Design of Unique Urban Furniture in Outdoor Campus Areas

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Abstract
In addition to undertaking education, universities can also be described as the institutions where social and cultural activities are carried out. The most important spaces for carrying out the social and cultural activities are the outdoor and green areas of the campus. It is a must for these outdoor and green areas to enable students to socialize.

In this study, it is aimed to analyze the landscape design of the pre-determined area of the Eyyubiye Campus of Harran University, along with the design of urban furniture made out of stone of Urfa. The landscape design stages comprise of programming, design, construction and occupancy processes. The design of the unique urban furniture is laid great importance, focusing on reflecting the identity of the city of urban furniture that is constructed during the process of designing and embodying the imaginative features of the city. Also, construction techniques are presented by means of making designs that prioritize sustainable design indicators.

Additionally, it was inferred from the design that the Urfa stone could be recognized as the building material for urban furniture.

Keywords: design and construction process, outdoor areas of campus, urban furniture, university

INTRODUCTION

Universities comprise of research and application buildings where education and teaching are undertaken. The university campuses which are one of the urban spaces have an important position for the identity of the city with its social and cultural activities as well as educational. The outdoor and green areas of the university campuses provide an opportunity for the people to enjoy social and cultural activities thus making people more socialized and improvind the quality of the education. In university campuses, outdoor and green areas have certain important functions. One of the functions of outdoor and green areas to ensure the integrity and circulation among the buildings within the campus, which makes it a must for the design of spaces to be according to the activities the users want to carry out.

The outdoor and green elements within the university campuses can be classified as customized, such as the environment boundary of the campus, campus entrances, active-open recreation spaces, passive-open recreation spaces, vehicle and circulation systems, plastic objects (fountain, statue, monument), crossroads, outdoor furniture (pergola, park benches, bowers), lightening, protection,blockade and consultation. (Dober, 1992, Aksu 2012) Urban furniture in campus is an element that is of importance. The urban furnitures can be described as the unique designs that ensure establishing coherent, meaningful and healthy connections with the people around other people. While urban furniture ensures inter-personal connection, it also lays new meanings to the area, itself, while also defining the same. (Güner 2015). During the design process of urban furniture, having unique furniture that reveals the identity of the cities, which is compatible with the architectural structure of the city and designed according to the indicators of sustainable design, lays meaning and quality to the environment to be created (Şatır, 2015).

In this study, landscape design and urban furniture of the area designated for the use of Harran University Eyyübiye Campus students and staff were made, and it is aimed to present these to the students for evaluation. Moreover, the use of "Urfa Stone" which was not used before as a material for designed urban furniture and the construction step are examined, as well. In landscape arrangements, the unique designs of urban furniture (sitting bench, desk, shadings, ornamental pool, flower heads, lightning, informing plaque) that satisfy the consumer's needs are presented. In the design of urban equipment elements, the tradition of the city, the historical texture, using of natural materials and sustainable design indicators are taken into consideration. In this study, the urban furniture that is produced is considered as "unique" since it is designed and undertaken by the project itself.

METHOD AND MATERIALS

The study material is the area around Harran University Eyyübiye Campus Technical Sciences Vocational School in Şanlıurfa province. Harran University Eyyübiye Campus is located 5 km to the center and has a total area of 982.000 m2. There are 1 faculty and 2 vocational schools (see Figure 2) in it. Chosen as the study material, this area was designed in 2017 and completed in the first half of 2018 and started to be used. Method of study consists of programming-design-construction-use and evaluation operations.

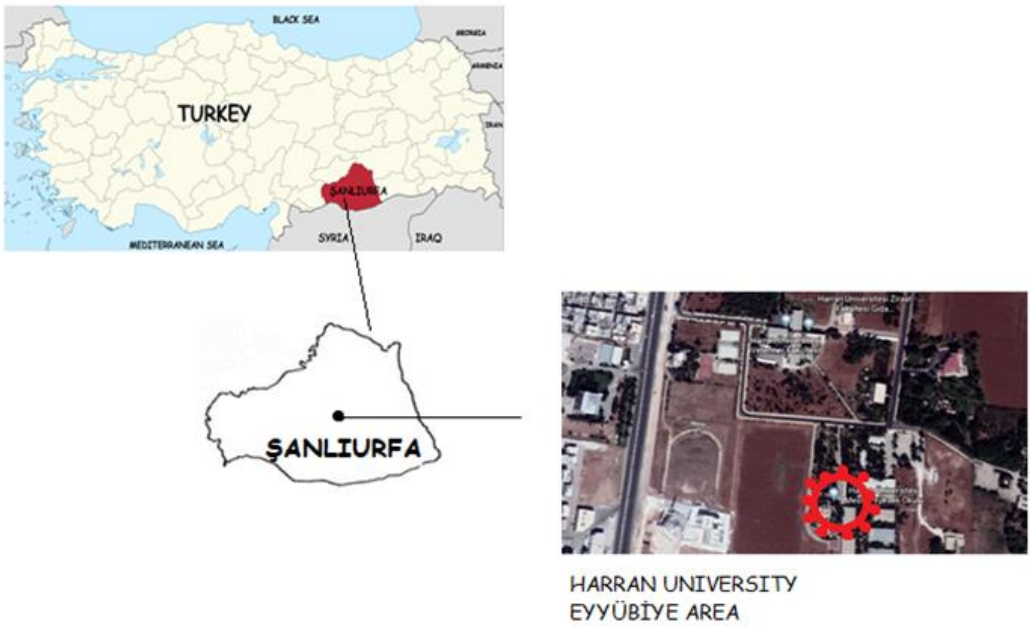


Figure 2: Location of study area.

The literature research was carried out for the project, while identifying the needs of the area and discussing the design and construction process. The production and evaluation processes are examined under 2 different topics. These are the production (programming-design- construction) and evaluation processes (see Figure 1) Evaluation process is discussed in the second step of the study, and the activities which are mostly performed in this area are evaluated by directing asking to the users.

Design and construction process				
Production Process			Evaluation Process	
Programming	Design	Construction	Occupancy	Post Occupancy evaluation

Figure 1: Design and costruction.

Design and Construction Process

Production process

Programming Process forms the first step of the design and production. It is the step where all the information that leads to the design. One of the most important steps of spatial design process is to detect the design problem and its solution. Programming process is a transition stage to design by determining the user's demands and expectations. In conclusion, the needs of the user (student-personnel-guest) are taken into consideration. The spaces which are liveable and appropriate to user life can be created to make the design succesful. (Lawson, 1980, Lang, 1987). In that sense, the problem of the design is defined at the beginning by detecting the needs and demands of the user in the programming process. Then, it is proceed to the design process. If there is any design approach that satisfy the needs of the user, more liveable spaces can be created. The formation of successful urban outdoor green spaces is linked to the fulfillment of the Design Principles of outdoor Urban Spaces "(Table 1) and satisfying human needs.

Table 1. Design Principles of Outdoor Urban Spaces (PPS, 2000)

Usage and Activities	• **Urban furniture that supports the intended activites** • **Creating a center of interest for people to gather** • **Creating the activities to gather people and enlivenment of the area**
Comfort and Identity	• Placing the urban equipment sitting units, rubbish bins, information spots, water features, flower beds etc. in carefully selected spaces • Creating an attractive entrance or creating spaces that provide visual access from the surrounding areas to the space. Providing perceptibility by creating spaces that ensures visual access out of spaces around • Including activities and usage areas oriented at increasing the number of participants • Ensuring the security measures to be taken • Cleaning and repairing of the area
Access and Connection	• Easy directions • Ensuring sustainability of pedestrian roads • Continuity, proximity, easy connection • Walkable, accessible
Socialization	• Socio-cultural compatibility • Creating socialization areas • Providing area for group living and equipment in order to support social communication • Including special events and activities to attract people to the area

Source: Maslow (1987), Lang (1987), PPS, 2002

"Project for Public Spaces" (PPS) group evaluating the urban outdoor space, suggests that successful urban outdoor spaces are spaces that are accessible, has comfort and identity, offers activities and gives other people opportunity to socialize. (İnan,2008)

Universities are the institutions that unite individuals from different culture, belief, economic structure and thought. Even though people do not need a social interaction in the urban outdoor green areas, the major need in outdoor campus areas is on socializing and interaction. In that sense, these areas should be designed to increase social relations. (Bredow, 2006, Driskell 2002, Özkan 2017) These interacting spaces provide students with the opportunity to talk with others, discuss any matter and learn. It enables the students to relax, talk, read, study, walk, watch around, listen to music etc. (Whyte, 1980; Gehl, 1987, Abdulkarim and Nasar, 2014).

The main tool for serving interaction and socialization – as the major need in universities - is urban furniture to be designed and placed.

The formation of successful urban furniture depends on the fulfillment of urban furniture sustainable design indicators" (Table 2).

Table 2. Sustainable design indicators of urban furniture (Tuğlu Karslı, 2008).

Energy conservation
Material conservation
Durability, easy maintenance,
Reproduction / use, recycling
Contribution to urban identity

*Design process***;** The design is made in the direction of needed data. Design process consists of functional diagram, developing desing and production process.
*Construction process***;** It is the process after the design process.
Evaluating Process; It is the process that starts with the usage of the designed and constructed area.
Usage Process; It is the process in which people start to use the designed space.
In this essay, all of the above-mentioned have been completed as following processes; programming, design, construction and evaluation processes.

RESULTS

Results Related to the Formation Process of Urban Outdoor Space

Programming

In the programming process, the area to be designed around Harran University Vocational School of Technical Sciences was localized. The area between the administrative building, cafeteria and classrooms under construction in the front yard of the Vocational School of Technical Sciences was identified as the study area. Recognized as a narrow space, the working area is 1100 m2 area. Although the area is not large, it is densely used both by the students and staff. It is an idle area that does not meet user needs. This area is to be designed and functionalized according to user demands. Within the scope of the study, it was determined that the design was completed without giving any harm to existing plants. In this context, the plants that were needed to be preserved were identified (see Figure 3). It is necessary to design an area where employees and young people can gather and perform activities in the workplace. In this context, survey was conducted according to user needs by asking 80 users the question: "Which activities would you like to perform in this area?" (Table 2).

Among the major needs of the area are the following issues: the lack of area where young people and staff can sit and relax, study outside and listen to the sound of the ornamental pool. The administrative building being mixed with the classroom buildings thus not being perceptible from the environment. The inadequacy of the promotional signs to introduce

technical sciences (Table 3). Thus, the activity areas were determined by means of survey and field analysis.

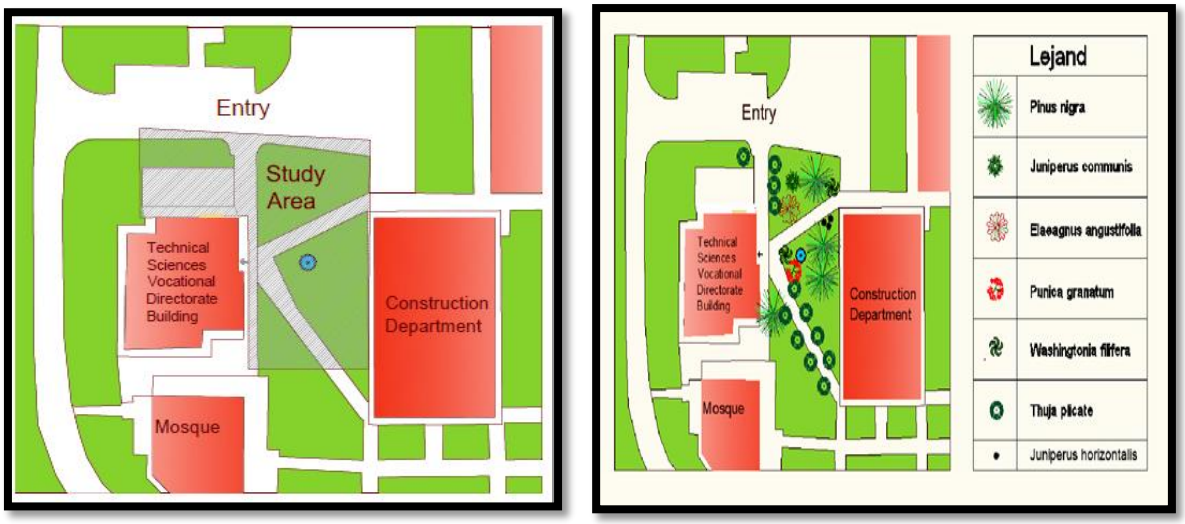


Figure 3: Study area and existing plants

Table 2: Specified activity list

Activity list	N:40	Percent
Sitting	34	15.0
Resting	21	9.2
People-watching	9	3.9
Environment-watching	16	7.0
Chat with friends	22	9.7
Studying	23	10.1
Eating	12	5.3
Meeting with friends	12	5.3
Listening to music	20	8.8
Exhibit	9	3.9
Read a book	6	2.6
Listening to water sound	17	7.5
Welcoming	12	5.3
Taking a souvenir photo	13	5.7

Table 3: Survey and area analysis

Survey data	Area analysis
There are no landscapes due to the surrounding buildings.	Creating ornamental pool for focus landscape and provide orientation
The working area is a flat area with no slope. The connected units around it are in the same code as the field.	Natural hill construction to activate the space
There are 30-year needle and broad-leaved trees in the study area.	The work area is designed with protection of all trees.
The existing buildings around it consist of administrative building, masjid, canteen, construction section and entrance.	The design are shaped by considering the structures around it.
The administration building is not perceptible from the outside.	Design of information sign with the name and logo of the administrative building

Firm ground located next to the administrative building is exposed to intense sun.	Making pergola
There is no focal point in the area.	Creating a focus and meeting point with the ornamental pool.
All the city furniture in the area is outdated.	Designing and manufacturing urban furniture with IDs. Exhibiting and using the urban furniture with IDs.
No local material was used in the design of urban furniture.	Production of urban furniture in accordance with local materials

Design

The area data were examined in detail by taking photographs in the programming process. It was designed in accordance with the needs. The required areas were determined according to the activities that users want and survey-area analysis, which are "eating and seating area, focus and seating area, promotional area". The design process of the study was carried out under four headings: Function diagram, design development, detailing and construction drawing.

Function diagram

The purpose of the functional diagram is to show the identified needs schematically in the study area according to the situation of the area and the relationship of needs. The area is schematically located according to the user-defined needs list (see Figure 5).

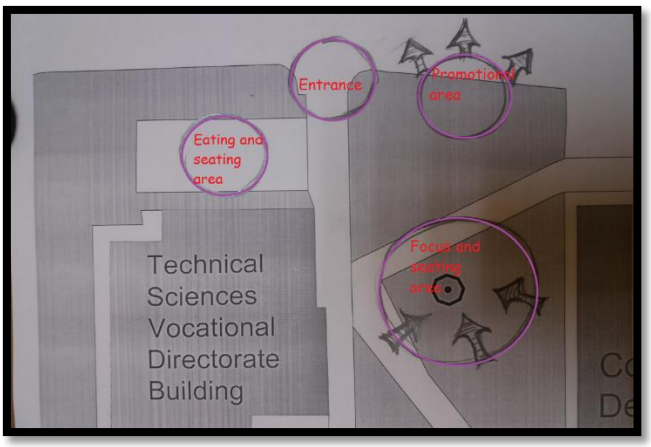


Figure 5: Function diagram of study area.

Design development

Since the study area is a narrow area - 1100 m2 - between the buildings, we tried to analyze it by designing unique urban furniture with a slight intervention on the area. The design was made in the area by protecting the fountain and the existing plants. Activities requested by the users for the area are sitting, resting, people-environment watching, chatting with friends, studying, meeting friends, listening to music, eating, listening to the sound of water, studying, exhibiting, introducing, taking pictures. In line with the needs determined for the area; Eating and Seating area, focus and seating area and promotional area were determined, as well, thus identifying the activities to be brought to these places. It was decided that Eating and Seating area is for eating, sitting, watching people, studying and exhibiting activities. Focus And Seating Area is for sitting, resting, atching people-environment talking and meeting with firends, listening to the sound of the water and resting activities. Promotional Area is for taking the photos. Localization process was performed for these areas. The area to the east of the Technical Sciences building was designed as a focus and seating area for sitting, chatting with friends and listening to the sound of water. The ornamental pool made of Urfa stone material allows people to relax

and listen to the sound of water, and it provides opportunities for sitting and chatting with friends while sitting on the benches. The area to the east of the entrance was designed as the promotional area of the technical sciences as the information plaque and logo. Informative and souveneir photos will be taken in this area. Original urban furniture is designed and placed to socialize in designated areas. In urban furniture design, it has been reported that different factors are to be discussed such as social aspects which are formed by traditions, prejudices, historical texture; psychological aspect which is formed through perception; the semiontic aspect gained by the material features and aesthetic aspect brought by design dimension (Güzel 2003). Because the fountain to be designed was made of the urfa stone in the area and reflects the urban identity, urfa stone was preferred as the main material. The reasons for choosing Urfa stone are as follows:
1. Being a material compatible with traditional architecture in the city,
2. As it is durable and long-lasting material in urban furniture that will be designed, no intervention will be made for the supply of materials to the nature again and natural resources will be protected.
3. Urfa stone; local source of Şanlıurfa will be used and will not require transportation as it will be transported from the stone pits.
4. The stone is easy to processed easily in the process of extraction from the stone pits, patterns will be included in the designs and urban furniture will be made more original.
5. Long-lasting and environment-friendly sustainable material will add value to the objects to be designed.

Sustainable design indicators are prioritized in urban furniture design. Of these indicators;
• Energy conservation: Urfa stone, as the local source of the city of Şanlıurfa, was used in the design of urban furniture. The fact that the transportation of this stone does not require long distance transportation, bringing it to a flat place in standard dimensions reduces the amount of energy and cost required during production and transportation. Some of the important factors in using this material are the fact that the material used is easily shaped and is suitable for urban furniture. The principle of minimum material usage has been adopted by making simple designs. By rendering the designs multifunctional, besides sitting function, flowerbed function, carrier feet of the shadow unit are also given an aesthetic panel appearance.
• Durability, easy maintenance: Urfa stone is a material that hardens and gains resistance in contact with air under natural conditions. It is also a hard material and resistant to accidents.
• Reproduction / use, recycling: In terms of sustainable design, it is of great importance that the material dissolves in nature and become a loop of the ecologicalcycle. Urfa stone is an ecological material because the stone material is reusable. Choosing natural materials eliminates the problem of "material pollution that may arise during recycling." (Tuglu Karsli, 2008).
• Contribution to urban identity: The use of urfa stone material, which exists in the traditional texture of the city, strengthens the identity of the city. In addition, the decoration of the city furniture with the details of the existing decoration in the city intensifies the identity of the city, as well. It is aimed to design urban furniture sampleds for Şanlıurfa which has a historical identity by prioritizing the design of the urban furniture that makes a liveable and perceptible city serving to socio-cultural sustainability with Urfa Stone. (Tazilan, Salleh, Komoo, Ismail, 2008). Making urban furniture that is identified with the historical identity of the city leads to an increase in the quality of the space, as well. (Şatır & Korkmaz, 2005).

In order to increase the emphasis of the entrance area, flowerpots were placed to the right and left of the entrance. Urban furniture to be used in the study area was determined. We tried to develop the design of urban furniture which could meet the needs that will give identity to the area. 2D and 3D designs of urban furniture were carried out and drawing process was started.

Construction drawing

The landscape design of the area has been determined identifying which urban furniture to be placed in the Eating and Seating area, focus and seating area and promotional area areas, as well as rendering unique designs under this manner (see Figure 6).

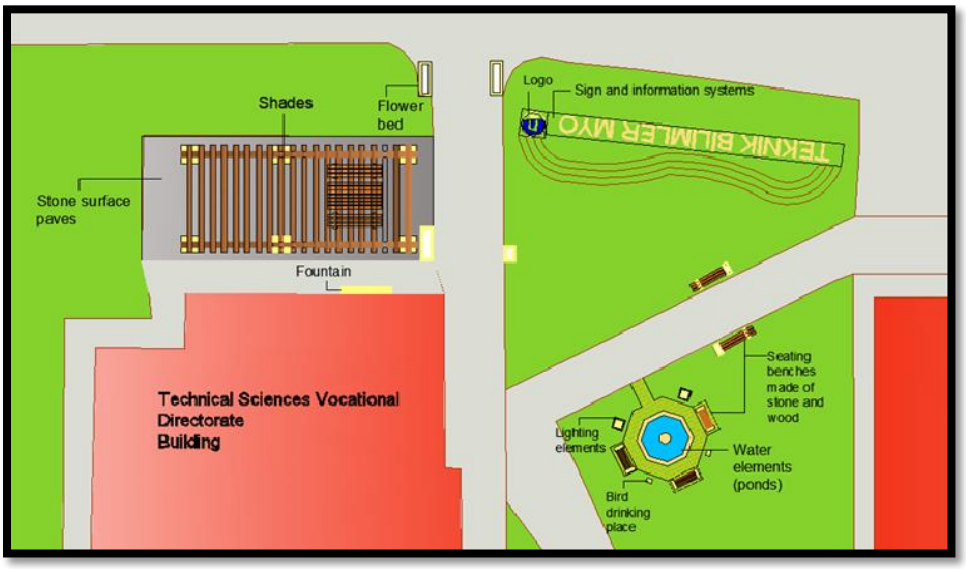
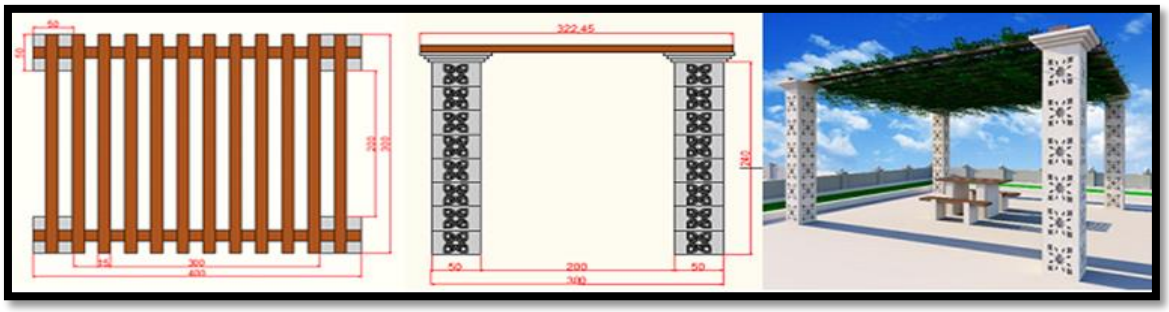


Figure 6: Construction project.

• **Eating and Seating area;** sitting, eating, studying and exhibiting activities; shading unit, table and seating unit have been uniquely designed and constructed. In the design of the shading unit, the natural material urfa stone, wood and a type of ivy "Parthenocissus quinquefolia" were used. The use of local motifs in the design makes the design more original (see Figure 7).

Urfa stone and wood were used as materials in the design of the table, seating unit and flower bed. While the simplicity was in the foreground in the design of the seating unit, we tried tor ender the design of the city identity by using the ornamental motif used in the traditional houses of Şanlıurfa in the design of the flower bed. In urban furniture designs, especially the use of values that are identified with the city adds originality to the design and reinforces the identity of the city (see Figure 7).



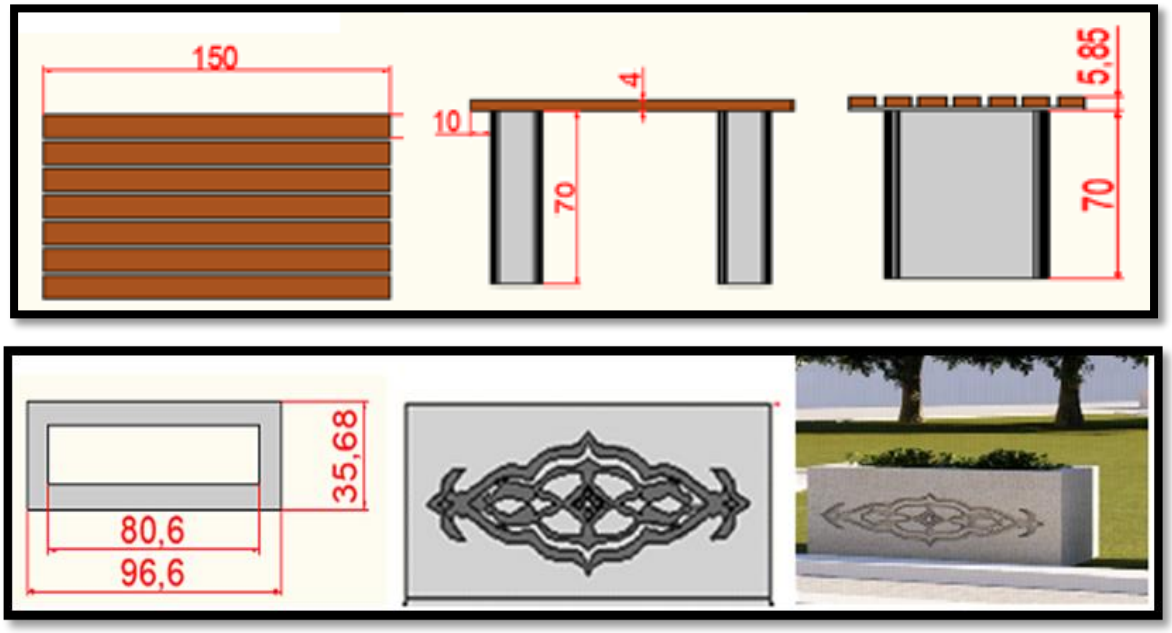


Figure 7: Shading unit, seating unit, table and flower bed plan and views

• **Focus And Seating Area**; In order to carry out activities such as sitting, resting, watching human-environment, chatting with friends, meeting friends, listening to the sound of water, original designs of ornamental pool, sitting bench and lighting elements were made. Since the ornamental pool is the focus of the area, seating units are built around it, and the sound of water allows people to rest, creating a peaceful area. In the ornamental pool design, rumi-plant form decoration details which can be seen in the Urfa traditional residences are used. The cultural texture of the city was revealed by using the ornament details in the urban culture (see Figure 8).

In the lighting element design, urfa stone was used decorating the geometric reproduction motif. A perforated surface was created through the area lattice of the motifs. The night view presents a dim atmosphere (see Figure 9). Urfa stone and wooden material were preferred in the design of the seating unit. In the part of the flower bed, more harmonic design was presented by using rounded lines (see Figure 10).

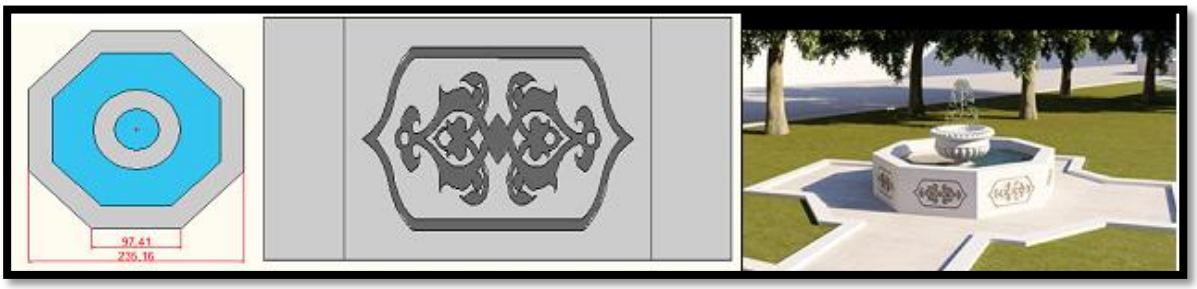


Figure 8: Ornamental pond plan and appearance

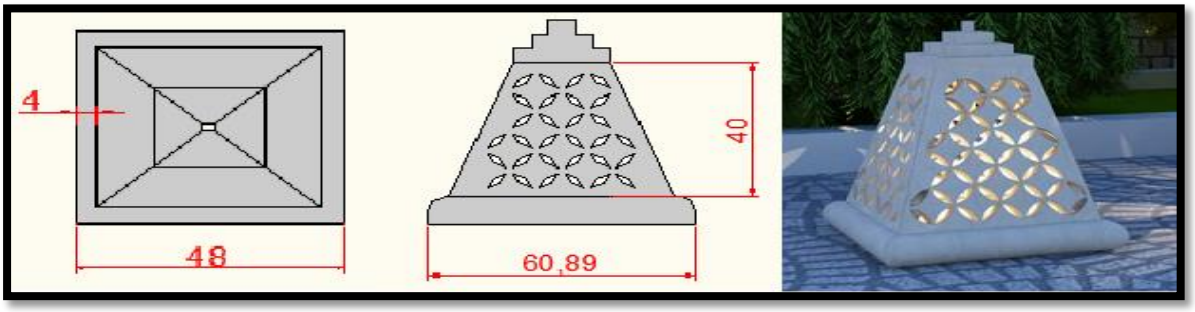


Figure 9: Lighting element plan and appearance

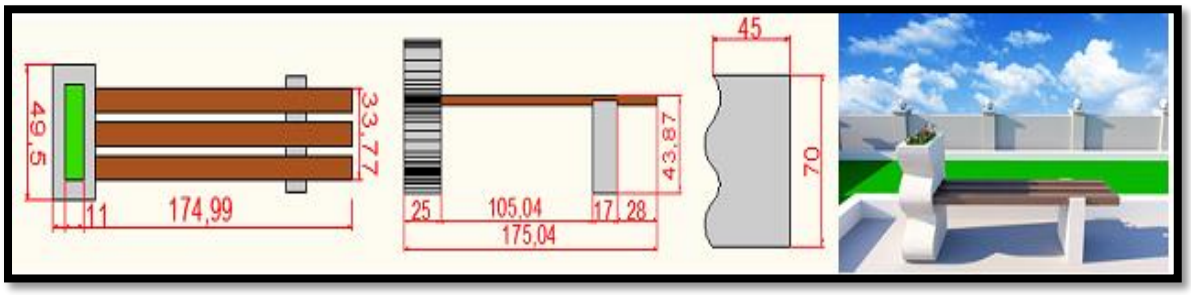


Figure 10: Sitting unit plan and appearance

• **Promotional Area;** The administrative building of Harran University Vocational School of Technical Sciences did not have the design to remain perceptible among other buildings, therefore this area has been designed in accordance with the need for information plaque and logo that will make the place recognizable. The letters were created with urfa stone material in its design. Letters and logo were placed on an artificial hill, laying focus on naturalness. While this place contributes to the promotion of the school, it also functions as a "souvenir photographing area showing which school people have graduated from (see Figure 11).

Figure 11: Appearance of information plaque made out of Urfa Stone

Construction

After the 2-D and 3-D drawing stages of the spaces and urban furniture we designed, construction and building of urban furniture started in 2018.

First of all, the urban furniture to be placed in the area was made by using natural urfa stone and wooden material.

After the construction of the city furniture, the area was leveled and the drainage pipes of the ornamental pool were laid. After the floor was covered with urfa stone, urban furniture was fixedly mounted on them.

• **Eating and Seating area**; shadow unit, table, seating unit and flower bed productions were made. In the construction of the shadow unit; material feet made of iron 50 * 40 * 8 cm in size is covered with urfa stone and aesthetic appearance has been added. G code was formed by determining the parameters such as machining depth and cutting speed, and the raw urfa stone was processed in the Cnc router machine with the generated code.

The processed stone blocks were combined with adhesive mortar and corrected with sandpaper and formed the legs of the shading unit (see Figure 12).

The stone restoration was carried out by architectural restoration students by using hand craftsmanship and stone chisels in tables, seating units and flower bed productions. The figure was uncovered with a deep carving technique applied to the stone (see Figure 13).

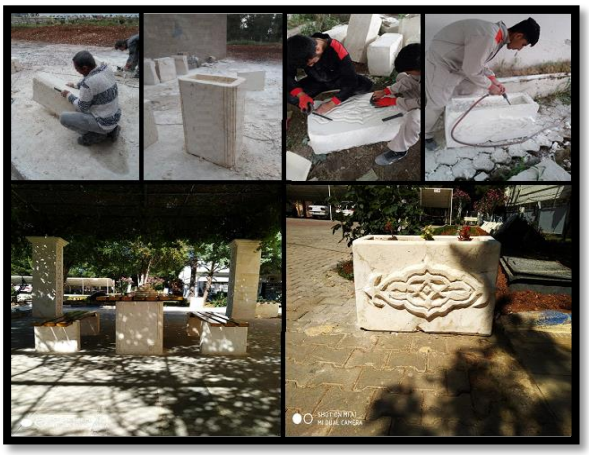


Figure 12: Processing of stone in Cnc Router and shading unit Figure 13: Constructing of sitting unit and flower beds

• **Focus And Seating Area;** construction of ornamental pool, lighting element and seating units are constructed.

In the construction of the Ornamental Pool, the Urfa stones forming the pool were taken as 50 * 100 * 17 cm and the motif was modeled in Artcam 2012 program, extracting the G code. It was processed in the cnc router by means of deep engraving (see Figure 14).

Figure 14: Modeling and processing in Cnc router in Artcam 2012 program

The area was leveled, and after the blockage and drainage operations, 8 urfa stones of 50 * 100 * 17 cm were placed on each corner of the octagonal ornamental pool and the ornamental pool combined with bonding mortar was carried out.

During the making of lighting element, each part of the designed lighting element was formed by cnc router through "cage technique". These pieces were combined with stone adhesive to form a lighting element. The night view of the lighting elements adds a mystical atmosphere (see Figure 15). In the construction of the seating units, the sides of the seating units were completely handcrafted, and in the seating part, natural material wood compatible with stone was preferred (see Figure 16).

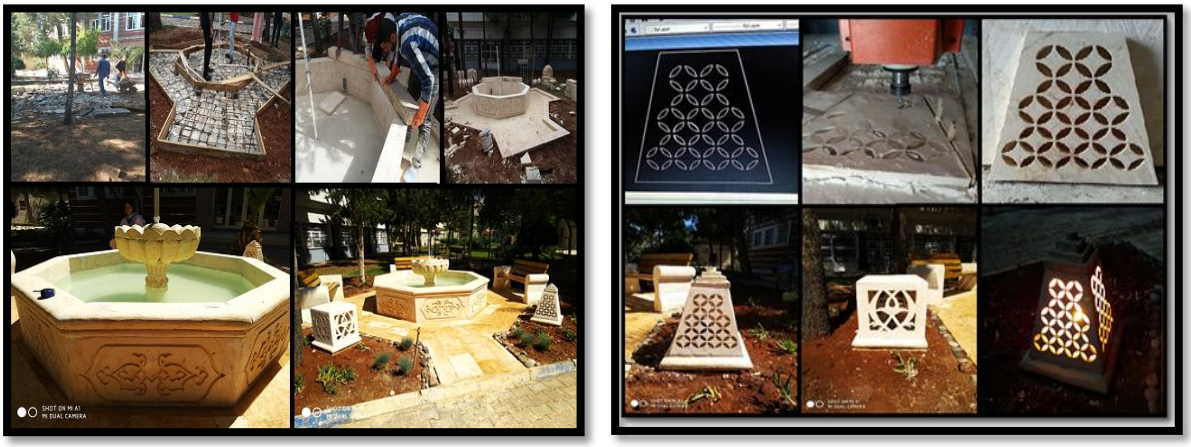


Figure 15: Ornamental pool and lightning element construction

Figure 16: Sitting Unit

● ***Promotional Area;*** Each letter of the "TECHNICAL SCIENCES VOCATIONAL SCHOOL" which will provide the presentation of the school was made by using urfa stone material and angle grinding machine. The University logo was processed with cnc router. The grids placed in the area allow the letters to be seated and the edges were completed with natural mounds of soil. The lighting ensures rendering the area detectable overnight (see Figure 17).

Figure 17: Information Plaque and Logo

Occupancy

After the construction process was completed, the site started to be used in early 2019 (see Figure 18). This area is used in different activities such as sitting, chatting with friends,

studying, listening to the sound of water in a socializing area by students and administrative staff. People using this area were asked what activities they did in this area and and evaluation is made. The frequency values for which they use this field are given in Table 4. Since the area is a newly used space, post-use observations and evaluations can be evaluated in future years.

Table 4: Activity list (occupancy)

Activity list	N:40	Per cent
Sitting	34	15.0
Resting	21	9.2
People-watching	9	3.9
Environment-watching	16	7.0
Chat with friends	22	9.7
Studying	23	10.1
Eating	12	5.3
Meet with friends	12	5.3
Listen to music	20	8.8
Exhibit	9	3.9
Read a book	6	2.6
Listening to water sound	17	7.5
Welcoming	12	5.3
Taking Souvenir Photo	13	5.7



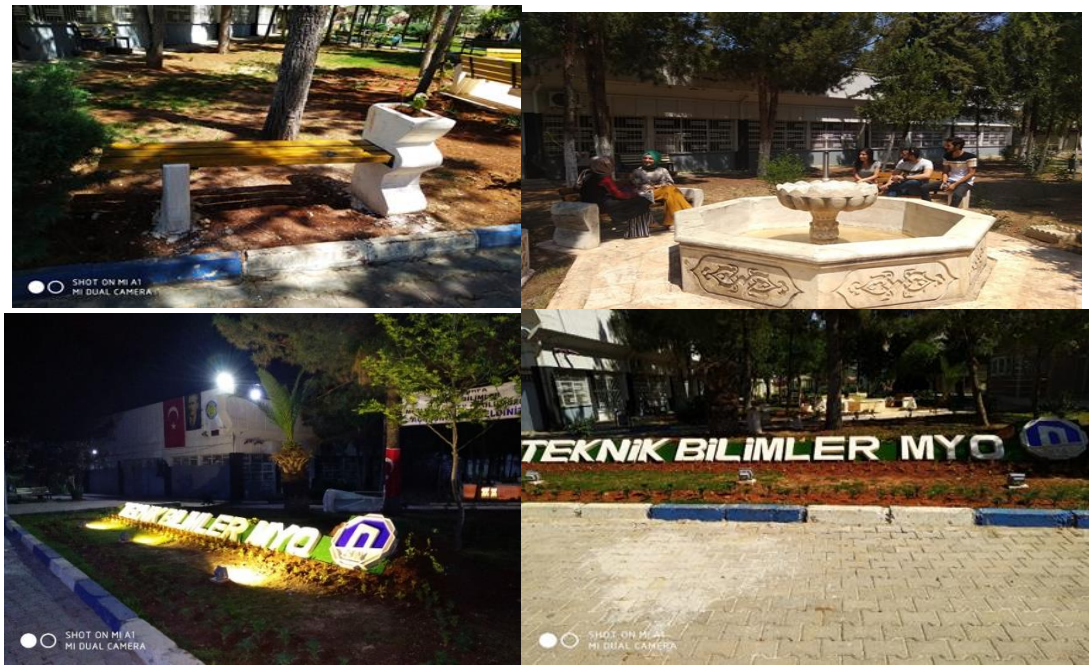
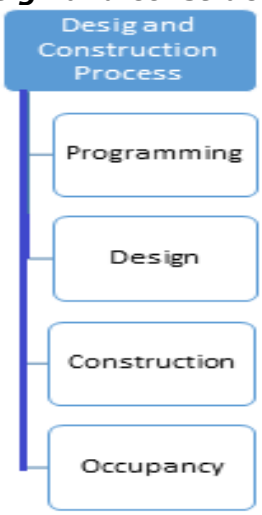



Figure 18: Designed area and usage

DISCUSSİON AND CONCLUSION

Due to lack of areas for social and cultural activities in Harran University Eyyübiye Campus Vocational School of Technical Sciences, an environmental design study was carried out in this area. In this context, the design study was carried out by following the stages of Programming-Design-Construction-Ocupancy (Table 5). Within this scope, activity lists, needs and requirements were determined by applying questionnaires to students and staff. In line with the determined needs, Eating and Seating area, focus and seating area and promotional areas were decided to be designed. Since the area of the study area is quite narrow, the spatial design is kept more limited, while the city furniture to be brought into the area bears unique designs.

Table 5: Design and construction process



During the design process of the field, a schedule was prepared and design process was started in the light of the list of needs. Within the scope of the study, functional and aesthetic city furniture designs made by using natural stone and wood materials were made. The construction techniques of the original urban furniture are given in detail. Particular attention was paid to the use of sustainable materials in the design and the local material, urfa stone, was used as the design material. The city furniture has been

transformed into more aesthetic and urban identity furniture with the decorations that have been in the stonemason tradition that has existed in the city for centuries. The limestone (urfa stone) extracted from the stone pit located in the center of Şanlıurfa can be used as a new element with high added value as a design element in urban furniture. It was concluded that Urfa stone material can be used in urban furniture and original designs can be made, as well. Sustainable design indicators are prioritized in urban furniture design. Among these indicators, we paid utmost attention to reflect the identity of the cities and to include the imaginary features of the city in the design process of the city furniture. The designs were analyzed in detail drawings and in the process followed during construction. Finally, the people who use this field were asked what activities they did in this field and the analysis was made in this manner.

In terms of energy-efficient production, urfa stone, as the local source of the city of Sanliurfa, has been used, providing energy efficiency due to low transportation costs and its easy shape. In the use of materials, the design has been made more functional, the amount of material has been reduced to a simpler design and the principle of minimum material usage has been adopted. In addition, the material used stands out as being durable and natural material, dissolving in nature and being recycled material.

The design and construction process of urban furniture according to sustainable design indicators is explained and the importance of the idea of natural Urfa stone is emphasized by using the local Urfa stone in urban furniture design. It has been seen that with Urfa stone, environmentally friendly and sustainable products with high productionable value added in terms of design are developed. In this study, it was concluded that Urfa stone is a usable material in urban furniture and that it can be used as a new element with high added value as a design element in urban furniture.

Considering the importance of urban furniture design that supports the identity of the city, using urfa stone instead of unidentified urban furniture in the city, it was concluded that a livable and perceptible city that serves more socio-cultural sustainability can be formed.

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REFERENCES

Abdulkarim, D. and Nasar, J.L. (2014). Do seats, foof vendors and sculptures impreve plaza visitability? *Environment and Behavior, 46(7),* 805–825.

Aksu, Ö. V. (2012). Kent mobilyaları tasarımında özgün yaklaşımlar. *İnönü Üniversitesi Sanat ve Tasarım Dergisi*, *2*(6).

Bredow, K. W. (2006). Gathering spaces: Designing places for adolescents, faculty of the Virginia polytechnic institute and state university. *Master of Landscape Architecture*.

Dober, R. P. (1992). *Campus design*. Wiley.

Driskell, D. (2017). *Creating better cities with children and youth: A manual for participation*. Routledge.

Gehl, J. (2011). *Life between buildings: using public space*. Island press.

Güner, E. (2015). Kent kimliği ilişkisi bağlamında kent mobilyaları: Sultan Ahmet Meydanı örneği (Master's thesis, İstanbul Arel Üniversitesi Fen Bilimleri Enstitüsü).

Güzel, A. G., & Sözen, M. F. (2003). Tarih-Kent ve Estetik Bağlamında Kent Mobilyaları: Antalya, Kaleiçi Örneği, II. *Uluslararası Kent Mobilyaları Sempozyumu&Fuarı Bildiriler Kitabı*, 24-27.

İnan, Z . (2011). Design Of Urban Open Spaces For User Needs. *Artvin Çoruh Üniversitesi Orman Fakültesi Dergisi* , *9 (1)* , 12-23 .

Lang, J. (1987). Designing for human behavior. In: J. Lang (ed.)Architecture and the Behavioral Sciences. New York: Dowden, Hut chinson & Ross Inc.

Lawson, B. (2006). *How designers think*. Routledge.

Güzel, A. G., & Sözen, M. F. (2003). Tarih-Kent ve Estetik Bağlamında Kent Mobilyaları: Antalya, Kaleiçi Örneği, II. *Uluslararası Kent Mobilyaları Sempozyumu&Fuarı Bildiriler Kitabı*, 24-27.

Özkan, D. G., Alpak, E. M., & Var, M. (2017). Design and construction process in campus open spaces: a case study of Karadeniz technical university. *Urban Design International*, *22*(3), 236-252.

PPS, 2000. What Makes a Great Place. Project for Public Places. http://www.pps.org

Public Parks. San Fransisco: TPL. http:// www.tpl.org.

Tuğlu Karslı, U. (2008). Mobilya Tasarımında Ekolojik Yaklaşımlar, *Tasarım*, *181*, 118-120.

Whyte, W. (1980). The social life of small urban spaces. New York: Project for Public Spaces.