# EVALUATING TWO SHOPPING CENTERS IN THE LIGHT OF PRINCIPLES OF UNIVERSAL DESIGN

A THESIS SUBMITTED TO
GRADUATE SCHOOL OF NATURAL AND APPLIED SCIENCES
OF
MIDDLE EAST TECHNICAL UNIVERSITY

BY
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IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR
THE DEGREE OF MASTER OF ARCHITECTURE
IN
ARCHITECTURE

APRIL 2011

Approval of the thesis:

EVALUATING TWO SHOPPING CENTERS
IN THE LIGHT OF PRINCIPLES OF UNIVERSAL DESIGN

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## ABSTRACT

### EVALUATING TWO SHOPPING CENTERS

### IN THE LIGHT OF PRINCIPLES OF UNIVERSAL DESIGN

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April 2011, 156 Pages

Starting from the second half of the 20th century, the number of aged people and people with aging-related disabilities has increased significantly in the world. Parallel to this increase, special projects have been developed for aged people in the developed countries, but with these projects aged people were often excluded from society. People with disabilities were already living isolated from society. With the effect of raising awareness in the public after the adoption of the Universal Declaration of Human Rights in 1948, in the course of the last sixty years studies have been realized and new standards and principles have been developed for elderly people and people with disabilities to benefit from the social life equally together with everyone and to raise their quality of life. Starting with the barrier-free design approach, a new period improving and changing the view point of design from general and private design to design for all, to inclusive and/or the universal design has begun. In the thesis, this period has been reviewed through the summarized definitions of these stages. The effects of these improvements have been related to the design and construction of the built environments and buildings. Therefore, people with disabilities started to participate in the society more than ever. The implementation of principles of the Universal Design in the public buildings, especially to hospitals, cultural centers and shopping centers has gained more importance in order to advance full social integration of people with disabilities to the society.

Number of shopping centers in Turkey increased rapidly after 1995. In this thesis, two examples were examined and evaluated in the light of universal design principles. The problems faced in these buildings were examined in order to design more inclusive buildings and environments. A brief history of shopping centers was presented. Brief information about some examples of old bazaars from Anatolia and shopping centers from different countries were given.

Key words: Universal design, accessibility, barrier-free design, inclusive design, disability, public buildings and shopping center architecture.

# ÖZ

## EVRENSEL TASARIM İLKELERİ IŞIĞINDA

## İKİ ALIŞVERİŞ MERKEZİNİN DEĞERLENDİRİLMESİ

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Yirminci yüzyılın ikinci yarısından itibaren dünyadaki yaşlı ve yaşa bağlı engelli sayıları önemli oranlarda artışlar göstermiştir. Bu artışa paralel olarak gelişmiş ülkelerde yaşlılar için özel projeler üretilmeye başlanmış ancak bu projelerle yaşlılar çoklukla toplumdan soyutlanmışlardır. Engelliler ise zaten toplumdan ayrı olarak yaşamaktaydılar. İnsan hakları Evrensel Beyannamesinin 1948 yılında kabulünden sonra artan bilinçlenmenin etkisiyle son altmış yıl içinde dünyada yaşlılarla engellilerin herkesle birlikte toplumsal yaşamdan yararlanması ve yaşam kalitelerinin arttırılması için çalışmalar yapılmış, bazı standart ve ilkeler geliştirilmiştir. Engelsiz tasarım yaklaşımı ile başlayan, tasarıma bakış açısını genel ve özel tasarımdan herkes için tasarıma, kapsayıcı ve/veya evrensel tasarıma kadar geliştiren ve değiştiren bir süreç yaşanmaya başlanmıştır. Tezde bu süreç gelişmelerin kısa açıklamalarıyla birlikte incelenmiştir. Bu gelişmelerin yapılı çevrelerdeki ve binalardaki etkileri tasarımdan uygulamaya kadar yayılmıştır. Dolayısıyla engelli kişiler toplum içinde daha fazla yer almaya başlamışlardır. Özellikle hastaneler, kültür merkezleri ve alışveriş merkezleri gibi kamu binalarında Evrensel Tasarım ilkelerinin uygulanması engellilerin toplumla kaynaşması açısından daha da önem kazanmıştır.

Bu tezde, Türkiye'de 1995 yılı sonrası sayıları hızla artmakta olan alışveriş merkezlerinden seçilmiş iki örnek üzerinde evrensel tasarım ilkelerinin uygulanması değerlendirilmiş, daha kapsayıcı bina ve çevreler tasarlamak için karşılaşılan sorunlar irdelenmiştir. Tez de ayrıca alışveriş merkezlerinin tarihçesi kısaca ele alınmış, Anadolu'da yapılmış olan tarihi çarşılar ve dünyadaki örnekler hakkında kısa bilgiler verilmiştir.

Anahtar Kelimeler: Evrensel tasarım, erişilebilirlik, engelsiz tasarım, kapsayıcı tasarım, engellilik, kamu binaları ve alışveriş merkezi mimarisi.

## ACKNOWLEDGEMENTS

I wish to express my sincere gratitude and appreciation to my advisor, Prof. Dr. Vacit İmamoğlu, for his valuable guidance, support and encouragement throughout my thesis research. His constant motivation, ideas and constructive criticism have been of tremendous help and were always presented in a positive manner. I wish to express also my sincere gratitude to the Dean of the Faculty, Prof. Dr. Haluk Pamir, for his first motivation and guidance to continue my thesis after so many years.

I would like to thank to the jury members Prof. Dr. Baykan Günay, Assoc. Prof. Dr. Emel Aközer, and Assoc. Prof. Dr. Mualla Erkılıç for their evaluations and comments about the further developments of the thesis.

I am particularly grateful to my family, my wife Verda Sevük, my children Zeynep and Kemalcan for their endless support and empathizing from the beginning to the end of my studies. I would like to express my gratitude to my brother, Prof. Dr. Metin Sevük, for his constant encouragements throughout my research. I am also thankful to my other family members, my nephew and nieces Alpan Sevük, Özge Sevük and Ayça Saygın for their encouragements and motivation.

I would also like to thank all my colleagues, particularly Mr. Kültiğin Bilir for his continuous help for preparing the drawings and unreserved supports starting from the beginning of my thesis.

Finally, I want to thank to my friend, Mr. Tanju Şulan who has given me the idea to continue the master thesis which I left incomplete 30 years ago due to professional responsibilities, and those who, one way or other, contributed to this thesis.

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# CHAPTER 1

# INTRODUCTION

From the beginning of the second half of the 19th century, the architectural designs which were influenced by the developments in industrial and technological fields have brought human beings to live with the benefits of the developments, and on the other hand, to cope with the physical and social difficulties of daily life and environmental problems of modernity and urbanization. Old people, children, mothers with strollers and people with disabilities are the most affected groups from environmental problems and barriers.

With the effect of the declaration of the universal human rights following the World War II, in the developed countries of Europe and America, studies increased in numbers day by day to solve difficulties and problems faced by the people with physical and mental disabilities. Architects, designers and related authorities have tried to raise the quality of their lives with special studies and education programmes. New standards have been improved and put in force in order to reduce the effects / impacts of being disabled. Private housing and accommodation have been designed and started to be built for the people with disabilities and, for the veterans to provide more social and physical possibilities apart from society within their isolated places. In some cases, special education had also been given to people with disabilities in order to provide job opportunities and to advance full social integration to the society.

By the middle of the 20th century, architects, city/regional planners, environmental designers, planners, industrial designers have started to produce new codes and standards by taking into consideration the physical conditions of the people with disabilities especially in United States of America. New buildings, new environments and new transportation systems have been designed in accordance with these standards and codes so that people with disabilities could use and access them in a great extent regardless of their shortcomings. In the light of these studies, the end point reached was the concept of Universal Design or in other words Inclusive Design.

People with disabilities in Turkey as in the other developed countries, have of course the same rights, such as receiving services equally, living in community without being discriminated from the social life, enjoying their built environments, and using buildings designed by Turkish designers and architects.

### 1.1. Presentation of the Reasons for Selecting the Shopping Centers in the Context of Public Buildings

What was my main purpose of choosing "the evaluation of the shopping centers in the light of the principles of universal design" as the subject of the thesis, as being an experienced architect over thirty years in the areas of architecture and construction?

As well known in Turkey, shopping centers starting from the end of 1990's have become main public spaces, used by most of the people as a result of changing range of awareness, culture and economic welfare, and people prefer these places as recreation facilities, same as picnic areas. Unfortunately, these centers have been constructed wherever there was a land available without considering the basic criteria like proper size, type, ease of transportation, and feasibility. Furthermore, during the design and construction stages the owners and the architects have not faced much difficulty in local zoning regulations. Therefore, the designs of shopping centers have been realized without taking into consideration the uses of spaces, building effects,

limits in the floor heights, roofing solutions and material selections, and the effects of these to the overall cost of the building. The reason of choosing this topic is that ‘’it is all about to begin somewhere’’ as said by Temel, a popular and well known character in Turkish jokes of Black Sea Coast.

As a professional architect, I have spent long hours in application and construction phases of different type and scale projects. Therefore, I would like to give some usefull information from my experiences to the professionals of the construction sector. Architects are faced with many limitations and restrictions which are imposed on them by investors, by owners and people in other disciplines who want to decrease construction and operational costs starting with the design stage in their projects. There is unfortunately another group of investors and owners who wastes the money on certain features, thinking that it shows prestige, without analyzing the real needs, and without preparing a feasibility report.

Moreover, it is stated in recent research reports and in the press as explained below, that there is still a need for more shopping centers in Turkey. This made me consider that this study would be of help for taking into consideration the important points and prerequisites to our focus for the ongoing and future projects.

The number of shopping centers in Turkey is not reached to the required level based on the studies carried out by Trade Council of Shopping Centers & Retailers. According to the data given by Association of Shopping Centers and Retail-Shop Owners, the number of shopping centers, which was 206 at the end of the year 2008, was reached to 244 at the end of 2009, and 17 new shopping centers opened during the first nine months of 2010, the total number of shopping centers have reached to 261, and the total leasable area has reached to 6.3 million square meters. The total number of shopping centers is expected to reach to 270, and the total leasable area is expected to reach to 6.5 million square meters at the end of 2010. In addition, there are more than hundred shopping center projects under design or construction stage,

and they are expected to be opened in 2011 and 2012 (retrieved from www.ayd.org.tr /TR/DataBank.aspx).

The centers which are less than 5 000 square meters are not included within those numbers stated above. 40% of the shopping centers in Turkey are located in İstanbul, and the remaining is located in the other 46 cities of Turkey, but mainly in Ankara. Average shopping center floor space per thousand inhabitants is approximately 88 square meters in Turkey. This number is 125 square meters in Greece, 250 square meters in France, Germany and England, and 750 square meters in Norway which is at the far end. Despite the low average of Turkey, the dispersion is not homogeneous. In some areas of Istanbul and in Ankara, it has reached 200 square meters per thousand inhabitants (retrieved from www.ayd.org.tr/TR/DataBank.aspx and www.ampd.org/arastirmalar/default.aspx?SectionId=146).

Shopping centers are the most common public buildings, open to all people independent of their age and sex, without any obligations. "Going to the hospitals, museums, schools and other public buildings" is not obligatory if there is no need for anyone including the young and the old. On the other hand, shopping centers of today are beginning to replace the traditional walkways of old cities and give services, such as recreation center, kids world, amusement center and show center besides their identity of being only a trade center. As a result, shopping centers attract people almost every hour of the day and spending their time to enjoying themselves. For that reason, I think, shopping centers are one of the first public buildings that should be evaluated in the light of the principles of universal design.

People going to shopping centers take benefits of lots of services provided by the cities such as transportation and environment besides using the center itself. So, designers whose consciousnesses increase will be directing constructors by producing new concepts and architectural projects according to the principles of universal design. In this case, the most important thing should not be the construction cost. From the investors' point of view, the construction cost of such a building

which is expected to serve for an increasing number of people, becomes more acceptable that the money spent during the construction period would be much less compared to the amount spent later to correct the mistakes or reconstruct some parts. Especially for the investors, knowing that in the near future designing according to the principles of universal design would be of the highest value, will look for and prefer for the existence of such principles in their buildings in order to compete with others.

Our mission as architects and designers is to focus on implementing the plans which will shed some light on the development of the society that we are living in. Certainly, these efforts will not be so easy. For success, dedicated, systematic and persistent efforts shall be required. I think that the number of elderly population in Turkey will increase rapidly over the coming years and they will need buildings and environments suitably designed.

### 1.2 Overviewing the Idea of Universal Design

Universal Design, these two words first came together and used in 1985 by the American architect Ronald Mace, who during his childhood suffered from poliomyelitis, effect of which left him paralyzed and bound him to the wheel chair for the rest of his life. Until that day, phrases like barrier-free design, design for the handicapped, accessible design, adaptable design and usable design were used for a certain group of people, left its place for Universal Design which is suitable for everyone in the community. Thus, built physical environment has gained a very different meaning.

As in many parts of the world, the idea of universal design is also very new for Turkey. From the beginning of the third quarter of the 20th century, the Principles of Universal Design have started to take places in related standards, laws and legislations. Hence, in public buildings such as, shopping malls, hospitals, cultural centers, educational buildings and stadiums, the implementation of these principles

would be more important. In this study, the main problems faced in such buildings will be examined and architectural solutions together with the economical concerns will be proposed for all to use and live equally in more appropriate buildings and built environments. For this purpose, two shopping centers which have been recently completed in Ankara and Istanbul will be evaluated in the light of P.U.D. whether they were applied or not in their design processes and construction phases.

The built environment that we are living in is usually designed and formed according to the needs and specifications of ordinary healthy man who is in between 20 – 40 years old. In fact, at any time in our lives from fashion to sports, from advertising to art, we meet the same human samples as the character of ideal man. This character defines the group of people who forms the first 2 stages of the 8 staged Universal Design Pyramid, defined by Selwyn Goldsmith (2000) which is going to be explained in detail in the later sections of this study, and each application is done regarding to this group of people. However, if we move our attention on the other non-intensive six groups, we will be able to create environments where everybody can live happily. Robert Ivy, in his Universal Design Handbook's foreword has written these sentences:

> *"In its highest sense, universal design suggests a change of focus. Rather than codifying rigid rules for abstract, perfect person, it asks us to remove our rose-colored glasses, see the world as it really is, and adjust our design accordingly. The operative point of view for designers becomes one of empathy for the human condition, in universal design; solutions reflect the diversity of human abilities-throughout the range of life"* (Ivy, 2001, p. xvi.).

When the Principles of Universal Design are explained, many people started to be interested in the idea of living more freely and comfortably in the structures that are built in the light of these principles even if they were healthy or would probably age healthily. For a normal person to empathize, to understand and to feel the differences and the difficulties that is brought by the built environment or in other

words to notice what people with disability feel in a built environment, it is advisable that one should use these structures, and buildings with a handicapped person, elders or a person with stroller. Then, one can only imagine the importance of the need for the built environments and structures where every person can live freely and equally without discrimination. Otherwise, it wouldn't be possible to avert the handicapped people who generally had been thought to constitute the lesser segments of the community, feeling discriminated from the social life, ostracized or feeling themselves different and lonely. The population of the old people in communities will be growing considerably due to the advancement of the medical technology, not only in developed countries but in Turkey, too. While the average life span was approximately 50 years in 19th century, it became approximately 80 years in 20th century. The researches made in European Union countries show that "the EU27 population is projected to become older with the median age projected to rise from 40.4 years in 2008 to 47.9 years in 2060.

The share of people aged 65 year or over in the total population is projected to increase from 17.1% to 30.0% and the number is projected to rise from 84.6 million in 2008 to 151.5 million in 2060 (Giannakouris, 2008).

Similarly, the number of people aged 80 years or over is projected to almost triple from 21.8 million in 2008 to 61.4 million in 2060" (Giannakouris, 2008).

The elders, children, mothers with infants, people with visual and hearing disabilities, and many more people with different disabilities were mostly restricted from social life. Therefore, the people with the mentioned characteristics above forming considerable amount of society should be living without interfering in the built physical environments and it must be admitted that it is their right to maintain their own independent life. To integrate those people with the society without discrimination, their living conditions should be considered not only by the law makers, but, starting from the beginning of the design phase by the designers and especially by the architects who are working for the improvement of the community.

In fact, Turkish Citizens with an average level of education being fourth grade of elementary school and usually introvert (asocial) in nature, have a tendency to hide the people with disabilities in their families as much as they can because of various environmental facts, social pressure and fear of blamed (Tuik, Survey of Population, 2002). Hence, people with disabilities are generally isolated from the public places, public buildings etc, and are kept away from the society. The people travelling frequently to the developed European countries, can easily say that many people with disabilities are living, because you can see them everywhere around in the streets, in shopping malls, in cinemas, sharing the facilities of life with the others. But in Turkey, you can easily say that there is almost nobody with disability, because you can hardly meet someone with disability around, sharing the built environment with you. However, everybody has to understand and accept that being disabled is not the fault of the individual, yet one can easily be disabled in a way, in different periods of his lifetime. For example, by an accident or even by walking on a poorly constructed sidewalk, one can break one of his legs, and for the short curing period, he is called disabled. Therefore, it is necessary to teach and explain to our citizens to be conscious of disability. Thus, a society should be ensured that of all people as well as people with disabilities have almost the same expectations and requirements. International researches indicate that any increase in the number of people, who is aware of disability problems, show positive changes in the attitudes and ideas against the people with disabilities. (Tufan & Arun, 2006, p.15)

As mentioned and signified above, people with disability / handicaps form a considerable part of society and it is hard to estimate the approximate number of handicapped people living in the society as there are not enough information held or there is lack of statistical information about them. Therefore, the methods of estimation that are determined by WHO (World Health Organization) is used to calculate the numbers of people with disabilities/handicaps.

In countries which have advanced registration system, the data that are supplied with fixed intervals are reviewed and compiled together. General census is the healthiest way to get correct information about the number and the structure of a community. In Turkey, the detailed information was gathered by the general census carried out in 1985 and 2000. But, it was observed that the information supplied from the census was not sufficient due to reasons mentioned above. Therefore, different methods were used to estimate the number of the people with disabilities living in Turkey. But, it was really hard to mention about a comprehensive research until the one that was made in 2002.

In order to correct the deficiencies of information and data on People with Disabilities in Turkey, in December 2002, Republic of Turkey, Prime Ministry, State Institute of Statistics has realized a study called "2002 Turkish Disability Survey" in cooperation with Prime Ministry Administration for Disabled People. In this survey, the issues where there is lack of information such as the numerical sizes, socio-economic structures, social problems they confronted in their lives, expectations and types of disabilities of the people have been investigated in detail. The information reached in this survey is summarized in the table below:

*The Proportion of People with Disabilities in the Total Population:*

> *"The proportion of people with disabilities represents 12.29 % of the population. While the rate of orthopedically, mentally disabled, visually and hearing impaired and inarticulate is 2.58%, the rate of people with chronic disease is 9.70%. When observed on the basis of age groups the rate of being disabled increases in older ages in both groups. However, this increase is higher in people with chronic disease in proportion to other disabled group. While the rate of orthopedically, mentally disabled, visually and hearing impaired and inarticulate is 1.54%, the rate of people with chronic disease is 2.60% in 0–9 age group. This ratio almost doubles at 50–59 age group for orthopedically, mentally disabled, visually and hearing impaired and inarticulate and at 20–29 age group for people with chronic disease." See Figure 1.*

(Özürlü Nüfus Oranları, retrieved on August 8, 2009 from http://www.ozida.gov.tr/arastirma/tr_ozurluler_arastirmasi/graf.pdf).

| **THE PROPORTION OF PEOPLE WITH DISABILITIES (%)** | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | TOTAL DISABLED POPULATION | | | DISABLED POPULATION | | | CHRONICALLY ILL POPULATION | | |
| | TOTAL | MALE | FEMALE | TOTAL | MALE | FEMALE | TOTAL | MALE | FEMALE |
| TURKEY GENERAL | 12,29 | 11,10 | 13,45 | 2,58 | 3,05 | 2,12 | 9,70 | 8,05 | 11,33 |
| Age Group | | | | | | | | | |
| 0-9 | 4,15 | 4,69 | 3,56 | 1,54 | 1,70 | 1,37 | 2,60 | 2,98 | 2,20 |
| 10-19 | 4,63 | 4,98 | 4,28 | 1,96 | 2,26 | 1,65 | 2,67 | 2,72 | 2,63 |
| 20-29 | 7,30 | 7,59 | 7,04 | 2,50 | 3,34 | 1,74 | 4,80 | 4,24 | 5,30 |
| 30-39 | 11,44 | 10,43 | 12,42 | 2,56 | 3,18 | 1,95 | 8,89 | 7,26 | 10,46 |
| 40-49 | 18,07 | 15,15 | 21,08 | 2,65 | 3,29 | 1,99 | 15,43 | 11,86 | 19,09 |
| 50-59 | 27,67 | 22,56 | 32,67 | 3,23 | 3,73 | 2,74 | 24,44 | 18,83 | 29,94 |
| 60-69 | 36,96 | 31,60 | 42,02 | 5,14 | 5,65 | 4,65 | 31,82 | 25,95 | 37,37 |
| 70+ | 43,99 | 39,77 | 47,77 | 7,89 | 8,45 | 7,38 | 36,10 | 31,32 | 40,39 |
| Unknown | 11,68 | 6,30 | 14,17 | 0,34 | 0,53 | 0,25 | 11,33 | 5,77 | 14,09 |

Figure 1. The Proportion of Disability (SIS, 2002 Turkey Disability Survey).

If noted, only disabled people are observed in this research. In terms of the usage of public building it may be noticed that, pregnant women, people having a baby in her arms or in a stroller (mother with infant), ones that have difficulties due to their ages and people with temporary disabilities were not included. In that case it will be concluded that people with a higher ratio than the ones mentioned above, live probably in environments that were not built in accordance with the principles of universal design.

Result of researches done in several countries showed that people with disabilities have formed 12.24% of the population in Canada, 20.0% in New Zealand and 1.16% in Uganda (Çalık, 2002). Furthermore, it has been demonstrated statistically that the population in all countries including Turkey is gradually aging (Seyyar & Oglak, 2004). The increase in the average life means we are expected to live longer in the

present environment. The fact that people live longer brings along some physical, biological, psychological and sociological alterations. These alterations that will render people handicapped in a sense are reduction in activity, decrease in auditory and visual levels, amnesia, imperceptions and communication difficulties.

The status of handicapped people within the approaches and applications with regard to human rights that are among indicators of communities in contemporary living should be considered on the basis of equal opportunities for all and benefit from social services without any discrimination, furthermore all the regulations should be considered in order not to allow any kind of discrimination. The responsibility for these regulations not only belongs to decision-makers but to us, architects and designers as well. Particularly in the design of public places wherein a coexistence with the community as a matter of socialization is provided, the usage in equal conditions for all should be taken into consideration. Therefore it is understood that more attention should be paid to at least future studies in order not to create any obstacles at all or minimize them so that people with no disabilities would not even notice in their everyday lives. In the next chapter of this study, definitions and concepts with regard to disability/handicap and types of disability will briefly be explained. Thereafter I will examine the period until the development which is referred to as universal design in our day, things done to remove the barriers and the phases undergone in order for accessible and usable design criteria to be included in designs. Finally, I will evaluate how universal design principles should be taken into consideration in design and implementation of the principles in shopping malls which are one of the social environments that people spend time together for a long time in today's world.

### 1.3. The Purpose of the Study

The purpose of this study is not only to observe, criticize or judge the shopping centers constructed and being heavily used in Turkey in compliance with the principles of universal design. The main objective is to draw the attention to the concept of universal design for a group of people which covers architects, city planners, industrial designers, teachers, educators, administrators, and investors. The universal design concept and its principles will help to establish a general conceptual approach to focus on the design of the public buildings and environments. Two examples of shopping centers, one in Istanbul and the other in Ankara, which were designed by European Architects, will be evaluated in the light of the principles of universal design. Consequently, it is expected that the most recent design criteria have been implemented in both of the projects during their design and construction periods. By the evaluation of these applications, it is intended to light the way for the concerned authorities who decide and design the future projects so that they will produce new solutions, particularly affecting the design of public buildings and environments, in the light of the principles of universal design. In addition, the cost effect of the application of these principles will be reviewed in a few words, as this may be another subject for researchers.

The target will be reached if this thesis creates an interest in conforming to the principles of universal design in the planning and construction phases of the buildings. The next step is to construct new buildings and their environments and to make renovations within the light of the principles of universal design.

### 1.4. Methodology of the Study

This study begins with a literature review of the related written documents, especially books, periodicals, related theses in libraries, and sources retrieved from internets which are listed as references. Universal design and related other concepts which are still officially used are explained in general terms. The concept, history,

and process of universal design will be overviewed together with the principles. The standards produced and mandated at least for public buildings have been reviewed within the content when necessary, but especially the standards and related drawings provided by Americans with Disabilities Act will not be included in the context because they are easily accessible through internet (www.adaag.com/ada-accessibility/guidelines.html). The laws and legislations for people with disabilities have been summarized just to give an idea about the legal approach to the subject. In the next chapter, the definitions and the history of public buildings, and shopping centers are explained together with the illustrations and drawings of old famous market places which are still in use, in Turkey. The projects of two shopping centers, the author of this thesis worked for, as construction manager at the site during project realization period, are evaluated in the light of the principles of universal design in the forth chapter. The study is supported with the drawings and pictures taken from both projects. The information gathered from the evaluation of the design criteria and the applications of the important parts are interpreted with the effect on the cost of the shopping centers.

# CHAPTER 2

# REVIEWING RELATED DEFINITIONS

## 2.1. Definition of Disability

Disability is a concept with no single and explicit definition. As it is influenced by not only cultural implementations and perceptions but also administrative implementations, different countries have used different definitions in terms of meaning and scope. The disability is defined by the Republic of Turkey Prime Ministry Presidency of Administration for Handicapped and State Institute of Statistics (TUIK) as; “Status of people who cannot meet the requirements of normal life and lost their physical, mental, psychological, sensual and social abilities on several degrees due to a congenital or a subsequent disease or accident”. While the definition as “Individuals with limitations in performing activities which are considered normal for their peers due to physical and mental conditions and their health problems" is adopted by Canada (Statistic Canada, 2003). The definition used in New Zealand is “The boundedness or inability to perform an activity within normal style or within the ranges is considered as normal due to an impairment”. The definition adopted by Uganda on the other hand, is “Any situation obstructive for an individual to live his/her social and work life normally”, (UN, 1996). There are two approaches to the determination of disability as can be noticed from the above examples.

1. Impairment based approach,

2. Disability based approach.

The developing countries use impairment based approach more frequently, but the developed countries use impairment and/or disability based approaches. A classification system called International Classification Impairment, Disability and Handicap (ICIDH-1) which was developed by WHO on 1980 for the first time defines disability in three dimensions as impairment, disability and handicap (WHO,1980); Impairment is defined as; "deficiency and abnormality in psychological, physiological and anatomical (physical) structures and functions with regard to health", disability is defined as "the limitations or inability to perform an activity within normal style or within the ranges considered as normal due to an impairment", and handicap is defined as " restriction or inexecution of roles expected from an individual in parallel with age, sex and social and cultural factors due to an impairment or a disability"(Çalık, 2004).

Despite these definitions for disability and handicap, both the terms disability and handicap are used as synonyms in this study, in other words, they all refer to the same concept.

### 2.1.1 Types of Disabilities

Based on the definitions disability may be divided into four main groups. These may be named as: Physical, visual, auditory and mental disabilities. However this classification will be insufficient when users with regard to universal design principles are taken into consideration. On the other hand we see that a standard of Swiss Building Centre Customized for the Disableds (Fink) classifies disabilities as follows:

#### 2.1.1.1. Physical disabilities

a. Walking disabilities.

These people move either with great difficulties or they are dependent on tools that aid them to walk. They cannot cover long distances on foot and have difficulty in passing over level differences.

b. Wheel chair users.

These people can only move by the help of a wheel chair which moves by man handling or electricity.

c. Arms and hands disabilities.

These people either use their arms and hands with great difficulties or they cannot use them at all.

#### 2.1.1.2. Visual impairment

a. People with visual limitations.

These people have either very weak eyesight or their field of view is very limited. They can only perceive big contrasts or exterior lines of objects.

b. Blinds.

These people are dependent on information they acquire by audial and tactile sensing.

#### 2.1.1.3. Hearing impairment

a. People having difficulty in hearing.

These people are dependent on means such as hearing aids, devices providing visual information, common audial equipments.

b. Deafs.

These people are dependent only on equipments providing visual information.

### 2.2. Definition of Universal Design

Three different definitions where each new definition broadens the scope of the universal design will be provided starting from the use of the concept of universal design. The first definition of universal design has been provided by the Center for Universal Design in North Carolina State University:

> *"Universal design can be defined as the design of products and environments that can be used and experienced by people of all abilities, to the greatest extent possible, without adaptations."*

This first definition is derived from universal design's relatively narrow architectural roots. The definition focuses on the built environment and related products. Curb cuts are the prototypical examples of universal design. People in wheelchairs use curb cuts, but so do bike riders, skate boarders, and people pushing baby strollers.

The second definition of the universal design provided in the Council of Europe, Committee of Ministers in 2001, is as follows:

> *"Universal design is a strategy, which aims to make the design and compositon of different environments and products accessible and understandable to as well as usable by everyone, to the greatest extend in the most independent and natural manner possible, without the need for adaptation or specialized design solutions."*

This definition is significant because it moves the notion of universal design into a political context. It brings a fuller participation in economic, social, cultural, leisure and recreational activities for all people. Further, this definition explicitly uses the

terms environments, understandable, and usable, and as such expands the scope of universal design from the first definition. The principles of universal design also conform to this definition of universal design.

The third and final definition of universal design is a significant generalization and therefore it is a more thought-provoking conceptualization.

> *"Universal design is a values-based framework for design decision making, based on an ethic of inclusiveness and interdependence that values and celebrates human difference and acknowledges humanity's debt to the earth"* (Erlandson, 2008).

Erlandson says that this definition of universal design is the most general and far-reaching one. This definition moves universal design directly into the political arena. Weisman (1999) in his paper goes on arguing that, "While the focus on accessibility that gave rise to the universal design movement has begun to produce significant innovation in product and graphic design it is time to move beyond the letter of the law to the spirit of the law; to shift our focus from redressing human and environmental problems through remedial design to preventing problems through holistic design". (Erlandson, 2008)

The definition of universal design includes the notions of usability and accessibility. Usability and accessibility are not the same. Usability implies accessibility in that if the user cannot physically access the system, then the system is not usable. Yet accessibility does not imply usability. For example, a person may be able to access physically to a system, but it may be too difficult to learn and thereby to use it.

### 2.3. Definition of Barrier-Free Design, Barriers

Barrier is defined in the dictionaries as "anything that restrains or obstructs progress, access, etc." Under the root word "bar", we find in the noun form "anything which

obstructs, hinders, or impedes" and in the verb form "to exclude or except." Therefore the meaning of the term barrier has both a literal form, as in a fence or railing, and a figurative form, as in a restriction to membership in a club (Bednar, 1977. p.1). Literal barriers are called as physical barriers, where as figurative barriers are called as social barriers. Social barriers are more subtle, and implicit. They are more difficult to recognize, and therefore more difficult to change. Physical barriers are direct in their influence and explicit in their effect primarily upon the physically handicapped. They are recognized more easily, and therefore, they are changed more easily. Common physical barriers directly affecting the people with disabilities or handicapped are found in the building entrances, building corridors, stairs, elevators, toilets, pedestrian walkways, and all forms of public transportation (Bednar, 1977).

The reason for this long list of physical barriers lies in the norm that is used as the basis for all design process. This norm is based upon the mobility, size, strength, and capabilities of the average-sized, healthy, thirty-year old male. Most of the available anthropometric data commonly used in architectural and industrial design are based upon this norm which goes back to the Vitruvian Man as mentioned above. Stairs, elevators, door hardware, toilets, plumbing fixtures, telephone boots and other facilities are designed on this basis. Women, children, the aged, the injured or frail, and the physically handicapped do not fit this norm.

Apart from the physical and social nature of barriers, some of their general characteristics need to be discussed. First of all, barriers are always external to the handicapped people they affect. They are created by others, both knowingly and unknowingly, to restrict the lives of the handicapped. The second general characteristic of barriers is their transparency to those unaffected. Only the handicapped people are directly aware of the existence of barriers. The conditions they have due to their disabilities enable them to identify barriers (Bednar, 1977).

## 2.4. Definition of Accessible Design, Accessibility

The term accessible is commonly associated with the physical environment. Accessibility has been defined in the dictionaries as “opportunity being able to be reached, to be easily seen and the way of getting into a place.” Accessibility, in general, is described as the ease and possibility of arrival and the degree of reachablity to a place, a location, a residence or a public building by as many people as possible.

Veterans who suffered injuries in World War II, other people with disabilities, and their advocates led a barrier-free movement that drove changes in public policies, laws, and design standards. Disability rights leaders made a positive impact on the accessibility of education, public places, transportation, and information technology, further inspired by the civil rights movement of the 1960s. For example, the Architectural Barriers Act of 1968 in USA requires that all buildings designed, constructed, altered, or leased with federal funds meet minimum accessibility requirements to remove physical barriers to individuals with disabilities. By the 1970s, parts of Europe and the United States were beginning to move beyond the emphasis on special solutions tailored to individuals and toward the idea of normalization and integration. Increasingly, the terminology of choice was accessible design. In the United States, the disability rights movement taking shape in the mid-70s built upon the vision of civil rights articulated in the 1964 Civil Rights Act for racial minorities. People speaking for themselves argued for equality of opportunity and against paternalism and care-taking. For the first time, design was recognized as a condition for achieving civil rights.

Section 504 of the Rehabilitation Act of 1973 of USA prohibits discrimination on the basis of disability in intense public programs and services. However, accessible design came to the forefront of the public awareness in the United States with the passage of the Americans with Disabilities Act of 1990 (ADA). As a result of this legislation, the U.S. Architectural and Transportation Barriers Compliance Board

(Access Board) has created and published accessi- bility guidelines and standards that provide specific design guidelines for the construction and renovation of facilities. People often equate accessible design to compliance with these standards and even label accessible environments as "ADA-compliant" (Iwarsson & Stahl, 2003).

The definition of accessible design below focuses on the legal implications of the term:

> *"Accessible design is the design of facilities, products, and services that satisfy specific legal mandates, guidelines, or code requirements with the intent of providing accessibility to the entities for people with disabilities"* (Erlandson, 2008)

This definition is an expansion of the 1991 Center for Accessible Housing's definition, which referred only to "code requirements." As the legal environment has evolved, it is necessary to reflect the legal changes in the definition. Accessible design derives its legal meaning from laws such as the Americans with Disabilities Act, Section 255 of the Telecommunication's Act, and Section 508 amendments to the Workforce Investment Act. These laws also mention that products should be compatible with assistive technology devices used by people with disabilities or able to be modified so as to be rendered accessible.

Whereas accessible design is legally driven in that specific legal requirements must be met to ensure the accessibility of facilities, products, and services for people with disabilities, universal design is not legally driven or mandated.

Facilities can be made accessible to people with specific disabilities, with specific modifications. Such modifications are called "accommodations" and characterize the process of adaptable design.

## 2.5. Definition of Adaptable Design

> *"Adaptable design features are modifications made to standard design for the purpose of making the design usable for an individual, as needed"* (Erlandson, 2008).

The above definition of adaptable design focuses on modifications made to existing entities that make the entity accessible to people with disabilities. This can be simply explained by the common example of adaptable design. The vans have standard design that is not wheelchair accessible; but after modifications are rendered, the vans are wheelchair accessible as in Figure 2 below. The van accommodation is not required or mandated by any law, code, or guidelines; hence, it is not considered accessible design (Erlandson, 2008).

Figure 2: Wheelchair accessible Van

Therefore, adaptable design differs from accessible design in that laws do not mandate it; and it focuses on modifying an existing standard design. Adaptable design is not universal design because universal design creates products and services that are accessible and usable without adaptations (Erlandson, 2008)

## 2.6. Definition of Usable Design, Usability

Usability has been defined as "the extent to which a product can be used by specific users to achieve specified goals with effectiveness, efficiency and satisfaction in a

specified context of use" (International Organization for Standardization, 1998). Usability engineers are concerned with subjective views on how well a design enables performance and contributes to well being (Iwarsson & Stahl, 2003). Usability takes into account, how easily, specific users can learn to operate a product, achieve their goals, and remember to perform tasks when they return to the product at a later time. Some usability professionals today do not routinely include people with disabilities in usability tests (Bergman & Johnson, 1995; Burgstahler, Jirikowic, Kolko, & Eliot, 2004). Others however consider accessibility "a necessary precondition for usability" (Iwarson & Stahl, p.62). From this point of view, a design cannot be highly rated for usability if it is not accessible to people with disabilities.

## 2.7. The Relationships between Universal Design, Accessible Design, and General Design

Erlandson describes the relationships between universal design, accessible design, adaptable design, and general design with a diagram shown below in Figure 3. This diagram shows that universal design is not a subcategory of accessible design.

I am not defining the general design here as we all know that man is the measure of a building's scale, proportion, and dimensions. His scale, his dimensions, and his reach and posture characteristics are primary determinants or generators of a building's form, size, and spatial layout. All the dimensions we use in our designs are for an average person and should be used with caution. If we are designing a children school we will generally use the their dimensions in the design of special units used by children only such as chairs, tables and WC units.

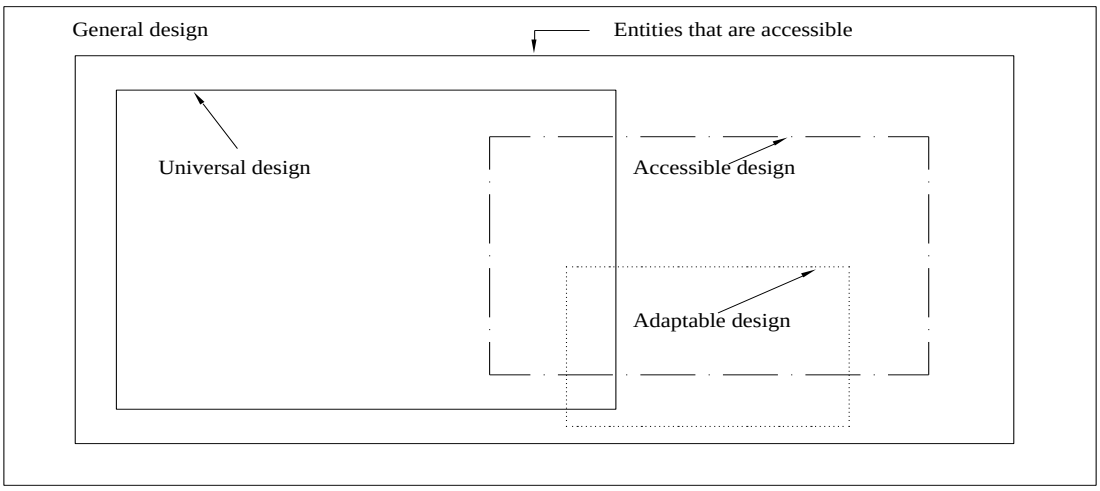



Figure 3. Venn diagram illustrating the relationships between general design, universal design, accessible design, and adaptable design (Erlandson, 2008)

> *"The rectangle labeled 'Entities that are accessible' is explicitly used to emphasize the fact that accessibility can be achieved by design strategies from all design categories. If accessibility is achieved because it is mandated, then it results from accessibility strategies. If accessibility is achieved as a result of an accommodation, it is an adaptable design strategy. Accessibility can also result from applying universal design principles."* (Erlandson, 2008)

Design features which are not mandated or required by laws or regulations are the samples of universal design, such as automatic door openers, curb cuts, etc. Therefore, designers should understand and utilize different design perspectives by analyzing the way of approach they will use to solve specific problems during the design stages. Then, the approach could be named as accessible or universal or else. I will give here an example of an approach from Turkey.

There is a picture retrieved from internet, showing a curb cut application from one of the cities in Turkey, below (Figure 4). How many barriers are there in this picture although the curb stones have been cut so that a person with a wheelchair can cross

the street without any problem, or is this application an approach to universal design? This kind of application is naturally a bad example of its type, but one can easily find same kind of applications everywhere around.

Figure 4: How many barriers are here?

When this picture has been evaluated in the light of the principles of universal design, one can say that the curbs have been cut in accordance with the principles to make the sidewalks accessible for wheelchair users, but the only barrier which makes people laugh when they look at it is the pole placed exactly in the middle of the ramp.

Figure 5: Barriers.

Let us evaluate the same picture in detail. First of all, we have to mention the width of the sidewalks which is not providing adequate-width for a person on a wheelchair to pass in between the light pole and freestanding objects projected from the windows of the store. Another barrier is the sharp edges of the ramps, which are not constructed in accordance with the principles and standards. The sloped finishes should be used instead of the sharp edges. The puddle on the middle of the way to the ramps is the other barrier for people with disabilityies, mothers pushing their baby strollers, aged people and bicyclists. The ramps are located only in one direction. The other barrier is the step height block on the sidewalk which prevents people with disabilities to use this sidewalk. One can find other barriers if this picture is evaluated in detail. This picture shows that to make a ramp by curb cutting is not an adequate solution for accessibility. The built environment should be designed by taking into consideration all principles of universal design and standards by the designers.

# CHAPTER 3

## CONCEPT OF UNIVERSAL DESIGN

Although people with disabilities have been classified as mentioned above in Swiss Standards (Aköz,2001), Selwyn Goldsmith (2000) when evaluating the public building users in accordance with the principles of universal design has created the following universal design pyramid (Figure 6).

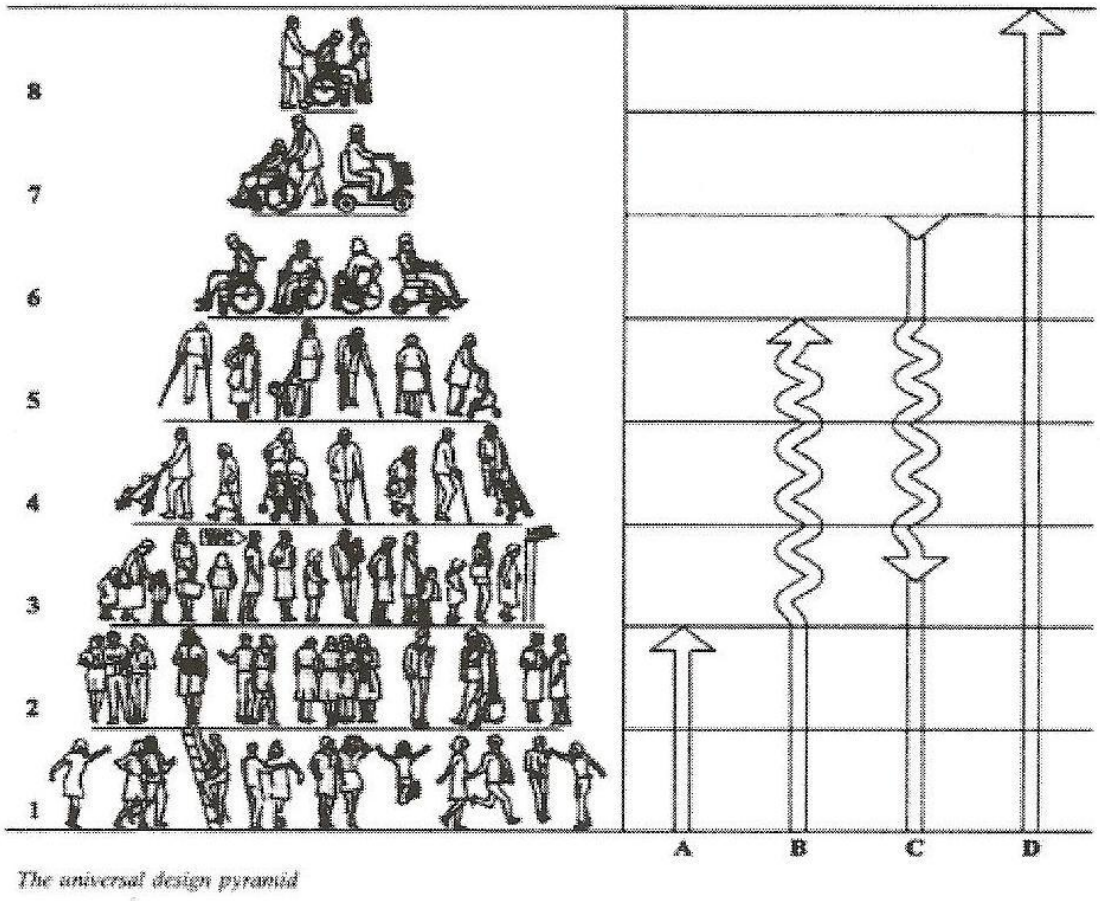



Figure 6. Selwyn Goldsmith's Universal Design Pyramid

The universal design pyramid has been defined by the author as follows:

> *"In row 1 at the foot of the eight-level pyramid are fit and agile people, those who can run and jump, leap up stairs, climb perpendicular ladders, dance exuberantly and carry loads of heavy baggage.*
>
> *In row 2 are the generality of normal adult able-bodied people, those who, while not being athletic, can walk wherever needs or wishes may take them, with flights of stairs not troubling them. Scoring as at pointer A, architects do as a rule cater well enough for these people. It needs, however, to be noted that there are no small children in rows 1 and 2.*
>
> *Like those in rows 1 and 2, the people in row 3 are in the main also normal able-bodied people, and in the public realm the architect frequently fails them. These are women, the users of public buildings who when they attempt to use public toilets are regularly subjected to architectural discrimination because the number of wc's provided for them is typically less than half the number of urinals and wc's that men are given, the effect being that they can be obliged to join a long queue or abandon the quest.*
>
> *In row 4 are elderly people who, although perhaps going around with a walking stick, do not regard themselves as being 'disabled'. Along with them are people with infants in pushchairs, who-men as well as women- can be architecturally disabled when looking to use public toilets on account of stairs on the approach to them and the lack of space in wc compartments for both the adult and the infant in the pushchair.*
>
> *In row 5 are ambulant people who have disabilities. Broadly, the building users who are in rows 3, 4 and 5 are people who would not be architecturally disabled if normal provisions in buildings were suitable for them, if it were standard practice for architects to design buildings to the precepts of universal design, with public toilets facilities being more accommodating and conveniently reachable, and steps and stairs being comfortably graded and equipped with handrails on both sides. Across Britain, however, that is not by any means a general rule, the effect being as*

*shown in pointer B where the squiggle in rows 3, 4 and 5 indicates building users who could when new buildings are designed be conveniently accommodated by suitable normal provision, but often are not.*

*The people in row 6 are independent wheelchair users, and with them British Standards Part M building regulations comes into the reckoning. In the years since 1985 new public buildings in Britain have had to be designed in compliance with the Part M building regulation, meaning that access provision for disabled people has to be made in and around them. The Part M process operates top-down, and it focuses on making special provision in buildings. It is independent wheelchair users who govern its 'for the disabled' prescriptions, and an effect of this when the design guidance in the Part M Approved Document is followed is that the needs of independent wheelchair users may be satisfied, but not necessarily those of ambulant disabled people or people in wheelchairs who when using public buildings need to be helped by someone else. The outcome of this selective top-down procedure is shown in pointer C, with the squiggle denoting the people in rows 5, 4 and 3 whose needs may not be entirely taken care of when they use public buildings.*

*The physically disabled people whose particular needs are not fully covered by British Standards Part M are at the top of the pyramid. In row 7 are wheelchair users who need another person to help them when they use public buildings, and those disabled people who drive electric scooters. In row 8, having regarded in particular to the usage of public toilets, are wheelchair users who need two people to help them when they go out.*

*A need that people in row 8 and many of those in row 7could have when using public buildings would be for a suitably planned unisex toilet facility where a wife could help her husband, or a husband his wife. This would be special rather than normal provision, but for universal design purposes it would be admissible; the rule is that where normal provision cannot cater for everyone, supplementary special provision may be made.*

*Of the people with disabilities shown in the pyramid, one-in row 5-is a blind person led by a guide dog. The others, either ambulant disabled or wheelchair users, are all people with loco motor impairments. It is these who when using public buildings are most vulnerable to architectural discrimination, for example on account of steps and stairs, confined circulation spaces, and fixtures, fittings and controls that are too high or too low to reach. And for the architect who is looking to counter architectural discrimination when designing a building on the drawing board or computer screen, it is people with locomotors impairments who can most readily benefit. By way of information conveyed architectural drawings the scope available to help people with sensory or cognitive disabilities is tiny by comparison.*

*Ideally, the outcome of applying the principles of universal design would be as shown by the D pointer, indicating buildings that are entirely convenient for all their users. As has already been noted, however, the pyramid does not show children, and for them an important consideration is the height of fixtures and fittings.*

*This issue is exemplified by washbasins. In cloakrooms in public buildings where there is a single basin, and also where two or more basins are at the same level, it is customary for the bowl rim to be at about 820 mm. above the floor level. This is not convenient for young children, nor is it convenient for standing adult people, for whom 950 mm. is more suitable. There is no single level at which a washbasin can be fixed so that it suits all users.*

*The principles of universal design are not compromised by it not being possible to fix a washbasin at a height which will be convenient for all its users. By expanding the accommodation parameters of normal provision, with supplementary special provision being added on where appropriate, the architect's objective is to make buildings as convenient as can be for all their potential users. The operative condition is 'as convenient as can be'. There are times, as with washing at a basin, when architectural discrimination is unavoidable."* (Goldsmith, 2000)

### 3.1. History of Universal Design

In this chapter, the history of Universal Design which was used for the first time by Ronald Mace on 1985 will be examined. I will start with the examples compiled from countries as different as possible, and will also try to discuss what's done and what are planned in today's Turkey. The examples compiled from countries may consist of living and built environments or laws and regulations issued. The characteristics of evaluated public buildings will become clearer as the subject is specialized on the sample projects.

People are unable to meet their own needs from the moment they born until they reach teenage. Therefore, they feel comfortable and happy when they are with people that they can rely on. Human beings are social creatures who like to live together. Living with other people in the community provides advantages for each individual and there are certain rules to benefit from these advantages. All the individuals in a community are expected to obey the conditions and rules that regulate the relations of the community they are in and enable to maintain to live together.

Some individuals cannot behave in accordance with the requirements of the laws in force and the expectations of the society because of their personal diversities. For example, the person who is visually impaired or having impaired hearing is different from the other individuals of the community. For this reason, people with disabilities cannot easily adopt without discrimination to the regulations set by the community life just like the other people, and therefore they are kept apart from the social life. People with any kind of disability have been accepted as cursed or punished by gods and have been excluded from the community in primitive communities. People with these kinds of diversities have been either teased for their diversities and turned into entertainment tools or been treated as beggars or accused for being witches. They have been deprived from individual rights such as getting married and having children and left dead in almost every situation. However it has been noticed that a

normal individual having a different status and abilities in the community might become disabled later, and it has been acknowledged that some obstacles might be eliminated by several supports and interventions and that they would benefit from these disabled peoples' knowledge and experiences. Especially the fact that works done by young population, who died in wars, can also be done by disabled people who had an important role for the alteration of community's point of view. With the adoption of universal declaration of human rights, every individual has had the right to benefit from all opportunities of the society without regard to any diversity.

The public buildings where people gathered and used together have become an important element of city architecture by the start of urbanization. These buildings have varied as temples, administration buildings, baths, theatres, stadiums and education buildings. Users of such buildings were people that we would characterize as normal in majority. It was a reality that each individual did not have equal rights in history. In middle ages and before that the urbanities were not comfortable in the sense we live today. All needs were satisfied within a walking distance. However, especially in the nights, streets were dark and full of many dangers like bumps, holes, garbage and piles of filth, mud and slicking, which would cause physical injuries as they are faced on the back streets of today's cities. The finishing of streets was not straight and, was not covered everywhere. Due to lack of infrastructure everywhere was filthy. The roads were built wide enough for horses and oxcarts. Therefore it was not necessary to take precautions to protect people from the dangers of motor vehicles which are the gifts of the developing technology. As the side walk concept was not discovered, connection between the roads to houses or gardens of houses and main streets were all at the same level. City centers and Bazaars were also at the same level with the main roads. Since the ends of 19th century by the development in industrialization the design of cities started to get influenced from it. While infrastructures and sidewalks were built, roads were cleaned from mud. However, vehicles were more important than people in the design of the roads. Due to increase

in the number of motor vehicles, roads were enlarged but sidewalks were narrowed down. Human beings were again pushed back to second position.

The medical science did not reach the phase that would eliminate the physical diversities and the average life expectancy was over 50 only in the beginning of 20th century. Approximately, 50-60 years ago, people gained their equal rights. Old people taking more place in society due to prolonged life time, somewhat started creating demands for applying their youth habits. Therefore, new designs and new buildings were started to be built in developed countries as a result of the needs of private houses and nurseries for old people.

Following such an introduction to the history of universal design, let us continue with the Roman Architect Vitruvius. Vitruvius, who lived in the first century B.C, stated in his book 'The Ten Books of Architecture' that a highly qualified architectural design should be based on the following three major principles:

- Durability, solidity of construction – *Firmitas*
- Convenience, adaptation to use, suitability – *Commoditas*
- Beauty, the experience of pleasure, aesthetics – *Voluptas*

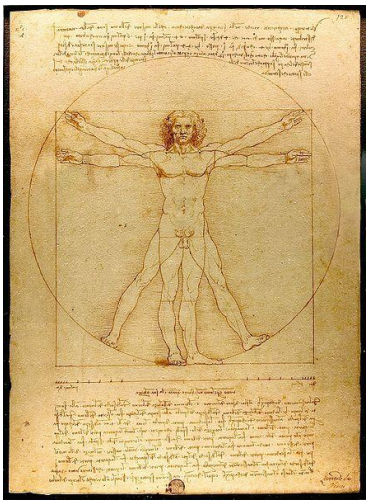
> *"Durability will be assured when foundations are carried down to the solid ground and materials wisely and liberally selected; convenience, when the arrangement of parts is faultless and presents no hindrance to use, and when each class of building is assigned to its suitable exposure; and beauty, when the appearance of the work is pleasing and in good taste, and when its members are in due proportion according to correct principles of symmetry."* (Vitruvius, 1914, p.40)

Specifically, Vitruvius recommended "laying the building out so ingeniously that nothing could hinder its use."

Many centuries after the death of Vitruvius, today, we have to acknowledge two facts. First, these three criteria are still the pillars of architectural creation – good

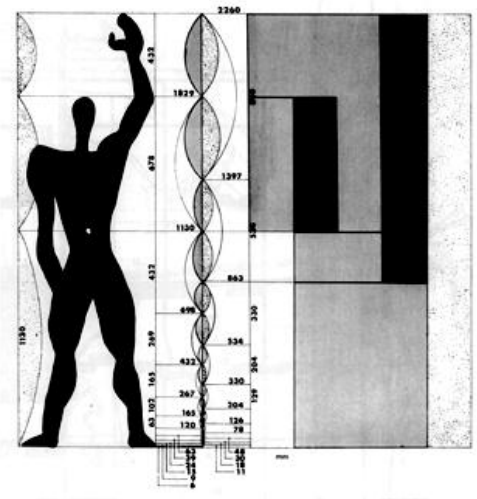
architecture depends on achieving the right compromise and balance between them. The second is that adapting to people and their uses is an inescapable consequence of achieving this compromise – the architect can discover the directions in this process of adaptation and can therefore qualify the building and its aesthetics. As Otto Wagner concluded in his book "Modern Architecture", published in Vienna in 1895: "Architecture is both an art and a science based on human requirements. If architecture is not inspired by life and human's requirements, it will lose part of its spontaneity, of its vitality and of its freshness. It will sink to the level of a sterile and simple reasoning and will even cease to exist as an art. The artist must never forget that art exist for the sake of man, and rather than man for the sake of art" (Grosbois, 2001, pp.27.2-5).

"Since antiquity, the European culture that developed around the Mediterranean Sea has always used a universal graphic representation of the human body that obeys a set of proportions, in which all the parts are geometrically related. By reducing the body, as an ideal figure, to a mathematical model, Greek and Roman architecture identified the forms of the human body with geometrical figures" (Figure 7).



*Leonardo da Vinci's"Vitruvian Man"*

Figure 7: Vitruvian Man



*Le Corbusier's "Modulor Man" 1946*

Figure 8: Modular Man

Renaissance artists, such as Francesco di Giorgio, Leonardo da Vinci, and Albrecht Dürer, tried to apply the proportions of the human body to the layout of buildings, and even cities. When Le Corbusier created Modular Man in 1946, he also took his due place in an historical continuity of thought. Here is how he defined it: "Modular, a range of dimensions on the human scale, universally applicable to architecture" (Figure 6).

In the early 1950s, racial segregation in public schools was the norm across the United States. Although all schools were supposed to be equal in the quality of education they provided, most schools for African Americans were far inferior to their counterparts for white children. In Kansas, an African American elementary school student had to walk 1 mile to get to her segregated school, although the white school was only seven blocks away. Starting with this case, the objections supported by the African-Americans to the discriminations have caused the law suit finally reached the Supreme Court. On may 17, 1954 the Court ruled in a unanimous decision that the "Separate but equal" clause was unconstitutional because it violated the children's 14$^{th}$ Amendment rights by separating them solely by the color of their skin. Chief Justice Warren delivered the Court's opinion, stating," segregated schools are not equal, and cannot be made equal, and hence they are deprived of the equal protection of the laws".

After many years and struggles, the Civil Rights Act of 1964 was the first of the major civil rights statutes passed by the U.S. Congress. It established the foundation for section 504 of the Rehabilitation Act of 1973 and, later, the Americans with Disabilities Act (ADA). Although the 1964 Civil Rights Act was broad in its definition of protected classes, it did not cover people with disabilities.

Back to the year 1919, federal rehabilitation laws provided benefits for people with disabilities. Initially focused on rehabilitation services for veterans, federal rehabilitation laws were amended to include workers who were disabled on the job.

In 1954, the Vocational Rehabilitation Amendment Act widely extended services and benefits to people with disabilities, who were not veterans.

On the other hand, Tim Nugent, director of rehabilitation services on the Champaign-Urbana campus of the University of Illinois, recognized in the early 1950s that architectural barriers stood in the way of his students with disabilities being able to realize their potential for achievements and compete successfully with others for the material rewards which America offered. Having demonstrated how the university and public buildings in Champaign and Urbana could be altered so that students with paraplegia could use them independently in their wheelchairs, he was asked to prepare the draft of what was to be the seminal document in accessibility history, the initial American standard. (*Standard A117.1-1961: American Standard Specifications for Making Buildings and Facilities Accessible to, and Usable by the Physically Handicapped.*)

American Standard A117.1-1961 has been the pioneer by starting to penetrate in the laws in the year 1963, for the movements against the discrimination which has already took place in recent years, especially to eliminate the architectural barriers which people with disabilities have faced in the built environment. Within this year, state governments decided to legislate that the new public buildings should be designed to be easily accessible in conformity with the standards to provide a barrier-free environment to the people with disabilities.

The Rehabilitation Act of 1973 was the first federal law that incorporated civil rights prohibiting discrimination toward people with disabilities by recipients of federal funds. The law states:

> *"No otherwise qualified handicapped individual in the United States shall solely by reason of his handicap, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance".*

For the first time, access to employment, education, buildings, and society has been put into the context of civil right. Although the law was signed in 1973, the regulations that would give guidance to its implementation were not signed for 4 years.

Efforts in late 1950s created federal accessibility standards and legislation. One problem that occurred at that time was that although veterans and other people who were disabled might be ready to take part in society, society was not ready for them. Even today, in some cases, especially in some developing countries including Turkey, the similar problems can be noticed.

Over the years, there has been a tremendous change in both the consciousness of universal design as well as in the practice and experience of universal design. The architects and the designers convicted by people with disabilities and their advocates have started to use the examples of forms of universal design and realize them in the built environment.

As it is mentioned above, Tim Nugent was an advocate of access for everyone, and the first exponent of the Principles of Universal Design as they apply to buildings in the United States as well as in Britain (Goldsmith, 2000).

In Britain in 1961, the idea that there ought to be rules for making public buildings accessible to people with disabilities was unheard of. Britain had a welfare culture, the established principle being that the only way to help people with disabilities was to treat them as individuals, and respond to the special needs that each had for health and welfare services. The idea that they could be bunched together and treated congregately was virtually unheard of. The message that Tim Nugent brought from America was, however greeted with enthusiasm, and it was decided that Britain must have an access standard like America's, one that the British Standard Institution would produce; in its first version it was issued in 1967 as Standard CP96: Access for the Disabled to Buildings (British Standard Institution, 1967).

For toilet facilities, the specifications in CP96 differed markedly from those of A117.1. In Britain, research had shown that for people with severe disabilities there was a vital unmet need – nowhere were there any public toilets which were designed and equipped to cater to wheelchair users who could not use a toilet unaided, and who needed, as a rule, to be helped by their spouses. Here was a design issue that CP96 had to deal with, the result being specifications for a unisex toilet for people with disabilities – one which would have to be set apart from normal men's and woman's toilets, because it was unisex.

In 1979 a revised access standard, BS5810 replaced CP96, and it came with specifications for a standard unisex toilet that was more spacious and more suitably equipped. When the Part M national building regulations were introduced in 1987, one requirement was that buildings should have at least one BS5810-type unisex toilet. The current 1999 Part M regulations retain that requirement. But as research findings have shown, the BS5810-type toilet does not suit all wheelchair users; an independent wheelchair user who enters forward may find it difficult to close the door, and there is insufficient space inside for a wheelchair to be easily turned around. Research has confirmed that most wheelchair users (whether managing independently or assisted by a helper) prefer to translate laterally and have the toilet in a corner position with securely fixed grab rails, the provision being their need for the facility to be larger than the BS5810-type toilet.

In America, the rule is that a toilet compartment suitable for independent wheelchair users should be a feature of all toilet rooms in public buildings; it is a normal provision. In Britain, the BS5810-type unisex toilet is special for people with disabilities-the one that has to be provided in each public building is separated from the normal provisions for men and women, alongside or elsewhere. And for normal public toilet facilities, there are no statutory rules-no minimum standards for the size of toilet compartments and no conditions aimed at preventing discrimination against women.

Britain's version of the Americans with Disabilities Act was passed into law in November 1995. Most of its provisions have been brought into force, but not yet those that are to give people with disabilities access rights. These are due to take effect in 2004, following consultations on how the act's access provision might be applied in practice (Disability Rights Commission, 2000) an official guidance document advising service providers and architects on what may be reasonable under the terms of the act is to be issued in 2001. Its focus will predictably be on situations where alterations should be made to existing buildings to provide wheelchair accessibility.

EIDD (European Institute for Design and Disability), on the occasion of its Annual General Meeting in Stockholm on 9 May 2004, adopted the following Declaration:

"Across Europa, human diversity in age, culture and ability is greater than ever. We now survive illness and injury and live with disability as never before. Although today's world is a complex place, it is one of our own making, one in which we therefore have the possibility-and the responsibility-to base our designs on the principle of inclusion.

Design for All is design for human diversity, social inclusion and equality. This holistic and innovative approach constitutes a creative and ethical challenge for all planners, designers, entrepreneurs, administrators and political leaders.

Design for All aims to enable all people to have equal opportunities to participate in every aspect of society. To achieve this, the built environment, everyday objects, services, culture and information-in short, everything that is designed and made by people to be used by people must be accessible, convenient for everyone in society to use and responsive to evolving human diversity" (Stockholm Declaration,2004), retrieved from http://www.build-for-all.net/en/documents/).

### 3.2. Universal Design (Design for All, Inclusive Design)

Universal design is a term used to define an understanding of design for all human beings. It has gained more importance in USA, beginning from the years 1950s, being parallel with improvement of the human rights given personally to all people including people with disabilities. Dostoğlu states that: "In different countries of the world, the concept of universal design is reminiscent of different terminology, such as "Design for All", "Inclusive Design", "User Needs Design", "Real Life Design", and "LifeSpan Design". (Dostoğlu, 2009) It has also gained importance as inclusive design a name originated from the word itself, in Europe where its principles have been applied. Universal design applications have begun to be brought into life through the principles printed by North Carolina State University Universal Design Center, which were formed during time. Especially during the last 25 years, important improvements have been recorded in terms of universal design. In both developed and developing countries, regulations have been put into operation, loading responsibilities to the decision makers, in order to bring universal design to our lives (İmamoglu, 2007).

Universal design is an inclusive process aimed at enabling all of us to experience the full benefits of the products and environments around us regardless of our ages, sizes or abilities. Anybody who designs an environment or a product, like an architect, a city planner, an engineer or an industrial designer, is somewhat connected to the universal design.

Universal design of products and environments has a history that predates the use of the term Universal Design. Marc Harrison (1928-1996), who became a professor of industrial engineering at the Rhode Island School of Design, was a pioneer in what later became known as Universal Design. Harrison sustained a traumatic brain injury as a child. His experience through years of rehabilitation gave him insight and inspiration in his academic and professional work. He challenged the design philosophy at the time, which focused on design for individuals of average size and

ability, by promoting the idea that products and environments should be designed for people of all abilities.

Ronald Mace, an internationally recognized architect, product designer, and educator coined the term universal design in the 1985. Like Harrison, Mace challenged the conventional practice of designing products for the average user and promoted a design approach that led to a more accessible and usable world. During his studies at the Center of Universal Design at North Carolina State University, he defined Universal Design as *"the design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation or specialized design."* UD features in a product or environment are integrated into the design so that they foster social integration and do not stand out. An example of UD is a sidewalk that has curb cuts to make it usable by people who are walking, using wheelchairs, pushing baby strollers, and rolling delivery carts. The curb cut exemplifies "design for all."

During his last speech ten days before his death; Mace has tried to explain his ideas about Universal Design as follows: "Universal design broadly defines the user. It's a consumer market driven issue. Its focus is not specifically on people with disabilities, but all people. It actually assumes the idea, that everybody has a disability and I feel strongly that that is the case. We all become disabled as we age and lose ability, whether we want to admit it or not. It is negative in our society to say "I am disabled" or "I am old." We tend to discount people who are less than what we popularly consider to be "normal." To be "normal" is to be perfect, capable, competent, and independent. Unfortunately, designers in our society also mistakenly assume that everyone fits this definition of "normal." This just is not the case (Mace, August 1998).

Universal Design is a promising approach for integrating all we know about gender, race and ethnicity, age, disability, and other diversity issues into an implementation model that highly values diversity and equity and can be routinely applied to all aspects of our social life".

By looking through this frame, the perspective of Universal Design can be summarized as below:

Universal Design:

- is a goal;
- is a proactive process that can be implemented in incremental steps;
- is accessible, usable, and inclusive;
- Does not lower quality or standards.

### 3.3. Process of Universal Design

The term design can be used as a verb or as a noun. When used as a verb, design refers to a process; and when used as a noun, design refers to an object or entity. The following definition of design has been put forth by the Consummate Design Center:

> "Design is the thought process comprising the creation of an entity."

"Each element of this definition provides insight as to the nature of design. Design starts with 'thought,' that is, insight, intuition, and reason. Each of these elements will be considered. The designer must have insight, an idea, or a thought as to the connection between a design concept and the needs or problems addressed by the proposed entity. More simply, the designer needs to see the connection between problem and possibility" (Erlandson, 2008, p.15).

Design continues with 'process,' that is, a collection of activities or steps. The process can be iterative or linear, simple or complex. For example, there are differences between the design of a wooden box and a car. The first one has a linear process, where the second has much more complex process.

Similarly, UD is a process as well as a goal. As Story, Muller, and Mace (1998 p.2) have written:

"It is possible to design a product or an environment to suit a broad range of users, including children, older adults, people with disabilities, people of a typical size or shape, people who are ill or injured, and people inconvenienced by circumstance. Yet it is unlikely that any product or environment could ever be used by everyone under all conditions. Because of this, it may be more appropriate to consider Universal Design a process, rather than an achievement" (Sheryl &Cory, 2008, pp: 12-13).

Vanderheiden and his colleagues at the University of Wisconsin's Trace Center (Vanderheiden and Tobias, n.d., p.1) have used the following definition of UD as a process for designing consumer products:

"Universal Design is the process of creating products (devices, environments, systems, and process) which are usable by people with the widest possible range of abilities, operating within the widest possible situations (environments, conditions, and circumstances), as is commercially practical".

Universal Design has two components:

- Designing products so that they are flexible enough that they can be directly used (without requiring any assistive technologies or modifications) by people with the widest range of abilities and circumstances as is commercially practical, given current materials, technologies, and knowledge; and
- Designing products so that they are compatible with the assistive technologies that might be used by those who cannot efficiently access and use the products directly. (*Sheryl & Cory, 2008, pp. 12-13*)

Universal design integrates both accessible and usable design features and seeks to make it possible for everyone to participate in an inclusive setting where no one is singled out.

An approach to distinguish the differences between accessible and universal design is as follows:

A ramp to provide wheelchair access to a main entrance with stairs is technically accessible. However, this is not as universal as a sloping ramp to a main entrance without stairs, in which case everyone approaches and enters the building together.

Universal Design is consistent with an understanding of disability not simply as a deficit within the individual but as a social construct much like those gender, racial, and ethnic status. Universal Design promoters argue that disadvantages associated with disabilities are primarily imposed by the inaccessible design of environments. Almost all of the public buildings entrances used to have steps with no convenient way for a wheelchair user to enter or advance to another floor. Nowadays, public buildings retrofitted buildings with ramp and elevators to give individuals using wheelchairs access to facilities. People began to realize that the "problem" of facility access lay not in the wheelchair user but rather in the design of a building (Sheryl & Cory, 2008).

Weisman in the paper entitled "Creating Justice, Sustaining Life: The Role of Universal Design in the 21st Century" describes the role of Universal Design as follows:

> *"Universal design provides us with important guidelines for sustaining life by recognizing the interdependence among all of humanity, the natural world and the products of human design, including the built and planned environment, and by teaching us to think, to act, and to design out of that recognition and understanding.*
>
> *Three tenets of universal design are particularly important in this regard.*

*First, universal design reminds us that there is no separation between mind and body, and between people and their environments. Universal design begins with the insight that the environment is not somehow a separate realm that exists beyond the ordinariness of everyday life. And at any point in our lives, personal self-esteem, identity, well being are deeply affected by our ability to function in our physical surroundings with a sense of comfort, independence, and control.*

*Second, universal design recognizes that there is no separation between human health, environmental health, and social justice. Sustainable cities, healthy buildings, economic equality, social justice and environmental protection are inseparable from each other.*

*Third, universal design upholds the democratic ideals of social equality and personal empowerment because universal designers strive to create products and spatial environments that are designed to provide the same level of comfort, accessibility and assistance to multiple users and multiple publics. Even though advocates of universal design recognize that it is nearly impossible to design all things for all people, the ultimate objective is to be as inclusive as possible.*

*Universal design offers an alternate approach to designing and planning that recognizes both gender and the vast array of different ages, abilities, cultures, and lifestyles that use products and buildings and that actually exist in the global world."* (Weisman, 1999)

### 3.4. The Principles of Universal Design

In December, 1995, the Center for Universal Design published version 1.1 of the Principles of Universal Design. Version 2.0 followed in April, 1997. The seven principles are as follows:

Principle 1: Equitable Use

Principle 2: Flexibility in Use

Principle 3: Simple and Intuitive Use

Principle 4: Perceptible Information

Principle 5: Tolerance for Error

Principle 6: Low Physical Effort

Principle 7: Size and Space for Approach and Use

Each of these principles is defined and is followed by a set of guidelines that describe the key elements that should be present in a design that adheres to the principle. The purpose of the Principles of Universal Design and their associated guidelines is to articulate the concept of universal design in a comprehensive way. The principles reflect the authors' belief that the basic universal design principles apply to all design disciplines, including environments, products and communications. The principles are intended to guide the design process, allow the systematic evaluation of designs, and assist in educating both designers and consumers about the characteristics of more usable design solutions.

The Principles of Universal Design are summarized together with their guidelines as follows:

*The Principles of Universal Design*

*Version 2.0-April 1, 1997*

*The Center for Universal Design*

*North Carolina State University*

*Compiled by advocates of universal design, listed in alphabetical order: Betty Rose Connell, Mike Jones, Ron Mace, Jim Mueller, Abir Mullick, Elaine Ostroff, Jon Sanford, Ed Steinfeld, Molly Story, and Gregg Vanderheiden.*

*Universal Design is the design of products and environments to be usable by all people, to the greatest extent possible, without adaptation or specialized design.*

***PRINCIPLE ONE: Equitable Use***

*The design is useful and marketable to people with diverse abilities.*

***Guidelines:***

***1a.*** *Provide the same means of use for all users: identical whenever possible; equivalent when not.*

***1b.*** *Avoid segregating or stigmatizing any users.*

***1c.*** *Provisions for privacy, security, and safety should be equally available to all users.*

***1d.*** *Make the design appealing to all users.*

***PRINCIPLE TWO: Flexibility in Use***

*The design accommodates a wide range of individual preferences and abilities.*

***Guidelines:***

***2a.*** *Provide choice in methods of use.*

***2b.*** *Accommodate right- or left-handed access and use.*

***2c.*** *Facilitate the user's accuracy and precision.*

***2d.*** *Provide adaptability to the user's pace.*

***PRINCIPLE THREE: Simple and Intuitive Use***

*Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level.*

***Guidelines:***

***3a.*** *Eliminate unnecessary complexity.*

***3b.*** *Be consistent with user expectations and intuition.*

***3c.*** *Accommodate a wide range of literacy and language skills.*

***3d.*** *Arrange information consistent with its importance.*

***3e.*** *Provide effective prompting and feedback during and after task completion.*

***PRINCIPLE FOUR: Perceptible Information***

*The design communicates necessary information effectively to the user, regardless of ambient conditions or the user's sensory abilities.*

***Guidelines:***

***4a.*** *Use different modes (pictorial, verbal, tactile) for redundant presentation of essential information.*

***4b.*** *Provide adequate contrast between essential information and its surroundings.*

***4c.*** *Maximize "legibility" of essential information.*

***4d.*** *Differentiate elements in ways that can be described (i.e., make it easy to give instructions or directions).*

***4e.*** *Provide compatibility with a variety of techniques or devices used by people with sensory limitations.*

***PRINCIPLE FIVE: Tolerance for Error***

*The design minimizes hazards and the adverse consequences of accidental or unintended actions.*

***Guidelines:***

***5a.*** *Arrange elements to minimize hazards and errors: most used elements, most accessible; hazardous elements eliminated, isolated, or shielded.*

***5b.*** *Provide warnings of hazards and errors.*

***5c.*** *Provide fail safe features.*

***5d.*** *Discourage unconscious action in tasks that require vigilance.*

***PRINCIPLE SIX: Low Physical Effort***

*The design can be used efficiently and comfortably and with a minimum of fatigue.*

***Guidelines:***

***6a.*** *Allow user to maintain a neutral body position.*

***6b.*** *Use reasonable operating forces.*

***6c.*** *Minimize repetitive actions.*

***6d.*** *Minimize sustained physical effort.*

***PRINCIPLE SEVEN: Size and Space for Approach and Use***

*Appropriate size and space is provided for approach, reach, manipulation, and use regardless of user's body size, posture, or mobility.*

***Guidelines:***

***7a.*** *Provide a clear line of sight to important elements for any seated or standing user.*

***7b.*** *Make reach to all components comfortable for any seated or standing user.*

***7c.*** *Accommodate variations in hand and grip size.*

***7d.*** *Provide adequate space for the use of assistive devices or personal assistance.*

The authors of the Principles of Universal Design envisioned that beyond the principles and guidelines, there would eventually be two additional levels of detail to the work. If Level 1 was the principles and Level 2 was the guidelines, Level 3 would be tests and Level 4 would be strategies. The tests in Level 3 would be similar to the questions proposed in earlier versions, and would serve to allow designers to query a design for universal usability. At Level 4, which would contain strategies for meeting the guidelines and passing the tests, the document would become discipline-specific. For example, for Principle 3, Simple and Intuitive Use, the strategies might describe the following:

- For architecture – methods of creating clear way finding
- For products – issues of correspondence and cognitive mapping
- For software – features of programs that follow well-known standards

Designers must also incorporate other considerations such as economic, engineering, cultural, gender, and environmental concerns in their design processes. These Principles offer designers guidance to better integrate features that meet the needs of as many users as possible.

### 3.5. Laws and Legislations for People with Disabilities in Turkey

Uyaroğlu describes the legislative bodies as follows: "In Turkey, all kind of services for social, physical, psychological, economic, and vocational integration of individuals with disabilities are enabled by the variety of governmental institutions. These governmental institutions are established by the departments of the Prime Ministry, Ministries, Municipalities and Non-governmental Organization (NGO). Prime Minister Administration for Disabled People, General-Directorate of Social Services and Child Protection Association, Secretariat General of Social Welfare and Solidarity Fund, State Personnel Presidency, and State Planning Organization are Prime Ministry's subsidiary institutions. Ministry of Labor and Social Security, Employment Institution, General- Directorate of Social Insurance Association, Social Security Organization for the Self-employment, General-Directorate of Retirement Fund, Ministry of Education, General Directorate of Special Education, Guidance and Counseling Services, Ministry of Health are subsidiary bodies of Ministries. Services provided by these institutions are too many and different from each other. Also, there is no holistic view in the disability policy system. Services under this disorganized form of the legislative system cannot be thought as well-qualified, first of all, up to standards, and advocators of equal rights" (Uyaroğlu, 2008).

Some policy documents including rules, recommendations, resolutions, standards, and community action programs have contributed to the development of the concept of disability and consequently universal design concept on both international and national scale. The starting point of this development was the adoption of Universal Declaration of Human Rights (UN, 1948). Also, others which are Declaration on the Rights of Disabled Persons (UN, 1975), World Programme of Action concerning Disabled People (UN, 1982), Standard Rules on the Equalization of Opportunities for Persons with Disabilities (UN, 1993), have specifically contributed to increase the social awareness and consciousness for the people with disabilities. As it is discussed in the earlier sections, the laws and legislations have been adopted firstly in the United States. There is no doubt that these regulations have affected the developed countries in Europe, and the governments of these countries successively started to concern the needs and rights of the disabled persons. After the publishing of the Declaration on the Rights of Disabled Persons, European Council adopted "The Resolution on the Social Integration of Handicapped People" in 1981 proclaiming that all Members should ensure that "handicapped people did not shoulder an unfair burden of the effects of economic adjustment, and a barrier-free environment shall be constructed" (Uyaroğlu, 2008). European Union Commission has made important contributions to the European disability policy and integration of and equal opportunities for people with disabilities. Finally, the European Commission has decided to celebrate the European Day of People with Disabilities in 2003. Moreover, in European Year, European Council manifested its powerful target which all parts of the "built environment" should be (re)-designed and (re)-built in order to provide accessibility, safety and usability for everyone until 2010.

In Turkey; beginning with the membership of the United Nations, looking forward to join the European Union, the issues related with Human Rights, Rights of disabled persons and following regulations have been watched closely, and new rules and legislations have been enacted especially in accordance with the American Standards. With the influence of the international organizations, Turkey's disability

policy has been developed. Prime Minister Administration for Disabled People was established, and the Decree Law no 571 (Organization and Duties of Administration for Disabled People) was adopted in 1997. The goals were and still are to improve cooperation between the related national and international bodies in all levels; to facilitate the creation and development of national disability policies; to investigate the problems of existing services for people with disabilities and look for the solutions in order that they should be performed in a planned and effective way. In the same year, the Decree Law no 572 was adopted to make changes and additions related to people with disabilities in many existing laws. These amendments include arrangements concerning physical environment, training, employment, and rehabilitation. For example, in 1999, with the amendments in car parking place regulations, following arrangements should be mandated for fire security and for easy access of the disables:

> *"The accessible parking spaces should be located as close to the pedestrian entrance or path of travel as possible, and for every 20 cars, one space with disabled sign should be separated. If necessary, at least one lift around the entrance should be provided."* (Official Gazette, 02.09.1999)

Following on these developments, the Disability Law no 5378 was adopted in 2005.

Turkish Constitution defines the Republic of Turkey as "a social state". One of the main objectives is to provide optimum conditions to lead a good life for every members of society without any discrimination. In this sense, the necessity of being a social state is to deal with the strategies about all scope of social life such as health, education, employment, nourishment, integration to society, transportation, social security and justice. Government Programmes have been the most important body of the state in which these strategies have been developed. In the report prepared by the Specific Commission of the Transportation in accordance with the 8$^{th}$ five-year development programme was declared that plans must meet the requirements of the people with disabilities. (Item 3.4 of the report) Designing and building an

accessible and usable physical environment is one of the target areas for equal participation in public buildings for all including people with disabilities. In this study, policies related to the design of the physical environment are particularly explained as it is an important field for the integration of people with disability into social life.

Accessibility of the physical environment is one of the target areas for equal participation as explained in the Rule 5 "Accessibility of the Standard Rules for the Equalization of Opportunities for People with Disabilities" (United Nations, 1996):

> *"States should recognize the overall importance of accessibility in the process of the equalization of opportunities in all spheres of society. For persons with disabilities of any kind, States should (a) introduce programmes of action to make the physical environment accessible; and (b) undertake measures to provide access to information and communication."*

There have been recently made many developments concerning accessibility of the built environment for people with disabilities in the current national legislations, which may shed some light on the Rule 5 of the Standard Rules. The most important development has been made by the Disability Law no 5378 (2005). According to the Disability Law, in seven years since the beginning of the adoption of it, all parts of physical environment, administrative buildings, roads, pavements, pedestrian crossing, open and green areas, sport halls and grounds, social and cultural infrastructural regions, and every **public building** should be ordered according to the accessibility for people with disabilities (Temporary Item 2). In this sense, some amendments to the previous laws have been manifested by the Disability Law. With the Item 44 of Disability Law, Item 8 of the Decree Law 571 has been altered together with its title. The new title is "Department of Rehabilitation and Education Board" which is one of the main service departments of Administration for Disabled People and one of the objectives of the Department is to eliminate physical and architectural barriers in the daily lives of individuals with diverse abilities and to

prepare proposals or to have them made for the creation of the related standards. (Item 8-f, Disability Law no 5378) Another clause has also been amended to the Item 42 of the Law no 634 Condominium Ownership Law (Kat Mülkiyeti Kanunu, 1965). It is stated in 19th Item of the Disability Law that, if there is a need for the utilization of the buildings for people with disabilities, alterations on the projects of the buildings should be made according to their needs. (Item 19, Disability Law no 5378) Besides these, general codes on accessibility of built environment has particularly been focused on the utilization and accessibility of sport facilities and parking areas for people with disabilities by the amendments in the 2nd Item of the Law no 3289 (Duties and Organization of the General Directorate of the Youth and Sport, 1986) and the 61st Item of the Law no 2918 (Highways Traffic Law, 1983) respectively.

The Disability Law also covers the specifications for accessibility of working places for people with disabilities. It has been obligated by Item 14 that, precautions on the employment process should be taken and arrangements on the physical conditions of working places should be made by the responsible public institutions and organizations, and businesses in order to decrease or eliminate all handicaps and difficulties for people with disabilities.

In pursuance of the Disability Law, a Circular (Circular no 2006/18) with respect to the accessibility and utilization of public buildings, open-use areas, public vehicles by people with disabilities was adopted by the Prime Ministry in 2006. This circular initiated that buildings used by public institutions and organizations, public open spaces, and public vehicles should be re-arranged according to the needs of people with disabilities in order to provide the full integration of people with disabilities into society. These applications should be accomplished in seven years beginning from July 7, 2005. Moreover, it was stated in the Circular, emphasizing the most important roles of local governments and municipalities in the related field, re-arrangements made by Municipalities shall be conformed to the related specifications of Turkish

Standards set by Turkish Standard Institute (TSI). This issue was also manifested in the Disability Law (Temporary Item 3) as; metropolitan municipalities and municipalities should take necessary measurements related to the accessibility of public vehicles for people with disabilities and in seven years from the date Disability Law became valid, the accessibility of all vehicles should be provided. Ministry of Public Works and Settlement Constructive Works Office was also prepared three circulars in order that, people with diverse abilities could easily use public buildings such as schools, hospitals, residential houses, museums, theaters, cinemas, nursing homes, commercial centers, shopping centers and malls. These were "Law and Plans related to the Problems of People with Disabilities" (1981), "Precautions related to People with Disabilities for the Buildings" (1983) and "Elevators" (1997) which included taking measures related to the needs of people with disabilities about parking, ramps, railings and entrance stairs, elevators, wc, and lavatories (Commission Report, 1999).

Besides the Disability Law, the Decree Law no 572 adopted in 1997 has contributed to the developments about accessible physical environment. The Item 1 of the said Decree Law, an item was added to the Law no 3194 on Building Code (1985). It initiated that Turkish Standards in the related fields should be utilized in Building Codes, urban, social, technical infrastructure areas and buildings in order to make a physical environment more accessible and livable. Within the amendments of the Decree Law no 572 to the laws regarding the tasks of metropolitan municipalities and municipalities, they were obliged to take some measures concerning equal participation of people with disabilities to urban life. Uyaroğlu states; "By the Item 4 of the Decree Law no 572, two clauses were added to the Law no 1580 (Municipality Law, 1930), which saddle municipalities with the following responsibilities; providing accessibility and utilization of all parts of the built environment such as buildings and their near surroundings, roads, parks, gardens and recreational areas, social and cultural service places and vehicles for people with disabilities; and taking measures for the application of related Turkish Standards

prepared by Turkish Standard Institute (TSE) in the stage of preparing and implementing of Building Codes and construction and certification of buildings" (Uyaroğlu, 2008).

"A regulation, "Regulation of the Quality of Operation and Investment of the Touristic Facilities" prepared in the effect of the Law no 2634 (Tourism Encouragement Law, 1982) has set norms about accessibility of holiday resorts like; physical arrangements for providing accessibility for persons with physical disabilities in four or five star hotels and holiday villages (Item 58); arrangements of pools for people with disabilities in first class holiday village and five star hotels (Item 140); arrangements of parking lots for people with disabilities (Item 146); and arrangements for people with disabilities in the establishments for the day (Item 151)" (Uyaroğlu, 2008).

Some of the above mentioned Turkish Standards containing specifications for people with disabilities in a physical environment are as follows:

- TS 9111 (April 1991) Specification for Designing Residential Buildings for the Disabled,
- TS 9826 (February 1992) Urban Roads and Bicycle Roads,
- TS 9881 (December 1999) Specifications of the Parking Lots, Rules for Classification, Construction, and Operation,
- TS 10551 (December 1992) Urban Roads, Design Requirements of Parking Spaces for cars,
- TS 12174 (March 1997) Design Requirements for the Pedestrian Precincts in Urban Areas,
- TS 12576 (April 1999) Design Requirements of the Structural Precautions and Signs on Streets, Boulevards, Squares, and Roads for Handicapped and Elderly Persons in Urban Areas,
- EN ISO 10535 (July 2007) Testing Methods and Specifications of the Elevators for the people with Disabilities.

It is stated in the 1st Disability Council (1997) that Turkish Standards were prepared through the translation of foreign standards without considering anthropometric measurements of Turkish people and consultation with the professionals on related issues. In addition to that, there is no collaboration among the different standards because every norm mostly sets different measurements for a person with disabilities. Also, their responsibilities with regards to the application and controlling of these standards have not been accomplished by the ministry and local governments (Commission Report, 1999).

Chamber of Turkish Architects and Engineers' Union (TMMOB) either does not remain insensitive to the developments of the ideas of universal design in the world and in Turkey. Courses for the needs of the people with disabilities and the elders have been provided for their members in order to raise their awareness on this issue. "Disabled People Research and Study Group" established in 2006 has been replaced in 2009 with "Design for All Study Group." This new group has started researches and activities in this regard (Dostoglu, 2009).

# CHAPTER 4

# PUBLIC AND PRIVATE BUILDINGS AND PLACES

## 4.1. Definition of the Public and Private Buildings

First of all, it is necessary to define the meaning of public. Public is defined in Webster Dictionary in two forms: as an adjective; "not private, open to or concerning the people as a whole, affecting the people or community as a whole," and as a noun; "people in general considered as a whole, or a body of people sharing some common interest." The word 'public' originally comes from the Latin word *publicus*, which means that it has something to do with the people, with the state, and with the public realm. The expression *publicus usus* can be translated as public use, or used by all. A public building is therefore, a building that must accommodate everybody, at whatever age and situation in life. On the other hand private building is described as a building that serves to one or a special group of people depending on their special needs or requirements.

Vitruvius had defined and classified the public buildings two thousand years ago as follows:

- Buildings for defensive purposes
- Buildings for religious purposes
- Buildings for utilitarian purposes

Under defense comes the planning of walls, towers, and gates, permanent devices for resistance against hostile attacks; under religion, the erection of fanes and

temples to immortal gods; under utility, the provision of meeting places for public use, such as harbors, markets, colonnades, baths, theatres, promenades, and all other similar arrangements in public places (Vitruvius, Ten Books on Architecture).

In the definition of public buildings, it is easy to notice that there is not a big difference between today's approach and the ancient approach going back to the years B.C. Today's public buildings such as hospitals, universities, museums, stadiums and terminals have not been familiar to the people living in that time, and naturally these were not in the list of classification above, as the great walls encircling the cities are not in the today's public building's list. The same definition can be adapted to the public places and private places without any change in the meaning. With the accessibility movement, the governments have started decreeing new laws, regulations and standards to prevent discrimination between the normal people and disableds. From that time on, every citizen has the same right and opportunity to use the facilities of the environment and the technology. These facilities classified as follows:

- Accommodation units such as dormitories, hotels, motels, holiday villages and hostels.
- The places that serve food and beverages such as restaurants, bars, coffe houses.
- Exhibition and entertainment buildings such as exhibition buildings, fairs, museums, theaters, cinemas and dancing halls.
- Educational places such as classrooms, auditoriums, laboratories and studios, youth centers, schools, research centers, university buildings and campuses.
- Commercial units such as shops, stores, shopping centers and malls.
- General Service units such as laundries, bank offices, offices of lawyers, accountants, petrol stations, pharmacies, medical offices, health centers and hospitals, religious buildings, congress centers and meeting halls.

- Public Transport Terminals such as airports, stations and terminals.
- Recreational places such as zoos, amusement and aquaparks, and city gardens.
- Sports and play grounds such as gymnasiums, bowling halls and pools, sport halls and stadiums.
- Social Accommodation Centers such as daily care, elderly care centers and geriatric centers.

All the public buildings and places representing a part of community life should have the same importance for the designers working with the principles of universal design. Shopping Centers chosen among the public buildings, as the subject of this thesis have started to be constructed in the early 1950's in the USA, in the form we visit in our daily life, and having air conditioning, heating, ventilating systems, safety measures, parking and many other facilities. In the next section, the meaning of shopping will be examined.

### 4.2. Meaning of Shopping

Shopping is the act of buying goods and services which are needed by human, acquiring these either by exchange of money or goods. Shopping had always been an important part of the daily life and still is. Shopping methods and habits are varied and contrasting from one part of the world to another as well as from the city to village or farm areas. In the primitive market, the social aspect is the most important part of the person's experience. It becomes a festive day, and the market assumes the role of community get-together and is a pleasurable culmination of the week's work. In the course of time, shopping was getting a function to reveal the identity of the cities, and for that reason cities were developed along the streets where shopping took places. The main street, in the smaller cities, was limited with the commercial areas, whereas in large cities, commercial centers were created in what we call central business districts. Commercial centers were close to the administrative and

recreational facilities, forming the dynamics of city life patterns. The common purpose of these places is to create a positively qualified built environment where people correspond to their social needs such as getting together, communicating with each other and amusing themselves besides buying goods and services.

It can be observed that the tendency of people towards shopping, mostly could be just to meet their needs, or it could easily go beyond the limits of just meeting their needs, and becomes something else. Widespread use of credit cards and the possibility of paying in installments caused the function of shopping, change from a need to a leisure activity. Most of the time, people who use shopping centers find themselves in a position that they are buying products which they did not plan or they are not necessary. This occurs due to the marketing techniques used in these centers. Products being exposed for sale in shopping centers are bought usually not for necessity or on a decision, but by an instinct or an urge coming from inside of that person. As a result, our wardrobes and houses are full of unused and unfunctional goods and clothes. We know that a lot of people around us buy tools or equipment which they never use because they are attracted by the promotions promised. Today's conditions have made all of us mad for shopping. So, it is a good idea to look at the reasons of shopping. Almost everybody's answer to this question would be of necessity. Yıldırım says "When we observe ourselves and people around us, we see that we go shopping to meet our needs, to meet our satisfaction, to feel better, to look better, to give a therapy to ourselves, to make our lives easier, to make another person happy, to feel safe and secure, because it is a symbol of status, it is fashion and gives people feeling of pride by the enjoyment of possessing" (Yıldırım, 2006). One goes shopping as a result of sorrow or happiness, for enjoyment, to spend time or sometimes to make others feel that he has power. Shopping, whatever the reason behind, has become a relaxing, stress relieving and psychological healing method, preferred mostly by women. When one goes to shopping while feeling sorrow or demoralized, the hours spent there, trying on new clothes, vision of objects he/she likes, makes him / her get relaxed. Shopping becomes a leisure activity, an

entertainment method, a social phenomenon, a tool to have a fine time. Therefore, shopping center buildings providing secure, clean and enjoyable environment for these activities beneath a single roof, continues to attract people and being investors'favorites. In the next sections, the historical types of Turkish shopping centers will be explored.

### 4.3. Definition of Bazaars

The name of Bazaar (Cıhar-Suk) in Persian word means the "market where the four streets meet". To side shops convenient to shopping, covered with a roof or not, is the name given to the streets or square. (Özdeş, 1998) Bazaars in the form that will be explained briefly in the following centences have been first seen in Iran, in the Eastern world and then were respectively spread to Arabia, Anatolia, and North Africa. In the 8th century, bazaars were full of traders from these regions. Old Iranian bazaars have been described in detail in the folk tales, especially in the Arabian Nights Tales. Turkish bazaars, showing their own development after coming to Anatolia from Iran, had their own latest form in Istanbul after the conquest, as a result of the synthesis of the east and the west cultures. Turkish bazaars can be grouped into two main parts:

#### 4.3.1. Open Bazaars

These can be grouped into three:

1.a) Typically there are a straight line of stores always on the ground floor together with a building except housing, like Tiryaki Bazaar under Süleymaniye Madrasa (FigureS 9, 10, 11, and 12).

1.b) There are open and closed stores under the buildings in this group. Under the Mosques Şadırvan, Başdurak (Figure 13) and Kestanepazarı in İzmir and Paşa Mosque in Bor are examples of this kind.

1.c) There is straight lines of stores on both sides of the public streets like the one in Lüleburgaz Sokullu Mosque complex (Figures 14 and 15)**.**

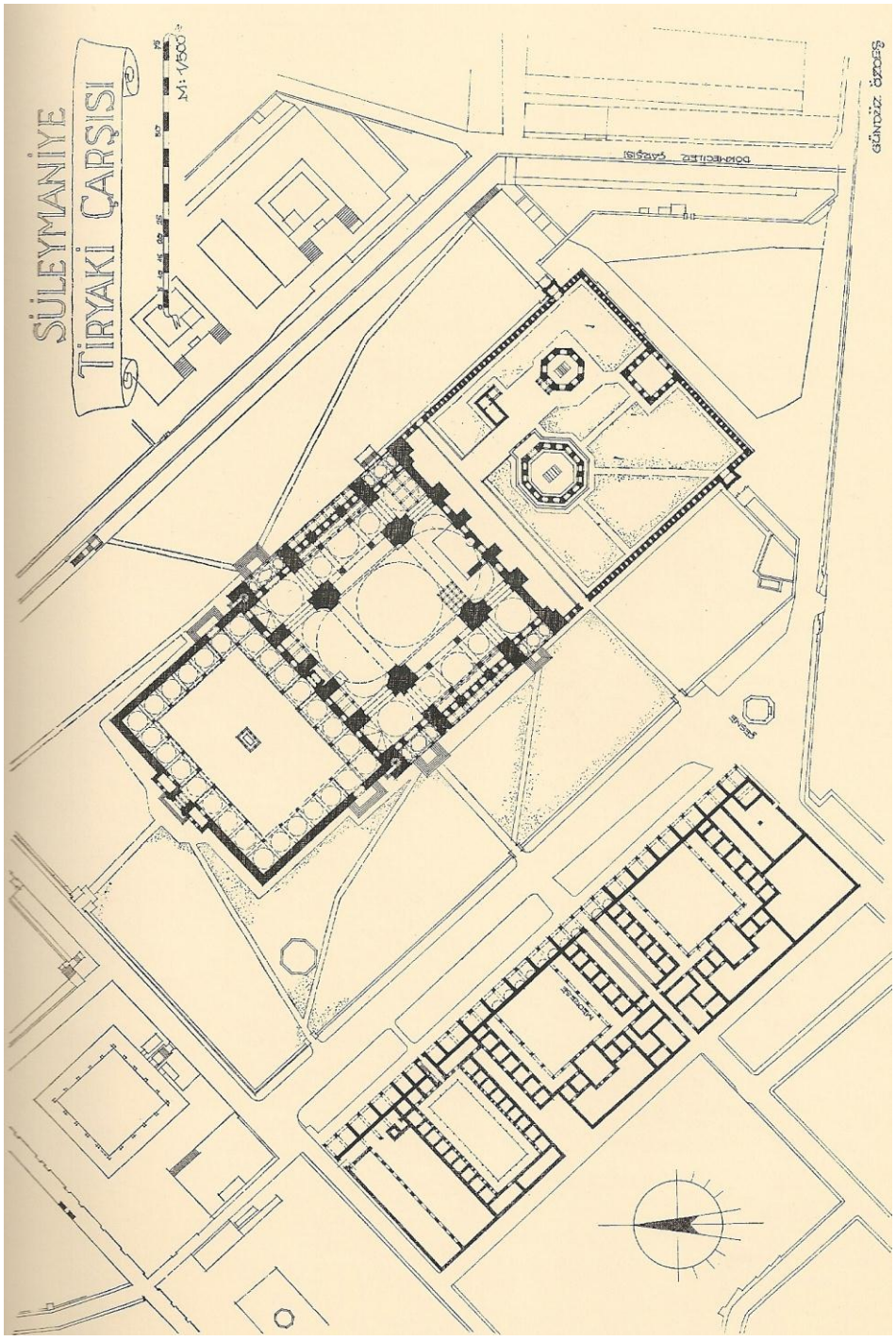



Figure 9. Site Plan of Tiryaki Bazaar under the Suleymaniye Madrasa, İstanbul. (Özdeş, 1998)

TİRYAKİ ÇARŞISININ ÖNÜNDE GÜZEL VE NİSBETLİ BİR MEYDAN VARDIR

Çarşıyı medreseden ayıran kuvvetli saçak, hem dükkanlar için lüzumlu, hem de çok güzeldir.

Figure 10. Pictures from Tiryaki Bazaar under Suleymaniye Madrasa, İstanbul. (Özdeş, 1998)

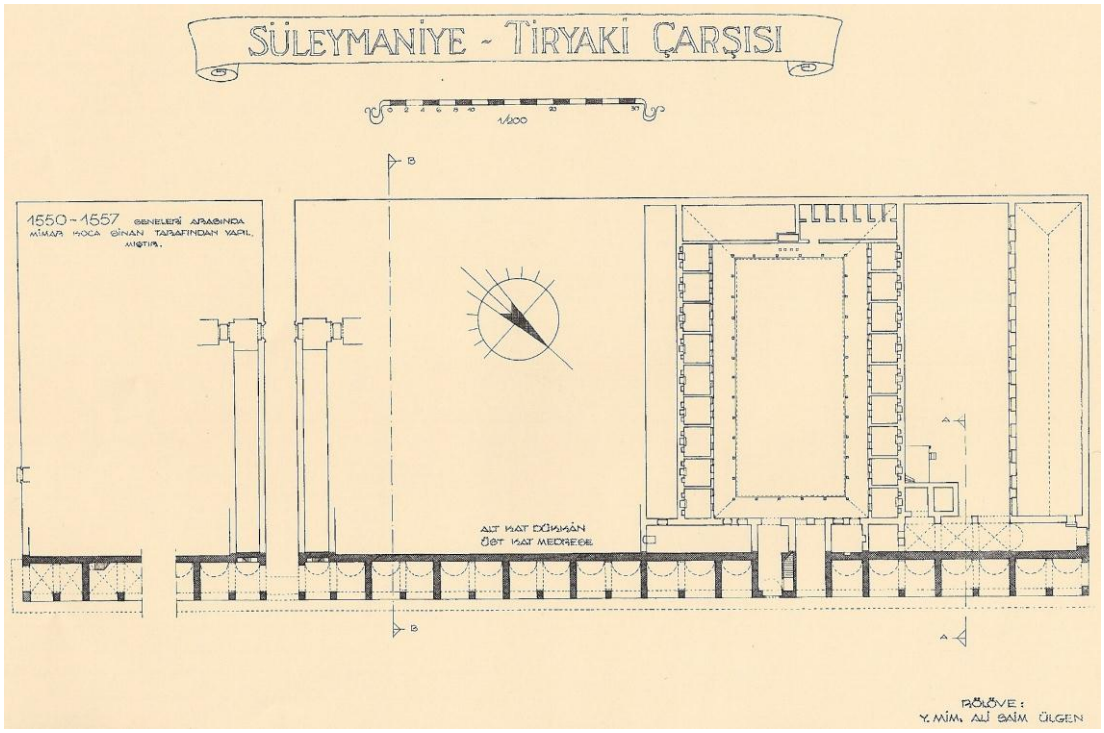



Figure 11: Plan of Tiryaki Bazaar. (Özdeş, 1998)

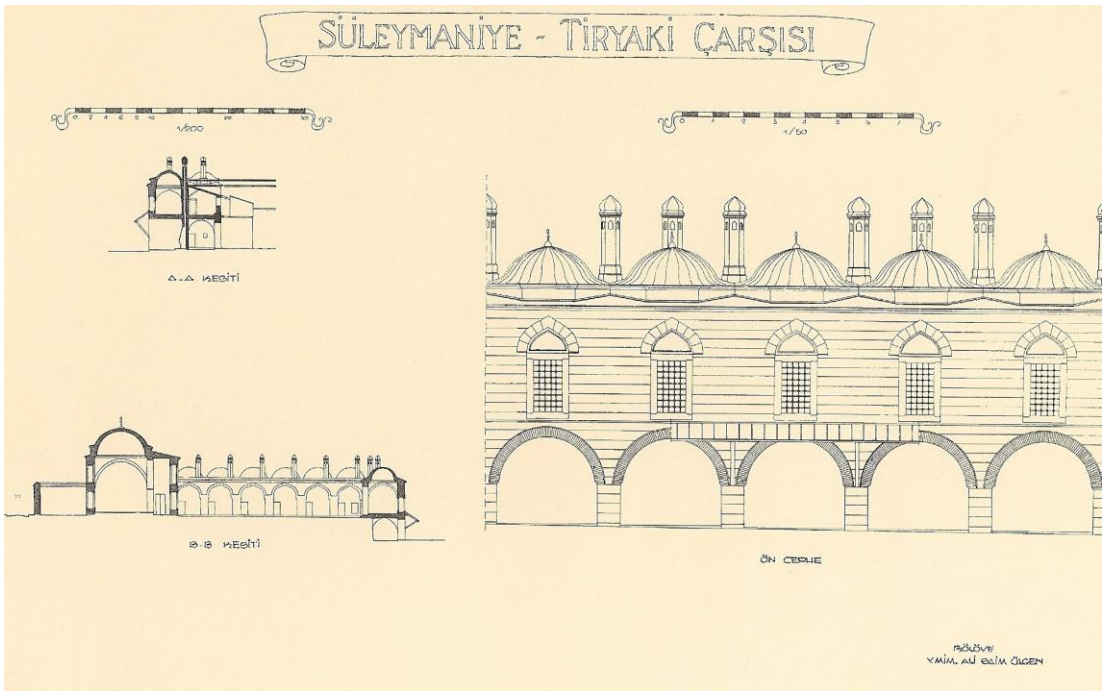



Figure 12: Sections and Elevation of Tiryaki Bazaar. (Özdeş, 1998)

BAŞDURAK CAMİİ VE ÇARŞISI
Hacı Hüseyin Ağa tarafından yaptırılmış olan çarşı, Camiye vakfiyedir.
1188 H. de tamir edildiğini gösteren kitabesi vardır.

Figure 13. Open and closed shops under the Başdurak Mosque, İzmir. (Özdeş, 1998)

Figure 14. Picture showing the central dome called “praying dome” and shops of Sokullu Mosque Complex, Lüleburgaz. (Özdeş, 1998)

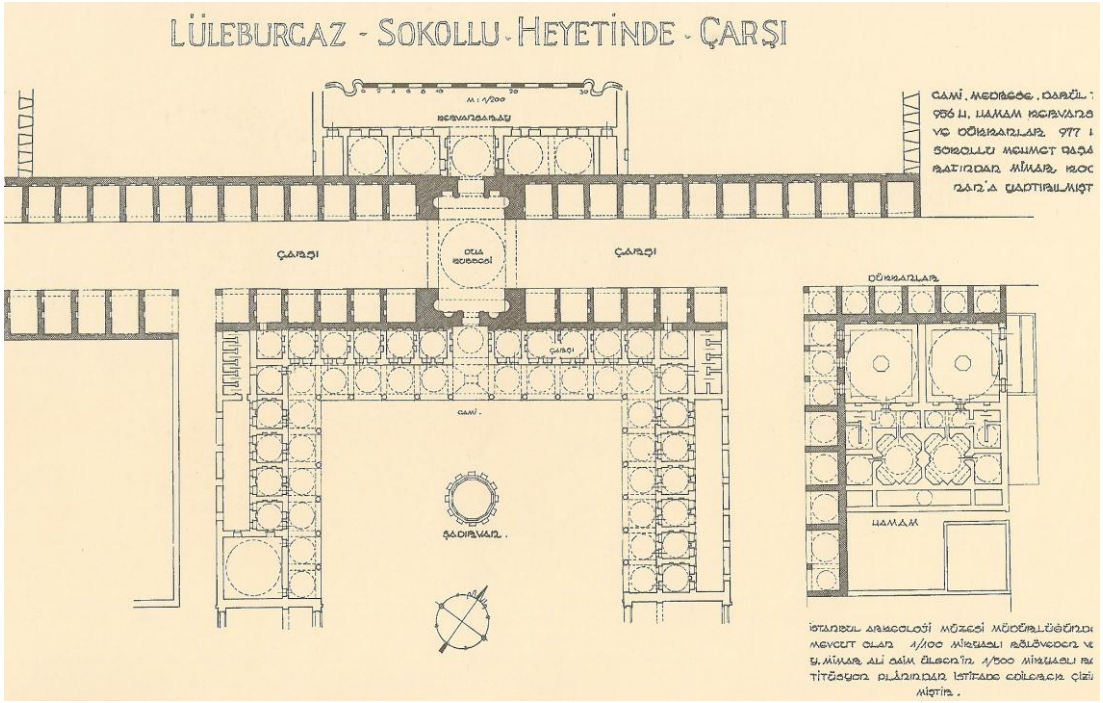



Figure 15. Plan of Sokullu Mosque Complex, Lüleburgaz (Özdeş, 1998).

### 4.3.2. Closed Bazaars

This type of bazaars can be considered the first example of the modern shopping centers having numbers of different size and type retail shops, full of various foods and goods. Closed bazaars have appeared first in Islamic cities and existed in these cities to date. Originally the Arabs have executed the concept of the closed bazaars. Therefore, the known oldest bazaar in history has been founded in Aleppo, in Syria. Closed bazaar is defined in the dictionaries as "in a straight lines of shops placed on both sides of the streets with a vaulted roof cover either made of stones, bricks or woods" (Larousse, 1998).

Closed bazaars can be grouped into three too:

2.a) In line shops all along the street on either side covered with vaulted roof can be seen in Niğde, Bursa and Edirne. Figures 16 and 17 give an idea aboout Ali Paşa Bazaar.

2.b) On the two crossing streets having shops all along the streets on every side are the second type. "Mısır Çarşısı" (Figures 18 and 19) and "Sipahi Çarşısı" in İstanbul are the examples of this kind.

2.c) Covered many streets having all around shops and stores of different sizes. The most famous example of this type is the Grand Bazaar in Istanbul (Figures 20 and 21).

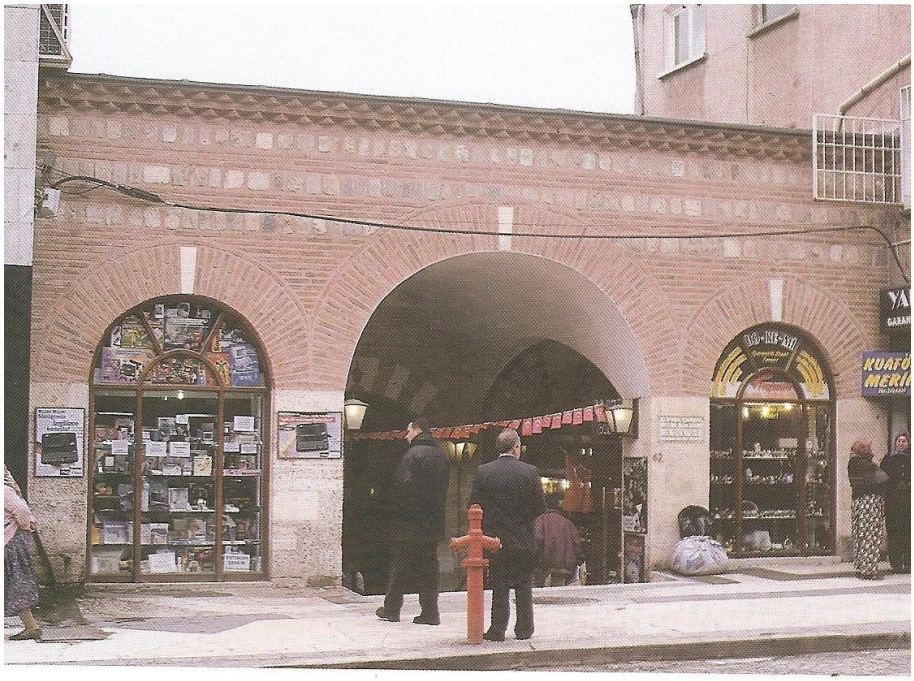
In his book, Özdeş also defines "Bedesten" as a name of closed Bazaars used as only for commercial activities and points out that the name comes from Old Iranian "Bezzazistan". Bedestens have primarily been built to sell clothes and fabrics, but later the concept has been changed and they were used to market antique materials and jewelleries. Bedestens can be grouped in accordance with their plans as follows:

1. Simple and basic type which has one covered space,

2. Second type having columns in the center without shops, (Sandal Bedesteni)
3. Third one having shops around facing inside and outside, (Vezirköprü Bedesteni)
4. Forth one having shops around, columns in the center and rooms used for storages in the center, (Edirne Bedesteni)

All these traditional Ottoman bazaars with different sizes and types, and many others not mentioned here have had the same basic feature. They were all located in the centers of the cities, single storey buildings, adjacent or close to the mosques and within walking distance, easily accessible on the street level without any barrier. Thus, people from different social groups could easily meet and exchange their cultures there, sometimes under a roof. In this thesis, they are mentioned only to give to the readers the idea that even in the history, the shopping itself was an important activity and therefore, shopping structures had a significantrole in the life of the people as public buildings.

Edirne Ali Paşa Çarşısı Orta Kapası, 1998



Edirne Ali Paşa Çarşısı Girişi, 1998

Figure 16. Shops on either sides of the vault covered streets. “Ali Pasa Bazaar” (Özdeş, 1998)

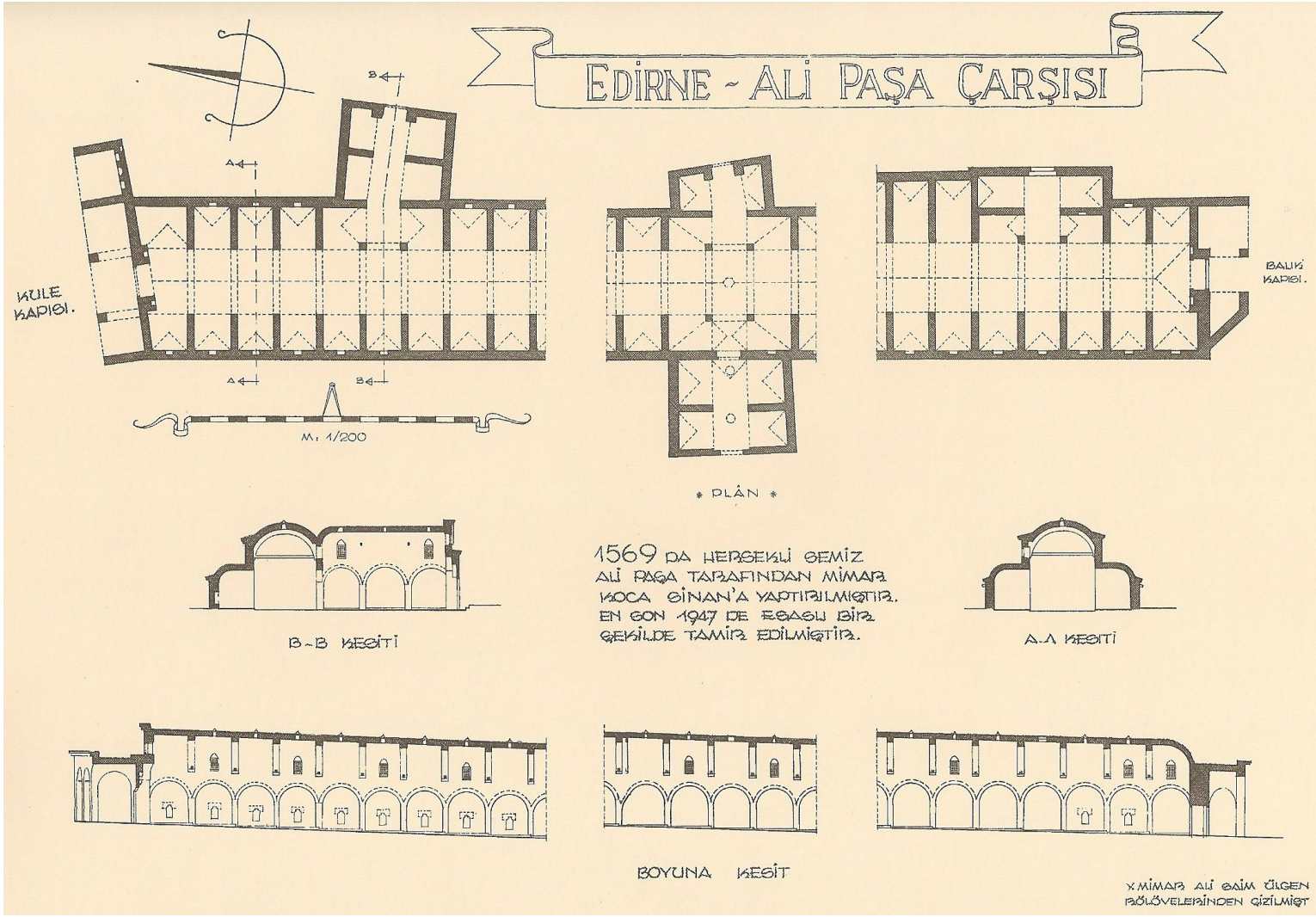



Figure 17. Plan and sections of the Ali Paşa Closed Bazaar, Edirne. (Özdeş, 1998)

MISIR ÇARŞISININ EMİNÖNÜ MEYDANI CEPHESİ

MISIR ÇARŞISININ YENİ CAMİ TARAFINDAKİ AVLUSU

Figure 18: Pictures from “Mısır” Bazaar, İstanbul. (Özdeş, 1998)

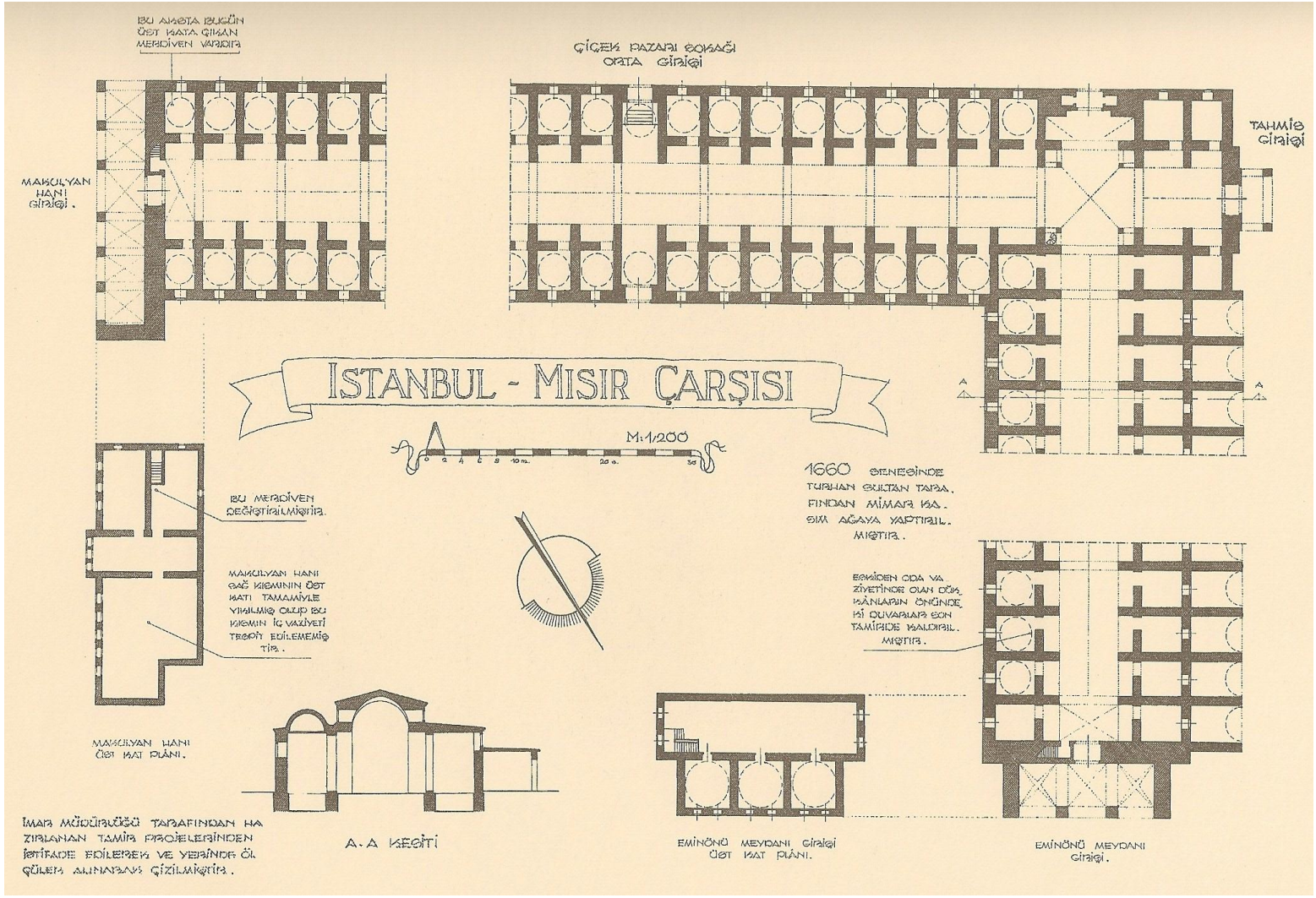
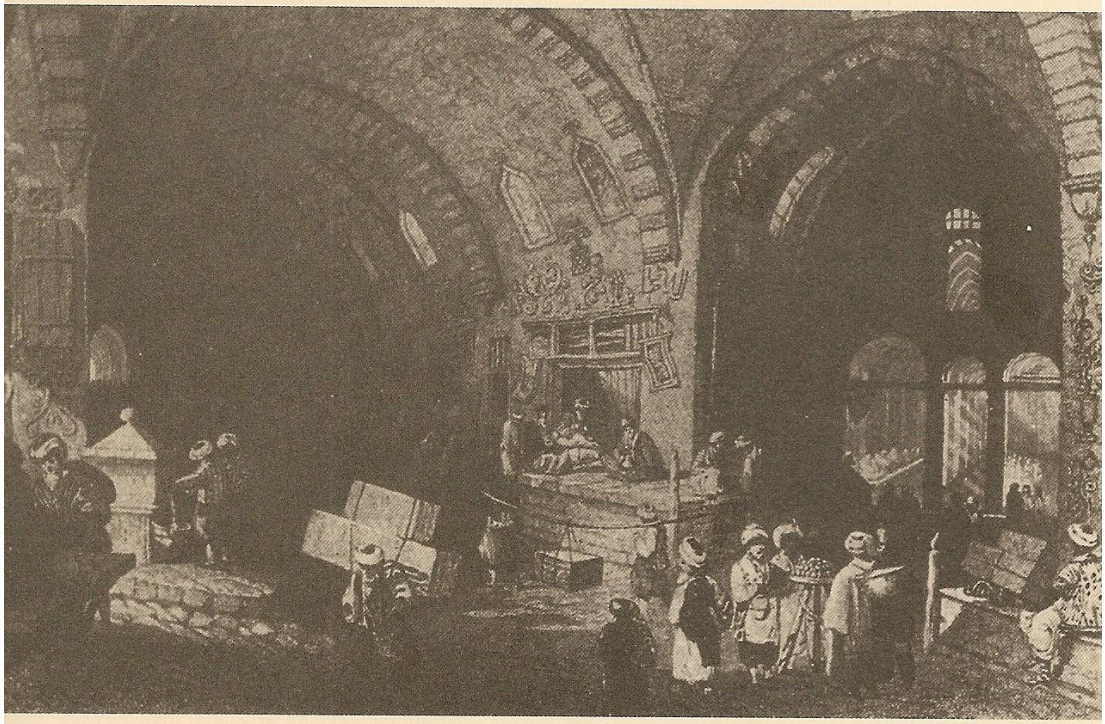



Figure 19: Plan and sections of “Mısır” Bazaar, İstanbul. (Özdeş, 1998)

KAPALIÇARŞININ ESKİ VAZİYETİ



KAPALIÇARŞININ ESKİ VAZİYETİ

Figure 20: Pictures showing inside of the “Grand Bazaar” in Istanbul. (Özdeş, 1998)

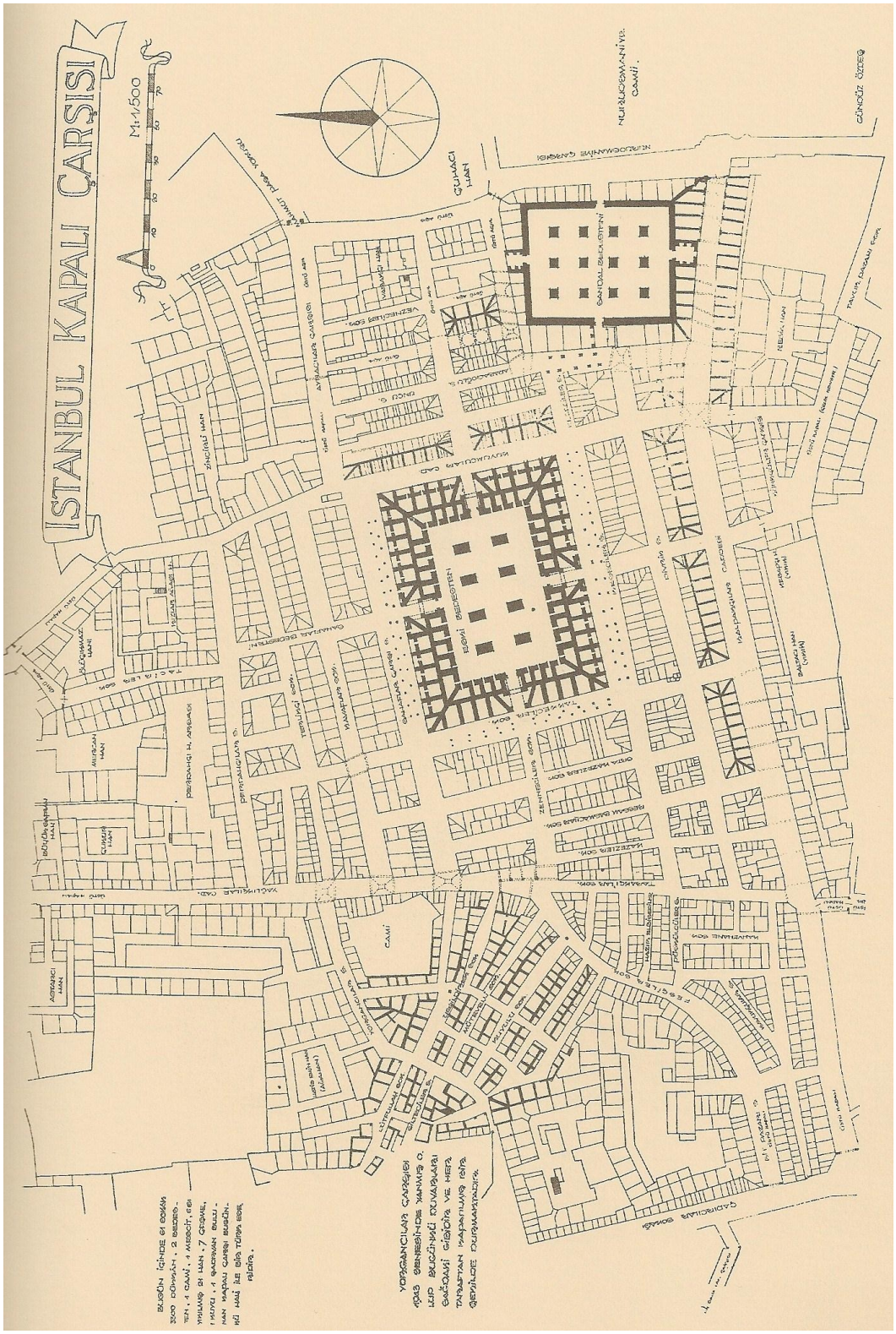



Figure 21: General plan of the "Grand Bazaar" in Istanbul. (Özdeş, 1998)

### 4.4. Definition of Shopping Center

The International Council of Shopping Center (ICSC) distinguishes between shopping centers in the USA and shopping centers in Europe. However, a shopping center in the USA is “A group of retail and other commercial establishments that is planned, developed, owned and managed as a single property, with on-site parking provided. The center’s size and orientation are generally determined by the market characteristics of the trade area served by the center.”

In contrast, a shopping center throughout Europe is understood as "A retail property that is planned, built and managed as a single entity, comprising units and `communal′ areas, with a minimum gross leasable area (GLA) of 5.000 square meters".

Shopping centers continue to be a very successful land use, real estate and retail concept, but there has been a significant change since the development of the first shopping centers in the USA. Today, shopping centers are not only shopping destinations anymore. A modern shopping center offers a wide range of possibilities. Shopping, dining, entertainment, sports and recreation is consolidated and so it becomes more and more an amusement function. Even a small-scale shopping center is visited by two million people in a year as the environment and population density are taking into account depending on the location. The number of visitors is more than twenty million for larger centers. Therefore, shopping centers should be one of the public buildings which the implementation of principles of universal design should be mandatory.

Shopping centers are described by Mrs. Tekelioğlu as follows:

> *“When shopping centers are mentioned customers standing on wide aisles in front of resplendent windows for their needs come to my mind always. I believe that the designers and the investors who plan and put in service these*

*buildings are extraordinary people. Because they think first of all serving for the people and they try to do their best to meet the people's expectations"* (Yıldırım, 2006, p. 14).

### 4.5. Types of Shopping Center

Shopping centers in the USA can be grouped into three main parts: mall, open-air center and hybrid center. A mall is typically enclosed, climate-controlled, lighted, flanked on one or both side by storefronts and entrances and has on-site parking. An open-air center typically has an attached row of stores or service outlets managed as one unit with on-site parking. The open-air center used to be called 'strip center' because of its linear form and its shops side-by-side in a long and narrow row. Hybrid center combine elements from two or more of the main shopping center types. Value-oriented mega-malls (combine mall, power center and outlet elements), power-lifestyle centers (combine power center and lifestyle center elements) and entertainment-retail centers (retail uses with multiplex movie theaters, theme restaurants and other entertainment) are general hybrid centers (De Lisle, 2005).

### 4.6. History of Shopping Centers

From the point of view of commercial to social relationships, shopping places, with a history of 3,000 years, has gone through a revolution from a single market place to huge shopping centers and giant department stores,. In 7$^{th}$ century B.C.,"Agora" which is used to express gathering of people, also a synonym of "forum" in Latin, was begun to be used for market places of the time. In time, forums transformed into urban spaces where there is a mixture of social, commercial, political and even religious aspects. In 2$^{nd}$ century B.C., In Rome, very much like our multistory shopping centers having great number of shops, covering large areas, there were Trajan market places composed of 6 storey and 150 shops, where many products were sold from fruits, flowers, alive fishes to rarely found exotic products of near east. In Middle Age Europe, shopping was an activity held by a group of people with

low income and by servants, and shops were introduced by symbols and signs for this people who cannot read and write. First shopping windows came into existence with the development of glass producing technique in 16th century Europe. In the late period, specially designed shopping windows have become an attraction point for people walking in front of them, which invite them for shopping (Redstone, 1973).

While beginning from 8th century, trade has been oriented to West; market places have begun to outspread to Anatolia, Arap Peninsula and South Africa. In Seljukian and Ottoman periods, besides caravanserais, there have been buildings giving different shopping examples, as told in the previous section, and they became an indispensible part of city centers. As in every society, in the Ottoman Society too, shopping places formed an important part of social life. This sentence, taken from the book, "Lords of the Horizons: A History of the Ottoman Empire" of Jason Goodwin, who summarizes the daily life of the time in Ottomans as: "In the State of Ottomans, during the day time, everybody goes to market place or street, meets others, whatever the language or religion, he serves, makes friends, and when it is night, everybody goes home, and according to their customs, religion or tradition they eat their dinner and spend the night time at home". Although, industrialization in Ottoman Cities was behind Europe, beginning from the ends of 18th century, commercial relations with Europe have improved, the consequences were seen as a variety in the city centers of Ottomans where both traditional trade continued, besides new places where tradesmen and merchants took place.

Buildings which are similar to today's shopping centers and department stores came on the scene in 19th century in Europe. In the year 1852 a confectionary shop named as Le Bon Marché in Paris became a shopping center where there were many items to be sold with the same brand name, and it became wide spread firstly in Europe and in America at that time. Bon Marché became a general term used to define Department Stores.

From the beginnings of 20th century, especially in America, city centers has begun to lose their attraction due to heavy traffic, lack of parking, air and noise pollution. Thus residential and business areas have begun to move outside the city center.

The first samples of the modern shopping centers, which include everything from small suburban strip centers to the thousand-square-meter super regional centers, had its genesis in the 1920s. The concept of developing a shopping district away from a downtown is generally attributed to J.C. Nichols of Kansas City, Missouri. His Country Club Plaza, which opened in 1922, was constructed as the business district for a large-scale residential development. It featured unified architecture, paved and lighted parking lots, and was managed and operated as a single unit. Retrieved from http://www.icsc.org/srch/about/impactofshoppingcenters/briefhistory.html

In the later half of the 1920s, as automobiles began to clog the central business districts of large cities, small strip centers were built on the outskirts. The centers were usually anchored by a supermarket and a drug store, supplemented by other convenience-type shops. The typical design was a straight line of stores with space for parking in front. Grandview Avenue Shopping Center in Columbus, Ohio, which opened in 1928, included 30 shops and parking for 400 cars. Retrieved from http://www.icsc.org/srch/about/impactofshoppingcenters/briefhistory.html

But many experts consider Highland Park Shopping Village in Dallas, Texas, developed by Hugh Prather in 1931, to be the first planned shopping center. Like Country Club Plaza, its stores were built with a unified image and managed under the control of a single owner, but Highland Park occupied a single site and was not bisected by public streets. And its storefronts faced inward, away from the streets, a revolutionary design. Retrieved from http://www.icsc.org/srch/about/ impact of shoppingcenters/briefhistory.html

The early 1950's marked the opening of the first two shopping centers anchored by full-line branches of downtown department stores. Northgate in Seattle, Washington,

(two strip centers face-to-face with a pedestrian walkway in between) opened in 1950, and Shoppers World in Framingham, Massachusetts (the first two-level center), debuted the following year. The concept was improved upon in 1954 when Northland Center in Detroit, Michigan, used a "cluster layout" with a single department store at the center and a ring of stores around it. The parking lot completely surrounded the center. Northland was also the first center to have central air-conditioning as well as heating. Retrieved from http://www.icsc.org/srch/about /impactofshoppingcenters/briefhistory.html

In 1956, Southdale Center in Edina, Minn., outside Minneapolis, opened as the first fully enclosed mall with a two-level design. It had central air-conditioning and heating, a comfortable common area and, more importantly, it had two competitive department stores as anchors. Southdale is considered by most industry professionals to be the first modern regional mall. Retrieved from http://www.icsc.org/srch/about /impactofshoppingcenters/briefhistory.html

By 1964 there were 7 600 shopping centers in the United States. Suburban development and population growth after World War II created the need for more housing and more convenient retail shopping. Most of the centers built in the 1950's and 1960's were strip centers serving new housing developments. Retrieved from http://www.icsc.org/srch/about/impactofshoppingcenters/briefhistory.html

By 1972 the number of shopping centers had doubled to 13 174. Regional malls like Southdale and The Galleria in Houston, Texas, had become a fixture in many larger markets, and Americans began to enjoy the convenience and pleasure of mall shopping. During the 1970's, a number of new formats and shopping center types evolved. Retrieved from http://www.icsc.org/srch/about/impact of shopping centers/ briefhistory.html

In 1976 The Rouse Co. developed Faneuil Hall Marketplace in Boston, Mass., which was the first of the "festival marketplaces" built in the United States. The project,

which revived a troubled downtown market, was centered on food and retail specialty items. Similar projects were built in Baltimore, Md., New York, N.Y., and Miami, Fla., and have been emulated in a number of urban areas. Retrieved from http://www.icsc.org/srch/about/impactofshoppingcenters/briefhistory.html

The 1980s saw an unparalleled period of growth in the shopping center industry, with more than 16 000 centers built between 1980 and 1990 in U.S.A. This was also the period when super regional centers (malls larger than 75 000 square feet) became increasingly popular with shoppers. In 1990, a Gallup poll found that people shopped most frequently at superregional malls and neighborhood centers. Americans have made average four trips to the malls per month. Retrieved from http://www.icsc.org /srch/about/impactofshoppingcenters/briefhistory.html

Entertainment quickly became an industry buzzword in the early 1990's as technological advances allowed shopping center developments to foster the same magical experiences that were once only seen in national amusement parks such as Disney World. Since the start of the entertainment wave, retailers have focused on keeping their presentations exciting and shopping center owners have striven to obtain tenant mixes that draw traffic from the widest audience possible. Under one roof or in an outdoor retail format, consumers enjoy children's play-spaces, virtual reality games, live shows, movies in multiplex cinemas, a variety of food in either the food court or themed restaurants, carousel rides, visually stunning merchandising techniques, robotic animal displays, and interactive demonstrations. Many shopping centers are also focused on added service-oriented tenants, which offer today's busy consumer an opportunity to complete weekly errands or to engage in a variety of other activities. Among the many services found in today's malls are schools, postal branches, municipal offices, libraries, museums, and religious sections. Retrieved from http://www.icsc.org/srch/about/impactofshoppingcenters/briefhistory.html

As we enter the 21st century, shopping centers continue to evolve and serve communities' social and economic needs. With the combination of fashion, food,

entertainment, and services, shopping centers have greatly expanded their role in the communities they serve.

I would like to refer to the Khan Shatyr Project which is under construction in Astana in the capital city of Kazakhstan, to highlight the point reached for a today's mall called as shopping and life center. The following information and photos have been copied from "Conceptplus No.1", published in March, 2009. Besides the many services meeting all the needs of daily life, there will be entertainment, hobby and activity centers making life more enjoyable in the Khan Shatyr Project. The project has 106 thousand squaremeter of activity area which consists of: A gigantic in door-pool imitating seaside beach, a dolphin pool, botanic gardens, an artificial river which one can use gondola on, mini golf, fitness center, wellness center and spa, concert and meeting places, discos, cafes and restaurants, movie theaters, entertainment and health centers, shops, supermarket and car parks. See the figures 22 – 26 below.

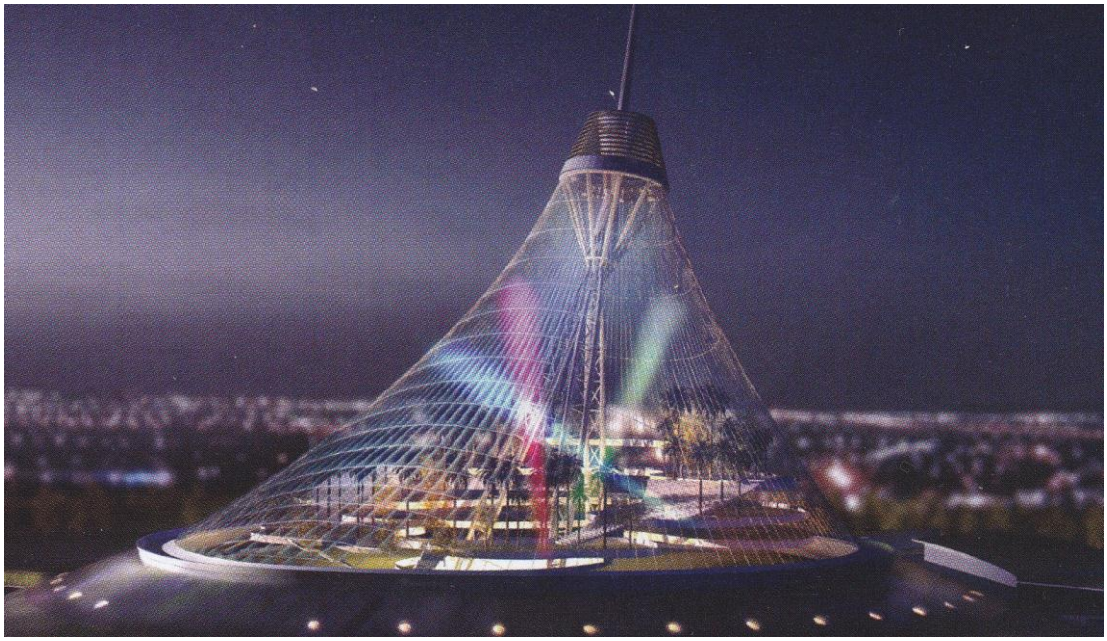


Figure 22. Perspective view of Khan Shatyr Project. (Conceptplus, 2009)

Figure 23. A view from inside of Khan Shatyr Project. (Conceptplus, 2009)

Figure 24. A view from inner court of Khan Shatyr Project. (Conceptplus, 2009)

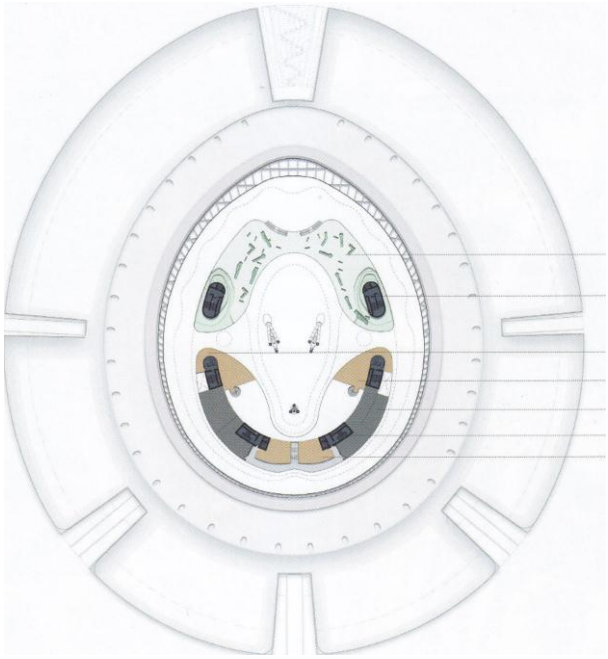


Figure 25. Plan of the Mini Golf Level. (Conceptplus, 2009)

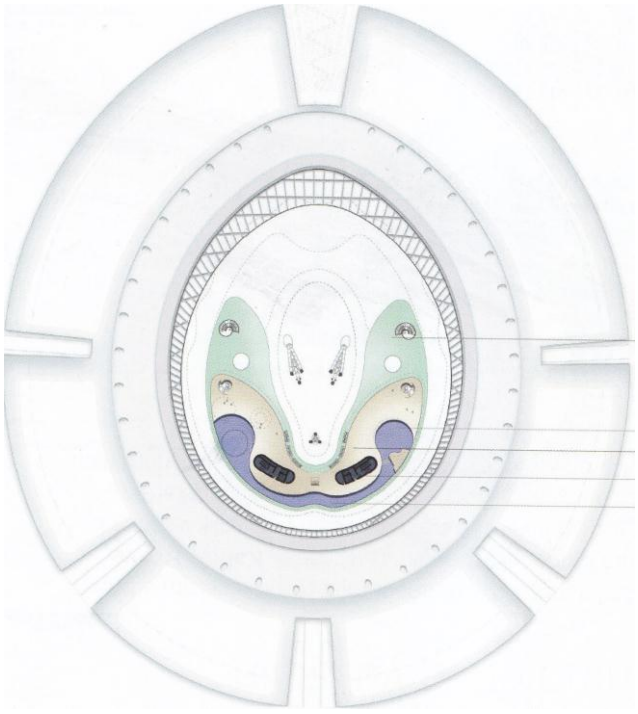


Figure 26. Plan of the Artificial Beach and River Level. (Conceptplus, 2009)

The first modern shopping center built in Europe in 1954 is in Sweden called "Vallingby Centrum". In 1960, "Farsta Centrum" designed by Backstrom and Reinius is opened in Sweden, and is still the largest shopping center in the Scandinavian countries today. The first regional shopping center "Parly2" opened in 1968 in Paris, together with the other one called "Cap3000" opened in Nice, in France lead to the development of shopping centers in Europe. The design of the shopping centers built in Europe before 1960's has influenced mainly the design of the shopping centers designed and built in the United States. In England, the first modern shopping center has been constructed in 1970's, so many years after the United States. Retrieved from http://www.icsc.org/srch/about /impact of shopping centers/briefhistory.html

Turkey experienced the first modern shopping center when Galleria was opened in 1987 in Istanbul. By the end of 1980's, there were just 3 shopping centers in Turkey. In 1990's, this number increased to 30, today, it has reached 284. The number is expected to reach 350 in a two years period, together with the ones either being designed or under construction.

The main and most important construction criteria for the shopping centers in Turkey were also their location. The location should be a right place. "A Right Place" can be determined by evaluating the combinations of many factors. Yıldırım describes these factors in his book as:

- Demographic characteristics (population density, education level, shopping habits, age distribution, social structure, etc.)
- Economic conditions (such as the working population, income distribution, commercial activities, housing construction, universities and fair facilities)
- Geographical situation (local and inter-city transportation, public transportation, the cultural characteristics of the city, the relation between the site of the shopping center and the future developing plans of the city, etc.)

- Analysis of competitive strength (similar quality centers in the vicinity, etc.) (Yıldırım, 2006)

At the end of the evaluation of these factors a design concept should be created in accordance with the identified location, and an architectural plan should be drawn according to this concept. Besides having a proper location, it had to be easily accessed, and it should have a proper concept. However, as seen today in some main routes of our major cities, these routes should not be converted to "shopping center streets" by constructing shopping centers side by side. In the design process of a shopping center, the architectural aspects should not only be studied, but also the demands of commercial facilities must be taken into consideration. During periods of tight competition, the design should be so innovative and attractive that the customers' interest should be kept continuously. Therefore, in a shopping center design, every small detail should also be studied and focused with a special importance, materials and colors should be selected, lighting and acoustic levels should be decided, and horizontal and vertical transportation should carefully be positioned in accordance with all these requirements. Shop retailing was another item that should be evaluated considering the location. At last, it should have a big market within, and preferably, there should be provided some leisure activities like a cinema, game park, etc. Due to the difficulty of finding large and proper sites in the city centers, especially in Istanbul and Ankara, except for the one or two examples, the car parking of shopping centers are located in the basement floors. Though, lack of parking area comes forward as the most important problem for shopping centers.

The term "life center" has also been used recently together with the shopping center concept. Already, these centers have been claiming that they would supply whole needs of the people. In these centers, all of the concepts can be found at the same time, for example, the famous chain stores, luxurious restaurants, large movie theaters, places for children entertainment, all of which providing activities for people to spend long hours. Shopping centers, which address different groups of

people, attract people into a consuming activity allowing them feel secure, moving them away from the chaos and effects existing outside on the streets. Even it is tried to give new shopping centers a street like ambiance (Figure 27). There are organized cultural facilities in the open spaces provided in the design. All of these are used to attract more people there.

In Turkey, it is possible to see a lot of people who visit shopping centers and wander there for long hours without doing any shopping. Turkish people are also familiar with the concept of shopping centers and spend the whole day there with their family depending on the weather conditions. The people have occasionally take part in the activities, if available, like concerts, exhibitions and shows.

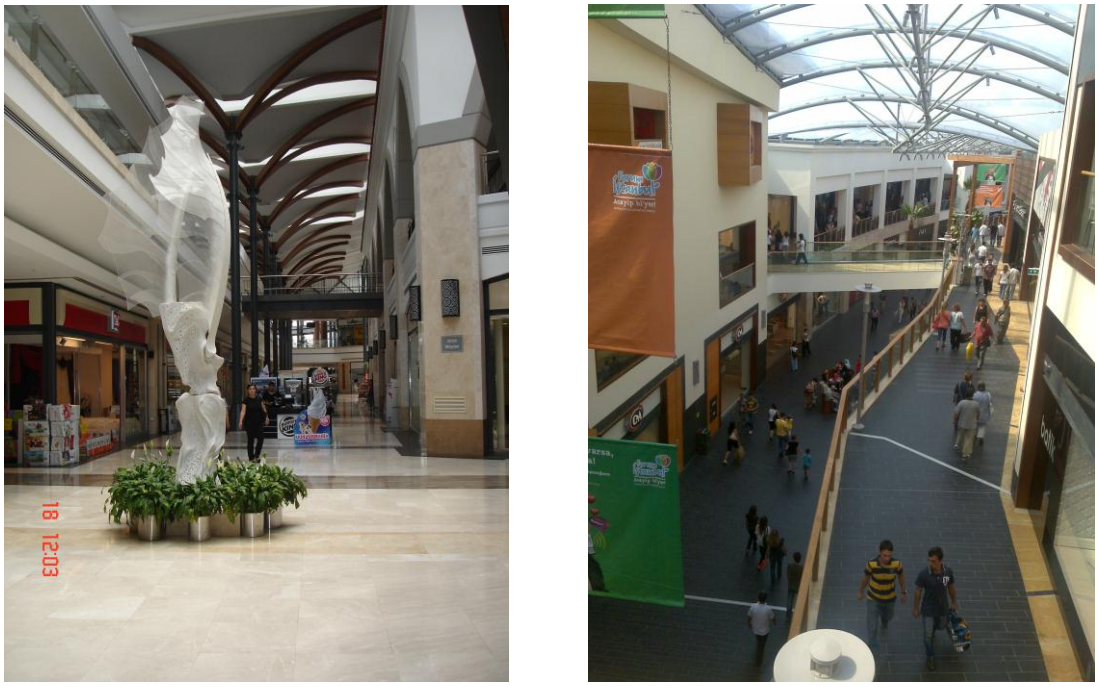


Figure 27. Covered street effects of Forum Ankara and Forum Istanbul Shopping Center.

In Turkey, after the construction of the first shopping center, the location, size and design of them are totally decided by the investors. Nevertheless, the influences they will bring to the environment are not duly evaluated, or the problems likely to arise are not foreseen. Perhaps, as a result of this, they lose their charm after a while when

a new and a better one is built. Zoning plans of districts are even changed upon the demands of investors. New transportation possibilities are created, although they are not so functional. Only a few shopping centers serve partially for people with disabilities among the ones built in between 2004 and 2009. Nevertheless, there are still new projects under construction which probably will not meet the requirements of the standards for people with disabilities or the principles of universal design.

The leading samples of the first shopping centers built in İstanbul, Ankara and İzmir have been located in or very close to the thickly populated centers or on the sides of the main boulevards. This approach has been transferred from the traditional Turkish bazaars as mentioned in the previous chapter and differed from the shopping centers built in both United States of America and Europian countries where they have been located far from the city centers especially in America. But, in the course of time this point of view has been changed and the shopping centers started to be built wherever there was a site suitable even close to each others, without taking into consideration the environmental contions.

# CHAPTER 5

# EVALUATING THE DESIGN OF THE SELECTED TWO SHOPPING CENTERS IN TURKEY

In the design of earlier shopping centers', the architects tried to translate the most essential needs of the developers in a minimal way in USA (Redstone, 1973). I can summarize the needs of developers and investors as "to attract more and more people to the shopping centers every day". The shopping centers with a strip scheme and slight variations of these minimal arrangements were designed and built with car parks in front to ease the parking problems of the visitors coming by their own cars. In the next phase, we see the cluster centers which allowed the architects more freedom in grouping the individual buildings as part of shopping centers. Cluster planning also gives shoppers a variety of experiences in walking through different areas, experiences made more interesting by landscaping, art, and seating arrangements. In other words, cluster planning produces a more pleasant environment and attracks more people in the daily life. The covered shopping center built under a roof with skylights above the the walking corridors was a response to new demands for shoppers' comfort and climate control the year round. All these different type of shopping centers located far from the city centers still remained isolated from their surroundings by huge asphalt-covered areas providing parking space for thousands of cars (Redstone, 1973).

In his book, entitled "New Dimensions in Shopping Centers and Stores", Redstone describes basic steps that have to be taken to accomplish the final goal of building 'a

viable commercial center'. However, he does not mention any consideration regarding the barrier-free design or accessible design except some car parking proposals and arrangements.

It can easily be concluded that there was no application for the people with disabilities except disabled rest rooms in the shopping centers designed and built all over the world from the beginning of the modern shopping center history unless it becomes mandatory by the laws and legislations set in accordance with the accessibility standards during the discussions for barrier-free design or accessible design. Profit expectations have always been more important than the design quality of the buildings since the earlier times, even today. Therefore, in shopping centers which are spreaded to world from America, the selection of the location is the most important point as the main target has been easy accessibility. Then there comes size, concept, types of shops and department stores and technical properties, following this item. This was also valid for shopping centers in Turkey. Istanbul Galeria is one of the first examples built according to these standards. It is on the coast, easily accessed, and located on an area reserved for trade and tourism. Moreover, it has a good infrastructure, with harmonious surroundings. It has a surface area adequate to supply the number of users in target, meeting the required number of parking places. It is also located within the boundaries of municipality, it benefits from all municipality. Lighting and mechanical systems have an upper quality compared to the conditions of that time. However, it is clear that the principles of universal design were not taken into consideration in this building during the design and construction stages. Shopping centers following this first one have been designed and constructed with almost similar concepts. There were at least, one disabled toilet in all the centers, and few reserved car parking places for people with disabilities.

In the scope of this study, both Forum Istanbul and Forum Ankara Shopping Centers whose concept designs were prepared by European Architects will be evaluated together in the light of the principles of universal design. The main concerns, as we

know, of universal design are usability and inclusivity together with accessibility and adaptability. In the design and construction periods of the public buildings, if these concerns are not taken into consideration, then modifying or rebuilding the related applications would be inevitable and more expensive. However, if these concerns were taking into considerations starting from the design stages it will be seen that the total cost of the construction will be comparatively cheaper than to rebuild in accordance with the principles of universal design although in the beginning the solutions need extra money.

In the following pages, shopping centers and the spaces created will be evaluated in the perspective of universal design principles, and it will be explicated whether they have a flexible design to adopt as functional and space requirements likely to change in future. There is no doubt that the construction cost of shopping centers designed and built by taking into consideration the principles of universal design will be more expensive than the buildings which we used to. However, to sustain this cost to have new public buildings which everyone can use without discrimination, in the light of these principles will increase the quality of life in that country. Besides, to design buildings according to universal design principles will prevent the waste of money, as the future cost will be much more when improvements and changes become necessary after the construction. It will be critically important to use these standards in every area not only in the public buildings, for Turkey who is trying to enter European Union.

As known, both the standards set by foreign countries and the Turkish standards are almost the same for the people with disabilities which can be searched in the libraries. While the above-mentioned projects will have been reviewed and compared in accordance with the standards, it was also examined whether the principles of universal design have been implemented or not. Baby rooms and family rooms have been planned and constructed separately although enough spaces have been allocated in compliance with the standards, as seen in Forum projects. In addition, the urinals

and the closets for the children and short people will have also been considered. Main entrances, parking lots, elevators, and stairs will have been evaluated too.

### 5.1. General Information about Forum Ankara Shopping Center

Forum Ankara Shopping Center, developed by a Dutch investor group, and located in the Ovacik region of Kecioren district is easyly accessible from all around the city. Situated on the O-20 Ringroad surrounding Ankara, at the main junction connecting the highway with the city center (Etlik) by the Yozgat Boulevard, Forum Ankara has excellent visibility. The Project is developed in a region neighboring the Northern Ankara Urban regeneration Project Area, which accommodates residential and recreational areas, parks, hotels, congress centers and social facilities. (Figure 28 and Figure 29 below) Forum Ankara Shopping Center was opened in 2008.

The total construction area of the center is 136,000 sqm and its total retail area is about 80,000 sqm. Closed car parks are placed in the basement floor with an area of 56,000 which has a capacity of 1,500 cars. Forum Ankara includes a combination of shops comprising national and international brands, a rich variety of theme restaurants and cafes, and as well as extensive leisure facilities.

Forum Ankara also offers families the biggest entertainment facility in Ankara with 12.000 sqm area. The entertainment area includes activities like bowling, go-kart, climbing wall, ice skating as well as a funfair and mini zoo. The entertainment area is connected to the rest of the centre through an "Entertainment Street", covered with membranes and decorated with lights, will host artistic and cultural events throughout the year.


Figure 28. Aerial View of Forum Ankara Shopping Center. Google Earth Image, retrieved on June, 2010.

Figure 29. General View of Forum Ankara Model

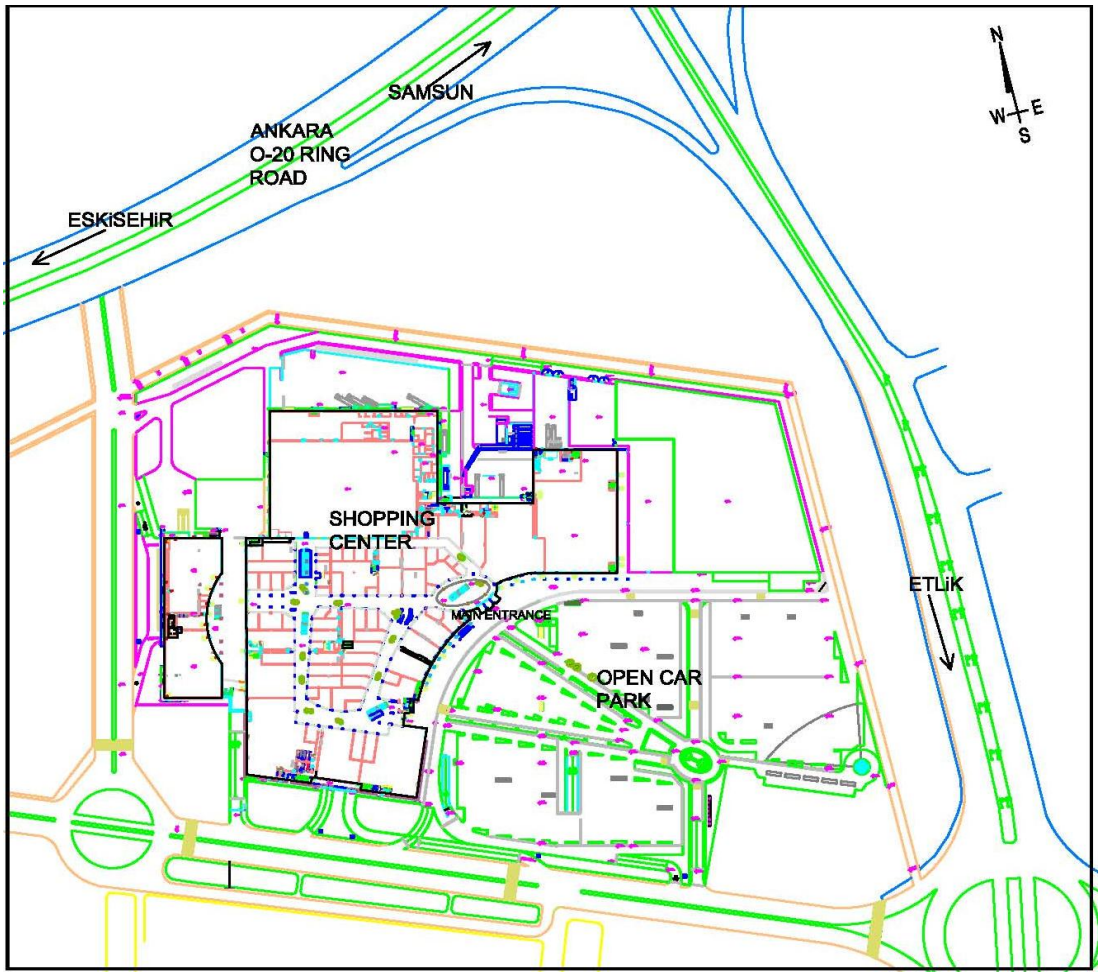



Figure 30. Site Plan of Forum Ankara.

The project which is built on two levels reflects a touch of the local architecture with the elements like "arch" and "Turkish style tiles" on the facades, marble and travertine stones reflecting the influence of old Turkish bazaars. Designed by T+T Design from Netherlands, CPU from Portugal and ERA Planning Architecture Consulting Co. Ltd. from Turkey, Forum Ankara's unique concept combines modern architectural elements with local components.

Located between different kinds of blocks, the boulevards are covered by transparent membranes which lead up to feel like walking along an open-air shopping street. (Figure 28) The "shopping avenue" feeling is enhanced with rich landscaping. A

giant screen is placed on the façade of the courtyard, created in between the cinema and shopping center blocks. Colored light effects are provided by means of lighting, both on interior and exterior façades and on the roofs, and the water elements, all over the center. With all of these social and cultural activities, it provides an alternative space to be enjoyed by families especially at weekends and holidays.

### 5.2. General Information about Forum Istanbul Shopping Center

Forum Istanbul Shopping Center has also been developped by a the same Dutch investor who is one of the well known real-estate company in Europe. Forum Istanbul Shopping Center is located on European side, in Bayrampasa district at the connection point of the E5 and TEM motorways. Forum Istanbul is both Turkey's and Europe's biggest shopping and life center along with its 175.000 square meters of rentable area and its 265 brands, on a total construction area of 495.000 sq meters. (Figure 29 and 30) Forum Istanbul aims to provide service not only Istanbul residents but also tourists visiting Istanbul, with its national and international brand stores, its restaurants, its permanent works of art and its 5.000 capacity closed car park which is placed in two levels under ground.

Figure 31. Aerial View of Forum İstanbul Shopping Center.Google Earth Image, retrieved on June, 2010.

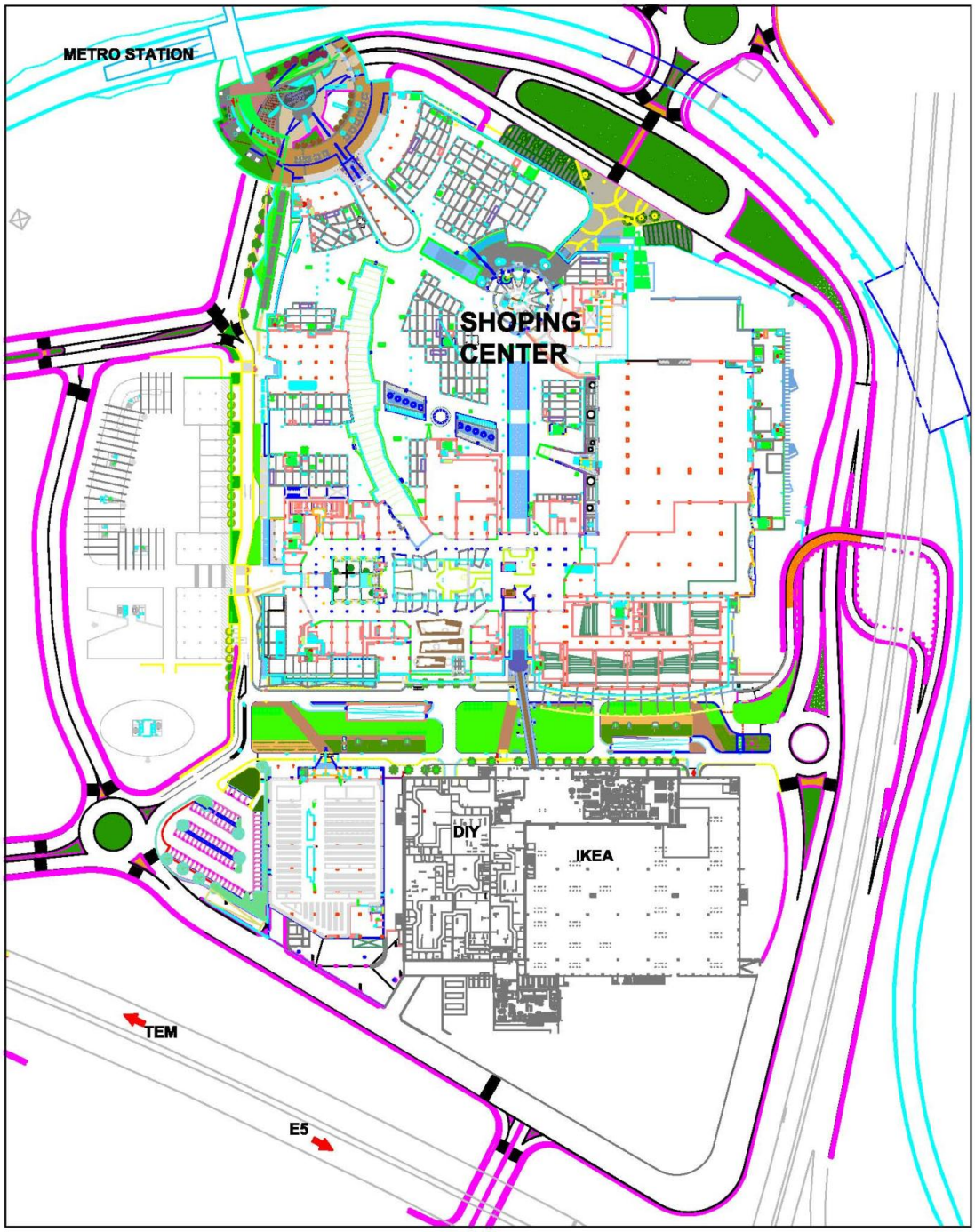


Figure 32. Site Plan of Forum Istanbul.


Figure 33. A SketchView from Forum Istanbul Project.

The concept design of Forum Istanbul was performed by T+T Design from Netherlands; while it's architectural design was carried out by BDP from England, Chapman Taylor from Spain and ERA from Turkey. The form of the shopping center is in harmony with the city's history and architecture. (Figures 33and 34) The main theme of the design is "city in a city, building in a building". While forming the architectural concept, it was tried to define spaces as each having its own identity and atmosphere, so as to make visitors sense and feel only one at a time. An urban square was created between the Metro station and Forum Istanbul and the square was enriched with show areas, and water and light games. Besides, an inner courtyard was created with sitting and activity areas, and with wooden blinds on the façades (Figure 35). All of these spaces are connected with two streets, totally different from each other in concept. With a number of shops, which is getting close to 300, it provides facilities like bowling, ice – skating, children entertainment areas, cinema theaters, the first and largest aquarium of Turkey, film shows projected on a water screen. Plants around the interior streets covered by transparent roofing, give the joy of walking on the roads and streets of Istanbul, where both sides are full of shops of all kinds (Figure 36).

Figure 34. Partial View showing the transparent roofs of Forum Istanbul from Model.


Figure 35. Views showing the urban court and inner court.

Figure 36. Views showing the different streets in Forum İstanbul.

Forum Istanbul and Forum Ankara host permanent works of art. The giant door and hands of famous sculptor “Hanefi Yeter”, dubbed by him as the “World Door” opens a door to the shopping world. In the bottom section of the “World Door”, which has a length of 7 meters and a height of 5.60 meters and made of aluminum, appears as figures of sea animals. As for another work of art named “Energy”, which Russian artist Daria Bokareva Bokareva created in the year 2006 within the scope of the 1st International Cloth Sculpture Symposium, is offered to the admiration of visitors in Forum Istanbul (Figures 37 and 38).


Figure 37. Works of Arts created by famous artists in Forum Istanbul.


Figure 38. Permanent Works of arts created by famous artists in Forum Ankara.

In Forum Istanbul, all details are taken into consideration to provide a comfortable and enjoyable space for daily use, especially for familes with children. There are eight family rooms within the center, where milk warmer units, baby changing places and chiild toilets are provided. Families with babies or children may even have the diapers from the machines provided in seven baby care rooms designed specially for them. In Forum Istanbul, baby strollers are available, even for twins. There are special areas designed for people with disabilities. There are special phone services which provide use of special parking possibilities for pregnant and disabled visitors. Emergency room, wireless internet connection, customer help line, and vale parking also make the life easier for all the users.

Figure 39. General view of Forum Istanbul from Model.

Figure 40. A view from Aquarium in Forum Istanbul.

Figure 41. A view from an exhibition in Forum Istanbul,

### 5.3. Evaluating Car Parks

The sixth and seventh principles of Universal Design should be taken into consideration when evaluating the open and closed car parks of the shopping centers. The most convenient solutions which need lowest physical effort to approach the entrances on a smooth, firm, continuous and non-slip surface planned carefully during design stage of a parking place will not be adequate to get the best solution. As an experienced construction professional, unfortunately I must inform you that one of the major problems encountered in the construction period is to finish surfaces on the exact planetary level especially in a large area due to poor workmanship. In this regard, personally our citizens experience in a rainy day how successful the applications are on any road or sidewalk. Somehow the puddles on the surfaces are in places which are generally unexpected. They are mostly in front of the entrances, in front of the doors, in the pathway or in the point where you get of the car after parking. All these frustrated probabilities will be faced in evenly designed open parking areas. A parking place which is not designed well enough can become a nightmare for the people using that area.

Besides poor workmanship, in my opinion, the most important reason of having bad quality areas is the timing of these activities. The completion of the finishing works of the open and closed parking places is certainly carried out in the last moments of the construction schedule. Therefore the works are finished in a hurry by ignoring some quality issues.

One of the requirements of the principles of Universal Design is to build the environment without level differences as much as possible for easy access both inside and outside the building. I would like to repeat here an approach not only for open car parks but generally valid in accordance with the principles. The pathways should be planned by taking into consideration the different needs and preferences who use them, there should be no barrier, and unexpected, unsigned level differences on all the way long, and should be well organized so that the people can use them

efficiently and comfortably and with a minimum of fatique. However, the vehicle and pedestrian traffic should also be distinguished.

Parking solution is the visitor's first contact with the center facilities. It may condition the visitor for a positive and pleasant experience or put him in an irritated mood. In contrast to the old suburban shopping centers, the environment around present shopping centers in the city centers has been drastically changed. In the present shopping centers, parking spaces have mostly been located under or over the building depending on the environmental conditions mostly where it is situated, and in relation with the codes of construction permit.

It is mandatory by the building code of Turkey, to arrange parking areas for people with disabilities in all open and closed parking places in accordance with the regulations for car park constructions. Additionally, all related standards prepared by TSE should also be followed in designing of the car parks. It is also mandatory to provide at least one parking space with a handicapped sign for every twenty parks, in the closest accessible points to the entrances and the elevators in all public buildings by the additional item of the car parks regulations.

Forum Ankara Shopping Center has both open and closed car parking facilities within its boundaries although it was constructed in the suburbs of the city. Forum Istanbul Shopping Center has been constructed in a densely populated district with limited land use conditions. Therefore, basement floors are allocated for car parking. But, in the holidays and weekends, the visitors use the surrounding roads as open parking area and cause the traffic congesting.


Figure 42. Views from closed car parks of Forum Ankara during construction stage.


Figure 43. Closed car parks of Forum İstanbul.

When we review the open and closed parking spaces of each shopping center we will find that accessible parking spaces have been allocated close to the main entrances with necessary signage and adequate illumination (Figures 42 and 43 above, Figures 44 and 45 below). Number of parking spaces can be considered as sufficient, even more than required because during the visits one can find empty spaces allocated to disabled, or occupied by other users which are against the rules. Almost all parking spaces have direct connections with the entrances and exits through pedestrian paths without any barriers, on the same level.

Figure 44. Views from open car parks of Forum Ankara.

Figure 45. Views from open car parks of Forum Ankara.

One of the most important problems of the car parks is security. Especially, to provide security is important when it is dark. Banu Tuna (2004) gives a call to the concerned authorities in her article in this issue and wants to see the similar applications in Turkey. “When she visited a shopping center in Zurich together with one of her friends having a baby, she has noticed something which was not familiar to her in the parking area of the center. There were signages written on ‘For Women Only’ on all of the closest parking space to the entrance. This has two reasons. First reason is to reduce the sufferings of the mothers holding a child or pushing strollers with one hand and carrying bags with the other. The second and more important reason is to prevent women from attacks. We know that robbery and assault incidents may happen in car parks of any shopping centers. Assailants prefer especially dark

corners away from the secured places near the entrances. With this application, the attacks against women have been prevented." (Tuna, 2004) When parking places designed close to the entrances and exits and allocated for people with disabilities should be evaluated from this point of view, it may be said that probably many of the applications in Turkey when evaluated in the light of the principles of universal design including even these two sample shopping centers' are inadequate although they are situated close to the access points. But, one can notice that there is no place specially allocated for women only who travel alone or with her baby stroller, and for vulnerable people close to the entrances and exits. Unfortunately, there are some dark places and corners in these closed car parks of the centers sometimes to reduce the operational cost by turning off the lights although the security of the shopping centers is successfully maintained. Although a statistical research has not been carried out I can tell by doing a self-criticism that specifically reserved parking places are used by public time to time.

In car parks, the distinctive signs such as colors and numbers must be used together as in Forum Ankara and Forum Istanbul Shopping Centers. Open car park in Forum Ankara has also a lot of lighting posts enough for night illumination. There are different traffic signs directing drivers for the suitable places. The pictures below are examples of this application
(Figures 46, 47, 48, 49, 50, 51 and 52).

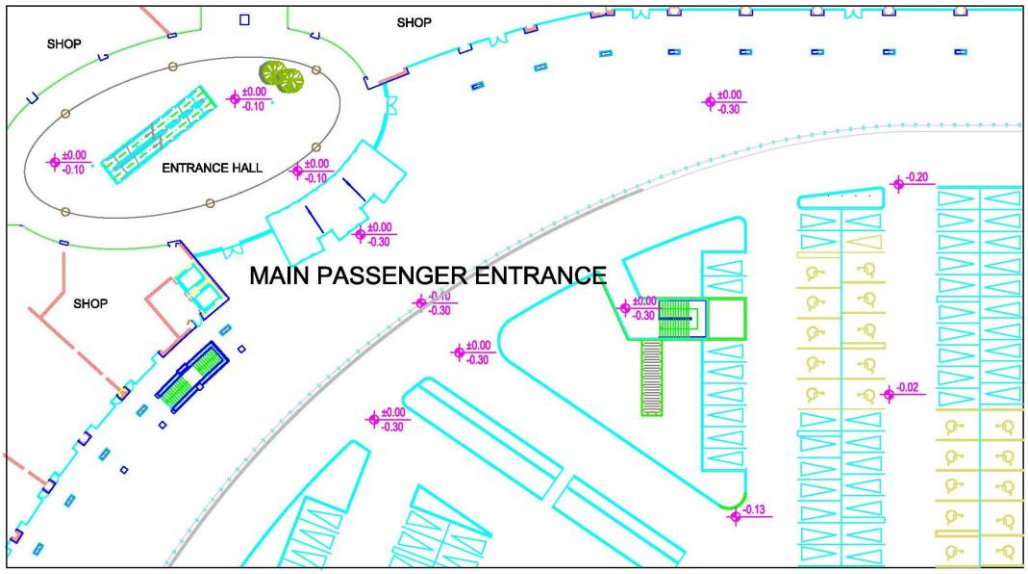



Figure 46. Partial Plan showing the relation between main entrance and open car parking space at ground level, in Forum Ankara.

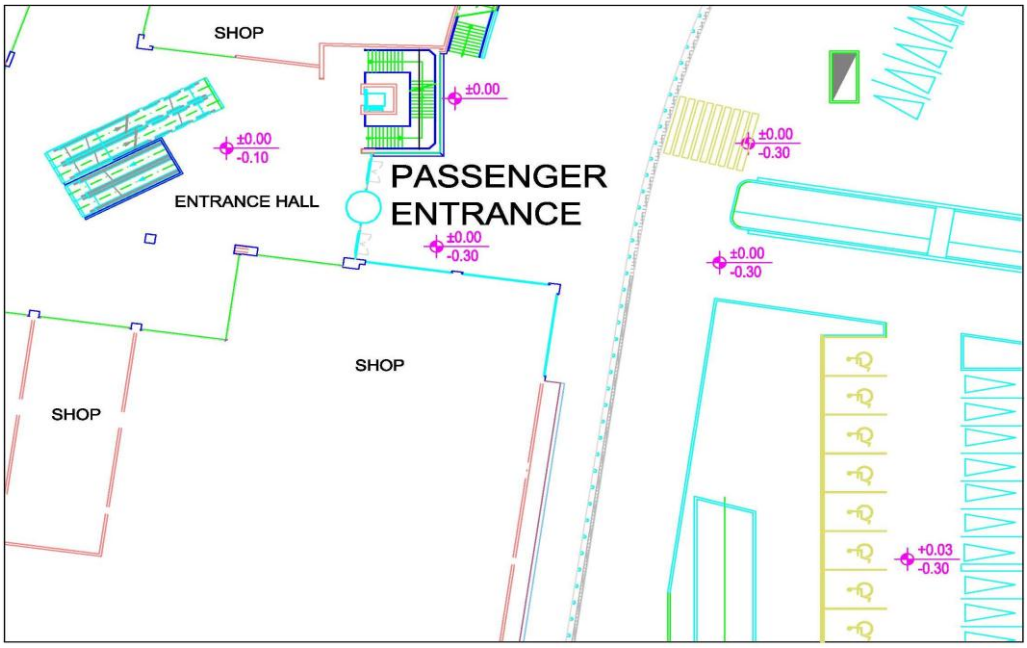



Figure 47. Another plan showing the relation between the entrance and open car parking at ground level, in Forum Ankara.

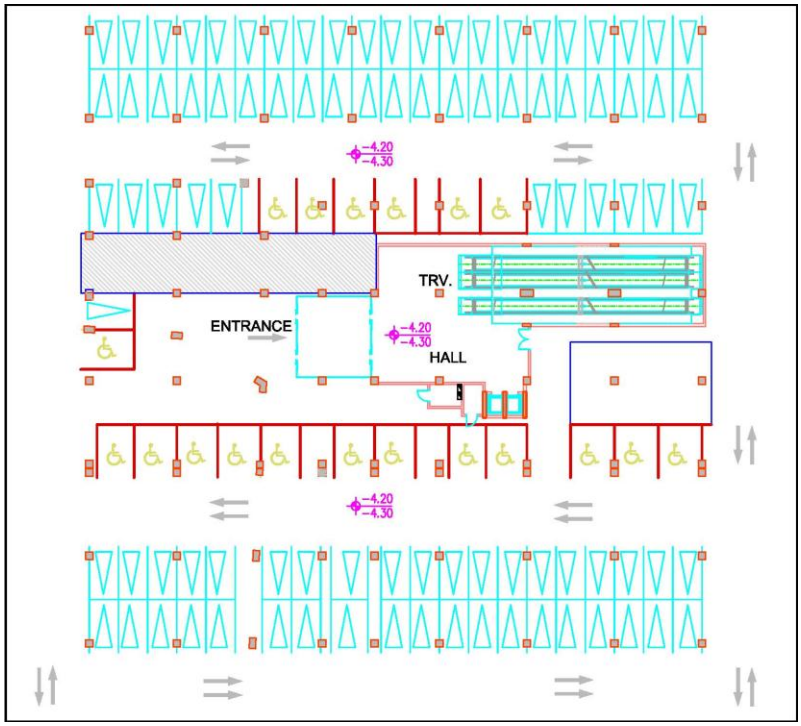



Figure 48. Partial plan of the entrance at the closed parking space at basement level 1, in Forum Ankara.

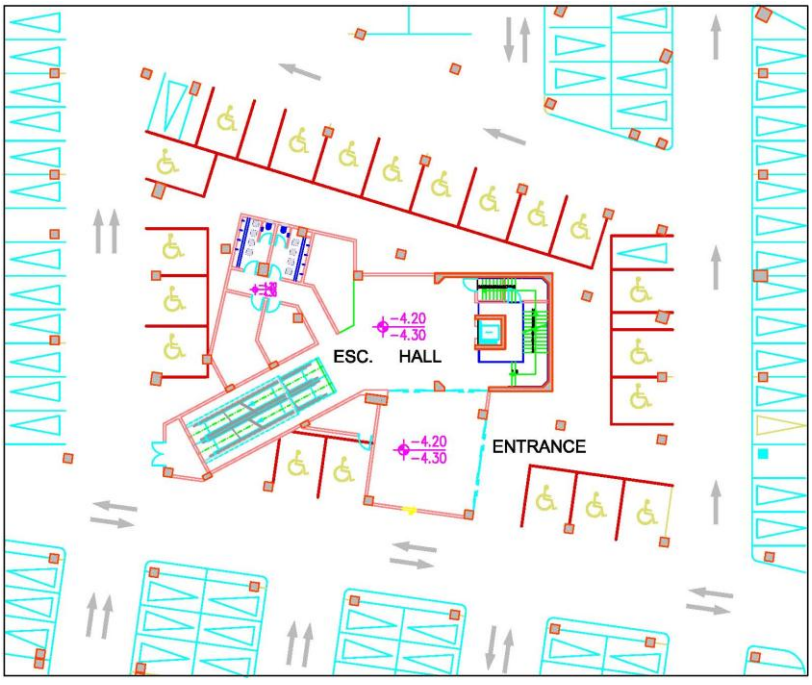



Figure 49. Partial plan of the entrance at the closed parking space at basement level 1 in Forum Ankara

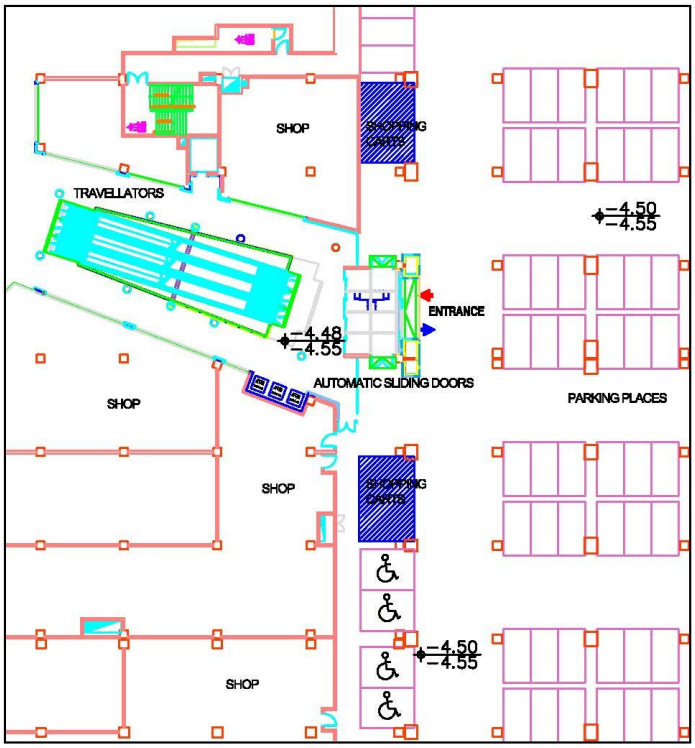



Figure 50. Partial plan of the entrance at the closed parking spaces at basement level 1in Forum İstanbul.

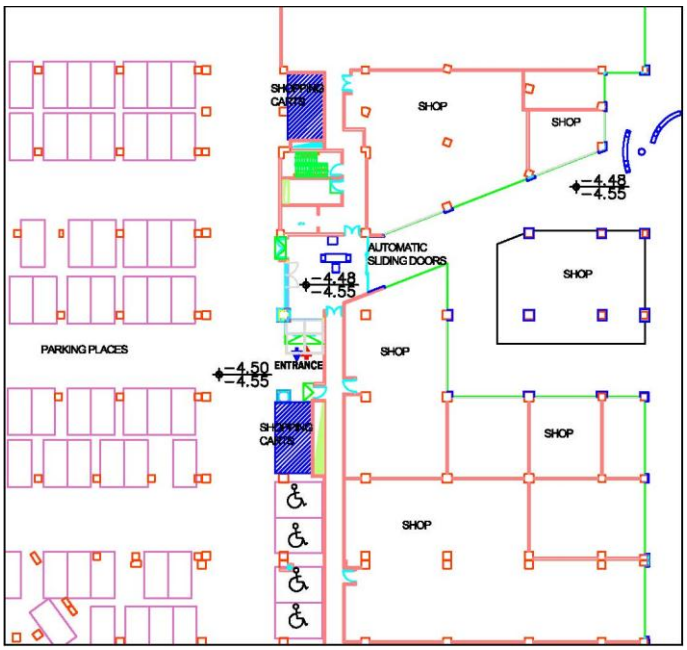



Figure 51. Partial plan of the entrance at the closed parking spaces at basement level 1in Forum Istanbul.

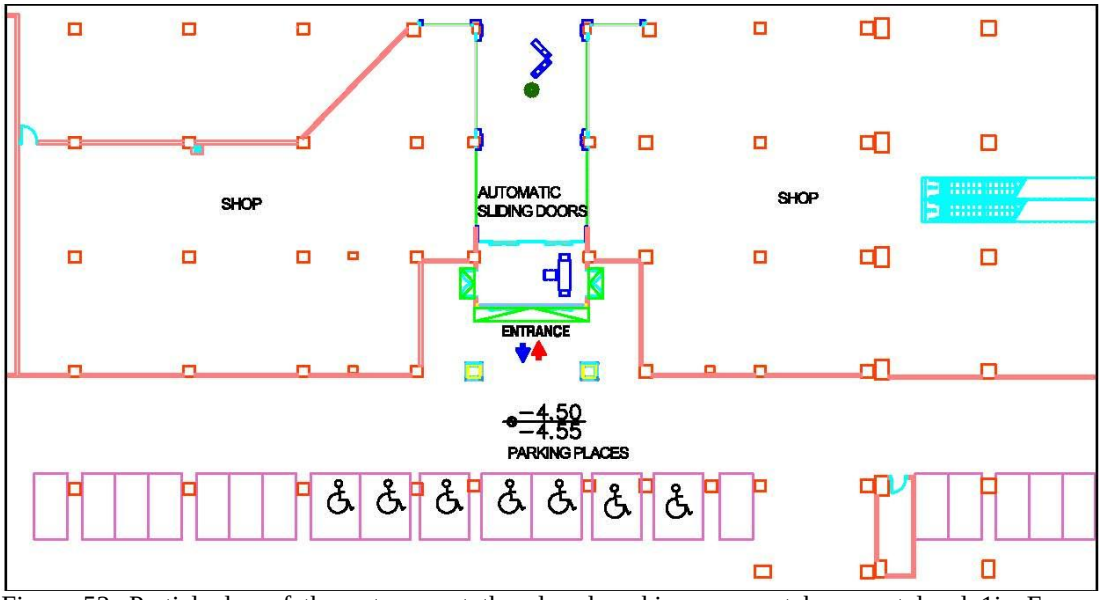


Figure 52. Partial plan of the entrance at the closed parking space at basement level 1in Forum Istanbul.

### 5.4. Evaluating Entrances and Exits:

The first principle of universal design is “equitable use” which means to provide the same means of use for all users. Therefore, the design of an entrance should provide equal access and usability for everyone rather than separated one for a group of people. An entrance and exit should be easily perceived when looking from the outside or inside. Figure 53 below shows the difficulty of telling the difference between the entrance and adjacent window.

Figure 53. This entrance is virtually impossible to distinguish from adjacent window panels. (Giuliani, 2001)

It is the architect's success to design a distinctive feature to help people finding the entrances and exits without getting confused. The pathway to the entrance and exit must be separated from vehicle traffic, free from level changes and obstructions. When it is compulsory to have steps then a ramp with a minimum slope and handrails preferably on both sides or in the middle if slopes are above the minimal specified degree should be added. The surface of the ramp should be covered or finished by a non-slip material. Automated sliding doors instead of revolving doors should be preferred where possible to accommodate people whose hands or arms are occupied in a manner can pass through without any difficulty. A revolving door shall not be used as the only passage way at an accessible entrance. An accessible door shall be provided adjacent to the revolving door and shall be so designed as to facilitate the same use passage. The entrance and exit doorways should be wide enough to accomodate for a person travelling with luggages, and should not close rapidly which is controlled by electronic systems or with much force to ensure the safety of people pushing a shopping cart.

Forum Istanbul Shopping Center has six main pedestrian entrances on three different levels except carparks at the basement floors. The Figure 54 below shows the artificial public square connecting the metro station to the north-west entrance on the first floor by a ramp.


Figure 54. One of the main entrances of Forum Istanbul connecting Metro Station to the center at first floor.

The pathway to the entrance is at the same level with the building inside, as drawn. Anyone who gets on the subway can easily visit the shopping center through this entrance and exit. The other four entrances are on the ground floor level, two of them are for two big stand alone blocks, one for furniture hypermarket, and one for building market. The other two have the same conceptual idea as the first one. The entrances are on the same level with surrounding floors. All these entrances have two lines of automated sliding doors with security control. All the pathways to the entrances are covered by different type non slip natural stones, ceramic tiles, and concrete tiles. The sixth entrance is on the first basement floor level, connecting the pedestrians coming from neighboring residential area on the north of the center. One can easily find the entrances just by looking the façade features of the building. The entrances in the closed carparking floors are also designed and built at the same level with the surrounding areas. The materials used for floor coverings are non slip

ceramic tiles inside and asphalt outside. There are also automated sliding doors at all the basement entrances.

Forum Ankara Shopping center has two main entrances on the ground floor. The boxes have their own separate entrances. These entrances are directly open to the car park area on the ground floor. The pathways to the entrances are separated from vehicle traffic with different types of bollards. Like in Istanbul Project, the entrances can easily been perceived by the pedestrians. The designers have distinctively used the architectural elements to define where the entrances are. On the entrances, there are extra graphic elements showing direction and identification both inside and outside. There are two entrances in the basement floor which serves as closed car parking area. There are also graphic elements showing the direction and orientation. Everybody using these entrances can visit the center without facing any barrier or difficulty. In the reception desk wheelchairs are provided to be used inside the shopping center when needed. (See Figure 55 and 56 below)

Figure 55. Main entrance of Forum Ankara.

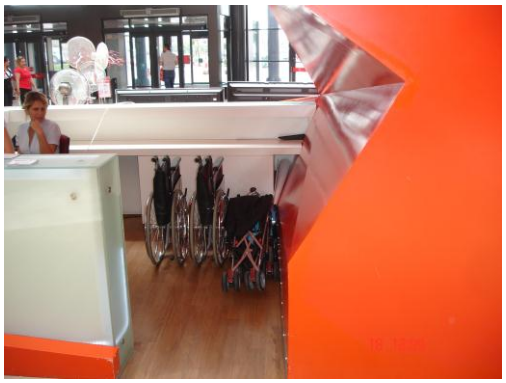


Figure 56. Wheelchairs in the reception desk.

I can easily say that the entrances of centers are designed and built in accordance with the principles of universal design, not only for people with disabilities but for everybody.

Figure 57. Views showing the entrances of Forum Ankara.

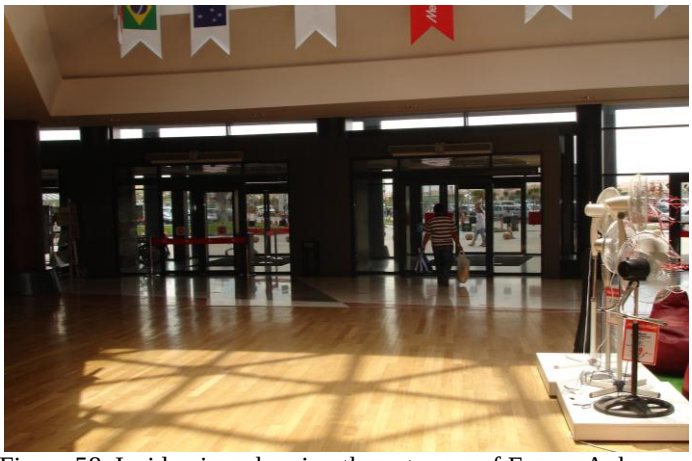


Figure 58. Inside view showing the entrance of Forum Ankara.

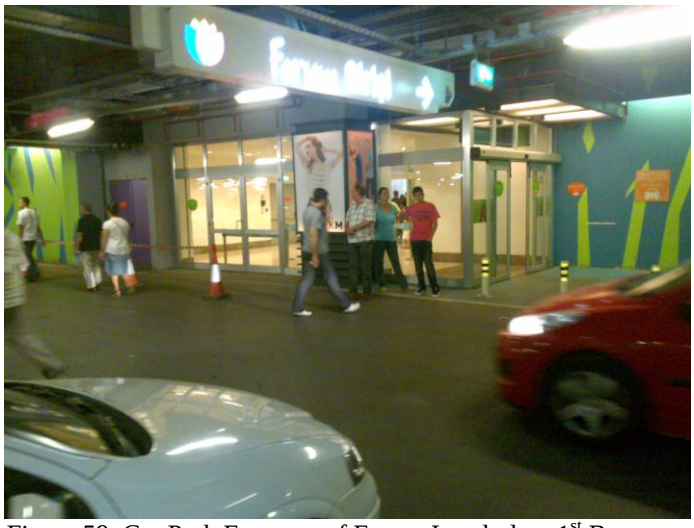


Figure 59. Car Park Entrance of Forum Istanbul, at 1st Basement Level.

Figure 60. West entrance of Forum Istanbul at Ground Level.


Figure 61. Special Entrance of DIY.

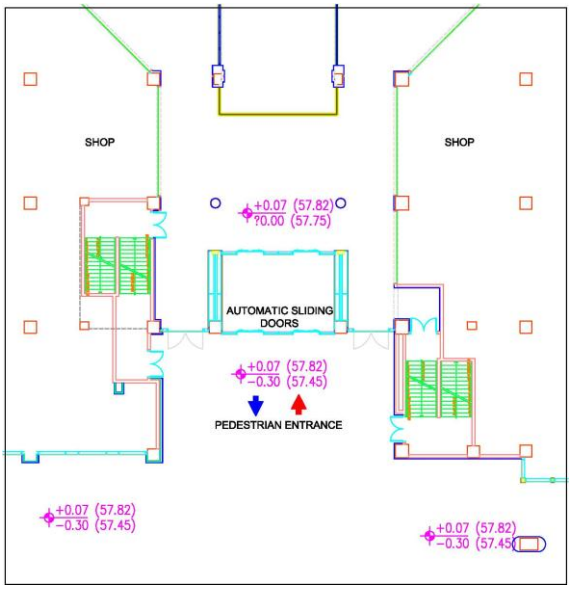



Figure 62. Plan view of south entrance of Forum İstanbul.

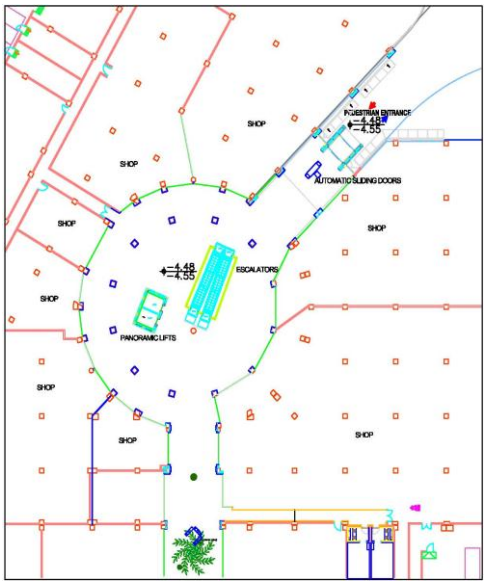



Figure 63. Plan view of north-east entrance of Forum İstanbul.

Figure 64. South and North-east Entrances of Forum Istanbul, at different Ground Levels.

## 5.5. Evaluating Vertical Transportation

In a multı-storey building, the accessibility from one floor to the other floor can be provided constructionally by means of stairs or ramps. Level differences in a building can also be managed by either stairs or ramps. Technological developments have brought the elevators to the high rise buildings as a mechanical element. The escalators followed the elevators and started to be used in large scale two floor buildings and especially in subway constructions. The invention of travellators creates another solution for the vertical transportation in the two storey buildings and stores whose visitors use shopping carts. Today, the escalators and the travellators are commonly used together with elevators for vertical transportation in shopping centers. All these vertical transportation elements can also be used outside of the buildings alone or together. In this chapter, we will evaluate the elements constructed inside of the buildings.

### 5.5.1. Evaluating the Stairs and Ramps

Stairs provide means of vertical circulation between stories of a building, and as such it is an important link in the overall circulation scheme of a building for able bodied people, whether punctuating a two story volume of space or rising through a narrow shaft of space. Safety and ease of travel are, in the end, probably the most important

considerations in the design and placement of stairs. The ramps allow smooth, easy transition to be made between changes in level. Utilizing comfortably low slopes, they require relatively long horizontal runs. They may be used to provide access for the people with disabilities, access for equipment traffic and smooth vertical travel through, around, or along a high space. The ramps are mostly constructed in between car park floors to provide access for cars in the shopping centers.

Stairs can be physically tiring as well as the main obstructions for the people with disabilities who cannot manage to climb lonely. So, even if the buildings are low-rise, at least two storey, one elevator should certainly be designed close to the stairs. I would like to say additionally to avoid to be misunderstood that a two storey building cannot be constructed without a stair or a ramp both during the construction stage and later on unless it is accessible from two different levels and used as a single storey building.

For the construction workers, stairs are the most difficult elements of buildings, especially circular ones. I don't want to exaggerate but it is strictly impossible to finish the stairs according to the drawings if the heights of the risers are the fractional numbers such as 16,66cm i.e. if the finished floor height is 500cm floor to floor, and if we plan to have 30 risers, the height of the each riser will be 16,66cm which formworkers together with concrete workers cannot fix this height during construction stage.

The heights of all the risers of a stair must be equal to each other as planned. But, a major misapplication faced during construction of stairs is the differences in the heights of the risers. At least one of the risers' height is higher or lower than the others in most cases, and that riser is not the one of the middles, but either the first one or the last one. People can even feel the difference of half a centimeter in height and this difference may cause loss of balance and falling down. Therefore, when designing the stairs architects should primarily take into consideration the needs of the people rather than the limits of the areas/spaces.

Stairs in a shopping center serve for user group, one group is visitors, and the other group is the people working for shopping center management, service and maintanence. The main role of stairs is easy evacuation of the people in case of fire or emergency. For evaluating the stairs in shopping centers in the light of the principles of Universal Design, there are a few important features to be taken into consideration during design stage. First of all, every stair should strictly have one or more landings depending on the height it runs, since the floor heights of shopping centers are more than the other public buildings (Figure 63). Secondly, for comfort and safety, certain proportions between riser and tread should be maintained. They should be neither too steep nor too shallow. All risers must be identical in height, again for comfort and safety, and the height of each riser should be maximum 15cm. according to the Turkish and international standards. Designers should avoid drawing treads with nosings in the design of stairs, although it is preferred by the tile layers due to their application simplicity and at the same time, it hides the application errors. Handrails should also be fixed on both sides of the stairs continuously even around the landings. If handrails are not continuous, they should extend at least 30.5 cm beyond the top riser and at least 30.5 cm plus the width of one tread beyond the bottom riser. At the top, the extension should be parallel with the floor or ground surface. At the bottom, the handrail should continue to slope for a distance of the width of one tread from the bottom riser; the remainder of the extension should be horizontal in accordance with the standards. Number of handrails, for a better solution, should be two, in two different levels, in terms of universal design.

Stairs in Forum Istanbul Shopping Center have the features beyond the criteria specified by the standards for people with disabilities. Below, you will find two pictures which are showing the plan view and the application of two lines of the hand railings on both sides in two different levels as the indicators of the solution in one of the main visitors' stairs (Figures 65 and 66). Plan shows that there are two landings in suitable places and all tread widths are identical.

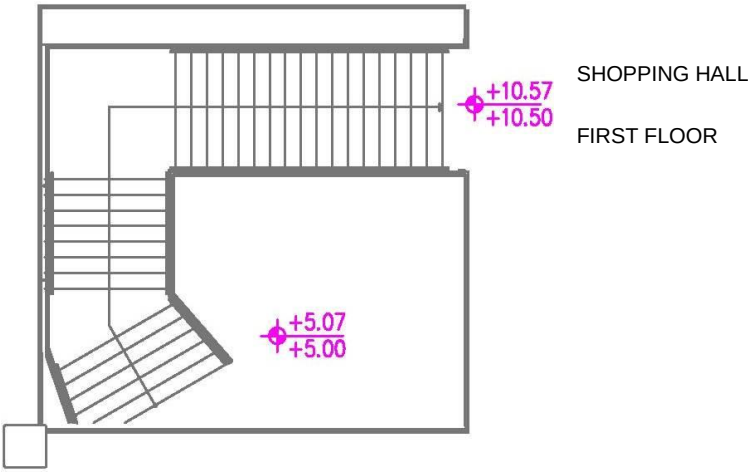



Figure 65. Plan view of a visitors' stair at Forum Istanbul.

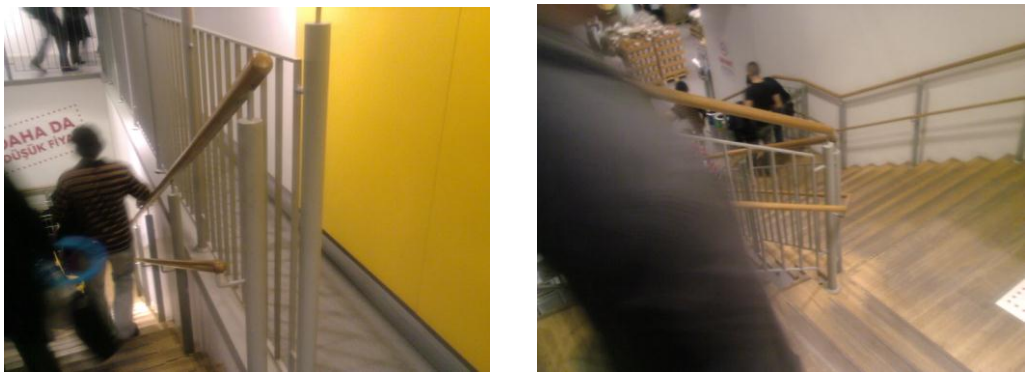


Figure 66. Double handrailings used in one of the main visitors' stair in Forum Istanbul.

But, the extensions of the handrails are not in accordance with the principles of universal design, since they finished on the alignment of the last riser (Figure 67).

The materials used for treads have been chosen among the non-slip materials for all of the stairs including service ones. We should not forget that the stairs are the most important elements used as fire escape routes in a building especially in case of fire.

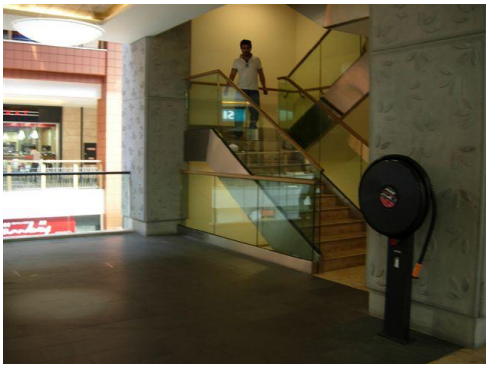


Figure 67. A view from the stairs in Forum Istanbul.

### 5.5.2. Evaluating the Elevators

The elevators are one of the indispensible solutions developed for easy access to upper floors after the increase in the number of multi-storey buildings. There are two types of elevators depending on their usages; Passenger elevators and freight elevators. In most cases, passenger elevators are used as freight elevators or vice versa. There is no need here to mention about the technical requirements of the elevators as they are specified in the standards and ADA guidelines. (www.adaag.com/ada-accessibility/guidelines.html)

Passenger elevators should be provided close to and together with the stairs in a visible, easily accessible and closest place to the entrances in buildings in accordance with the regulations. Elevators are psychologically scaring equipments of the buildings to the people especially with claustrophobia because the cabins are closed, automatically moving, and airless, usually purely illuminated elements. In modern shopping centers, it is common to design the main elevator as panaromic elevator to reduce this negative scaring effect (Figure 68). The elevators in shopping centers are generally not used by physically normal bodied people unless it is necessary. But, someone pushing a shopping cart full of bags can preferably use the elevators connecting the shopping floors to the closed car parks under the building or to the open car park area.

Door widths, opening and closing conditions, interior sizes, and the heights and positions of control panels of the elevators inside or in the elevator halls are determined in all the building codes including the standards prepared by TSE, by taking into consideration the conditions of the people with disabilities. However, at least one of the elevators should be sized to get a stretcher not only in shopping centers but in all multi-storey buildings including residences both private and public although it is not compulsory for emergency conditions. In the near future this should be made obligatory since there will be a need to use a stretcher one day in the future for even someone normal in these days. Another major problem related with elevators is not to use them especially in time of fire, and this is one of the topics to be studied on to save the life of people in case of fire in multi-storey buildings.

Figure 68. Views from panoramic elevators in Forum İstanbul.

The cost of elevators in multi-storey buildings is approximately in between 5 to 8 % of the total. This rate is in between 1 to 2 % of the total in shopping centers including the costs of the escalators and travellators. Therefore, the designers have to provide elevators, escalators, and travellators enough for the people with disabilities to access to the different floors of the buildings without any problems (Figures 69, 70 and 71).

Elevators used in both of the Forum Shopping Centers are manufactured and mounted in accordance with the requirements. Therefore, people with disabilities sitting on wheel chairs can use these elevators without any barrier. Figures 72 and 73 show the detailed drawings of one of the passenger elevators in Forum Ankara shopping center. They are placed on the easily accessible paths, close and visible to the entrances, and with signs to show the direction. The door widths of all the elevators are in accordance with the standards and their sliding doors are opened wide enough for people on wheelchairs to pass without difficulty and closed automatically. The floor coverings are made of stone type materials and levels of both floors are so arranged that there is no difference between inside and outside levels when they are stopped. The interior sizes of the elevators are also designed in accordance with the related standards, but, I wish at least one of the elevators should be large enough for a stretcher to fit in with someone who pushes it, except the service elevators.

Figure 69. View showing vertical transportation systems.

Figure 70. Views from elevator halls shown in the plan at Forum Istanbul.

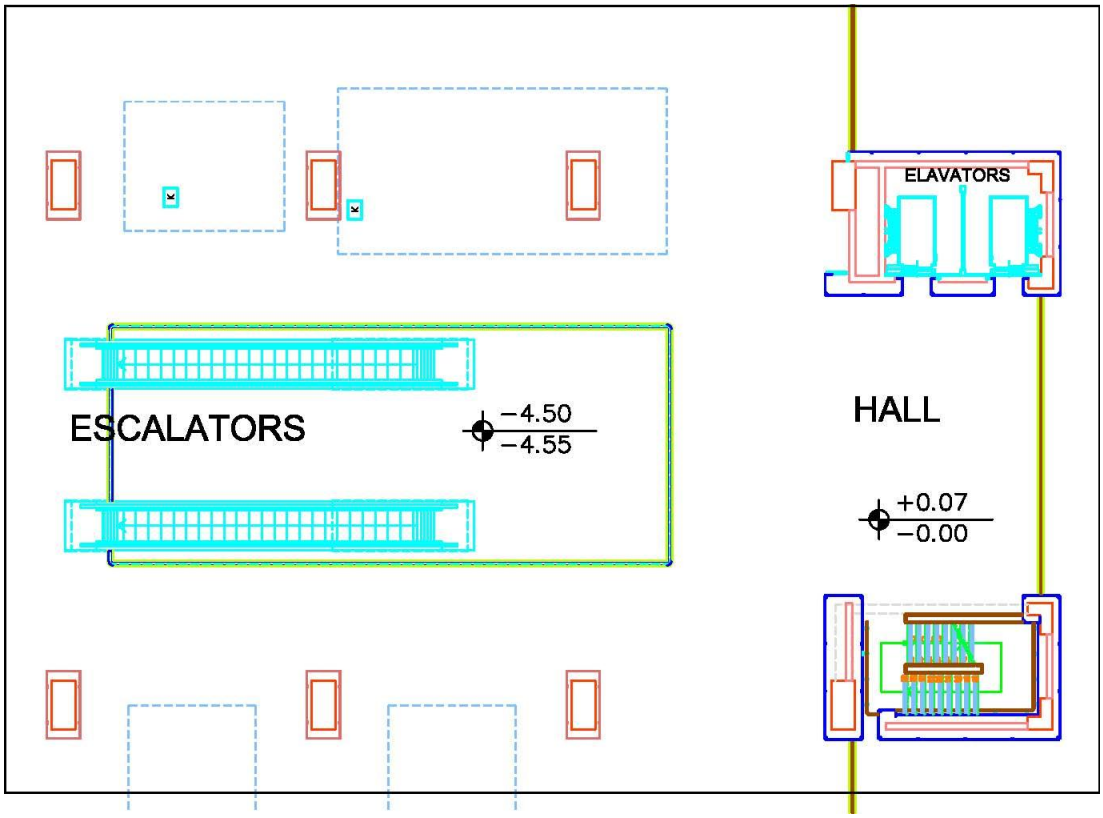



Figure 71. Plan view of the combination of the vertical transportation in Forum Istanbul.

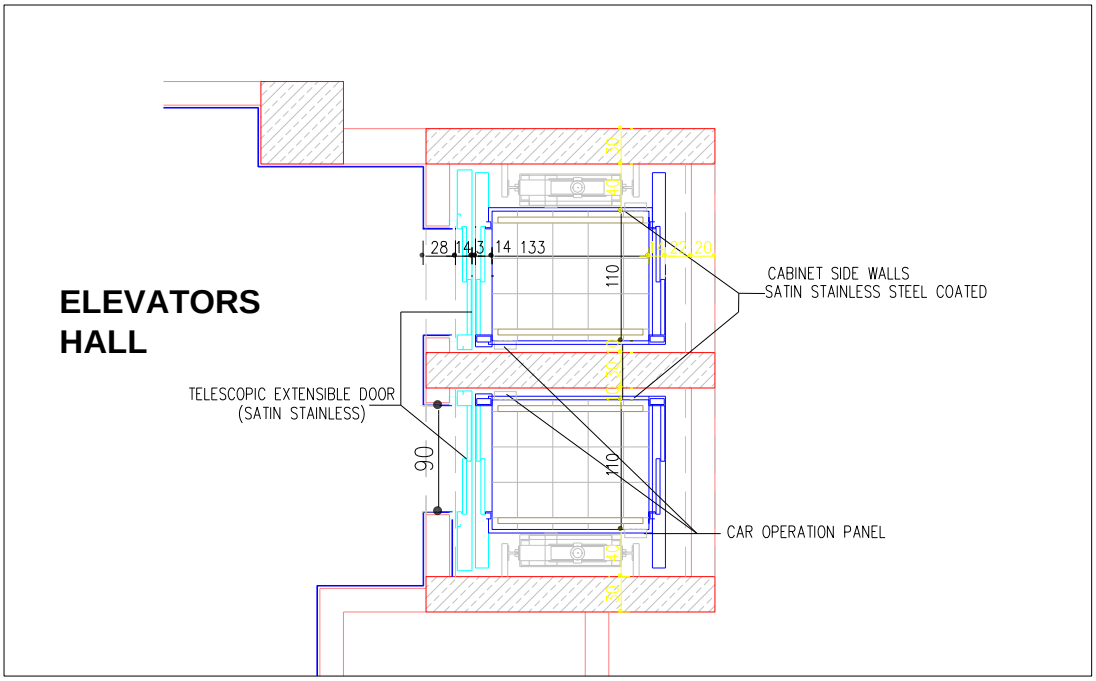



Figure 72: Typical plan of one of the elevators in Forum Ankara.

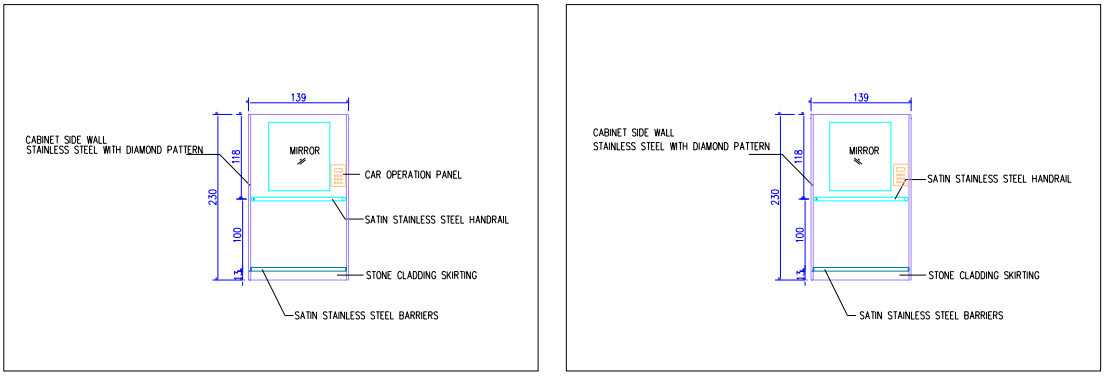



Figure 73. Typical elevations of cabs, in Forum Ankara.

### 5.5.3. Evaluating the Escalators and Travellators

Travelattors and escalators are the structural elements mostly preferred instead of stairs or ramps by all people including the people with disabilities who want to visit different floors of the shopping centers. Travellators and/or escalators should be provided close to the main entrances together with elevators to access easily to the

required floors in multi- storey public buildings including shopping centers. But, it should be kept in mind that the escalators cannot be used in place of elevators. The usage of travellators is more suitable for people carrying shopping carts or parents with baby strollers. Although they have similar mechanical operational systems, the usage of escalators is forbidden and restricted by fixing bollards in the middle of the way (Figures 76 and 77) for people with disabilities and people pushing baby strollers or a shopping cart since this may cause important risks.

One of the main security problems of the escalators faced during operation is the safety of children. The opening left between the escalator paraphets and the decorative railings may cause some unwanted dangers such as falling of children. The Figure 76 shows the finishing of the corner of the paraphets in Forum Ankara. The distance between the moving paraphet of the escalator and the decorative glass paraphet is so narrow that there is no risk of fall for a child. Another problem is placing of the escalators and travellators. If they are placed close to the walls or each others in different directions then there is danger of squeezing and breaking of hands and legs, even heads. They are placed parallel to each others to prevent a risky occasion in both of the Forum shopping centers (Figures 78).

Travellators and escalators both in Forum Ankara and Forum Istanbul Shopping Centers provide easy vertical access to the required floors starting from the basement car parking floors. The area needed for a travellator is comparatively larger than the area needed for an escalator due to their slopes (Figure 81). Therefore travelators are limited in number and they are considered as enough mainly to connect the parking floors to the supermarket floor since the visitors of supermarkets push the shopping carts full of packages to their cars. The vertical connection between other floors can be provided by the escalators besides elevators and stairs. In multy floor shops only escalators are provided in most cases. This is not a suitable solution in accordance with the principles of universal design. A person with disability has to go out of the shop and to find the alternative ways to go up or down to visit the other floor of that

specific shop. Therefore, an elevator should be designed and provided additionally to solve this problem. The design of shopping centers and specific shops should be evaluated by taking into considerations the principles of universal design because the shopping centers especially are completely visitor oriented buildings. Some of the multi-storey shop operators build the escalators or the travellators in their shop apart from the main building when they see it necessary. But, elevator, escalator or travellator used together are difficult to find in a single shop. The aquarium part of the Forum Istanbul Shopping Center is an example for the combination of elevator and escalator which you can find the plan view of it in Figure 74 and other views in Figure 75 below. Additionally there are Figures 79 and 80 below showing the travelators connecting the basement floor to the supermarket floor and another travellator in a two floor shop.

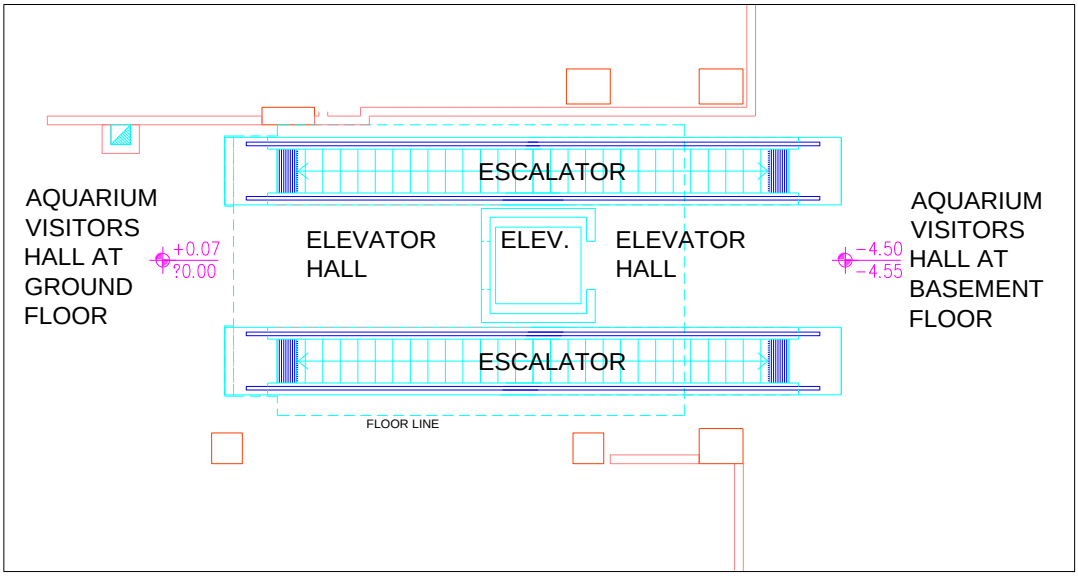



Figure 74. Plan view of the combination of elevator and escalator.

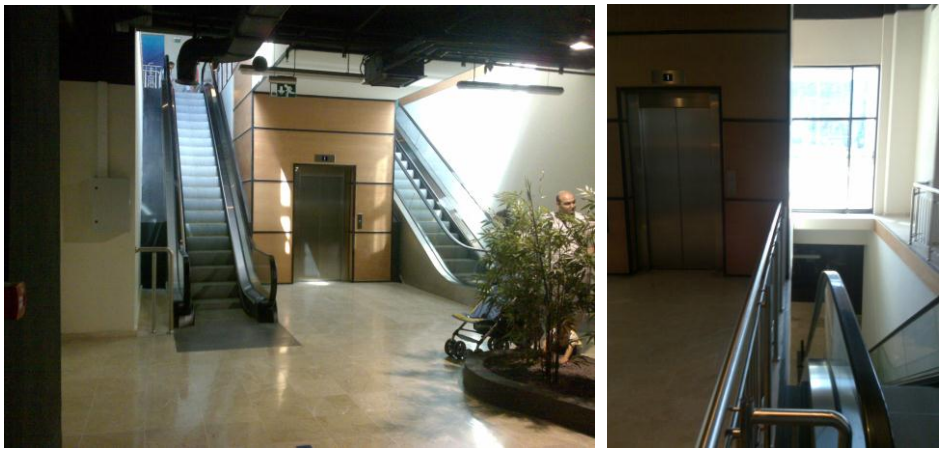


Figure 75. Views of the combination of elevator and escalators.

Figure 76. Detail showing the parapet finishing at the corner together with the safety measures.

Figure 77. Safety measures for the escalators.

Figure 78. Escalators and Travellators of Forum Ankara.

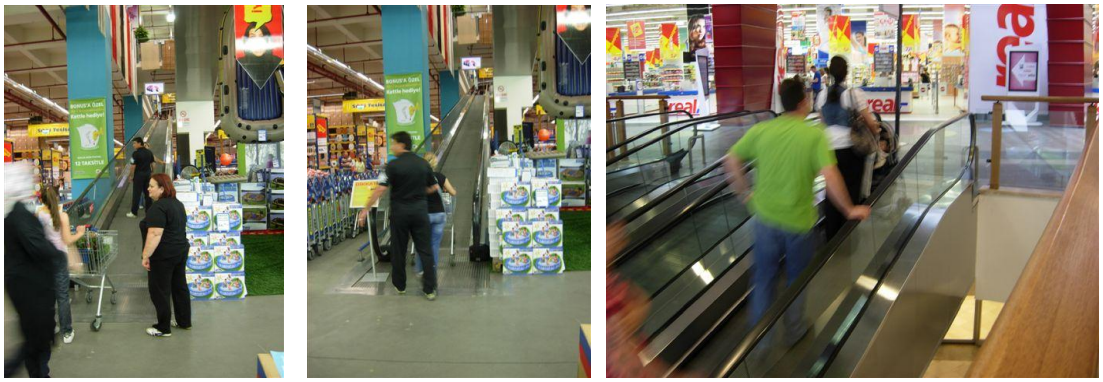


Figure 79. Pictures from travellators left inside the shop, right connecting car parks to the supermarket floor in Forum Istanbul Shopping Center.

Figure 80. Views from travellators connecting the basement floors to ground level in Forum Istanbul.

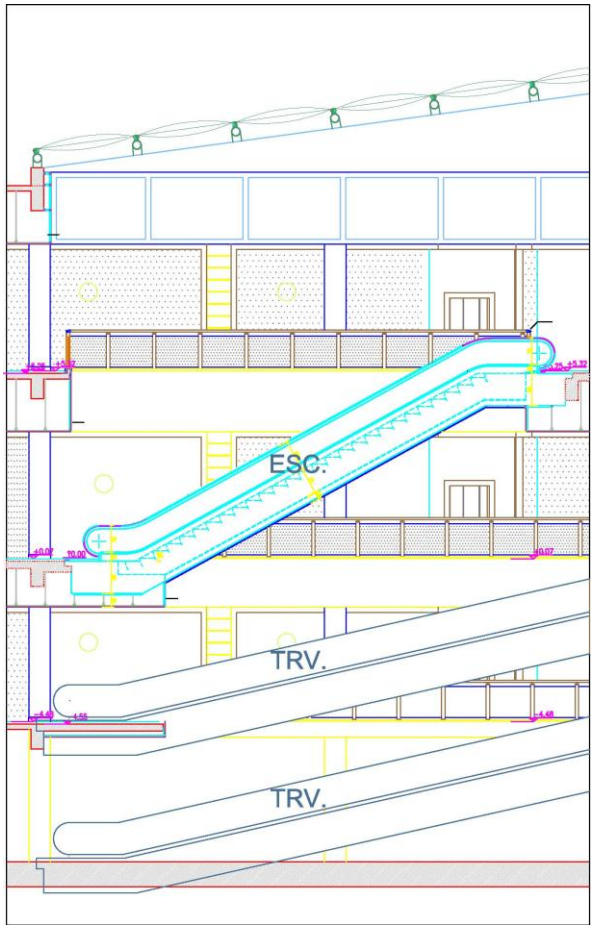



Figure 81. Section showing travellators and escalators.

### 5.6. Evaluating Rest Rooms

The design of wet spaces is another important subject in all buildings but especially for buildings heavily used by public, such as shopping centers, and airport terminals. To spend time in rest rooms is not the main target of the visitors of these public buildings. Architects as a general habit, design two approximately equal areas of space, allocating one for men and the other for women. But, it should be kept in mind that women tend to use toilets more than men do, and spend twice as much time there compared to men. Urinals cover less space than cubicles, so male toilet room capacity will be more if equal sized spaces are reserved for both, contradicting the existing proportion of usage.

Another important point is the size of female cubicles. Because of the physiology of females, their habit of using the toilet will be by sitting. Moreover, the accessories for contamination and their handbags all add the need for a larger space for female toilet rooms. Therefore, there will be a need for a larger space than would be in a male toilet room in any public building. Ofcourse, the size of cubicles and the area required for female and male toilet rooms would be another research subject.

The rest rooms of the two shopping centers under evaluation have been designed generally by taking into consideration the principles of universal design. Every individual visiting the center can spend his resting time in a comfortable atmosphere. Mothers with infants, either carrying a stroller or not can easily use the family rooms or baby rooms depending on their needs. Dwarfs and children can also use the rest rooms without getting assistance. The height of the lavatories and the urinals in Forum İstanbul are designed and fixed in different levels (Figures 86 and 91). But, in Forum Ankara, the height of the lavatories and the urinals are on the same level (Figures 93 and 94). I believe that this application has been decided in the construction stage during chosing of materials by the construction team to have a cheaper and easy finishing for the counters and to ease the fixing of the urinals in the same level. Here are other drawings of typical rest rooms, and pictures taken from

the inside of both Forum Istanbul and Forum Ankara (Figures 87, 88, 89, 90 and 92). There are rooms for people with disabilities too, equipt with all kind of necessary fixtures and installations (Figures 84 and 95).

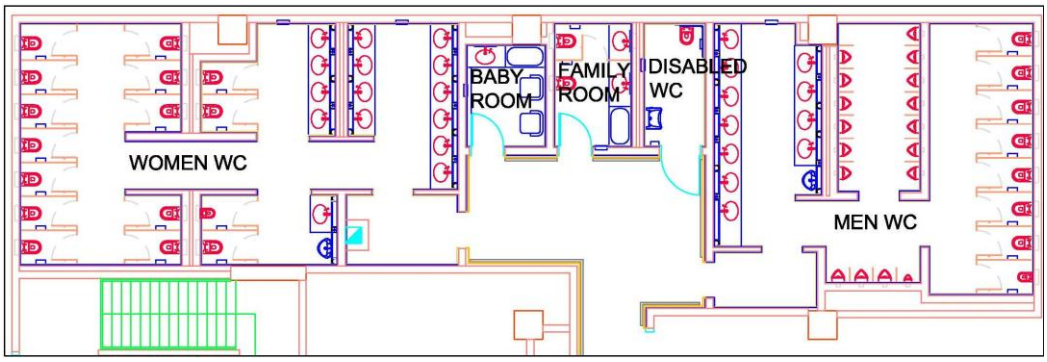



Figure 82. Plan view of a typical rest room at restaurants floor in Forum Istanbul. (Second Floor)

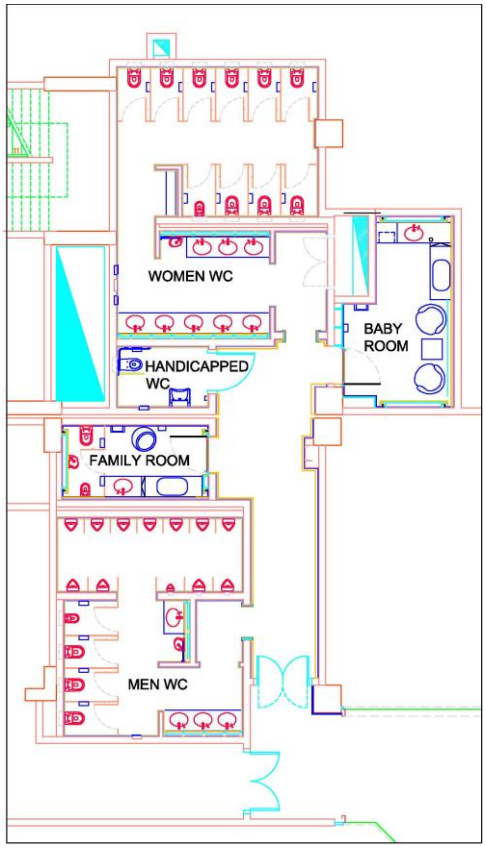
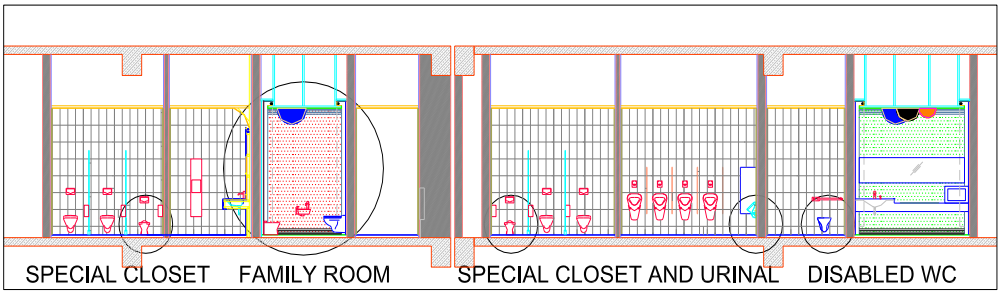



Figure 83. Plan view of a typical rest room at ground floor in Forum Istanbul.


Figure 84. Views from typical baby room and family room of Forum Istanbul.

Figure 85. Pictures showing typical entrances of the rest rooms in Forum Istanbul.

Figure 86. The urinals different heights and the lavatory's two counter heights and motion activated faucets provide accommodations that are usable by a wide range of users in the typical restrooms of Forum Istanbul.



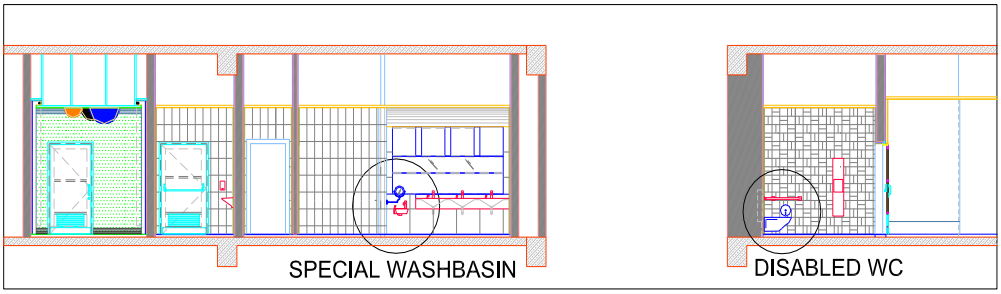




Figure 87. Typical sections of the rest rooms showing details, in Forum Istanbul.

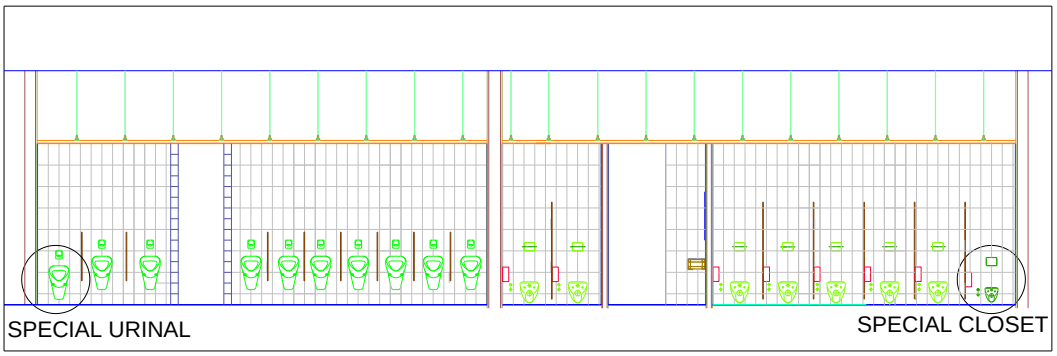



Figure 88. Typical section showing dwarf urinals and closet, in Forum Istanbul.

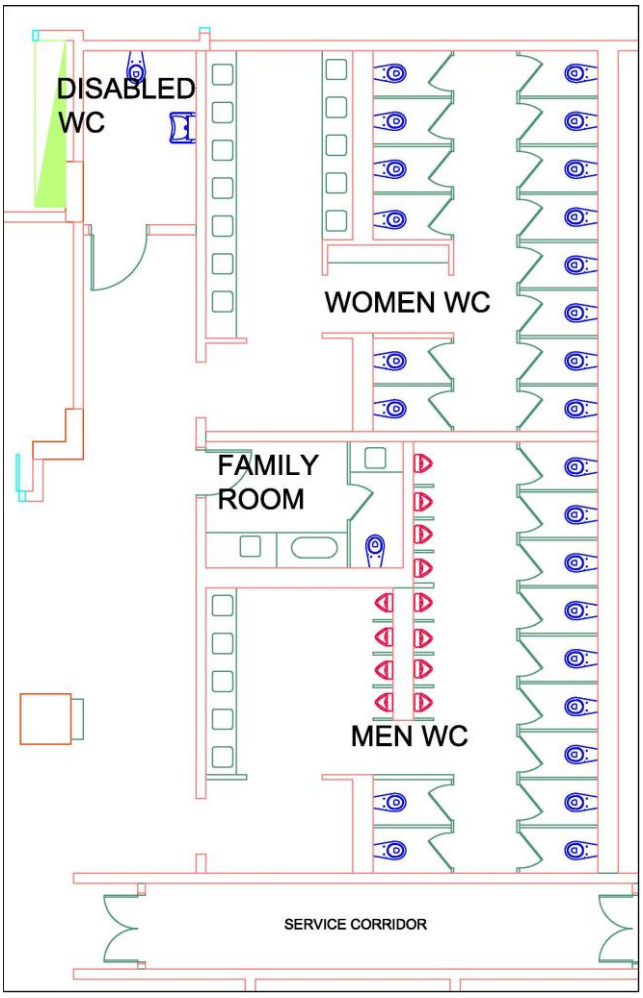



Figure 89. Plan view of the rest room at cinema theater lobby in Forum Istanbul.

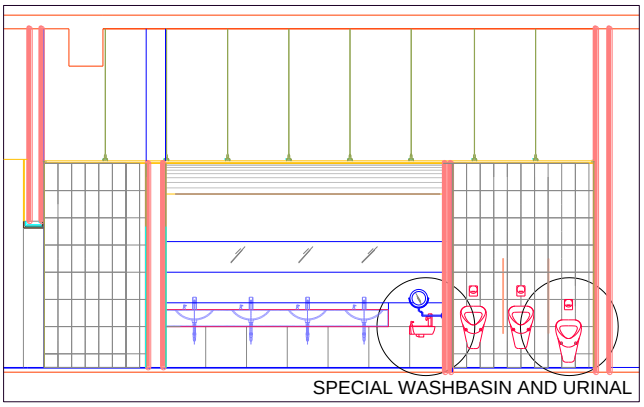



Figure 90. Typical section of the rest room showing dwarf's lavatory, in Forum Istanbul.

Figure 91. Other pictures from restrooms, showing different heights of urinals and lavatories

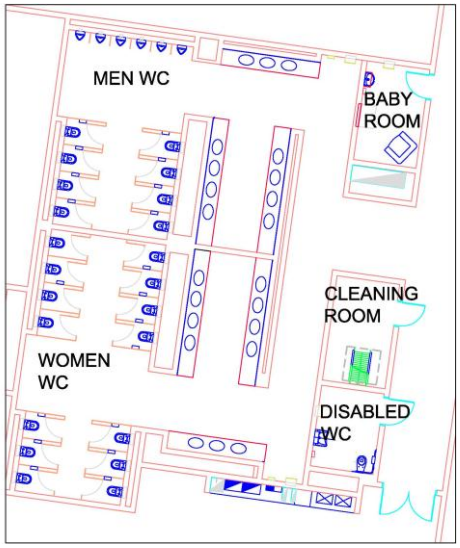



Figure 92. Plan of the rest room in first floor at Forum Ankara.

Figure 93. Views from the typical rest rooms in Forum Ankara.

Figure 94. Views from the typical rest room and baby room in Forum Ankara.

Figure 95. Views from the typical disabled rest rooms in Forum Ankara.

Figure 96. Pictures showing entrances of the rest rooms in Forum Ankara.

Another important point for designing the doors is the opening direction. Doors should open into the larger space. This princip is generally not followed. But, in any case, it is too difficult to open a door for people with disabilities or someone with packages or bags in hands. At the same time, due to hygienic measures, no body wants to touch the door handles in public buildings. Therefore, the main entrances of rest rooms in both Forum İstanbul and Forum Ankara Shopping Centers are without doors (Figures 82, 83, 89 and 92).

On the doors of the disabled toilets, the hydraulic door closers have been used (Figures 85 and 96), but as these are mechanical closers it is very difficult for people sitting on a wheelchair to open the door while they are in front of the door. At the same time, the power needed for operating the closers should be well defined. Otherwise they cannot be operated by people with disabilities.

Let’s imagine how difficult that a person on a wheelchair is pulling or pushing the door to open and move in or out while trying to keep the door open as this combination of activities are not easier either for normal people. Therefore, the doors must be electrically controlled, slide opened or closed as an alternative to either sides. This opening system will certainly be more expensive than a standard door by doing so, but the difference is negligible when compared overall cost of the building and taking into account that the cost of door closers has to be deducted.

## 5.7. Evaluating Movie Theaters

The movie theaters are considered as one of the main parts of the projects from the beginning of the design phases in both of the shopping centers. The accessibility of the people with disabilities to the cinema floors is provided by means of elevators which have stops in all the floors including car parks in the basement levels besides the direct connections to the neighboring floors without any level changes. The waiting lounges of the theaters are well illuminated and wide enough to accommodate groups of people. Restrooms with all the necessary requirements are directly connected to the lounges (See Figure 89).

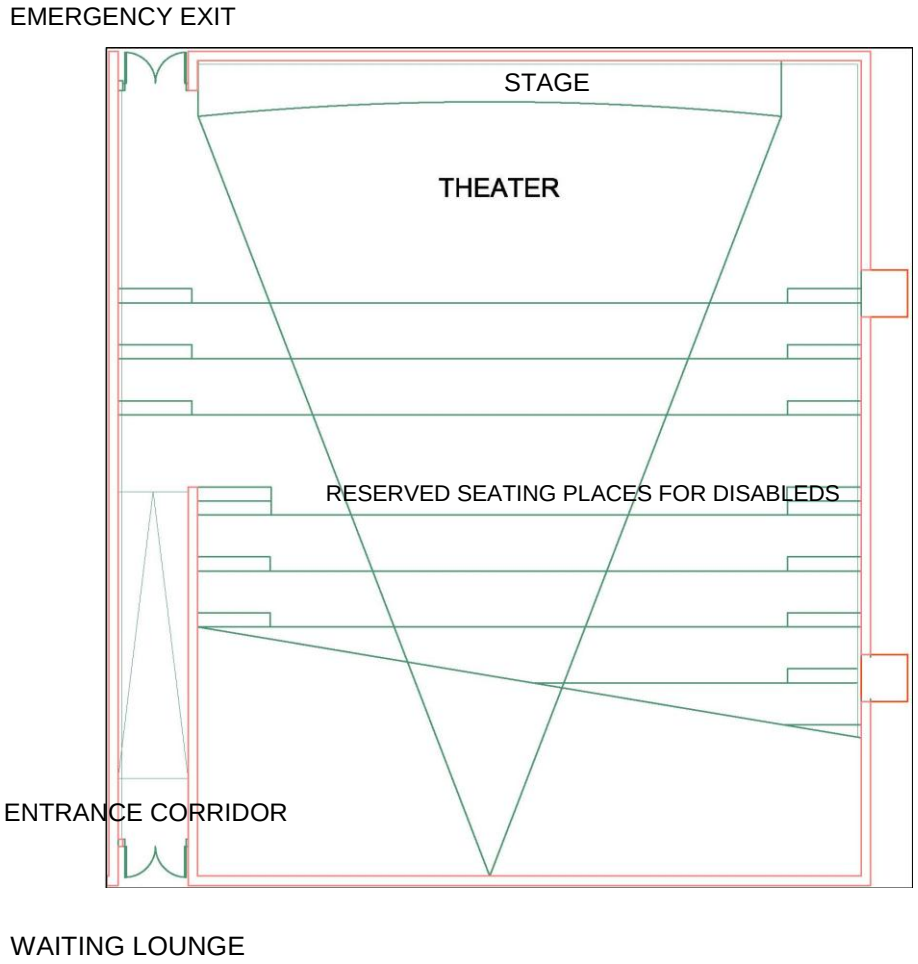



Figure 97. Plan view of a typical movie theater in Forum İstanbul.

In the theater halls, seating places in the middle rows are provided for the use of the people with disabilities. However, the slope of the entrance ramps is not suitable for a person on a wheelchair, and during emergency cases it is too hard to save the lives of the people with disabilities. They need the assistance of someone else to reach the fire exits. They cannot use ramps by themselves since the ramps opens lounge area which is not a safe place during fire or emergency situation. All the widths and heights of the seats are the same, so they are not suitable for the people having different physical shape and size. The service counters are also designed for normal people.

The movie theaters could be designed with more attention to provide an easy access not only for people with disabilities, but also for everyone who wants to watch movies in a shopping center like Forum Istanbul which was designed as much as possible in accordance with the principles of Universal Design. The same can also be applied to the movie theaters in Forum Ankara Shopping Center. In fact, the design of the leasable areas is created by the designer of the tenant, usually different from the Center Designer. Every matter related with the leased areas has been decided by tenant in accordance with the conditions of the management plan of the centers.

There are nine theaters both in Forum Istanbul and in Forum Ankara Shopping Centers, and the theaters have a total capacity of 1500 and 900 people respectively when they are full. But, they are not used at the same time. Therefore, when we think about the numbers of the toilets we can say that the numbers are acceptable and in accordance with the standards. The movie theaters' restroom in Forum Istanbul has also one family and one handicapped room. But, the height of counters, closets and urinals are the same which mean that any children or short people cannot use them comfortably like in the other restrooms in Forum İstanbul. There is no children closet in the theater's restroom of Forum İstanbul as well. The number of men is almost twice as much when compared with the number of women using the restrooms although the number of men and women going to the movie theater are almost equal.

### 5.8. Evaluating Restaurants

There are separated floors for restaurants both in Forum Istanbul and Forum Ankara, but especially in Forum Istanbul, at every floor there are places who serves coffee and food, or both. The inner court at the Ground Level is surrounded by coffees and restaurants, and the court serves for their visitors as seating area. All these areas serving food are easily accessible by everyone due to the respective design of the centers' common areas. There are no level changes in the pathways, and in the service areas and all the way to the restrooms which are on the same level. The restrooms have all necessary fixtures and equipments for people with disabilities and for others with different needs such as mothers with babies, children and dwarfs as mentioned in the related section. The number of toilets is not equal or close to eachother. Therefore, women may wait more than men comparatively for using the lavatories especially in rush hours. The self-service counters may be used by the people with disability without any barrier. There are a lot of alternatives for people with disabilities in both centers so they can choose any of the restaurants. The passages between tables and the width of the corridors are large enough for people on wheelchair so they can travel without any difficulty under normal design conditions. But, in rush hours, nobody is paying the necessary attention to seating positions and uses spaces carelessly, blocking the passages even for normal person. People with disabilities when they need can use all of the tables and chairs without any problem because they are not fixed on the floors. The floors have been covered with the materials having different colors and surface conditions for easily noticed even by the visual impaireds.

### 5.9. Evaluating General Requirements

Forum Istanbul and Forum Ankara Shopping Centers have been designed and constructed by taking into consideration the principles of Universal Design as much as possible during concept design phase. Therefore, everyone visiting these centers can feel that there is no discrimination between people and can use buildings without

spending extra energy in safety because they can easily access whatever he needs. But, this is not true for the personnel working for the management and commercial units especially in Forum Ankara Shopping Center. There is no special designed item for people with disabilities in service areas of Forum Ankara. Buildings are not more complex than the streets, and free of unexpected dangers faced when walking on the streets such as level changes and broken and loose tiles. Although the buildings look huge and complex from outside it is very easy to find ways in the buildings as they have a lot of marks, signs and remarkable items such as statues, special courts and monumental fixtures.

Main streets of centers are covered with light transparent materials letting the sun shine in without getting the ultraviolet lights. During the nights, the same streets are so illuminated with artificial lamps that one can think that it is day light. Pictures below show the illumination levels of the streets in the centers (Figures 98, 99, 100 and 101).


Figure 98. View from one of the streets of Forum Ankara.


Figure 99. Views from streets of Forum Ankara.


Figure 100. Views of the resting areas in Forum Ankara and Forum İstanbul.

Figure 101. A view from one of the streets of Forum İstanbul.

Along the streets of the Centers anyone is not faced with an unexpected level changes. All the streets have been covered with different non-slip type of materials marking the sides of the streets with contrasting color changes. All the corridors are wider than the required size to accommodate two people on wheelchair passing each other in opposite direction. All the sides of the corridors are free from objects in the limits of human height. The signs are provided where necessary to ease the wayfinding in the building. The signs are placed within the cone of vision to increase visibility. The colors of signs are easily recognizable, and letters and symbols are used together in the signs placed in common areas (Figures 102 and 103). The signs used for identifying the restrooms are placed on the walls beside doors (Figure 85) so that they can be easily detectible when the doors are open. (Figure 96) The signages in the car parks are located where necessary, and colors are used together with graphic signs to remember easily the placed parked in the closed car parks (Figures 104 and 105).

The stairways and the escalators are located either in the sides or perpendicular to the main streets, out of the direct path of walking. The passages and doors are wide enough for people with disabilities to pass without any barrier. There are areas for everybody to rest other than coffees and restaurants in the central parts or close to the vertical circulation areas.


Figure 102. Typical signs used in Forum Ankara.


Figure 103. Typical signs used in Forum Istanbul.


Figure 104. Typical signs used in closed car parks of Forum Istanbul.


Figure 105. Signs used in car parks in Forum Ankara.

# CHAPTER 6

# CONCLUSION

People with disabilities have generally been perceived as a marginal group. This has prevented them from getting involved in the social life, and they have been segregated from the mainstream of the society. This segregation has resulted from negative ideas about disability as cited in the first chapter. People with disabilities have been grouped as the ones who needed special requirements different from the other people because of their physical limitations. But, this discriminative approach has been changed starting with the developments in technology and especially after the Second World War because of the labor shortage and reached to its end by the adoption of the Universal Declaration of Human Rights. Following the adoption of the UN Decleration, new standards have been put in force to eliminate discrimination and first accepted by the developed countries and then others, including Turkey. However, these standards have not been adequately discussed and studied. Nonetheless, architectural design teams have been using some accessibility standards in the design and construction phases of the new constructions in Turkey.

Turkey is a developing country and entirely looks like a construction site where a lot of construction is ongoing. As a professional architect, working in the construction sector for more than thirty years, I think it is right to tell that there is still a deficiency in quantity of public buildings in Turkey to be constructed by private sector, government or in partnership of the two. In various concepts and capacities, hospitals, schools, universities, sport areas, social and cultural centers are under

construction as well as housing projects and many of them are in tender stage which means that they are going to be constructed in the near future. I am not mentioning the environmental constructions we have experienced in our daily life, such as construction, reconstruction and rehabilitation of sidewalks, curbs, roads and parks. The constructions of shopping centers that are frequently visited by people with different income levels everyday are continuing to be one of the major investments of the private sector.

The architectural design team of one of the European investors which I worked for, has designed eleven different shopping centers situated and constructed in different cities of Turkey. I have chosen two of them with different commercial use. By selecting these two shopping centers, I had a chance to evaluate their varieties both in design and application stages. The concept designs of all the shopping centers had almost the same approach to the implementation of the existing standards not only in the country in which the centers have been constructed, but the standards of the developed countries or the ones accepted by the European Community. The construction drawings of the shopping centers as cited in the fourth chapter of the study have been prepared by local architectural groups. Therefore, the implementation of the accessibility standards has been carried out by these architects, and submitted to the approval of the project management and the investor. At this point, all the responsibility has been transferred to the project management and the investor from the design team, both concept and construction. Investors' decisions are generally related with the cost of the construction and the profit to be obtained at the end. They look for the principle "win-win" which means that if they see a profit, they can easily decide to spend more. My contribution to this study is to arouse interest in the principles of Universal Design and to draw attention of the professionals of the construction sector to the implementation of the principles of Universal Design in all public buildings and places. It looks like the use of these principles in the construction, of course, will increase the construction cost of the building. But, when you consider the operation cost of the building, it has not a

negative effect on the total cost of the building. If it is necessary to change a rest room with a restroom designed for all, to change the dimensions of an elevator or the width of a door after construction then any of these alterations will be much more expensive than before. Making any kind of renovation costs much more, as we all know.

Forum Ankara Shopping Center can be classified as a third grade center since it mainly serves an area where low income group of people live although it is visited by different income groups and the commercial concept has been changed to Outlet Center. Therefore, the finishing materials used in the construction are not expensive as the ones in Forum İstanbul Shopping Center. In the restrooms of Forum Ankara Shopping Center, all the counters are on the same level, and the material of the counters is PVC laminated composite wood which is very difficult to solve the details in adjacent surfaces and which is not a suitable material for this kind of public buildings. The selection of this material is directly under the responsibility of the project management who did not consider the costs of the operational phase. The urinals used in Forum Ankara are all the same size and fixed on the wall all at the same level without taking into consideration the use of the children or the short individuals. If one wants to change the fixing height and the type of these urinals, one has to spend more than twice the construction cost of such elements. The same is applicable for counters and closets as well. Should the investor be convinced, then these appliances would be usable by everybody visiting the center. The architects and the designers are the ones who have to convince the investors to apply the requirements of the designs prepared in the light of the principles of Universal Design.

We all know that principles of Universal Design are not a mandate yet. There are accessibility standards set for the people with disabilities on force, but, they are not followed and controlled adequately by the authorities. Considering only the number of people with disabilities in Turkey, we can say that it is important to design at least

public buildings together with their nearby environments according to the principles of Universal Design so that all of them welcome as members of the community for forming an inclusive society. The goal of this thesis is to draw attention to the principles of Universal Design in order to raise the performance of design for a wide range of users. I want to ask designers to rethink some fundamental formal architectural concepts, to contemplate environmental equity for all kind of user, and to consider a variety of ways the environment and buildings can be designed or adapted to accommodate people's changing needs, as well as needs of people with disabilities or the elderly.

As architects, we also have to think about our future, we have to do our part, and design in the light of the principles of Universal Design. We have to look for new ways to design buildings and environments so people with disabilities can live with dignity. And people who don't have disabilities think that universally designed buildings and environments look and work much better than the old models. We have to keep in mind that Universal Design promotes full integration in every way, and makes a place for people with disabilities alongside everyone else. We also have to keep in our minds that with the advanced technology we all want more comfort wherever and whenever possible.

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