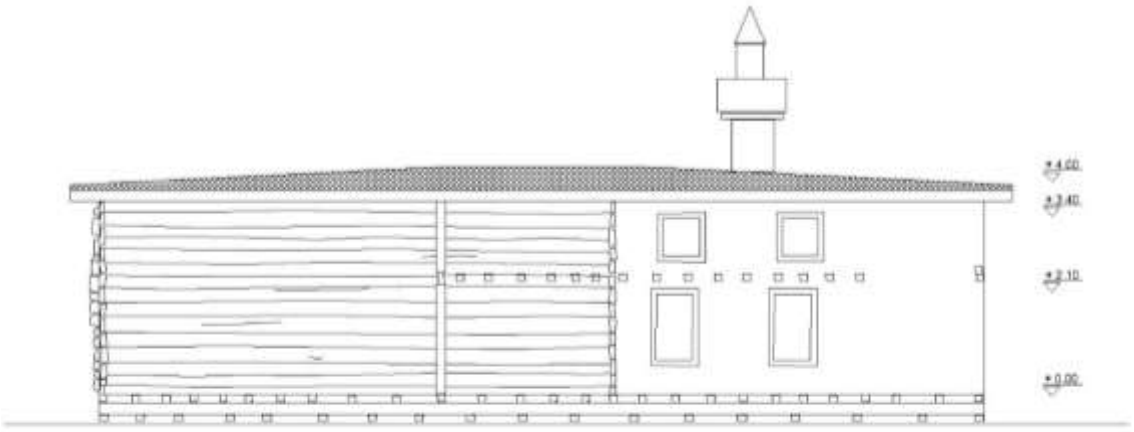


Figure 16. Grand Esence (Dağcuma-Cumaaltı) Orhan Mosque
Drawing: Author 2025

3.4. Kel Paşa Mosque

The Kel Paşa Mosque, located in the Karasu District of Sakarya Province, exhibits strong similarities to the Friday mosques constructed during the reign of Orhan Gazi. The mosque has a rectangular plan and was built using the Çantı technique, characterized by nail-free timber interlocking (Figure 17). As one of the relatively rare surviving examples of such Friday mosques, the Kel Ali Paşa Mosque was officially registered in 2017; however, it has not yet undergone any formal restoration (Figure 18.). Figures 17 and 18 illustrate the plan and current condition of the Kel Paşa Mosque. The structure shows limited formal conservation intervention. This highlights the role of informal repairs and their impact on architectural integrity.

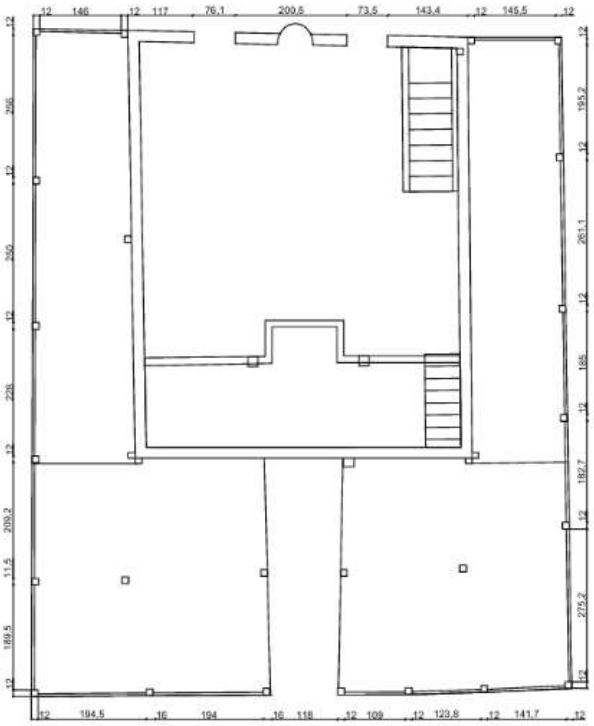


Figure 17. Ground Floor Plan of the Kel Paşa Mosque
Drawing: Author



Figure 18. Photograph by the author, 2026

3.5. Sultan Orhan Fetih Mosque

The Sultan Orhan Fetih Mosque, located along the roadside between Döngelli Neighborhood and Kütükçüler Village in the Kandıra District of Kocaeli Province (Figures 3 and 21), has been completely demolished. Figures 19 and 20 document the current state and location of the demolished Döngelli Mosque. The absence of the structure, despite its registered status, highlights a critical conservation failure. This demonstrates the consequences of inadequate protection and delayed intervention.

Although parts of its cemetery (*hazire*) remain, the mosque itself no longer survives. The structure has been officially registered; however, restoration work has not yet commenced. Based on available documentation, the mosque exhibited similarities in plan typology to the Kocaeli Orhan Gazi (Işıklı) Mosque and the İncecik Mosque.



Figure 19. Photograph by the author, 2026



Figure 20. Photograph by the author, 2026



Figure 21. Image obtained from Google Earth, 2026

3.6. İncecik Mosque

The İncecik Mosque, located along the roadside between İncecik and Mancarlar villages in the Kandıra District of Kocaeli Province[47] (Figures 3 and 26), is currently in a severely deteriorated condition and is largely covered by dense vegetation, including thorny shrubs and trees. Figures 22–25 show the severely deteriorated condition of the İncecik Mosque. The structure is largely overgrown and partially collapsed. This indicates the risks faced by unregistered heritage structures and underscores the urgency of documentation and protection.

Archival research conducted at the Kocaeli Regional Directorate for the Conservation of Cultural Heritage revealed no official documentation regarding the structure, and it was confirmed by the institution that the mosque had not been registered.

The findings obtained through field surveys conducted as part of this research were shared with the relevant authorities, contributing to the initiation of the registration process. In terms of plan typology, the İncecik Mosque exhibits similarities with the Kocaeli Orhan Gazi (Işıklı) Mosque and the Döngelli Mosque located in Bağlıca Village, Kandıra District (Figure 26.).



Figure 22. Photograph by the author, 2026



Figure 23. Photograph by the author, 2026



Figure 24. Photograph by the author, 2026



Figure 25. Photograph by the author, 2026

[47] Dolu, *Yapılmış Camiler*, 1693



Figure 26. Image obtained from Google Earth, 2026

4. Discussion: Vernacular Heritage and Conservation Challenges

The findings of this study demonstrate that timber mosques constructed using the Çantı technique represent a significant component of vernacular architectural heritage in northwestern Anatolia. Beyond their structural characteristics, these buildings reflect localized construction knowledge, material availability, and socio-cultural practices shaped by environmental and historical conditions. Their distribution in forest-rich regions such as Kocaeli and Sakarya further highlights the relationship between natural resources and building traditions.

Previous studies have examined Çantı structures mainly from descriptive or typological perspectives. This research proposes a different approach. It interprets these mosques as part of a broader rural production system in the early Ottoman period. Their standardized rectangular plans, modest scale, and rapid construction techniques indicate a pragmatic architectural response to the need for establishing religious infrastructure in newly organized rural settlements. In this respect, they can be understood as localized architectural responses to the socio-political transformations accompanying early Ottoman territorial expansion.

The comparative analysis of the selected case studies reveals both continuity and variation. Although all examined mosques share common features—such as rectangular plans, timber load-bearing systems, and nail-free construction techniques—variations are observed in elements including minarets, women's galleries (*mahfil*), and restoration interventions. These differences do not necessarily reflect original design divergence but rather subsequent transformations shaped by local needs, environmental conditions, and institutional practices. This highlights the importance of understanding these structures as dynamic entities subject to continuous change rather than fixed typological forms.

From a conservation perspective, the vulnerability of timber-based structures constitutes a critical challenge. Due to the organic nature of wood, these buildings are highly susceptible to deterioration caused by climatic conditions, biological factors, and insufficient maintenance. These processes are further exacerbated by seismic activity in the region—particularly the earthquakes of 1967 and 1999—as well as unsystematic human interventions, including unqualified repairs and partial reconstructions, which compromise material authenticity and structural integrity.

Another significant issue identified in the present study is the inconsistency in registration and conservation practices. While some mosques have been officially registered and restored, others remain undocumented or unprotected, as exemplified by the İncecik Mosque. This situation

points to a fragmented heritage management framework and underscores the urgent need for systematic documentation and inventory processes. Without comprehensive identification and legal protection, these structures remain at risk of irreversible loss.

In this context, conservation strategies should move beyond standardized restoration approaches and instead adopt context-sensitive methods that prioritize material authenticity, traditional construction knowledge, and minimal intervention. Integrating local craftsmanship and encouraging community participation are essential for ensuring the long-term sustainability of these heritage assets.

In conclusion, Çantı mosques should be regarded not only as architectural artifacts but also as cultural landscapes embodying historical continuity, regional identity, and traditional knowledge systems. Their documentation and preservation are therefore crucial not only for architectural history but also for safeguarding intangible cultural heritage associated with vernacular building practices.

Conclusion

The Çantı technique, employed in early Ottoman architecture, represents a significant building tradition that has survived to the present day. The timber mosques examined in the Kocaeli and Sakarya regions constitute an important component of the region's cultural heritage, both in terms of their historical context and architectural characteristics. The findings indicate that these structures are generally rectangular in plan and constructed using timber load-bearing systems on stone substructures.

The analyzed examples demonstrate notable similarities in terms of spatial organization and construction techniques, suggesting that the Çantı system was implemented according to a consistent traditional building practice. However, variations observed in elements such as minarets, women's galleries, and restoration interventions reflect the cumulative impact of later additions, environmental factors, and human interventions over time.

This study further demonstrates that Çantı mosques constitute a significant yet underrepresented component of vernacular architectural heritage in northwestern Anatolia. By documenting their current condition and analyzing their architectural characteristics, the research provides updated empirical data that contributes to both architectural history and conservation studies. The findings reveal that while these structures share common construction principles, their present conditions reflect a complex interplay of environmental factors, historical transformations, and human interventions. This underscores the necessity of approaching vernacular heritage not as static artifacts but as evolving cultural systems.

The study also highlights critical issues regarding the conservation status of these structures. While some mosques have undergone restoration and continue to function as places of worship, others have either been completely demolished or abandoned. The existence of unregistered structures represents a significant gap in heritage protection frameworks. Given the increasing risk of loss due to neglect, abandonment, and insufficient protection mechanisms, there is an urgent need for systematic documentation, registration, and conservation strategies.

In this context, mosques constructed using the Çantı technique should be regarded not only as architectural entities but also as carriers of cultural memory and traditional knowledge systems. Ensuring their sustainability requires continuous monitoring, regular maintenance, and the implementation of context-sensitive conservation approaches.

Future research may expand this research by incorporating broader regional comparisons and interdisciplinary perspectives, thereby contributing to a more comprehensive understanding of timber-based vernacular architecture and its role within cultural heritage discourse.

Funding: This research was carried out with the support of the Kocaeli University Scientific Research Projects Coordination Unit under the project number 3677.

Acknowledgements: The conceptual foundations of this study were established by Dr. Tülin Çoruhlu. The authors wish to express their profound gratitude for her invaluable personal insights, scholarly contributions, and generous provision of access to her archival materials. Her contribution to this research is beyond measure. Following her passing on 14 August 2025, this study is respectfully dedicated to her memory.

The authors gratefully acknowledge the Republic of Türkiye Ministry of Culture and Tourism and the Kocaeli Governorship for granting the necessary permissions to undertake the fieldwork and archival research.

This research was conducted within the framework of Participatory Research Project No. 3677, implemented through a collaboration between Kocaeli University and Sakarya University and funded by Kocaeli University. The authors extend their sincere appreciation to both institutions for their contributions and support.

The authors would also like to express their sincere gratitude to Eda Karaca, Director of the Kocaeli Regional Council for the Conservation of Cultural Heritage (KVKBK), and Oğuzhan Gürbüz for facilitating access to archival materials and for their valuable cooperation throughout the research process.

The authors thank Sümeyye Konak, Berfin Baykara, Sümeyra Taş, Zülal Kilit, Rana Tabay, Sena Aysel, Ayşe İrem Duyaroğlu, and Yusuf Ali İlmek for their assistance and contributions to the fieldwork and the preparation of the AutoCAD drawings.

References

Arı, Adem. (2024). Işıklı Cami. In Kocaeli Ansiklopedisi. Kocaeli Büyükşehir Belediyesi. Madde no: 683. Erişim tarihi: 28 Ağustos 2025. https://kocaeliansiklopedisi.com/Default/MaddeDetay/683

Ayverdi, Ekrem Hakkı. (1966). Osmanlı Mimarisinin İlk Devri (630–805 / 1230–1402). İstanbul Fetih Cemiyeti.

Bayhan, Ahmet Ali. (2023). Orta Karadeniz'de bir Türk İslam kenti: Ordu. Ordu: Ordu Büyükşehir Belediyesi.

Beyazıt, Aslıhan Yurtsever, Gülkan, Burhan, ve Afşar, Burçin. (2024). İkiztepe Kazılarının Dünü ve Bugünü. Colloquium Anatolicum, 23, 126–145. Erişim tarihi: 22 Ocak 2026. https://doi.org/10.58488/collan.1506216

Çantı. (2022). Türk Dil Kurumu. https://sozluk.gov.tr/. Erişim tarihi: 25.07.2025.

Çetin, Yusuf. (1999). Sakarya ve Çevresinde Osmanlı Dönemi Dini Mimari Eserler. Yüksek Lisans Tezi, Atatürk Üniversitesi.

Çoruhlu, Tülin, ve Sülüngür, E. Tülay. (2005). Adapazarı Kaynarca İlçesinde Bir 15. Yüzyıl Camisi (Şeyh Muslihiddin) ve Haziresi. Sakarya Üniversitesi Fen Edebiyat Dergisi, 7(1), 147–160. Erişim tarihi: 25 Ocak 2026. https://makale.isam.org.tr/handle/123456789/176708

Çoruhlu, Tülin. (2015). Kocaeli Yarımadasında Erken Osmanlı Camilerinden Şeyh Muslihiddin Camisi. In Haluk Selvi ve M. Bilal Çelik (Ed.), Uluslararası Gazi Akçakoca ve Kocaeli Tarihi Sempozyumu Bildirileri (ss. 1609–1633). Kocaeli: Kocaeli Büyükşehir Belediyesi.

Dolu, Yusuf Burak. (2015). Kocaeli ve Çevresinde Çantı (Ahşap Yığma) Teknikle Yapılmış Camiler. In Haluk Selvi ve M. Bilal Çelik (Ed.), Uluslararası Gazi Akçakoca ve Kocaeli Tarihi Sempozyumu Bildirileri (ss. 1685–1701). Kocaeli: Kocaeli Büyükşehir Belediyesi.

Ertuğrul, Ali, ve Dursun, İrfan. (2014). Düzce Yöresinde Fetihler Dönemine Nispet Edilen Camiler. In Ali Ertuğrul (Ed.), Düzce'de Tarih ve Kültür (s. 397). Düzce: Düzce Belediyesi Kültür Yayınları.

Erol, Nesil. (2014). Kandıra'da Halk Mimarisi. Yüksek Lisans Tezi, Selçuk Üniversitesi.

Essing, Thomas. (2014). Der Blockbau: Konstruktion und Holzartenauswahl unter holzpysikalischen Aspekten. Jahrbuch für Hausforschung, 59, 227. Erişim tarihi: 15 Şubat 2026. https://www.researchgate.net/publication/283063091_Der_Blockbau_Konstruktion_und_Holzartenauswahl_unter_holzpysikalischen_Aspekten

Nefes, Eyüp. (2010). Çarşamba'da Yıkılmak Üzere Olan Ahşap Camilerden Biri: Paşayazı Köyü. Uluslararası Sosyal Araştırmalar Dergisi, 3(14), 385–397. Erişim tarihi: 20 Ocak 2026. https://www.sosyalarastirmalar.com/archive/jisr-volume-3-issue-14-year-2010.html

Fortuna, Çiğdem. (2018). Samsun-Çarşamba'da Çantı Tekniğinde İnşa Edilmiş Ahşap Camilerin Belgelenmesi ve Vernaküler Mimari Miras Bağlamında İncelenmesi. Yüksek Lisans Tezi, Mimar Sinan Üniversitesi.

Gündoğdu, Oktay. (2024). Geleneğin Devamı Çorum/Bayat'ta Çantı Tekniğinde İnşa Edilmiş Camiler. İstem, 43, 381–406. Erişim tarihi: 25 Ekim 2026. https://doi.org/10.31591/istem.1458936

Hasol, Doğan. (1998). Ansiklopedik Mimarlık Sözlüğü. İstanbul: YEM Yayınları.

Nasution, Irham W., & Demirarslan, Deniz. (2024). Comparative analysis of mosque spatial features in Turkey and Indonesia. Türk & İslam Dünyası Sosyal Araştırmalar Dergisi, 11(40), 1–50.

Kahraman, Gülçin. (2023). Ahşap Çandı Camilerin Mimarisi ve Koruma Önerileri: Kocaeli Orhan Gazi (Işıklı) Camisi Restorasyonu. Mimarlık ve Yaşam Dergisi, 8(4), 883–909. Erişim tarihi: 15 Ağustos 2025. https://doi.org/10.26835/my.1255239

Karpuz, Haşim. (1987). Halk Mimarimizde Ahşap Yığma "Çantı" Yapılar. III. Milletlerarası Türk Folklor Kongresi Bildirileri. Ankara: Başbakanlık Basımevi.

Kaya, Mustafa. (2023). Example Of Wooden Çantı Mosque In Guria Region Of Georgia: Zoti Mosque. Anasay, 25, 141–180. Erişim tarihi: 8 Ağustos 2025. https://doi.org/10.33404/anasay.1331362

Muller, Jordan R., Aydın, Atilla, ve Maerten, Frantzs. (2003). Investigating The Transition Between The 1967 Mudurnu Valley And 1999 Izmit Earthquakes. Geophysical Journal International, 154(2), 471–482. Erişim tarihi: 18 Kasım 2025. https://doi.org/10.1046/j.1365-246X.2003.01968.x

Öngören, Reşat. (n.d.). Muslihuddin Mustafa. Türkiye Diyanet Vakfı İslam Ansiklopedisi (Vol. 31). Erişim tarihi: 27 Ekim 2025. https://islamansiklopedisi.org.tr/muslihuddin-mustafa

Özgüner, Orhan. (2017). Köyde Mimari Doğu Karadeniz. İstanbul: Dergah Yayınları.

Seurasaaren ulkomuseo. (n.d.). Erişim tarihi: 5 Mayıs 2026. https://www.kansallismuseo.fi/en/seurasaarenulkomuseo

Sözen, Metin, ve Tanyeli, Uğur. (1992). Sanat Kavram ve Terimleri Sözlüğü. İstanbul: Remzi Kitabevi.

Tuna, Celal. (2008). Orta Karadeniz Bölgesinde Sahil Kesimi Geleneksel Mimari. İstanbul: Arkeoloji ve Sanat Yayınları.

Wikipedia. (n.d.). Dimitri Gusti Ulusal Köy Müzesi. Erişim tarihi: 5 Mayıs 2026. https://tr.wikipedia.org/wiki/Dimitrie_Gusti_Ulusal_K%C3%B6y_M%C3%BCzesi

Wikipedia. (n.d.). Norveç Kültür Tarihi Müzesi. Erişim tarihi: 5 Mayıs 2026. https://en.wikipedia.org/wiki/Norwegian_Museum_of_Cultural_History

Wonders, William C. (1979). Log Dwellings in Canadian Folk Architecture. Annals of the Association of American Geographers, 69(2). https://www.jstor.org/stable/2563065. Erişim tarihi: 29/01/2026 22:10.