



**THE GRADUATE SCHOOL OF NATURAL AND APPLIED
SCIENCES OF ÇANKAYA UNIVERSITY
DEPARTMENT OF INTERIOR ARCHITECTURE**

**THE IMPORTANCE OF UNIVERSAL DESIGN APPLICATIONS IN
GOVERNMENTAL INSTITUTIONS IN TURKEY: BAĞLICA
REHABILITATION AND WELLNESS CENTER FOR DISABLED PEOPLE
(BAĞLICA ENGELSİZ YAŞAM VE REHABİLİTASYON MERKEZİ)**

ÇAĞLA KAPLAN

NOVEMBER, 2019

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**A THESIS SUBMITTED TO
THE GRADUATE SCHOOL OF NATURAL AND APPLIED
SCIENCES OF ÇANKAYA UNIVERSITY**

**BY
ÇAĞLA KAPLAN**

**IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE
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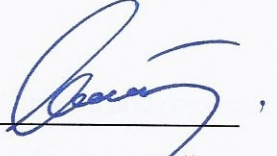
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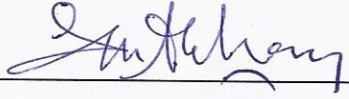
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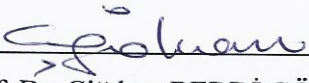
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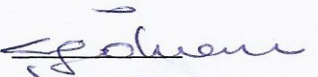

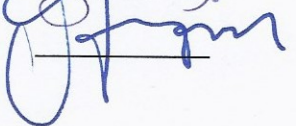
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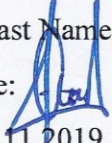
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ABSTRACT

THE IMPORTANCE OF UNIVERSAL DESIGN APPLICATIONS IN GOVERNMENTAL INSTITUTIONS IN TURKEY: BAĞLICA REHABILITATION AND WELLNESS CENTER FOR DISABLED PEOPLE (BAĞLICA ENGELSİZ YAŞAM VE REHABİLİTASYON MERKEZİ)

KAPLAN, Çağla MSc, Interior Architecture

Supervisor: Assoc. Prof. Dr. Çiğdem BERDİ GÖKHAN

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The most important thing to consider when designing in architecture are the users, the people. The design has evolved from past to present and has changed according to the needs. Many methods and principles have been developed. These differences are shaped according to the physical anthropological dimensions of people, their capacity of movement, and their visual, auditory and mental abilities. As human beings may be disabled in certain portion of their lives and they may have congenital disabilities; they may have problematic bodily features during childhood, old age and pregnancy. In this thesis, it is examined that while determining the user mass for design, not only users with standard human dimensions but also all users with different characteristics should be considered. Literature study consist of the two main parts when the first part is a thorough browsing on disability and universal design and in second part the examples from Turkish Governmental Institutions are emphasized with their universal design applications. In addition, the investigations were carried out at the Bağlica Engelsiz Yaşam ve Rehabilitasyon Merkezi (Bağlica Rehabilitation and Wellness Center for Disabled People) in Ankara and the importance of Universal Design in public buildings were emphasized. Then a survey was conducted in terms of accessibility, usability and livability of the users. As a result of the survey, it is seen that the design is incomplete and inadequate for the disabled in our country. In this thesis, how to take architectural measures in order to enable disabled individuals to reach buildings and open spaces without the help of others and to participate in life is developed.

Key Words: Universal Design, Disabled People, Accessibility in Public Institutions, Public Buildings, Universal Design Principle

ÖZ

TÜRKİYE'DE DEVLET KURUMLARINDA EVRENSEL TASARIM UYGULAMASININ ÖNEMİ ÖRNEK: BAĞLICA REHABILITATION AND WELLNESS CENTER FOR DISABLED PEOPLE (BAĞLICA ENGELSİZ YAŞAM VE REHABİLİTASYON MERKEZİ)

KAPLAN, Çağla Yüksek Lisans, İç Mimarlık

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Mimarlıkta tasarım yapılırken düşünülmesi gereken en önemli şey kullanıcılar, yani insanlardır. Tasarım, geçmişten günümüze gelişip değişmiş ve ihtiyaçlara göre farklılıklar göstermiştir. Birçok metotlar, yöntemler ve ilkeler geliştirilmiştir. Bu farklılıklar insanların fiziksel antropolojik ölçülerine, hareket kapasitesine, görsel, işitsel ve zihinsel yeteneklerine göre şekil almıştır. İnsanlar hayatlarının belli bir bölümünde ve doğuştan engelli olabilecekleri gibi; çocukluk, yaşlılık, hamilelik gibi dönemlerinde de farklı bedensel özelliklere sahiptirler. Bu tezde de, tasarım için kullanıcı kitlesi belirlenirken, sadece standart insan ölçülerine sahip kullanıcılar değil, farklı özelliklere sahip tüm kullanıcıların dikkate alınması gerektiği incelenmektedir. Literatür taraması iki ana kısımdan oluşur; birinci kısım Engellilik ve Evrensel Tasarım üzerine ayrıntılı bir araştırmadan oluşurken ikinci kısımda da Türk Devlet Enstitülerinden örnekler evrensel tasarım uygulamalarıyla ele alınır. Ayrıca, Ankara'da bulunan Bağlıca Engelsiz Yaşam ve Rehabilitasyon Merkezinde incelemeler yapılarak, Evrensel Tasarımın kamusal yapılarda ki önemi vurgulanmıştır. Daha sonra, mekânların kullanıcılar tarafından erişilebilir, kullanılabilir ve yaşanabilirliği açısından bir anket çalışması yapılmıştır. Yapılan anket sonucunda, ülkemizde engelliler için tasarımın eksik ve yetersiz olduğu görülmüştür. Bu tezde, engelli bireylerin başkalarına ihtiyaç duymadan binalara rahatlıkla ulaşabilmeleri, yaşama katılabilmeleri açısından mimari tedbirlerin nasıl alınması gerektiği önerisi geliştirilmiştir.

Anahtar Kelimeler: Evrensel Tasarım, Engelli Bireyler, Kamu Kurumlarında Erişilebilirlik, Kamusal Yapılar, Evrensel Tasarım İlkeleri

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ABBREVIATIONS

WHO: World Health Organization

ADA: The Americans with Disabilities Act, 1990

USA: United Nations of America

ATM: Automatic Cash Machine

ILO: International Labor Organization



CHAPTER 1

INTRODUCTION

Today in Turkey, it is known that there are important problems for disabled people to integrate with the society. These problems make it difficult for disabled people to live in concert with society. Individuals who cannot produce meaningful solutions to their problems will feel unhappy. This means a lower quality of life that eliminates the individual's fundamental human rights.

Disorders in physical functions of the individual and their deficiencies and difficulties in their ability to move make them different from other members of the society. Disorders in physical functions and in their ability to move put the individual away from the society. The lack of social support systems prevents the participation of the disabled people as equal individuals in the society.

The physical environment in which the disabled people live is troublesome due to limitations. The physical environment in the society should be designed for everyone. From living spaces to all public spaces and means of transportation, every place should be designed taking into consideration the characteristics and needs of disabled people. In our country, there are some structures which prevent the participation of disabled people to society in places such as roads, sidewalks, public buildings, toilets, shopping malls, hospitals, schools and transportation vehicles. As a result, disabled people are excluded from society and cannot be integrated. Therefore, all these factors should be considered and any design should be made not to make the life of the disabled people more difficult.

Universal design is one of the fundamentals of interior design; however, the disabled people are not given much importance in our country. In our country, the laws and regulations are not sufficient to ensure the participation of disabled people in social life. However, it is seen that the defined requirements are not sufficiently reflected in the city and architecture. Inadequacies and expectations are frequently expressed by the disabled people and the institutions representing them. In this

regard, it is aimed to examine the concept, aims and principles of universal design and to reveal the situation in our country by evaluating them.

1.1. Aim and Scope of the Study

Being disable is caused by malfunction of certain systems in human body. This malfunction is a problem in the body structure or function. Naturally, this problem can be from birth or may occur later.

Disability is an important condition that restricts human life. In mother's womb, during the birth, or because of an accident during a healthy life, every person is a candidate for disability. People with various types of disabilities should be involved in life as socially active individuals.

Disabled people do not want to live their lives depending on someone and constantly struggling. They want to live like normal people by making their lives more productive. They want to be able to study, read and work independently. Thus, their quality of life can increase and they can hold on to life tighter.

In order to achieve this, an examination of the principles of universal design has been determined in public buildings.

The research questions in the study are as follow:

- How many disabled people are there in our country and in the world?
- What kind of disabilities?
- Do the designs made in our country meet the needs of disabled people?
- What are the needs of families of disabled people?

The aims of the study are as follow;

- To explain the importance of universal design,
- To enable disabled people to participate in society more actively,
- The design should not be made only for people with standard sizes,
- To give advices to the designers about universal design principles in public spaces.

1.2. Method to Reach the Aim

The main objective of this thesis is to emphasize the importance of universal design in public structures for disabled people and to establish a critical perspective to examine the conformity of existing public structures with universal design principles. In accordance with this objective, a comprehensive literature search was made in the second part of the thesis, and the concept of universal design, principles, related legislation, and urban - public structure relationship were examined, and the information that may form a critical view was obtained.

According to this information obtained from the research, although it is not found right to create any checklist to design a building suitable for universal design, it is clear that a systematic approach is needed to convert existing structures into a form that can be used by everyone. The systematic view of architectural planning scales will be supported as well as providing an infrastructure that provides the appropriate data flow for the transfer of the needs of the public building users to the building system.

Accessibility is defined to ensure that all individuals living in the city have access to all public services that the city provides. (Evcil ve Usal, 2014). In other words, it is a definition that features the layout plan decisions in the architectural design and questions the general transportation situation, the building environment and the parking arrangements. Circulation deals with the building entrances, including horizontal and vertical circulations within the building, and affects the decisions that regulate the inter-departmental relations of the building in architectural design. And availability examines the spaces that make up the building sections, and questions the functional arrangement of the action area for each user. In summary, accessibility, circulation, and availability concepts correspond to the layout plan decisions, space and section regulation decisions and action area regulation decisions, which are respectively the scales of design in architecture, (Table 1.1.)

Table 1.1. : Relation between Design Scale and Public Structure Design Evaluation Criteria

DESIGN SCALE		CRITERIA FOR PUBLIC BUILDING DESIGN
BUILDING SETTLEMENT DECISIONS	➔	ACCESSIBILITY
BUILDING DEPARTMENT AND VENUE ARRANGEMENT DECISIONS	➔	CIRCULATION
ACTION AREA ORGANIZING DECISIONS	➔	AVAILABILITY

In this thesis study, the compatibility of the Engelsiz Yaşam ve Rehabilitasyon Merkezi (Bağlıca Rehabilitation and Wellness Center for Disabled People) that was chosen as the study area with the sample public structures to be discussed in line, and its nearby environment with the universal design criteria was examined with the evaluation form prepared in Table 4.1.

Accordingly, as it can be seen in the table, the transportation status, the nearby environment and the parking lots will be examined under the title of accessibility. Under the title of circulation, the building entrances, main entrance door, horizontal circulation and vertical circulation elements will be examined. Under the title of availability, consultation desk and other banks, waiting areas and wet areas will be examined.

Considering the concept of universal design, these questions need to be determined in order to conclude whether there are structures that meet the physical and psycho-social needs of all users.

Table 1.2. : Public Building Assessment Form (Duman, 2017).

		Name of Public Building
	Intended Purpose	
ACCESSIBILITY	Transportation Status	<ul style="list-style-type: none"> ▪ In which ways transportation to the building can be provided? ▪ Are there stops or drop-off – pick up points for public transport located near the building?
	Nearby Environment	<ul style="list-style-type: none"> ▪ Are the roads, sidewalks, ramps, stairs, located in the nearby of the building positioned in suitable places, and arranged for everyone's use?
	Parking Lots	<ul style="list-style-type: none"> ▪ Do parking lots and pedestrian crossings meet standards? Is it safe for everyone's use?
CIRCULATION	Building Entrances	<ul style="list-style-type: none"> ▪ How many entrances are there in the building? ▪ Are the entrances detectable and available to everyone? ▪ Are the doors in the building suitable for everyone's use? What are the vertical circulation elements in the structure?
	Main Entrance Door	<ul style="list-style-type: none"> ▪ Is the main entrance door detectable and usable for everyone?
	Horizontal Circulation	<ul style="list-style-type: none"> ▪ Are the corridors and halls suitable for everyone's use?
	Vertical Circulation	<ul style="list-style-type: none"> ▪ Are vertical circulation elements suitable for different user groups?
	AVAILABILITY	Desk and other Counters
	Waiting Area	<ul style="list-style-type: none"> ▪ Do the waiting areas allow different users to wait together under the same conditions?
	Wet Areas	<ul style="list-style-type: none"> ▪ Do toilet groups offer options for users with different features (such as long or short in height, child, elderly, wheelchair user)?

These questions are given in Table 1.2. The examination will be in accordance with the universal design principles of equal use, flexible use, simple and intuitive operation, perceptible information, fault tolerance, low physical power expenditure, size and space for approach and use. Thus, suggestions for universal use (for everyone's use) can be presented in accordance with the findings of the questions.

1.3. Structure of the Thesis

In the first part of the thesis, the aim, scope and methodology are explained. The aim and the data obtained from the thesis are presented.

In the second part, literature research about disabled people and universal design is

made. In addition, the definition, history, and types of disability, as well as rights of the disabled people, universal design, ergonomics, and universal design principles will be explained.

In the third chapter, universal design criteria of public buildings in the world and Turkey will be discussed, and the relationship between urban and public structures will be explained. The approach criteria which will be used during the examination of the universal design in public buildings are determined. According to these criteria, a table has been prepared with regard to accessibility, circulation and availability to be used in the evaluation of public buildings that will be examined in the following sections from a universal design perspective.

In the fourth chapter, the history of public buildings will be examined. Some examples of public buildings in Turkey and abroad will be given. In addition, two selected municipal buildings in Ankara will be examined in terms of universal design. Engelsiz Yaşam ve Rehabilitasyon Merkezi (Bağlıca Rehabilitation and Wellness Center for Disabled People) selected as the study area, will be examined in terms of universal design.

In the fifth section, Engelsiz Yaşam ve Rehabilitasyon Merkezi (Bağlıca Rehabilitation and Wellness Center for Disabled People), selected as the study area, will be examined in terms of universal design. Results and evaluations will be given according to the surveys and researches about Engelsiz Yaşam ve Rehabilitasyon Merkezi (Bağlıca Rehabilitation and Wellness Center for Disabled People), selected as the study area. Then, suggestions will be presented according to these results. And recommendations will be evaluated according to the data obtained.

Finally, based on these case analyses and findings from literature, public structures which are open to everyone's use, will be examined with a universal design perspective and a solution will be proposed. In conclusion, the importance of universal design for disabled people in public buildings will be explained.

CHAPTER 2

LITERATURE REVIEW OF DISABILITY & UNIVERSAL DESIGN



Fig. 2.1. : Types of Disabilities

2.1. Disability Descriptions

Although the word “disabled” by definition is used for handicapped and malformed, these words have different meanings.

A disabled person is a person who has difficulties in adapting to social life and meeting his/her daily needs and needs protection, care, rehabilitation, counseling and support services due to the loss of his/her physical, mental, sensory and social abilities to various degrees (Engelliler Hakkında Kanun (Law on Disabled Ones) 5378).

The World Health Organization has made a definition and classification on the concept of disability that focuses on the health aspects, based on illness outcomes as follows (WHO, The World Health Organization).

Impairment: "Impairment in terms of health," refers to an impairment of imbalance in psychological, anatomical or physical structure and function." (WHO, World Health Organization)

Disability: "Disability in terms of health," refers to a person with a disability and the loss of an ability to perform a job and the condition of being restricted" (WHO, The World Health Organization).

Handicap: "Handicap" in terms of health refers to a disadvantageous situation that

prevents and restricts the ability to engage in activities that may be considered normal in relation to the age, gender, social and cultural situation of a particular person as a result of a deficiency or disability (WHO, World Health Organization).

Health is not only the absence of illness and disability, but also physical, mental and social well-being. Disability is the absence or irregularity of an organ that causes loss of function and appearance to a certain extent from the physical, mental and spiritual characteristics of the body (Mutluer, 1997, p:10).

In Turkish;

Engelli: The person who has difficulties in adapting to social life and meeting his or her daily needs and needs protection, care, rehabilitation and support services due to the loss of his or her physical, mental, spiritual, sensory and social abilities to various degrees.

Özürlü: The person who is inadequate or handicapped in several processes such as learning power by various aspects of development.

Sakat: The person who has a sick or incomplete side in the body.

2.2. History of Disability

There is a significant increase in human life span from past to present. While the average human life span was 47 years at the beginning of the 20th century, it has reached an average of 76 years today, and 80% of the world population live more than 65 years. In this process, the number of disabled people in the world has increased. There are two main reasons for this: The fact that the two world wars have caused many people to live with disabilities, and that medical developments allow for survival after fatal illnesses or accidents. For example, the proportion of disabled people of various levels has increased by 70% after 1966 in the USA.

According to 1994 founding, 20.6% of the population in this country is disabled at various levels. In addition, in 1880s, the population over 65 years of age was 3%, and in 1980 it reached to 11.2%.

The estimated rate for 2030 is 20-25%. Considering that 46% of the individuals over the age of 65 in America are living with some kind of disability, it can be said that the increase in the number of elderly people in the society brings about the increase in the number of disabled people. In Turkey, according to the results of Turkey's Disability Survey conducted in cooperation by Administration for Disabled People and the State Institute of Statistics in 2002, the proportion of the population

with disabilities was recorded as 12.29%.

2.3. Reasons for Disability

If the reasons of disability are examined carefully, it will be seen that a very important part of them is avoidable. Disability is generally classified in different ways according to its source and reasons. When the reasons of congenital disability are classified according to their source, some of them are consanguineous marriages, and mothers exposed to the use of medicines during pregnancy. All these reasons are inevitable.

What are the barriers to the participation of disabled people in society?

Poverty

As one of the barriers to the participation of disabled people in society, perhaps the most important one is poverty. Researches show that the vast majority of people with disabilities come from the poorest sections of society and live in poverty all over the world. This also applies to developed countries. Undoubtedly, this is true in developing countries like us. The reasons for disability are mostly prevailing among the poor. In addition, since disability is considered to be one of the main causes of unemployment, it can be said that there is a causal link between these two cases. Thus, one of the most serious problems faced by disabled people is poverty that the socio-economic sector experience as a whole.

This is the most serious barrier to their integration into society. They should be provided with protection within the scope of social security and an adequate income support. Discriminatory practices against disabled people should be prevented. It should be emphasized that caregivers should be supported by social security institutions for the care of disabled people and that they should have a profession and be employed. The main thing is that every individual, though disabled, should be able to work as a productive individual in society.

Education

According to the Standard Rules, disabled people will also benefit from the primary, secondary and higher education institutions the same as other individuals do. Compulsory education will include disabled people as well. One of the most neglected issue is the preschool education of disabled children. Moreover, formal and non-formal education opportunities for disabled adults are extremely limited. Thus, first of all, the education infrastructure should be developed in terms of quality and quantity

and should be increased to a level to meet the needs of the disabled people. Professionals who will take responsibility for the education of disabled people (special educator, guidance counselor, social worker) should be trained in number and with equipment sufficiently. Educational institutions have physical arrangements taking the presence of disabled people into account by taking necessary measures for easy access to these institutions and preparing the necessary tools and equipment for the special education of the disabled people. Special assessment methods should be developed to take the disability conditions into account.

In our country, it is seen that 97% of disabled people suffer from the lack of educational opportunities. With this education rate, it is not possible to solve the problems of disabled people and to become conscious (TurkStat, Survey on Problems and Expectations of Disabled People, 2010).

Rehabilitation

Rehabilitation generally means 'substitution' of an ability rather than regaining a lost ability. If the person who has become disabled for any reason cannot do his / her job, s/he needs to be "rehabilitated" in order to do the job. Or, if it is no longer possible to do this work, it is necessary to train and gain skills for a new job. The individual who has not undergone such a rehabilitation process will keep to be a burden on society and the family s/he lives with. This is the most important factor that helps disabled people to integrate with social life.

Within the scope of the rehabilitation program, there are topics such as assessment guidance on increasing the individual capacity of educational counseling. The target group includes families of disabled people, employees of relevant organizations, the community, relevant professional staff and media.

Family Life / Private Life of the Disabled

Another difficulty with joining the community is the family life and private life of the disabled people. Due to the physical malfunction or some deficiencies, the mobility of the disabled people is limited and this imposes some restrictions on their private life. In fact, social service institutions do not provide care and protection for disabled people in their private life.

According to the Standard Rules, governments must support the full

participation of disabled people in family life. Efforts should be made to ensure that there are no discriminatory practices in this regard, as in every case.

Employment Problem

Every person has a job to do. Disabled people, even if they have a malfunction or deficiency in their physical and mental functioning, can work and participate in production if they receive an appropriate education and rehabilitation that takes their qualifications into account. In countries where work is considered an important part of the society, disabled people are willing to work and produce (TurkStat, Turkey Disability Survey, 2002).

2.4. Disability Types

2.4.1. Acc. To Duration

2.4.1.1. Permanent

Permanent disability occurs as a result of illness or when they are intentionally or accidentally injured.

2.4.1.1.1. After Accident

The accident occurs as a result of unexpected and unwanted external action at any time. Most injuries are such as traffic accidents, falls, sports and attacks.

2.4.1.1.2. With Birth

- Impaired cognitive abilities and physical skills due to injury to the brain
- Growth impairment
- Learning disabilities
- Vision problems
- Hearing problems

2.4.2. Slowly Developing

2.4.2.1. Old Age

Old age also called as senescence in human beings is the final stage of the normal life span. Old age is frequently defined as 60 or 65 years of age or older.

2.4.2.2. ALS

ALS leads to loss of cells, muscle weakness and dissolution. It is a progressive

disease that causes damage to muscles and spinal cord, which plays an important role in the realization of our movements.

2.4.3. Blindness (Vision Disability)

There are hundreds of thousands of people that suffer from minor to various serious vision disability or impairments. Some of the common vision impairments include scratched cornea, diabetes related eye conditions and dry eyes. (Disabled World, 2019)

2.4.4. Physically Handicap

Affective Disorders: “Disorders of mood or feeling states either short or long term. Mental Health Impairment is the term used to describe people who have experienced psychiatric problems.” (Disabled World, 2019).

Personality Disorders: “Defined as deeply inadequate patterns of behavior and thought of sufficient severity to cause significant impairment to day-to-day activities.” (Disabled World, 2019).

Schizophrenia: “A mental disorder characterized by disturbances of thinking, mood, and behavior” (Disabled World, 2019).

2.4.5. Mental (Brain Disability)

Intelligence is the innate and problem-solving power that develops through life-long experiences. With this power, humans understand themselves and their environment, draw conclusions and live in harmony. Mental disability can occur for various reasons before, during or after delivery.

Mentally disabled people make late and slow progress in personal care, adaptation to environment, language, communication and sensory motor skills according to their peers. Unfortunately, the importance given to mentally disabled people and their education in our country is not enough. These people are excluded from the society.

2.4.6. Somatic Disability

Somatic disability includes anatomical or functional abnormalities of the musculoskeletal system that develops at birth, between (1-18) years of age or the ages of active occupation (19-70). According to the definition of World Health

Organization (WHO); Disability is a condition of limitation or non-fulfillment of expected roles due to a disorder or disability due to age, gender, social and cultural factors.

Causes of somatic disability are consanguineous marriages, polio, natural disasters, traffic accidents, work accidents, birth errors, terror, childhood viral diseases, prenatal maternal diseases, parental alcohol or drug dependence, genetic disorders, prenatal infant radiation and such.

Somatic symptoms disorders are not fatal, but they can be serious if they interfere with a child's normal growth and development, including learning and academic achievement, peer and family relationships (National of Association of Pediatric Nurse Practitioners, 2013).

2.4.7. Hearing Impairment

Decreased hearing sensitivity, except for the normal hearing levels according to the age of the individual.

Deafness may occur at birth or later. Hearing aids can be used to help deaf people to hear. Also, deaf people often use sign language. It is a language that is taught and learned in order for hearing impaired people to communicate, speak and realize the thinking process. Use and learning of it in our country has gained momentum in recent years. However, it is still insufficient.

Numbers of Disabled People

According to estimations of United Nations, there are 500 million disabled people worldwide. Of these:

- “55 million are blind” (11%)
- “70 million are deaf” (14%)
- “130 million have a severe mental disability” (26%)
- “20 million have epilepsy” (4%)
- “160 million have some sort of mobility impairment (32%). The incidence of impairment varies according to age, geographical and economic status” (Overcoming Obstacles to the Integration of Disabled People, 1995).

Age

Developed countries:

- “66% of disabled people are over 65 years of age, i.e. 8% of the total

population”

- “This is likely to rise to 16% by 2025”

Developing countries:

- “20- 50% of the general population over 65 are disabled.

These percentages with regard to the general population will increase due to longevity” (Overcoming Obstacles to the Integration of Disabled People, 1995).

Gender

Developed countries:

- “52% of the disabled population are women”

Developing countries:

- “51% of the disabled population are women (although in Asia there are more disabled men than women)”
- “There are 350 million disabled people”
- “Approximately 50% become disabled in the first 15 years of life”
- “98% have no rehabilitation”
- “20 million who need wheelchairs are without them” (Overcoming Obstacles to the Integration of Disabled People, 1995).

2.5. Disability Rights in the World and Turkey

Disability in the United Nations (UN) documents was first published in 1948. However, in the original Universal Declaration of Human Rights, the beginning of the studies on disability dates back to 1945 (Sedat, 2013).

In 1950, the Genoa Conference was established and international standards were set for education, treatment, vocational rehabilitation and employment of disabled people (Sedat, 2013).

In 1952, the United Nations requested the development of educational and rehabilitation programs for disabled people with the participation of international organizations such as UNDP, ILO, WHO, UNESCO, UNICEF. (Sedat, 2013).

In December 1975, the UN General Council published the Declaration on the Rights of Disabled people. It states that the rights of all disabled people are guaranteed without discrimination in any way such as religion, language, race or gender (Sedat, 2013).

In 1992, at the United Nations Disability Meeting, it was decided to celebrate December 3 as the Day of Disabled people.

In 1993, standard rules on equal opportunities for disabled people were adopted. These rules state how to take measures to provide equal opportunities for people with disabilities (Sedat, 2013).

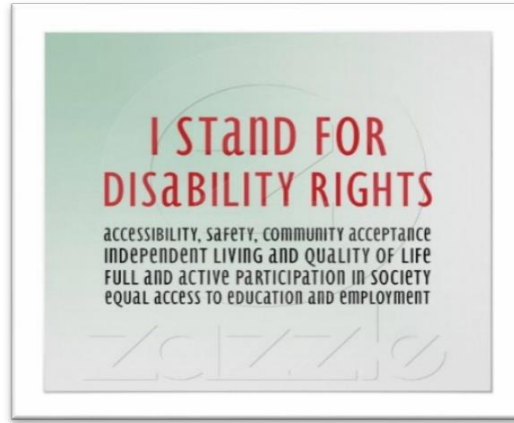


Fig. 2.2. : Disability Rights

The aim of the United Nations is to improve the social conditions and the quality of life of disabled people. As it is known, the founding principles of the United Nations are respect for human rights, fundamental freedom and equality of all people.

Zoning laws for disabled people in Turkey:

To make the environment accessible and available for the disabled people; zoning plans, urban, social, technical infrastructure and structures must comply with the relevant standards of Turkish Standards Institute (Official Gazette, 1985).

- TS 12576 08.04.1999 Urban Roads - For Disabled and Elderly Design Rules for Structural Measures and Markings on Street, Street, Square and Roads (Öztürk, 2011)
- TS EN 12182 26.04.2004 Technical assistance materials for disabled people - General characteristics and test methods (Öztürk, 2011)
- TSEN 81-70 21.06.2007 Lifts - Construction and safety rules for installation - special for passenger and cargo lifts applications - for passenger lifts including disabled accessibility (Öztürk, 2011)
- TSEN ISO 16201 27.03.2007 Technical assistance for disabled people -

Environmental control systems for everyday life (Öztürk, 2011).

TS 9111: Rules for the Regulation on the Buildings for Disabled People

TS 9111, published in April 1991 by the Turkish Standards Institute: The Regulation on the Buildings for the Disabled People was brought into force to enable disabled people to live in a more comfortable and high quality of life. These rules can be summarized as follows (TS, 1991):

- 1- Floor coverings should not be slippery. Carpet type materials should not be used for visually impaired individuals. Sound reflective surfaces should help people with visual impairments (Köse, 2018).
- 2- In order to enable the visually impaired people to circulate in a more comfortable way, different arrangements should not be made for the access inside the building and the reinforcement should be kept as constant as possible. The corners of the indentations and protrusions should be rounded (Köse, 2018).

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- 5- The furniture inside the building should be arranged to allow wheelchair users to maneuver (Köse, 2018)

TS 12576: Design Rules for Structural Measures and Markings on Streets, Square and Roads for Disabled and Elderly People

In order to enable the mobility of disabled people more easily in urban areas, the rules of the Turkish Standards Institute must be complied with. The rules of the Turkish Standards Institute under the name of Design Rules for Structural Measures and Markings on Street, Square and Roads (TS 12576) can be summarized as follows (TS, 1999):

1- There should be no obstacles in the sidewalk so that the disabled people can walk freely on unspecified roads and use the pedestrian pavement. Any irregularities that may be dangerous should be avoided. For example, floor grids, floor mushrooms, pits, indiscriminate level differences in the road should be regulated (Köse, 2018).

2- Symbols, billboards and poles which are placed indiscriminately in the motorway and intersection crossings should not be placed on the pedestrian crossings as they will reduce the mobility of the disabled (Köse, 2018).

3- The pedestrian crossings should be well illuminated and should be differentiated from the road lighting.

4- Traffic control lamps should be equipped with illuminated pedestrian figures for the hearing impaired and permanent sound warning signs for the sight impaired (Köse, 2018).

5- In order to prevent the disabled people from being affected from height differences on the sidewalk, these roads should be given inclinations which can be done easily and without fatigue (Köse, 2018).

6- Stairs should be avoided on roads unless necessary, since there is a big obstacle in accessibility for disabled people. In case of stairs, anti-slip agents should be used (Köse, 2018)

7- The circulation areas inside the ladder buses should have large and lifted entrance and exit. Public transport stops should be provided with information. Steady light and flashing light indicating the name of the vehicle, the route number of the

vehicle and the name of the route and station must be present at each stop. In the closed stops, the information panel on the wall will be at eye level and tactile reading height; and information such as a city map with a coarse embroidery, a route plan and a public transport vehicle tariff should be provided for visually impaired individuals (Köse, 2018).

8- A sufficient number of parking spaces should be established for disabled people on the roads that are allowed to park. For these facilities, 2% of the number of parking spaces should be reserved for disabled people (Köse, 2018).

9- All commercial administrative public buildings and residential buildings should be constructed free of barriers from main pedestrian sidewalks. Building entrances must be constructed of non-slippery hard material and be well lighted (Köse, 2018).

According to the studies of the Accessibility for People with Disabilities in Urban Planning information report, the basic rules of planning and design for the whole city should be as follows:

Planning should be done in a way not to limit the movements of disabled people (Koca, 2010).

Appropriate living spaces should be established for disabled people in private and public areas (Koca, 2010).

Necessary precautions should be taken especially in urban transportation areas and transportation should be provided in such a way that a disabled person can go from a place to another place without assistance (Koca, 2010).

Planning should be done in open spaces as well as in the buildings considering the use of disabled people (Koca, 2010).

Implementation of accessibility criteria should be made compulsory in environmental plans with necessary legal arrangements (Koca, 2010).

The municipalities should pay attention to the implementation of the relevant issues in the zoning regulations and take the necessary measures for the practices that do not comply with the standards (Koca, 2010).

The implementation of the regulations should be ensured, otherwise penal sanctions should be applied (Koca, 2010).

The main objective should be to create unobstructed physical environments and improve the quality of existing environments and to increase accessibility in terms of new areas (Koca, 2010).

Goals to increase accessibility (Koca, 2010);

In 2005, 5378 numbered Law on Disabled People was enacted. The purpose of this law is the prevention of disability through solving the problems of health, education, rehabilitation, employment, care and social security of the disabled.

In addition, a Turkish sign language system has been established by the Turkish Language Association in order to provide education and communication for the hearing- impaired.

2.6. Universal Design

To the greatest extent, it is the design of products and environments for all people (elderly, young, children, disable, pregnant) who can use them without adaptation or a special design. The most important element that distinguishes the universal design from the design for disabled people is that design for the elderly or design for children is the design of the designed volume or product for the benefit of all users. Universal design covers design scale; It includes all subjects within the individual product interaction including urban construction. Within the diversity of all design areas; roads, pavements, stations, bus stops, parks, interiors where people spend most of their lives, and the design of the furniture that people interact are very important for the users.

This study is to make life easier for the disabled people and to give them a livable life. For this reason, we must facilitate their needs and living spaces. So, Universal Design has a vital importance.

Good designers consider these universal design criteria when choosing the possible solution to implement:

- Elegance
- Robustness
- Aesthetics
- Cost
- Resources
- Time

- Safety



Fig 2.3. : Some of the User Types Considered in the Universal Design (The Center For Universal Design, 1998)

"Universal design is the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaption or specialized design" (Mace, 1998).

The purpose of universal design is to make life easier for everyone by making the products and the environment more useful to more people. Universal design concept targets everyone.

Since the main audience is all users, the concept of the average human in the traditional design approach is addressed. People differ in their anthropological dimensions, physiological structures and endurance, mobility, and visual, auditory and mental abilities. Design should be made by considering not only the individuals who conform to the normal definition, but also the individuals with contradictory characteristics.

The concept of universal design has been expressed with different names, so different expressions have emerged in Turkish. Such as; Inclusive design, design for everyone, and universal design.

Design is applied to appeal many people. The increase in universal design applications is directly proportional to the increase in human needs and skills. At the same time, universal design is not a special goal for everyone, but a solution. Universal design promotes social cohesion and at the same time improves the quality of life of people so that participation, accessibility, self-confidence, choice, economy and comfort improve in society.

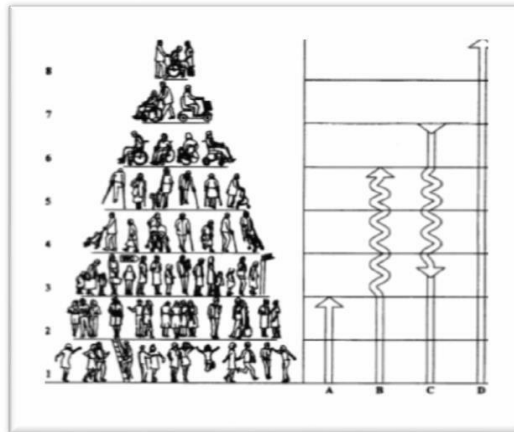


Fig. 2.4. : Design Pyramid for Everyone (Goldsmith, 2000)

The universal design pyramid in Fig. 2.4 describes the need to design to serve different types of users. In the first stage of the pyramid, there are people who can jump, run and carry loads. In the second stage there are adult individuals. Architects who designed these two levels found that there were no young children. In the third step of the pyramid, there are children, people of different age groups and healthy individuals. In the fourth step, there are parents with babies and elderly people with walking difficulties. The fifth step of the pyramid includes users of crutches and wheelchair. In the seventh step, there are wheelchair users who need the help of a person, and in the eighth stage there are wheelchair users who need the help of two people. In short, a building that is suitable for universal design is designed so as to cover all the steps of the pyramid in buildings that are open to public use.

The universal design concept is also based on different dimensions and ergonomic requirements.

2.7. Anthropometry and Ergonomics

The change in the physical structure of people and the harmony of these changes in the design process are interrelated. Therefore, ergonomics and anthropometry have emerged. Ergonomics gives information about human factors. Anthropometry gives information about the size and shape of the human body (Anthropometrics and Ergonomics, 2011).

Anthropometry relates to measurements of the human body. Not only design,

but many other fields benefit from anthropometry. For example, medicine, anthropology, military science, criminology, and engineering. Its first use came in the late nineteenth century by Alphonse Bertillon to identify criminals in France (Akintilo, A. 2001).



Fig. 2.5. : Da Vinci's Vitruvian Man Study (Doğan, 2012)

The work of the Roman architect Vitruvius comes at the beginning of the studies on human body measurements. According to Vitruvius, man has a body proportional to his natural creation (Fig. 2.5). Leonardo da Vinci did the work of Vitruvian Man in 1492 to illustrate this natural ratio put forward by Vitruvius. This study shows that the body has various ratios (Arat, 2011).

Anthropometry is divided into two as static and dynamic (Fig. 2.6). Static anthropometry has emerged with the data obtained from the measurements of the fixed postures of the people. Dynamic anthropometry has emerged with the data obtained from the measurements made to the people in motion (Kurban and others, 2016).

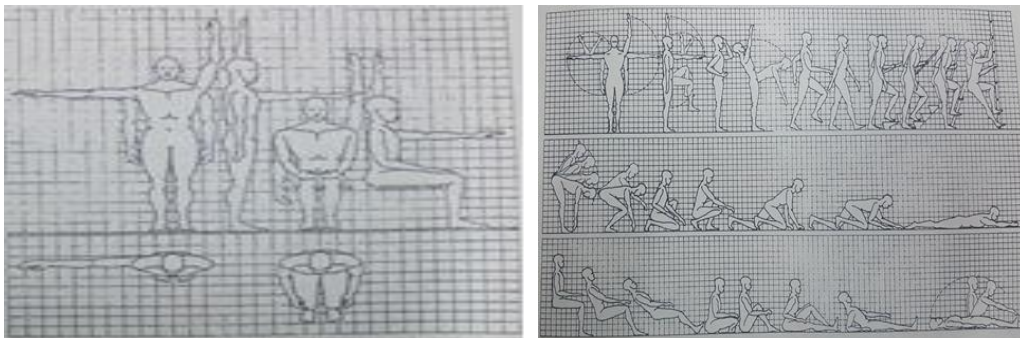


Fig. 2.6. : Static Anthropometry Dimensions of Man Standing and Dynamic Anthropometric

Ergonomics Greek origin, Ergon = work - work, Nomos = rule - law, a word arising from the combination of these words. Ergonomics is the business science that focuses on the harmony of people and work by examining the physical structure and psychological behavior of people. It focuses on the products, equipment and methods people use in their daily life and communication with the whole environment. Ergonomics covers a wide area. In ergonomics, maximum efficiency/ minimum fatigue is essential. This should be seen not only as more work efficient, but also as a process of integrity in physical health and psychological sense (Dizdar ve Kurt, 2002).

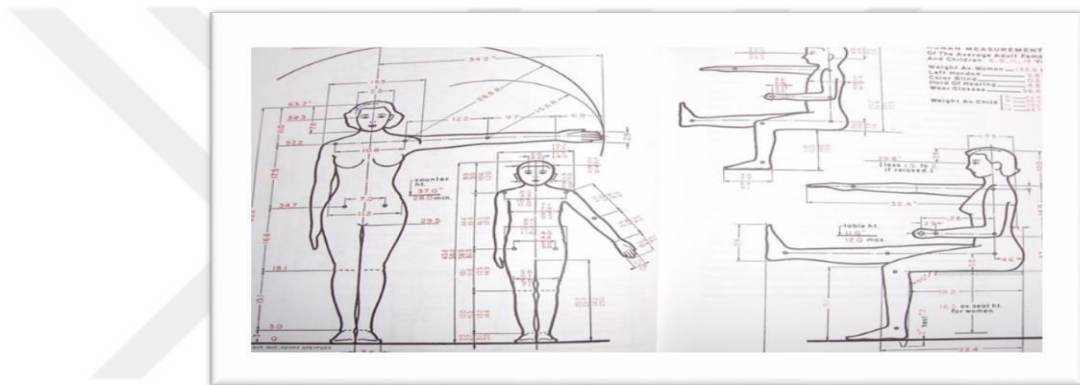


Fig. 2.7. : Chart from the Measure of Man, Henry Dreyfuss, 1955 (Kelly, 2005).

Henry Dreyfuss is the most well-known designer in design anthropology (Fig. 2.7). During World War II, product designers developed new methods. In 1955, he published the Measure of Anthropometric Man for American adult men and women (Kelly, 2005).

2.7.1. Anthropometric Data for Different Users

In general, design is combined with the universal design as well as the accessibility, usability and safety of spaces. Designers should be aware of the need to design without distinguishing individuals with or without disabilities. Universal design principles, products and services should be of quality to cover all members of society.

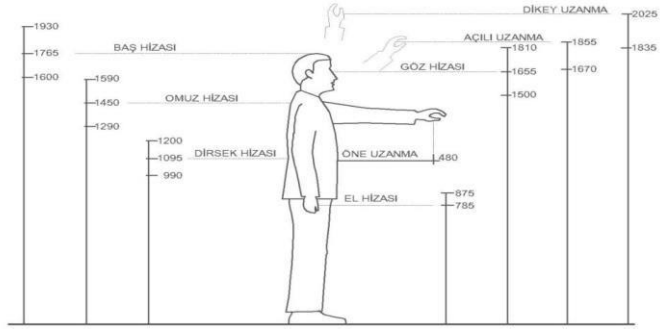


Fig. 2.8. : Adult Male Anthropometric Data of 18-60 years old (Goldsmith, 2000)

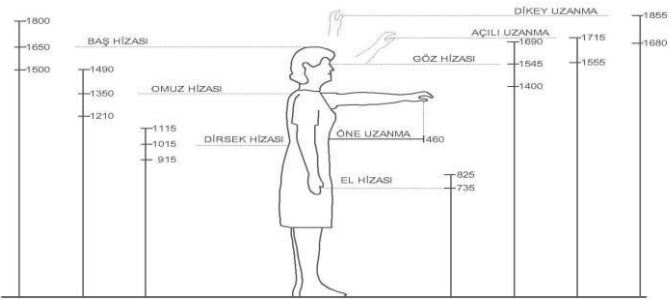


Fig. 2.9. : Adult Female Anthropometric Data of 18-60 years old (Goldsmith, 2000)

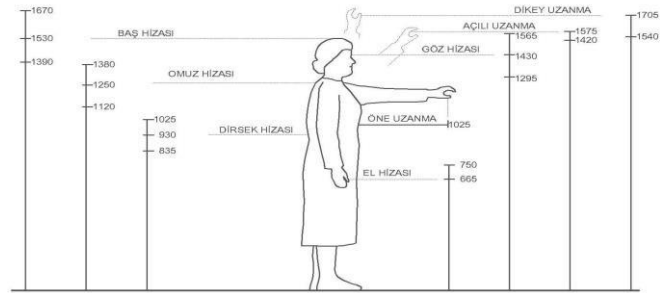


Fig. 2.10. : Anthropometric Data for Women Older than 60 years old (Goldsmith, 2000)

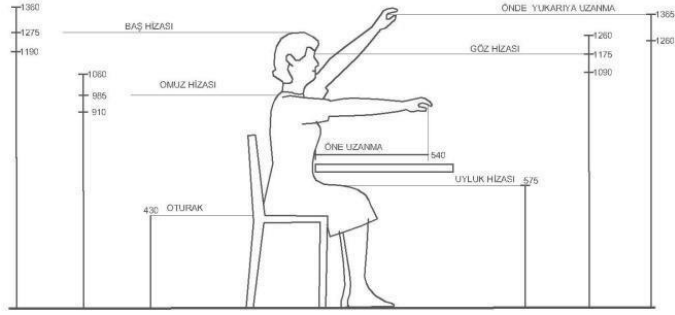


Fig. 2.11. : Anthropometric Data of Adult Woman Sitting on Chair (Goldsmith, 2000)

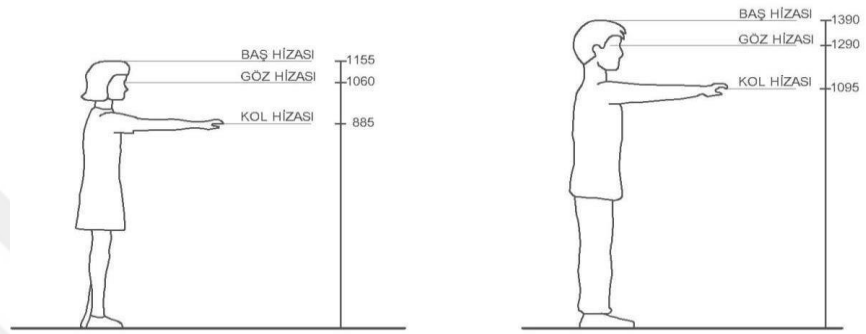


Fig. 2.12. : Anthropometric Data of 6-year-old Girl and Anthropometric Data of 10 years-old Boy (Goldsmith, 2000)

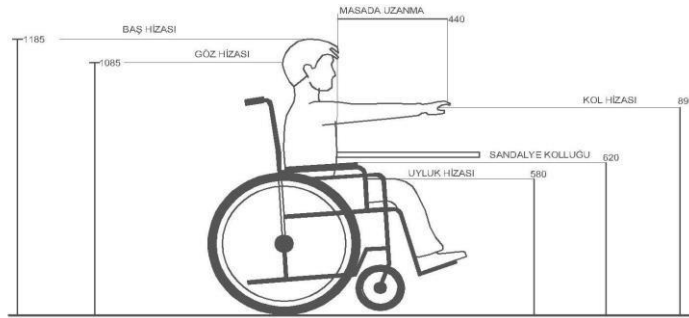


Fig. 2.13. : Anthropometric Data of a 10-year-old Child (Goldsmith, 2000)

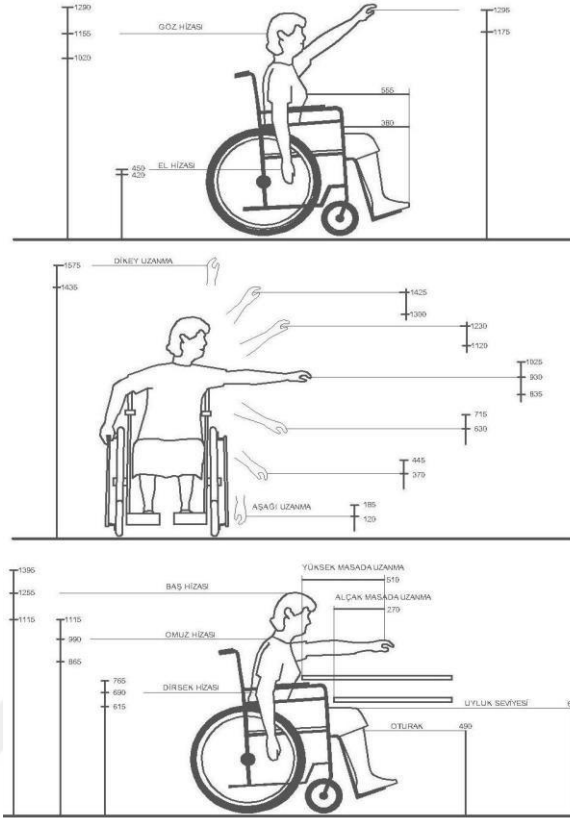


Fig. 2.14. : Anthropometric Data of Wheelchair User Adult Female (Goldsmith, 2000)

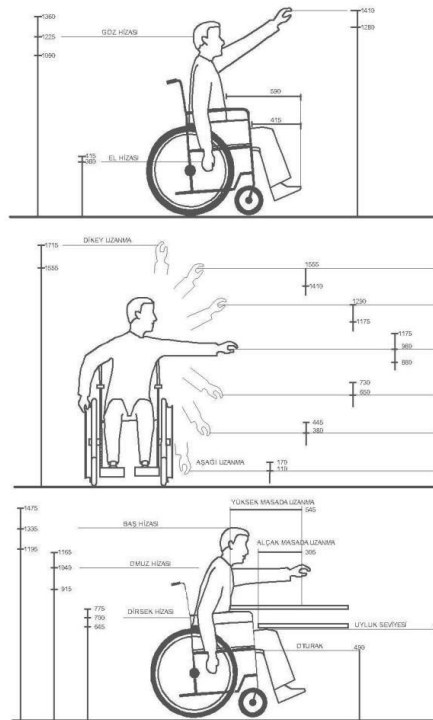


Fig. 2.15. : Anthropometric Data of Wheelchair User Adult Male (Goldsmith, 2000)

2.8. History of Universal Design

The concept of universal design emerged from the 1950s as part of the design for the disabled. In the years of World War II, various methods were designed for the elimination of barrier-free design concept in Europe, Japan and USA (Yıldırım, 2018).

Beginning with the Architectural Barriers Act in 1968, the approach reached a different point with the Americans with Disabilities Act (ADA) in 1990. ADA standards provides unobstructed design, because these standards focus on the availability of disabled people in the environment and accessibility. However, ADA should not be considered as a universal design (Yıldırım, 2018).

By the 1970s, in Europe and in the United States, it was underlined that a regulation should be made beyond the specific solutions tailored to individuals. Increasingly, the term of accessible design can be reached using terminology. In the United States, the rights of disabled people were shaped in the mid-1970s in connection with the 1964 Civil Rights Act of racial minorities. For the first time in this period, design was seen as a condition of obtaining citizenship rights (Yıldırım, 2018).

Due to the standards and technical requirements of the designs, the inadequacies of the standards had been the subject of debate. For this reason, in 1990, Americans with Disabilities Act (ADA) was introduced in the United States and the discussions ended with the adoption. ADA which is a very comprehensive law on disabled people provides very important rights and opportunities for people with disabilities.

American Disability Act Standards prepared in line with ADA and is the determinant of accessibility / availability standards aim to create regulations that will ensure the accessibility of the disabled individuals to the common areas of society (ADA Standards for Accessible Design, 1994).

With these laws, discrimination against people with disabilities is prohibited and education, communication, transportation, access to public places and use of these are provided (Kavak, 2010).

For the first time in 1990, law of Universal Design was used in 1985 by

American architect Ronald L. Mace. This law is built for the purposes of universal design approach and ensures the use by all people. All designs made with universal design principles allow all users to benefit. It does not distinguish people as the disabled, elderly, children and others.

2.9. Universal Design Principles

The concept of universal design has been researched throughout the history regarding how it can be more useful to people in terms of design. In 1996, a universal design center was established at North Carolina State University, and researches were conducted on this topic. As a result of these studies, 7 principles were published in 1997. The principles are used to evaluate designs, provide convenience for every user, and guide and educate designers (Story and others, 1998).

The experts involved in finalizing the principles are Bettye Rose Connell, Mike Jones, Ronald L. Mace, Jim Mueller, Abir Mullick, Elaine Ostroff, Jon Sanford, Ed Steinfield, Molly Story and Gregg Vanderheim (Story, 2001).

These principles are as follows:

2.9.1. Equitable Use

It aims to find solutions to the equal use of the design. Designs should be made without distinguishing any user group. The privacy and safety of all users must be considered equally. Designs must be made by everyone who have the same aesthetics, which makes everyone happy.

Space arrangement or furniture design should be available to people with different talent levels. This applies to both product design and space design.

The internal circulation is provided by ramps or the elevator is located adjacent to the escalator, providing equal access for all.



Fig. 2.16.: An example of Obstruction for a Disabled Person (Self Archive)

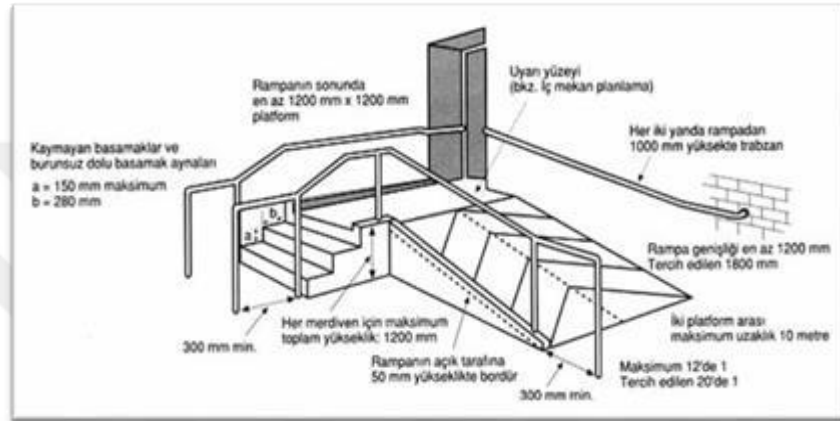


Fig. 2.17.: Building Entrance Ramp (Mimarlar Odası İzmir, 1997)

The use of automatic doors with sensors in the interior is particularly useful for hands-full users, children and other people with limited abilities (Fig. 2.18).

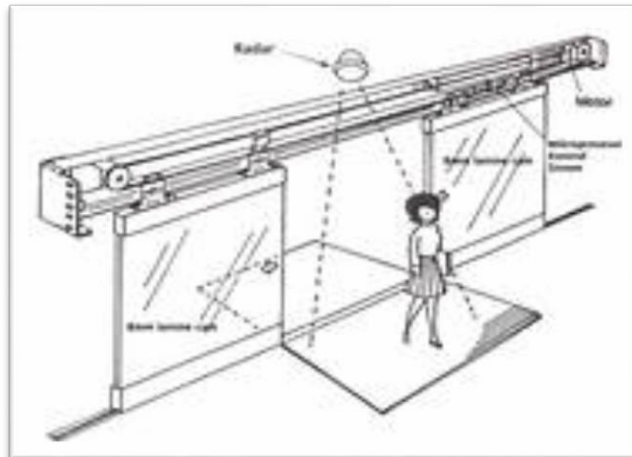


Fig. 2.18.: Door With Sensor

The use of windows arranged at various heights on the doors makes the corridor safer for people of different sizes and postures.

The shower tray in the bathrooms at the same level as the floor allows easy access for all individuals (Fig. 2.19).

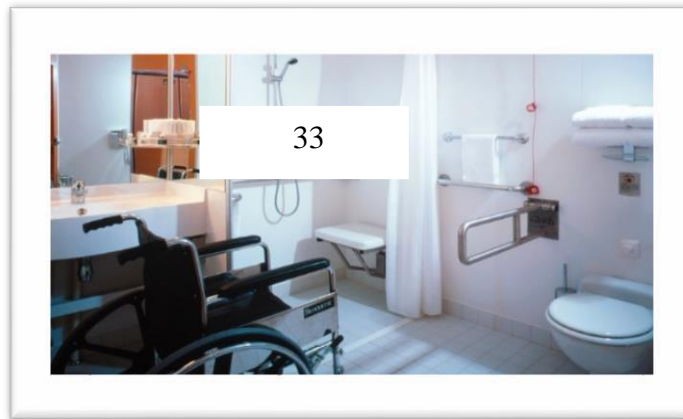


Fig. 2.19.: Disabled Bath

Sufficient width and unobstructed design in horizontal roaming areas ensure equal roaming for all including wheelchair users.

2.9.2. Flexibility in Use

The design should contain different ways of use. For example, it should be equally useful for right and left-handers and allow the user to make mistakes. The design of the furniture and doors to be used in different heights provides an option of use for children, elderly, disabled and all other users (Fig. 2.20).



Fig. 2.20. : Wardrobe for the Disabled



Fig. 2.21. : Work Desk for Disabled People

Double doors provide convenient use for both right and left-handers. The remarkable design of the entrances of public spaces allows the entry to be easily recognized by all individuals. Designs such as bathtubs, closets, urinals and washbasins in wet spaces, different heights of kitchen equipment, adjustment of kitchen worktops, fixing of handle arms at different heights in stair railings are examples of flexible usage (Fig. 2.22)



Fig. 2.22. : Kitchen Cabinet for the Disabled **Fig. 2.23. :** Platform Lift

2.9.3. Simple and Intuitive Use

The simple and intuitive operation principle involves the design or service being easy to understand, linguistic ability, and instant focus ability. Providing simplicity in design can be accomplished by eliminating unnecessary complexity, consistently providing information and not requiring literacy and language skills. It should be ordered from very important to less. Effective feedback should be provided during the work. Simple and convenient handling should be provided.

Selection of single-headed luminaires in wet areas should be facilitated without

the need for knowledge and experience. The icons on the moving furniture reduce the user's need for reading. Detailed visual presentations in the installation and user guides of the furniture require the user to read the text, thus eliminating the problems that may arise from a written text translation. The symbols placed on the doors for the understanding of female and male restrooms in the public buildings (Fig. 2.24), the different paintings for the disabled parking spaces in the parking, the keys for the use of the elevators, these are examples of simple and intuitive usage principles.



Fig. 2.24. : Signboard Symbols for Disabled People

2.9.4. Perceptible Information

It is important that perceptible information is of high quality, noticeable, clear and easy to understand, and that people with sensory limitations can be made available to give full attention. Different media (pictorial, verbal, embossed) must be used to present important information. The readability of the main information must be clear. The elements of the product must be differentiated easily to the user.

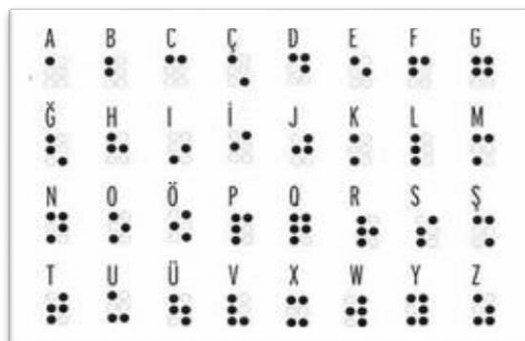


Fig. 2.25. : Relief Writing

For indoor use, floor and wall coverings with pictorial or embossing should be used for the purpose of finding and guiding (Fig. 2.26). Embedded information and sound warning systems should be added to the elevator information boards for visually impaired individuals. The design of reception desks, sales-exhibition counters with tactile features and high-contrast indicators are important for perceptibility.



Fig. 2.26. : Routing Sign on Ground (Ankara Batı Adliyesi, Self Archive)

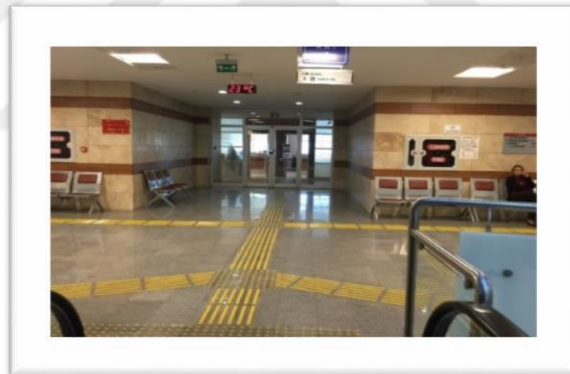


Fig. 2.27. : Guide Tracks for the Visually Impaired (Ankara Batı Adliyesi, Self Archive)

2.9.5. Tolerance for Error

The principle of error in design is to reduce the risk caused by accidents or unplanned behaviors as much as possible. The universal design must protect all users from danger and accidents. Design should be arranged to minimize hazards and errors. The one most commonly used must be the most accessible and the hazardous elements must be destroyed, isolated or protected. Warnings should be created against hazards and errors (Fig. 2.28). Non-faulting mechanisms should be provided.

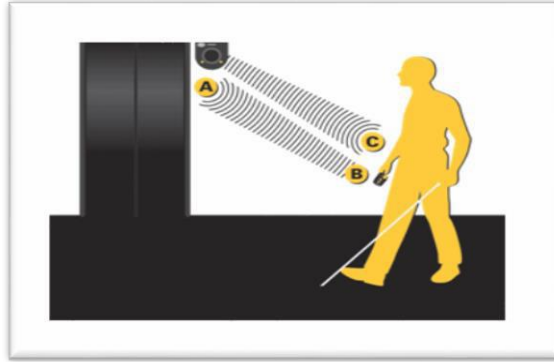


Fig. 2.28. : Audible Warning System

The design of the stair railings in the interior spaces prevents undesirable accidents. Elevations to the edges of the ramps provide protection against possible injuries.

Furniture should be designed to be safe for all users and protection measures should be considered. For example, especially in kindergartens, furniture corners should not be pointed against any bumps, the heating pads should be closed. Examples of this principle are the traffic lights that warn pedestrians that are located on pedestrian crossings on high-traffic roads.

2.9.6. Low Physical Effort

It is necessary to ensure that the user avoids self-repetitive movements and in the same way reduces the physical power that is sustained. Design products should be comfortable to use with minimal force, space and environment must be accessible in a minimum of power. Users should maintain their natural body positions. Repetitive movements and long-term physical effort should be minimized. The designed space or environment should be accessible and navigable using minimal physical force.

The door handles must be easily opened. In this respect, round door knockers are not suitable for children, disabled or handicapped individuals. Seats placed in shopping centers allow customers to rest during shopping. Work stations should be designed ergonomically and their natural body positions should be protected. Low berth stairs, the taps are opened and closed by hand sensor (Fig. 2.29) and the garage doors which are opened and closed by the control are also used with low physical force.



Fig. 2.29. : Sensor Hand Dryer and Faucet

2.9.7. Size and Space for Approach and Use

Regardless of the user's body structure, the approach should be provided with convenient size for easy access, manual use. Different hand size and manual grip should be considered. Adequate space should be provided for users with assistive equipment (wheelchairs, walking aids, etc.) and for those who will assist them.

Reception desks, sales-exhibition benches, ATM (automatic cash machine) should allow the wheelchair users to approach easily (Fig. 2.30).



Fig. 2.30. : ATM for Wheelchair Users (Self Archive)

Lowered work benches facilitate communication with persons of different sizes in public areas. The windows on the sides of the doors allow people of different sizes to see outside.

The fact that the kitchen cabinets are removable makes it easy for people of different sizes to see the items on the shelves (Fig. 2.31).



Fig. 2.31. : Kitchen Cabinet Design for the Disabled

Doors, windows and various cabinet opening handles must be suitable for different hand sizes. Wide doors are also useful for wheelchair users and people with luggage.

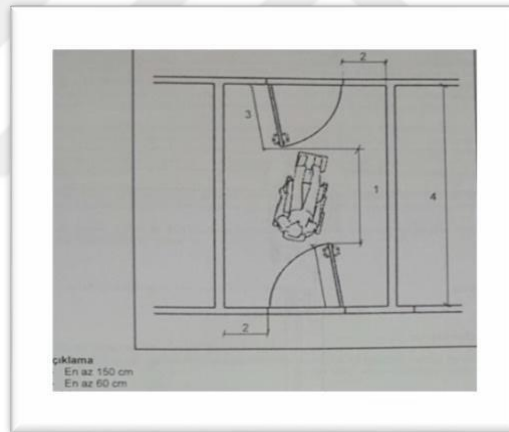


Fig. 2.32. : The Maneuver Space Required for the Wheelchair User to Open the Single-Leaf Door (TS 9111, 2011)

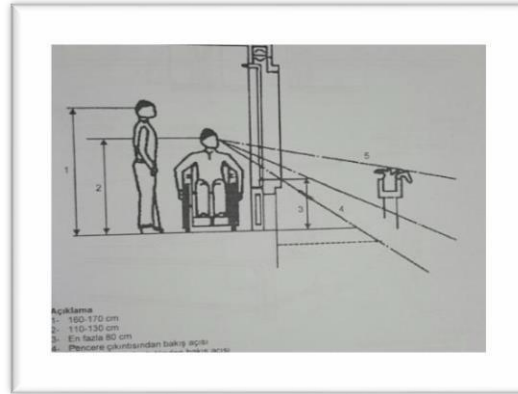


Fig. 2.33. : Window Height Allowing the Sitting and Standing User to See the View (TS 12576, 2012)

2.10. Summary

Universal design has been developed in that the physically changing possibilities are a common feature of being human, not just for a few people. It aims to enable the designed environment to operate in a convenient and hassle-free manner for as many people as possible from the start and includes suggestions that may apply to all users by addressing the differences that people experience over the lifetime. In summary, it can be said that a design that works well for people with disabilities will bring positive results for everyone.

CHAPTER 3

UNIVERSAL DESIGN CRITERIA OF PUBLIC BUILDINGS ACCORDING TO TURKISH STANDARDS AND UN

The design of the space should meet the quality of life, health, safety and welfare at the highest level. The designer's task is to create spaces that best meet the needs of the individual in accordance with their characteristics. In short, spaces should be accessible, usable and livable.

3.1. Availability to Public Buildings

People with different needs should be able to access buildings and open spaces without the help of others. Accessibility includes taking all necessary physical and architectural measures in the environment built and in the scale of city so that all individuals can participate in social life.

Different types of users live together in society. According to the statistics from World Health Organization (WHO), the rate of disability in any country is 10%. The United Nations adopted this rate in its 1994 report. In developing countries, this rate reaches 13%. According to the 2007 statistics from the State Institute of Statistics, over population projections in Turkey; Of the 74 million people, 2 million include infants and children aged 0-10 years, and 12 million people aged 60 years and older. Elderly population in Turkey is the lowest average, according to 2002 statistics, with 8.5 million (ratio 12:29%) of the disabled people (Kavak, 2010).

Accessibility measures should be taken on sidewalks, pedestrian crossings, parks, children's playgrounds, public buildings and public transport services. It is a necessity also for the elderly, pregnant, children, baby carriage and very long or very fat people who have limited movement.

Making the services available to everyone according to the function of the building is also an important criteria in the design of public buildings.

Within the building, there is a need for a set of guidance and warning equipment to provide the user with information about any danger or negative situation. They should be arranged in such a way that they can be understood by the senses of touch, sight and hearing in order to serve individuals with various disabilities. For example; for the visually impaired individuals, audible warning systems should be installed on the elevators.

Elevator buttons must be suitable for the visually impaired and have sensible surfaces. Elevator buttons must be positioned at a height that can be accessed by different user types, such as wheelchair users and short users. Furthermore, it is necessary to design the information desks located near the entrance gates or other benches in the building to be suitable for all users in order to provide information and guidance.

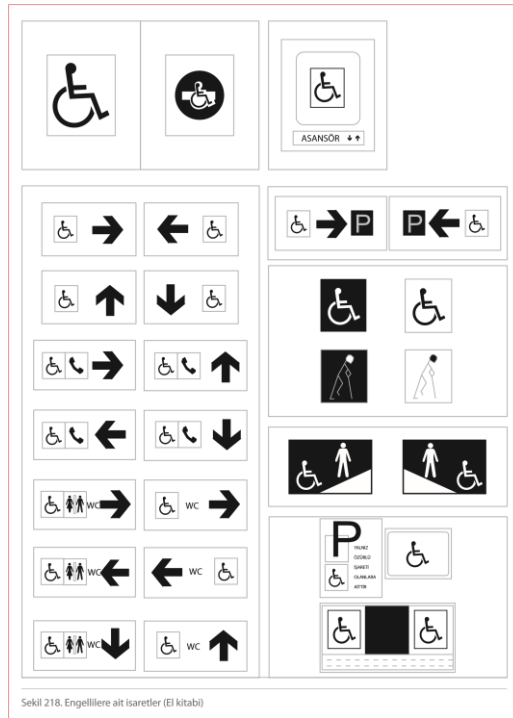


Fig. 3.1. : Disability Signs (Engelliler için Evrensel Standartlar Kılavuzu, Handbook)

The presence of elements designed according to the user in public buildings is one of the most important factors for ensuring access. Access to the building, safety and comfort are important for the design of public buildings. By providing

these and accessing all services within the building, appropriate public buildings will be designed.

3.2. Circulation in Public Buildings

That circulation within the building is suitable for everyone is among the important criteria to consider when designing public buildings.

There are two directions in the structure; horizontal and vertical. Appropriate arrangements should be made for all users using the structure. For example, a wheelchair space of at least 90 cm should be left, and horizontal and vertical circulation should be provided with the maneuvering area which provides a turning area of at least 1.5 m in diameter Fig. 3.2. (ADA, 1994).

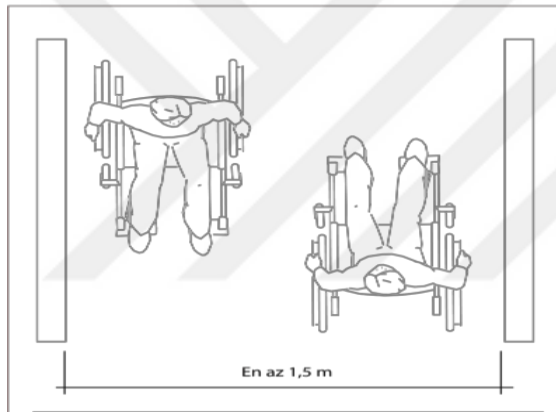


Fig. 3.2. : Minimum Clear Passage Width for One Wheel and Two Wheelchair (Engelliler için Evrensel Standartlar Kılavuzu, Handbook)

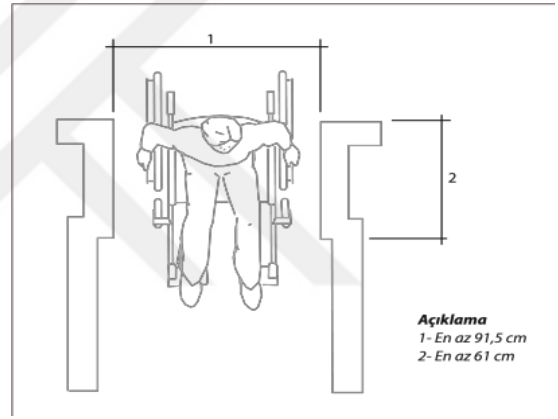


Fig. 3.3. : Minimum Clear Passage Width for One Wheel and Two Wheelchairs (Engelliler için Evrensel Standartlar Kılavuzu, Handbook)

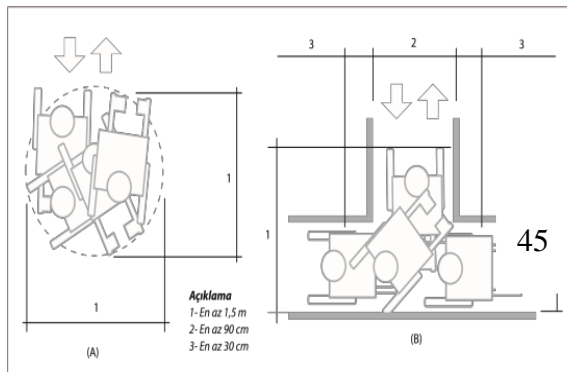


Fig. 3.4. : Wheelchair Return Areas (Engelliler için Evrensel Standartlar Kılavuzu, Handbook)

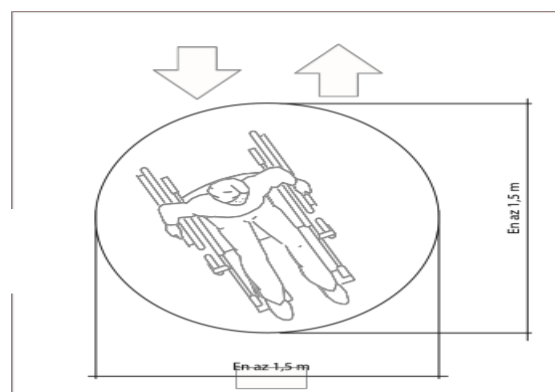


Fig. 3.5. : Wheelchair Return Areas (Engelliler için Evrensel Standartlar Kılavuzu, Handbook)

Vertical circulation elements between floors in buildings; ramp, lift and stairs. When designing stairs, stairs height should be at a level that can easily be used by a variety of user types such as children, users with difficulty in mobility, elderly and pregnant women. The stair width should be determined by considering the number of users. The doors and cabin sizes of the elevators should also be determined by considering the number and variety of users. In addition, all interior door widths, opening arms and opening directions in horizontal and vertical circulation should be designed to be used by everyone.

Taking the different types of users into account, areas suitable with everyone's use in the circulation should be arranged. For example, visually impaired users should be able to access sensible surfaces in order to access the areas where they can operate, and connections for the horizontal circulation elements should be made carefully considering the maneuvering areas of the wheelchair users. Thus, the horizontal circulation elements are designed to be used safely and comfortably.

3.3. Legislations Affecting the Universal Design

In many countries' laws and declarations, all individuals in society have equal rights. This equality should also manifest itself in public spaces. In the universal design, it is aimed to design spaces suitable for the use of all individuals in the society and providing the same service to everyone according to their functions. Some of the regulations, standards and laws issued by countries should be taken into consideration in the designs to be made for this purpose.

In this context, Americans with Disabilities Act (ADA), which was introduced in the United States in 1990, provides very important rights and opportunities for participation in society.

In recent years, many countries in the world like Turkey have an awareness of the need for design to meet everyone's needs, not for the average person. The accessible environmental dimensions are explained in detail in the relevant standards of TSE. These standards are aimed at ensuring accessibility in buildings; TS 9111: Accessibility Requirements in Buildings for Disabled People and People with Restricted Mobility. Standards for Outdoor Areas TS 12576: Design

Rules for Structural Measures and Markings for Accessibility in Urban Roads-Pavement and Pedestrian Crossings and ISO 23600: Auxiliary Products for the Visually Impaired and the Hearing Impaired - Pedestrian Traffic Lights - Audible Warning and Sensible Surfaces. TS 13622: Accessibility Requirements in Public Transport Systems for Disabled People and People with Restricted Mobility. Two other standards that must be adhered to in achieving accessibility are TS ISO 23599: Visually Impaired or Low Visible Auxiliary Products - Sensible Walking Surface Marks and TS 13536: Complementary Standard for the Application of TS ISO 23599.

In 1997, with a new regulation made in the Law on the Development of the Buildings for the Disabled People, the necessity to comply with the relevant standards of the Turkish Standards Institute was stated. In accordance with the 2005 Law on Disabled People, it was decided to make the existing buildings to be accessible to the disabled people.

The provisions of the Decree Law No. 572 dated 6 June 1997 are as follows:

Article 1 of the Decree; 3194 numbered zoning law was added and in order for the physical environment to be accessible and livable for the disabled people, it is mandatory to comply with the relevant standards of the Turkish Standards Institute in urban areas, and social buildings.

All municipalities are assigned tasks as to construct and control all kinds of structures and their environments, roads, parks, gardens and recreation areas, social and cultural service areas and means of transportation specified in Article 15 of Municipal Law No. 1580 in accordance with the use and accessibility of disabled people; development and implementation of zoning plans, and compliance with the relevant standards of the Turkish Standards Institute at the licensing stage of the buildings, supervision of applications and taking measures to ensure integrity.

In the world, especially in countries such as Norway, Italy, Scotland, Canada, New York, Australia, England and Dubai, there are urban regulations under the name of Barrier-Free Design or Universal Design. These applications mainly cover pavement and pedestrian routes, bus stops, parking, sports and recreation areas,

urban furniture, and accessibility.

The Council of Europe prepared an implementation plan covering the years 2006- 2015 with the aim of granting the full rights of the disabled people and their full participation in the society and it was decided to ensure full participation of the disabled people in society. It included disability issues in all policy areas of the Member States.

When we look at the standards and laws of different countries which have an effect on universal design, some regulations and measures to be taken in public spaces are compared in the tables below (Table 3.1 and 3.2).

Table 3.1. : According to the Standards and Laws of Different Countries Affecting the Universal Design, Some Measures to be taken in the Outside Arrangements (Duman, 2017)

		UNITED NATIONS	TS 12576 and TS 9111 TURKEY	
OUTSIDE	SIDEWALK	WIDTH	180 cm	Min: 150 cm
		SLOPE	Transverse slope: %5	transverse slope:%2 longitudinal slope: %5
		GUIDE TARIIL FOR VISUALLY IMPAIRED	Min Width: 60 cm Color: Opposite colors with its surroundings	Min Width: 40 cm Color: Opposite colors with its surroundings
		LOCATION OF PLANTING AND REINFORCEMENT ELEMENTS	50-75 cm Width in safety strip	50 cm wide safety strip inside
		CURBSTONE	Min Height: 7 cm Max Height: 15 cm	Min Height: 3 cm Max Height: 15 cm
	RAMP	WIDTHS	Straight at least: 90 cm 90 degree rotation: :140 cm 180 degree rotation: 90cm	Straight: 100 cm 90 degree rotation: :90 cm 180 degree rotation:90cm
		LANE WIDTH IN RAMPS CHANGING DIRECTION	Min: 140 cm x 140 cm	Min: 150 cm x 150 cm
		SLOPE	%5-%8	Max: %5
		RAILING HEIGHTS (DOUBLE-STAGE HANDLE)	(From top to bottom) 1. stage: 85-95 cm 2. stage: 70-75 cm	(From top to bottom) 1. stage: 90-100 cm 2. stage: 70 cm
	STAIRS	WIDTH	Min: 150 cm	Min: 180 cm
		STEP WIDTH	Min: 30 cm	Min: 30 cm
		STEP HEIGHT	Min: 12 cm Max: 18 cm	Min 15 cm
		STIMULATING SURFACE WIDTH	Min: 60 cm	Min: 30 cm
		WIDTH	_____	Min: 300 cm
		TRAFFIC LIGHT BUTTON HEIGHT	90-120 cm	90-120 cm

	CROSSWALK	SLOPE FROM SIDEWALK TO LEVEL CROSSING	%5-%8	from the side: %10 the middle: %8
	CARPARK	STANDARD CAR PARK DIMENSIONS	Width: 230cm Length: 490 cm	Width: 250 cm Length: 500 cm
		DISTANCE BETWEEN DISABLED PARKING AND BUILDING	Max: 30 m	Max: 30 m
		HANDICAPPED PARKING	For multiple vehicles Width: 250 cm Length: 600 cm Transportation corridor: 120 cm x 600 cm	For multiple vehicles Width: 250 cm Length: 600 cm Transportation corridor: 150 cm x 600 cm
		INDOOR PARKING LOT HEIGHT	Min: 200 cm	Min: 260 cm
		DISABLED PARKING LOT PARALLEL TO THE SIDEWALK	—————	Width: 250 cm Length: 900 cm Transportation corridor: 250 cm x 120 cm
	OTHER	SIGNS	Min Height: 200cm	Min Height: 220cm
		REST BENCHES	Seat Height: 45cm	Seat Height: 41-45 cm

Continuing of Table 3.1.

Table 3.2. : According to the Standards and Laws of Different Countries Affecting the Universal Design, Some Measures to be observed in the Inside Arrangements

INSIDE		ENABLE UNITED NATIONS	TS 12576 and TS 9111 TURKEY
BUILDING ENTRANCE	DOORWAY	Min: 120 cm x 150 cm	Min: 150 cm x 150 cm
	ENTRY LADDER AT THE START AND END OF THE STIMULATING SURFACE	Width: 60 cm	Width: 60 cm
	RAMP EDGE PROTECTION BORDER	Min : 15 cm	Min : 5 cm
	RAMP SLOPE	Max: %5-%8	Max : %8
	RAMP RAILING HEIGHTS (DOUBLE-STAGE HANDLE)	(Top to bottom) 1. Step: 85-95 cm 2. Step: 70-75 cm	(Top to bottom) 1. Step: 90-100 cm 2. Step: 70 cm
	RAMP WIDTH	100 cm	100 cm
	SENSIBLE SURFACE DIMENSIONS AT THE ENTRANCE	—————	—————
	ENTRANCE DOOR	Min Width: 100 cm	Min Width: 150 cm
	THRESHOLD	—————	Max Height: 1.3 cm
		TRANSITION WIDTH	Min: 100 cm
	INTERIOR DOORS	Min Width: 90 cm	Min Width: 90 cm Min Height: 210 cm
	WIDTH REQUIRED FOR WHEELCHAIR 1800 TURN	Dimensions: 122 cm x 213 cm	Dimensions: 150 cm x 200 cm

HORIZONTAL ROAMING	CORRIDORS		Min Width: 90 cm.	Min Width: 120 cm Corner width: 150cm x 150 cm Min Height: 220 cm	
	LIFTS		DOOR WIDTH	Min: 80 cm	Min: 90 cm
			CABIN WIDTH	Min: 100 cm	Min: 120 cm
			CABIN LENGTH	Min: 130 cm	Min: 150 cm
			BUTTONS	Height: 90-120 cm	Height: 90-110 cm Max Height: 137 cm
	STAIRS		SHAFT WIDTH	Min: 120 cm	Max: 120 cm
			STRETCHABLE SURFACES IN STAIRCASE	Width: 60 cm Height: Along the steps	Width: 60 cm Height: Along the steps

Continuing of Table 3.2.

3.4. Relationship between Urban and Public Structures

The origin of the word public in the definition of public space is based on the ancient Roman period. The word has gained different meanings over time in different cultures and societies (Geuss, 2007).

Although public spaces have a different meaning for each individual, they are common places where different social groups come together and interact. Public space is a space of sharing and action where people can meet different people than themselves so that they can recognize different people, and that access is not restricted to anyone, and that perspectives from different social and economic groups exist together.

Certain physical conditions need to be ensured for interactions and activities in public spaces; Accessibility should be provided to these places and activities without any barrier. There are some standards or rules that the designer applies when designing for everyone's use. Everybody is taken into consideration when making universal designs. The increase or absence of spatial quality is directly proportional to the provision of these conditions.

3.4.1. Public Transports

Public transport should be available to everyone. Intra-city circulation should be ensured by means of public transport that will allow adults, the elderly,

children, wheelchair users or parents who have a stroller.

The height of the vehicle must be the same or the doors to which the users are going to drive should be connected to the waiting area by ramp. This will be a design that allows everyone to ride and get down easily.



Fig. 3.6. : Public Transport (Bus) Available for Everyone (Töre,2015)

Also in vehicles; the doors should be wide enough for everyone's use, there should be audible warning and informative systems for the visually impaired, and the areas where the wheelchair user or a parent who has a stroller can travel safely and comfortably should be designed.

Stations where public transport is waited should be suitable for everyone's use. Flat, stable, non-slip and long-lasting materials should be preferred in the floor covering of the stops. The height of the benches in the stops can be in the range of 41-46 cm. A minimum of 120 cm clearance should be provided in such a way that the wheelchair or baby stroller next to the benches can dock.

At each stop, there must be a clear and illuminated information sheet indicating which vehicle belongs to that stop, the route number of the vehicle and the name of the route and stop. The height of this plate from the ground should be about 220 cm. The informative panels that should be present in the stops should be 100-130 cm high. The information in the dashboard should be designed by taking into consideration the use of visually impaired persons such as coarse button letters, embossed city map and route plan. Voice recognition devices should be used for visually impaired individuals. (TS 12576, 2012).



Fig. 3.7. : Example of Guide Tracks (Naniopoulos, 1999)



Fig. 3.8. : Orientation of Disabled People with Sensible Surfaces in Urban Rail Stations like Metro (Naniopoulos, 1999)



Fig. 3.9. : Example of Guide Tracks and Routing Elements in Stations and Terminals (DfT, TScot, 2008)



Fig. 3.10. : Braille Alphabet , Audible Warning System (DfT, TScot, 2008)

3.4.2. Sidewalks

In the city, pavements for the pedestrians should be designed for the use of transportation and circulation without the use of vehicles. Particularly for individuals with impaired mobility, such as vision and orthopedic disabilities, safe, clean, unobstructed, smooth and adequate transportation should be provided to increase accessibility.

In order for all pedestrians to move freely, the minimum clear width of the pavement should be 1.5 m. In addition to the net size of the pavement, there should be at least 25 cm of safety beside the property and a 50 cm safety strip on the side of the border. According to the pavement width and road groups, the safety

strips can be up to 50 cm during the ownership and up to 1.2 m on the side of the curbstone (TS 12576, 2012).

The pavement must be non-slip and easy to navigate, there should not be any changes in the level; the floor must be permanent or at the same level (TS 12576, 2012).

In the curb pavement, sensible surfaces should be made so that the visually impaired can safely move on the sidewalk. These sensible surfaces should provide continuity, and for the safety of the visually impaired, there should be no moving objects that restrict movement on pedestals such as pedestal boards, lighting poles, trees, parked vehicles etc. (Fig. 3.11).



Fig. 3.11. : An example of Obstruction for Disabled Person (Self Archive)

There should be no difference in level on the pavements. However, when necessary, ramps should be made to eliminate level differences. The ramps to be constructed on the curb sides should be inclined to three sides. On these ramps, the slope of the ramps on the sides should be maximum 10%, and the slope of the center ramp with stimulus surface should be 8% maximum. The width should be at least 90 cm (TS 12576, 2012).

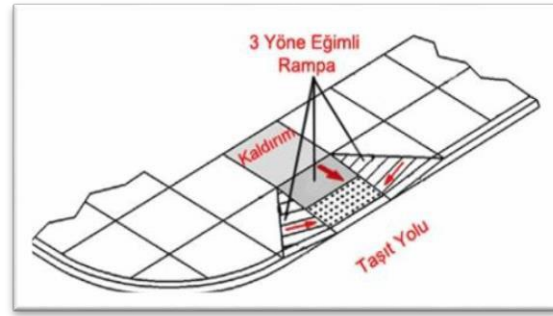


Fig. 3.12. : Three-way Curb Ramp (TS 12576, 2012)

3.4.3. Pedestrian Crossings

According to TS 12576 Turkish standard, pedestrian crossings should be safe and usable for all users including those with limited mobility. In order to facilitate the movement of people with limited mobility, pedestrian crossings that are on the same level as the ground should be planned in pedestrian crossings. The necessary measures should be taken to ensure safe and comfortable use of the pedestrian crossings for all users, especially those with limited mobility including the visually impaired.

Pedestrian crossings are of two types as light controlled or uncontrolled. In traffic-controlled pedestrian crossings, traffic signs should be equipped with colored lights, moving / standing human symbols and sensible surface and audible warnings for the visually impaired. The traffic sign buttons should be 90-120 cm high for the use of wheelchair users. For visually and hearing-impaired users to use them, the buttons must have illuminated, audible and vibrating, distinguishable arrows indicating the direction of the connection (TS 12576, 2012).

Light uncontrolled pedestrian crossings should be equipped with a flashing yellow light that illuminates both vehicles and pedestrians for lighting. Furthermore, for the visually impaired, sensible surfaces should be formed at the beginning and the end of the pedestrian crossing (TS 12576, 2012).

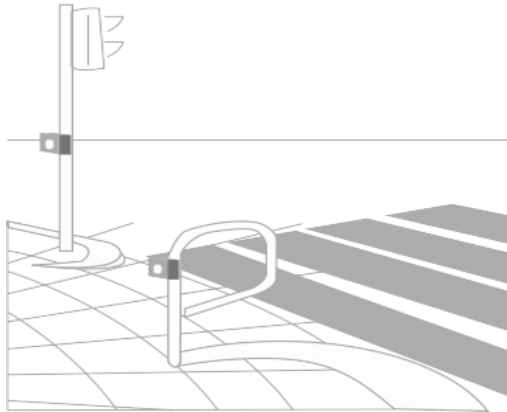


Fig. 3.13. : Button Height in Pelican Crossings (TS 12576, 2012)

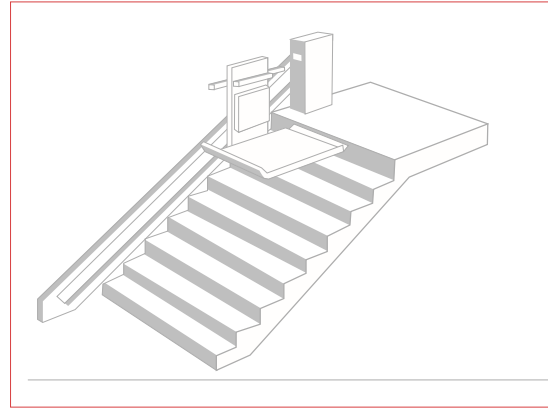


Fig. 3.14. : Curved, Ladder Type Oblique Elevator with Walking Belt (TS 12576, 2012)

If it is suitable for the environment, the slope for underpass and overpass should not be more than 6%. If the ramp cannot be made, an oblique elevator, escalator or staircase should be constructed to ensure that the underpass and overpass can be used by everyone.

3.4.4. Urban Furniture and Equipment

Urban furniture and equipment should be located in suitable places. It should be designed for everyone's use with adequate markings so as not to interfere with movement of the users with restricted mobility. Considering the circumstances of the accident, it must be ensured that the city furniture is not sharp and does not have protruding edges. In order to determine the colors of urban furniture easily, the colors to contrast with the environment should be preferred.

The lowest levels of signs on the pavement should be at least 220 cm high for pedestrian safety. The stairs under 2.2 m must be closed Fig. 3.16. (TS 12576, 2012).

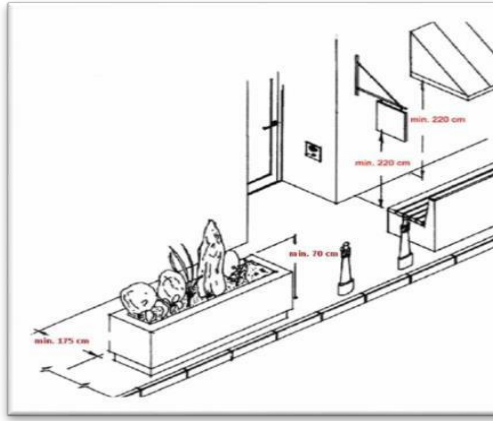


Fig. 3.15. : Head Rescue Distance on Sidewalks (TS 12576, 2012)

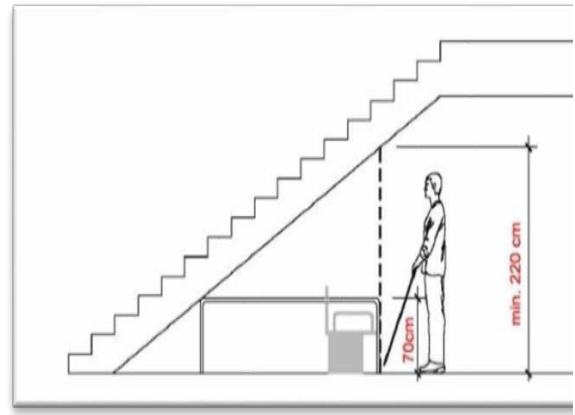


Fig. 3.16. : Steps to be Closed (TS 12576, 2012)

A minimum of 120 cm (Fig. 3.17) space should be provided for wheelchair users or baby carriages beside the seating benches and the floor surface at the entrance of the section reserved for the seating benches should be sensible by the visually impaired. The height of the benches from the floor should be 41-46 cm.

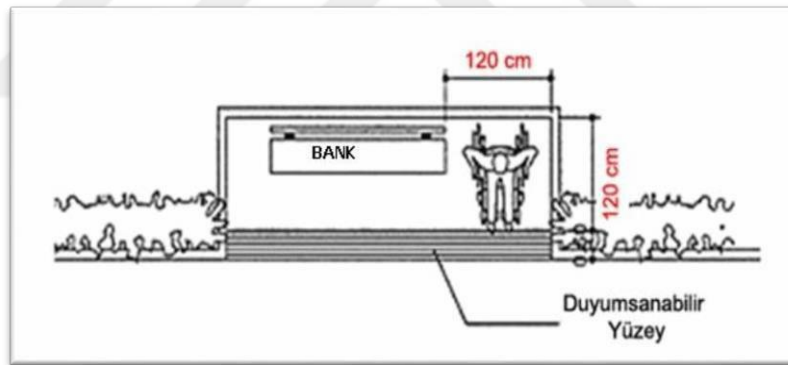


Fig. 3.17. : Plan, Part for Rest (TS 12576, 2012)

3.4.5. Parking

Car parks should generally be located in the immediate vicinity of buildings. Vehicle dimensions, vehicle types and vehicle numbers should be considered.

Parking arrangements should also include parking spaces designed for disabled people. According to the Istanbul parking regulation, it is compulsory to have at least one parking space for the disabled per twenty vehicles in the car park.

This distance should not be less than 30 m and should be securely connected to the building access (TS 12576, 2012).

In order to provide easy access to the vehicle from the wheelchair, between the two handicapped parking spaces, there must be a 150 cm wide, 600 cm long access corridor parallel to the vehicle (Fig. 3.18). If the access corridor and the pavement are not at the same level, this area should be connected to the pavement with a ramp (TS 12576, 2012).

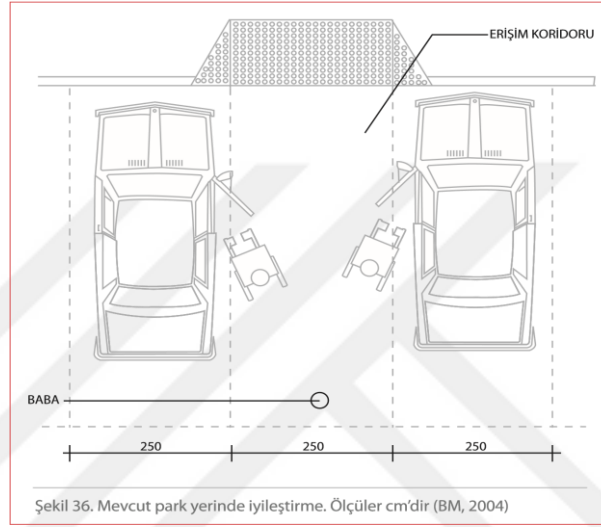


Fig. 3.18. : Parking for Disabled Person (Engelliler için Evrensel Standartlar Kılavuzu, Handbook)

3.4.6. Restrooms

Toilets should be located on an accessible route.

Toilet, urinal and sink must be provided in buildings such as bazaars, passages, shops and hotels for at most 25 people, and public buildings such as cinema and theater must be equipped for a minimum of 50 people, and at least for 1 woman and 1 man and at least 1 woman and 1 man disabled people.

The minimum net floor surface width and depth with the door open is 1,22 m X 1,675 m in the front approach (for a straight transfer); on the right hand side (for diagonal transfer) 122 cm X 142 cm, and on the front and left side (for a side transfer) 1.5 m X 1.42 m. The net width of the toilet seat is at least 92 cm.

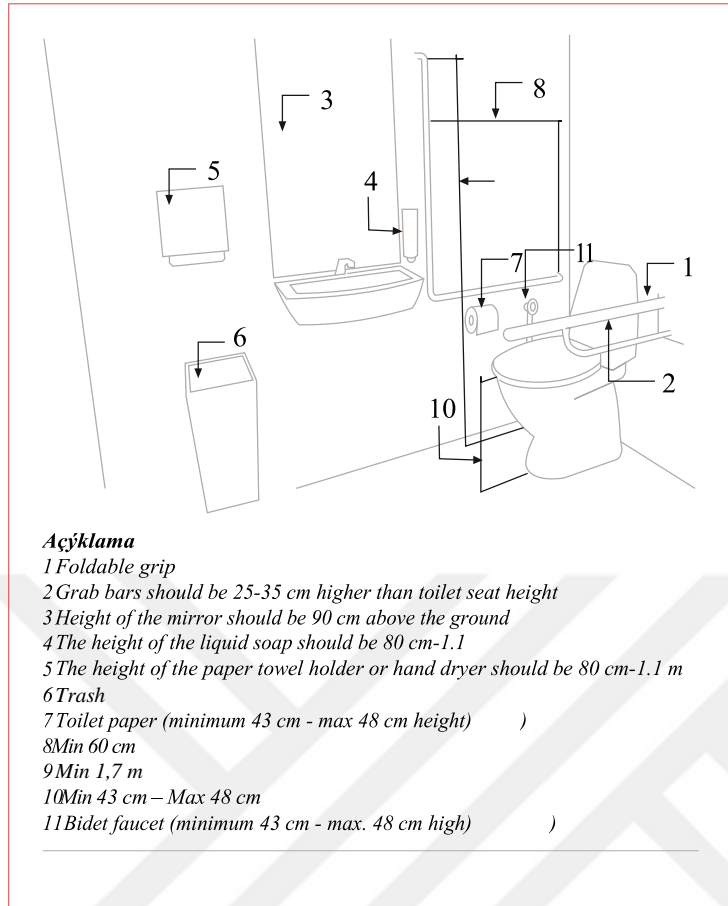


Fig. 3.19. : Example of Disabled Toilet (TS 9111, 2011)

The flooring of the toilets should be arranged in a way that does not interfere with the movement of the wheelchair. Bathroom and toilet expenses should be designed to prevent water accumulation in front of the door. Floor surfaces should be non-slip.

Hinged doors should be opened at least 90 degrees.

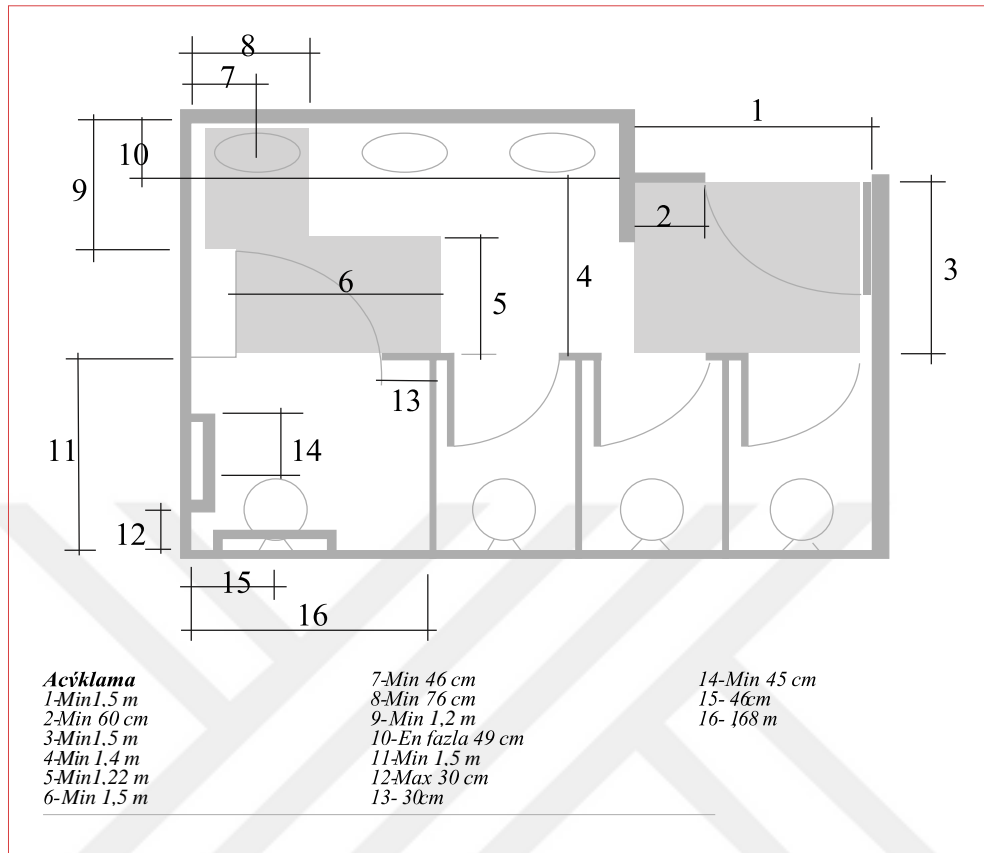


Fig. 3.20. : Public Toilet Plans and Dimensions with Multiple Cabinets (TS 9111, 2011)

It is recommended that the siphon arms be photocell, but they can be manually controlled or automatic. The toilet faucets can be easily managed with one hand and must be within reach.

Stand washbasins should not be used, cabinet should not be placed under the sink. Sinks should not have angular lines. It is necessary to have rounded edges as it will provide the approach with wheelchair.

Armatures (faucet/tap mixer) should be equipped with lever, push type or electronic control mechanism. Faucets and other control devices must be used with one hand and easily.

3.4.7. Entrances

Unobstructed access should be provided to at least one entrance of the buildings. There should be no lighting element or no hanging signboard with height of less than 2.03 m on entry routes to be used by visually impaired or low sighted people. The railing arrangement on the stairs that make up the difference in the denim should not be neglected. “The width of the ramps should be at least 90 cm” (ADA, 1994).

In the pedestrian pavement at the main entrances of the building, apart from the floor covering of the pedestrian path, a separate floor covering of 1.25 m x 1.25 m with a visually impaired texture should be used.

The main entrances of all commercial, public and residential buildings should be separated from the sidewalk. There must be a large hall in front of the building entrances. The building entrance must be made of non-slippery material and should be well lit. If there are stairs in public entrances, ramps should be made for disabled people. Ramps should be located at the beginning and at the end of a separate texture. The entrances and exits to be used by persons with disabilities in public buildings and commercial buildings should be indicated with appropriate signs or symbols (TS 1257, 2012).

3.4.8. Ramps

According to TST 9111, different building levels must be connected with ramps. Ramp surfaces must be hard, non-slip and smooth.

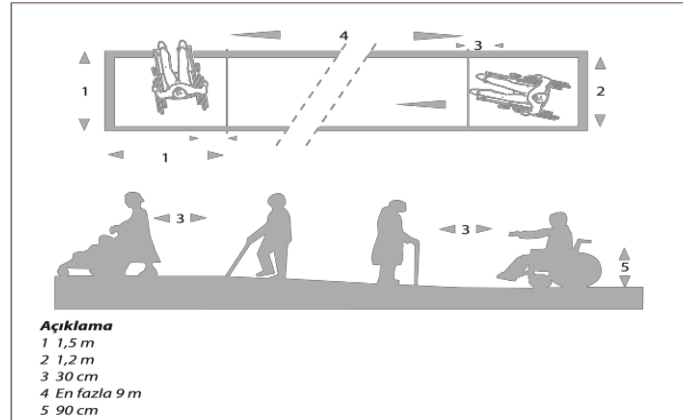


Fig. 3.21. : Ramp on the Pedestrian Route (TS 9111, 2011)

For disabled people with wheelchairs, at least 5 cm high protection border should be installed on the unprotected side of the ramps. Ramps should be located at the beginning and at the end. In public buildings, this net width should be at least 1 m (TS 9111, 2011).

Table 3.3. : Slope of Building Entrance Ramps (TS 9111, 2011)

Maximum Height	Maximum Slope
15 cm and less	1:12 so 8%
Between 16-50 cm	1:14 so 7%
Between 51-100 cm	1:16 so 6%
Over 100 cm	1:20 so 5%

3.4.9. Platform Lifts

Platform elevators are devices for disabled people with vertical and inclined motion. Vertical level elevators can be installed next to the stairs for 2.50 m level changes (Fig. 3.22). (Accessibility for the Disabled, 2003-04).

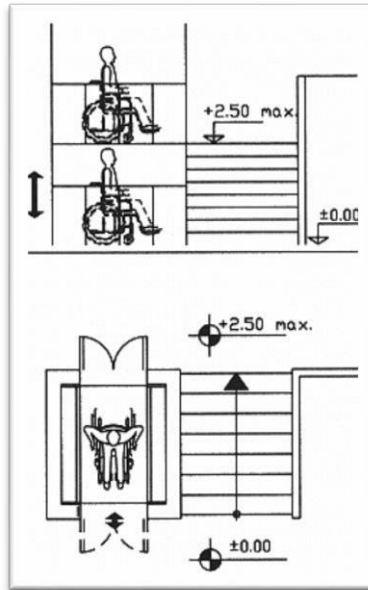


Fig. 3.22. : Vertical Movement Platform Lifts (Accessibility for the Disabled, 2003-04)

Vertical platform lifts can have doors from various locations (Fig. 3.23). (Accessibility for the Disabled, 2003-04).

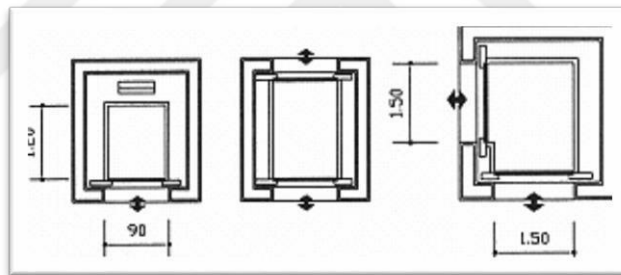


Fig. 3.23. : Vertical Movement Platform Lifts (Accessibility for the Disabled, 2003-04)

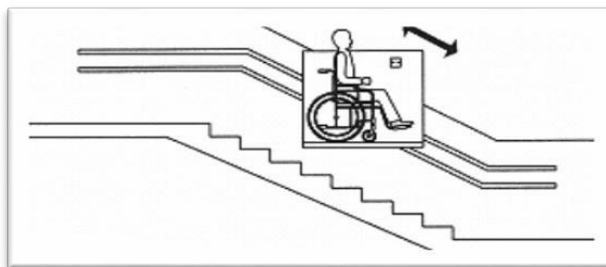


Fig. 3.24. : Inclined Movement Platform Lifts (Accessibility for the Disabled, 2003-04)

Platform elevators can be placed where ramp or elevator construction is not suitable. Inclined motion platform lifts are used to connect one or more floors (Fig. 3.24).

3.4.10. Railings and Handrails

According to TS 9111, both sides of the ramps on both sides of the gap, the gap must be made so that the gap lies only on one side. The wall sides of the ramps should also be handrail.

On ramps with a width of more than 3 m, additional railing should be made in the center of the ramp. The railing should start at least 30 cm before the start of the ramp and must continue for at least 30 cm further from the end.

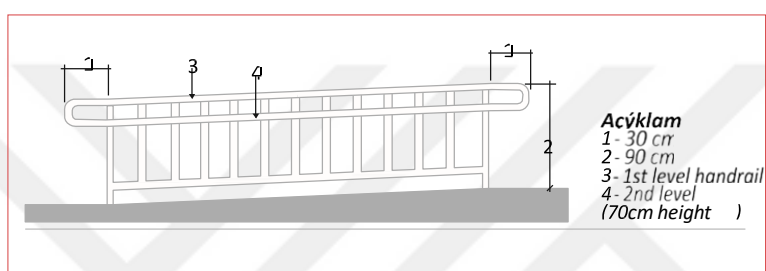


Fig. 3.25. : Handrail Grip Surface Application (TS 9111, 2011)

The handrails must be easily graspable. The railing shall be made of two different heights, 70 cm and 90 cm. The diameter or width of the handrails shall be between 3,2 cm and 4 cm (TS 9111, 2011).

3.4.11. Doors

Accessible doors should be designed to operate with minimal effort in a single movement. Electric doors are best for people with disabilities. But it should be placed easily within reach.

Door types

Automatic doors: It may be either a sliding or swinging type. Useful for intense human entry and exit.

Pivoted doors: Revolving doors are not suitable for disabled people. The revolving doors should turn away from the direction of travel. (Fig. 3.26).

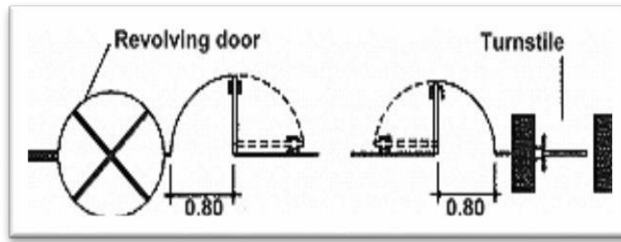


Fig. 3.26. : Pivoted Door (Accessibility for the Disabled, 2003-04)

Sliding and folding doors: These doors are recommended for narrow spaces that are not used extensively by the public (Fig. 3.27). (Accessibility for the Disabled, 2003-04).

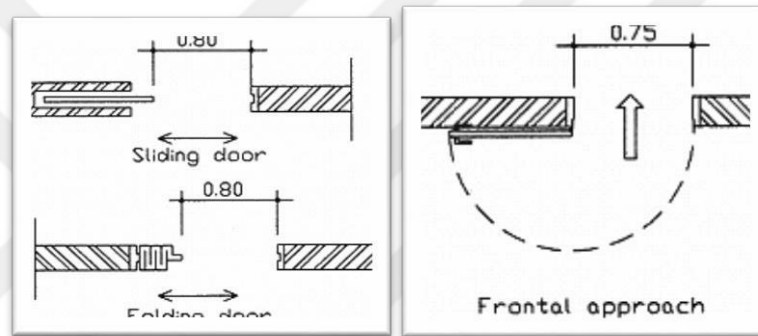


Fig. 3.27. : Sliding and Folding Door (Accessibility for the Disabled, 2003-04)

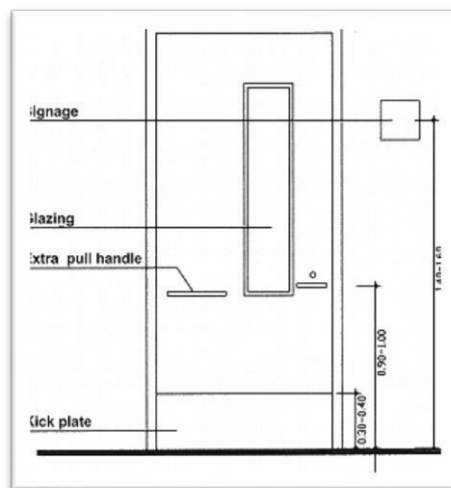


Fig. 3.28. : Example of Door for Disabled People (Accessibility for the Disabled, 2003-04).

3.4.12. Stairs

$2 \times \text{ridge height} + 1 \times \text{step width} = 63 \text{ cm}$ formula should be used and should be in accordance with TS 9111 (TS 12576, 2012).

On the walking surfaces of the stairs rough, non-slip coating should be used. (TS 12576, 2012).

Steps and berths should be shown in separate colors. There should be a non-slip strip with a width of 2,5 cm on the step (TS 12576, 2012).

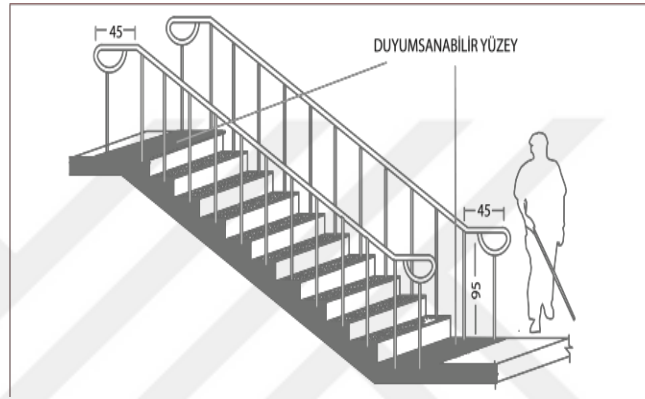


Fig. 3.29. : Berths, Steps and Sensible Surface (Engelliler için Evrensel Standartlar Kılavuzu, Handbook)

For the visually impaired, at the beginning and at the end of the staircase, there should be a 1,2 m long flat surface and a land of different textures. (TS 12576, 2012).

Visible surfaces should be used for visually impaired persons to find and detect stairs. The sensible surface should start just before the first step and at the end of the staircase after the gap up to the stair width. The sensible surface should be at least 60 cm wide, different in color and texture and perceptible (DIN 18024, 1998).

3.4.13. Corridors

The unobstructed net clearance of the corridors in the building should be at least 90 cm and the net height from the ground should be at least 2,2 m. There must be no horizontal or vertical obstacle within this area. This height should also be provided for the stairs at the bottom of the hall.

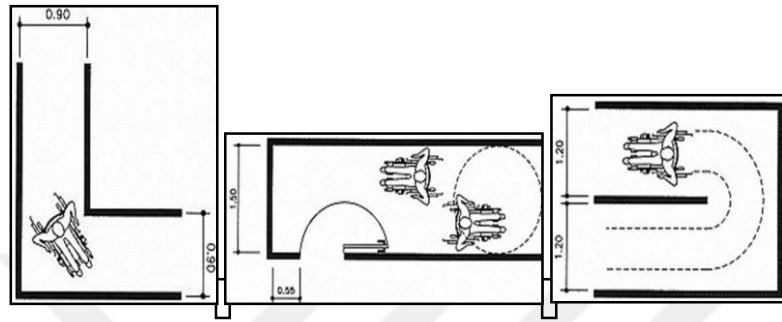


Fig. 3.30. : Circulation Areas Required by Wheelchair Users in Different Types of Corridors (Dimensions are given in meters) (United Nations, 2003)

3.5. Summary

Public is defined by the Turkish language institution as the whole of the people in a country. By the end of the 17th century, it is a word that is open to everyone's control. (Uzun, 2006). Public buildings should be in a way such that everyone from the public can use without discrimination by gender, age, language, religion, physical or mental trait. These structures, which are open to the use of everyone in the community, must be designed to be used by everyone. These buildings gain value by providing accessibility, circulation and availability in the city.

In our country, the things that should be done in order to ensure the participation of disabled people in social life are mentioned in laws and regulations, but it is seen that this is not reflected in the city architecture.

The President of Turkey Disabled Association criticised that the houses were not built in accordance with standards, ramps were generally not built or arranged too steep and narrow to be used, and the passage of disabled people was prevented due to trees, parking vehicles and signs on the sidewalks and roads. In addition, he

stated that the necessary equipment for landing and boarding is not available in usage areas such as stops, stations and airports (Dostođlu and others, 2009).

According to the Chairman of Solidarity Association for Physically Disabled, people with disabilities cannot take a place in Turkey's social life. For example, people with disabilities cannot benefit from services such as cinema, theater, transportation and education. According to Vice President of Turkey Federation of the Blind, floats in the streets, chains, vehicles parked on the sidewalk are creating major problems for pedestrians (Dostođlu and others, 2009).

The universal design aims at the practical and seamless operation of the designed environment for as many people as possible from the outset, where only a few individuals have no special situation, with physical and intellectual changing possibilities. In summary, we can say that a functional design for disabled people will bring positive results.

In the next section, a brief history of public buildings will be discussed. Later in this section, based on data from Turkey and from abroad, giving examples of universal design, two municipal buildings in Ankara will be examined according to the principles of universal design.

CHAPTER 4

PUBLIC BUILDING EXAMPLES AND ANALYSIS WITHIN THE PERSPECTIVE OF UNIVERSAL DESIGN IN THE WORLD & TURKEY

4.1. Historical Process of Public Buildings

Publicity expresses openness to society and usability by the whole society. In this context, urban public spaces where communication, learning and socialization take place in urban life are accessible and used by all the people of the city and provide equal opportunities for all.

The origin of the word public is based on the ancient Roman period. The word of public derived from the word “populous” in Latin and it means “open to everyone.” The word has gained different meanings over time in different cultures and societies (Geuss, 2007).

The first examples of public space can be seen in the ancient Greek period. Generally, public buildings were the market place or common squares where important events such as election and trials were held and used as political gathering places. (Hasol, 1993; Ching, 1996, s.302).

In the Roman period, it is seen that public and private are very parallel and the public space becomes more mystical (Sofuoğlu, 2011). Public spaces during this period are plaza and forums. Plazas are commercial and social common spaces for the city and they have become a multi-purpose space with their intensive commercial life. In larger cities, forums were closed, semi-open and open, and complexes of commercial, religious and political meetings, sports and meeting places (Uzun, 2007).

In Middleages, fountain and market places are public spaces. (Sofuoğlu, 2011).

In Renaissance period, over the course of the development of the city concept, streets, squares and parks began to be a little differentiated and squares became one of the important public spaces of the city and became the center of urban life (Kalçık, 2017).

From the past to present, scientific and technological developments, urbanization and globalization have led to changes in the speed and scale of relations between public and private areas in cities.

Public structures are common structures of all people living together in the city. These are the places open to the public such as hotels, restaurants, hospitals, shopping centers and educational institutions. These structures should be designed in a way so as to enable the availability, circulation and access of all citizens, in accordance with universal design.

Public structures are important in terms of meeting the individual and social needs of urban life, the need for space as well as providing social sharing and cultural continuity. Public structures that contribute to the social and cultural development of the city also serve as identity, character and symbol of the city.

Transportation, circulation and access should be ensured in cities where people from different cultures and societies, in different levels of education and age groups, and people with different physical or mental abilities live together. In this respect, public structures should be designed in accordance with universal design.

4.2. Some Structures Examined In Terms Of Universal Design

In this section, some public buildings samples designed by adopting universal design approach in Turkey and abroad will be analyzed. It is not argued that the examples to be examined are perfectly suitable for universal design. With these examples, it is aimed to see the universal design principles in different public building types.

4.2.1. Laurent House

It was designed by architect Frank Lloyd Wright in 1952 for disabled people. It is a well-equipped office room suitable for wheelchair movement and for the disabled individual to do their own work.



Fig. 4.1. : Courtesy of Frank Lloyd Wright Trust

4.2.2 Baldinger Architectural Studio

Baldinger Architectural Studio, which has an unhindered environment not only for education but also for protecting the health of disabled people. It was designed as a sports and fitness center in 2012 in a field of 45,000 square meters (Fig. 4.3).

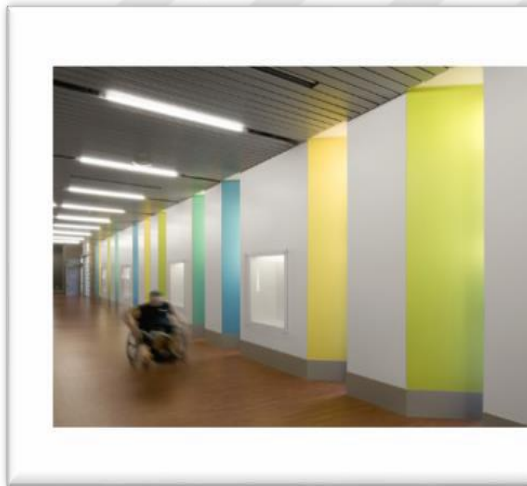


Fig. 4.2. : Baldinger Architectural Studio
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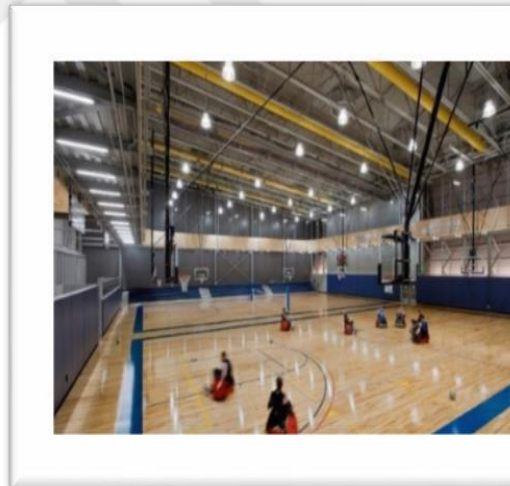


Fig. 4.3. : Baldinger Architectural Studio
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Fig. 4.4. : Hazelwood School for the Handicapped
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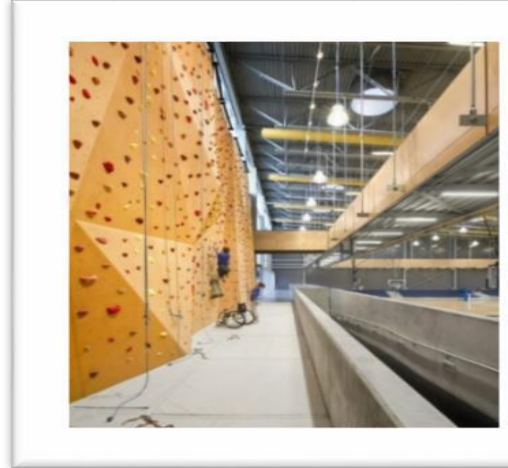


Fig. 4.5. : Baldinger Architectural Studio
<https://gaiadergi.com/erisilebilir-tasarim-mekanin-ozgurlesmesi/>

4.2.3. Hazelwood School for the Handicapped

This school is a successful example in Glasgow. Hazelwood School is designed for children with dual sensory disorders. Hazelwood School in Scotland was designed in 2007 by Gordon Murray and Alan Dunlop. The school provides training to 60 people between the ages of 2-19 with multiple disabilities such as vision, hearing, walking and impaired perception. Since it addresses the student population with more than one disability, it has been thought that it was more common when it was designed (Fig. 4.4).

4.2.4. School of Spastic Children in India

In addition to school education, physical assistance and treatment are also available. The school provides support and education to both children and families with spastic children. In addition, this educational structure serves as an educational and cultural center for those living in rural areas of India.

4.2.5. Access Living Building

Access Living founded in 1980 is located in Chicago, USA. It is a building used by a community that aims to remove the obstacles of equality between disabled

people and other people.

Consultation and waiting areas in the building are arranged considering multiple types of users. The seating area in the waiting area has different seating heights. In addition, due to the presence of people sitting together with wheelchair users, the necessary areas have been left in mind so that wheelchair users are included in the seating plan. The bench is arranged in the form of a table with multiple height measurements for different users. Wheelchair users have a 15-22 cm protrusion to allow them to easily approach the information desk (Fig. 4.6).



Fig. 4.6. : Waiting and Consultation Areas (Access Living, 2016)



Fig. 4.7. : Shelter Entrance with Lift and Fire Resistant Doors (Access Living, 2016)

All rooms in the building are suitable for people with wheelchairs. They also provide sign language interpreters to make the presentations understandable to the hearing impaired, and their location is highlighted with additional lighting to make perception easier.

There are structural elements that provide vertical circulation in the building. There are staircases on two opposite ends of the building as they are intended for emergency escape. The building has two elevators located opposite the stairs near the main entrance. The doors of the elevators are opened to both sides and their usage is made with buttons that can be understood and perceived by everyone (Fig. 4.7). There are two shelter areas on each floor with fire resistant doors positioned next to the emergency escape stairs. Each of these shelters covers approximately six to eight people including wheelchair users. There is a direct connection from the shelter areas to the fire escapes.

When it comes to wet places in the building, it has been examined that the toilets are designed for everyone's use (Fig. 4.8). There are no doors at the main entrances. The washbasins have spaces under which the knees can enter underneath to help wheelchair users. The armatures used in the basins are hand-held. Access Living building is a building designed considering multiple types of users.



Fig. 4.8. : Sink Design Suitable for Everyone (Access Living, 2016)

4.2.6. (Example from Turkey) Forum İstanbul Building

Forum Istanbul is the largest shopping center of Turkey and Europe. Total construction area is 495,000 m². Forum Istanbul building was designed by T + T Design in Netherlands.

In parking areas, different user types should be considered. In Turkey, disabled parking spaces and all parking structures in all indoor and outdoor parking spaces must be prepared in accordance with the regulations. At least one parking lot

with a disabled sign for each of the twenty parks must be provided at the closest access points in all of the public buildings, and access to the lift should also be provided in accordance with the additional clause of the regulation on car parks.

In Forum Istanbul building, the entrances on the covered parking floors are at the same level as the surrounding areas and there are automatic sliding doors opening to the entrance for security. Materials used for the floor coverings are non-slip.

There are advisory desks close to the building entrances. These desks are with different heights to address different types of users. There are signs in the building that can be easily understood by everyone who will determine the orientation.



Fig. 4.9. : Entrance Hall, Corridor and Information Desk (Arkiv, 2011)

There are stairs and elevators in the building to ensure vertical circulation. Elevators and escalators are designed in a convenient width for convenience in vertical circulation for users who may have difficulty climbing stairs such as wheelchair users, parents who use baby strollers, old people, pregnant women, and young children (Fig. 4.10).



Fig. 4.10. : Stairs and Ladders (Arkiv, 2011)



Fig. 4.11. : Urinal and Basin Fixed to Different Heights in Men's Washrooms (Sevük, 2011)

There are wet areas in the building, such as women's / men's toilets, disabled toilets, baby care rooms and family rest rooms. The entrance doors of disabled toilets are opened towards outside. In addition, the height of the handicapped toilet is designed to fit the user and has borders to hold onto (Fig. 4.11).

One of the largest shopping and living centers of Istanbul, Forum Istanbul is a building designed to meet different user needs.

After having examined some of the public building examples with universal design perspective from abroad and Turkey, this section will examine two different municipal buildings located in Ankara.

4.2.7. Etimesgut Municipality Building

Etimesgut Municipality is located in Etimesgut district of Ankara. It was opened in 1990. On the side of the building, there is an open car park arranged for the users with their own vehicles. In addition to the entrance of the building, parking spaces are available for the disabled (Fig. 4.12).

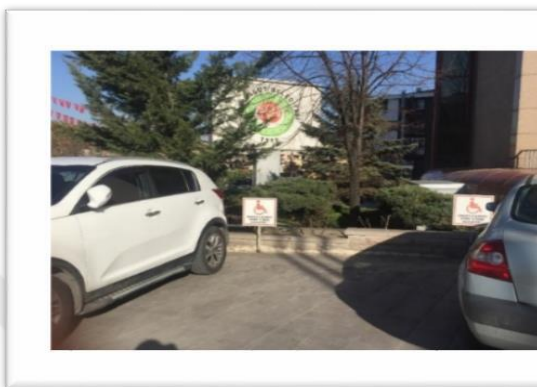


Fig. 4.12. : Disabled Parking (Self Archive)

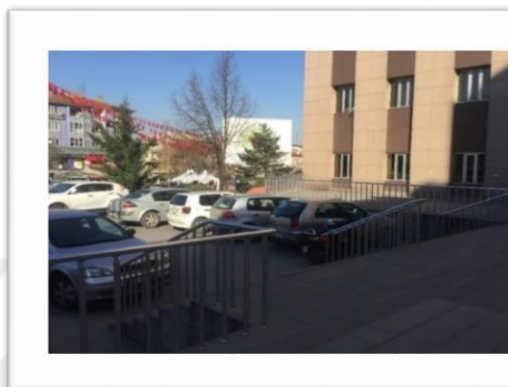


Fig. 4.13. : Parking Arrangement and Connection to the Building (Self Archive)



Fig. 4.14. : Connection of Building Entrance and Disabled Parking (Self Archive)

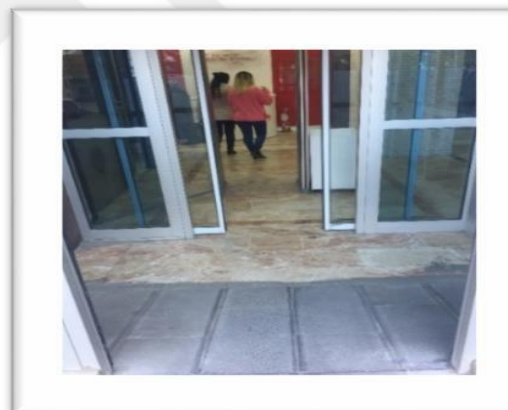


Fig. 4.15. : Building Main Entrance (Self Archive)

Users who prefer public transport should walk at the station to reach the building. However, it will not be easy to reach the building for users especially wheelchair users or parents who use a stroller due to the pavement and road level differences in the area and not being connected by ramps where it is necessary (Fig. 4.13).

There is a level difference between the entrance gate and the surrounding pavement. For this level difference, ramps and stairs are made. However, since the

frontside of the stairs is used as a parking area, the passage area is closed (Fig. 4.14). The pavements around the building are covered with natural stones which are non-slip materials and can be detected on the facade of the entrance of the building. Two sliding doors were preferred for the entrance door. One is used for entrance and the other for exit (Fig. 4.15). The frontside of the building's entrance door is built as a ramp for wheelchair users (Fig. 4.15). The width is suitable for the user.

At the entrance of the building there is a narrow hall with a reception desk. On the left side there is a small area where security is located and on the right side there is consultation. The desk stand is at the height of the standing people (Fig. 4.16). Different user dimensions are not taken into consideration in the design.

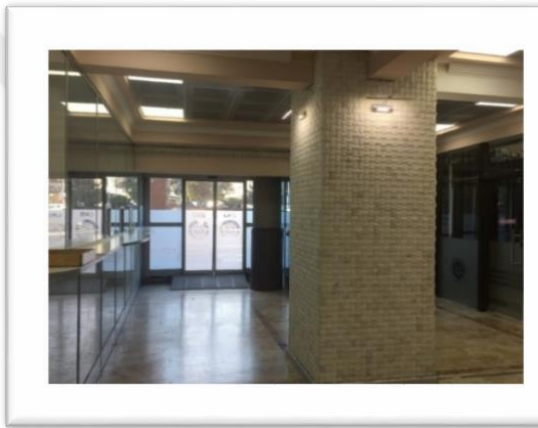


Fig. 4.16. : Information and Security at the Entrance Hall (Self Archive)

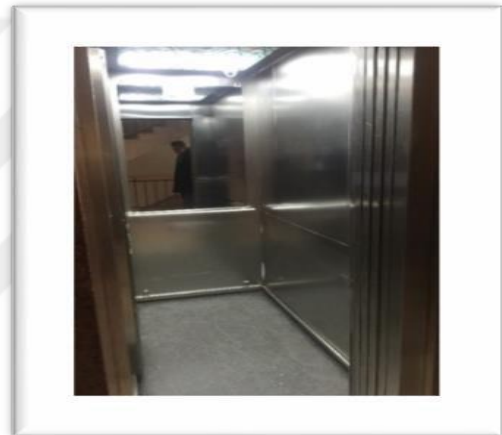


Fig. 4.17. : Elevator and Buttons (Self Archive)

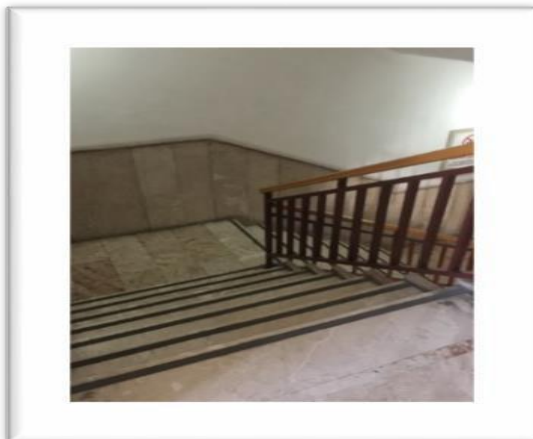


Fig. 4.18. : Staircase (Self Archive)



Fig. 4.19. : Male, Female Toilet Entrance and Internal Arrangement (Self Archive)

In order to ensure horizontal circulation in the building, corridors designed on each floor are suitable for the circulation of users. There are stairs and two elevators on each floor for vertical circulation (Fig. 4.17). Stairs and elevators are perceived from the entrance hall. Lift sizes are not suitable for different user types. There is an audible warning system in the elevator and the buttons have braille lettering for the visually impaired.

There are men and women toilets on each floor (Fig. 4.19). They are designed without considering different user types. There are no disabled toilets and doors are opened inwards.

Within the building, there are areas where people and employees are present. No special seating arrangement is designed for the waiting areas in these areas. Doors to offices are closed and not suitable for wheelchair users. They cannot open the door without help. Employee rooms are generally small, and not comfortable in terms of circulation. There are also no direction signs on the floors.

This building, which is used intensively by the public, was made without adopting a universal design approach.

4.2.8. Yenimahalle Municipality Building

Yenimahalle Municipality is located in Yenimahalle district of Ankara. For the users who will come to the building by public transport, the stops are in front of the city hall (Fig. 4.20). Therefore, they do not need to walk. There are enough ramps on the pavements in the route. Outdoor parking space is available for users arriving by private cars (Fig. 4.21). In this area, disabled parking spaces are located at the entrance of the building for the use of the disabled people (Fig. 4.22).

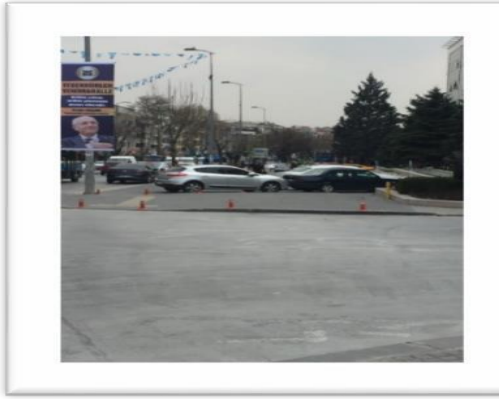


Fig. 4.20. : Sidewalk and Road Route to the Building (Self Archive)



Fig. 4.21. : Outdoor Parking (Self Archive)

There is a small level difference at the entrance of the building. For wheelchair users, this level difference is regulated by a ramp (Fig. 4.23). There are also guide tracks in the floor covering for the visually impaired (Fig. 4.24).

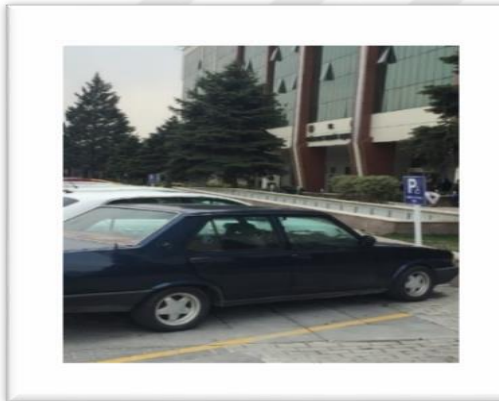


Fig. 4.22. : Disabled Parking (Self Archive)



Fig. 4.23. : Building Circumference and Pavement Connection (Self Archive)



Fig. 4.24. : The Guide Tracks Outside the Building (Self Archive)



Fig. 4.25. : Building Main Entrance (Self Archive)

Revolving door and single leaf door are preferred as the entrance door of the building (Fig. 4.25). The door, which is suitable for all users, opens to the consultation and waiting area. In this area there is an information desk located to the right of the entrance door. It has a height that allows the employee to communicate by sitting with the standing person. But it is the same height as it is designed without considering different user types (Fig. 4.26). In addition, this building has a courtyard and the entrance door opens to this courtyard (Fig. 4.27).

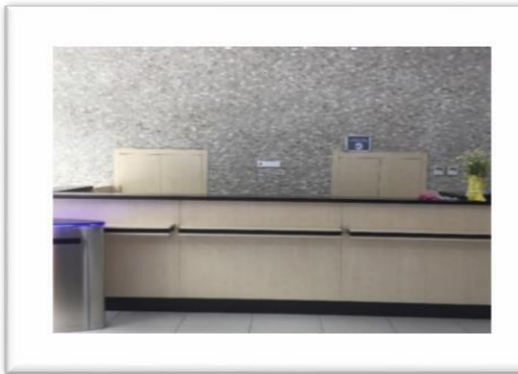


Fig. 4.26. : Security and Entrance Desk (Self Archive)



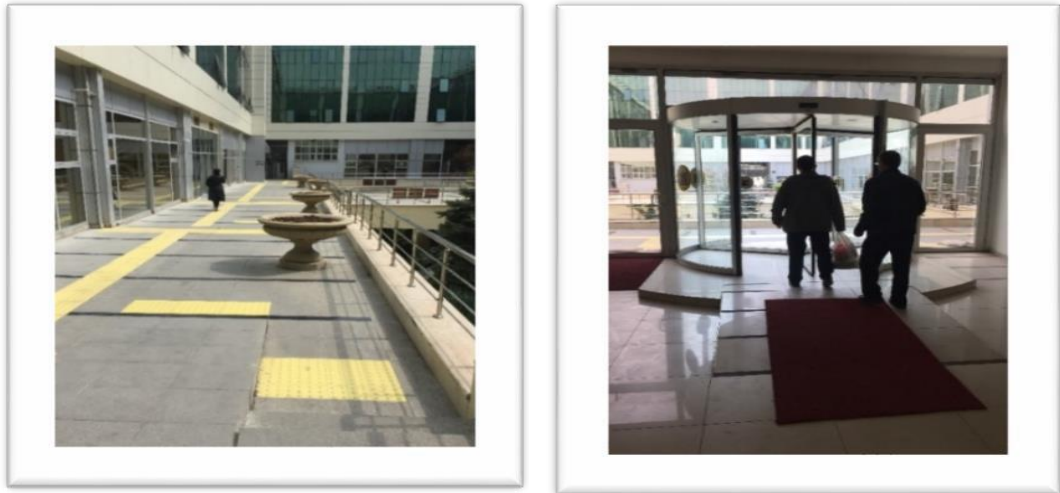


Fig. 4.27. : Courtyard (Self Archive)

The corridors are large enough for circulation, but there are no seating areas for wheelchair users or parents with baby strollers on the floor. Horizontal circulation is provided by halls located on each floor (Fig. 4.28).

There are stairs and two elevators located next to the building for vertical circulation (Fig. 4.29). The stairs and the lift are easily detected. The elevator has an embossed lettering and an audible warning system on the buttons for the visually impaired.

Each floor has one man's, one woman's and one for the disabled toilet (Fig. 4.30). There are no guide marks in the building. Signs are not provided with braille for visually impaired people.

When we look at the Yenimahalle Municipality building in general, it is seen that design and usage are not suitable for universal design approach.

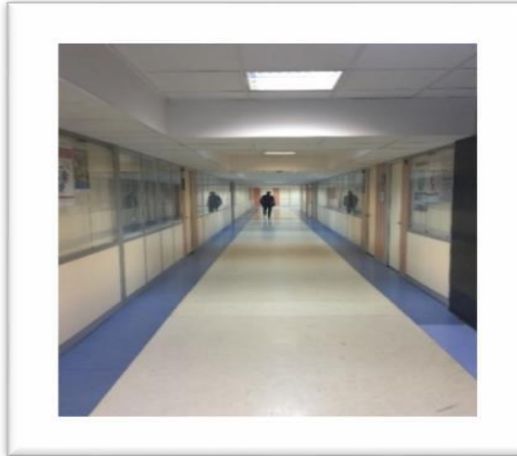


Fig. 4.28. : Corridor and Offices (Self Archive)

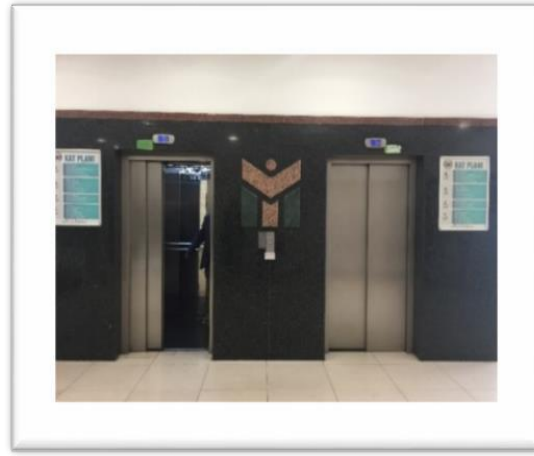


Fig. 4.29. : Elevators in the Building (Self Archive)



Fig. 4.30. : Staircase in the Building (Self Archive)



Fig. 4.31. : Male, Female Toilet and Internal Arrangement (Self Archive)

4.2.9. Comparison of Turkish Municipal Structures and Findings: Etimesgut and Yenimahalle

The aim of this thesis is to emphasize the importance of universal design for the disabled people. The two public buildings in Ankara were examined together with their environs. In this section, the comparison of the structures examined under the main headings of accessibility, circulation and availability is stated in Table 4.1.

Table 4.1: Comparison of Examined Public Buildings in Ankara

		YENİMAHALLE MUNICIPALITY	ETİMESGUT MUNICIPALITY
	Purpose of	TOWN HALL	TOWN HALL
ACCESSIBILITY	Transportation Status	By public transport, you can get off at the station and reach the building on foot or by private vehicles.	By public transport, you can get off at the station and reach the building on foot or by private vehicles.
	Near Surroundings	Sidewalks, ramps, pedestrian crossings are sufficient for access to the building and are designed for everyone's use.	The pavements, ramps, pedestrian crossings for access to the building are inadequate and not designed for everyone's use.
	Parking Lots	Outdoor parking is available and the disabled parking is located close to the building entrance.	Outdoor parking is available and the disabled parking is located close to the building entrance. But there is a staircase between the handicapped car park and the building entrance.
CIRCULATION	Building Inputs	The level difference between the building and the pavement around it is eliminated by a ramp.	There is a level difference between the building entrance and the car park. This level difference is eliminated by ramps and stairs.
	Main Entrance Door	On the same front, there is one revolving door and one single door. The single-leaf door is designed for the disabled to reach the building.	There are two sliding doors on the same front. One is for the input and one for the outputs. Width is not suitable for different users.
	Horizontal Circulation	Horizontal circulation is provided through the corridors on each floor. Corridor widths are suitable for different user types.	Horizontal circulation is provided through the corridors on each floor. Corridor widths are suitable for different user types.
	Vertical Circulation	In the building, vertical elevation is provided by two elevators and stairs in each floor.	In the building, vertical elevation is provided by two elevators and stairs in each floor.
AVAILABILITY	Desk and other Counters	The height of each bank is designed to fit the standing size. There are no different heights for different users.	The height of each bank is designed to fit the standing size. There are no different heights for different users.
	Waiting Area	A special seating arrangement is not designed. There are seating furniture of the same type placed in the circulation areas.	A special seating arrangement is not designed. There are seating furniture of the same type placed in the circulation areas.
	Wet Locations	There are men, women and disabled toilets on each floor.	There are male and female toilets on each floor. Disabled toilet is not available.

The findings of Etimesgut and Yenimahalle Municipal Building can be summarized as follows:

In terms of accessibility, it is seen that transportation can be provided either by public transportation or by private vehicles. When we look at the Etimesgut Municipality building, it was found that the pavements, ramps and pedestrian crossings on the road route to the buildings were inadequate and not suitable for everyone's use. There are outdoor car parks arranged around the buildings for users who reach the buildings with their private vehicles.

When the buildings were analysed in terms of circulation, it was seen that different users were taken into consideration while exceeding the level differences between the entrance gates and the surrounding parking lots or pavement. The main entrance of Etimesgut Municipality is not large enough for different users. In Yenimahalle Municipality, the main entrance door is a revolving door and the next door is a normal door for different users. It has been determined that for the horizontal circulation in Yenimahalle Municipality building, there are large areas suitable for use by everyone. For vertical circulation, staircases and elevators are located in all of the buildings examined.

In terms of availability, it is seen that there are benches where service providers and public can communicate one by one. The design of these benches is not accessible to everyone. In both buildings, a waiting area is not considered. When looking at wet areas, there are disabled toilets on each floor in Yenimahalle Municipality. In the Etimesgut Municipality, while there are man and woman's toilets on each floor, there is no disabled toilet.

In this study, which emphasizes the importance of universal design for disabled people in public buildings, data were collected as a result of researches and investigations. In the next section, according to the collected data and investigations, Bağlıca Engelsiz Yaşam ve Rehabilitasyon Merkezi (Bağlıca Rehabilitation and Wellness Center for Disabled People) will be evaluated from a universal design perspective. As a result of the examinations and evaluations to be made, suggestions regarding the building and its surroundings will be presented.

CHAPTER 5

EXAMINATION OF THE CURRENT STATUS OF THE CASE STUDY AREA: BAĞLICA REHABILITATION AND WELLNESS CENTER FOR DISABLED PEOPLE (BAĞLICA ENGELSİZ YAŞAM VE REHABİLİTASYON MERKEZİ)

The research is conducted mainly in two ways; the building of Bağlica Rehabilitation and Wellness Center for Disabled People is examined according to international and Turkish Standards of Disability Design.

Two types of questionnaires were conducted. One of them is for architects and interior designers, and the other is for disabled families and disabled trainers. Architects were asked questions about their personal information such as professional experience. Personal opinions about applications for disabled people in projects and design were asked how much importance is given to the disabled in Turkey.

In the second questionnaire, questions were asked to educators interested in people with disabilities and to families with disabilities who are in Bağlica Rehabilitation and Wellness Center for Disabled People. All of the answers obtained were examined for a general evaluation. In addition, the problems encountered were identified and suggestions were developed to enable disabled individuals to participate more actively in society. Questions regarding the vertical circulation, horizontal circulation, furniture, information boards, rooms, toilets and parking lots were asked to the disabled families and disabled trainers.

The main objective of this thesis was to emphasize the importance of universal design in public buildings for the disabled, as well as the examination of the suitability of existing public structures with universal design principles. In accordance with this objective, a comprehensive literature survey was conducted in the second and third parts of the thesis.

The exemplary public building to be discussed in this context is the Bağlica Engelsiz Yaşam ve Rehabilitasyon Merkezi (Bağlica Rehabilitation and Wellness Center for Disabled People).

5.1. Ankara Bağlıca Rehabilitation and Wellness Center for Disabled People (Bağlıca Engelsiz Yaşam ve Rehabilitasyon Merkezi) and Architectural Examination from the Perspective of Universal Design

Bağlıca Engelsiz Yaşam ve Rehabilitasyon Merkezi (Bağlıca Rehabilitation and Wellness Center for Disabled People) was built by Etimesgut Municipality in 2018. The architect of this building is Hamza DAĞHAN. It consists of five blocks, A, B, C, D and E.

The purpose of this facility is to build an exemplary structure for disabled citizens to gain occupation, stay with their families and socialize.

The goal is to enable disabled citizens to acquire a profession and to be instrumental in having a social life. As a result of completing the necessary trainings, they start their business life together with their certificates and become a part of the social life as responsible individuals.



Fig. 5.1. : Disabled Parking (Self Archive)



Fig. 5.2. : Parking Entrance (Self Archive)

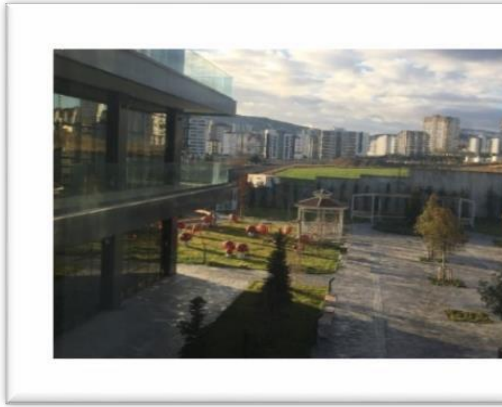


Fig. 5.3. : Garden of the Disabled and the Rehabilitation Center (Self Archive)



Fig. 5.4. : Balconies of Blocks Automatic Sliding Gates for Passage to Halls and Blocks (Self Archive)

Users and employees often prefer to reach the building with private vehicles. There is an open car park on the front and rear sides of the building, but it is insufficient. In addition, there are only four disabled parking spaces in front of the building (Figure 5.1).

Users who prefer public transport to reach the building should walk from the bus stop to the building. For users in the building (especially wheelchair users or parents who use a stroller) it will not be easy to reach the building because pavements in the area are not connected with ramps, and pedestrian crossing arrangements are few.

In the garden there are camellias for disabled people and their families. There are also traces on the ground to guide the visually impaired. Children with disabilities can play in the park.

The facades are usually made of glass because it is thought that disabled people can see the outside more easily and be psychologically relaxed.

It has long balconies that are open. Even if these balconies are surrounded by a glass railing, they can be a danger to the disabled people.

The pavements around the building are covered with non-slip natural stones. The entrance of the building can be detected on the facade. Also the width is limited and not suitable for wheelchair users.

The transition halls are designed, and a wide transition area is provided to the users. Here, the ground material is PVC (Figure 5.4). Two or three patient seats are placed in the corridors to prevent any accidents and emergencies.

At the entrance of the building there is a large hall with a reception desk. Different user dimensions are taken into consideration in the design of the desk (Figure 5.5).

Automatic sliding doors are used from the entrance hall to the blocks. The width of these sliding doors is suitable for different types of users. Halls and corridors designed on each floor to ensure horizontal circulation in the building are suitable for the circulation of users.

After entering the blocks, the stairs and elevators are easily accessible. Stairs are not clearly visible in the building. The doors opening to the staircase hall must be used to ensure access. The elevator sizes are suitable for different users.

There is a special seating arrangement for the waiting areas. All living rooms of the same type are located in circulation zones. These furniture are suitable for wheelchair users or parents with strollers (Figure 5.6). There are different units on all floors and a waiting area is arranged in many places. The height of the counter is suitable for standing human dimensions.

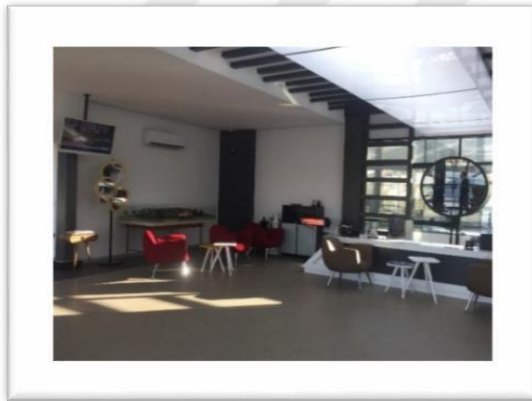


Fig. 5.5. : Reception Desk at the Entrance Hall (Self Archive)



Fig. 5.6. : Waiting Area in Floor Halls (Self Archive)

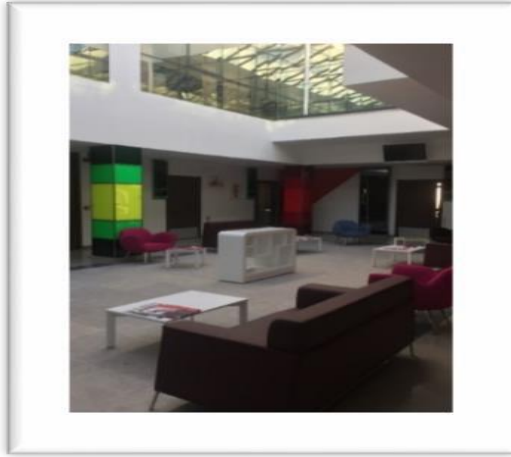


Fig. 5.6. : Waiting Area in Floor Halls (Self Archive)

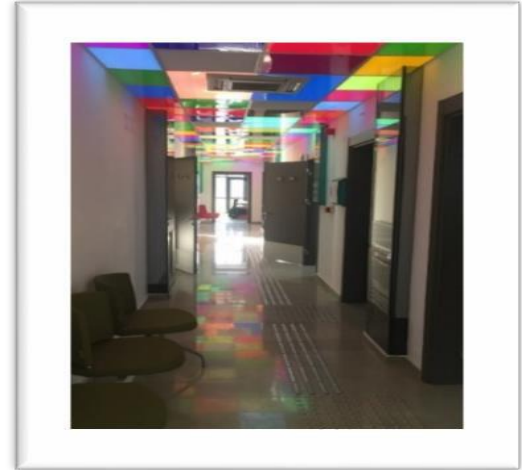


Fig. 5.7. : Hall (Self Archive)

In some blocks, spaces such as inner gardens have been designed for their relatives. Those who want to relax can also watch TV and read a book.

Some of the columns in the building are covered with colored plexies and the environment is made fun. Because the psychological condition of the patients and their relatives is important in the treatment process.

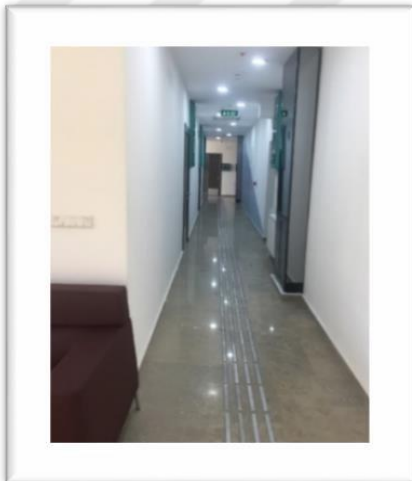


Fig. 5.8. : B Block Corridor (Self Archive)

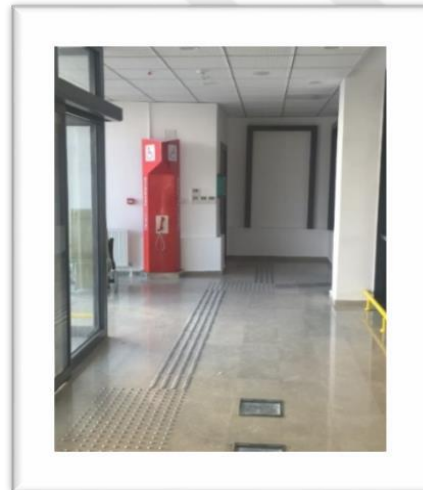


Fig. 5.9. : Hall (Self Archive)

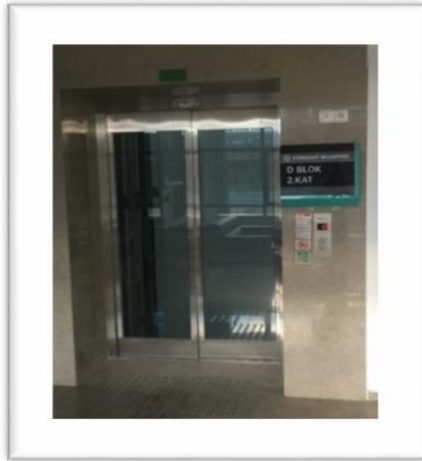


Fig. 5.10. : Elevator (Self Archive)

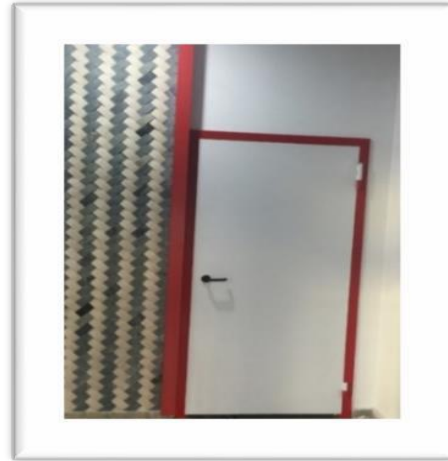


Fig. 5.11. : Fire Door (Self Archive)

Block B is opened with an automatic sliding door and the information desk is displayed. There are also tracks on the ground to guide the visually impaired. However, when we look at the corridor, the wheelchair and the width for a person to pass easily are insufficient (Figure 5.8). Users have to maneuver.

The wooden doors are single leaf and open outwards. The dimensions of the doors are suitable for every user.

A yellow warning is placed in front of the windows for the safety of wheelchair users and people with mental disabilities.

The elevators have easy-to-use handling system by everyone (Figure 5.10). The fire escape doors open outward but are inside the building. Because there is no fire escape outside the building, the staircases inside the existing building were closed and turned into a fire escape. The fire escape stairs are made of non-slip material and the railing is 90 cm high. On the other side, borders are also made for the disabled.

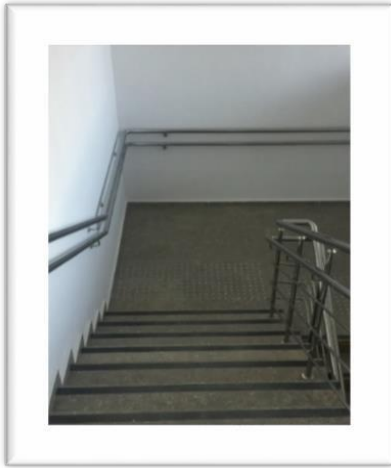


Fig. 5.12. : Stairs in the Building (Self Archive)



Fig. 5.13. : Auditorium (Self Archive)

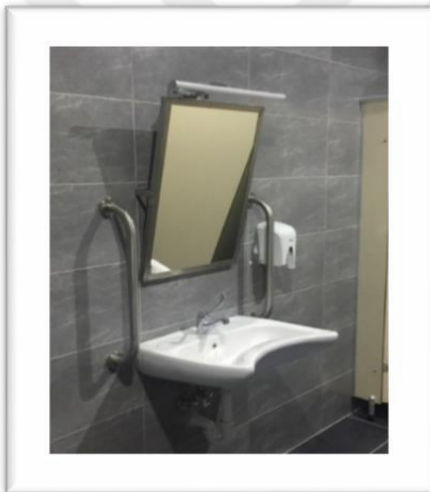


Fig. 5.14. : Disabled Toilet (Self Archive)



Fig. 5.14. : Disabled Toilet (Self Archive)

The conference hall is located in B block with a capacity of 200 people. Some seats are colored, like some columns. The flooring is covered with carpet. On the left side of the stage, there are electric elevators for wheelchair users (Figure 5.13). Installation places are covered with smoked mirror cabinet.

In the building, the man, woman and disabled toilets are gathered together. The toilets on each floor have standard dimensions. It is designed according to different user types (Figure 5.14). The entrance door of the disabled toilets is opened to the outside and the width is suitable for the user.



Fig. 5.15. : Information Signposts Designed Differently (Self Archive) **Fig. 5.16. :** Crisis Room (Self Archive)

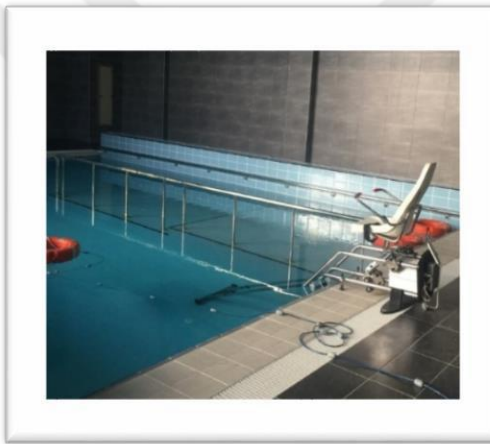


Fig. 5.17. : Hydrotherapy Pool (Self Archive) **Fig. 5.18. :** Rehabilitation Room (Self Archive)

Toiletries for disabled people are for one person. It has a sink and a toilet. There are handles next to the toilet. The toilet mirror is inclined for disabled people.

There are symbols hanging at the entrance of the toilet and perceived by everyone in the same way. The width of the entrance door for the disabled toilet is suitable for the entrance of the wheelchair user.

The crisis room is designed to prevent people with a mental disorder from disability during the crisis. Door and all walls are covered with sponge.

5.2. Conclusion of Architectural Analysis of the Building

The table prepared according to the determined headings explained in the method section is filled with the findings obtained as a result of the investigations carried out in the Bağlıca Engelsiz Yaşam ve Rehabilitasyon Merkezi (Bağlıca Rehabilitation and Wellness Living Center for Disabled People). Accordingly, the current situation of the building and its immediate surroundings under the main headings of availability, circulation and access is summarized.

Table 5.1: Findings Obtained from the Examination of the Building of the Bağlıca Rehabilitation and Wellness Center for Disabled People

		Wellness and Rehabilitation Center (Engelsiz Yaşam ve Rehabilitasyon Merkezi)<Z
	Purpose of	Rehabilitation Center
Accessibility	Transportation Status	After getting off at the stops in the area by public transport, you can reach the building on foot or by private vehicles.
	Near Surroundings	The pavements, ramps and pedestrian walkways in the walkway leading to the building after landing are insufficient and are not designed for everyone's use.
	Parking Lots	Outdoor car parks are planned on the front and rear of the building. However, since the access to the building was mostly provided by private vehicles, these car parks were insufficient. For this reason, users park their vehicles on the empty side of the right side and rear facades of the building.
Circulation	Building Inputs	There are two facades, front and rear. The E and B block have their own entrances on the rear facade. On the front there is a common entrance area connecting 4 blocks.
	Main Entrance Door	The main entrance door, which is highlighted by eaves, is designed as a sliding glass automatic sliding door. Door widths are suitable for everyone.
	Horizontal Circulation	Corridors and hallways are placed in the necessary places between the doors. The width of these doors is suitable for everyone's use. Room entrances are usually provided with single-leaf doors. The entrance doors of the rooms such as the conference hall are more spacious.
	Vertical Circulation	Each block has a staircase and an elevator. The elevators are close to the entrance doors of the blocks. The staircases in blocks D and E were closed and turned into a fire escape.

Availability	Desk and Other Banks	The heights of the banks are designed according to the standing human size. The different features for different users at the banks are considered.
	Waiting Area	The waiting area is arranged in many places on all floors.
	Wet Locations	Each floor has man, woman and disabled toilets.

Continuing of Table 5.1

5.3. Survey Methodology and Analysis

Questionnaire is prepared to understand their acceptance and satisfaction of the building in terms of universal design.

Survey is carried out with two types of method. The first one is about the users and the personnel of the building. During most crowded day of the building (Monday and Wednesday), with random available method 50 family members were questioned. They filled the questionnaire (Appendix A). Most of the subjects voluntarily filled the questionnaire.

The results are as follows, section (5.4)

The other research part is again with questionnaire to architects. The aim of the questionnaire (Appendix B) is to see if the architects have any information about universal design and disabled person design, and if they apply these criteria in their designs and their experiences. The questionnaire have been posted to 50 architects. 3 of them did not respond.

The evaluation of the questionnaire is explained in section 5.4.

5.3.1. Questions to Architects

Architects and interior designers working in the public sector, in their own office or in the private sector were selected, and questions about universal design were asked face to face.

5.3.2. Questions to Personnel

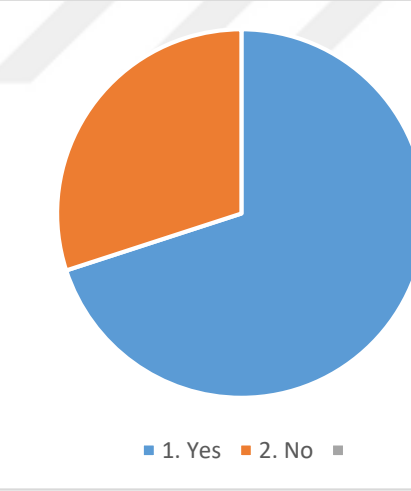
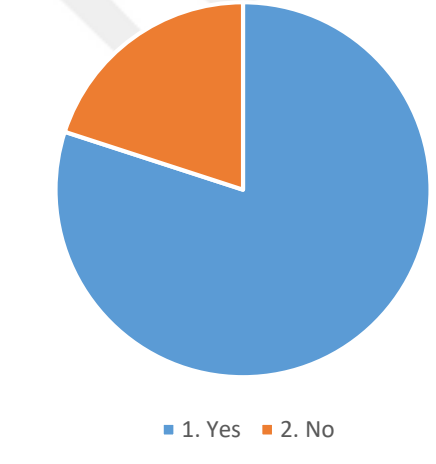
A face-to-face questionnaire was conducted to the trainers and their families working at Bağlıca Engelsiz Yaşam ve Rehabilitasyon Merkezi (Bağlıca Rehabilitation and Wellness Center for Disabled People).

5.3.3. Questions to Users

All users were scheduled to participate in the survey. However, since the families usually brought their relatives to classes between 11:00-15:00, a survey was conducted within this time interval. The purpose of the questions asked to the families of the disabled is to identify the problems faced by users and relatives in the building and to find solutions to them.

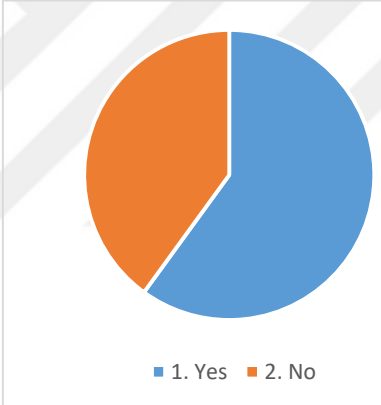
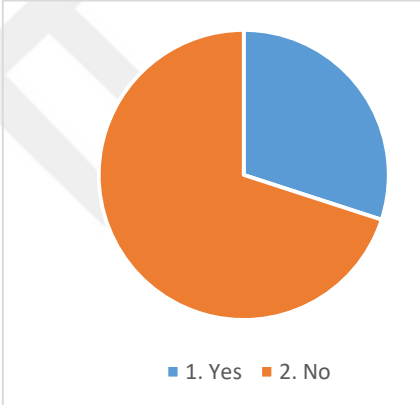
5.4. Survey Measurement and Results

Table 5.2. : Questions to Architects

Questions	Did they see and apply the design rules for the disabled in their design classes during their training?	Does your office specify criteria for disability design (related to domestic-foreign standards), books, documents?
Architects & Interior Architects	<p> ■ Yes % 70 ■ No % 30 </p>  <p style="text-align: center;"> ■ 1. Yes ■ 2. No ■ </p>	<p> ■ Yes % 80 ■ No % 20 </p>  <p style="text-align: center;"> ■ 1. Yes ■ 2. No </p>
Results	<p>During the learning process, 70% of the architects said that they saw the design rules for the disabled during their education and applied them in their own projects.</p>	<p>It was observed that employees in the offices had 80% of the required knowledge about the design criteria for the disabled. According to the results of the survey, although there are documents and regulations in many offices, only WC dimensions, ramps and</p>

		<p>general information are known. In addition, regulations released on the internet are constantly changing in Turkey.</p>
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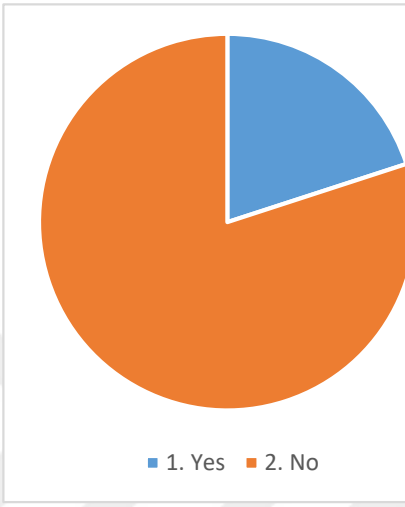
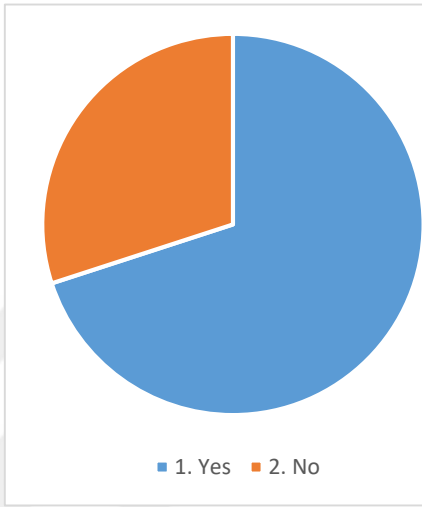
Continuing of Table 5.2.

Questions	Do you think that the employees in your office are aware of the design criteria for disabilities?	Does the customer want the needs of disabled people to be taken into account in dealing with private individuals?
<p>Architects & Interior Architects</p>	<p> ■ Yes % 60 ■ No % 40 </p>  <p style="text-align: center;"> ■ 1. Yes ■ 2. No </p>	<p> ■ Yes % 30 ■ No % 70 </p>  <p style="text-align: center;"> ■ 1. Yes ■ 2. No </p>

Results	40% of architects in Turkey do not have any information about the criteria for people with disabilities. 60% stated that they had very little information.	Customers do not want to consider 70 % of the needs of disabled people to be taken into account when they do something special for them. However, even if the customers do not desire, the architects state that they consider the necessary requirements according to the regulations and needs. Designers step into the design by asking the customer questions such as average size, whether there are any obstacles or not. Some employers are thought to limit the designer. Designers say that their employers see special designs as unnecessary costs and they don't want to do things like disabled lifts or ramps.
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Continuing of Table 5.2.

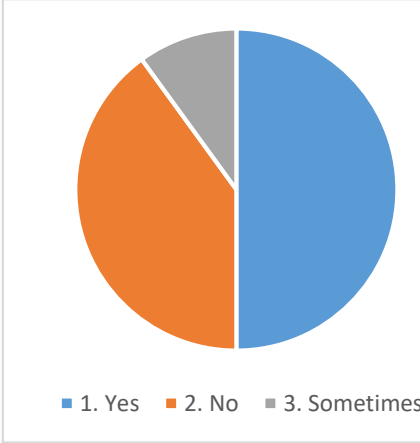
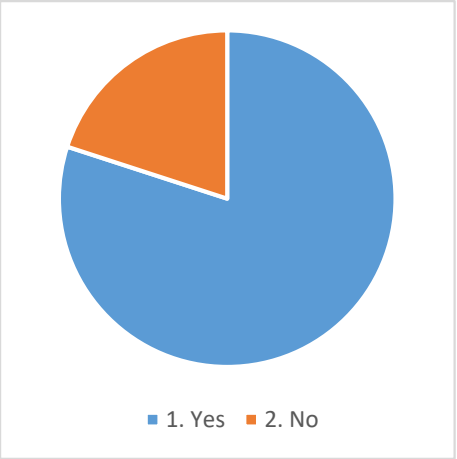
Questions	Do private institutions want the needs of disabled people to be considered? a. If yes, who controls how you are doing in this project? b. If no, would you consider this in your projects?	Does the public want the needs of people with disabilities to be taken into account? a. If yes, who controls how you are doing in this project? b. If no, would you consider this in your projects? c. Particularly in public projects, demand for people with disabilities may come, but did you not fulfill the requirements due to constraints such as time and funding during the project?
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		d. What were the reasons behind your failure to implement the requirements for people with disabilities?
Architects & Interior Architects	<p> ■ Yes % 20 ■ No % 80 </p>  <p> ■ 1. Yes ■ 2. No </p>	<p> ■ Yes % 70 ■ No % 30 </p>  <p> ■ 1. Yes ■ 2. No </p>
Results	<p>According to the survey results, private institutions do not take into account the needs of disabled people by a percentage of 80%. The building is inspected by the building inspection and municipal teams during the project licensing and settlement phase. When it is taken into consideration by the architects, the importance of private institutions is around 90%, but it is also mentioned that there is low community</p>	<p>70% of public sector pays attention to the needs of people with disabilities in Turkey. Responsible architects, consultant firms and reporters control the projects. Most designers say municipalities have strict rules but do not inspect them when it comes to construction. In addition, there are no disability criteria included in the contracts. Particularly in public projects, demand for people with disabilities can often arise, but 30% of architects say it is not</p>

Continuing of Table 5.2.

	<p>awareness on this issue in Turkey.</p>	<p>implemented due to constraints such as time and funding. For example, it can be canceled in cases where the ramp takes up a lot of space. Or where there is no ramp, the disabled lift is canceled because it is expensive. In addition, some architects said that some of the reasons for not being able to implement the requirements for people with disabilities were spatial inadequacies, improper state of the building in restoration projects, which adversely affect the design.</p>
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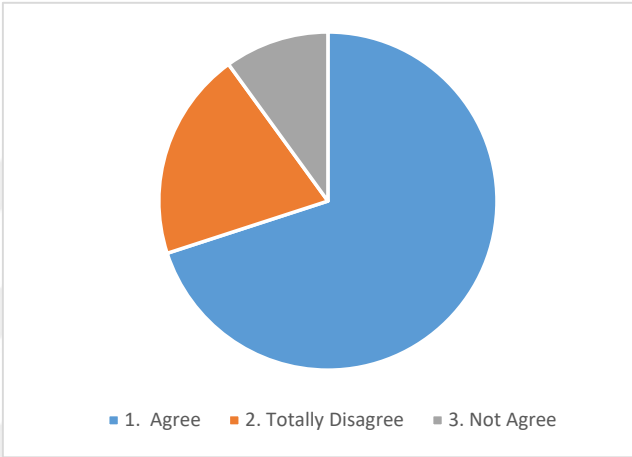
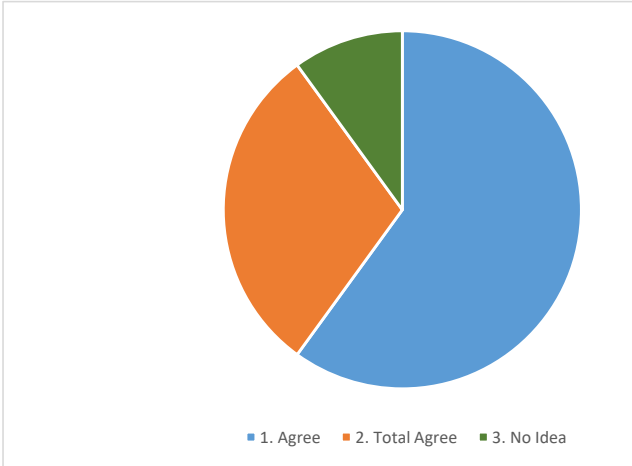
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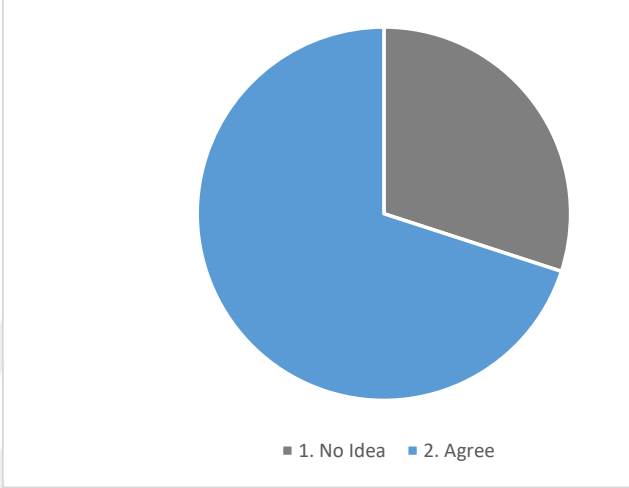
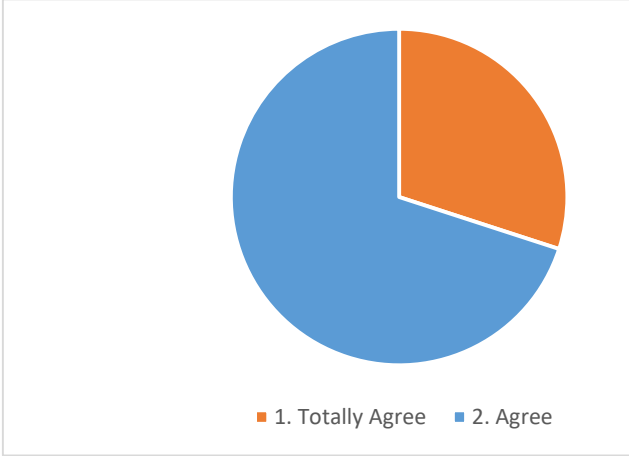
Questions	Have you ever done any project that is fully accessible to the disabled? How many? Or how many projects?	Would the employer be more willing to do a disability project if the controls were tighter? If yes, why not?
Architects & Interior Architects	<p> ■ Yes % 40 ■ No % 50 ■ Sometimes % 10 </p>  <p> ■ 1. Yes ■ 2. No ■ 3. Sometimes </p>	<p> ■ Yes % 80 ■ No % 20 </p>  <p> ■ 1. Yes ■ 2. No </p>

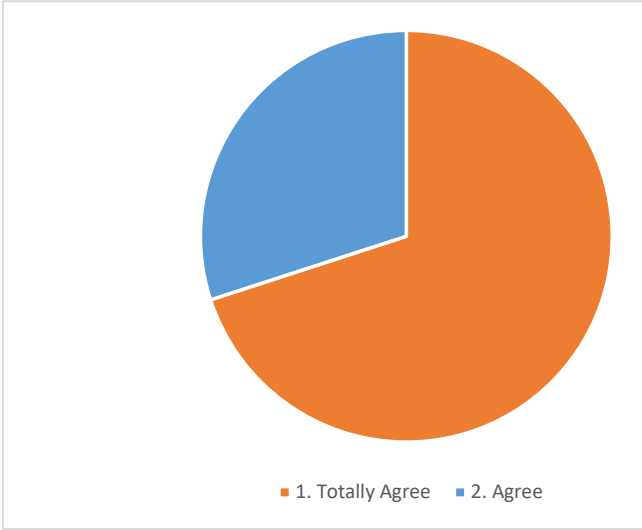
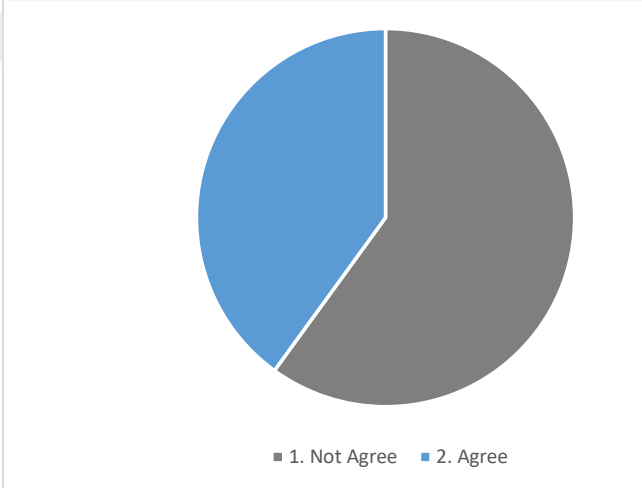
<p>Results</p>	<p>According to the 50% of architects in Turkey, no project is capable of fully considering the needs of the disabled people. Those who positively responded have indicated that 20% - 30% of the projects are related to the disabled. 10% stated that they sometimes design for disabled people if desired.</p>	<p>According to the survey data, it was seen that architects would be more productive and willing for the project phase even if the employer had more strict controls on the disabled. In Turkey, during the implementation phase of the project, it was observed that most of the details are not reflected in the project due to lack of supervision. For example, disabled handrails on building entrance corridors and stairs are never made.</p> <p>It should not only be done with supervision, every project should consider individuals with disabilities and architects should be willing about this issue. If supported by trainings, people may become more sensitive and conscious about it.</p>
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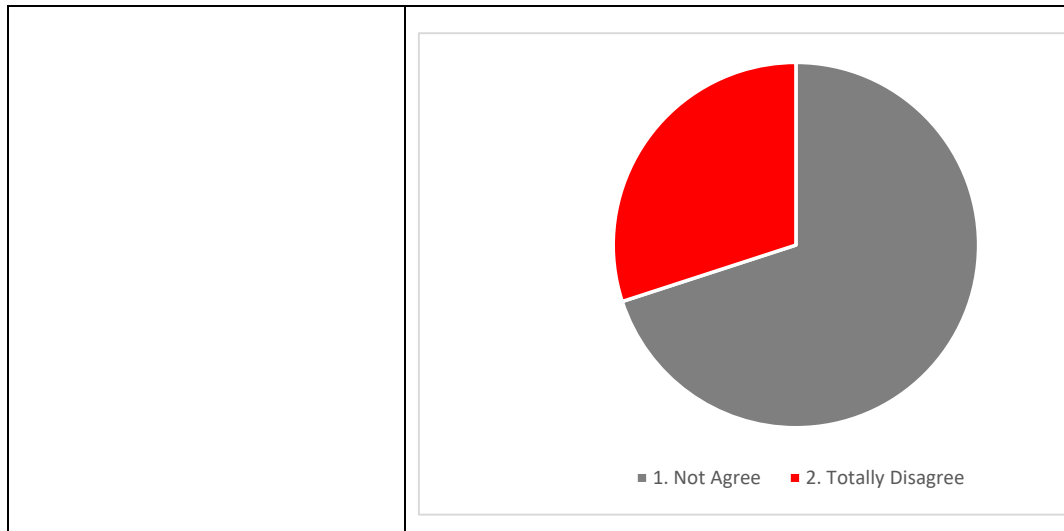
Continuing of Table 5.2.

Table 5.3. : Questions for Users- Bağlıca Engelsiz Yaşam ve Rehabilitasyon Merkezi (Bağlıca Rehabilitation and Wellness Center for Disabled People)

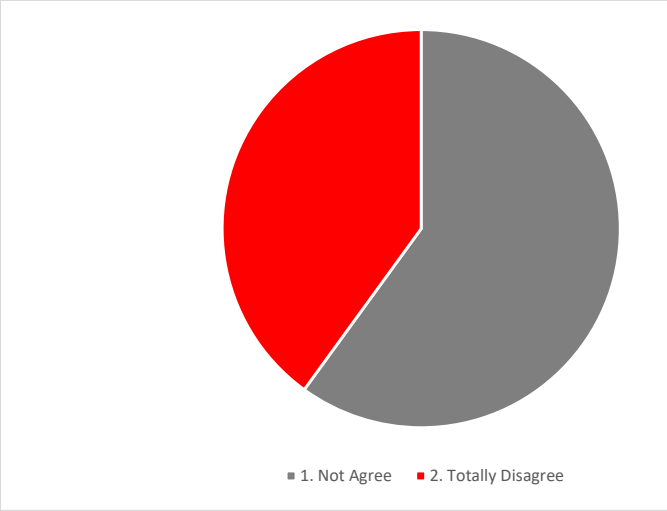
Questions	CIRCULATION
<p>People with disabilities (wheelchairs, crutches, blind or low vision, hearing impaired people) have difficulties in the corridors inside the building</p>	<p> ■ Totally Agree %20 ■ Not Agree %10 ■ Agree % 70 ■ Totally Disagree ■ NoIdea </p>  <p> ■ 1. Agree ■ 2. Totally Disagree ■ 3. Not Agree </p>
Questions	HORIZONTAL CIRCULATION
<p>Pedestrian crossings on roads outside the building arranged for disabled people</p>	<p> ■ Totally Agree %30 ■ Not Agree ■ Agree %60 ■ Totally Disagree ■ No Idea % 10 </p>  <p> ■ 1. Agree ■ 2. Total Agree ■ 3. No Idea </p>

<p>There are sidewalks outside the building</p>	<p> ■ Totally Agree ■ Not Agree % 30 ■ Agree % 30 ■ Totally Disagree ■ No Idea </p>  <p style="text-align: center;">■ 1. No Idea ■ 2. Agree</p>
<p>There are sensible surfaces in the entrances and in the building</p>	<p> ■ Totally Agree %30 ■ Not Agree ■ Agree %70 ■ Totally Disagree ■ No Idea </p>  <p style="text-align: center;">■ 1. Totally Agree ■ 2. Agree</p>
<p>Floor materials suitable for disabled people (such as being coated with slippery / degraded material)</p>	<p> ■ Totally Agree %70 ■ Not Agree ■ Agree %30 ■ Totally Disagree ■ No Idea </p>

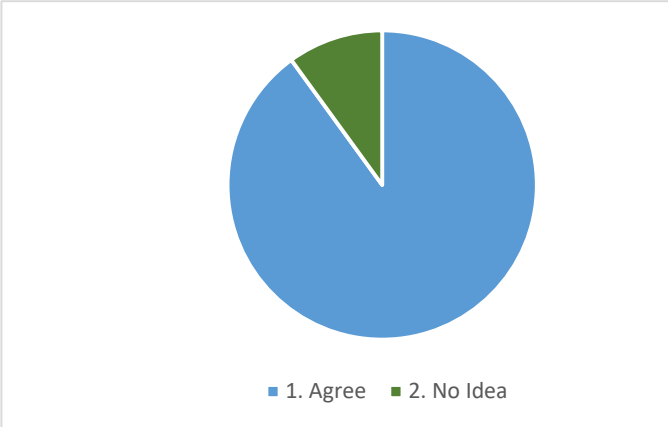
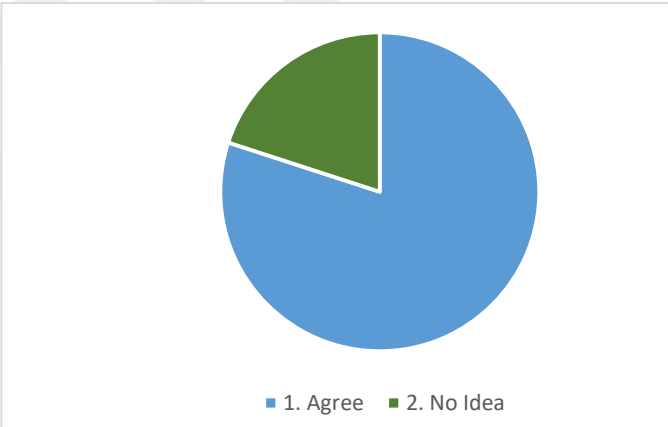
	 <p>■ 1. Totally Agree ■ 2. Agree</p>
<p>Sidewalks also have sensible surfaces for the visually impaired</p>	<p> ■ Totally Agree ■ Not Agree %60 ■ Agree %40 ■ Totally Disagree ■ No Idea </p>  <p>■ 1. Not Agree ■ 2. Agree</p>
<p>There are obstacles such as parked cars, poles and billboards that prevent passing on the sidewalks</p>	<p> ■ Totally Agree ■ Not Agree %70 ■ Agree ■ Totally Disagree %30 ■ No Idea </p>

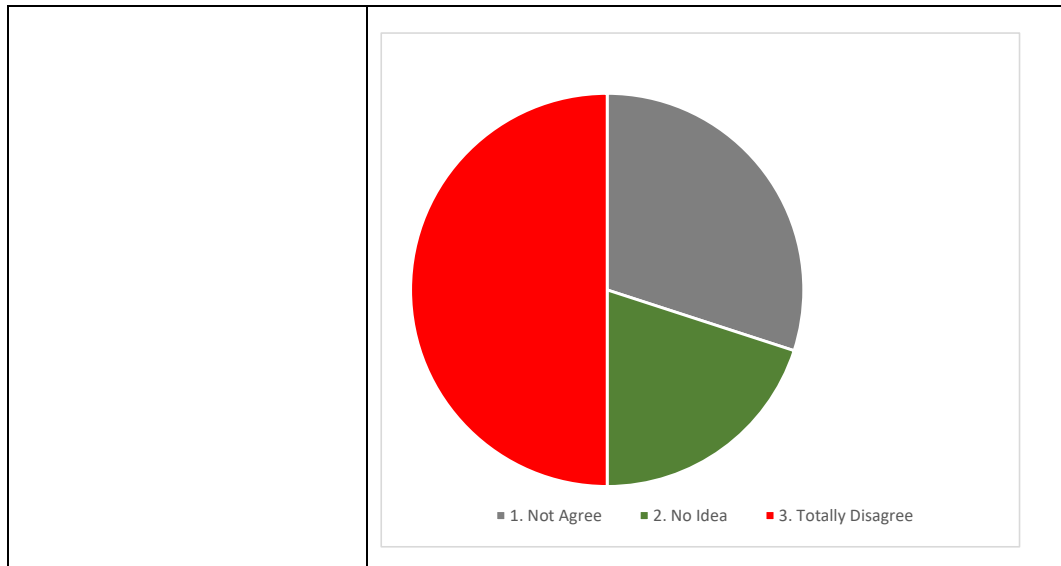


Continuing of Table 5.3.

Questions	FURNITERS
<p>There are also ergonomic desks inside the building suitable for disabled people</p>	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>■ Totally Agree</p> <p>■ Agree</p> <p>■ No Idea</p> </div> <div style="width: 45%;"> <p>■ Not Agree %60</p> <p>■ Totally Disagree %40</p> </div> </div>  <p>■ 1. Not Agree ■ 2. Totally Disagree</p>
<p>Library desks are suitable for people with disabilities</p>	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>■ Totally Agree</p> <p>■ Agr 109</p> <p>■ No Idea %10</p> </div> <div style="width: 45%;"> <p>■ Not Agree</p> <p>■ Totally Disagree</p> </div> </div>

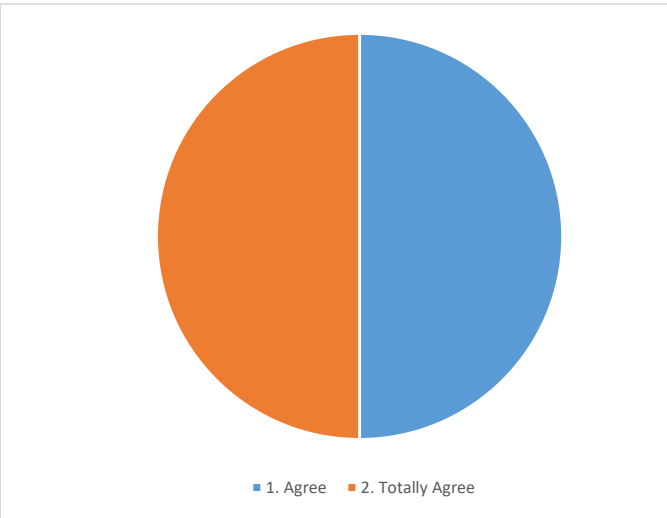
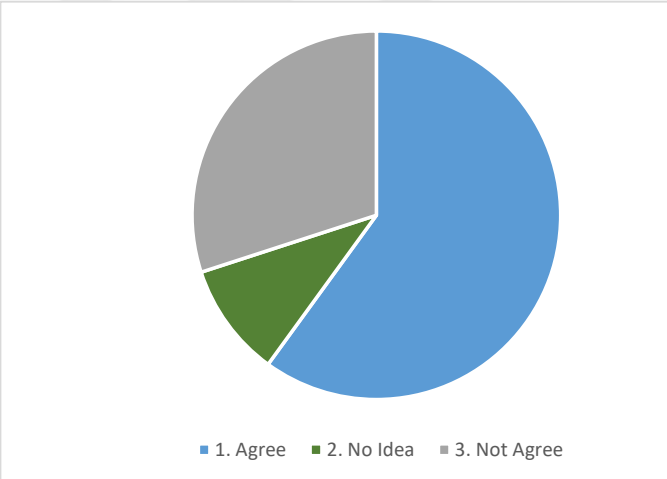
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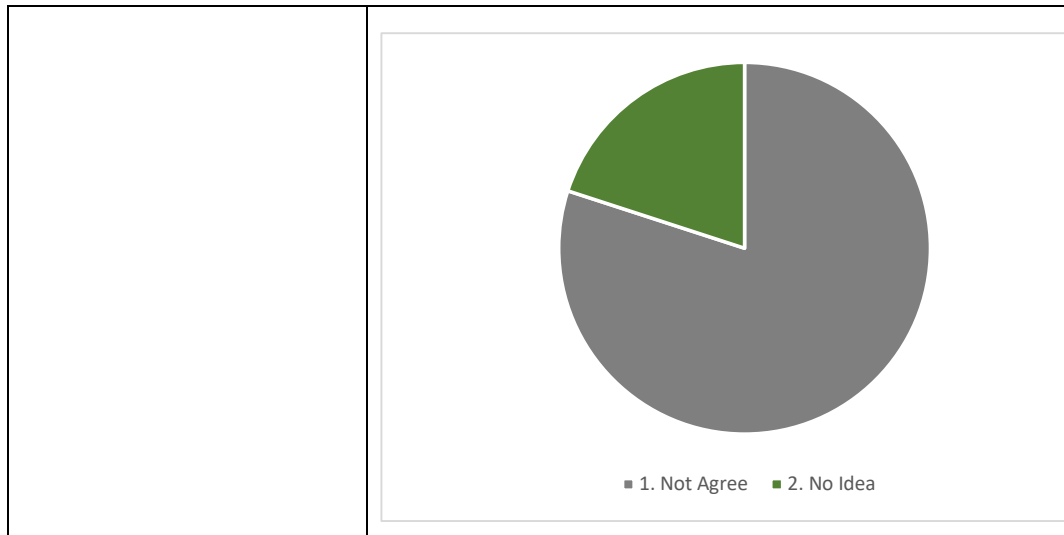
	 <p>■ 1. Agree ■ 2. No Idea</p>
<p>Bed in guesthouse suitable for disabled people</p>	<p> ■ Agree %80 ■ No Idea %20 </p> <p> ■ 1. Agree ■ 2. No Idea </p>  <p>■ Totally Agree ■ Not Agree ■ Totally Disagree</p>
<p>The furniture inside the buildings is designed not to harm people with disabilities (pointed corners, cutting details, etc.)</p>	<p> ■ Agree ■ No Idea % 20 </p> <p> ■ 1. Agree ■ 2. No Idea </p> <p> ■ Totally Agree ■ Not Agree % 30 ■ Totally Disagree % 50 </p>



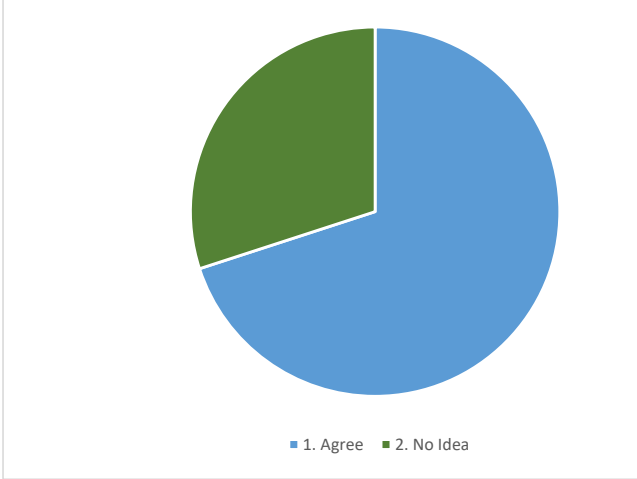
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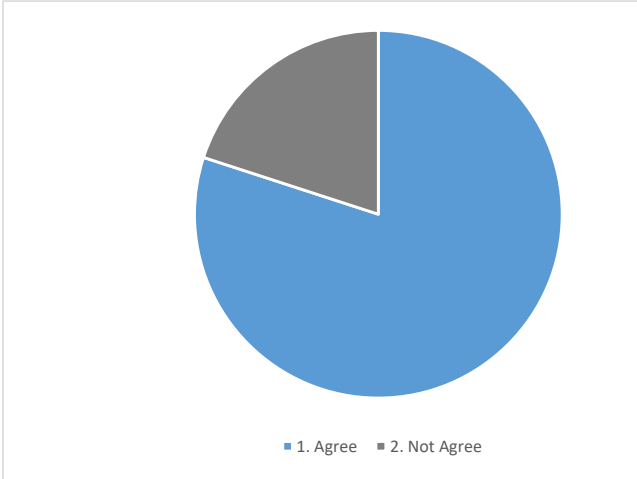
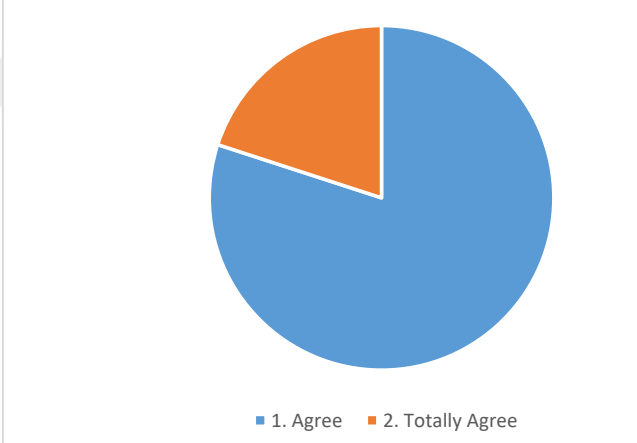
Questions	INFORMATION AND MARKING PLATES						
<p>There are emergency measures inside the buildings.</p>	<p> ■ Totally Agree ■ Agree %70 ■ No Idea %30 </p> <p> ■ Not Agree ■ Totally Disagree </p> <table border="1"> <thead> <tr> <th>Category</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>1. Agree</td> <td>70%</td> </tr> <tr> <td>2. No Idea</td> <td>30%</td> </tr> </tbody> </table>	Category	Percentage	1. Agree	70%	2. No Idea	30%
Category	Percentage						
1. Agree	70%						
2. No Idea	30%						
<p>Information signboards of rooms, WCs, elevators are appropriate (such as not using appropriate symbols, no color contrast, small points and embossing / Braille deficiencies)</p>	<p> ■ Totally Agree %50 ■ Agree % 50 ■ No Idea </p> <p> ■ Not Agree ■ Totally Disagree </p>						

	 <p>■ 1. Agree ■ 2. Totally Agree</p>
<p>Navigation redirects available</p>	<p> ■ Totally Agree ■ Not Agree %30 ■ Agree %60 ■ Totally Disagree ■ No Idea %10 </p>  <p>■ 1. Agree ■ 2. No Idea ■ 3. Not Agree</p>
<p>There are audible and visual signaling in the pedestrian crossings around the building</p>	<p> ■ Totally Agree ■ Not Agree %80 ■ Agree ■ Totally Disagree ■ No Idea %20 </p>

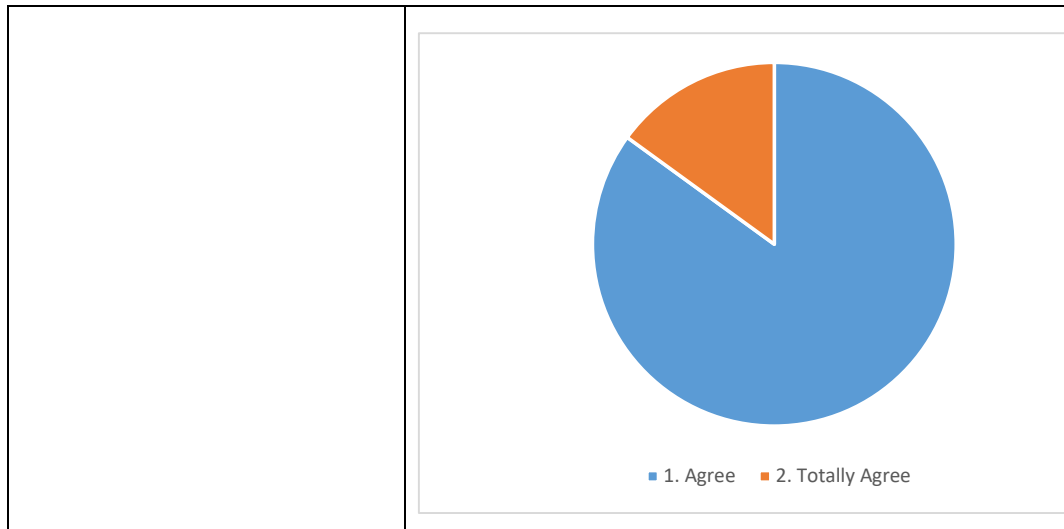


Continuing of Table 5.3.

Questions	VERTICAL CIRCULATION
<p>There is a ramp on the sidewalks around the building for disabled people to get out and down</p>	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>■ Totally Agree</p> <p>■ Agree % 70</p> <p>■ No Idea % 30</p> </div> <div style="width: 45%;"> <p>■ Not Agree</p> <p>■ Totally Disagree</p> </div> </div> 
<p>Elevator door and cabin sizes suitable for disabled people</p>	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>■ Totally Agree</p> <p>■ Agree % 80</p> <p>■ No Idea</p> </div> <div style="width: 45%;"> <p>■ Not Agree % 20</p> <p>■ Totally Disagree</p> </div> </div>

	 <p>■ 1. Agree ■ 2. Not Agree</p>
<p>Elevators also have voice signaling and relief lettering for visually impaired people</p>	<p> ■ Totally Agree % 20 ■ Not Agree ■ Agree % 80 ■ Totally Disagree ■ No Idea </p>  <p>■ 1. Agree ■ 2. Totally Agree</p>
<p>There is a ramp at the building entrances</p>	<p> ■ Totally Agree ■ Not Agree % 60 ■ Agree % 40 ■ Totally Disagree ■ No Idea </p>

	<p>■ 1. Agree ■ 2. Not Agree</p>
<p>Stairs and ramps are available to suit the appropriate size</p>	<p> ■ Totally Agree ■ Not Agree ■ Agree % 90 ■ Totally Disagree ■ No Idea % 10 </p> <p>■ 1. Agree ■ 2. No Idea</p>
<p>Ladders and landing areas suitable for disabled people</p>	<p> ■ Totally Agree %15 ■ Not Agree ■ Agree % 85 ■ Totally Disagree ■ No Idea </p>



Continuing of Table 5.3.

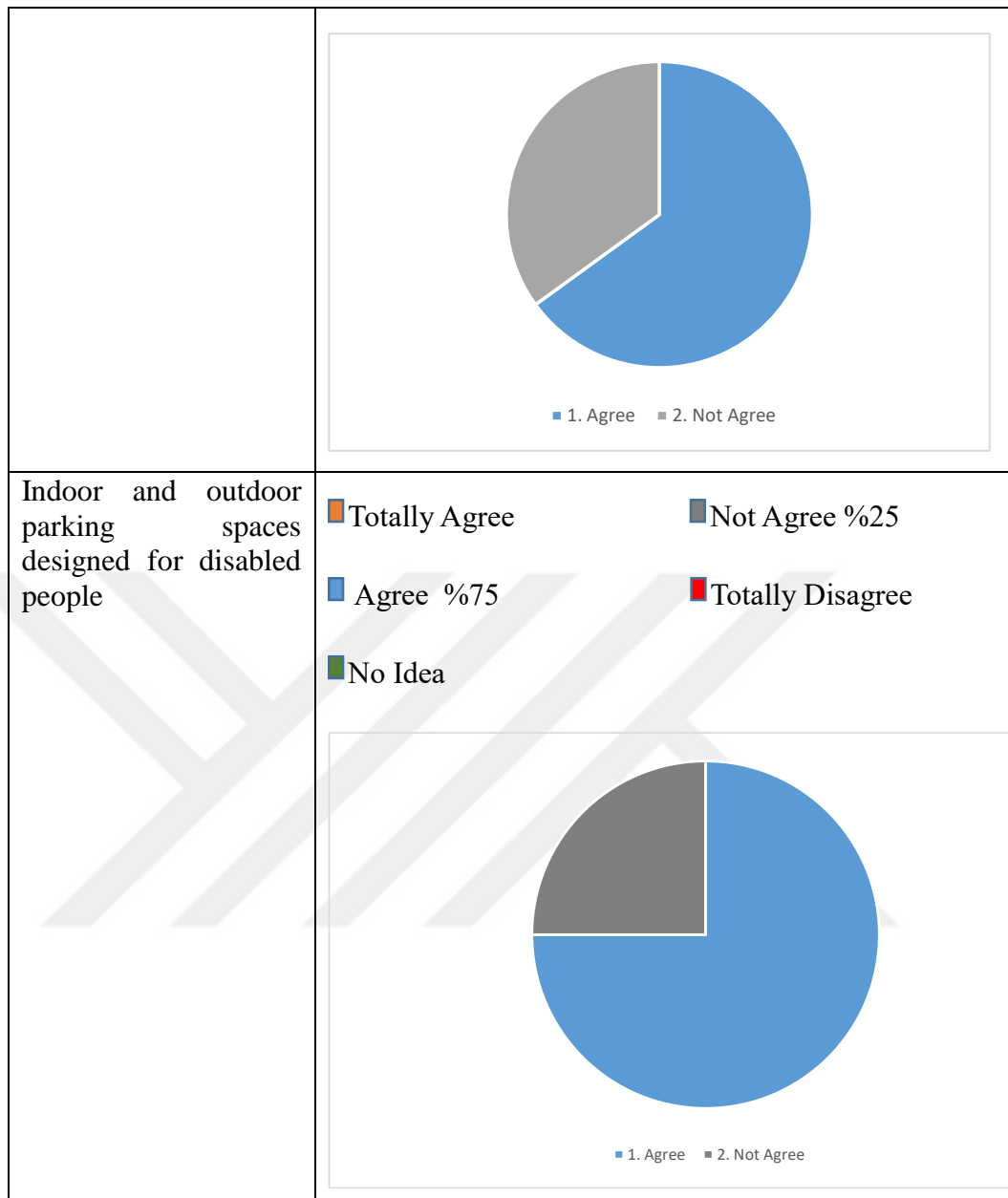
Questions	DOORS						
<p>Doors inside the buildings are suitable for disabled people (door width is not enough, there is a threshold, it is difficult to open because it is heavy, only a revolving door, etc.)</p>	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>■ Totally Agree</p> <p>■ Agree %90</p> <p>■ No Idea %10</p> </div> <div style="width: 45%;"> <p>■ Not Agree</p> <p>■ Totally Disagree</p> </div> </div> <table border="1"> <thead> <tr> <th>Response</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>1. Agree</td> <td>90%</td> </tr> <tr> <td>2. No Idea</td> <td>10%</td> </tr> </tbody> </table>	Response	Percentage	1. Agree	90%	2. No Idea	10%
Response	Percentage						
1. Agree	90%						
2. No Idea	10%						

Continuing of Table 5.3.

Questions	WC
<p>There is disabled WC in each floor and suitable ergonomics that can be easily used by disabled people</p>	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>■ Totally Agree %20</p> <p>■ Agree %80</p> <p>■ No Idea</p> </div> <div style="width: 45%;"> <p>■ Not Agree</p> <p>■ Totally Disagree</p> </div> </div> <div style="text-align: center; margin-top: 20px;"> <p>■ 1. Agree ■ 2. Totally Agree</p> </div>

Continuing of Table 5.3.

Questions	CAR PARK
<p>Disabled parking available in the immediate vicinity of the building</p>	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>■ Totally Agree</p> <p>■ Agree %65</p> <p>■ No Idea</p> </div> <div style="width: 45%;"> <p>■ Not Agree %35</p> <p>■ Totally Disagree</p> </div> </div>



According to the survey results on Table 5.3, followings are determined;

According to families of the users, circulation in the building is available for the disabled at the rate of 70%. According to 10%, it is not available because the floor is slippery. This may be dangerous for the disabled (Question 1).

The other matter is horizontal circulation. When it comes to environ of the building, pedestrian crossings are arranged for the disabled. However, because most people arrive the building with their own vehicles, they stated no opinion about the matter. Inside the building, perceivable grounds arranged for the visually impaired are

present and sufficient. Most of the families share the opinion (Question 2). There is no parked vehicles or lampposts blocking the crossing around the building; however, there is one matter that the families are complaint about; in some other places, parking lots for the disabled are usually occupied by the non-disabled or ramps on the pavement are blocked. Wheelchair users cannot use the bus for transportation.

When we investigate the furniture inside the building, users stated that counters are not designed for every kind of users. Tables in the library are bean shaped and available for the wheelchair users. However, 10% of the families stated no opinion about this because they do not use the library (Question 3).

According to the users, there are precautions for emergency within the building (Question 4). Instructions are seen bold and understandable. However, there are no audial and visual signalizations in pedestrian crossing around the building (Question 4).

Feedback from the users regarding vertical circulation is as follows; there are ramps on pavements around the building. Door and cabin size of the elevators are ideal. However, the number of elevators is not sufficient according to some users (Question 5). There are audial signalization and writings in Braille for the visually impaired in the elevators. Ramps are present where it is needed at entrances of the building. However, because most of them use the main entrance, they have no opinion about the other entrances. Rises, landing and rails of the stairs are pretty available for the disabled. There are also handlings on sides.

It is an important case on the entrance doors. There are no threshold in classrooms. This demolishes the unavailability. It is very important for the users the width of the doors, doors being opened and closed easily and no threshold on the entrance (Question 6).

According to the survey results, rest rooms are available for the users at the rate of 80%. There are wc for the disabled man and woman at every floor. Furthermore, they are determined as available as ergonomically (Question 7).

Parking lots have great importance. According to the answers to Question 8, parking for the disabled are close to the building but not sufficient. Because everyone

use their own vehicles, parking lots become insufficient. Furthermore, it is a big inconvenience for the users that there are no closed parking lot.

5.5. Discussions and Recommendations

In the second part of the study, the universal design, which was explained as a result of the researches, aims to make designs that allow the common use of many types of users. It is a concept that aims to make designs suitable for use by all individuals of all ages. The concept of universal design, which is considered to be taken into account in the design of public structures that are open to everyone, has no rules or standards. There are seven principles to be adopted and understood for universal design.

The building used by disabled people, Bağlıca Engelsiz Yaşam ve Rehabilitasyon Merkezi (Bağlıca Rehabilitation and Wellness Center for Disabled People) has been examined in section 5.1. As a result of the investigations, the field will be discussed in this section and suggestions will be presented with a universal design perspective.

Access to the building, which is open to the public, can be provided by public transport or by private vehicles. Users who prefer to reach the building by public transport may come here with the nearest public transport. However, they must walk across the building after arrival. A pedestrian crossing is not designed to allow crossing to the opposite sidewalk. A wheelchair user or a parent moving with a stroller must be able to climb up and down the road level from a sidewalk with the help of a ramp. This arrangement is not sufficient on the pedestrian crossing on the street.

In order for visually impaired individuals to perceive, sensible surfaces must be placed on the beginning and the ends of the pedestrian crossings. It should also be included in safety zone. The requirements for pedestrian crossings to be suitable for everyone's use are described in Section 3.4.3.

There is no sidewalk where people coming by public transport along the route will enter the building after arrival on the stops. The current condition of the pavements is not suitable for everyone. Accordingly, it is recommended to design the pavement in areas where there is no pavement in the region, to review the existing pavements in the region and to arrange the design of the whole in accordance with the Turkish

Standard TS 12576 in the legislation. In other words, arrangements are proposed to allow everyone to walk on the sidewalks, to allow wheelchair users to pass side by side, and to make light-colored space along the sidewalk for the visually impaired. In this way, suitable pavements are arranged for everyone to use. Equal use and perceptible information principles of universal design should be considered.

For users arriving by private vehicles, parking spaces are placed on the front and rear sides of the building and are shown in Fig. 5.1 and Fig. 5.2. However, the regulations to be applied in disabled parking areas are not made for these areas. A circulation corridor was not designed to fit the wheelchair between two vehicles to allow wheelchair users to leave the car, and the parking area was not painted in a different color with the disabled symbol perceived by everyone. Parking spaces are inadequate as users frequently come to the building with special vehicles and the free spaces around the building are used as parking spaces. There is no route for vehicle entrances and exits to these areas. If the car park continues to be used as a parking space, it is recommended that you design a parking space suitable for everyone. According to Istanbul parking regulations; there must be at least one parking space with disabled signs for every twenty vehicles. Also, the distance to the building in the disabled parking is far away. Access to the building should be easy after disabled people leave the vehicle.

Corridors connecting blocks and main entrance are suitable for all users. Making common designs that everyone can use is important for universal design that aims to let people with disabilities a part of the society. This considers the principles of flexible use of universal design and the use of low physical force.

There are two long corridors left and right after entering from the main entrance. After you walk these corridors, you can reach the elevators with blocks (Fig. 5.19). In other words, user types such as wheelchair users and parents who use strollers must use the lifts in this hall for inter-floor navigation. All access doors to the building are not opened to the main entrance hall. It is recommended that more elevator groups should be designed in a different area which can be easily accessed by individuals who use other entrances and who want to use elevators in vertical circulation within the building. Thus, according to the principle of flexibility, use of universal design allows the user to make different choices by offering options.

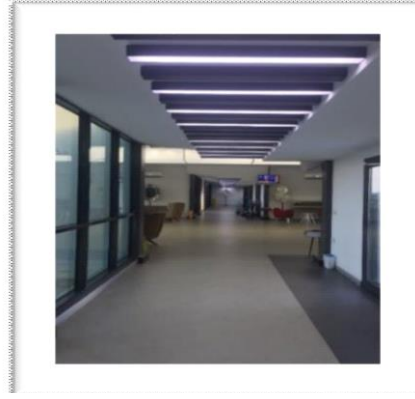


Fig. 5.19. : Main Entrance (Self Archive)

The halls and corridors for horizontal circulation are suitable for circulation. The width of the room doors is usually 100 cm. The entrance door of the rooms, like the conference hall, is designed as 180 cm. Door widths are suitable for many types of users. However, circulation is restricted in the rooms where the number of users is higher than the room area. These rooms can be difficult and dangerous for visually impaired people. In addition, there is not enough space for the circulation of wheelchair users.

In general, visually impaired people have been considered in the design of the building. In order to ensure that the visually impaired move safely, sensitive surfaces are arranged on the floor where it is necessary in the circulation areas. In addition, for the visually impaired, there are often sound information systems and braille signs in the building (Fig. 5.20 and 5.21).

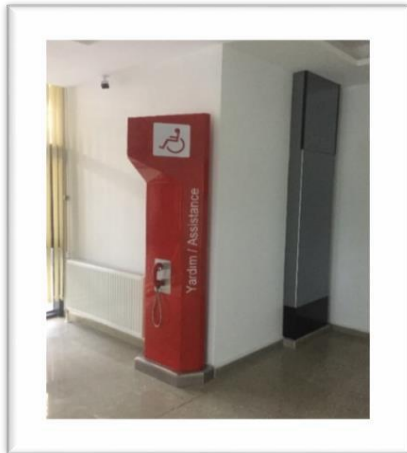


Fig. 5.20. : Audible Warning System (Self Archive)



Fig. 5.21. : Sign (Self Archive)

There are information desks in a few places in the building other than the main entrance. These benches are suitable for the height of standing people. Bench height is also suitable for wheelchair users. Different user types have to be considered and designed with counters of different height dimensions.

The seating furniture in the waiting areas are generally the same type of furniture. Considering that a waiting area will be used by individuals with different physical characteristics, it is advisable to locate seating furniture with different characteristics in the same area. In this way, the user is presented with the option and the universal design is designed in accordance with the principle of flexibility in use. In addition, the use of easy cleaning furniture is important because it is more likely for mentally disabled individuals to become dirty.

There are toilet groups with man, woman and disabled toilets on each floor of the building. Each toilet has a mirror and all are inclined. This is for wheelchair users only. In addition, a normal mirror is recommended. It should be ensured that the reinforcement is at different heights, considering that users with different physical properties may come. The washbasins in the toilets are equipped with handles. The use of photocell washbasins is recommended because it is suitable for both water saving and physical durability of the universal design.

The door located in the disabled toilet section opens outwards to allow access for wheelchair users. Here, it is seen that design is made in accordance with the principle of providing dimension and space for universal design. In addition, it is designed to use disabled toilets without assistance for wheelchair users. The sink here is also designed for the wheelchair user's approach.

Signboards are available on all doors to provide information on the function of the rooms.

In general, considering the characteristics of the building and its surroundings, availability, circulation and access can be considered suitable for different users. However, if arrangements are made, the building and its surroundings are thought to be more suitable for all users.

CHAPTER 6

CONCLUSION

Universal design is a concept that supports the creation of designs that allow the common use of as many user types as possible. But, in our country, universal design is hardly implemented for different users such as individuals with disabilities, elderly or children. As mentioned in the study, the applications are available but insufficient. Therefore, the Municipality of Etimesgut has opened the Engelsiz Yaşam ve Rehabilitasyon Merkezi (Bağlıca Rehabilitation and Wellness Center for Disabled People). In this study, it was aimed to examine the universal design perspective of Bağlıca Rehabilitation and Wellness Center for Disabled People and emphasize the importance of universal design.

In the first part of the study, general information about the study was given and introduction was made. In the second chapter, a literature study was done. The history and reasons of the definition of disability was mentioned and the disability types was explained one by one. Information was also given about the rights of disabled people in the world and Turkey. After that, the definition of anthropometry and ergonomics were made by explaining the principles of universal design. The universal design of public buildings in the city was evaluated with an overview and regulations. The relationship between the city and public structures was explained. Finally, in this section, the historical process of public buildings was mentioned.

Universal design criteria was explained. Legislation on the universal design approach of different countries was mentioned. The table to be used when examining the chosen structure in terms of universal design was explained as the method of research. According to the table determined, unhindered life and rehabilitation center was examined regarding the main topics of availability, circulation and access.

It was made by considering some structures selected for the disabled people in Turkey and abroad. According to the information given, the suitability of these structures for individuals with disabilities was examined. In addition, two public buildings in Ankara were selected, examined and compared according to universal design criteria.

Engelsiz Yaşam ve Rehabilitasyon Merkezi (Bağlıca Rehabilitation and Wellness Center for Disabled People) and its surroundings, which were chosen as the field study of the study, were discussed from a universal design perspective. Information was first given about its properties and then its current situation was discussed. Accordingly, the findings obtained in the fifth section are summarized in the table. Finally, the field of study was evaluated from a universal design perspective and suggestions were made to make his field suitable for as many user groups as possible.

According to the examinations carried out in this structure located in Bağlıca, it has been seen that it needs to be improved with a universal design perspective and be made suitable for the public transportation vehicles, sidewalks and pedestrian crossings used in the region. Ensuring proper access to the building by public transport or private vehicles is as important as ensuring the circulation and access within the building for all users. Although the horizontal circulation element corridors in the building had enough space for everyone to roam, it was found that the in-room roaming areas were insufficient due to the small classes. Vertical circulation elements are suitable for everyone's use. Each block has a lift but does not connect blocks. For this reason, it has been proposed to install an elevator to facilitate circulation in a different area.

In general, signs are placed on the doors to provide information about the function of the rooms. There are also braille for the visually impaired. Audible warning systems have been proposed for illiterate users. It seems that the furniture used for access is not suitable for everyone. Therefore, it has been proposed to design furniture so as to be suitable for everyone. Designs that comply with the universal design must be designed throughout and around the building.

As a result of the researches and investigations made, it is emphasized that

everyone in the public should be sufficiently considered while designing public buildings. Childhood, old age, pregnancy, people at different stages of life with different bodily features and having movement limitations should be considered. In addition, it should be remembered that public buildings are used by people with visual, auditory, physical and mental disabilities as well. In addition to this, when designing with the consciousness that everyone in the society is the universal user of the design, the ability and proficiency levels such as religion, language, gender, age, illiteracy should be taken into consideration. And designs that can be used by everyone should be made.

Public structures are open to the public, so everyone in the community can use structures. At the same time, cities should have appropriate qualifications for everyone's use. Public transport, sidewalks, pedestrian crossings, urban furniture and equipment, parking spaces, ramps and elevators should be suitable for everyone's use in the city. In the study, Engelsiz Yaşam ve Rehabilitasyon Merkezi (Bağlica Rehabilitation and Wellness Center for Disabled People) chosen as a study area is located in the Bağlica district of Ankara. When it is examined from a universal design perspective, it is difficult to reach there. It is seen that the sidewalks are not suitable for the comfort of a visually impaired person and they are limited for wheelchair users.

In this study, it has been shown that in Turkey, people with disabilities (using wheelchairs, using crutches, hearing impaired, visually impaired) are experiencing difficulties when they enter any building in public places or when they want to go somewhere in the society.

In municipalities, the Directorate of Inspection, which is the control and approval authority of the projects, should take into consideration the universal design principles when giving approval to the projects. In order to apply this proposal, designers should be informed about the concept of universal design.

A designer who has embraced the concept of universal design needs to be aware of the developing technology and of the new materials suitable for everyone's use. For example, the use of elevators with audible warning system makes the visually impaired elevator easier and more accurate to use.

In our country, public buildings, roads, pavements, pedestrian crossings, open

and green spaces, sports fields and public transportation services should be audited by institutions and organizations in order to be accessible for disabled people according to the 5378 Numbered Law on Disabled.

When the concept of universal design is adopted, there will be structures that aim to provide availability, circulation and access for everyone by addressing users with special needs, removing barriers and offering suitable options and solutions for everyone. Such structures will become more functional and useful, and improve the quality of life of the users and enable people with disabilities to participate more actively in life.



REFERENCES

- [1] **Access Living.** (2016). Access Living Building Tour. Retrieved at 6 October, 2016 From www.accessliving.org.
- [2] **Accessibility for the Disabled.** (2003-04). A Design Manual for a Barrier Free Environment. Retrieved at 2003-04 from <https://www.un.org/esa/socdev/enable/designm/AD2-03.htm>.
- [3] **ADA Standards for Accessible Design.** (1994). Department of Justice, Code of Regulations, 1994.
- [4] **Akyol, D. Çiğdem A. and Düzenli T.** (2017). Asos Journal. The Journal of Academic Social Science. Yıl: 5, Sayı: 56, Ekim 2017, s. 545-554.
- [5] **Anthropometrics and Ergonomics.** (2011). Retrieved at 13 November, 2011 from <https://www.studymode.com/essays/Anthropometrics-And-Ergonomics-836904.html>.
- [6] **Akintilo, A.** (2001). "A study in Ergonomic Design and their application with society". Design Development in the Home Office. Retrieved at 12 April, 2015 from <http://userpages.umbc.edu/~aakintl/thechair.html>.
- [7] **Arat, Y.** (2011). *Geleneksel Türk evi iç mekân donatılarının antropometrik verilere dayalı analizi; Konya evleri.* Yüksek lisans tezi. Selçuk Üniversitesi. Konya.
- [8] **Arcan, E. F. ve Evcı, F.** (1999). *Mimari Tasarıma Yaklaşım 1 Bina Bilgisi Çalışmaları* (sf. 19-29). İstanbul: Tasarım Yayın Grubu.
- [9] **Arkiv.** (2011). *Projeler Forum İstanbul alışveriş merkezi.* Retrieved at 12 December, 2016 from v2.arkiv.com.tr/p9471-forum-istanbul-alisveris-merkezi.html.
- [10] **DIN 18024-01** Straßen, Plätze, Wege, Öffentliche Verkehrs- und Grünanlagen sowie Spielplätze, 1998.
- [11] **Disabled World.** (2019). Types of Disability. Retrieved at 27 March, 2019 from <https://www.disabled-world.com/disability/types/#mental>.
- [12] **Doğan, S.** (2012). Ressamlıkta gizlenen bilim: Leonardo Da Vinci. *Açık*

Bilim. Retrieved at 15 April, 2017 from www.acikbilim.com.

- [13] **Dostođlu, N. Şahin, E. and Taneli, Y.** (2009). *Tasarıma Kapsayıcı Yaklaşım: Herkes için Tasarım*. Evrensel Tasarım: Tanımlar, Hedefler, İlkeler.
- [14] **Dizdar, E. N. ve Kurt, M.** (2002). *İş Güvenliği Ders Kitabı*. Gazi Üniversitesi. Ankara: Kale Ofset.
- [15] **Engelliler Hakkında Kanun.** (2006). T.C. Resmi Gazete, 25868, 12 Temmuz 2006.
- [16] **Evcil, A. N. ve Yalçın Usal, S. S.** (2008). Üsküdar Meydanı ve Engelliler İçin Erişilebilirlik. VI. Uluslararası Üsküdar Sempozyumu, 6-9 Kasım 2008, 541-554. İstanbul.
- [17] **Engelliler Hakkında Kanun.** (1985). T.C. Resmi Gazete, 18749, 5 Mayıs 1985.
- [18] **Engelli Sağlığı.** Engellilerin Türkiyede ki ve Dünyada ki Durumu. (2015). Retrieved at 28 August, 2015 from <https://www.sagligimicinhersey.com/2015/08/engelli-sagligi/engellilerin-turkiye-ve-dunyadaki-durumları/>.
- [19] **Evcil, A. N.** (2014). *Herkes İçin Tasarım Evrensel Tasarım*. İstanbul: Boğaziçi Yayınları.
- [20] **Goldsmith, S.** (2000). *Universal Design*. UK: Architectural Press.
- [21] **Geuss, R.** (2007). *Kamusal Şeyler Özel Şeyler (Çev.)*. İstanbul: Yapı Kredi.
- [22] **Google Earth.** (2016).
- [23] **Kalçık, T.** (2007). *Televizyonda Siyasal Propaganda ve AKP*, Ankara Üniversitesi, Sosyal Bilimler Enstitüsü, Ankara.
- [24] **Kavak, M.** (2010). *Evrensel tasarım yaklaşımı bağlamında kamusal mekânlar: Harbiye Kongre Vadisi örneği*. Yüksek Lisans Tezi. Bahçeşehir Üniversitesi. İstanbul.
- [25] **Köse, S.** (2018). *Mimari Tasarım V. Evrensel Tasarım*. Gebze İleri Teknoloji Enstitüsü Mimarlık Bölümü.
- [26] **Koca, C.** (2010). *World Handicapped Foundation (Dünya Engelliler Vakfı). Engelsiz Şehir Planlaması Bilgilendirme Raporu*. İstanbul.
- [27] **Kurban, H. Kaygın, B. ve Tankut, A. N.** (2016). *Mobilya Tasarımında Antropometrik Ölçü ve Ergonomik Analizlerin Kullanımı*. İnönü Üniversitesi

Sanat ve Tasarım Dergisi. 6(13), 313-320. Malatya.

[28] **Krupa, F.** (1994). Introduction to human factors. Retrieved at 12 April, 2005, from <http://www.translucency.com/frede/humfact.html>.

[29] **Kelly, C.** (2005). *The Beauty of Fit: Proportion and Anthropometry in Chair Design*. A Thesis Presented to The Academic Faculty. Georgia Institute of Technology. April 2005.

[30] **Kavak, M.** (2010). *Evrensel Tasarım Yaklaşımı Bağlamında Kamusal Mekânlar: Harbiye Kongre Vadisi Örneği*. Yüksek Lisans Tezi. Bahçeşehir Üniversitesi. İstanbul.

[31] **Mutluer, S.Y.** (1997). *Tekerlekli Sandalye Kullanan Bedensel Özürlüler İçin Uygun Konut Tasarımı ve Çevre Düzenlemesi*. Konya: Selçuk Üniversitesi, Yüksek Lisans Tezi.

[32] **Murat, S.** (2013). Genel olarak Özürlülere Yönelik Çalışmalar ve İsmek Örneği.

[33] **Mace, Ron.** (1998). Founder and Programme Director of The Center for Universal Design.

[34] **Mace, R.L.** (1998). A Perspective on Universal Design. *Designing for the 21st Century: An International Conference on Universal Design*. FAIA.

[35] **National of Association of Pediatric Nurse Practitioners.** (2013). Somatic Symptom Disorders Parent/Caregiver Information.

[36] **Naniopoulos, A.** (1999). European Approaches to Accessible Transport Systems, *Japan Railway Transport Review*, vol20, page 9-13,1999. Retrieved at from scielinks.jp > ... > [jpn railw transp rev](http://jpn.railw.transp.rev).

[37] **Overcoming Obstacles to the Integration of Disabled People.**

(1995). Disability Awareness in Action.

[38] **Öztürk, M.** (2011). Türkiye’de Engelli Gerçeği.

[39] **Salmen, J.P.S.** (2001). *United States Accessibility Codes and Standarts: Challanges for Universal Design Handbook*. New York: McGraw Hill.

[40] **Sevük, M. S.** (2011). *Evaluating two shopping centers in the light of principles of universal design*. Yüksek lisans tezi. Ortadoğu Teknik Üniversitesi. Ankara.

[41] **Sofuoğlu, S.** (2011). Frankfurt Okulu ve Eleştirel Teorinin Ötesinde,

Retrieved at 21 February, 2017 from <http://bielog.com/manset/kamusal-alan/>.

[42] **Story, Molly Follette., Mueller, James L., Mace, Ronald L.** (1998).

The Universal Design File: Designing for People of All Ages and Abilities.

Revised Edition.

[43] **Story M.F., Mueller J., and Mace R.** (1998) The Universal Design File,

Raleigh, NC: The Center for Universal Design, NC State University, A.B.D.

[44] **Story, M.F.** 2001. *Principles of Universal Design, Universal Design*

Handbook. New York: McGrawHill.

[45] **The Center for Universal Design.** (2001). *Universal Design*. North

Carolina State University, Retrieved at 1997, from

http://www.design.ncsu.edu/cud/univ_design/udprinciples.htm (ET:

12.12.2001).

[46] **TS 12576.** (2012). *Şehir İçi Yollar-Kaldırım ve Yaya Geçitlerinde*

Ulaşılabilirlik İçin Yapısal Önlemler ve İşaretlemelelerin Tasarım Kuralları. Türk

Standardları Enstitüsü, 2012.

[47] **TS 9111.** (2011). *Özürllüler ve Hareket Kısıtlılığı Bulunan Kişiler İçin*

Binalarda Ulaşılabilirlik Gereklere. Türk Standardları Enstitüsü, 2011.

[48] **TS ISO 23600.** Görme ve İşitme Özürllüler İçin Yardımcı Mamuller-

Yaya Trafik Işıkları- Sesli İkazlar ve Hissedilebilir Yüzeyler. Türk Standardları

Enstitüsü, 2012.

[49] **TS 12460.** *Şehir İçi Yollar- Raylı Taşıma Sistemleri Bölüm*

5: Özürllü ve Yaşlılar İçin Tesislerde Tasarım Kuralları. Türk

Standardları Enstitüsü, 1998.

[50] **TS 13622.** *Engelliler ve Hareket Kısıtlılığı Bulunan Kişiler İçin Toplu*

Taşıma Sistemlerinde Erişilebilirlik Gereklere. Türk Standardları Enstitüsü, 2014.

[51] **TS ISO 23599.** *Görme Özürllü veya Az Görenler İçin Yardımcı Mamuller-*

Hissedilebilir Yürüme Yüzeyi İşaretlere. Türk Standardları Enstitüsü, 2012.

[52] **TS 13536.** *TS ISO 23599'un Uygulamasına Yönelik Tamamlayıcı*

Standard. Türk Standardları Enstitüsü, 2012.

[53] **TurkStat.** Turkey Disability Survey. (2002). The Proportion of Disability.

[54] **TurkStat.** Turkey Disability Survey. (2002). The Proportion of Disabled

Population by Labor Force Status.

[55] **TurkStat.** Survey on Problems and Expectations of Disabled People. (2010). Percentage of Registered Disabled Individuals by Sex, Place of Residence, Proportion of Disability, Age Group, Educational Status and Type of Disability.

[56] **TurkStat.** Survey on Problems and Expectations of Disabled People. (2010). Percentage of Registered Disabled Individuals Opinions about Physical Environmental Arrangements of Inhabited Places, Whether are Appropriate for their Disabilities or not, by type of Disability.

[57] **United Nations.** (2003). Accessibility for the Disabled A Design Manual for a Barrier Free Environment.

[58] **United Nations.** (1993). A/RES/48/96. *Standard rules on the equalization of opportunities for disabled people.* 85th plenary meeting. Retrieved at 20 December, 1993 from <http://www.un.org/documents/ga/res/48/a48r096.htm> (ET: 11.08.2006).

[59] **Uzun, İ.** (2006). Kamusal Açık Mekân: Kavram ve Tarihe Genel Bakış. *Egemimarlık*, 4(59), 14-17. İzmir.

[60] **Uzun, İ.** (2007), Mimarlıkta Ortak Mekan Kavramı Kapsamında Atriumlar Üzerine Bir Araştırma, Dokuz Eylül Üniversitesi Fen Bilimleri Enstitüsü, İzmir.

[61] **Ümran, Duman.** (2017). Evrensel Tasarımın Kamusal Yapılarda Engelliler için Önemi.

[62] **WHO** (Dünya Sağlık Örgütü), (2001). *İşlevsellik, Yetiyitimi ve Sağlığın Uluslararası Sınıflandırılması (International Classification of Functioning Disability and Health, ICF)*, Çev. E.Kabakçı ve A.Göğüş, Başbakanlık Özürlüler İdaresi Başkanlığı, Ankara.

[63] **Yıldırım, A.** (2018). Engelsiz Tasarım. Gebze İleri Teknoloji Enstitüsü Mimarlık Fakültesi Mimarlık Bölümü Mimari Tasarım 5.

[64] **WDU Accreditation Center (Dünya Engelliler Birliği)**, (2012). Universal Standards for Disabled people. İstanbul.

APPENDIX A

QUESTIONS TO ARCHITECTS

1. Did they see and apply the design rules for the disabled in their design classes during their training?
2. Does your office specify criteria for disability design (related to domestic-foreign standards), books, and documents?
3. Do you think that the employees in your office are aware of the design criteria for disabilities?
4. Does the customer want the needs of disabled people to be taken into account in dealing with private individuals?
5. Do private institutions want the needs of disabled people to be considered?
 - a. If yes, who controls how you are doing in this project?
 - b. If no, would you consider this in your projects?
6. Does the public want the needs of people with disabilities to be taken into account?
 - a. If yes, who controls how you are doing in this project?
 - i. Were there any criteria for the design of the disability annex to your contract, or did they release you?
 - b. If no, would you consider this in your projects?
 - i. Are you considering all your projects? How often?
 - ii. Why not?
 - c. Particularly in public projects, demand for people with disabilities may come, but did you not fulfill the requirements due to constraints such as time and funding during the project?
 - d. What were the reasons behind your failure to implement the requirements for people with disabilities?
7. Have you ever done any project that is fully accessible to the disabled? How many? Or how many projects?
8. Would the employer be more willing to do a disability project if the controls were tighter? If yes, why not?

APPENDIX B

QUESTIONS FOR STAFFS AND USERS

QUESTIONS	VERY AGREE	AGREE	NO IDE A	NOT AGREE	TOTALLY DISAGREE
CIRCULATION					
People with disabilities (wheelchairs, crutches, blind or low vision, hearing impaired people) have difficulties in the corridors inside the building					
HORIZONTAL CIRCULATION					
Pedestrian crossings on roads outside the building arranged for disabled people					
There are sidewalks outside the building					
There are sensible surfaces in the entrances and in the building					
Floor materials suitable for disabled people (such as being coated with slippery / degraded					
Sidewalks also have sensible surfaces for the visually impaired					
There are obstacles such as parked cars, poles and billboards that prevent passing on the sidewalks					

FURNITURES					
There are also ergonomic desks inside the building suitable for disabled people					
Library desks are suitable for people with disabilities					
Bed in guesthouse suitable for disabled people					
The furniture inside the building is designed not to harm people with disabilities (pointed corners, cutting details, etc.)					
INFORMATION AND MARKING PLATES					
There are emergency measures inside the buildings					
Information signboards of rooms, WCs, elevators are appropriate (such as not using appropriate symbols, no color contrast, small points and embossing / Braille deficiencies)					
Navigation redirects available					
There are audible and visual signaling in the pedestrian crossings around the building					
VERTICAL CIRCULATION					
There is a ramp on the sidewalks around the building for disabled people to get out and down					

Elevator door and cabin sizes suitable for disabled people					
Elevators also have voice signaling and relief lettering for visually impaired people					
There is a ramp at the building entrances					
Stairs and ramps are available to suit the appropriate size					
Ladders and landing areas Suitable for the disabled people					
DOORS					
Doors inside the buildings are suitable for disabled people (door width is not enough, there is a threshold, it is difficult to open because it is heavy, only a revolving door, etc.)					
WC					
There is disabled WC in each floor and suitable ergonomics that can be easily used by disabled people					
CAR PARK					
Disabled parking available in the immediate vicinity of the building					
Indoor and outdoor parking spaces designed for the disabled people					

APPENDIX C

The proportion of disabled population by type of disability and the appearance time of disability, 2002

A- Total B- Male C - Female

(%)									
The appearance time of disability									
Place of residence	Congenital			Subsequent			Unknown		
	A	B	C	A	B	C	A	B	C
Orthopedical disability									
Türkiye - Turkey	23.9	21.5	27.3	73.3	76.2	69.2	2.8	2.3	3.5
Urban	21.7	19.2	25.3	75.6	78.6	71.1	2.8	2.2	3.6
Rural	26.4	24.2	29.5	70.8	73.4	67.3	2.8	2.5	3.3
Seeing disability									
Turkey	20.4	20.5	20.4	76.3	76.5	76.1	3.3	3.1	3.6
Urban	19.8	19.1	20.7	77.8	78.2	77.2	2.5	2.7	2.1
Rural	21.1	21.9	19.9	74.8	74.8	74.8	4.2	3.4	5.3
Hearing disability									
Turkey	29.5	29.1	29.9	67.1	68.1	65.9	3.4	2.7	4.2
Urban	24.6	23.8	25.4	71.8	73.7	69.7	3.6	2.5	4.9
Rural	34.8	34.5	35.2	62.0	62.5	61.3	3.2	3.0	3.5
disability									
Turkey	46.6	45.7	48.1	50.2	51.8	47.4	3.2	2.5	4.5
Urban	41.6	38.8	46.2	55.1	59.0	48.8	3.3	2.2	5.0
Rural	52.2	53.2	50.4	44.7	44.0	45.8	3.2	2.7	3.9
Mental disability									
Turkey	47.9	46.1	50.6	49.9	52.0	46.7	2.2	1.9	2.6
Urban	46.0	42.2	51.2	51.7	56.1	45.6	2.4	1.7	3.2
Rural	49.7	49.5	50.1	48.3	48.5	47.9	2.0	2.0	2.0

Source: TurkStat, Turkey Disability Survey, 200

APPENDIX D

Percentage of registered disabled individuals' opinions about physical environmental arrangements of inhabited places, whether are appropriate for their disabilities or not, by type of disability, 2010

(%)

Physical environmental arrangements	Total	Visual disability	Hearing disability	Language and speech disability	Orthopedic disability	Intellectual disability	Mental and emotional disability	Chronic illness	Multiple disability
Inhabited building (accessing floors, mobility in the building)	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Appropriate	28.8	27.2	34.1	41.6	25.4	31.3	33.5	26.5	27.6
Not appropriate	66.3	69.2	59.5	51.7	70.8	62.6	59.1	69.5	68.3
No idea	4.9	3.7	6.4	6.7	3.8	6.1	7.4	4.0	4.1
Sidewalks, walk ways and crosswalks	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Appropriate	23.4	19.2	31.3	37.9	19.3	26.5	28.6	21.5	20.9
Not appropriate	66.9	71.3	59.8	54.1	71.9	62.5	59.1	69.8	69.7
No idea	9.8	9.6	9.0	8.0	8.8	11.0	12.3	8.7	9.5
Public buildings	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Appropriate	21.9	19.7	27.5	30.1	20.2	22.0	24.3	22.1	20.6
Not appropriate	58.4	62.8	54.1	48.1	63.8	53.5	56.2	60.9	60.0
No idea	19.8	17.5	18.4	21.8	16.1	24.5	19.5	17.1	19.5
Post offices and banks, etc.	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Appropriate	19.7	18.7	25.5	29.2	19.8	19.8	22.6	19.7	17.3
Not appropriate	55.4	60.8	52.1	44.9	60.6	49.9	54.2	58.5	56.6
No idea	24.9	20.5	22.5	25.9	19.7	30.3	23.2	21.8	26.1
Shops, markets, stores and restaurants	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Appropriate	21.0	18.5	27.8	33.4	19.6	22.6	23.3	20.5	18.1
Not appropriate	59.5	64.3	54.3	49.5	63.7	55.5	56.8	61.9	61.0
No idea	19.5	17.2	18.0	17.2	16.7	21.9	19.9	17.6	20.9
Sports facilities	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Appropriate	9.7	9.6	15.6	20.9	8.0	11.5	11.7	8.6	6.4
Not appropriate	38.4	37.6	36.5	34.2	41.5	38.1	40.6	39.1	37.0
No idea	51.9	52.7	47.9	45.0	50.5	50.4	47.7	52.3	56.6
Cinema, theater, etc.	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Appropriate	8.2	7.8	12.5	20.2	7.7	9.8	10.0	7.5	5.3
Not appropriate	33.4	33.6	33.4	31.4	36.4	32.3	32.6	34.8	31.7
No idea	58.4	58.7	54.1	48.4	55.9	57.9	57.4	57.7	63.0
Parks, green areas	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Appropriate	22.3	19.4	29.1	36.4	22.2	24.7	23.8	20.4	20.0
Not appropriate	43.3	46.2	40.0	38.5	48.2	40.7	43.4	45.2	42.4
No idea	34.4	34.3	30.9	25.2	29.7	34.7	32.8	34.4	37.6
Holiday resorts, hotels	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Appropriate	7.3	7.0	13.2	16.7	6.2	8.0	8.1	7.6	4.5
Not appropriate	28.1	28.4	25.5	27.0	30.6	26.9	29.8	29.6	26.9
No idea	64.6	64.7	61.4	56.3	63.1	65.1	62.1	62.8	68.7

Source: TurkStat, Survey on Problems and Expectations of Disabled People, 2010

APPENDIX E

Percentage of registered disabled individuals by sex, place of residence, proportion of disability, age group, educational status and type of disability, 2010

(%)

	Total	Visual disability	Hearing disability	Language and speech disability	Orthopedic disability	Intellectual disability	Mental and emotional disability	Chronic illness	Multiple disability
Total	100.0	8.4	5.9	0.2	8.8	29.2	3.9	25.6	18.0
Sex									
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Male	58.6	67.0	57.5	67.0	56.2	61.1	67.9	56.2	53.5
Female	41.4	33.0	42.5	33.0	43.8	38.9	32.1	43.8	46.5
Place of residence									
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Urban	62.4	59.2	67.1	70.6	59.8	61.1	61.0	64.6	62.8
Rural	37.6	40.8	32.9	29.4	40.2	38.9	39.0	35.4	37.2
Proportion of disability									
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
%20 - %39	15.2	28.3	16.6	52.3	33.8	6.7	12.3	17.1	10.8
%40 - %69	42.4	28.1	78.8	37.1	49.4	43.3	25.8	40.0	39.5
%70 +	42.4	43.6	4.6	10.5	16.9	50.0	61.9	43.0	49.7
Age group									
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
0 - 6	4.9	1.4	9.6	25.1	3.7	7.4	2.0	3.6	3.7
7 - 14	16.2	5.1	17.4	37.1	5.1	36.1	10.5	4.6	11.5
15 - 24	17.2	16.1	20.9	14.9	13.1	27.5	9.3	9.2	14.9
25 - 44	27.7	36.2	32.4	11.7	39.2	23.3	49.5	23.6	25.0
45 - 64	18.9	25.5	12.0	7.5	22.1	4.9	22.1	33.1	18.4
65 +	15.2	15.8	7.7	3.7	16.7	0.8	6.6	25.9	26.4
Educational status [6 years old and over]									
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Illiterate	41.6	32.1	31.6	33.6	26.4	57.5	24.0	32.2	48.5
Literate without a diploma	18.2	11.8	23.0	38.6	10.9	28.9	12.7	12.8	15.3
Primary school	22.3	29.0	17.9	10.7	32.9	4.6	33.0	34.9	22.9
Primary education/ secondary school and equivalent	10.3	12.5	16.4	11.0	13.4	8.2	15.2	10.2	8.0
High school and over	7.7	14.6	11.1	6.1	16.4	0.7	15.1	9.9	5.3

Source: TurkStat, Survey on Problems and Expectations of Disabled People, 2010

Note: Sum of column percentages may not be equal to 100 due to rounding of the numbers.

APPENDIX F

The proportion of disabled population by the status of literacy, 2002

[6>= age]	(%)			
Orthopedically, seeing, hearing, speaking and mentally disabled population				
	Illiterate		Literate	
			Population having chronic illnesses	
	Illiterate	Literate	Illiterate	Literate
Turkey	36.3	63.7	24.8	75.2
Place of residence				
Urban	29.6	70.4	20.5	79.5
Rural	43.4	56.6	32.9	67.2
Sex				
Male	28.1	71.9	9.8	90.2
Female	48.0	52.0	35.0	65.0
Region				
Marmara	26.6	73.4	17.5	82.5
Aegean	33.2	66.9	23.1	76.9
Mediterranean	41.7	58.3	23.7	76.3
Central Anatolia	29.9	70.1	19.5	80.5
Black Sea	39.4	60.6	29.7	70.3
East Anatolia	48.3	51.7	42.2	57.8
Southeast Anatolia	52.5	47.5	45.3	54.8

Source: TurkStat, Turkey Disability Survey, 200

APPENDIX G

The proportion of disabled population by labor force status, 2002

[15>= age]

(%)

	Labor force participation rate	Unemploy- ment	Population rate not in labor force
Orthopedically, seeing, hearing, speaking and mentally disabled population			
Turkey	21. 7	15. 5	78.3
Place of residence			
Urban	25.	17.	74.4
Rural	17. 8	12. 6	82.2
Sex			
Male	32.	14.	67.8
Female	6.7	21. 5	93.3
Region			
Marmara	24.	10.	75.3
Aegean	24.	15.	75.5
Mediterranean	20.	20.	80.0
Central Anatolia	22.	16.	77.5
Black Sea	17.	14.	82.6
East Anatolia	19.	25.	80.4
Southeast Anatolia	19. 9	16. 2	80.2
Population having chronic illnesses			
Turkey	22. 9	10. 8	77.1
Place of residence			
Urban	23.	12.	76.9
Rural	22. 5	7.1	77.5
Sex			
Males	46.	10.	53.4
Females	7.2	12. 8	92.8
Region			
Marmara	24.	10.	76.0
Aegean	25.	11.	74.4
Mediterranean	24.	11.	75.9
Central Anatolia	18.	7.4	81.3
Black Sea	19.	9.2	80.2
East Anatolia	24.	12.	76.0
Southeast Anatolia	26. 0	15. 9	74.0

Source: TurkStat, Turkey Disability Survey, 2002

APPENDIX H

The proportion of disability, 2002

	A. Total		B.		C. Female			(%)		
	Total disabled population		Orthopedically, seeing, hearing, speaking and mentally disabled		Population having chronic illnesses					
	A	B	A	B	A	B	C			
Turkey	12.3	11.1 13.5	2.6	3.1 2.1	9.7	8.1	11.3			
Age group										
0-9	4.2	4.7	1.5	1.7	2.6	3.0	2.2			
10-19	4.6	5.0	2.0	2.3	2.7	2.7	2.6			
20-29	7.3	7.6	2.5	3.3	4.8	4.2	5.3			
30-39	11.4	10.4	2.6	3.2	8.9	7.3	10.5			
40-49	18.1	15.2	2.7	3.3	15.4	11.9	19.1			
50-59	27.7	22.6	3.2	3.7	24.4	18.8	29.9			
60-69	37.0	31.6	5.1	5.7	31.8	26.0	37.4			
70+	44.0	39.8	7.9	8.5	36.1	31.3	40.4			
Unknown	11.7	6.3 14.2	0.3	0.5 0.3	11.3	5.8	14.1			
Place of residence										
Urban		12.7 11.4	14.0	2.2	2.6 1.8	10.5 8.8	12.2			
Rural		11.7 10.7	12.6	3.2	3.7 2.6	8.5 7.0	10.0			
Region										
Marmara	13.1	11.7	14.6	2.2	2.6	1.9	10.9	9.1	12.7	
Aegean	11.9	10.7	13.0	2.6	3.2	2.1	9.3	7.6	11.0	
Mediterranean	12.2	11.2	13.2	2.6	3.0	2.2	9.6	8.2	10.9	
Central Anatolia	12.5	10.8	14.2	2.6	3.0	2.2	9.9	7.8	12.0	
Black Sea	13.0	11.6	14.3	3.2	3.7	2.8	9.8	8.0	11.5	
East Anatolia	11.8	11.3	12.3	2.5	3.2	1.9	9.3	8.1	10.4	
Southeast Anatolia	9.9	9.9	9.9	2.7	3.5	2.0	7.2	6.4	8.0	

Source: TurkStat, Turkey Disability Survey.

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