Original article

A multidisciplinary study to reveal the historical value of wooden structures and to develop a conservation approach: Dere and Karlı Mosques in Samsun, Turkey

Zeynep Uzun, Coşkun Köse, Nesibe Köse

A R T I C L E   I N F O

Article history:
Received 4 August 2017
Accepted 17 January 2018
Available online xxx

Keywords:
Wooden mosques
Traditional buildings
Conservation problems
Dendrochronology
Black Sea region

A B S T R A C T

Wood is one of the oldest traditional construction materials used for religious and civil architecture in the Black Sea Region of Turkey. Samsun, located in the central Black Sea Region, has qualified examples of wooden mosques in rural areas. In the scope of this paper, two wooden mosques (Dere and Karlı), located in rural areas of Kavak district (Samsun), were studied in detail with an interdisciplinary study. We aimed to emphasize the historical value of both mosques by determining their building dates, defining their conservation problems and offering proper conservation approach principles. While the Dere Mosque was registered as immovable cultural heritage by Samsun Regional Council of Conservation, Karlı Mosque has not yet been registered. However, both mosques have similar conservation problems, caused particularly by improper management such as unqualified interventions, abandonment, neglect and fire risk. For the sustainability of wooden religious heritage, it is important to reveal the historical value of the mosques and to develop detailed conservation proposals. We believe that this research will guide the quality refurbishment of wooden structures with similar conservation problems in the region and stimulate the protection of wooden heritage.

© 2018 Elsevier Masson SAS. All rights reserved.

1. Introduction

Wood has been chosen as one of the oldest traditional construction materials in many parts of the world, especially where dense forested areas exist [1–3]. Wood has been widely used in religious as well as civil architecture due to its easily accessible and renewable characteristics [2,4–6]. Most of the religious buildings, due to their special function and users’ care, were able to survive until today. Masonry built historical religious buildings, which have monumental characteristics, exist all over the world. Compared to masonry buildings, there are limited numbers of extant timber religious buildings. Related to the characteristics of wood, conservation and transfer of historical wooden heritage to future generations is very important for the sustainability of cultural heritage.

Turkey has a very rich wooden architectural heritage. Especially in the Black Sea Region, there is an old and important architectural tradition in the use of wood as the main construction material, due to the existence of large forested areas [7–9]. These buildings can be classified according to the construction of their wooden walls, like load-bearing walls, where only wood is used for the building, or framed structures with wood pieces, stones or bricks used as infill material [1]. Load-bearing wooden wall technique has been used for both civil and religious architecture in the region. Notably, in rural areas of the central part of the Black Sea Region, there are lots of wooden mosques built with this technique, yet there are few detailed studies considering the existence of wooden religious architectural heritage in the region.

Good examples of this wooden architectural tradition exist in Samsun province, located in the central part of the Black Sea Region. However, most of the wooden buildings in the city center have not survived due to various disasters like fires and earthquakes [10]. In the rural areas of the province, there are still many wooden civil and religious buildings which provide information about the existence of wood heritage in Samsun [11]. According to incomplete data, the number of wooden mosques is over 100 and this number increases with studies in rural areas. Some of these mosques have been registered as immovable cultural heritage by Samsun Regional Council of Conservation (SRCC) [12]. Nevertheless, a
comprehensive inventory study of wooden mosques in the province has not been conducted. Moreover, these wooden mosques have conservation problems acting individually or in combination, including abiotic factors (humidity, temperature, ultraviolet light, etc.), biotic factors (fungi, insects, etc.) and human influences (lack of laws in protecting the structures, abandonment, incorrect methods of construction, wrong choice of materials, fire, risk, previous detrimental interventions, theft, vandalism, moving, etc.), even these mosques have been protected by law [5], [13]. Due to a lack of evidence the exact construction dates of most mosques are not known. In Samsun province, only three mosques’ building dates were determined by dendrochronological analysis in the 1990s; Göçeli Mosque (AD 1206), Şeyh Habil Mosque (AD 1205–11) and Bekdemir Mosque (AD 1596–99) [14]. Knowing the construction dates of wooden buildings is important for nomination and registration as cultural heritage, as well as giving a definitive architectural period for the restoration of the building [15].

2. Research aim

In this study, two wooden mosques: Dere (Degirmencili) Mosque and Karlı Mosque, located in the Kavak district of Samsun, are analyzed in detail. The Dere Mosque has been previously registered and examined because of its importance for art history and its architectural features [11,16,17]. However, Karlı Mosque has not been registered and studied yet. Both mosques’ exact building dates are not known and they have similar conservation problems. In this paper, we aimed to emphasize the historical value of these mosques by determining their building dates; defining their conservation problems, and offering interdisciplinary conservation approach guidelines in accordance with related international regulations [18–21]. The documentation and conservation principles proposals, which were developed for the two mosques, will provide a basis for future studies of other mosques in the region.

3. General characteristics of Dere and Karlı Mosques

The Dere and Karlı mosques are located in rural areas of the Kavak district of Samsun (Fig. 1A, B). The district’s altitude is about 600–700 meters and it has rainy climatic conditions especially in spring [22]. Forests in Kavak mostly consist of broad-leaved trees and there are two main rivers, called the Mert and the Kürtün rivers [11,16].

The Karlı Mosque was built in the village center. There is a fountain to the north, which was probably built in the same period as the mosque. Although, Karlı Mosque’s exact building date is not known, local people believe that the mosque was built by Circassians from the Caucasus who came to the district during the Great Circassian Migration, which started 1864 and ended in the last years of 19th century [23].

Differing from the Karlı Mosque, the Dere Mosque presents a good example of “Cuma Mosques”, which were generally built outside of village centers, to be used by several nearby villages, especially on Fridays (Cuma). According to the archive of the SRCC, there was an almshouse and historic fountain near the building in the first building period of the Dere Mosque [12]. According to our local oral study, two different accounts can be found. First, it was reported that the Dere Mosque had been moved from a nearby site in the past and there was an almshouse close to the mosque. Nevertheless there is no trace of the mosque’s transportation. Second, it is reported that the Dere Mosque had not been moved, but there were two wooden mosques close to each other. There is no inscription regarding the building date of the mosque. There are some carved dates on the wooden front door (AH 1221 (AD 1806–1807), AH 1258 (AD 1842), AH 1297 (AD 1880) and AH 1343 [AD 1926]). In previous studies, AD 1806–1807 – the earliest date – was accepted as the mosque’s construction date and the rest were considered as restoration dates [16,17].

4. Methods

4.1. Identifying architectural features

We analyzed the mosques’ architectural features based on three evaluations of literature research, interviews and field studies. First, we listed the information obtained from the related literature and research of SRCC and Samsun Directorate of Foundations’ archives. Then, interviews with academicians of Theology and Art History Departments of the Ondokuz Mayıs University (Samsun) were performed to evaluate the impact of religious rituals on the mosques’ locations and space organisation. In the field study, we performed detailed survey measurements, photographic documentation and interviews with inhabitants and religious officials to learn the mosques’ oral histories. Then, landscape profiles of the mosques locations were built based on both landscape photos and three dimensional Google Earth images. Moreover, plan schemes and elevation drawings were produced using detailed survey measurements and photographic documentation.

4.2. Tree-ring dating

We took cross-sections from the logs for tree-ring dating, which are more suitable for dendrochronological analysis. Our basic criteria for sample selection was to reach logs consisting of more than 50 annual rings, and/or including bark or sapwood. We also sampled some logs having more than 100 tree-rings to establish longer floating chronologies, even if they do not include bark or sapwood. The Dere Mosque was registered by the SRCC as a cultural heritage, therefore, according to their permission we could take only eight samples from the Dere Mosque. We could take more samples, 10, from the Karlı Mosque.

The first step for finding construction dates for these mosques was to identify tree taxa of each sample, which is important for reference chronology selection. We identified taxa of each sample based on macroscopic features of the woods. Then, samples were sanded to make tree-ring borders visible. Each sample was measured to the nearest 0.01 mm from two opposite sides of the cross-section using the LINTAB-TsapWin measuring system (Rintech, Germany). Each measurement series of the same mosque were cross-dated against the others to find out their relative placement. Relative placements of the series were tested using the COFECHA program [24,25]. Then, each series from a mosque were standardized by means of a negative exponential or linear regression [26,27] and combined into a single floating chronology using the ARSTAN program [28,29]. Two separate floating chronologies were built for each mosque. Finally, the floating chronologies were compared visually with the reference chronology for dating. Dating was verified by statistically significant GLK [30], and TBP (the t-value adapted to time-series by Baillie and Pilcher [31]) values.

4.3. Determination of the problems caused by users and investigations of damages in wood

To identify adverse interventions to the original architectural elements and construction techniques, in-situ observations and photographic documentation were performed in the field studies and restoration dates of mosques were guessed through interviews with local inhabitants.

Macroscopic (visual) inspection methods were used to determine damage of the wooden elements. Simple interventions were
دریافت فوری متن کامل مقاله

امکان دانلود نسخه تمام متن مقالات انگلیسی
امکان دانلود نسخه ترجمه شده مقالات
پذیرش سفارش ترجمه تخصصی
امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
امکان دانلود رایگان ۲ صفحه اول هر مقاله
امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
دانلود فوری مقاله پس از پرداخت آنلاین
پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات