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Investigation of Konya Musalla Cemetery in terms of Landscape Design Principles

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Abstract

Grave and cemetery culture is shaped according to the lifestyles, cultures and religious beliefs of societies and is remarkable because it represents life after death. Cemeteries represent the oldest structures in human history that carry and illuminate information about cultural identity such as religion, history, social, economic, customs and crafts to the present day. As a basic function, cemeteries are storage areas that allow dead bodies to mix with the soil without endangering public health. In addition, they are places of remembrance, visitation and symbolic meaning for the living.

The main material of the research is the Musalla Cemetery, located in the Selçuklu district of Konya province, with an area of 191,875 m^2. Musalla Cemetery was used during the Seljuk, Principalities, Ottoman and Republican periods and is the largest cemetery in Konya that has survived to the present day. The purpose of this study is to examine the current situation of Konya Musalla Cemetery in terms of landscape design principles. In this context, firstly, cemetery structural and vegetative design principles were researched, and then Musalla Cemetery was examined and evaluated in line with the mentioned principles. As a result, it has been determined that the vegetative design principles are not fully fulfilled in the area that is generally found to be suitable for structural design principles. While the lack of parking in or near the area puts visitors in a difficult situation, insufficient lighting elements threaten human safety in the evening hours.

Keywords: *Konya, Landscape architecture, Landscape design, Landscape planning, Musalla Cemetery*

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INTRODUCTION

With rapidly increasing urbanisation, open-green areas in urban areas are gradually decreasing. Cemeteries, which are a part of cultural history, constitute a large part of urban open-green space systems. Therefore, cemeteries are becoming increasingly important in urban areas with their green texture. Urban open-green areas also provide many ecosystem services such as supporting urban biodiversity, improving urban climate and contributing to urban aesthetics (Tırnakçı, 2021).

Grave literally means grave, the area where dead bodies are buried (Uslu, 1997). Cemeteries, they are cultural landscape areas with identifiable visual characteristics based on unique structures such as tombstones, trees and fences, and a specific spatial arrangement created by these structures (Francaviglia, 1971).

As a result of the rules and beliefs brought by religions, the dead are buried in different ways. In particular, the belief that life continues after death has been effective in shaping the burial methods and structures of the graves (Özarslan, 2007). In the formation of cemeteries, the conditions of the geography where the societies lived have been limiting factors, just like religious beliefs and traditions. For these reasons, many burial styles, cemeteries and cemetery area types have emerged (Özkartal, 2016).

Cemeteries have also been used for various events throughout history (Deering, 2016). Cemeteries in countries that have completed their socio-economic development; It serves as green areas where residents can benefit from the green texture, calm and peaceful environments, where they can rest and think, and the passive recreation opportunities provided by city parks (Harvey, 2006; Franck and Stevens 2007; Skar et al, 2018; Lai et al, 2020). The birth, formation and development of cemeteries took place in line with the beliefs, traditions and habits, population growth, hygiene and social needs of the societies. Societies' beliefs and fears about death have been the most important factors shaping graves and cemetery traditions. The most effective rule maker is undoubtedly religious belief (Uslu, 1997).

Cemeteries in Turkish culture

Cemetery culture among Turks has manifested itself in different ways. The most important reason for this is the influence of culture and religious beliefs at different times. Therefore, Turkish grave culture can be examined under two headings: pre-Islamic and post-Islamic (Özarslan, 2007).

As historians state, the pre-Islamic Turkish civilizations are the Huns, Gokturks and Uyghurs. Their cemetery cultures were influenced by Shamanic, Upanish, Buddhist and Hindu doctrines (Özarslan, 2007). The first known tomb structure used by the Turks is Kurgan. Later, different types of graves and tombstones were used. For example, Gokturks would arrange various stones called balbal around the graves (Şeker, 1999).

The Uyghurs accepted Buddhism, but they buried their dead in places like hills, just like the Gokturks and Kyrgyz. The dead were buried in pits

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under the mound. The heads were placed towards the East or North (Saraçoğlu,1950). The most important stage in the burial tradition of the Turks manifests itself with the acceptance of Islam (Tunçel, 2004). Karakhanid Turks are the first Turks to accept Islam. Later, other Turks widely accepted Islam in the tenth century. However, the custom of building enormous cemeteries did not disappear after Islam. In fact, it has survived to this day in different forms and applications (Yazar, 1999). Although the positioning of the cemetery area can be directed towards the east or north depending on the topographic structure of the area, there is generally no clear orientation in Turkish graves. After Islam, the main adaptations were made regarding the orientation of the grave, body placement and burial methods, grave commemoration ceremony, and the grave itself and its location. Muslim Turks accepted a single burial method as prescribed by Islam (Özarslan, 2007). From past to present, cemetery areas have been socially valued areas in Turkish society. Therefore, cemeteries are reserved area that will continue to exist in the future, where damage is avoided, changes and transformations are carried out with caution. As a matter of respect, not even a single plant is removed from cemeteries, which increases the sustainability of these valuable green areas. Because of this feature, cemeteries come to mind when unspoilt urban green areas are mentioned (Özhancı and Aklıbaşında, 2017).

Importance of Cemeteries in the Open and Green Space System

From ancient times to today, cemeteries have been of great importance in all civilizations. People left cemeteries as a sign of their lives to future generations. Cemeteries are places that show the socio-cultural situations, economic assets and urban expansion patterns of civilizations and societies. Some societies, due to religious requirements or philosophical thoughts, used flashy materials in their cemeteries, left special items and statues to accompany and serve the dead, and built ornate works on a pile of soil. Some people have designed their graves and cemetery areas with distinctive elements in favor of simplicity and left them to future generations (Gönen, 1992).

The concepts of death and eternity and the burial tradition have been perceived differently according to societies and times. Natural caves were used as cemeteries in prehistoric times. Later, rock cemeteries emerged. In medieval Europe, church gardens were used as cemeteries, and since the 19th century, larger areas were needed as these became insufficient. In pre-Islamic Turkish states, tombs were large, domed structures created as monuments. With the acceptance of Islam, the understanding of graves partially changed. In Roman and Byzantine cities, cemeteries were located outside the city walls. However, in Ottoman cities, cemeteries were areas that were like urban parks within the residential area. It is not possible to find the artistic and literary structure of the cemeteries used in the past in today's cemeteries. Today, cemeteries are perceived as places that are rarely visited by urban people and generally contain burial grounds (Odabaş et al, 1994).

Cemeteries are a type of land-use within the city. Therefore, it should be considered as an important physical planning issue (Aktan, 1999). Both the planning and design phases of cemeteries should be the product of a multidisciplinary study (Cömertler, 2001).

Although cemeteries today can be described as "cities of the dead", this is insufficient. Contrary to traditional thought, cemeteries are living spaces. Cemeteries not only contain those who have passed away, but also are physically important urban green areas, apart from their deep philosophical and religious aspects. Due to religious beliefs and prohibitions, the green tissue in the cemetery has immunity compared to other urban green areas. While other green areas can easily be transformed into structures in a short time, cemeteries resist different uses for a long time (Uslu, 1997). Thus, cemeteries within the city were no longer viewed as unnecessary areas that consumed precious land, and serious progress was made in preserving old cemeteries. Many countries in Europe have banned the burial of the dead in the cemeteries located within the city limits and have opened these areas as parks, devoting them to public recreation with their well-kept greenery (Gönen, 1992).

Almost all cemeteries are green areas that differ from their surroundings with their dense vegetation and whose importance is increasing in cities where functional green areas cannot be increased or even decrease proportionally. In addition to its hygienic and religious functions, it has many ecological, cultural and recreational functions. Developed country planners, who realized these features of cemeteries years ago, have reorganized these spaces and turned them into areas that offer passive and even active recreation opportunities in addition to their main functions (Karaoğlu, 2007).

In the 60s and 70s, there was a desire to design cemeteries like a natural park that would create a less gloomy feeling, and to prevent cemeteries from becoming distressing places. The number of burial areas decreased and were hidden to form a dense green belt. Thus, cemeteries became easily visible signs in the urban landscape and the concept of "park cemetery" emerged (Kienast, 1990).

The concept of cemetery in the compilation of cemeteries master plan, decree and handbook prepared by the Christchurch City Council in 2013; They are defined as functional open spaces where people can go to pray and remember those they have lost. Large open cemeteries can be social places. For example, the Barbadoes Street cemetery hosts social events, meetings or public tours, such as free weekend concerts. In contrast to according to some religions and cultures, cemetery areas are seen as places where visitors are supposed to be silent out of respect (Akten and Özkartal, 2016).

It is observed that in British cemeteries, attention is paid to the use of three shaping elements which are stones, trees and grass areas, with their unique characters. In France, it has become a tradition to establish cemeteries in places overlooking the landscape. Additionally, the

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surrounding wall around the cemetery is gradually being removed (Aktan, 1999).

The idea of relaxing with nature, which started with park cemeteries, has developed into forest cemeteries, where cemeteries are positioned in the forest and the proportion of burial areas is reduced considerably and designed to look like a forest (Aktan, 1999). Forest cemeteries are a very good example of the changing social outlook and also show the ecological interest and concern of the new generation. These areas form quiet, peaceful and respected commemorative places within the urban landscape, with a new forest and habitat (Akten and Özkartal, 2016).

With the changes in centuries-old traditions in Europe, today cemeteries are designed as "memorial parks" where graves are freely located in large green areas outside residential areas. For example, Pere Lachaise Cemetery in Paris is a cemetery decorated with flowers, like a garden or a park, with works of art and sculptures, creating the atmosphere of an open-air museum (Akten and Özkartal, 2016).

CEMETERY DESIGN PRINCIPLES

The design process of cemeteries is based on two main principles. These principles; social and physical principles (Cooper, 2012). Physical principles are divided into two: structural and vegetative design principles.

Structural Design Principles

Cemetery islands and grave plots

Cemeteries are divided into islands by main axis and second-degree roads. The islands are divided into parcels, and the parcels are divided into burial places with numbers. The size of islands and parcels may vary depending on the size and topographic structure of the land (Özkardaş, 2010).

Cemetery entrance and walls

Gates should be built in proportion to the width of the entrance roads to cemeteries and the surrounding wall, in accordance with the identity of the cemetery, in an aesthetic structure, in a style that will provide ease of passage for pedestrians, and resistant to vandalism and bumps. A sign with the name of the cemetery should be placed at the entrance (Özkardaş, 2010).

Multiple entrance and exit points should be determined by taking into account the size of the cemeteries, their access roads and their density. The entrance must be at least 4.5 m. Aesthetic and artistic elements should be included at the entrance to emphasize the cemetery. The name of the cemetery should be highlighted, and the entrance should be illuminated in the evening (Özkardaş, 2010).

According to Article 3 of the Law on the Protection of Cemeteries, municipalities and village headmen are obliged to protect the cemeteries by surrounding them with walls, afforesting and flowering them, and performing all necessary maintenance and repairs (Anonymus 1, 2024).

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Cemetery parking lot

It is located close to the entrance points of the cemetery, has separate entrances and exits so as not to disrupt the vehicle and pedestrian circulation within the cemetery, is of sufficient size, taking into account the intense use of the cemeteries on holidays, religious holidays and special days, and is available where people can reach their funerals on the islands in the cemetery within a maximum of 10-15 minutes walking distance. One or, if possible, more than one car park of a size appropriate to the topography should be planned (Özkardaş, 2010).

Roads inside the cemetery

In the municipal cemeteries regulations, the following articles require appropriate planning for roads within cemeteries (Anonymus 2, 2024):

• Depending on the situation in the cemetery, there will be a wide path starting from the gate.

• Again, a path will be left to go around the inner side of the cemetery wall, starting from the gate.

• The cemetery will be divided into neat islands with small roads.

• One or more squares of the required width will be built in suitable places.

• Drainage channels will be built to prevent snow and rainwater from accumulating in cemeteries.

• The graves will be lined up in islands in the cemeteries and the graves will have a consecutive sequence number.

• The widest road to be opened within the cemetery will be wide enough for hearse cars and trucks to enter and maneuver freely.

• The road connecting the cemetery to the city will always be maintained in good condition.

Stairs: Stair treads should be wide and flat on the sole of the foot (1-2 percent slope should be given to the surface for drainage), and the step height should not be too high. Height + Width = 53 cm. The step height should not be more than 17.5 cm (Seçkin, 1996).

Ramps: Ramp slopes are between 5% and 10%. For a height difference of up to 10 centimetres, the maximum ramp slope is 10%; The maximum ramp slope for a height difference of up to 25 centimetres is 8.25%; The maximum ramp slope for a height difference of up to 50 centimetres is 6%; In cases where a height difference of more than 50 centimetres must be overcome, the maximum ramp slope should be 5%. The slope of very short ramps may be 12% in necessary cases (Sürmen, 2015).

Cemetery service building

A building should be established in all cemetery areas where the burial information of the dead and the book records of the grave site constructions will be kept, visitors will be assisted with information and guidance, and the protection and security of the cemetery area will be ensured (Özkardaş, 2010).

Religious facility

Especially in large and busy cemeteries, it will be useful to build a mosque or masjid where noon and afternoon prayers can be performed

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followed by funeral prayers, to ease urban traffic and to make optimum use of public resources. However, if there is a mosque or masjid in areas very close to the cemeteries, there will be no need to build a mosque in that cemetery (Moda, 2019).

Dead washing area and morgue

A structure with morgue units where male and female corpses can be washed and where the corpses can be kept should be established next to the mosque or administrative building to be built in cemeteries with suitable area and need (Özkardaş, 2010).

Toilet and ablution room

Toilets should be installed depending on the visitor density and the size of the cemetery area. In large-scale cemeteries, toilets should be built at certain distances, and care should be taken regarding hygiene (Moda, 2019).

An ablution area should be built near the mosque to be built, taking into account the density of the mosque and the number of visitors to the cemetery. These ablution areas should be built as closed areas due to seasonal conditions. (Moda, 2019).

Squares or gathering centers

In particular, more than one place, appropriate to the size and intensive use of the cemetery, should be provided where relatives of the deceased who attend the funeral and do not know the cemetery or the place of burial can easily see each other, meet and gather when they enter from different entrances of the cemetery (Özkardaş, 2010).

Maps and information boards should be placed in these places, showing citizens their location and the islands and roads in the cemetery. In addition, it is useful to place symbolic objects so that the place can be easily perceived (Özkardaş, 2010).

Reinforcement elements

Floor covering: The road must be levelled with stabilized materials and work must be done on compacted ground. The curb level of the road must be lower than the grave parcel elevation so that vehicles do not leave the road or enter the grave plots. The steep slope of the road must be well adjusted due to superficial drainage. Otherwise, rainwater will not be able to transfer over the ground at a sufficient level (Özkardaş, 2010).

Among the cemetery parcels, materials such as andesite cube stone, slate, parquet or concrete may be preferred, depending on the municipality's situation. Asphalt should not be applied on plots between graves (Özkardaş, 2010).

Water elements: Fountains are among the equipment elements in cemeteries that have infrastructure such as lighting and sound systems. Fountains for each island should be built in cemeteries, because fountains are the most used equipment by visitors who come to visit the cemetery (Moda, 2019).

In order to support the ecological functions of cemeteries and to provide a living environment for birds, insects, butterflies and fish,

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cemeteries should include water features and houses for birds. Still water elements create a relaxing effect on cemetery visitors and will also serve to collect rainwater (Badeja, 1998).

Garbage bins: Other waste that can fit into garbage bins should be at a frequency proportional to the rate of use, especially on pedestrian paths. In the cemetery design, garbage bins should be placed in areas frequently used by people. Garbage bins should be designed specifically for the cemetery; they should be easy to place, empty and clean, resistant to impacts and fire, static enough to carry the material placed inside, impermeable to the garbage water, and designed in a way that cats, dogs and birds wandering around the cemetery cannot remove the garbage (Özkardaş, 2010).

Seating units: Seating units are the most frequently missing equipment element in cemeteries, as cemeteries in our country are not used as recreation areas or visitors to the cemetery do not spend much time there (Moda, 2019).

Seating units should be placed less frequently on main roads and more frequently on secondary roads than on the main road (Moda, 2019).

Lighting elements: Illumination of cemeteries is an issue that should not be forgotten. By illuminating cemeteries like parks, the feeling of eeriness that cemeteries may cause in people at night will be prevented (Aktaş, 2009).

Lighting in cemeteries; It should be in a hierarchical order with different spacing, heights and densities. For this purpose, intense and high lighting with a height of 6-15 m should be provided on the main axis and entrances, and moderate lighting with a height of 3-5 m should be provided on secondary roads. (Uslu, 1997).

Sound systems: The sound systems to be applied in the cemetery are generally made to announce any announcement (Moda, 2019).

Information signs: People's fixed gaze angle of vision is approximately 30 degrees in the vertical direction and 60 degrees in the horizontal direction. This is especially important in the placement of pedestrian signs (Seçkin, 1996).

Vegetative Design Principles

Before starting the plant arrangement, it should be decided how much of the cemetery area will be planted. At least 50% of the cemetery should be vegetated (Özkardaş, 2010).

If the desired park is a cemetery, 30 per cent of the total size of the cemetery should include grave plots, and the remaining 70 per cent should be designed to create a park-like feeling (Taner, 1988).

When making vegetative designs in cemeteries, landscape planning and design should be done by considering the future sizes of the plant species in the cemetery (Özkardaş, 2010).

When plant species are selected from natural vegetation in accordance with the purpose of use in the cemetery; It is least affected by the negativities in land and maintenance conditions. In addition, the root

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structure of the selected plant species; In order not to negatively affect the excavation work or cause problems in the graves in the provinces, it should be stake or heart-rooted, not broad-rooted (Aktan,1999).

Balance and Repetition: When afforesting roads throughout the cemetery, leafy species should be chosen first from the natural vegetation. In order to facilitate the orientation of visitors on the main axes throughout the cemetery, a single type of plant or two types of plants, one of which is deciduous, and the other is evergreen, should be used at intervals (Özkardaş, 2010).

Emphasis: Special attention should be paid to the entrance area of cemeteries due to the symbolic content of the entrance gate, and more flowering plant species and roses should be used, provided that they are compatible with the entire composition of the cemetery. The entrance area with its decorative door should be emphasized with plants (Richter, 1998).

Contrast: It is possible to create different areas in cemeteries by using solitary plants, but for this purpose, only conical shaped conifers should not be chosen (Etienne, 1998), flexible areas should be created by using circular and pendulous shaped plants such as *Sophora japonica 'Pendula'* (Özkardaş, 2010).

Proportion-Variety: Coniferous plants are often used in cemeteries because they are evergreen; However, since the constant use of coniferous plants tires the eyes and leaves a very serious effect, broad-leaved plants that have a decorative and peaceful effect with their different autumn colors and create a park feeling should be used in abundance in cemeteries alongside coniferous plants (Özkardaş, 2010).

Plants in cemeteries; In addition to surrounding, shading, orientation and emphasis, it should create an inviting effect on visitors with the play of light created by the movement of its leaves (Born, 1998).

The environmental limitation of the cemetery area should not be set too high. However, densely textured and tall plants should be used for protection from noise and dust in cemeteries located on or near the highway, or for screening in cemeteries established in areas with wind problems (Özkardaş, 2010).

Throughout the cemetery; species selection should be made for road afforestation, surrounding the cemetery area, screening unwanted images or noise, providing shade in sitting and resting corners, emphasizing the entrance area and parking lot planting (Aktan, 1999).

In order to provide shading in sitting-resting areas of cemeteries and parking lots, plants with large crown diameters, tall plants with broad leaves that are crowned from above should be preferred (Uslu, 1997).

In addition, grass areas are areas that should be included in cemeteries due to their space-expanding and relaxing effect on visitors. Including large grass surfaces, especially in gathering and dispersing areas and in the entrance area, helps to provide the desired calm and peaceful environment in the cemetery area (Özkardaş, 2010).

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The purpose of this study is to examine the current situation of Konya Musalla Cemetery in terms of landscape design principles. In this context, firstly, cemetery structural and vegetative design principles were researched, and then Musalla Cemetery was examined and evaluated in line with the mentioned principles.

RESEARCH METHOD

Materials

The main material of the study is Musalla Cemetery located in Selçuklu district of Konya province. Musalla Cemetery has an area of 191,875 m^2 (Figure 1).

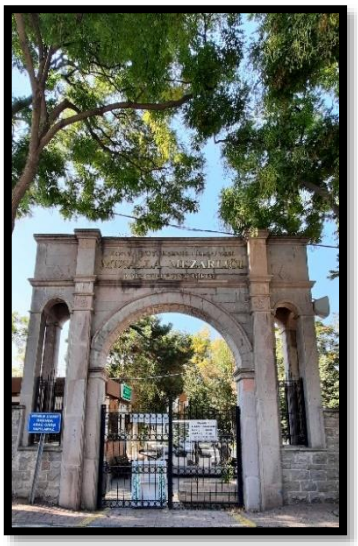

Figure 1. Musalla Cemetery (Original, 2023).

Musalla Cemetery

Musalla Cemetery, located on Ankara Street in the central Selçuklu district of Konya, was used during the Seljuk, Principalities, Ottoman and Republican periods and is the largest cemetery in Konya that has survived to the present day (Kuşdoğan, 2023). The maintenance and protection of the cemetery is provided by cemetery staff. Burial procedures at the cemetery continue.

Martyrs' Cemeteries in Musalla Cemetery

Konya military cemetery: It is located in the northeast of Musalla Cemetery and was organized in 1955 (Kuşdoğan, 2023). There are a total of 194 martyrs' graves in the area. The cemetery has 2 entrances, 1 service building and 1 monument.

Konya police cemetery: Located in the northwest of Musalla Cemetery, it was organized in 2011 (Kuşdoğan, 2023). There are 9 police martyrs graves in the area.

Non-Muslim cemeteries in Musalla Cemetery

Christian cemetery: The entrance of the small triangular Christian cemetery, which is a separate section of the cemetery, is on Nalçacı street and there is no direct entrance connection with the cemetery.

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Other places in Musalla Cemetery

There are places of historical and cultural importance within the cemetery. There are four tombs in total, three from the Seljuk period and one from the Ottoman period. In addition, the Namazgah, Paradise Pit, Zamzam infusion well and Governor's graves are also located within the cemetery.

Tombs: Inside Musalla Cemetery, there are Gömeç Hatun Tomb, Evhad'üd-din Kirmani Tomb, Şeyh Halili Tomb and Şeyh Şucae'd-din Uğurlu Tomb.

Paradise Pit: This place, which is considered the first mass grave martyrdom of Central Anatolian Turks, is located on island number 141. This is the place where the pioneer troops sent by Sultan Alparslan to Konya before the conquest of Anatolia were martyred and thrown away by the Byzantines (Kuşdoğan, 2023). This part is under protection today and no burials are made in it (Figure 2).

Zamzam Infusion Well: In ancient times, pilgrims returning from their pilgrimage would pour some of the Zamzam water they brought with them into this well, so that people who could not go on pilgrimage could get Zamzam water from this well. This well was destroyed over time and lost its function as a well. In 2016, the location of the well in the Heaven Pit was determined and it was reconstructed in accordance with the original by Konya Metropolitan Municipality Cemeteries Branch Directorate (Kuşdoğan, 2023). (Figure 3).

Figure 2. Paradise Pit (Original, 2023).

Figure 3. Zamzam Infusion Well (Original, 2023).

Namazgah: Namazgah, which used to be a kind of open-air meeting and worship place, is located in front of the Sheikh Halili tomb in Musalla Cemetery (Kuşdoğan, 2023). (Figure 4).

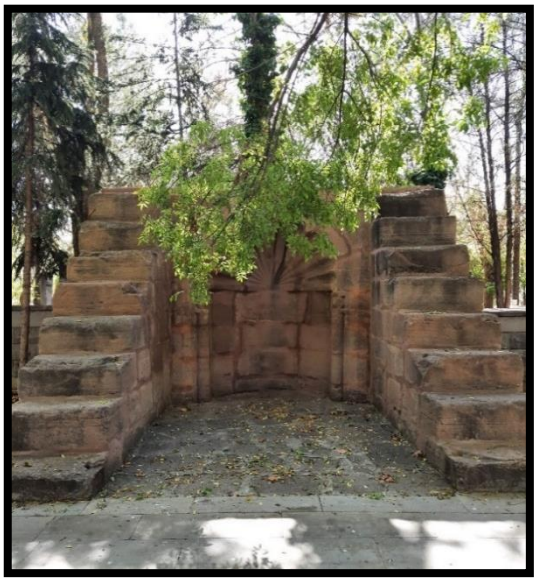

Figure 4. Namazgah (Original, 2023).

Governor's Tombs: In a special area designed as governor's tombs, there are the tombs of Konya governors İzzet Bey, Fuat Tuksal and Rıfat Özpar.

Method

Firstly, the purpose of the study was determined, and the research area was selected. The reason why Musalla Cemetery was chosen as the research area is that it is one of the largest and oldest cemeteries in Konya and also has historical importance. In the second stage, a literature review was conducted on the concepts that form the basis of the research. In the third stage, Musalla Cemetery was visited, and the area was examined, information about the area was obtained from the authorised

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persons working in the cemetery and photographs were obtained from the area. In the fourth stage, interviews were conducted with experts in the field of landscape design of cemeteries. The expert group consists of five people, and they are landscape architects. All photographs of Musalla Cemetery were shown to the experts and all information about the area was shared with the experts. The experts were asked to evaluate Musalla Cemetery between 1-5 points in accordance with structural and vegetative landscape design principles. 1 point is not suitable at all, 2 points is not suitable, 3 points is neither suitable nor suitable, 4 points is suitable, 5 points is very suitable (Likert Scale). In the last stage, conclusions and recommendations were developed.

RESULTS AND DISCUSSION

Examination of Musalla Cemetery in Terms of Structural Design Principles

Cemetery islands and grave plots

The cemetery, which has a regular road and afforestation system, is divided into islands and numbered by main and secondary roads. Musalla Cemetery consists of 50 islands in total. Cemetery islands are divided into parcels. There are island and parcel signs.

Cemetery entrance and walls

There are 3 main entrances in Musalla Cemetery. Nalçacı, Parsana and Kalenderhane gates are important main entrances. The Kalenderhane entrance is located on Ankara Street, on the east side of the cemetery. In this area, which is considered the main entrance, there is the officer's hut, camellia, hospital rooms and the morgue. The Parsana entrance is located in the southern part of the cemetery. There is also an officer's hut and a camellia on the side of the Parsana entrance. The Nalçacı entrance is located on Nalçacı street, to the west of the cemetery. The Nalçacı entrance gate of the cemetery is shown in Figure 5. Apart from these, the cemetery has four more entrance gates.

The surrounding walls of the cemetery made of rubble stone are covered with andesite. These walls are surrounded by iron railings. The wall surrounding the tomb is shown in Figure 6.

Figure 5. Musalla Cemetery Nalçacı entrance (Original, 2023).

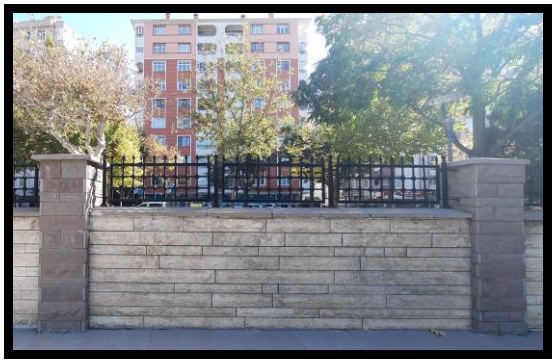

Figure 6. Musalla Cemetery wall (Original, 2023).

Cemetery parking lot

Musalla Cemetery has a reserved parking area only for hearse vehicles and golf carts used within the cemetery. Guests who come to visit the cemetery do their visits by parking their vehicles in the streets around the cemetery or on the sides of the streets (Figure 7).

Figure 7. Vehicles parked near Musalla Cemetery (Original, 2023).

Roads inside the cemetery

There are 3 main entrances in the cemetery and there are main and secondary roads connecting these entrances.

Stairs: Stairs were not generally used in Musalla Cemetery due to the low slope. There are stairs in the Christian cemetery and at several pedestrian entrances within the cemetery.

Ramps: There is little space in the cemetery that will need a ramp. For this reason, ramps were used only in a few places.

Cemetery service building

There is a security and cemetery service building at the Kalenderhane entrance of the cemetery.

Religious facility

There are three religious facilities in and around Musalla Cemetery. These are the Musalla Halkabi Köşk Mosque, located near the Kalenderhane entrance on the east side of Musalla Cemetery, Mürşit Pınar Mosque, located next to the Police Martyrs' Cemetery on the northwest side of the cemetery, and Parsana Grand Mosque, located at the Parsana entrance on the southern part of the cemetery.

Dead washing area and morgue

There are two Islamic mortuary washing room (male and female), in the building between the Kalenderhane entrance of Musalla Cemetery and Musalla Halkabi Köşk Mosque. There are three morgues in the same

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building, next to the hospital. One mobile morgue was used during the Covid-19 pandemic period.

Toilet and ablution room

There are two toilets, male and female, next to the glass-fronted waiting area at the Kalenderhane entrance of Konya Musalla Cemetery. There is an ablution room in the cemetery.

Squares or gathering centers

People coming to the cemetery use the front of the cemetery entrances as a gathering area. There is no separate square or gathering center within the cemetery.

Reinforcement elements

Floor covering: Asphalt material was used as vehicles pass through the main roads of Musalla Cemetery. Cobblestones were generally used on pedestrian paths.

Fountains: The most common accessory elements in Musalla Cemetery are fountains. There are 187 fountains in Musalla Cemetery.

Fountains were built by citizens in line with their own financial means and preferences. These fountains do not have any concept and are made with different materials and workmanship, in different sizes and styles.

Musalla Cemetery fountain is located at the entrance of Kalenderhane. There is no inscription on the fountain, which is made of marble. Although it is not known when it was built, the façade form comes to us from the 20th century. It provides information that it was built in the beginning. The fountain, which is 220 cm high, 106 cm wide and 47 cm deep, has an independent single facade (Kuşdoğan, 2023). The Musalla Cemetery fountain is seen in Figure 8.

Figure 8. Musalla Cemetery fountain (Original, 2023).

Garbage bins: There are a total of 76 garbage bins in Musalla Cemetery.

Seating units: Inside Musalla Cemetery, there are waiting areas with covered glass windows that provide shade in summer and protect from the cold in winter for people coming to the cemetery. Benches are used as seating units in these waiting areas. One of these waiting areas is at the Kalenderhane entrance of Musalla Cemetery and the other is at the Parsana entrance.

There are a total of 20 benches on the main roads of the cemetery, which are also used by vehicles. There are no benches on the side roads within the cemetery. There are 10 benches in the Military Martyrs' Cemetery.

Lighting elements: There are not enough lighting elements in the cemetery.

Sound system: The sound system in Musalla Cemetery is located next to the Kalenderhane entrance gate and is provided through speakers placed on the poles. There is a portable sound system facility in the cemetery when needed. Figure 9 shows the sound system.

Information signs: There are 50 signs showing island and street numbers in Musalla Cemetery. Additionally, there are 4 signs in the cemetery for promotional or informational purposes (Figure 10). These plaques are located in the Heaven Pit, Gömeç Hatun Tomb, Cemetery Entrance and Namazgah. There are also signs in the cemetery with hadiths and verses written on them.

Figure 9. Sound system (Original, 2023).

Figure 10. Information sign (Original, 2023).

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Examination of Musalla Cemetery in Terms of Vegetative Design Principles

Balance

Both evergreen and broad-leaved plants were used on both sides of the pedestrian paths created in Musalla Cemetery. For this reason, it has been observed that the principle of balance is generally followed in the vegetative designs in the area (Figure 11).

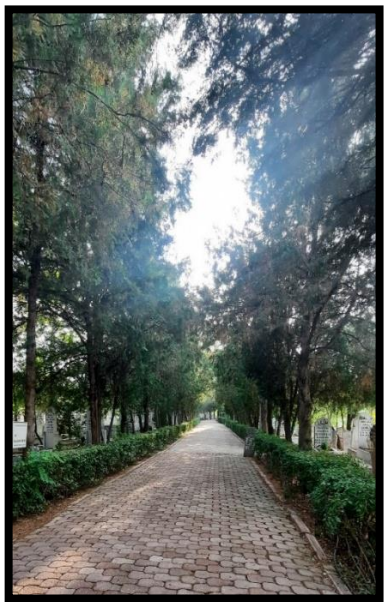

Figure 11. Example of balance principle in Musalla Cemetery (Original, 2023).

Repetition

It was also observed that repetitive plants were used on both sides of the pedestrian paths created in Musalla Cemetery. In Figure 12, *Cupressus arizonica* and *Thuja orientalis* plants were created in line with the principle of repetition.

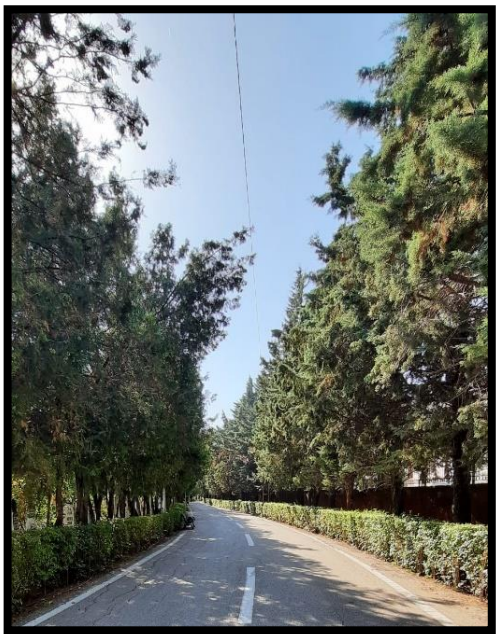

Figure 12. Example of repetition principle in Musalla Cemetery (Original, 2023).

Emphasis

In Musalla Cemetery, especially the entrances should be emphasized with plants, but the entrances were designed without complying with this principle. Plants were not used for emphasis, not only at the entrances but also throughout the cemetery.

Contrast

Plants in different forms were used very little in Musalla Cemetery. It has been determined that generally evergreen plants, occasionally broad-leaved plants and sometimes shrubs are used in the area. Since these plants do not have dominant forms that create contrast, it can be said that the area does not comply with the principle of contrast.

Proportion

The proportion of evergreen plants in the cemetery is very high compared to other plants. For this reason, it is not possible to say that a proportionate vegetative design was made in the cemetery. Examples of evergreen plants are *Pinus sp., Cupressus sp., Thuja sp., Cedrus sp., Picea sp.* can be given.

Variety

There are evergreen plant species, deciduous tree and shrub species, and seasonal flower species in Musalla Cemetery. Therefore, it is possible to talk about plant diversity. Examples of these species are *Gleditsia triacanthos, Robinia pseudo acacia, Rosa sp., Aesculus hippocastanum, Picea pungens "Glauca", Cedrus libani, Quercus robur, Juniperus sabina, Tagates erecta, Begonia semperflorens.*

Plants can also be used functionally in botanical design. The plants in the Musalla Cemetery were also used for purposes such as screening (Figure 13), shading (Figure 14) and orientation (Figure 15).

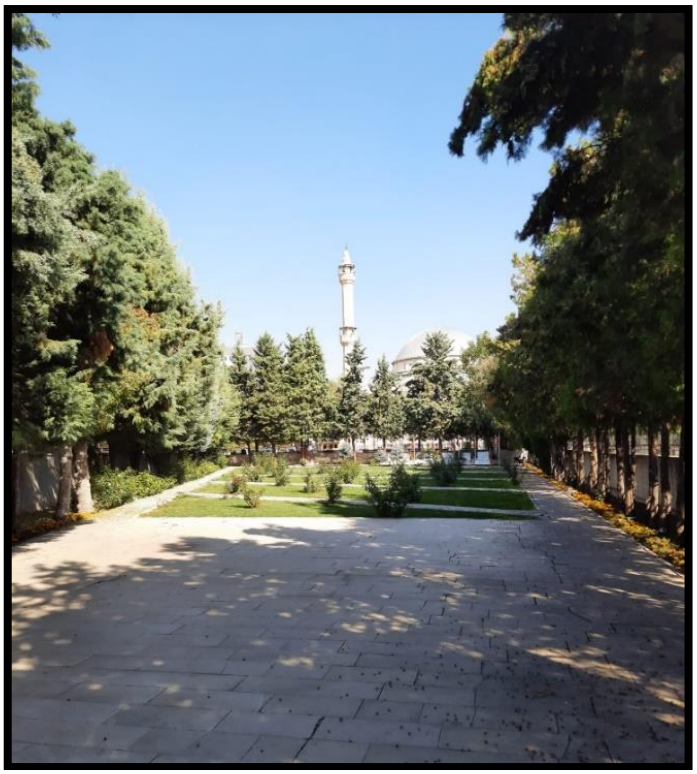

Figure 13. Example of screening Musalla Cemetery with plants (Original, 2023).

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Figure 14. Example of shading Musalla Cemetery with plants (Original, 2023).

Figure 15. Example of orientation Musalla Cemetery with plants (Original, 2023).

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The evaluation of Musalla Cemetery by the experts in line with the structural design principles is given in Table 1.

Table 1. Evaluation of the structural design principles of Musalla Cemetery by experts

Structural Design Principles	Expert 1	Expert 2	Expert 3	Expert 4	Expert 5	Total Point
1- Cemetery islands and grave plots	3	4	3	3	4	**17**
2- Cemetery entrance and walls	4	5	3	4	4	**20**
3- Cemetery parking lot	1	2	1	1	2	**7**
4- Roads within the cemetery	4	5	5	4	4	**22**
5- Cemetery service building	3	4	4	5	3	**19**
6- Religious facility	5	5	4	4	5	**23**
7- Dead washing area and morgue	4	3	5	5	5	**22**
8- Toilet and ablution room	4	4	3	5	4	**20**
9- Squares or gathering centers	1	2	3	2	2	**10**
10- Reinforcement elements						
10.1- Floor covering	3	4	3	4	4	**18**
10.2- Water elements	5	5	4	5	4	**23**
10.3- Garbage bins	5	4	3	4	4	**20**
10.4- Seating units	3	5	5	4	4	**21**
10.5- Lighting elements	1	2	1	1	1	**6**
10.6- Sound systems	3	4	4	4	3	**18**
10.7- Information signs	5	4	3	3	3	**18**

Structural design principles in landscape design state that all structural elements in the landscape should be designed in an aesthetic and functional way and should be placed in the area in that way, and that these elements should be present in sufficient number in the area (Bayrak, 2019; Moda, 2019).

Table 1 shows the total number of points each structural design principle received from the experts. According to this table, Cemetery parking lot, square/gathering areas and lighting elements received the lowest scores.

There is no parking area within the cemetery area to serve visitors. Visitors park their vehicles on the roads around the cemetery area or in empty spaces. Additionally, there are no squares or gathering centers in the cemetery.

The reinforcement elements in the area are sufficient. However, the number of lighting elements among the reinforcement elements is almost non-existent. For this reason, lighting elements are insufficient in the area.

The evaluation of Musalla Cemetery by the experts in line with the vegetative design principles is given in Table 2.

Table 2. Evaluation of the vegetative design principles of Musalla Cemetery by experts

Vegetative Design Principles	Expert 1	Expert 2	Expert 3	Expert 4	Expert 5	Total Point
1- Balance	5	5	4	5	4	**23**
2- Repetition	4	5	5	4	4	**22**
3- Emphasis	1	2	1	2	2	**8**
4- Contrast	2	3	1	1	1	**8**
5- Proportion	1	1	2	2	2	**8**
6- Variety	3	4	5	4	3	**19**

Vegetative design principles in landscape design are realised by planting the plant elements in the landscape area in an aesthetic and functional way. This plantation is realised in accordance with the principles of balance, repetition, emphasis, contrast, proportion and variety (Bayrak, 2019; Moda, 2019).

Table 2 shows the total number of points each vegetative design principle received from the experts. According to this table, emphasis, contrast, proportion principles received the lowest scores.

When Musalla Cemetery was evaluated in terms of vegetative design principles, it was determined that the principles of balance, repetition and variability-diversity were present in the area, while other vegetative design principles were not included in the area. It has also been determined that plants were used functionally in the cemetery area. These functions are screening, shading and directing functions.

Recommendations

Cemeteries, which can be considered as one of the least used places among the different land uses in urban areas, are places where urbanites

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can gather at the same time, in the same place and with similar feelings. Cemeteries reflect historical, religious and cultural identity, understanding of art, traditions and customs. Planning and design of urban cemeteries, which are a part of the urban green texture, is therefore a very important issue.

Cemetery areas have become disorganised over the years because they are not arranged through a specific design and arrangement and users are not guided within the framework of rules. The possibility of a clear perception for the visitor disappears, and these valuable urban open green areas give an impression far from the perception of trust. Since each cemetery has been in operation for many years, the faulty work done at the beginning cannot be easily changed. In the future, studies should be carried out with a modern understanding, and principled, environmentalist designs and applications should be realised in cemeteries as they should be in all urban open green areas.

In this direction, the suggestions about Musalla Cemetery, which is the study area, are given below.

The lack of parking in the cemetery creates parking problems for cemetery visitors. This is why it is important to establish a new car park near the cemetery. In addition, the lack of centers where visitors can gather in the area makes it difficult for people coming to the area to find each other. Such areas should be included in the cemetery.

It has been determined that the most common accessory element in the cemetery is the fountain. It has been observed that there is no distance between the fountains and that they are randomly positioned. It was determined that some of the fountains were broken and neglected. It is important to repair broken and unused fountains and make them usable, and to plan and position the fountains to be built in the future. The fact that there are almost no lighting elements in the cemetery threatens human safety, especially in the evening hours. A sufficient number of lighting elements should be placed in the area.

The number of directional signs indicating the tombs, martyrdoms, etc. in the cemetery should be increased to make it easier for people to reach the cemetery. In addition to the directional signs, the number of Cemetery Information System devices in the cemetery should be increased in order to technologically support the orientation of visitors in the cemetery. Sketch signs showing the entire cemetery (with the information 'you are here now') can be placed in many different areas in the cemetery.

Although the plant diversity in the study area contributes to the urban ecosystem, the area should be re-evaluated in terms of vegetative design principles and the vegetative design of the cemetery should be redesigned accordingly.

REFERENCES

Aktan, N. G. (1999). Fiziksel planlama yönünden İzmir ve Frankfurt kent mezarlıklarının karşılaştırılması. (Master's thesis, Ege Üniversitesi).

Aktaş, R. (2009). İstanbul'daki mezarlıkların nitelik ve nicelik açısından irdelenmesi ve çağdaş mezarlık planlaması örneği olarak Bahçeşehir mezarlığı. (Doctoral dissertation, Bahçeşehir Üniversitesi Fen Bilimleri Enstitüsü).

Akten, M. and Özkartal, N. (2016). İzmir ili Soğukkuyu mezarlığının planlama kriterleri ve peyzaj tasarımı açısından irdelenmesi. *Journal of Architectural Sciences and Applications*. 1(2), 9-20.

Anonymus 1. (2024). Mezarlıkların korunması hakkında kanunu. https://www.mevzuat.gov.tr/MevzuatMetin/1.5.3998.pdf Erişim Tarihi: 29.01.2024.

Anonymus 2. (2024). Belediye mezarlıkları nizamnamesi. https://www.mevzuat.gov.tr/MevzuatMetin/2.3.11410.pdf Erişim Tarihi: 29.01.2024.

Badeja, E. (1998). Friedhof Oberwangen in der Gemeinde Koeniz Cimetiere d'Oberwangen: commune de Koeniz. *Anthos-Zurich*. 37, 10-13.

Bayrak, M. İ. (2019). Peyzaj planlama ve tasarım ilkeleri açısından Bursa kent Hamitler mezarlığı değerlendirilmesi. (Master's thesis, Uludağ Üniversitesi).

Born, C. (1998). Gemeinschaft der Toten Communaute des defunts. *Anthos-Zurich*. 37, 26-29.

Cooper, D. L. (2012). HWS Cleveland's landscape for Oak Hill Cemetery: A design analysis. (Doctoral dissertation, Iowa State University).

Cömertler, S. (2001). Cemeteries "planning and design principles". Izmir Institute of Technology (Turkey).

Deering, B. (2016). From anti-social behaviour to X-rated: Exploring social diversity and conflict in the cemetery. *Deathscapes Routledge (pp. 75-94)*.

Etienne, A. (1998). Leitlinien fuer den Friedhof von Carouge Lignes directrices pour le cimetiere de Carouge. *Anthos-Zurich*. 37, 38-41.

Francaviglia, R. V. (1971). The cemetery as an evolving cultural landscape. *Annals of the Association of American Geographers*. 61(3), 501-509.

Franck, K. and Stevens, Q. (Eds.) (2006). Loose space: Possibility and diversity in urban life. *Routledge*.

Gönen, G. (1992). Mezarlıklar. *Peyzaj Mimarlığı Dergisi (III).* p. 34-35, Ankara.

Harvey, T. (2006). Sacred spaces, common places: The Cemetery in the contemporary American city. *Geographical Review*. 96(2), 295-312.

Karaoğlu, D. (2007). Kent mezarlıklarının yeşil doku içindeki önemi ve ziyaretçi memnuniyetinin belirlenmesi-Karacaahmet Mezarlığı örneği. (Doctoral dissertation, İstanbul Teknik Üniversitesi, Fen Bilimleri Enstitüsü).

Kienast, D., (1990). On dealing with cemeteries. *Journal of Anthos*. 4:10-16.

Kuşdoğan, D. (2023). Üçler ve Musalla mezarlıklarında medfun Konya'nın manevi değerleri. Yayınlanmamış kitap. Konya Büyük Şehir Belediyesi Çevre Koruma Kontrol Daire Başkanlığı Mezarlıklar Şube Müdürlüğü, Konya.

Lai, K. Y., Sarkar, C., Sun, Z., and Scott, I. (2020). Are greenspace attributes associated with perceived restorativeness? A Comparative Study of Urban Cemeteries and Parks in Edinburgh, Scotland. *Urban Forestry & Urban Greening*. 53, 126720.

Moda, A. (2019). Kent mezarlıklarının kentsel yeşil alanlar içindeki önemi ve ziyaretçi memnuniyetinin belirlenmesinde Kayseri asri mezarlığı örneği. (Master's thesis, Selçuk Üniversitesi Fen Bilimleri Enstitüsü).

Odabaş, A., Açıksöz, S. and Ataturay, S. (1994). Kentsel planlama kapsamında mezarlıklar. *4. Ulusal Bölge Bilimi/Bölge Planlama Kongresi*. 231, 234.

DOI: 10.15320/ICONARP.2025.317

Özarslan, H. E. (2007). Mezarlıkların peyzaj planlama ve tasarımı açısından incelenmesi: İstanbul Zincirlikuyu mezarlığı örneği. (Doctoral dissertation, Fen Bilimleri Enstitüsü).

Özhancı, E. and Aklıbaşında, M. (2017). Kentsel peyzaj içinde mezarlıklar ve peyzaj mimarlığı açısından incelenmesi: Nevşehir örneği. *Atatürk Üniversitesi Ziraat Fakültesi Dergisi*. 48(2), 113-124.

Özkardaş, V. (2010). İstanbul mezarlıklarının peyzaj planlama, tasarım ve bakım çalışmaları açısından incelenmesi: Karacaahmet mezarlığı örneği. (Master's thesis, İstanbul: Bahçeşehir Üniversitesi Fen Bilimleri Enstitüsü).

Özkartal, N. (2016). Kentsel yeşil doku içerisinde mezarlıkların yeri, önemi ve planlama kriterleri: İzmir kenti örneği. (Master's thesis, Süleyman Demirel Üniversitesi Fen Bilimleri Enstitüsü).

Richter, G. (1998). Pflanzkonzeption für Friedhof und Grabfeld. *Das Gartenamt*. 11, 720-725.

Saracoğlu, N. (1950). Türk mezarlarına dair araştırma. (Doctoral dissertation, İstanbul Teknik Üniversitesi).

Skår, M., Nordh, H., and Swensen, G. (2018). Green urban cemeteries: More than just parks. *Journal of Urbanism: International Research on Placemaking and Urban Sustainability.* 11(3), 362-382.

Seçkin, Ö. B. (1996). Peyzaj yapıları II. Yayımlanmamış ders notları. İstanbul Üniversitesi Orman Fakültesi.

Şeker, M. (1999). Türk mezar bilimi bir disiplin olarak kurulmalı. *Geçmişten Günümüze Mezarlık Kültürü ve İnsan Hayatına Etkileri Sempozyumu.* 18(20), p. 25-32.

Sürmen, Ş. (2015). Şehirlerdeki fiziki engeller ve çözüm yolları. http://cdn.istanbul.edu.tr/statics/enuygar.istanbul.edu.tr/wp-content/uploads/2015/11/%C5%9EEH%C4%B0RLERDEK%C4%B0-F%C4%B0Z%C4%B0K%C4%B0-ENGELLER-VE-%C3%87%C3%96Z%C3%9CM-YOLLARI-%C5%9E%C3%BCkr%C3%BC-S%C3%BCrmen.pdf Erişim Tarihi: 29.01.2024.

Taner, T. (1988). Şehir mezarlıkları planlama ilkeleri. DEÜ. Güzel Sanatlar Fakültesi. (0904-AR), 88-026.

Tırnakçı, A. (2021). Sürdürülebilir kentsel açık-yeşil alanlar olarak mezarlıklar ve sunduğu ekosistem hizmetleri: Tarihi Seyyid Burhaneddin Mezarlığı-Kayseri. *Journal of Bartin Faculty of Forestry*. 23 (1): 18-35.

Tunçel, G. (2004). Beypazarı Müzesi'ndeki mezartaşları. *Ankara Üniversitesi Dil ve Tarih-Coğrafya Fakültesi Dergisi*. 44(2), 267-284.

Uslu, A. (1997). Tarihi süreç içerisinde Anadolu mezarlıkları ve çağdaş bir yaklaşımla Ankara kenti için örnek bir mezarlık planlaması üzerinde bir araştırma. (Doctoral dissertation, Ankara Üniversitesi Fen Bilimleri Enstitüsü).

Yazar, T. (1999). Çadır-bark-türbe. *Geçmişten Günümüze Mezarlık Kültürü ve İnsan Hayatına Etkileri Sempozyumu*. 418-431, İstanbul.

Resume

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