

## Evaluations of Urban Seating Design Criteria in Case of Zorlu Center and Margi Outlet Malls

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### Abstract:

The aim of the research is to reveal the criteria for improving the design and usage quality of seating furniture. In the scope of the research; The importance of seating elements, location selection, function and ergonomics, material and comfort issues were examined, the design criteria of seating elements were determined and a checklist was created for the design of seating elements according to these criteria. The checklist was examined by on-site detection and observation methods on the seating elements in two shopping malls, one for the upper income group and the other for the middle income group. As a result of the study, it was concluded that more attention should be paid to the conformity of function, social comfort and safety issues, especially in the design of seating areas.

**Keywords:** Urban Open Space; Public Seating; Seating Equipment; User Comfort; Street Furniture.

### 1.Introduction

In his The Great Neighborhood Book, the Do-It-Yourself Guide to Placemaking, Jay Walljasper wrote this about public spaces, "A key component of vibrant, safe, enjoyable neighborhoods are public spaces where people spontaneously gather" (Walljasper, 2007). Although urban furniture is one of the city's functional and aesthetic values, when considering its use in public spaces, it appeals to users with different socio-demographic characteristics, it can be effective in creating urban identity while constituting areas where the whole society meets in a neutral environment (Carmona, 2021; Holland, Clark, Katz and Peace, 2007; the regions....., 2000). As Güneş (2015) stated, the visual and functional effects of urban furniture are important issues that should be addressed in the selection and design of furniture. According to Whyte (1980), the elements of a beautiful street are other small units that make life easier, such as seating units, trees, clocks, fountains and trash receptacles. Seating is the most important furniture in most public spaces (Sheppard, 2015). The activity of sitting is an

important factor in the quality perception of public spaces, promoting positive social use (Sheppard, 2015; Thomas, 2016; Main and Hannah, 2010). In his book Living Between Buildings, Gehl (1987) says, "Create more and better opportunities to sit in order to improve the quality of public spaces in any area." It states that there is no reason for people to stay in a place unless there is a place to sit.

### Placement Selection

In his study, Hutton says that throughout history, many benches have offered unique ways of interacting with the sitting environment and the vicinity. He also mentions that although they are generally invisible in the design, they are actually in the center in regards to their relationship with other furniture and the venue they are located in.

In heavy traffic areas, it is desirable to provide access to seating every 60 m. For a good urban or residential environment, it is suggested that seating should be placed at regular intervals in suitable places; for instance, every 100 me-

ters (Burton, Mitchell and Mitchell, 2006). Leaving 120 cm of paved area adjacent to the seating element will provide comfort for disabled users. The minimum area for a wheelchair to turn is 150 cm (Carstens, 1993).

Whyte et al. (1988) investigated the existence of a relationship between the heavy use of the square, the amount of open space and the amount of seating in some squares in New York; Small squares that do not receive sunlight, that designers do not find aesthetically positive, that have a narrow, long shape instead of a square, and receive little light and air are also used unexpectedly; They determined that people tend to sit more in places where there is a plenty of seating (Gehl, 2010; Gehl & Svarre, 2013).

Benches on street sides should be placed separately from traffic and crowds to provide visual access to activities. Benches should be positioned in order to provide visual access to events, but need to be somewhat separated from traffic and crowds (Lesan&Gjerde, 2020).

In his 1993 study, Carstens mentions that one of the two popular arrangements for seating is to focus on activity, and that sitting arrangements positioned at right angles would encourage conversation, and that older people would prefer to sit close because of their reduced vision and hearing abilities. As a result of a study conducted by Swart et al. in 2009, the elderly again preferred spots with plenty of scenic views, emphasizing that they want flowers and other vegetation around the benches, as well as the importance of well-kempt places (Swart et al., 2009). In another study conducted, it was determined that senior citizens complained about how low the seating elements were (Burton, Mitchell and Mitchell, 2006). In Ünlü's study (1998), sitting arrangements are one of the design tools that symbolize the arrangement of social interaction. He mentions that face-to-face placement encourages socialization, while side-by-side placement limits communication. If there is a view in public areas, this should be taken into account in the field of view and placement of the seating elements. Seating elements should be placed on solid ground in such a way as to not hinder the flow of pedestrian traffic.

### Functionability and Ergonomics

Linear, face-to-face, 'L' shape, 'S' and 'C' shape arrangements are several configurations that can be used allocation of urban seats. In addition to primary seating such as benches and chairs, secondary seating areas such as stairs, pedestals, steps, low walls, boxes and so forth are needed, especially when there is a high demand for seating (Karlen and Fleming, 2016; Thomas, 2007, 2016). Steps are particularly popular because they are well-observed places. Primary seating such as benches and chairs, facilitates comfort, especially for senior citizens. For those who are more active, there are secondary seating areas, i.e., stairs, steps, skirting boards, low walls and blocks, allowing more people to enjoy during peak times. Benches often have some other functional values such as flower beds, lighting or bicycle holders. Benches with solar USB chargers, protection and wireless internet access become alternative study/small workstations or entertainment spots.

While addressing individual preferences for different physical forms, including outdoor seating, Lynch and Carr (1979) classify users by age. Specifically, they mention that people of different ages, such as seniors and youngsters, have different preferences and uses of open spaces. Gehl (1990) also categorizes users by age, according to seating requirements. Children and adolescents often make only modest demands on the type of seating, and in most cases agree to sit almost anywhere, i.e., on the floor, on the street, on stairs, by the fountain, in flowerpots. For these groups, the overall situation plays a more important role than the seat. Especially for many senior citizens, comfort and practicality of the seat is important. Gehl (1990) states that seniors are more likely than other groups to need places to sit and rest while walking about in the city. A chair should be easy to sit in and get up from, as well as being comfortable for sitting for long periods. In their study conducted with 106 senior citizens aged 65 or over, Coman, Caponecchia & Gopaldasani (2021), the elderly complained mostly about the height of their seats. In the study results of Luximon, Kwong, and More (2015), participants chose an equidistant full circle when there are three or more group members. According to Niwton's (2012) study with 200 elderly people, they stated that those in the experimental group did not want to sit back-to-back with anyone, or they preferred



Figure 1. Armrests on benches, Segmented benches, Curved and slanted benches, wavy seat will deter homeless people from sleeping on bench (ESI.info, 2021; McFadden, 2020; Omid, 2014).

only seats with backs and armrests for mobility (Design Guide 001, 2021). The armrests on the surfaces of the seating elements will prevent people from lying on the benches and will prevent them from sleeping (Figure 1).

There are different types of outdoor seating (Figure 2). These are benches, sitting walls, movable chairs, other

forms of seating, as well as amphitheater seating (Calkins, 2012; Marcus and Francis, 1997). Benches can be with or without backs. Fixed wooden benches without backs will be uncomfortable for prolonged use; they will also provide opportunities for social activities such as sitting or standing nearby. Typical benches are 1.8 m long (Main and Hannah, 2010). While the standard length for a bench without a



moveable seating



fixed individual seats



fixed benches



seat walls



planter ledges



seating steps

Figure 2. Types of seating: moveable seating, fixed individual seats, fixed benches, seat walls, planter ledges, and seating steps (Project for public spaces, 2021)

back is about 1.8 m, a 1.5 m length may be sufficient for two people. Widths range from a narrow strip that can be used to save space or prevent sleeping, to a surface wide enough for back-to-back seating. Standard width is between 47.5 cm-55 cm. The minimum width required to sit back-to-back on a flat bench is 75 cm, but a width of 90 cm-120 cm is better for this purpose. People unacquainted with each other can sit quite close to one another on the same open-back bench, being careful to look in different directions to preserve their personal space (Larice and Macdonald, 2013; Main and Hannah, 2010).

The results of the study by Hadavi, Kaplan, and Hunter (2015) support the presence of picnic benches and gazebos, including the proximity of concave-shaped benches, to enhance social interaction and provide ways to meet this need. According to the results of a study by Luximon, Kwong, and Ta (2015), circle style, flexible seating arrangement or arrangement may be a better option than fixed line style in the design of urban park seating furniture.

Modular benches typically have a metal structure with seats made of metal or wood. Modular benches use a seating module, typically about 61 cm. wide, mounted on a beam to create a bench of indefinite length (Figure 3). In addition to dimensional flexibility, modularity has the effect of creating individual seats that give people the feeling their seating area has been defined for them. Table modules or backless seating modules can be placed between backed modules to create convenient, flat areas where food, beverages or packages can be left without flipping over (Main and Hannah, 2010).

The reversible bench has a flat back that pivots at a hinge point close to the ground, allowing the user to adjust it to face either way. Backless benches cost less than benches with backs and are generally versatile, an advantage if there are things to see in all directions as in a busy square. They are not as comfortable as benches with backs, but they may be fine for short periods of sitting. Due to the lack of back support, backless benches may not be suitable for senior citizens, especially for long stays.



Figure 3. Modular bench arrangements (Kent and Madden, 2021; Geomet, 2021)

Usually backless, sitting walls are low built-in walls that provide a designed top surface for seating. Sometimes they also serve as retaining walls, edging around flowerpots, or the edges of ponds or fountains. Observations show that sitting walls are more common and used more intensively in urban areas. Factors such as population and building density, and lack of other seating areas are reasons to need sitting walls. Making placed features “sit-in” gives people the freedom to sit in the front, back, side, in the sun or outside. The ideal height is about 42.5 cm.

Landscape architect Paul Friedberg specifies a step depth of 35 cm. This means that stepping up and down is easy, as it fits well with a low elevation of 15 cm or 16.25 cm, for example. Step seating offers an endless variety of grouping options for people, and their great viewing angles make them perfect for watching street theater (Main and Hannah, 2010).

Movable chairs used in open areas appear as an alternative to benches and other seating elements used in parks (Figure 4). Francis (1989) suggests that by providing movable chairs, the designer allows the individual user to manipulate the space and create their own territories or take possession in their own way. Movable chairs allow the user to be more in control of the environment. While not perfect in every situation, they are mostly useful and more comfortable than benches. Their cost varies, but they are cheaper than benches. An average of 10 movable chairs can be purchased for the price of one bench. People can arrange the chairs however they want in the space they are in; they can sit closer or further away, in sunny or shady areas.

Interesting forms and functional seating opportunities emerge in outdoor venues. Lounge chairs, which are widely used especially in landscaped areas and around pools, are modified versions that limit reclining levels, while allowing people to sit back and stretch out their legs. Spaces that create gradual, viewing and sitting opportunities for crowded groups to watch shows or sports events in green areas are called ‘amphitheaters’ or ‘bleachers. As large step seating and viewing terraces, amphitheaters are an important form of use in green areas for folklore, music and theater performances.

## Materials

The variety of materials can create different forms, increase the visual quality of the products and enrich the design (Erta<sup>2</sup> and Bayazit, 2009). Due to the development of technology, seating elements in urban spaces can consist of a variety of materials such as wood, plastic, metal, concrete, steel, iron and PVC. It is crucial to choose the right materials in the reinforcement elements in order not to remain exposed to atmospheric effects and to be durable and resistant. Modern materials such as polypropylene and polyethylene are suitable for producing outdoor seating. Concrete benches are suitable for linear or curved or different finishes for streets and bus stops. Common materials are hardwood (Burmese teak, yoruba, oak, teak, afrikanisch and kertme), precast concrete and metal (aluminium, mild steel, cast iron). Cast iron is not used much because of its cost. Softwood is suitable provided it is adequately protected with a paint system and then repainted on a regular basis. A fairly recent development is the use of polyvinyl chloride in wood form (Tandy, 2013).

## Humidity

Seating elements may have act variably against water and humidity due to the material from which they are produced. Seating elements made of wooden material have low resistance to water due to the nature of the wood. Concurrently, seating elements made of metal material offer poor resistance to water due to the structure of the metal. Metal interacting with water undergoes corrosion, structural and chemical losses and deformation. For instance, wooden materials are made water resistant by coating them with waterproofing products.

## Comfort

Variables such as seat element dimensions, material types, material texture and reinforcement form are effective in dealing with seating element comfort. Factors such as social, climatic, cleanliness, maintenance and safety should be duly noted in determining the comfort of seating elements in urban spaces.

As one of the most important factors of socialization and equipment of public spaces, seating elements have purposes such as rest, entertainment, meeting and visual plea-



Figure 4. Top Left, Paley Park, New York, Top Right: Luxemburg Garden, France, Center: Bryant Park (Project Public Places, 2021; Urbanmilwaukee, 2021)

asures for people. The availability of decent opportunities to sit will encourage activities such as dining in public spaces, reading, sleeping, knitting, playing chess, sunbathing, people watching, chatting, etc. (Gehl, 2007). In their 2015 study, Hadavi et al. stated people prefer urban outdoor photographs with seating equipment and that the photographs of social activities and sitting areas overlap in their classifications. They found that preferred seating promotes socialization in contrast to isolated seating. Chidister (1986) found that seating arrangements affect the use of urban outdoor spaces. He stated that there is a positive relationship between the use of plazas and seating arrangements.

It is important to create seating areas with various opportunities for the lonely at one end of the scale, and for social groups at the other. Cooper Marcus and Francis (1997) recommend two types of seating for those who come alone and for those who don't make eye contact with other users but want to sit close to each other (Figure 5).

Spoooner (2014) identified adequate seating equipment, appropriate sound levels, comfortable microclimate, and visual access to vegetation as comfort factors. Gehl (1987) also stresses the importance of microclimate for seating

places. Trees and top cover elements can be used to provide climatic comfort around said seating elements. Climatic conditions affect the feeling of comfort, especially at the micro level of temperature, sun (open and/or protected) and shade, wind and humidity, and are crucial in supporting activities in urban outdoor spaces (Mehta, 2014). The study results regarding the Queen Street Mall by Oram, Baguley, and Swain (2018) found that increased shading increases the lifespan of seating elements.

The settlement of the sitting activity is the spatial advantages of sitting that cannot be attributed to the microclimate, protection and landscape. According to Whyte's study of 1980, the 'tree effect' sit-in should gather under trees. In other words, according to all the observations made according to Whyte's project, the best place to sit is to look at the view while sitting under the comfortable protection of a tree. Trees act as protection, much like street cafe umbrellas. Trees also provide desirable microclimate control; their shadow cools you down. While trees and green areas create shade for seating elements, desired comfort conditions can be achieved by using them together with top cover elements (Mattson, 2019).

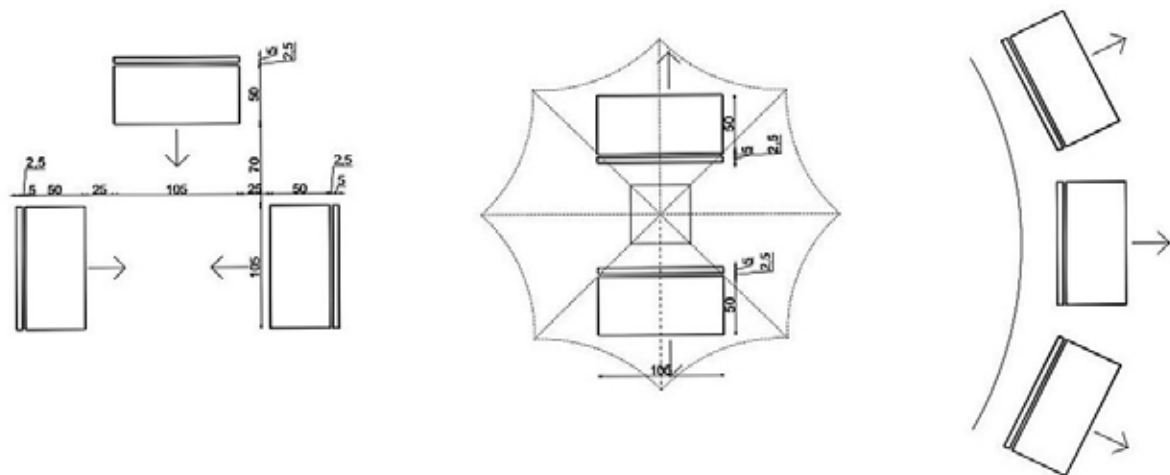


Figure 5. Left: socio-petal seating (facing inward); right: Sociofugal seating arrangement (facing outward) (Main and Hannah, 2010)

### Cleaning and Maintenance

Remanufacturing may be preferred if after a certain period of time, the replacement and repair of said furniture is rendered difficult or the repair costs increase due to the need for replacement of many parts. From a design standpoint, it is envisaged to ensure the dissemination of measures such as a minimum number of parts and materials, ease of production and high efficiency of the objects (Zatır, 2015). In order for seating elements to function, it is important that they are designed with the minimum material required, that only decorative parts are avoided, that the weight of the carrier structures is reduced, and that they are multi-functional. In turn, this ensures the furniture can be easily disassembled, assembled and reassembled for easy maintenance. In terms of resilience, the weakest and most problematic parts of the furniture should be determined and designed in such a way they may be easily replaced with new ones (Mackenzie et al., 1991).

Maintaining urban living elements will vary according to the form, the type of material from which it is produced, and its location. The most significant factors that impact the wear of a seating element are natural factors, such as snow, rain and sun. Maintenance and repair are undoubtedly important in extending the life of the seating elements. Outdoor seating elements regularly accumulate dust, dirt, leaves, bird droppings, and food and beverage spills, so care needs to be taken in regards to their cleanliness.

### Safety

It is important to mount the seating elements into the ground and eliminate vandalism, including visible damage, as soon as it appears. Ensuring the safety of the seating element can be with its physical features and nighttime lighting. The color and texture characteristics of the reinforcement element surface materials surrounding the space, the types of plants and trees that should be used in specific climatic conditions for shading, and the correct positioning of the control of wind currents will all affect the temperature of urban furniture. If the urban furniture incorporated is chosen from materials that have low heat storage capacity, light-colored and flat surfaces, it will reflect solar rays they are exposed to during the daytime.

### Perceptibility

The color, material selection and form of the seating elements are also effective criteria for perceptibility. A reinforcement element must be understood by the user and defined what it is. As technology develops, functional and original designs create new perceptions on people.

## **2. Materials and Methods**

### **2.1. Research Problem**

What are the criteria that determine the design and usage quality of seating elements in urban spaces?

#### Research Objectives

1. What are the criteria affecting the placement choice of seating elements?
2. What are the criteria affecting the suitability of the function and ergonomics in seating elements?
3. What are the criteria affecting material selection in seating elements?
4. What are the criteria that affect comfort in seating elements?

#### Location and Characteristics

While choosing the study venue, two different shopping malls with the open square concept appealing to high- and middle-income groups in different provinces of Turkey were selected (Table 1, Table 2). These structures are Zorlu Center Shopping Center located in the Levazım neighborhood of Istanbul's Beşiktaş District and Mergi Outlet Shopping Center located in downtown Edirne.

The reason Zorlu Center Shopping Center was chosen as a study venue is that it is a successful venue with a competition project product and award-winning design. It features an open square concept and offers people alternative seating options (Table 2). Zorlu Center Mall has a green area of 73.000 m<sup>2</sup>, a roof garden of 45.000 m<sup>2</sup> and an indoor vegetation area of 2800 m<sup>2</sup>. The project features a structural landscape area of 36.200 m<sup>2</sup>. It offers services with 180 stores, a main square of 10.000 m<sup>2</sup>, a side square of 12.000 m<sup>2</sup>, a children's playground and 2 VIP halls that can handle 1600 people.

Table 1. Shopping Center Tags (KDM, 2021; Istanbul Shopping Fest, 2018)





	Zorlu Center Mall	Margi Outlet Center Location
Margi Outl		
Place	Istanbul, Beşiktaşı	Edirne, Merkez
Area	615,885 m <sup>2</sup>	30,000 m <sup>2</sup>
Year	2007-2013	2010
Type	Apartment Complex / Group, Office Space, Shopping Mall, Cultural Center	Shopping Mall
Type Group	Housing, Culture	Culture, Hotel
		

As for the Margi Outlet Center, this is a venue which appeals to the middle income group and does not offer a wide choice when it comes to the design of seating elements. Located in downtown Edirne, along the E5 Highway, it constitutes the city's first shopping mall. Open to visitors from neighboring countries with its hotel and shopping center located in the complex, it is situated near the border gates. This location offers 32 shops, five cafes and restaurants.

Method

Compliance of the seating elements to the checklist was tested at both sites by making repeated visits, taking photographs, and making observations and on-site determinations in 2021.

Table 2. Types of Seating Elements

Seating Element Types	Zorlu Center Mall	Margi Outlet Mall
Benches		
Benches with Backs	N/A	
Benches without Backs		N/A
Modular Benches	N/A	N/A
Sitting Walls		N/A
Movable Chairs		

## RESEARCH RESULTS

The matter of location selection of the seating elements was trouble-free at Zorlu Mall, whereas seating elements are moderately considered together with side actions. It was determined that the seating areas at both venues were not placed far from the entrances and pedestrian path at the building entrances. At both venues, the seating areas were considered together with other design elements such as lighting and trash receptacles (Figure 6); it was observed that benches were not mounted into the floor or onto the wall.

Primary seating is adequately located at both venues while secondary seating is insufficient in Margi Outlet. There are no backrests behind the seating elements at Zorlu Mall, whereas it has been determined that the standards and seat length of the backrests in Margi Outlet are not fully met (Figure 7). It was observed that armrests were not used at either venue. Again, the condition that at least 5%

of the venue's seating have backrests for the disabled was not met, it was also ascertained there are no side actions in the seating elements.

More durable materials are used in the seating elements at Zorlu Mall compared to Margi Outlet, whereas it was determined the minimum material usage condition was not met at Zorlu Mall. While the requirement to use concrete on support bases was met at Zorlu Mall, It was seen that said requirement was not met at Margi Outlet.

In terms of comfort, while the seating elements are compatible with their surroundings at Zorlu, they are not sufficiently compatible at Margi Outlet. In terms of social comfort, the opportunity to sit with multiple groups is insufficient at Margi Outlet, the use with desks and tablets and wi-fi access are non-available at both venues. On the other hand, it was determined some of the seating elements at Zorlu feature phone charging units.



Figure 6. Left: Photo: Cemal Erdem-Zorlu AVM, right: The use of seating elements with lighting and waste receptacle - Margi Outlet Center

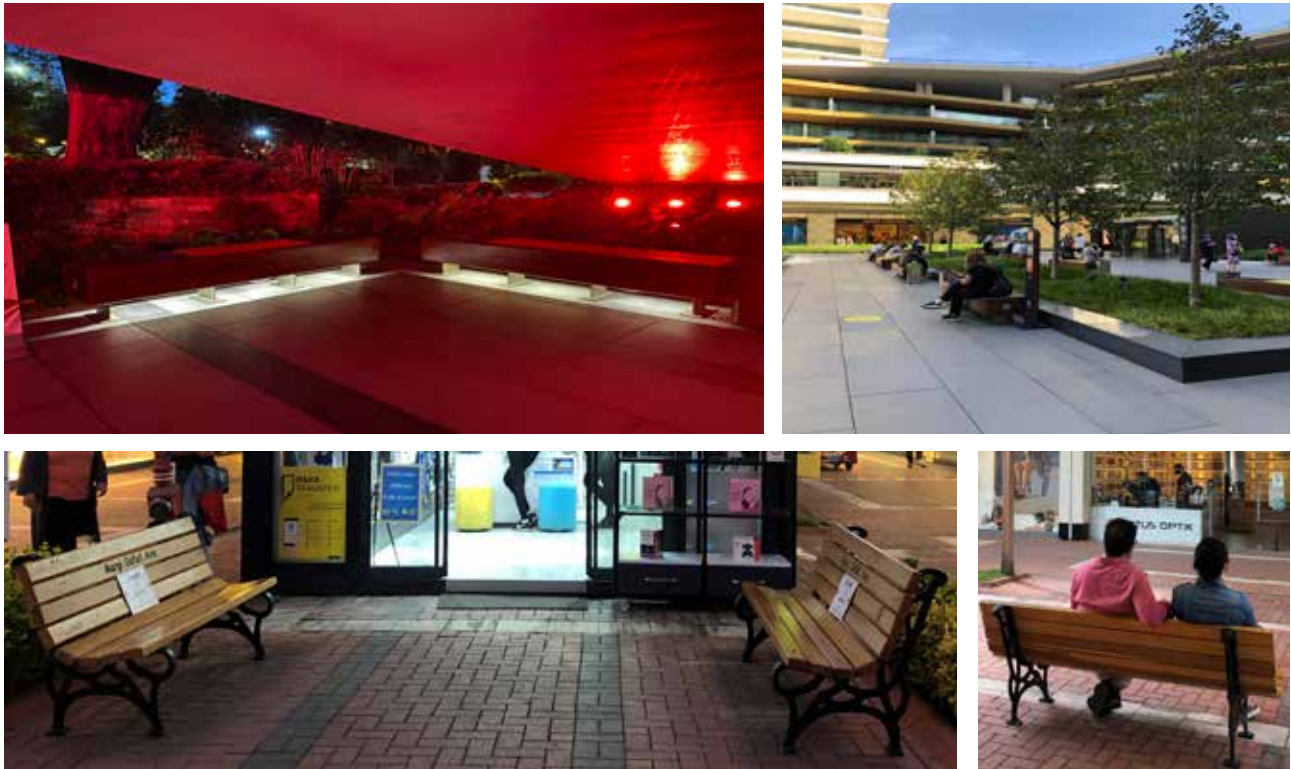


Figure 7. 'L' Shape, linear and face-to-face arrangements (Up: Zorlu, down: Margi)

In terms of climatic comfort, Zorlu Mall meets the conditions better; there were no serious problems encountered at either venue regarding cleaning and maintenance. It was determined that the criterion for choosing low-maintenance furniture materials such as cast concrete was moderately met at Zorlu AVM, but not at Margi Outlet. Considering issues such as visible damage, tipping over and temperature; Absence of breakage, rupture and deformation in seating areas, resilience against tipping over and solar rays, non-reflective (matte) coating to avoid glare, whereby it was observed that the criteria of user appreciation and ease of use in order to perceive designs with a different understanding of form were well met at Zorlu Mall, and moderately at Margi Outlet. Providing a sense of safety by limiting the trees with a crown topping around the benches at both venues; it was determined the use of fire resistant materials is insufficient.

Table 3. Seating Elements Analysis

	ZORLU			MARG?		
<b>1.PLACEMENT SELECTION</b>						
Placement near activities but not interrupting flow of foot traffic	✓			✓		
Placement 60 cm from the path to avoid obstructing foot traffic						
Maintaining a distance of 120 cm on one side of the seating for the use of the disabled	✓			✓		
A distance of between 3.7 - 7.6 m to see people easily	✓			✓		
A seat every 100 m	✓			✓		
Presence of one or two seating areas at building entrances in heavy traffic zones	✓			✓		
Placement of seating at building entrances away from the entrance door and pedestrian paths		X			X	
Availability of seating in viewing areas and activity environs	✓			✓		
Provides seating for parents, caregivers, etc. around kids playgrounds	✓			✓		
Seats are not placed near negative activities (noise and smell, parking spaces, etc.)	✓			✓		
Combined use of movable and fixed seating	✓			✓		
No seating near high walls, wide areas to capture human scale	✓			✓		
Installation on solid, dry and generally paved surface with drainage problems solved	✓			✓		
Instead of scattering seating elements singularly and randomly, arranging other urban furniture such as lighting elements, flower beds and trash cans to form groups amongst themselves.	✓			✓		
Considering the positioning of seating elements together with side actions		X				N/A
Placement of to be protected from possible vehicular mud and water puddle splashes.	✓			✓		
Absence of trees with excessive leaf and seed shedding, resin discharge in the vicinity of the benches	✓			✓		
Floor or wall mounted benches	✓					N/A
<b>2. FUNCTIONALITY and ERGONOMICS</b>						
Availability of primary seating places	✓			✓		
50% of total seating around the venue is secondary seating (steps, pillars, fountains, pedestals, stones, monuments or city floor itself)	✓					N/A
Minimum seat length:105 cm	✓			✓		
Minimum seat back length: 105 cm			N/A	✓		
Seat depth: minimum 50 cm, maximum 60 cm	✓				X	
Minimum back height (vertically): 45 cm			N/A	✓		
Seat height (floor or floor): minimum 42.5 cm, maximum 47.5 cm	✓			✓		
Maximum back space between top and bottom of seat: 5 cm (no space required)			N/A	✓		
The typical seat is about 42.5 cm - 45 cm above ground.	✓			✓		
Inclined 3° - 10° near front and backward			N/A		X	
Seating depth: 37.5 cm – 50 cm		X		✓		
100° - 110° angle between seat and recline			N/A		X	
Grill spacing in seats: ½ inch or less			N/A		X	
The recline should not be more than shoulder height so that the user does not sink into the seat.			N/A	✓		
Backless seat length approx. 1.8 m (1.50 m for two PAX)	✓					N/A
Armrest height 24.5 cm			N/A			N/A

Armrest length 39-44 cm			N/A			N/A
Use of armrests in the middle of the seat to prevent people from sleeping on benches			N/A			N/A
Presence of seats suitable for children's ergonomics (h=20-40 cm)			N/A			N/A
Available sufficient seating (Amount of area / amount of seating surface)	√				X	
5% of the total number of users of the seating equipment area		X			X	
At least 5% of the seats in the venue should have backrests for the disabled			N/A	√		
Considering the positioning of seating elements together with side actions		X				N/A
<b>3.MATERIALS</b>						
Use of durable materials to prevent vandalism	√				X	
No cracks, broken corners and edges, pits and gaps in concrete skeletons and concrete feet	√			√		
Avoiding materials such as rough-textured wood and concrete	√			√		
Cold and hard materials, i.e., metal, tile and stone, preferred in secondary settlements	√					N/A
Design with minimum material		X		√		
Avoiding items for decorative purposes only	√			√		
Featuring easily disassembly, assembly and reassembly features	√			√		
Natural, recycled or recyclable materials	√			√		
Manufacturing the support base from concrete	√					N/A
<b>4. COMFORT</b>						
Compatibility of seating element with its surroundings	√				X	
Bench dimensions and tolerances are appropriate	√			√		
<b>4.1. Social Comfort</b>						
Presence of movable chairs	√			√		
Seating availability with multiple groups	√				X	
Use with desks and tablets			N/A			N/A
Wi-Fi Access			N/A			N/A
Charge Station	√					N/A
<b>1.1. Climatic and Environmental Comfort</b>						
Placement of seating elements in such a manner that people can benefit from the winter sun and be protected from the summer sun.	√				X	
Presence of sunny, shaded or in-between seating	√				X	
Considering the presence of elements such as thermal comfort, windbreakers, shutters, vegetation, green walls and other hindrances in the selection of seating	√				X	
Positioning away from sources such as trash receptacles, smoking areas		X			X	
Use of wood material	√			√		
Provision of adequate lighting around seating	√			√		
<b>4.3.Cleaning and Maintenance</b>						
Easy to Repair	√			√		
Durability	√			√		

Benches having wooden parts, impregnated with non-hazardous and non-polluting substances or creating a protective outer layer	√			√		
Seating places cleaned regularly	√			√		
Sanded (smooth surface) wooden materials	√			√		
Choosing low-maintenance furniture materials such as cast concrete		X				N/A
No scribbling / graffiti on seating	√			√		
<b>4.4. Safety</b>						
Consideration of issues, i.e., visible damage, tipping over and temperature	√				X	
Absence of breakage, rupture and deformation in the seats	√				X	
Giving a sense of safety by limiting the trees with the crown topping around the benches and top plane		X			X	
Made in a size and manner that ensures healthy, comfortable sitting and rest		X		√		
Ergonomic	√			√		
Resilience to overturning and solar rays	√				X	
Balanced sitting elements	√			√		
Having a minimum 7.62 cm of legroom beneath the seating element						
Rounded seat front edge	√			√		
Use of fireproof material		X			X	
Anti-reflective (matte) coating to avoid glare	√				X	
<b>4.5. Perceptibility</b>						
User appreciation and ease of use for the perception of designs with different form understanding	√				X	

## DISCUSSION

In this study, an attempt was made to define the criteria for the planning, design and maintenance of seating areas that can be used particularly in urban outdoor spaces; According to the literature review regarding location selection, functionality, material and comfort, criteria to increase the quality of seating elements were determined.

As Chidister (1986), Whyte et al. (1988), Gehle and Svarre (2013) all stated in their studies, the success of the space is positively affected by the correct and alternative placement of seating arrangements. When looking at both venues, it is important to choose seats facing the view, near activities affecting the use of space, but not interrupting foot traffic, the presence of seating every 100 m, especially considering senior users, and the use of movable and stationary seat-

ing together; the lack of sufficient seating around building entrances is a negative factor. Because the door entrances will serve as meeting and waiting places for people, seating availability will be necessary. While sitting elements are placed with side actions such as bike parking, lighting, etc. will increase the usage alternatives; there are no side actions in the seating areas at Margi Outlet. Then again, the issue of mounting seating onto the wall or into the floor is important for the safety of the seat. The seats particularly at Margi Outlet need to be mounted into the floor.

The matter of selecting locations for the seating elements was unproblematic at the Zorlu Center Mall, where the seating elements were moderately combined with side actions (Figure 8). It was determined at both venues that seating areas were not placed far from the entrance doors



Figure 8. Placement selection and scenery relationship,Zorlu Mall

and pedestrian paths of the building entrances. Again, apart from the lighting elements, seating at Margi Outlet was not considered along with other design elements such as trash receptacles. It was also observed that the benches were not mounted into the floor or onto the wall. At both venues, the lighting used on the benches is useful for field of view. These lighting elements, which instill confidence in the users, also make them feel more at ease.

The importance of the presence of secondary seating places as well as primary seating places was emphasized in the studies conducted. While the secondary seating option was not very sufficient in Zorlu; that at Margi Outlet was inadequate. Whyte (1980) stated that rows of seats with backrests are the most popular sitting style. As a result of his study, Scinta (2017) determined that backless seats are used less than those with backrests. Most of the seats in Zorlu AVM have no backrests, so increasing the number of seats with backrests will be effective in terms of usage comfort. Again, studies mention the necessity of having handrails around benches and their importance in regards to elderly and disabled users (Gehl, 1987; Newton et al., 2010). In certain areas of the main square of the Zorlu Center Mall, benches with armrests and backrests may be preferred instead of using a single type of bench without backs. The fact that the seating equipment area is 5% of the total number of users is a matter defined in the standards. It is necessary to boost the number of seating elements at both venues in order to comply with this standard.

In the design of seating elements, it is crucial to select the proper reinforcement element materials that are resilient to atmospheric effects. Using concrete on support bases of the seating elements requires little maintenance and repair and is not affected by moisture. It is particularly important to use durable materials to prevent vandalism; design with minimum material; and have the support base cast in concrete. More durable materials, preferably concrete, can be used instead of the wooden seating elements currently in use at Margi Outlet. Again, seating elements with concrete bases can be added at Margi Outlet.

In terms of material, color and shape, it was observed that the waste receptacles don't match the seating elements at Margi Outlet. The results of a study conducted by Hadavi, Kaplan, and Hunter (2015) support the availability of picnic benches and gazebos, as well as the proximity of concave-shaped benches to foster social interaction and offer ways to meet this need. In terms of comfort, it was determined there is inadequate distance between benches in order to provide noise comfort at both venues.

Different people like to sit in different ways, and given enough options, each user will look for the position that suits them best. Thus, in order to serve a variety of users, each open space should offer a variety of seating positions. Seating equipment should reflect this diversity and uniform seating should be avoided; It ignores the fact that options need to be increased, limiting the possibility of the user's personal preferences, thus forcing them to adapt to a single type of seating (Marcus & Francis, 1997; Spooner, 2014) stated that there ought to be different seating options in urban spaces for both those who want to sit alone and those who want to sit in groups. While a variety of seating options are offered at Zorlu Mall regarding social comfort, there are inadequate seating options at Margi Outlet. While the possibility of personal preference is provided with regard to benches at Zorlu, no such preference is offered at Margi. The presence of many benches at Zorlu Center provides people with an alternative seating area, whereas these benches were chosen in a form suitable for their intended use.

When the kid's playground is examined, it is noticed that a separate sitting area is unavailable for parents, who are obliged to wait at the tables in the common dining area. To solve this situation, additional seating elements suitable for the kid's playground can be considered. When the Margi Outlet's main square seating elements were observed, one notices that only some of them were shaded with awnings. As an alternative to this, it can be considered to boost the number of shaded benches. Besides the standard bench look, contemporary benches that provide the desired comfort conditions can also be preferred.

Nowadays in terms of sustainable design, benches with solar USB chargers, protection and wireless internet access and slots for tablets are important. Thanks to the LED lighting at Margi Outlet, convenient evening use of the seating elements has been provided. However, electricity or charging was not considered for bench users, whereas different functions were not installed.

Gehl (1987), Oram, Baguley and Swain (2018) stated that shading around the seating elements, especially with vegetation, increases the comfort of use. The tree effect, which Whyte (1980) defines, especially emphasizes the importance of tree shadows. Thus, in regards to climatic comfort, it will be important to shade seating elements at Margi Outlet with trees with large crowns. That said, due to inadequate shaded areas, there are not many seating options for sunny days at Margi Center. The use of portable wheeled umbrellas has been observed in certain areas of the shopping center.

It has been determined the cleanliness of the benches at Margi Outlet is not as good as Zorlu Center. Again, addressing safety issues such as breakage, rupture or deformation of seating elements is inadequate at Margi Outlet. Again, the support bases of the Margi Outlet seats are not cast in concrete. Despite regular maintenance at both venues, it was determined that the wooden material parts at Margi Outlet in particular are inadequately maintained. As they are fashioned from wood and positioned outdoors, thus exposed to weather and climatic conditions, Margi Outlet benches require frequent maintenance. While the wooden support casting part of the benches was not damaged, it was observed that both the wood preservative and varnish had deteriorated. The wooden material used in the sitting and resting parts of the benches and their protective and varnished coats do not leave paint on user's clothing.

In terms of safety, it is important for furniture edges to be rounded, be mounted to the floor or wall, offer fire resistance, and incorporate non-reflective surfaces and adequate lighting.

As Aksu (2012) stated in his study, the phenomenon of perception should be considered and evaluated as a concept

that "enriches the imagination, improves and diversifies the level of appreciation of users" (Aksu, 2012). It has been determined that design products with various shape concepts are utilized at Zorlu Center, while this understanding is not dominant at Margi Outlet.

## CONCLUSION

With a checklist created as the result of this study, criteria determining the design and usage quality of seating elements used in any public space were identified as; location selection, functionality, materials and comfort. As a result of the work conducted at both selected venues, considering the fact that Zorlu Center is a universal project, it has been determined the design criteria were met more at this venue. As a result of this study, it was emphasized that more attention needs to be paid to suitability for function, social comfort and safety, especially in dealing with the design of seating areas. This compiled checklist will be expanded in future studies to become an effective tool in establishing a correlation between the seating elements of the venue they are located and their users.

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