



Research Article

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# Public Space and Accessibility

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## Abstract

Virtually everyone experiences a physical disability at some time in their lives; that is to say that their mobility has been restricted. An infant, an adult with an injury, a parent with a pushchair, an elderly person are all disabled in one way or another. Those who remain healthy and able-bodied throughout their lives are few. The physical environment and public services and public spaces in general should be as barrier-free as possible to fulfil the needs of all people equally. People with a disability have the same rights as other people. People with a disability are not a homogeneous group. They may include the mentally retarded. The most important item for the disabled people is the possibility of circulation; namely accessibility. Inclusive and universal design approaches have to be considered especially for the public spaces and public buildings. In this paper, some main items of circulation in relation with accessibility have been detailed as well as a workshop study outputs which has been held in Selçuk University, Department of Architecture.

**Keywords:** *inclusive design, design for the disabled, universal design, accessibility*

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## INTRODUCTION

All of us want to join the society life as an independent and equal individual. In order to join the society life we have to access and use the urban spaces primarily. Everybody has the right to access and use the urban spaces independently and equally. The provision of this depends on the accessibility of our urbanized environments.

Usually the cities are designed according to the young, healthy, athletic and dynamic people who can climb the 40 centimeters pedestrian curbs, go up from the stairs and can manage to come over every kind of obstacles. This is the easiest way of designing the built environment. The important thing is to realize the space organizations for the use of everybody. In all societies, besides young people there are old people, children, pregnant, wheel chair users, visually despaired, hearing impairment and the other different positioned people. So, especially the public spaces have to be planned according to the access and the usage of everybody. This requirement has become a compulsory in 5378 numbered Disability Act in Turkey.

## PUBLIC SPACE

The acknowledgement of the word “public” is given as “collective, whole, society, general”; in other words, it means as open to everybody, open to the whole. The most distinctive quality of public sphere is its “visible and audible” character or “open” can be said. The other important quality of public sphere is “commonness”. Briefly, the sphere that everybody can be “visible and audible” is “common” (or the areas that have been permitted for common use) public sphere.

The meaning of the “**public**” in the concept of public sphere is explained as “1. All, whole, 2. Population in a country, society, general”. **Public Sphere** is explained as “Belong to public, the place that the public works have been done”. The most important quality of the public sphere is its openness to the whole population. In public sphere, diversities join together and at the same time, it is witnessed to the communal and political events (Kosova, 2007:46, 51).

Philosophic and sociologic based public sphere is explained as an open interactive and informative area that individuals can participate. The democratic public system that depends on the principles like pluralism, tolerance, clearance that forms the essence of democracy; provides the participatory, conciliatory and transparent public spheres (Koca and Yilmaz, 2017, 11).



We can see the public sphere as a widened area when associated with the 'space' which includes not only the political activities but, the routines that belongs to daily life. When the space is the point of issue, both of the two aspects (political activities and daily life) can be coincide. The urban square that is the stage of political activities is the space of publicity at the same time which belongs to everyone, common area that daily routines take place.

In Architectural Terminology generally the usage of public expression is sometimes used for the buildings as well as open/urbanized areas. Publicity means openness to everybody. Either closed space nor open urban area, public space carries the meaning of permission for general usage (Gürallar, Neşe, 2010).

Public space is conceived as open or closed spaces which constructed for the usage of every individual without any discrimination in the society (park, garden, stop etc.) ministration. Everybody has the responsibility to create solutions for the public life; we can not ignore the problems that the disabled people come across in their daily lives in built environment (Özdemir, 2017, 27).

General Directorate of Disabled and Elderly Services that connected to the Ministry of Family and Social Policy (2011, Decision 663), as its old name was Prime ministry Head of the Disability Administration defined **accessibility** as: "to access every right and services in all of the live areas and to benefit from those". In this direction, all of the people live in the cities have the right to benefit equally from the public spaces especially. In other words, everybody has the right to benefit from the public spaces equally and independently. Not for the society but with the society, the design for the access and usage together with the qualified interaction on physical space for whole citizens can be provided. Public space has great contributions on the formation and progress of public sphere. Public spaces are the milieus that citizens meet, come across, socialize, do activities and can be exemplified as areas like streets, avenues, parks and squares.

### **ACCESSIBILITY**

The most important item for the disabled people is the possibility of circulation; namely accessibility. American Disabilities Act (ADA) is federal legislation passed in 1990 that prohibits discrimination against people with disabilities (Investopedia.com) defines the **accessibility** as: "Accessible road, is the road that from a node in the interior of a building to the public space does not include any obstacle and provides continuity". Accessibility must be the most essential feature of the human centred design in built environment. Everybody must use

the built environment independently and equally. Every country must have the goal of providing the usage of built environment in safe and beneficially including the disabled people.

The objective of each country should be the provision of the environments which are convenient, safe and enjoyable to use by everyone, including people with disabilities. City environments are particularly hostile to people with disabilities, mainly since access to most places is very difficult or almost impossible. The UN Standard Rules on Accessibility make the following recommendations regarding access to the physical environment (Arvanitis, 2004: 20-21):

- States should initiate measures to remove the obstacles to participation in the physical environment. Such measures should develop standards and guidelines and consider enacting legislation to ensure accessibility to various areas in society, including housing, buildings, public transport services and other means of transportation, streets and other outdoor environments.
- States should ensure that architects, construction engineers and others who are professionally involved in the design and construction of the physical environment have access to adequate information on disability policy and measures to achieve accessibility.
- Accessibility requirements should be included in the design and construction of the physical environment from the beginning of the design process.
- Organizations of persons with disabilities should be consulted when standards and norms for accessibility are being developed. They should also be involved locally from the initial planning stage when public construction projects are being designed, thus ensuring maximum accessibility.

Like everybody, the disabled people want to be safe when they go out from their homes. To move independently without coming across any obstacles on the streets and roads; to reach the building entrances easily and to use the entrance – exit door that everyone uses; to access the city squares and service areas at the same way are the main demands of disabled people (Koca, Yılmaz, 2017: 12).

According to this approach which named as ‘universal design’, discrimination has to be prevented, rightly and egalitarian approach has to be reflected into the space and products. The concept of universal design contributes us to understand more better the people that do not resemble to us whom we see as the “others”; contributes us to put ourselves instead of them who are less lucky from us or seems as less powered (elderly people,

physically or mentally retarded people, children and the like) from us and behave attentional. This kind of approach will serve us to produce “inclusive” design and to take the required precautions by accepting that they have the right to use the built environment at least like us (İmamoğlu, 2013:67).

## CIRCULATION

*Pedestrian Roads:* Accessible road does not include any elevation difference, stair, footstep or escalator (Figure 1). In open public areas like avenues, streets, crossings, etc. pedestrian roads have to be designed taking into consideration all of the users. Vehicle, pedestrian and bicycle roads can be separated from each other without using any elevation difference, only by using different materials and colors.

On the pedestrian roads there must not be any obstacles like vehicle barriers or rising bollards. The trees, shrubs or the lighting units like elements which can hit or scratch faces should be placed 30 centimeters away from the pedestrian roads.

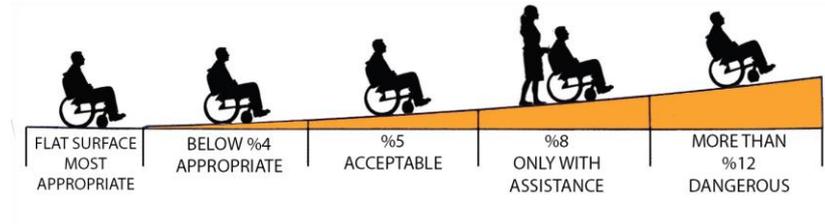


**Figure 1.** An interior pedestrian road; Oslo University (Yılmaz, 2017).

For the visually impaired people guided roads have to be applied on the pedestrian roads. If there does not any guiding road on the pedestrian ways the visually impaired people can follow the existing borders. In order to follow the borders smoothly all of the equipment on the roads have to be elevated 10 centimeters higher from the ground level.

The elevation difference in between the pedestrian way and the vehicle way must be maximum 15 centimeters. For the visually impaired people on the pedestrian ways, the guiding roads at least 50 centimeters away from the vehicle road have to be placed. The guiding roads have to be placed on a pure and acceptable route and have to be away from the manhole and drainage canals. For the usage of all disabled people, the material of guiding roads have to be on the same level with the ground pavement (Koca, Yılmaz, 2017:36-38).

*Ramps:* The slope of all of the ramps have to be 5 % if we think the independent usage of wheel chair user. The ramps that have a slope up to 8 % can be used by the wheel chair user with the help of others (Figure 2).



**Figure 2.** The ramp slopes (Koca, Yilmaz, 2017:43).

The clean width of the ramps has to be minimum 91.5 centimeters. At the starting and finishing parts of the ramps there must be an empty space left minimum 152.5cm x 152.5 cm. for the movement of the wheel chair user. The distance that the wheel chair user can go straight is 9 meters. In the ramps that longer than 9 meters, platforms have to be placed minimum in 152 .5 centimeters long. In the below figures, in Figure 3a you see only the stairs to reach the upper level which is not accessible for a wheel chair user. On the upper level there is the students' cafeteria of Hacettepe University Beytepe Campus and the wheel chair user student cannot access there. Afterwards a ramp with 5 % sloped with platforms constructed and it became accessible for everyone (Figure 3b).



**Figure 3a.** Stairs which are not accessible

**Figure 3b.** A ramp with platforms (%5 slope) constructed for accessibility of everyone

*Stairs:* The width of the stair has to be minimum 91.5 centimeters which is the minimum dimension for the passage of wheel chair user. The common stair and platform widths in housing units have to be minimum 120 centimeters, in public buildings the dimensions have to be minimum 150 centimeters. For the comfortable usage of everyone after 8 – 10 footstep a platform has to be placed in staircases.

At the starting, finishing and platforms sensible stimulating surfaces minimum 60 centimeters in width have to be applied. In order to ease the visibility and the prevention of slippery, the

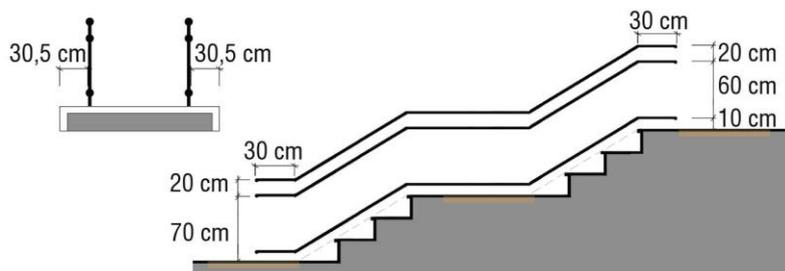
color of the step tips has to be different from the main color of the stair and has to be marked with a perceptible color.

The stair step width has to be minimum 28 centimeters, the height of the step has to be maximum 16 centimeters for the disabled people; for the other situations it can be maximum 18 centimeters. The formula for counting the relationship of the dimensions of the risers and steps:

$$2 \times \text{Riser Height} + \text{Step Width} = 60 - 64 \text{ cm}$$

For the usage of disabled people open or transparent risers for the stairs do not permitted. The finishing of the risers can be rounded, flat or angel.

**Balustrades:** Balustrades, parapets and holders have to be placed to the places where people in need of them like passage ways, stairs and ramps. Balustrades have to be placed 30 centimeters away from the starting and ending points of the stairs and ramps and have to continue all along the stairs. In ramps instead of balustrades protective borders at least 5 centimeters high can be used. The ramps or stairs which is wider than 180 centimeters need balustrades to be replaced in the middle. The height of the balustrades, parapets and holders from the ground level have to be 90 centimeters for adults and 70 centimeters for children (Figure 4). Visually impaired people can do edge following in the places where there are balustrades. So, in balustrades and holders a bordure that at least 10 centimeters higher from the ground have to be placed (Koca, Yılmaz, 2017: 45-47).



**Figure 4.** Balustrades and Parapets (Koca, Yılmaz, 2017: 47).

The stair or ramp balustrades can stand by themselves or can be fixed to the wall. If they fixed to the wall then the distance between the parapet and the wall have to be at least 4 centimeters. The

diameters of the parapets have to be at least 4 centimeters and have to provide the possibility to be hold in balance.

*Entrances and Exits:* In the buildings main entrances equal right, fair usage principles have to be considered for all the users. The entrances for the disabled people have to be designed accordingly. For the passage ways, ramps, stairs, entrance doors, information and warning boards required dimensions have to be used. In front of the entrances space for the movement of wheel chair user has to be provided. If there is carpet on the ground floor, the material



**Figure 5.** Entrances and Exits - Hacettepe University Beytepe Campus (Koca, Yilmaz, 2017: 53).

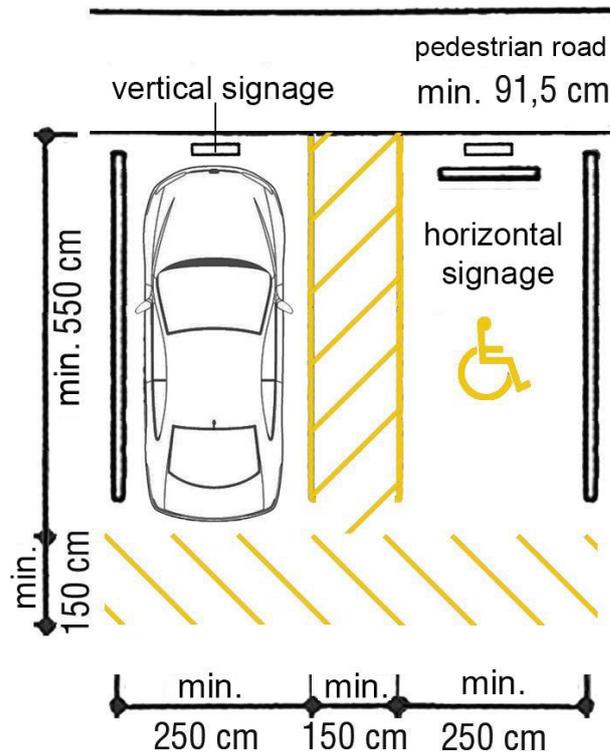
has to be fixed on the ground securely. The carpet tips have to be fixed on to the ground and the edges have to be striped. The hair or the texture of the materials thickness must not be more than 13 mm. (Figure 5) (Koca and Yilmaz, 2017: 52-53).

## TRANSPORTATION

*Vehicle Approach:* In the mass transportation or private car use, all of the users' approach to the vehicle, get on and out of the car actions of them needs an adequate space which is very important. For the disabled people the reserved space for them to see the vehicle, approach, to get on and out of the car has to be cleared from all of the obstacles. In built environments, different kind of applications have to be considered for the physical, visual and audial impaired individuals. For example, for a wheel chair user efficient area has to be provided; for a visually impaired individual stimulating surfaces on the ground and audial stimuli systems are needed; for people who see less, bright colors or phosphoric strings can be applied; for the audial impaired people visual stimulating systems can be applied.

In between the pedestrian way and road, ramps should be constructed for the crossing. At the transition areas and at the other used ramps on the roads have to have maximum 5 % slope.

*Vehicle Parking Areas:* Vehicle parking areas have to be placed closer to the entrance and open to an accessible route. The dimensions of the disabled vehicle parking side by side with an angle are minimum 250cm x 250cm. Thinking the movement of the wheel chair the distance left in between the two parking areas for the transition corridors has to be minimum 150 cm in width. In front of the vehicle, minimum 91.5 cm in width transition road has to be left (Figure 6) (Koca and Yılmaz, 2017: 29-30).



**Figure 6.** Vehicle Parking Area (Koca, Yılmaz, 2017: 30).

In the transition points from parking areas to pedestrian roads, there must not be any level difference preventing the crossing. If the level difference is inevitable then minimum 91.5 cm widened ramps have to be constructed. If the ramps are sloped in one direction than the slope must be 5%, if sloped in three directions than the slope of the sides have to be 10 %. Ramps can be located on transition area or on pedestrian road.

The materials of the roads in between the buildings and the vehicle park have to be non-slippery and matte taking into consideration the weather conditions.

*Stops:* Stops have to be protective from the weather conditions depending on the existing region. Inside the stops there must be seating places, holding bars have to be fixed in needed sections and an empty space must be left for the parking of a wheel chair.

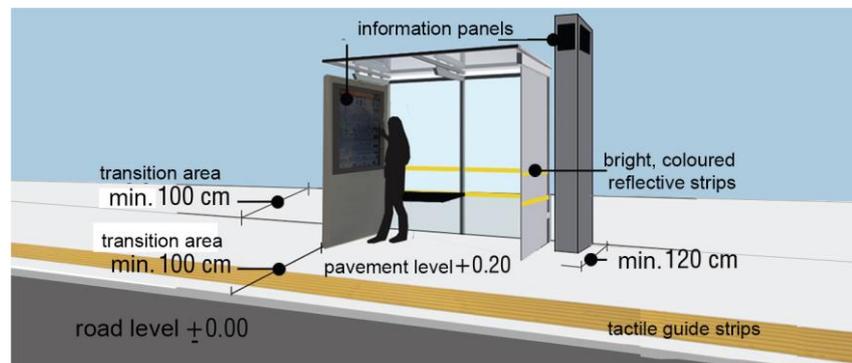
At the stops, audible and written (the writings may be embossed) information and warnings related to the mass transportation service has to be found. These writings and warnings have to be in contrast color with the background of the panels which the corners are rounded (Figure 7). Embossed information panels have to be placed in between 110cm – 130cm higher from the ground level (Koca and Yilmaz, 2017: 32-33).



**Figure 7.** Liverpool Bus Stops (Yilmaz, 2010).

In front of the stops and at the back of the stops minimum 100 cm has to be left for the transfer. If there are transparent surfaces in the stops, bright, colored and reflective strings higher 150 cm from the ground level, 14 -16 cm widened have to be applied on those transparent surfaces (Figure 8) (Koca, Yilmaz, 2017: 33).

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**Figure 8.** The bus – stops (Koca, Yilmaz 2017:33).

When mass transportation vehicles approached to the stop, a direct transfer has to be provided without any level difference (Figure 9).



**Figure 9.** Bus ramp detail from USA (Yılmaz 2017).

### **WORKSHOP ON UNIVERSAL DESIGN**

In Selçuk University, Faculty of Architecture, Department of Architecture, III International Universal Design Panel and Workshop hold on 3<sup>rd</sup> - 4<sup>th</sup> of May in Konya; The title was “to Think with Universal design”. Related with the concept of ‘universal design’ 9 workshops organized with different subjects. One of them was the universal design of Selçuk university, faculty of architecture; 13 students attended to the workshop coming from different universities in Turkey. During the workshop, together with the participant students only the exterior spaces examined for the disabled people. After determining the problems and obstacles of the exterior spaces for the disabled, solutions discussed for an accessible design and proposals had drawn on a plan (Figure 10a) and a visual documentation (Figure 10b) also provided with the suggested designs.



**Figure 10a.** The plan of Universal design for Selçuk university faculty of architecture (Yılmaz, 2018). **Figure 10b.** A visual documentation of the suggested design proposal (Yılmaz, 2018).

The aim of the workshop is to show the students to examine the existing built environment with a thinking eye and encourage them to consider an inclusive design approach for all. Initially they started to share the disabled family or relative members, and with their own experiences they tried to determine the obstacles and deficiencies in the existing built environment. After the determination, they tried to apply universal design principles for all in their drawings including not only physically disabled people but mental disorders also.

## CONCLUSION

The environment belongs to all. It is a fundamental human right. Although major stakeholders in society, people with a disability are often excluded from this right. We cannot envisage a future of hope without access to meaningful citizenship for all. A new vision for humanity, one based on accessibility and social justice, is a prerequisite for a better quality of life.

In every society there are individuals who owns different properties and different ages. All the individuals have the

right to access the public space and use it. The people with different disabilities in the society have to be able to use the built environment and public space in an independent and equal way. At that point, the urban planners, architects, local governments have to do their responsibilities. Cities and the buildings have to be designed and applied according to the principles of universal design. Local governments have to be precise for the application of universal design principles to the building designs and public space designs and has to do the required inspections.

Generally, in public spaces and buildings, the required precautions are taken according to the physically disabled people like wheel chair users, visually or audible impaired individuals and the like; but, there are space solutions also for mentally and cognitively disordered people. In Turkey, some built environment precautions are taken only for the physically impaired people. However, some space solutions have to be searched and provided for the people who have autism, dementia or the other similar disabilities. In order to realize this, the society have to accept the behaviours that include disabled people and contribute to the formation of a fair built environment for all.

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### **Resume**

*Meltem Yilmaz was born in Canada, on April 28, 1965. She received the Diploma in Architecture from Middle East Technical University and the Master's degree from Hacettepe University. Her Ph.D. degree is from Ankara University. She is currently working in Hacettepe University as a professor in Department of Interior Architecture & Environmental Design. Her research interests include sustainable design, universal design, design for disabled people and historical environments.*