Evaluation of the Building Entrances in Term of Accessibility

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ABSTRACT

The thesis investigates the accessibility of the building entrances. The main problem identified by this thesis is the lack of requirements for all people, particularly disabled people. This study aims to present building entrance designs (from the city scale to the lobby or entrance hall) which are accessible for all, and also to create the beneficial design elements which facilitate convenient and easy access for all people including pedestrians, the disabled people and vehicles. The methodology of this study is based on a framework approach, and appropriate literature reviews. Based on the relevant information and data, a table of evaluation criteria will serve as the framework. Finally, different types of building entrances such as those in government buildings, health services buildings, residential, commercial, and historical/tourist buildings in Famagusta, was analyzed by the 'fuzzy' method. By evaluation of the accessibility of these different building types in Famagusta, this thesis will highlight the problem of accessibility from the city to the closed environment of the building entrance lobby and suggest solutions to this problem.

Keywords: Building Entrance, Accessibility, Access, Disable, Design

ÖZ

Bu tez kapsamında, bina girişlerinin erişilebilirliği araştırma konusu yapılmıştır. Bina giriş tasarım ve düzenlemeleri, kullanıcıların büyük bir çoğunluğu ve özellikle engellilerle. ilgili sorunlar içerdiği tez kapsamında ortaya konmuştur. Yapılan çalışmada, binaların yakın çevrelerinden araç ve yaya erişilebilirliklerini sağlayacak bina girişi tasrım elemanları tanıtılmıştır. Literatür taraması yapılarak, konu ile ilgili yapılan araştırmaların değerledirilmesi çalışmanın yötemini oluşturmuştur. Elde edilen bilgiler doğrultusunda oluşturulan kriterler çerçevesinde değerlendirme yapılmıştır. Tez kapsamında, Mağusa'da yer alan, devlet binaları, sağlık, konut, ticari ve tarihi binalar gibi farklı fonksiyonlara sahip binaların giriş tasarımları "Fuzzy" yöntemi kullanılarak değerlendirilmiştir. Değerlendirme sonucunda seçilen bina türleri yakın çevreleri ile girişleri arasındaki erişilebilirliği araştırılmış, ve sorunlar konusunda öneriler getirilmeye çalışılmıştır.

Anahtar kelimeler: Bina Giriş, Erişilebilirlik, Access, devre dışı bırakma, Tasarım

TO MY PARENTS

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First, I would like to express my sincere gratitude to Assistant. Prof. Dr. Polat Hancer for his enlightenment, expertise, patience, and guidance through this thesis. This thesis would not have been completed without his supports. It has been a great honor for me to work under his supervision.

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

Chapter 1

INTRODUCTION

As an important part of the buildings entrances, the places between private and public area, and the places between city and interior space are investigated in this thesis. People generally remember the first contact of the things that they saw. Entrances are the first contacts to the buildings. It is necessary to define the accessibility, phycology, aesthetic, sociology, cultural, and environmental control factors in design for building entrance area. Furthermore, because of the important role of the accessibility of the building entrance area in design, this thesis focuses on the accessibility for all people such as pedestrian and vehicle (public transport system, individual car, and bicycle). In design building entrances area, the benefit of accessibility is an important factor which contributes to the cultural, recreational, social, political and economic life. Developing access and accessibility led the chances to increase for all people particularly for the disable. This thesis offers guidance and leadership on a standard design approach to all building entrances.

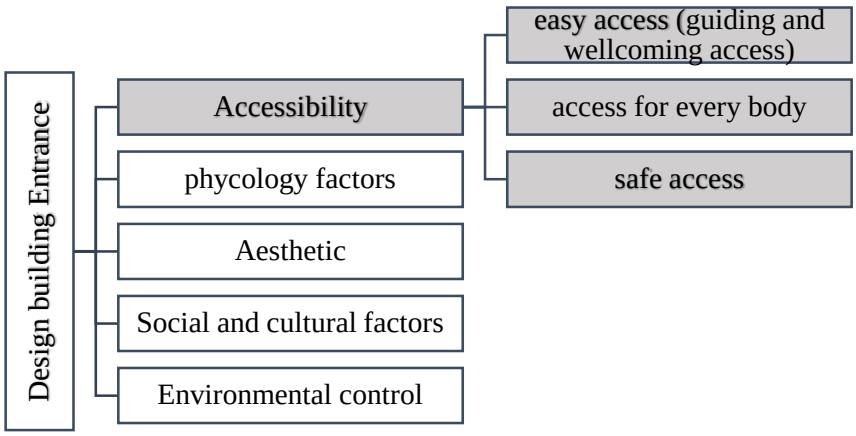


Figure 1: The factor of design building entrance

1.1 Problem Statement

There are a lot of sources about various types of buildings, however, there is a lack of literature review about the entrances as a main part of the buildings. In this study comprehensive information will be collected about design building entrances space in term of easy accesses and accessibility. Nowadays, designers have not focus their attention to the human responses. Architects and designers know about primary rules of the design building entrance, but they have not paid much attention to the main factor which can affect the easy, safe access and accessibility for all people such as the disable, pedestrian and the vehicle. The problem of the access and accessibility is related to, architects, interior designers, and urban designers. Moreover, some organizations and activities clarified the situation of the accessibility. Most entrances of the buildings in Cyprus are designed without giving considering the easy access and accessibility. The occurrence of these problems are due to the city planning and building regulation .This research tries to identify these problems and find solution for them.

1.2 Aims, Objective and Research Question

This thesis aims to provide useful guidance and direction to the facilities of the buildings entrances area (from city scale to the building scale). Buildings' entrance areas could be designed to count the needs of all users such as pedestrian and vehicle (public transportation, individual car, and bicycle). Hence, it covers every one nevertheless of their age or size and those who have any particular physical, sensual, mental health or intellectual ability or disability. This research work tries to accomplishing the good design which can help people to access, use, and understand the environment to the highest level. Besides, the most independent and natural manner is possible without the need for adaptations or specialized solutions. This study tries to provide guidance on best practice. However, it may not always be possible to meet all the standards. This thesis can be used as the source of accessibility checklists for architects, designer, engineering, city planner, disabled people's organizations, government's acts and etc.

The main research questions of the study is: How can building entrances be evaluated in terms of accessibility?

Furthermore the sub-question of this study are**:**

-Which factors are significate in access and accessibility from the close environment of the building to the entrance hall?

- How designer and architects can design entrances area to respect all peoples such as the pedestrian, disable, and vehicle and also attention to the need for them?

1.4 Research Methods

Data evaluation methods of this thesis is based on qualitative approach in analyzing the data. The methodology of this study based on theoretical research, and literature

review. The first step of this thesis is getting general information about the access and accessibility of the building entrance area from the city scale to the building scale according to the literature review. Evaluation criteria's table will be created as a framework, according to the data and information. Finally, different building entrance area will be analyzed in North Cyprus (Famagusta) by fuzzy set according to the frame work table. Data collection techniques is based on Books, journals, magazines, and articles and etc. Direct observation, Taking the photo, survey, and making the catalog for each case are other's data collection techniques in this thesis.

1.5 Limitations of the Study

This study concentrates on the accessibility in the design building entrances area, which is related to urban design, architectural design, and interior design. As a limitation of this thesis easy and safe access and also accessibility will be investigated in building entrance area (starting from city scale and end on the lobby or entrance hall). Accordingly accessibility has to be evaluated regarding to the following items:

- Accessibility from closed environment to the site front,
- Accessibility from site front to site border,
- Accessibility from the site to the building entrance,
- Accessibility of the building façade,
- Accessibility in the entrance hall / lobby.

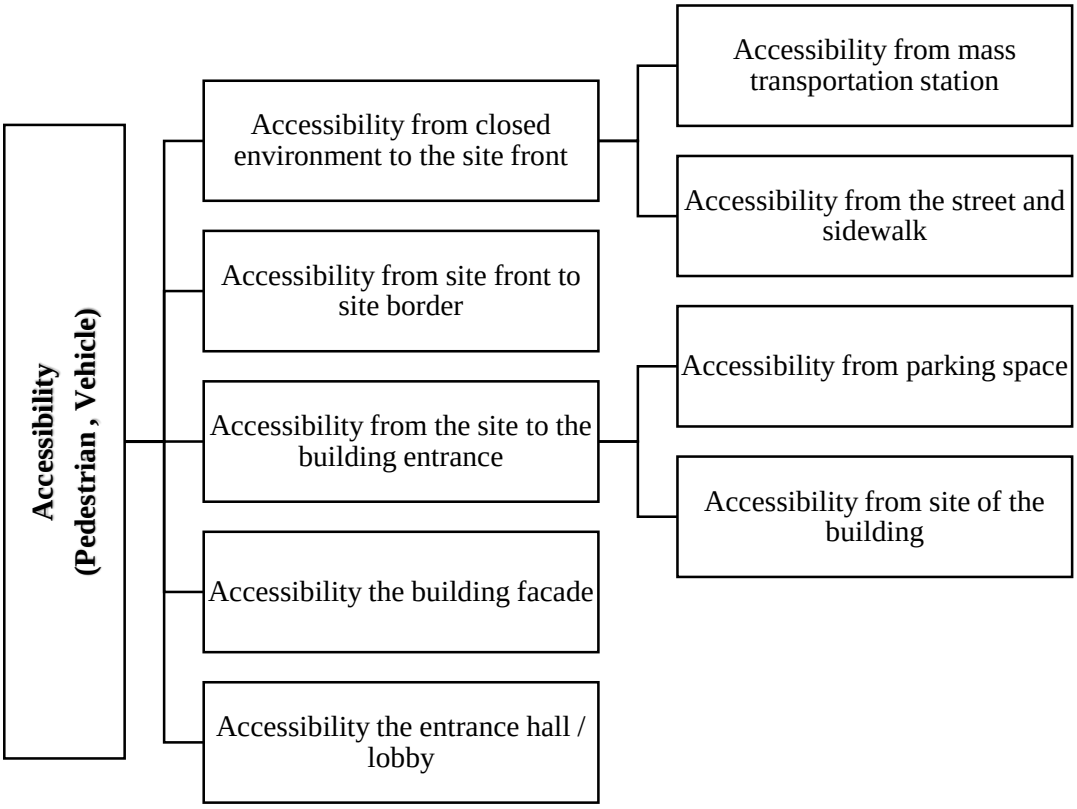


Figure 2: Dividing of the accessibility in building entrance

1.6 Literature Review

This study based on access and accessibility to the building entrance. Previous studies are taken to understand access and accessibility in the building entrance. 15% of the world population belongs to the disables (Connolly, 2009). Furthermore, concepts and standards of the access and accessibility are handled which consider all people especially the disabled people.

The perception of the disables has changed significantly, it is accepted that the disables have the same human rights like other people in society. However, traditional prejudices still remain, for the disables which is led to barrier the full participation of them to their daily life (Adams and Foster, 2004). Accessible design is not just for the disabled people. It also creates space to improve access and accessibility for all people including pedestrian and vehicle.

Consciousness about a significance of access and accessibility started at the 1950's. Universal and inclusive design, accessible design, and design for all are some studies which have been done with the same subject. Furthermore, there are the government's acts and organizations which are measured for the disables such as;

ADA: American disability act,

WHO: World Health Organization,

EDF: The European Disability Forum,

UFAS: Uniform Federal Accessibility Standards.

These regular topics are related with environment, health, social, and culture. Additionally, the important opinion for this study is human and human rights. Accessible design offers the same level of safe and secure life for everybody. It should make approaching, and entering easier. Accessible design's highlight is self-respect and independence, and it also allow people to function in their daily activities .Accessible design is combined with architectural quality, the form of the building, and the function of the building (City of Toronto, 2004).

As an important part of an access the standards should be used before any development. It should also be discussed with architects, and engineers in proposal step. The standard as a reference guide for anybody is concerned with the environment and management of buildings to ensure that access for all people especially for the disabled people is considered. The standards are an essential part of any planning and development at all phases in the life of the environment and the building (design for access 2, 2003).

1.7 Thesis Structure

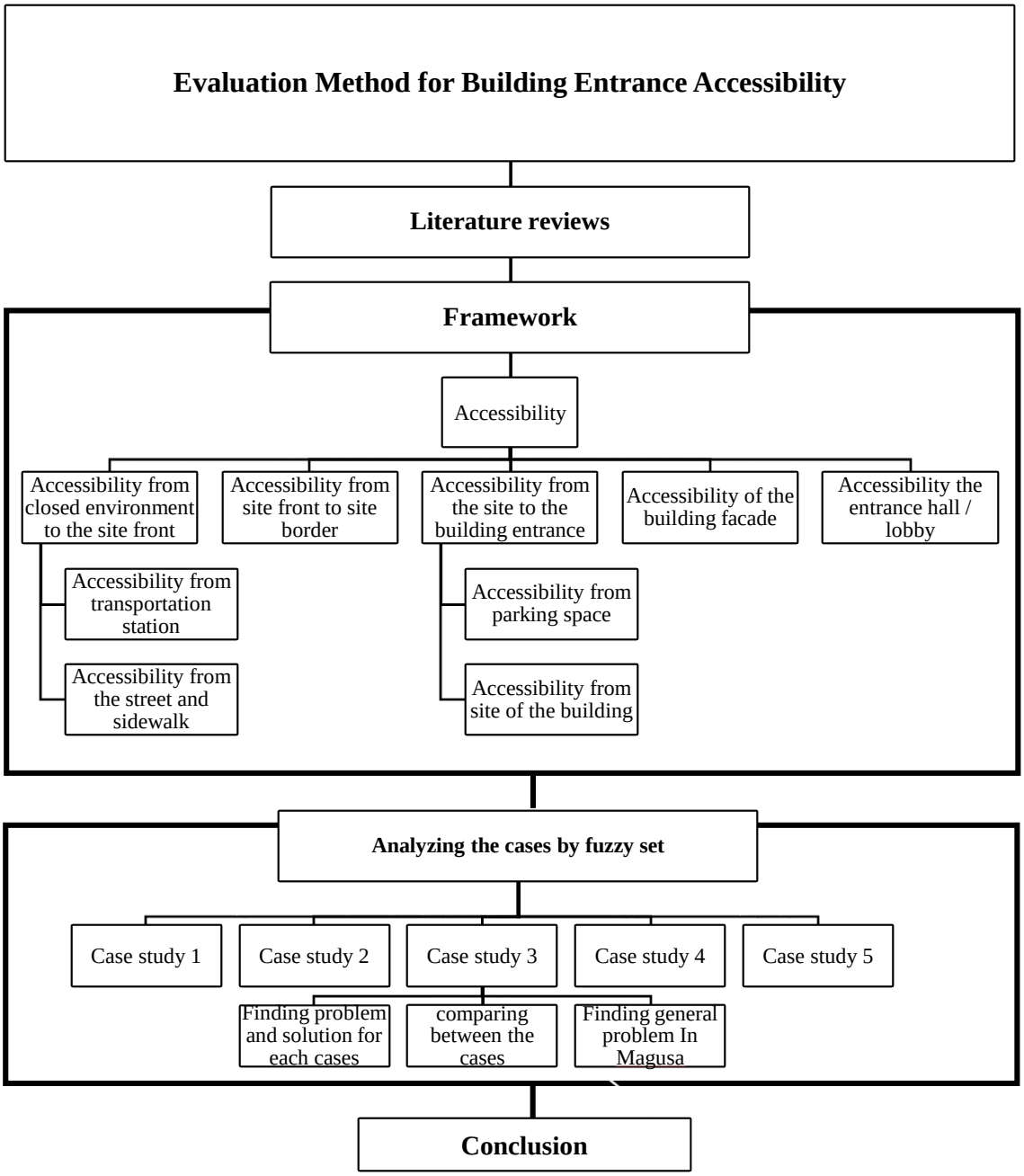


Figure 3: Thesis Structure

Chapter 2

ACCESSIBILITY OF BUILDING ENTRANCES

This chapter tries to investigate building entrance space in term of accessibility as well as easy and safe access by literature review. In the first step, an introduction circulation of the entrance space will be defined. Subsequently, each part of the building entrance space will be discussed with regard to accessibility and easy access. Access design makes accessibility and a relationship between spaces. The entrances as component relating the interior to the exterior are the important issue which would be the steps to reach the main idea of access design.

2.1 Definition of the Accessibility

People are different in age, size and functional capacities. Disability and illness not only have effect on person's mobility, sight, hearing, speech, touch, balance, and strength but they can affect the sense of direction, understanding, and memory. Everybody should be able to use the spaces comfortably, without any help. All people should be able to find their way easily, and safely.

All people should know how to use the facility of the building and environment. In the buildings and places, the standards, which offered for the largest variety of users and visitors, can be used by everyone. Designing and planning for a group can be solutions for other groups which address their requirements and needs. For instance:

• Entrances facilitate, not only for wheelchair users and disabled people, but it can be used by people with buggies, suitcases or shopping trolleys and also used by people with visual difficulties or mobility aids.

• Clear, obvious, and well-placed signage and information which use recognized symbols help everybody such as people with cognitive or reading difficulties, and people who speaks foreign languages (Gilbert, 2002).

Architects, planners, engineers, building contractors, and developers manage buildings and building surrounding. They have duties of attention to all related rules including health, security, equality legislation, and building regulations (Smith& Preiser, 2011).

Accessible design: Accessible design is a design based on principles and rule of extending standard design for all people especially for whom with performance limitation and disabled people. Accessible design get the best out of potential for residents, and visitors, furthermore for people who can readily use the building, the products, or services (Building for everyone, n.d).

2.2 Circulation of the Entrances

Circulation of the space is the way and approach which all people can travel through the spaces. The circulation space allow people to enter and exit the space and creates the path people can travel through it. It also can be used as a connection for the spaces or as a link for the groups of the inside and outside. According to Ching Elements of Circulation of the entrances, an area can be divided to five: The building approach, Entrances, Configuration of the path, Path space relationship, Form of the circulation space (Ching, 2007).

The building approach: The approach to the building entrance is a first step of the circulation. Prior to passing into the interior, it is the path that people take to reach the building entrance. It can be direct or meandering. Frontal , oblique, spiral are main different kinds of approach in building (URL2.1).

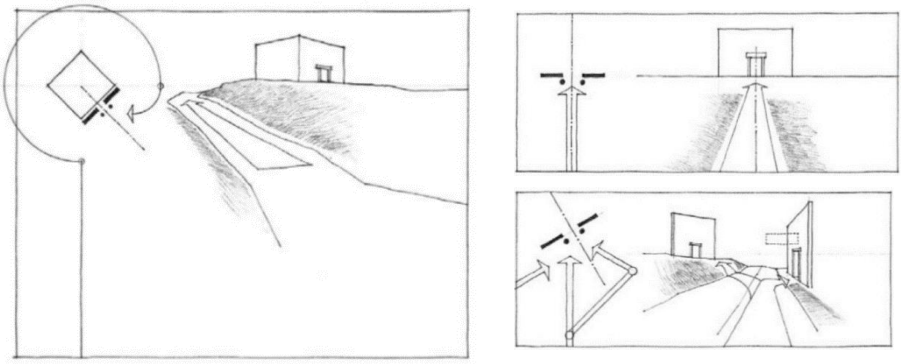


Figure 4: Different approach to reach the building entrance (URL2.1)

Entrance (Form outside to inside)**:** The entrance of the site border can be signified in more delicate ways, such as; two pillars, an overhead beam, change in level, clear opening by the simple hole in the wall or doorway. By making the entrance wider, narrower, lower,deeper than expected, the concept and idea of the building entrances can be visually reinforced (Ching, 2007).

Configuration of the path: It is the way the spaces are laid out. The configuration of the path can be the network (connecting different points) linear, radial, spiral, grid, or composite.

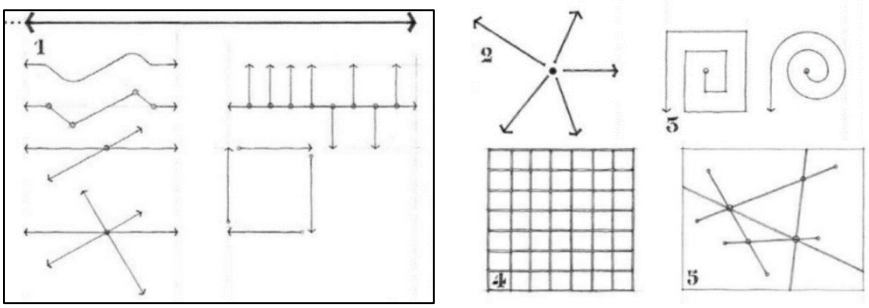


Figure 5: Configuration of the path (URL2.1)

Path space relationships (edges, nodes, and termination of the path): Paths can be connected to the spaces, they link in the different methods such as pass by space, pass-trough space and terminate in a space (see figure6).

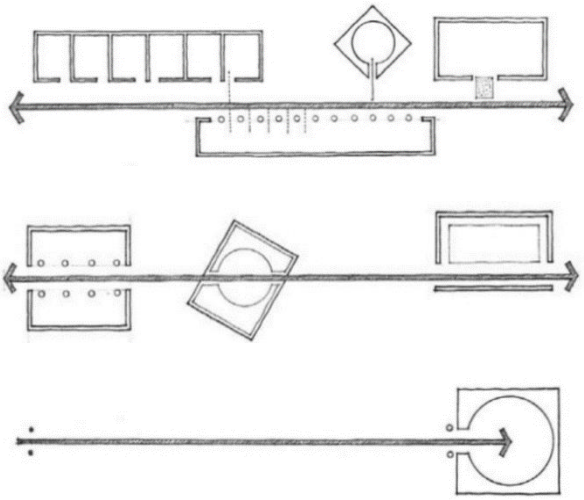


Figure 6: Pass by space , Pass-through spaces, Terminate in a space (URL2.4)

The Form of the circulation: The form of circulation space (corridor, stair, hall, gallery) is different according to how its boundaries and limitations are well-defined, how the form of circulation space are linked, the form of the others places, how its qualities of proportions, lights, how entrance space opens to the circulation space, and also how circulation space handles the changes in level (Ching, 1976).

2.3 Closed Environment of the Building

Accessibility from closed environment to the site front is divided into 2 part;

1. Public transport and accessibility which includes walking distance to public transport, waiting time in public transport system, and design bus stop station.

2. Accessibility in the street and sidewalk.

2.3.1 Public Transportation

Proper accessibility led to preparation and planning to social interaction. Public transport which is significant for social interaction, creates access and accessibility for

contribution in life opportunities and to reach services and do activities for example: health, shopping, recreational activity, social activity, work, and education (Lucas, 2012).

• Walking distance has a main role in the public transportation. It is a prominent issue in access to public transport because walking is the main access approach to travel from the building entrance to the public transportation.

• Transportation planners know, how much the time is valuable. They use the importance of trip and saving of the waiting time to justify public investment in many transportation projects (Pucher, Korattyswaroopam, & Ittyerah, 2004).

• Well-designed bus stops are important because, for the most of the people, the first impression of the public transport for the passengers in the area is the bus station.

2.3.1.1 Walking Distance to Public Transportation Stations

The walk distance's distribution is different for each mode of transport, normally people walk more to train stations than to bus stations from building entrances, because of the demographic characteristics, train's trip and bus users who are dissimilar. The important factor for walking distance is the approach of the public transportation (Daniels and Mulley, 2011).

Public transport plays an important role in ensuring and confirming accessibility to services and activities. The cost, physical accessibility, information, attitudes, and spatial access, have effects on the use of public transport that contributed to motivation of the people to use the public transport. Effects on the walking distance to the public transport are important keys for reach the easy access. Potential effects on the walk distance is including the trip purpose, public transport supply, demographics, built environment, and local geography (Daniels and Mulley, 2011).

For the buses to be offered as a real alternative to the private cars to move around the region, they must be within a comfortable walking distance from people's origins and destinations. Providing the appropriate bus stop spacing is a fine balance between meeting passenger needs and operating an efficient bus service (Authority, 2003). If the bus station is far, people cannot walk to the station, on the other hand, if the station is too close, buses have to stop too repeatedly, which is cause of increasing the trip time and reducing its attractiveness (Authority, 2003).

The average of walk distances is normally shorter to access buses than to access trains. In delivering public transport accessibility goals and targets, service planning makes assumptions about walk distance to access public transport. Guidelines often use ¼ mile or 400 m, or multiples such as the ½ mile or 800 m, as key distances in network and service planning (Daniels and Mulley, 2011).

The suitable standard for bus station arrangement in the city zone is a stop every 400 m along the way (five-minute walking distance). However, walking distance depends on various factors such as age, disability, people with bags, and even topography, etc. Bus station must be placed in a safe and convenient space and as close as possible to transport interchanges, business areas, main shopping centers, and other main destinations (EI-Geneidy, Strathman, Kimpel, & Crout. 2006).

2.3.1.2 Frequency of Public Transportation

It is essential to improve passengers' satisfaction with public transportation, because of its societal benefits. Public transportation provides mobility and access to works, educational institutions and medical and commercial services for whom cannot or prefer not to drive (APTA, 2008). Transport decreases petrol consumption, and

congestion. However, people prefer to choose a mobility which is fast, reliable and comfortable (Poudenx, 2008).

Transportation activities work to recover travel time, but their efforts come at a considerable cost. A cheap method to solve this issue is real-time transit information, it can help users feel they control their journey, including the perception of safety and time waiting. Advances in mobile technology led to attractive chances for more creative use of travel time (Watkins, Ferris, Borning, and Rutherford& Layton. 2011).

The waiting time for passengers should not be over a range of 3 to 15 minutes. If people know how long the waiting time is going to be, they don't mind waiting for a transport system. Even if people have to waste the time, at least they know it's going to be 15 minutes. Otherwise, they're sitting there thinking the bus will arrive about two minutes, and when it doesn't show, then they start getting frustrated (Mishalani, Mccord, & Wirtz. 2006). In overall, reducing the waiting time led to increasing bus ridership and improve the passengers' satisfaction.

According to the synthesis, London Transport's Countdown program, which used at stop real time arrival signage, it was found that the perceived waiting time had dropped from 11.9 to 8.6 minutes. In addition, passengers felt less stress and the reliability had been improved since implementation (Schweiger, 2003).

One major finding was that customers wanted the information via internet websites and at malls or office buildings close to transit. A study of Portland's Transit Tracker, another at-stop real-time arrival system, did not find a change in the perceived wait time, nor a change in overall satisfaction with transit (SAIC, 2003).

Today, in modern public transport systems, dynamic real-time information displays are becoming ubiquitous. Attitudes and reactions to this system are positive (Dziekan & Kottenhoff. 2007). A lot of money is spent on applications such as real-time information system each year, they are very common in the modern public transportation system (Yeung, 2004). Real-time information display shows the next trains or buses in the stations (Dziekan & Kottenhoff. 2007).

Figure 7: Real-time information display at the station (Dziekan & Kottenhoff. 2007)

2.3.1.3 Design of Public Transportation Stations

The best design for the station should consider the issues of access, safety, and mobility. It should be fully accessible, attractive and easy to use, helps to reduce the bus travel times, provides sufficient information on bus services, and has a positive role in community streetscape. However, stations should be designed well to meet the requirements of all users.

Various road user expectations from a bus stops:

A. **People who use buses**; all people need to feel comfortable to use buses, people need to be able to get to the bus stops easily. They should know what types of bus

services are available at the stop. People need to feel comfortable and safe when they are waiting for a bus to arrive. They should be able to see the bus approaching.

B. **Bus driver;** they should be able to get on and off the bus from bus stop efficiently and safely. The bus driver should get as close to the curb as possible to reduce horizontal curb-bus stop gap, and also they should be able to see people who are waiting to pick-up them.

C. Another vehicle user; bus station should be clearly visible from the road to minimize the illegal parking. A proper bus stop needed to be provided on the road, according that vehicle users cannot park too close to the bus station, so the risk of accidentally being hit by the bus be reduced.

D. Passing pedestrians, cyclists; bus station needed to be well planned, subsequently they should not block pedestrian paths or road cycle lanes. Bus stops also can provide the chance of cycle parking (Bus Stop Infrastructure Design Guidelines, 2009).

There is a higher level of facilities and services in train stations than bus station which can effect on users. Train stations almost have shelter, electronic real-time information, seating, lighting, and a public telephone. Very few bus stations have all of these facilities (Wood, Bell, & Hurdle, 1998).

Following factors show the minimum requirement for all bus station:

Stop-specification; for example stop name, direction of travel, stop number, site information, timetable, route diagram, real-time information, and tickets fare information.

Signs and road marking; Bus station signs and bus box zone (road marking) depend on bus station layout and site requirements.

Wider area; wider area fare information, route map, zone map.

Accessibility; Tactile ground surface indicators. Hardstand area of bus stop-specification (1m to 8-9.2m). Minimum curb height of 120mm (ideal curb height is 150mm-160mm) at front door area. Connecting footpath to/from the bus station (with dropped curbs whenever is essential). The existence of the pedestrian crossing in close proximity to the bus station.

Street furniture; such as seating, waste bin, ticket machine , shelter, shopping trolley bay, cycle parking (Public Transport – Buses, 2009).

Security and Safety; such as lighting, shelter, public telephones, video surveillance emergency help point.

2.3.2 Street and Sidewalk Characteristics

Street layouts should aim to make the environment self-explanatory to all users. Features such as public art, planning, and architectural style can assist navigation while possibly reducing the need for signs (Manual for Streets, 2007).

A design for the buildings development should include a clear and simple identity and also, they should be easy for all users to understand a route within the site. Way finding within the buildings can be improved by the use of simple indicators such as clear views and routes, surveillance, focal points lighting, color, and scents. Complicated site designs led to discouraged walking. On the other hand, in complex, the monotonous use of similar building types led to confusion creating when navigating around a site (RIBA, 2011).

Pavements or sidewalks create secure walking routes for people. However, as there is different level between sidewalk and street, the existence of the easy access is essential. All paths and walkways for pedestrians must be firmed, levelled, with non-slippery materials and the width of the sidewalk is recommended to be a minimum of

1675 mm to allow two wheelchairs pass one another. In any situation, sidewalks should not be less than 1525 mm wide (N.A, 2004). According to the ADA standard, the width of pavements is minimum 1525mm for a wheelchair and minimum 1675mm for two wheelchairs.

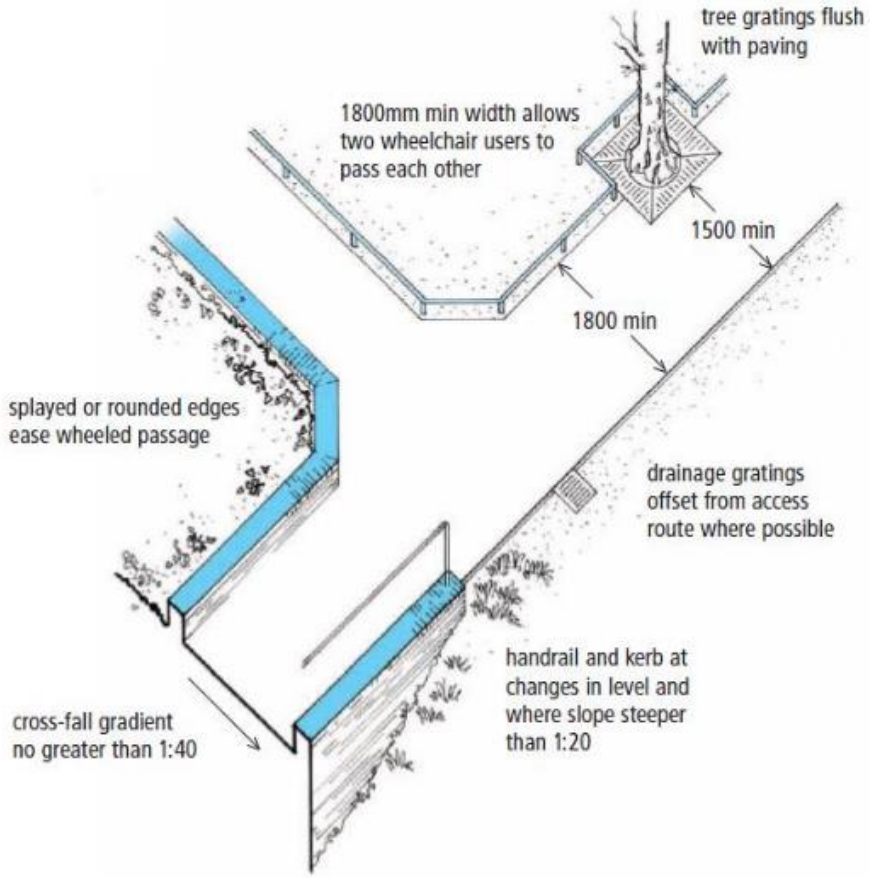


Figure 8: Pavement dimensions (N.A, 2004)

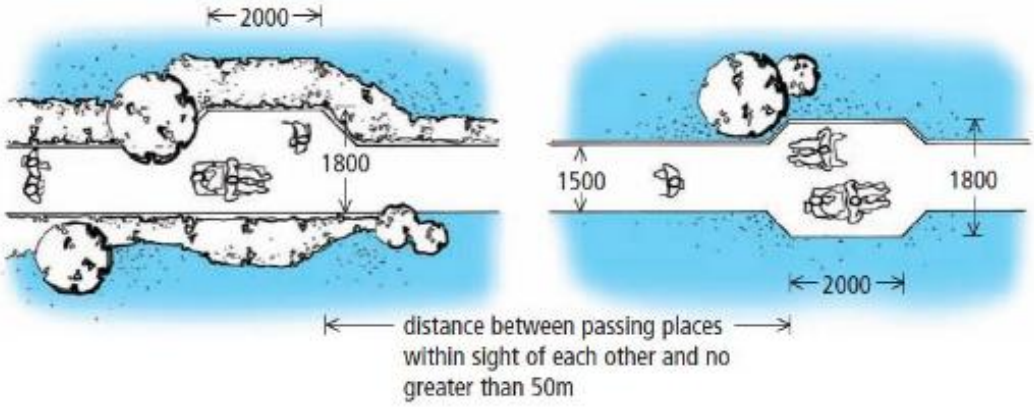


Figure 9: Passing places of pavements (N.A, 2004)

2.3.2.1 Curb Ramps or Curb Cuts on Way

Curb ramps should be provided in any places that pedestrian crosswalks are provided and also in anywhere there is a different level of the pathways, in addition at all street corners on the road surface.

Curb transitions have minimum one and a half meter distance to offer safer sidewalk ramp and change the slopes. Curb ramps should be non-slippery sides, and be clearly different, with detectable color, texture, and material, from the surrounding sidewalk to allow easy identification. Curb ramp should be at the right angle of the pathway. (City of Toronto accessibility design, 2004).

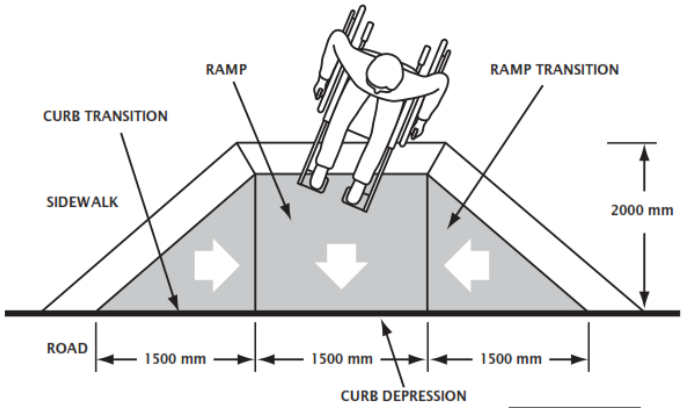


Figure 10: Curb Ramps/Curb Cuts (City of Toronto accessibility design, 2004).

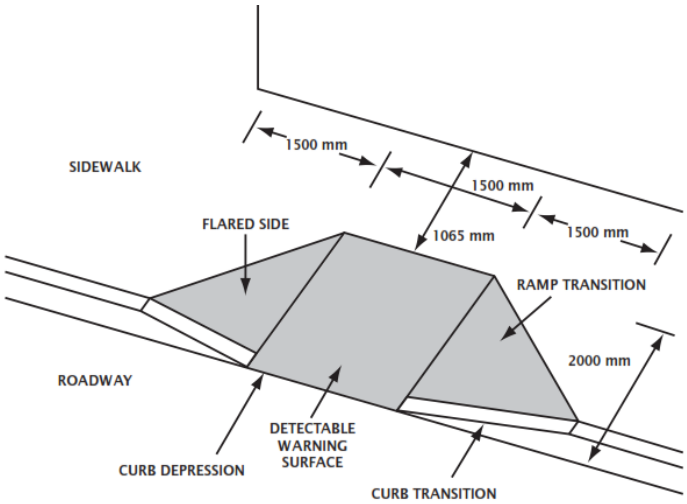


Figure 11: The standard of the curb Ramps (City of Toronto accessibility design, 2004)

2.3.2.2 Tactile Surfaces

Tactile surfaces can be created by different materials, such as concrete, natural stones, and rubber, in different conditions. The material which is chosen should have a similar slip resistance to the adjacent pavement to avoid making a travel hazard.

- Pedestrians better be separated from cyclists by changing the level of the joint pedestrian.
- Tactile surfaces should be used for platform edges, guidance paths, and information segregated shared cycle pathways.
- A warning corduroy surface should be used at steps and on the level crossing to alert the people about the risks. It should be used, on the pedestrians' side, anywhere a footway joins a separated shared way for cyclists and pedestrians. Figure 12 shows the plan and profile of hazard warning and blister in tactile surfaces (The Good Access Guide, DGA).

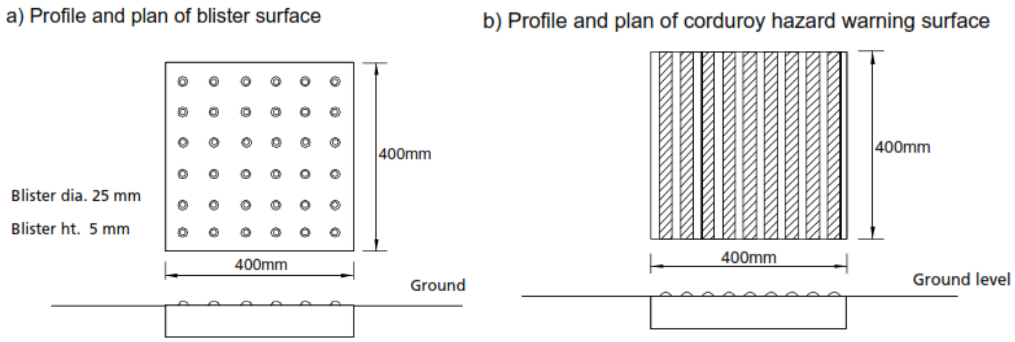


Figure 12: Tactile surfaces (The Good Access GUIDE, DGAP)

2.3.2.3 Safety of Street and Sidewalks

Walkways should be regularly maintained and cleaned. Road lighting in streets is essential for vehicle safety and security, it also effects on pedestrian safety (National Crime Prevention Council, 2003). Lighting at pedestrian scale is necessary for the sidewalk for the well-travelled footpaths whenever the regular lighting of the street

doesn’t have enough quality. Lighting should be vandal proof, it should be also at consistent levels, and the appropriate height and location. Lighting quality should allow a pedestrian to identify a person around 10 meters away. Concealed ways should be lit. Light colored walls and ceiling materials help to reflect the light and enhance the brightness of an area. Natural light always is ideal and it should be encouraged.

Signs should be located on the sidewalks and streets to indicate alternative well-lit or traveled way. Paths should be well designed to let decent visibility. Wall, tall fences, overgrown vegetation, inset areas along buildings must be avoided. Natural surveillance can be encouraged by creating social interaction and also making changes for pedestrian activities. Concealed way is often expectable way which is not recommended for pedestrians. If it is essential to create the concealed way, it should be well designed to incorporate visibility by bringing in activities, clear sight lines, installing emergency telephones, improving lighting quality, and etc. (guide crime, 2003). Sightlines are the lines of vision, and ability to see ahead along a way or route. Sharp corner, inappropriate fence, wall, large columns, and the overgrown tree can make barriers to the feeling safety (Crowe& Fennelly, 2013).

For better public safety, the design of space should take into consideration with appropriate materials, its placement, color and texture to make the space inviting or uninviting. For example, bright and vibrant finishes create a sense of safety (Iranmanesh& Etaat, 2009).

2.4 Site Border of the Building

The signification of the opening in site border is important to ease the building access. According to Ching, the entering can be signified and indicated in more delicate ways, such as;

- A change in level and also two pillars or an overhead beam, can mark the passage and way from one place to another place.
- The form of the opening can be limited by a simple hole in the wall, an elaborate, or articulated gateway.
- The building entrance is best signified by creating a real or an implied plan vertical to the approach path.
- Flush: the continuity of the wall surface and it can be, if desired, deliberately obscured.
- Projected: a transitional space, it provides overhead shelter and announces its function to the approach.
- Recessed: it also provides shelter and receives a portion of exterior space into the realm of the building.
- The form of the building entrance can be similar to a preview (the form of the being entered space) or it can be contrasted to reinforce and emphasize its character as a place.
- Location of the building entrance can be centered within the frontal approach of a building or be placed off-center to create a condition of local symmetry about its opening.
- By making the entrance wider, narrower, lower, deeper than expected, the concept and idea of the building entrances can be visually reinforced and also,

ornamentation and decorative embellishment can effect on visually reinforced of the entrance from the façade and adjasting border (Ching, 2007).

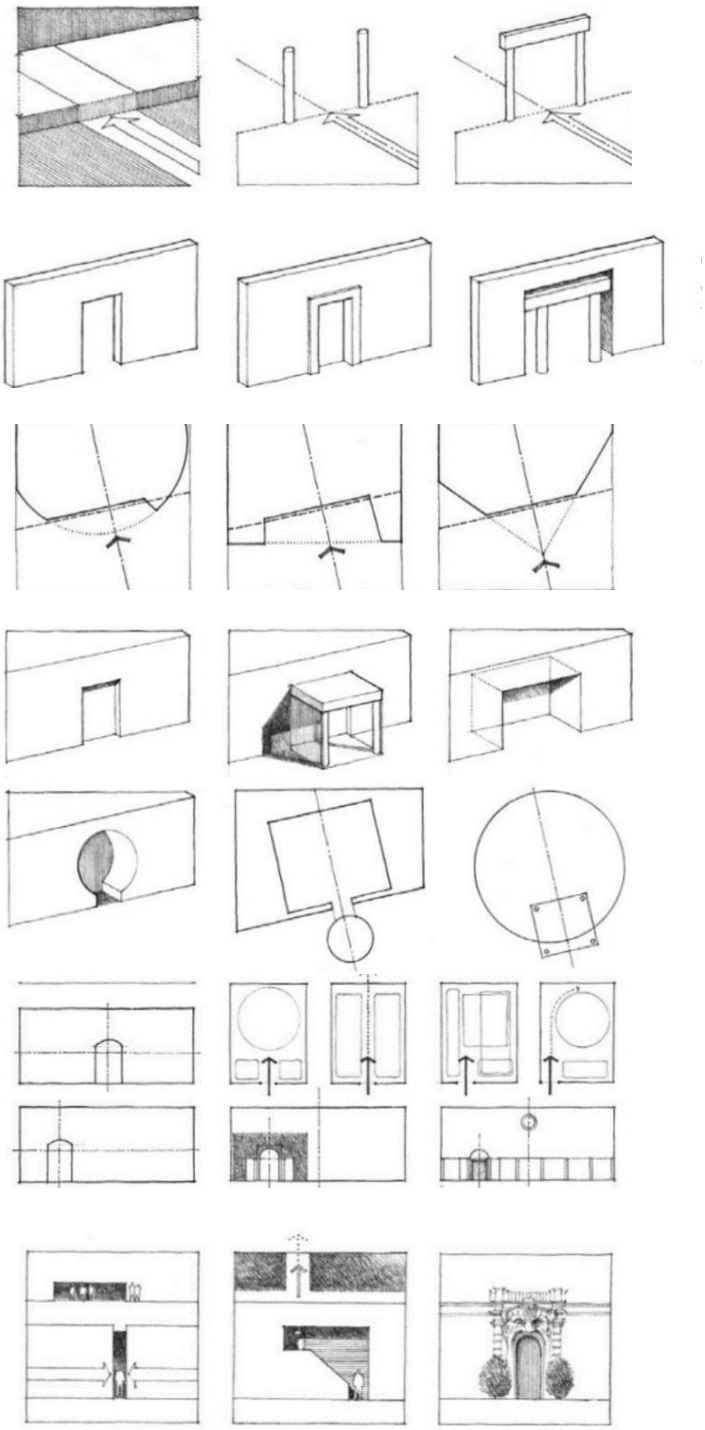
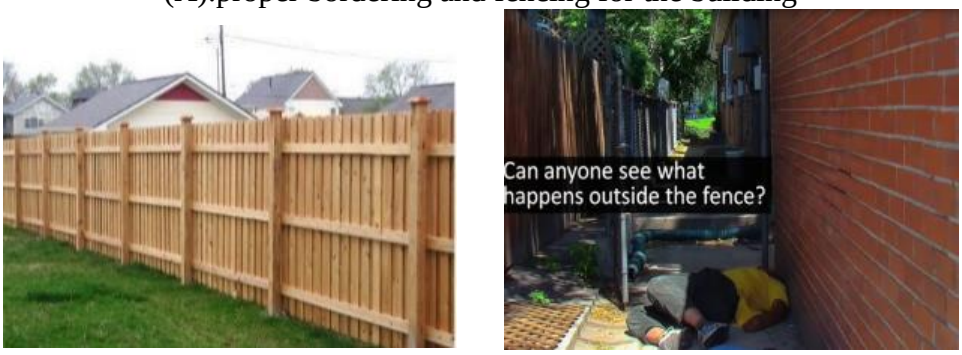


Figure 13: The different ways for the signification of entrance (Ching, 2007)

With proper design, high fences can be used as a limit access without surveillance problem. Short fences, even if solid, makes no problems for safety and surveillance. Good bordering allows the designer to define public, semi-public, semi-private and private spaces while maintaining and keeping surveillance.

(A).proper bordering and fencing for the building



(B). Improper bordering and fencing for the building

Figure 14: The example of the fancing in building

Signs, map information can help finding the ways whenever it is hard to find the way. Located map information and signs create a feeling of safety and security. It should be visible and located at the main site border or near activity nodes. Signs should be standard, visible, large enough, legible and identifiable to achieve clear, and readable messages (Australia Lismore City Council, 2000).

Choosing the correct source of the light by owners will be effected on the city and urban design. Furthermore, choosing the appropriate light create safety space around the building. The level of the light should allow the identification of the people from

10 meters distant. Choosing the correct color and intensity of the light is significant, improperly artificial lighting may focus attention into the incorrect space and also creates shadows or glare (National Crime Prevention Council, 2003).

2.5 Building Site

The first step of the accessibility from the site to the building entrance is creating the definition for the way of the site to guide people and provide them with easy access.

2.5.1 Accessibility between Site Border and Building Entrance Façade

The ways are one of the significant aspects of the outdoor. The first thing which visitors and residents notice, is a good design, and attractive driveway which can significantly increase its value and easy access. There are many surfacing options available, for example, tarmac, concrete, and resin bonded surfacing, gravel, and asphalt. Following factor shows the guidelines for making unique surface which can effect on easy access to the buildings entrance.

Definition of the pavement of the site by use color or/and patterns is one of the easiest methods to instantly increase the visual appeal. Joining a border, patterned edge or trellis and fence into pathways is a proper method to the definition of the driveway of the building site. By defining the edges with a changed color, pattern, or material, visitor and residents can improve the meaning of way as it makes an obviously established space to drive, park, or walk.

Figure 15: Definition of the pavement of the site by Create a border (URL 2.6)

Definition of the pathway of the site by incorporate lighting: There are several driveway lighting choices available, all of them create a desirable and add instant impact. Security and safety illuminations which throw light on tree and bush.

Figure 16: Definition of the pavement of the site by incorporate lighting **(**URL 2.6)

Trees, plants, shrubs, pavements, pathway, fences, and other landscape features can define the area to the public, semi-public, semi-private, and private spaces. All landscape elements should be designed with these concentrations. Landscaping around the buildings should be achieved by safety and visually. People are more interested in looking at the well-design landscape, which led to provide surveillance for a site and building (Government of South Australia, 2002).

(A) Improper landscaping (B) Proper landscaping

Figure 17: Definition of the pathway of the site by incorporate landscaping

2.5.2 Accessibility between Car Park and Building Entrance Façade

Parking spaces should be placed near the main entrances. Access parking must be determined via texture, plant, and surface (Jackson, R., & Kochtitzky, 2001). This avoids the use of pavement as a parking space and is closer to the way of the entrance by the car (See Figure 18).

Figure 18: Pathway and road without braided, with braided (URL 2.7)

From car parking space to the building, it is expected to be accessible ways. It is better to have stop bay or parking spaces along the buildings' entrances for an easy access to the building entrance. Parking bays should be specified by luminance and color against the background.

Designated accessible parking space(s), whether external or internal, should be provided within 30m of the main accessible entrance and/or any other accessible entrances (N.A, 2004). London Centre for Accessible Environments, Designing for Accessibility Guide gives the minimum measurements for parking spaces about 4800mm to 2400mm for one vehicle (BA, 2004).

The guideline for disabled users should be considered, payment systems should be accessible for these people. Dropped curbs should be created to assist disabled users from vehicle to wheelchair and also onto the pavement (Smith & Preiser, 2011). A safe drop off point should be placed close to the main accessible entrance. In streets, parking bays must be 4200mm x 3600mm when are parallel to the curb.

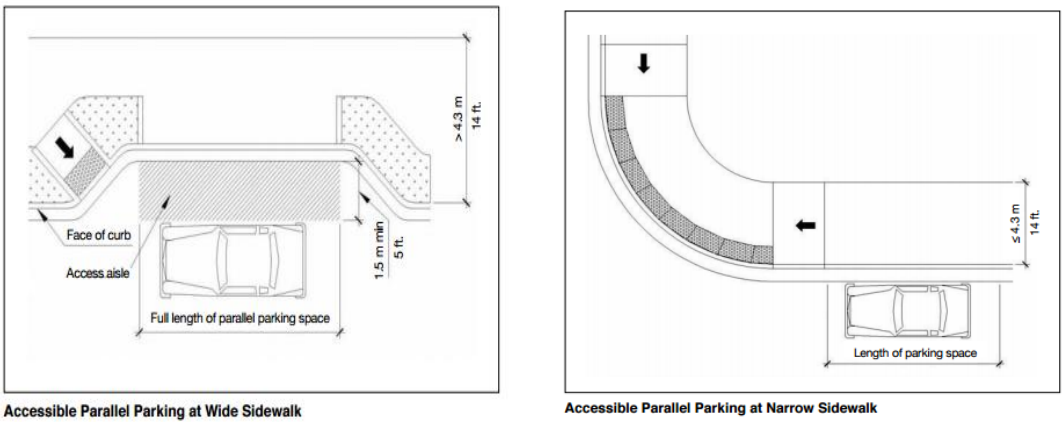


Figure 19: Accessible parallel parking; at wide sidewalk, at narrow sidewalk (URL 2.8)

The 2010 ADA requires a minimum number of accessible parking spaces based on a percentage of the total number of spaces in a parking facility. Each parking area shall provide accessible parking spaces in accordance to the following table.

Table 1: The minimum number of accessible parking spaces (Department of Justice, 2010)

Total Number of Parking spaces Provided (per lot)	Total Minimum Number of Accessible Parking Spaces (60" & 96" aisles)	**Van Accessible Parking Spaces with min. 96" wide access aisle**	**Accessible Parking Spaces with min. 60" wide access aisle**
	Column A		
1 to 25	1	**1**	**0**
26 to 50	2	**1**	**1**
51 to 75	3	**1**	**2**
76 to 100	4	**1**	**3**
101 to 150	5	**1**	**4**
151 to 200	6	**1**	**5**
201 to 300	7	**1**	**6**
301 to 400	8	**1**	**7**
401 to 500	9	**2**	**7**
501 to 1000	2% of total parking provided in each lot	**1/8 of Column A***	**7/8 of Column A****
1001 and over	20 plus 1 for each 100 over 1000	**1/8 of Column A***	**7/8 of Column A****

*** one out of every 8 accessible spaces** **** 7 out of every 8 accessible parking spaces**

Designated disable parking bays should be clearly marked 'DISABLED' in addition to a sign with a Blue Badge disabled symbol. Signs of accessible parking spaces must be identified by signs that include the International Symbol of Accessibility. Signs at van-accessible spaces must include the additional phrase van-accessible. Exceptions for parking lots that have four or fewer total spaces which do not need to be designated as an accessible space with a sign. This means that for the purposes of local enforcement (at least in most jurisdictions), anyone, with or without a disability, can park in the accessible space.

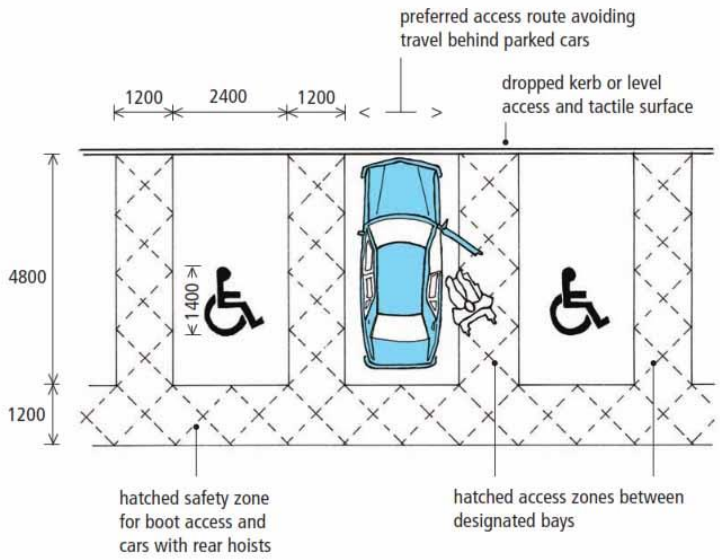


Figure 20: Designated disable parking bays by clearly marked (NA, 2004)

2.6 Entrance façade of the building

Entrance is a key entry point which is located at the front façade of a building. In new buildings, the main entrance intended to be for the general public users. For accessible buildings, a minimum of one entrance must be accessible for a disable user. Create canopies, and shelter in main entrances led to more security for the users. All main entrances and other accessible entrances should be protected by a suitable canopy or overhang (N.A, 2004).

In the ADA standards, the least width for the entrance access is 815mm (Department of Justice, 2010). Main entrance doors and other accessible entrances and exit doors should be minimum of 915mm wide to allow safe passage for people who use mobility aids (N.A, 2004). The following figure shows maneuvering clearances within doors and the space in front of doors;

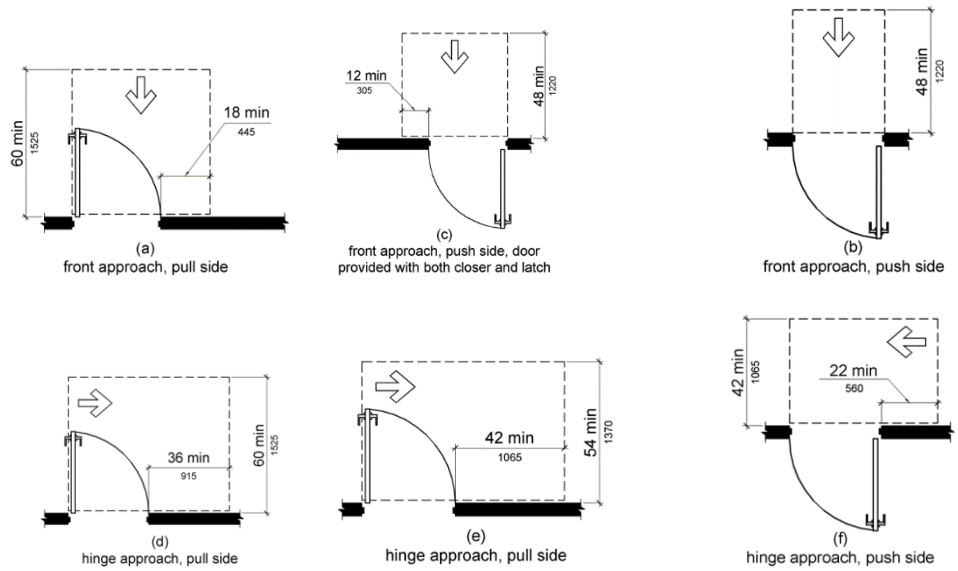


Figure 21: Swinging doors and gates (Department of Justice, 2010)

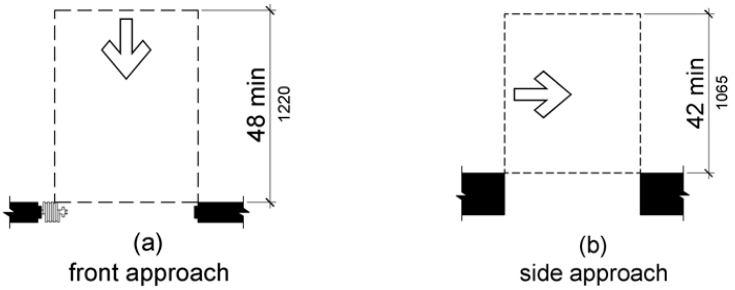


Figure 22: Doorways without doors, sliding doors, and folding doors (Department of Justice, 2010)

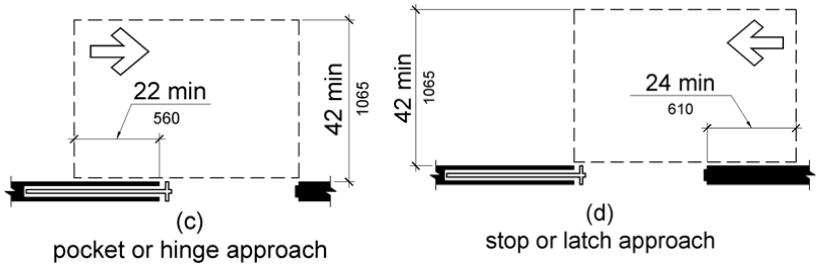


Figure 23: Doorways without doors, sliding doors, and folding doors (Department of Justice, 2010)

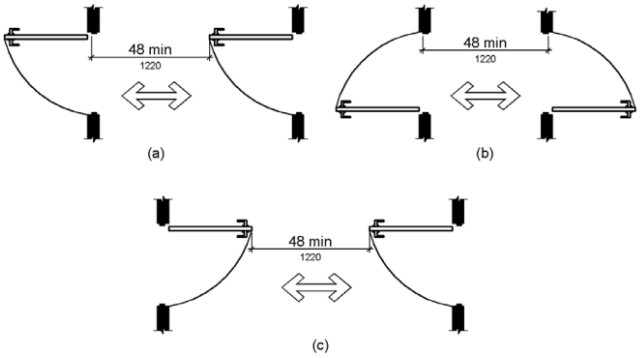


Figure 24: Doors and gates in series (Department of Justice, 2010)

The signification of the main entrance is important for easy access to the building. As mentioned before, the main entrance can be signified in more delicate ways, such as; two pillars, an overhead beam, change in level, clear opening by a simple hole in the wall, an elaborate, or articulated gateway, by making the entrance wider, narrower, lower,deeper than expected, the concept and idea of the building entrances can be visually reinforced. Also, ornamentation and decorative embellishment can effect on visually reinforcment of the entrance from the façade and adjust border (Ching, 2007).

Glazed screens or doors: Windows and glass in the main entrance, make a visibility and safety feel, glass and windows let residents understand and see the approaching of the people to the site of the buildings. Where entrance lobbies comprise glazed screens or doors, care should be taken to ensure that they do not create distracting reflections, as this can be disorientating and potentially hazardous. The use of glass is not necessarily discouraged, but should be used with careful consideration. Glazing within an entrance or lobby area can be advantageous to many people as it enables a clear view into and out of a building. This provides reassurance for the people entering a building for the first time and can also help people to understand the layout and the type of the space they are entering. The use of glass lends people with hearing

difficulties further sensory awareness so they can use reflected images to see other people approaching from behind (Building for Everyone, n.d).

Figure 25: Example of glazed entrance lobby (URL 2.8)

2.7 Entrance Hall and Lobby

2.7.1 Entrance Halls

Entrance halls are the spaces that starts from the entrance doors. Entrance halls help a person to know how he/she can reach to other spaces. Entrance Halls are important factors for circulation of the buildings, they are played a significant character about how people perceive and observe the whole buildings. Functional spaces of the buildings, for example, information desks, vertical access (stairs, lifts) and restroom should be easily perceptible, observable, and visible. In addition, signs and Information in this places are beneficial for the perception.

An entrance hall is a space with an integral and external door arrangement. The entrance hall is frequently required for environmental reasons and security. Where the entrance hall is required, it should have enough space, for all people to maneuver between the internal and external door. The general size is required depend on the building type, the number of the users, simultaneous uses, and whether security.

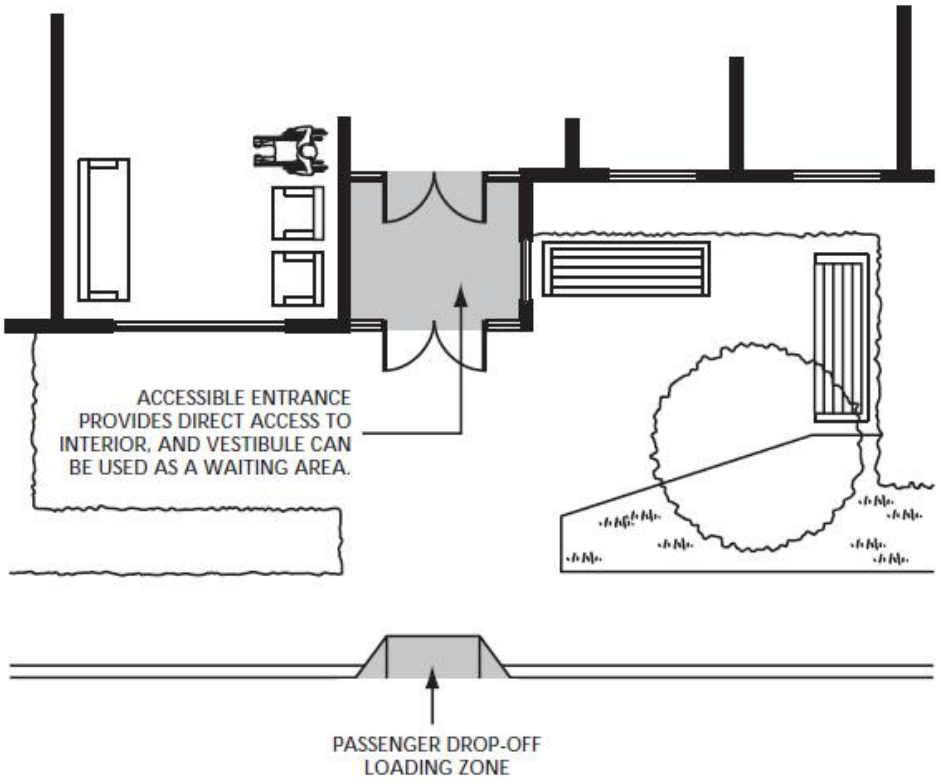


Figure 26: Plan view of the entrance hall (N.A, 2004)

The basic dimension for entrance hall is 160cm between door swings. Entrance lobbies should not be used as a storage or display areas as this will reduce maneuvering space and may present an obstruction or tripping hazard (Building for everyone, n.d). All the ways of the interior should be easy to use and safe for people with variable disabilities, the interior way should be logical in layout and also clearly identified (N.A, 2004).

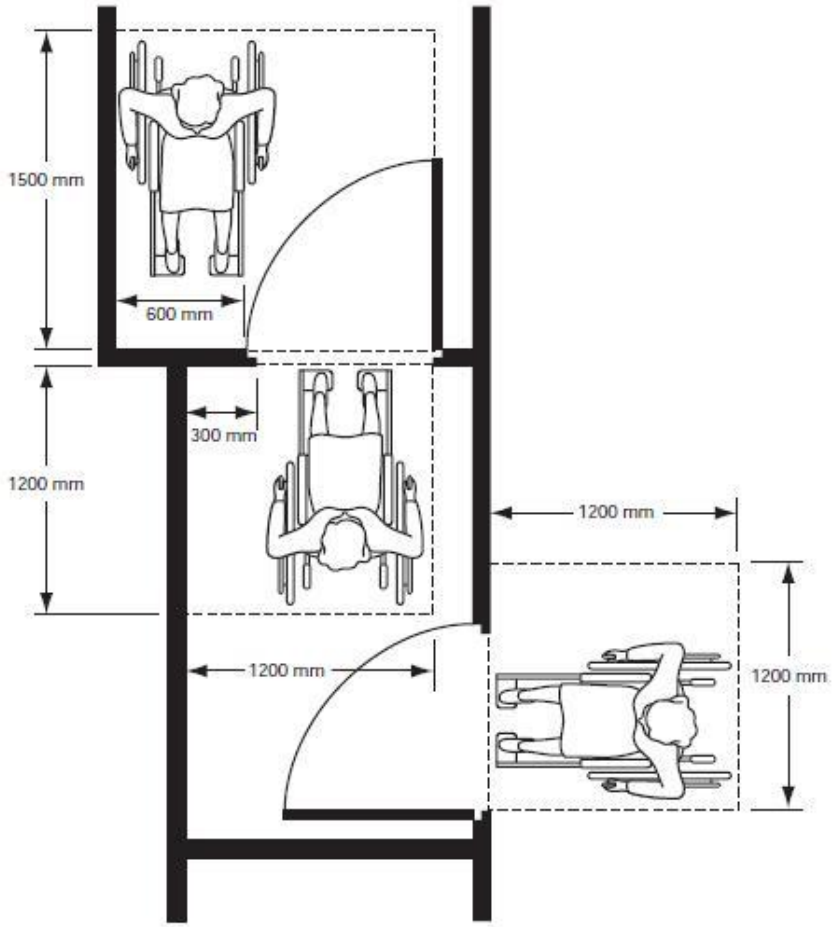


Figure 27: Entrance hall (N.A, 2004)

Slippery surfaces can cause hazards, so the material of the floor is better to be textured for distinguishing and separating the entrance hall space from others spaces. Well-designed entrances foyers provide a transition from the outside to the inside, and can help orientate the people once inside the building (BA, 2004). Being no entrance hall in the buildings, can led to reducing the quality of the circulation and people cannot perceive and distinguish the organization of the building.

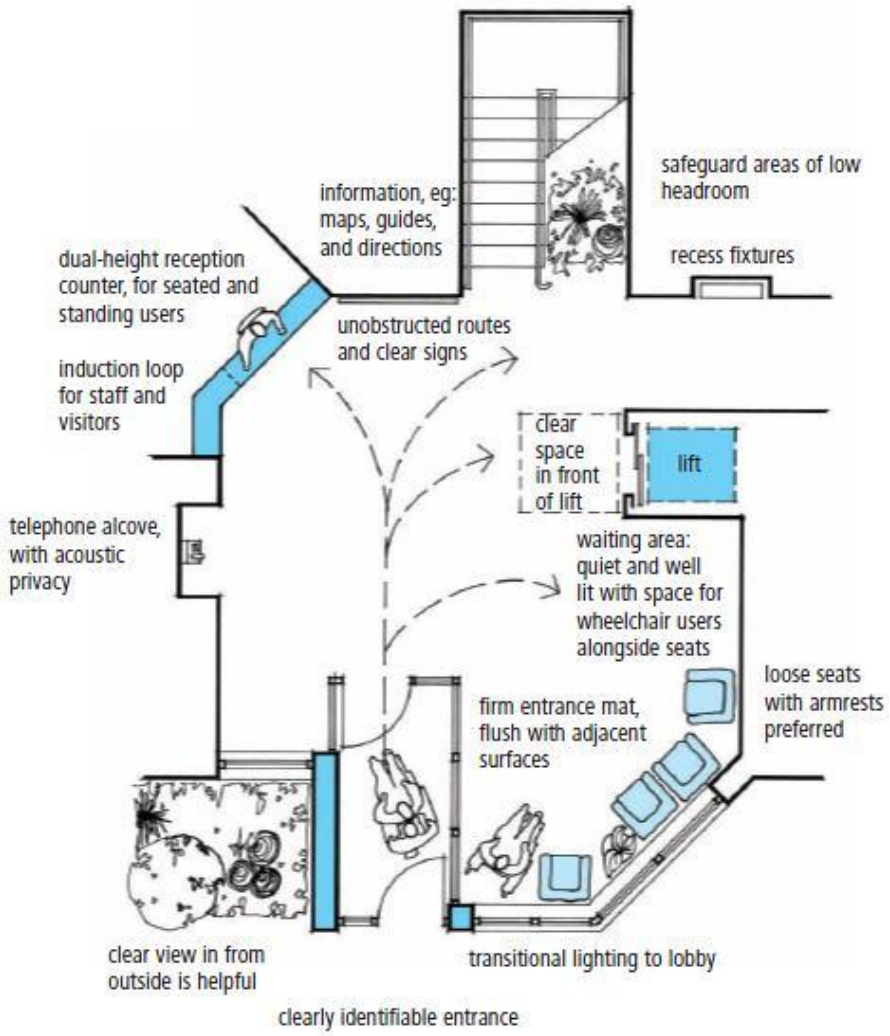


Figure 28Accessible entrance hall (NA, 2004)

2.7.2 Entrances Lobby

The lobby can be the "living room" for buildings, it can be used as a meeting area for the neighboring community. Managers of public buildings are interested in integrating the new activities into the lobbies. Lobbies should be attractive and sub-places to give the visitors and residents an optimal equipment while they are relaxing or waiting. This area can includes a place to buy, a place to drink a cup of coffee, a place for a convenient waiting, and also a place for an exhibition. (URL2.9) Suitable access and entrée to reception desks, seating, information and sign are essential for all visitors or residents.

For public building, the reception desk should be situated away from the main entrance to reduce the outdoor sounds (BA, 2004). The buildings layout should consider a way finding the map incorporates textures and distinctive colors for residents and visitors with sight impairments.

Surfaces and Finishes in internal space: Hard surfaces create sound reverberations and after-effects sound, which can lead to problems for people with hearing impairments. Extremely grooved carpet and deep pile surfaces should be avoided because they will make problems for wheelchair users. All floor coverings should be fixed.

To avoid a moving and walking hazard, especially for disabled people, all the junctions of different flooring materials should be considered. Where a mat-wells are offered, they must be of a limited non-compressible material with the finish level equal to the surrounding floor finish. Mat-wells within entrance of lobbies should be well designed, so the mat is flush with the surrounding floor surface. The mat should absorb rainwater from the soles of shoes, and from the wheels of prams, pushchairs, trollies and wheelchairs. Mats should have a firm and levelled surface. They should not be compressible or have the deep pile, as such surfaces can be particularly problematic for people using crutches or wheelchairs or for anyone pushing a wheeled item such as pram, pushchair or trolley (Welcoming lobbies Scoviak, 1998).

Figure 29: Example of level entrance into lobby with mat well

Lighting of entrance lobbies

Good lighting systems are necessary for all people to create a visible and safe space. Lighting can be used to highlight tone, texture and colors. Lights should be located where they do not create shadow, glare, or reflection. Entrance hall, entrance lobby and foyers should be used as change zones to allow people to adjust the lighting level changes from exterior to interior, when outdoor space is very bright, the inside space can appear dull. During the darkness time, outside space approach can be darker than the inside, which can takes time for a person's eye to adjust the different environments. A sudden change in the lighting levels led to the problem for all people. The lobby lighting should be aimed to comfort and ease the transition from outside to inside, on the other hand, they should be acceptable for safe circulation.

Columns, ducts should not be more than 10cm into the access way in an entrance lobby. They are potential hazards and create obstructions. The entrance to a dwelling should be lit artificially. The best place for the lights is at the side or above a doorway. A well- designed lighting entrance permits callers to be identified and also help

residents and visitors. The system of the lights should be connected to the PIR sensor to have the automatic lighting possibility from sundown to sunrise. Light levels should achieve minimum of 200 lux for the face of the caller to be recognized (Welcoming lobbies Scoviak, 1998).

Chapter 3

EVALUATION OF THE ACCESSIBILITY OF BUILDING ENTRANCES

3.1 The Evaluation Method of Building Entrances in Terms of Accessibility (Fuzzy Set)

The evaluation technique of this thesis is based on fuzzy set. A fuzzy set is based on a continuum of membership's grades. The fuzzy set is categorized by the role of a membership that gives to each object a grade of one or zero. The notions of inclusion, union, intersection, complement, relation, convexity, etc., are extended to such sets, and various properties of these notions in the context of fuzzy sets are established. In particular, a separation theorem for convex fuzzy sets is proved without requiring that the fuzzy sets be disjoint. Fuzzy logic has been extended to handle the concept of partial truth, where the truth value may range between completely true and completely false. Furthermore, when linguistic variables are used, these degrees may be managed by specific (membership) functions. The term fuzzy logic was introduced with the 1965 proposal of fuzzy set theory by LotfiZadeh (Zadeh, L.1965). Fuzzy logic has been applied to many fields, from control theory to artificial intelligence. Fuzzy logic had however been studied since the 1920s, as infinite-valued logic notably (Pelletier and Francis Jeffry, 2000).

3.2 Evaluation Criteria

This chapter tried to evaluate the entrance spaces in term of accessibility, easy access, and safe access according to the spaces around the building entrance which are divided into 5 categories.

1. Accessibility from closed environment to the site front
2. Accessibility from site front to site border
3. Accessibility from the site to the building entrance
4. Accessibility of the building facade
5. Accessibility in the entrance hall / lobby

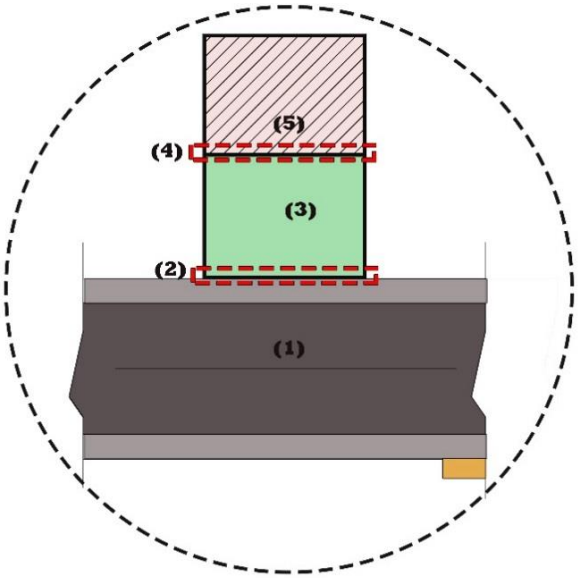


Figure 30: Space divided around the entrance area

According to the framework, the table of the evaluation criteria has been defined for the building entrances in term of accessibility. These criteria are the main and importance factors in the design building entrance space (see Appendix A). In general, if the entrance spaces have proper design the grade will be one if not the grade will be zero.

3.3 Description of the Evaluation Criteria

3.3.1 Accessibility from Closed Environment to the Site Front

Accessibility from closed environment to the site front is divided into two part accessibility from the station and accessibility from the street and sidewalk

Table 2: Accessibility from closed environment to the site front

Accessibility from closed environment to the site front
A: Accessibility in the station
Distance between public transportation station and site
Existence more than one station of mass transportation
Waiting time for mass transportation system
The existence of the stop bay in front of the public transport station
The location of the bus station according to the direction of the travel
The location of the bus station on the sidewalk
Visual contact with public transport station and site entrance
Direct pathway to the station from site entrance
The existence of the lighting system of the public transport station
Lighting quality of the station
The existence seating space of the station
The existence sign and guideline of the station
Accessibility for bicycle user from station to the site.
Guideline for blind people, in between station and site
Guideline for wheelchair user in between station and site
B: Accessibility in the street and sidewalk
Traffic jam on the street
The existence of the street lighting systems.
Lighting quality of the street
The existence of the lighting system of the sidewalk
Lighting quality of the sidewalk
The existence of the sign and guideline in the street and sidewalk which guiding people to the building
Definition of the sidewalk by using different colors
Definition of the sidewalk by using different patterns

Definition of sidewalk by creating the different level
Definition of the sidewalk by creating curb
Definition of the sidewalk by creating plant, flowers, foliage and shrubs
Guideline for blind people in the street and sidewalk
Guideline for wheelchair user in the street and sidewalk
Appropriate material (non-Slippery / roughness) on pavement

3.3.1.1 Accessibility from the Mass Transportation Station

Flowing factors show the important issue of the accessibility in the station

Walk distance to the bus station should be less than 400 meters and walk distance to the subway or train should be less than 800 meters (EI-Geneidy, Strathman, Kimpel, & Crout. 2006). In investigation cases in this thesis, if the walk distance is less than 400 for bus and 800 for the train the grade will be one if not the grade will be zero.

- Existence more than one station of mass transportation: some building established near more than one station such as bus and train and etc. If there is more than one station near the building, the grade will be one; if not the grade will be zero.
- Waiting time for mass transportation system: According to Mishalani, Mccord, & Wirtz passengers do perceive time to be greater than the actual amount of time waited. However, the hypothesis that the rate of change of perceived time does not vary with respect to the actual waiting time could not be rejected over a range of 3 to 15 minutes (Mishalani, Mccord, & Wirtz, 2006). If the waiting time in the station is more than 15 minutes or less than 3 minutes, the grade will be zero if the waiting time is between 3 to 15 minutes the grade will be one. The existence of the stop bay is essential to create a safety park for vehicle and also to avoid the traffic jam (Bus Stop Infrastructure Design Guidelines, 2009). If there is a stop bay in front of the station, the grade will be one if not the grade will be zero.

- The location of the bus station should be considered the direction of the travel (Public Transport – Buses, 2009). If the location of the bus station is according to the direction of the bus travel the grade will be one if not the grade will be zero.
- The location of the bus station on the sidewalk should consider the pedestrian and it shouldn't block the pedestrian pathway for people (Public Transport – Buses, 2009). If the location of the bus station doesn't block the pathway the grade will be 1; if the bus station cause to block the pedestrian road the grade will be zero.
- Visual contact with station and site entrance: Bus stations should be clearly visible from streets and buildings as far as possible. Any walls, berms, bushes, power boxes or solid fences that block the view should be eliminated or modified (Public Transport – Buses, 2009). Does design of the station allow clear sight lines and visibility? If the answer is yes the grade will be one if not the grade will be zero.
- Direct pathway to the station from site entrance: if there is the direct pathway to the station from site entrance the grade will be one. On the other hand, if there is no direct road from building to the station the grade will be zero.
- The existence of the lighting system of the station is the other important issue of the accessibility in the station (Wood, Bell, & Hurdle. 1998). Is there any lighting in the station? If the answer is yes the grade will be one if not the grade will be zero.
  - Proper lighting means lighting should be adequately provided such that a person can recognize a face from about 10 meters. Lighting should be provided uniform spread and reduce the contrast between shadow and illuminated areas. Lighting shouldn't provide too glaring. Bus shelters and taxi stands should be well maintained at night as far as possible (National Crime Prevention Council, 2003). If the guilty of the light is appropriate the grade will be one if not the grade will be zero.

- Is there enough seating space in the station according to the demand? If the answer is yes the grade will be one if not the grade will be zero.
- Is there any sign and guideline such as information of the station, program time, and station's map? If the answer is yes the grade will be one if not the grade will be zero.
- Bicycle parking facilities such as secure bicycle racks and a special route for bicycle should be provided. If there is accessibility for bicycle user in the and also from the station to the site the grade will be one if not the grade will be zero.
- The guideline for blind people should be provided, in between the station and building entrances. If there are the facility for blind people, for example, using the tactile surfaces and etc. the grade will be one if not the grade will be zero.
- The guideline for wheelchair user (disabled) should be provided in between the station and building entrances. If there is the facility for wheelchair user such as curb Ramps or curb cuts, proper standard and etc. the grade will be one if not the grade will be zero.

3.3.1.2 Accessibility from the Street and Sidewalk

Flowing factors show the important issue of the accessibility from the street and sidewalk to the building entrance

- The traffic jam on the street is the big issue for vehicle user such as bus, taxi, individual car, even bicycle user to achieve the easy access from closed environment to the site front of the buildings. If there is no traffic jam in the street, adjacent of the building, the grade will be one if not the grade will be zero.

  The existence of lighting systems and lighting quality of the street and sidewalk is the one of the important factors to achieve the easy access from the street and sidewalk to the site border (National Crime Prevention Council, 2003). If there is lighting with the acceptable quality in the street and sidewalk, the grade will be one if not the grade will be zero.

- The existence of the sign and guideline in the street and sidewalk is the other important issue to achieve the easy access from the street to the site border which guiding people to the building. Following factors show the main aspects of proper design signs: Signs and information should visible and legible, signs should convey messages clearly. Information should be adequate, sign should be strategically located to allow for maximum visibility, and Signs should be well maintained (RIBA, 2011). Is there any sign and guide with proper design in the street and sidewalk to guide people from closed environment to the building? If the answer is yes the grade will be one if not the grade will be zero.
- Definition of the sidewalk from the street is one of the important issue to reach the easy access from closed environment to the building. This definition can be created by using different colors, patterns, and level. In addition it can be created by making the curb, plant, flowers, foliage and shrubs between the street and sidewalk (Manual for Streets, 2007). If there is utilizing element between the street and sidewalk, the grade will be one if not it will be zero.
- The sidewalk should have the proper design for blind people (using spatially material for blind people). If there is the guideline for blind people in the sidewalk the grade will be one if not the grade will be zero.
- Sidewalk should have the proper design for using wheelchairs. The width of the sidewalk for passing two wheelchairs should be minimum 1.60 meters and also create dropped crops injunctions is necessary for using the wheelchair (N.A, 2004). If pavement has measured for using the wheelchair the grade will be one, if not the grade will be zero.

- The material of the pavement should be proper for walking. It should not be slippery or rough (ADA standard, 2010). The grade will be one if the pavement has appropriate material instead, if there is no proper material for the pavement the grade will be zero.

3.3.2 Accessibility from Site Front to Site Border

The proper design of the site border and site entrances can effect on the achieving the easy access for all user and felling safety.

Table 3: Accessibility from site front to site border

Accessibility from site front to site border
Provide territorial reinforcement
Proper border definition (surveillance)
The existence of the sign and guideline in the site border
The existence of the lighting system of the site border
Lighting quality of the site border(10 m visual contact)
Visual contact with site entrance border and main entrance façade
Direct pathway to the main entrance from site border
Definition of the site entrance by using different colors.
Definition of the site entrance by using different patterns or material.
Definition of the site entrance by creating the different level.
Definition of the site entrance by using the vertically elements
Definition of the site entrance by creating overhead beam elements
Definition of the site entrance by making the door entrances wider, narrower, or lower
Definition of the site entrance by making the entrance deep or indentations,
Definition of the site entrance with ornamentation and decorative embellishment
Guideline for blind people from site front to site border
Guideline for wheelchair user from site front to site border

Flowing factors show the important issue of the accessibility from site front to site border.

- Provide territorial reinforcement cause to define the public spaces (city), from the semi-public area (sidewalk and site). Provide territorial reinforcement is necessary for create safety and easy access (Michael, Greg, and Hillier, 2005). Does the design of the site border provide territorial reinforcement? If the answer yes the grade will be one if not the grade will be zero. Proper border definition allows the designer to define public, semi-public spaces while maintaining and keeping surveillance (Crowe& Fennelly, 2013). Is there any proper border definition according to create maximum surveillance? If the answer is yes the grade will be one if not the grade will be zero.

  The existence of the sign and guideline in the site border is the one of the important factors to archive the easy access of the building (Australia Lismore City Council, 2000). Are there any signs and information to guide people to find the building? If the answer is yes the grade will be one if not the grade will be zero.
- Is there any lighting system with proper quality in the border of the building? If the answer is yes the grade will be one if not the grade will be zero.
- Visual contact with site entrance border and main entrance façade create way finding and easy access from the site entrances to the main entrance of the buildings (Government of South Australia, 2002). Is there any visual contact with site entrance border and main entrance facade? If the answer is yes the grade will be one if not the grade will be zero.
- Direct pathway to the main entrance from site border is also create way finding and easy access from the site entrances to the main entrance of the buildings (Government of South Australia, 2002). If there is visual contact with site entrance border and main entrance facade the grade will be one, if not the grade will be zero.

- Definition of the site entrance create the easy access. Site entrances can be defined from the site border by using different colors, patterns, material and level, and also it can be defined by using the vertically elements, by creating overhead beam elements, by making the opening lower, wider, or narrower, by making the entrance deep or indentations, by ornamentation and decorative embellishment (Ching, 2007). If there is a definition of the site entrance from site border the grade will be one, if not the grade will be zero.
- Guideline for disable people such as blind and wheelchair user is an important issue in accessibility from site front to site Border if there is the guideline for disabled the grade will be one if not the grade will be zero.

3.3.3 Accessibility from the Site to the Building Entrance

Accessibility from the site to the building entrance is divided into two parts, Accessibility in parking space and Accessibility in site of the building.

Table 4: Accessibility from the site to the building entrance

Accessibility from the site to the building entrance
Accessibility in parking space
Visual contact with site entrance border and parking space
Visual contact with main entrance facade and parking space
Visual contact with lobby and parking space
Maximum 30-meters distance of the car space to the building
Maximum 1 meter different level to the lobby
The existence of the security by creating the attendant boots /patrols / camera security/ emergency telephones
The existence of the sign and guideline in the parking space
The existence of the lighting system of the parking space
Lighting quality of the parking space
Dimension and size of the car parking
Dimension size for the way of the parking space

The number of the car spaces
Dedicated car space for disable person
Definition of the parking space by using different colors.
Definition of the parking space by using different patterns.
Definition of the parking space by creating the different level.
Definition of the parking space by creating curb.
Definition of the parking space by creating plant, flowers, foliage and shrubs.
The existence of the temporary park in front of the main entrance door.
The existence of bicycle parking
Secure bicycle racks
Guideline for blind people in the parking space
Guideline for wheelchair user people in the parking space
Accessibility in site of the building
Visual contact with site and main entrance
Direct pathway to the main entrance from site.
The existence of the lighting systems in the site of the building.
Lighting quality of the site of the building (10 m visual contact)
The existence of the sign and guideline to the main entrance in the site
Appropriate material of the pavement for walking in the site
Definition of the pavement by using different colors.
Definition of the pavement by using different patterns.
Definition of the pavement by creating the different level.
Definition of the pavement by creating curb.
Definition of the pavement by creating plant, flowers, foliage and shrubs.
Social activity: programmed the site area for various events or activities at the site of the building.
Guideline for blind people in the site of the building
Guideline for wheelchair user people in the site of the building
Provide shelter for porch area.
The Appropriate material for the porch area.

3.3.3.1 Accessibility in Parking Space

Flowing factors show important issues of the accessibility in parking space.

- Visual contact is one of the important factor of accessibility in parking space which can create a safety space and easy access. The parking spaces should have visual contact with site entrance border, with main entrance façade, and with lobby. Its means car park should be visible from the street, main entrance, and lobby. If there are visibility and sight line for car space, the grade will be one if not the grade will be zero.
- Attendant booths should be located near entrances and predictable routes where there are clear sight lines. If there is no attendant, there should be several well-lit, clearly marked entrances/ exits, in order to avoid the car park lot becoming an entrapment area. In larger car parks there should be emergency telephones on each level with illuminated telephone signs. Additional surveillance measures such as well signed audio links or video cameras should be provided in stairwells, lifts, and other isolated areas. Patrols by security/ maintenance staff should be encouraged (guide book, 2003). The existence of the security is one of the important factors for design parking space. These securities have depended on the function of the building, they can be created by creating the attendant boots /patrols / camera security/ emergency telephones. If there is acceptable security in car parking the grade will be one if not the grade will be zero.
- The parking space should be placed maximum 30-meters distance from the main building entrance. And also it should be placed maximum 1-meter different level to the main entrance or lobby (N.A, 2004). If the distance of the car space is under 30 meters to the main entrance the grade will be one, if the location of the car space is more than 30 meters to the main entrance the grade will be zero. And also, if the location of the car space is in another level for example under the ground, or upper than 1meters high from main entrance the grade will be zero.

- Exits and main routes should be clearly signed using distinctive colors and symbols so that users can easily find their cars. The existence of the sign and guideline is essential in the parking space to guide people to achieve the easy access and exit surface (Jackson, R., & Kochtitzky, 2001). If there are enough information and guideline in the parking space the grade will be one if not the grade will be zero.
- The existence of the lighting system of the parking space and also the lighting quality of the parking space is an important factor in design parking space, minimum 10 meters visual contact should be considered for having acceptable lighting quality (National Crime Prevention Council, 2003). Is there any lighting with the proper quality in parking space? If the answer is yes the grade will be one if not the grade will be zero.
- Dimension and size of the car parking and the way of the parking space should be according to the standard. If the dimension of the car space and the route of the car parking is proper the grade will be one if not the grade will be zero.
- The number of the car spaces and also the number of the car space for disable person should be according to the demand of resident or visitor of the buildings. It can be changed by function of the building. If the number of car spaces is enough for user the grade will be one if not the grade zero.
- It is essential to defend the parking space from the adjacent site to reach the easy access in parking space, this definition can be created by using different colors, patterns, and level, and in addition it can create by using curb, plant, flowers, foliage and shrubs. If there is definition of the parking space the grade will be one if not the grade will be zero.
- The existence of the temporary park in front of the main entrance door makes the buildings entrance more accessible. Is there any space for temporary parking in front

of the building entrance to the shortstop of the vehicle? If the answer is yes the grade will be one if not the grade will be zero.

- Bicycle parking facilities should be provided close to buildings. And secure bicycle racks should be provided. If there is the facility for bicycle user in the site of the building the grade will be one if not the grade will be zero.
- Guideline for wheelchair user people in the parking space is necessary. If there is disabled parking with proper dimension the grade will be one, if there is no parking space for disable people the grade will be zero.
- If the car space has a special facility for blind people (for example using tactile surface) the grade will be one if not the grade will be zero.

3.3.3.2 Accessibility in Site of the Building

Flowing factors show the important issues of the accessibility in site of the buildings. The design of the building's site should create a proper visibility and sight line to the main entrance. Design landscaping should be according to the easy access and guiding people and also create visibility and sight line to the main entrances (Government of South Australia, 2002). If the main entrance and way of the entrance visible from the site entrance or border of the site the grade will be one if not the grade will be zero.

- If there is the direct pathway to the main entrance in the site of the building the grade will be one, if not the grade will be zero.
- If there is appropriate lighting for the site building the grade will be one if not the grade will be zero.
- Proper sign and information for guiding people to the main entrance is another important factor of design the building site. If sign and information on the building site are adequate to guiding people to the main entrance the grade will be one, if not the grade will be zero.

- Appropriate material of the pavement for walking in the site should be proper for walking, if there is a proper material in pavement of the building site the grade will be one, if not the grade will be zero.
- Definition of the pavement can be created by using different colors, patterns, and level difference and also it can be created by making the curb, plant, flowers, foliage, and shrubs. If the pavement of the site defined by the mentioned factors the grade will be one, if not the grade will be zero.
- Social activity: program the site area for various events or activities is suggested for the buildings which have opportunity in the site. Create social activities such as pellagra, coffee shop, playground, and etc. lead to the safe environment and also lead to attracting people to the building. Is the area programmed for various events or activities on the site? If the answer is yes the grade will be one if not the grade will be zero.
- Guideline for disable people in the site of the building is necessary (ADA, 2010). If there are facilities for disable people in the site of the building such as tactile surfaces for blind people and proper dimension in pathway for wheelchair user the grade will be one, if not the grade will be zero.
- Design porch area should be considering flowing factors: measure for disable person such as create the ramp for wheelchair and etc. Provide shelter in porch area for protecting people from wind and rain, Appropriate lighting for the porch area. In the design of the porch area if designer and architects consider the mentioned factors the grade will be one if not the grade will be zero.

3.3.4 Accessibility of the building facade

The proper design of the building facade and main building entrances can effect on the achieving the easy access and accessibility for all user.

Table 5: Accessibility of the building facade

Accessibility of the building facade
Definition of the building entrance by using different colors.
Definition of the building entrance by using different patterns or material.
Definition of the building entrance by creating the different level.
Definition of the building entrance by using the vertical elements
Definition of the building entrance by creating overhead beam elements
Definition of the building entrance by making the entrance door wider, ,narrower, or lower
Definition of the building entrance by making the entrance deep or indentations
Definition of the building entrance with ornamentation and decorative embellishment
The existence of the lighting systems of the building facade.
Lighting quality of the building facade
Guideline for blind people in the building entrance
Guideline for wheelchair user in the building entrance

Flowing factors show the important issues of the accessibility of the building facade.

- The building entrance should be defined to achieve the easy access. This definition can be created by using different colors, using different patterns or material, by creating the level difference, by using the vertical elements, by creating overhead beam elements, by making the opening lower, wider, or narrower, and also by making the entrance deep or indentations, with ornamentation and decorative embellishment (Ching, 2007). If the building entrance defined by mentioned factor the grade will be one if not the grade will be zero.
- The existence of the lighting systems and lighting quality of the building facade, is one of the important issue of the Accessibility of the building facade. Is there any lighting system with proper quality in the facade of the building? If the answer is yes the grade will be one if not the grade will be zero.

- Guideline for disable people in the main entrance is required. For example the dimension of the main door should be according to the standard for wheelchair user and using tactile surfaces for blind people. If there are facilities for disable people in the main entrance of the building the grade will be one, if not the grade will be zero.

3. 3. 5 Accessibility in the Entrance Hall / Lobby

The proper design of the entrance hall or lobby of the building has direct effect to reach the easy access.

Table 6: Accessibility in the entrance hall / lobby

Accessibility in the entrance hall / lobby
The existence of the natural lighting in the entrance hall/lobby
The existence of the lighting systems in the lobby of the building.
Lighting quality of the lobby
The existence of the sign and guideline in the lobby
Visual contact with entrance and vertical circulation
Visual contact with entrance and information desk or sign and guideline
Existing mat well
Guideline for blind people in the lobby
Guideline for wheelchair user in the lobby

In design entrance lobby the following factor should be mentioned;

- The existence of the natural lighting in the entrance hall or lobby is suggested (Welcoming lobbies Scoviak, 1998). If the lobby or entrance hall benefit of the natural lighting the grade will be one if not the grade will be zero.
- The use of lighting, color contrast, and the reduction of glare are important factors architects and interior designers must be aware of for effective environmental design (Welcoming lobbies Scoviak, 1998). Is there any lighting systems in the lobby or

entrance hall of the building with the proper lighting quality? If the answer is yes the grade will be one, if not the grade will be zero.

- The existence of the sign and guideline is the essential factor in the lobby or entrance hall to guide the visitor such as information desk, guiding map and etc. if there are sign and guild line in lobby or entrance hall the grade will be one, if not the grade will be zero.
- The main entrance should have visual contact with vertical circulation, information desk, and sign and guideline. Visual contacts, visibility, and sight-line of the sign and circulation is one of the main factors to enhance the easy access in the lobby or entrance hall. If there any visual contact in the lobby or entrance hall the grade will be one if not the grade will be zero.
- Is there any mat well in front of the main door? If the answer is yes the grade will be one, if not the grade will be zero.
- Guideline for disable people in the lobby or entrance hall is required. For example, the information desk or sign should be design according to the replay the disable request. If there are facilities for disable people in the lobby of the building the grade will be one, if not the grade will be zero.

Chapter 4

ACCESSBILITY OF THE BUILDING ENTRANCE IN FAMAGUSTA CASE STUDY

This study tries to find the problem of the accessibility in the building entrance and suggests the solution in North Cyprus, Famagusta case. Cyprus is an island located in the Eastern Mediterranean Ocean, with an area 9,251 km², the third biggest island in Eastern Mediterranean Ocean after Sicily and Sardinia; Cyprus is placed on the historic cross road of culture and business in the area. Cyprus distanced 75 m from the north with Turkey. Other neighbors include Syria and Lebanon (from the east), Israel (from the southeast) Egypt (from the south), Greece (from the west). Cyprus has a hot and humid climate in summers also has a cool and raining whether in winters (Karbasi, 2016).Famagusta (Gazimagusa in Turkish and Ammokhostos in Greek) is a city on the east coast of Cyprus

Figure 31: Cyprus Map (URL4.1)

Famagusta is located in east of Nicosia (Capital of the North Cyprus). It was originally a small commercial port and fishing village. During the medieval period, Famagusta was the island's most important port city. In this chapter, five case studies are chosen in Famagusta from the different functions of the building in different period time.

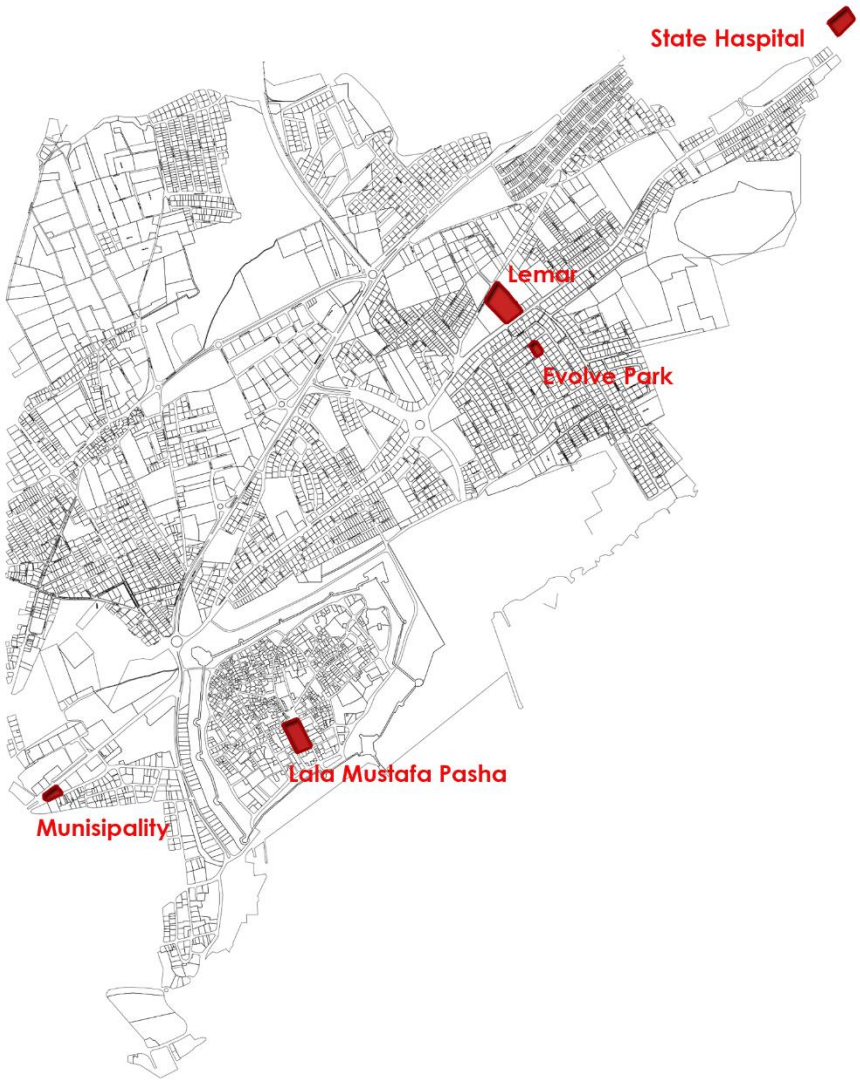


Figure 32: The location of the case studies in Famagusta

Case study 1: Evolve Park is chosen as a residential building. Evolve park can be used and benefited as hotel for visitor, dormitory for student and house for Cyprian. Evolve park provides all daily life necessities, there are markets, café, restaurant, gym, and laundry in this building.

Case study 2: Lemar is chosen as a commercial building in this study. It is largest supermarket chain in Famagusta, it has the largest supermarket chain, cinema, food court, salon for bowling, billiard and etc.

Case study 3: Lala Mustafa Pasa mosque is chosen as a religious, touristic, and historic building. It is the largest medieval building in Famagusta, and it was consecrated as a Catholic cathedral.

Case study 4: Municipality is chosen as an administrative building. Famagusta Municipality Hall, is an important building in the Modern history of Cyprus. In addition municipality building is the best example of the administrative building.

Case study 5: Famagusta State Hospital (Magusa Devlet Hastanesi) is chosen as the health services buildings. Magusa Devlet Hastanesi is the second largest hospital in Famagusta after Famagusta General Hospital. In addition the hospital building is the best example of the health services buildings.

(1) (2) (3)

(4) (5)

Figure 33: Case studies are from the different functions

4.1 Evaluation of the accessibility in Evolve Park

Figure 34: The view of the Evolve Park

Evolve Park, the official accommodation which is located in the center of Famagusta, North Cyprus will be discussed in this study. Evolve park is just in a 3-minute walking distance from the Salamis road, and also nearby of food and shopping Centre (Lemar). Evolve park provides all daily life necessities with 9 stories, 151 rooms and 250 persons capacity. There are markets, café, restaurant, gym, and laundry in this building. Evolve Park as a residential building is evaluated in this chapter. Following table shows the evaluation of the building entrance in terms of accessibility in Evolve Park.

Table 7: Evaluation of the Building Entrance in terms of Accessibility in Evolve Park

Evaluation of the Building Entrance in terms of Accessibility in Evolve park (residential case)	
Accessibility from closed environment to the site front	
Accessibility from the station	
1. Distance between public transportation station and site (maximum walking distance from bus station 400m ,800 m from train station)	**1**
2. Existence of more than one station for mass transportation	**0**
3. Waiting time for mass transportation system (a range of 3 to 15 minutes)	**0**
4. The existence of the stop bay in front of the station	**0**
5. The location of the bus station according to the direction of the travel	**0**
6. The location of the bus station on the sidewalk.	**0**
7. Visual contact with station and site entrance	**0**
8. Direct pathway to the station from site entrance	**0**
9. The existence of the lighting system of the station	**0**
10. Lighting quality of the station (10 meters visual contact)	**0**
11. The existence of seating space for the station	**0**
12. The existence of sign and guideline for the station	**0**
13. Accessibility for bicycle user from station to the site.	**0**
14. Guideline for blind people, in between station and site	**0**
15. Guideline for wheelchair user in between station and site	**0**
	1/15=6.6%
Accessibility from the street and sidewalk	
1. Traffic jam on the street	**1**
2. The existence of the street lighting systems.	**1**
3. Lighting quality of the street (10 m visual contact).	**0**
4. The existence of the lighting system of the sidewalk.	**1**
5. Lighting quality of the sidewalk (10 m visual contact).	**0**
6. The existence of the sign and guideline in the street and sidewalk which guiding people to the building.	**0**
7. Definition of the sidewalk by using different colors.	**0**
8. Definition of the sidewalk by using different patterns.	**0**
9. Definition of sidewalk by creating the different level.	**1**
10. Definition of the sidewalk by creating curb.	**1**

11. Definition of the sidewalk by creating plant, flowers, foliage and shrubs.	**0**
12. Guideline for blind people in the street and sidewalk	**0**
13. Guideline for wheelchair user in the street and sidewalk	**1**
14. Appropriate material (non-Slippery / roughness) on pavement	**0**
	6/14=42.8%
Accessibility from site front to site border	
1. Provide territorial reinforcement	**1**
2. Proper border definition (surveillance)	**1**
3. The existence of the sign and guideline in the site border	**1**
4. The existence of the lighting system of the site border	**1**
5. Lighting quality of the site border(10 m visual contact)	**1**
6. Visual contact with site entrance border and main entrance façade	**1**
7. Direct pathway to the main entrance from site border	**1**
8. Definition of the site entrance by using different colors.	**0**
9. Definition of the site entrance by using patterns or different material.	**0**
10. Definition of the site entrance by creating the different level.	**0**
11. Definition of the site entrance by using the vertically elements	**0**
12. Definition of the site entrance by creating overhead beam elements	**0**
13. Definition of the site entrance by making the entrance door wider, ,narrower, or lower	**0**
14. Definition of the site entrance by making the entrance deep or indentations	**0**
15. Definition of the site entrance with ornamentation and decorative embellishment	**0**
16. Guideline for blind people from site front to site border	**0**
17. Guideline for wheelchair user from site front to site border	**1**
	8/17=47%
Accessibility from the site to the building entrance	
Accessibility in parking space	
1. Visual contact with site entrance border and parking space	**1**
2. Visual contact with main entrance façade and parking space	**0**
3. Visual contact with lobby and parking space	**0**
4. Maximum 30-meters distance of the car space to the building	**1**
5. Maximum 1 meter different level to the lobby	**1**
6. The existence of the security by creating the attendant boots /patrols / camera security/ emergency telephones	**1**

7. The existence of the sign and guideline in the parking space	**0**
8. The existence of the lighting system of the parking space	**1**
9. Lighting quality of the parking space	**1**
10. Dimension and size of the car parking	**1**
11. Dimension size for the way of the parking space	**1**
12. The number of the car spaces	**0**
13. Dedicated car space for disabled people	**0**
14. Definition of the parking space by using different colors.	**0**
15. Definition of the parking space by using different patterns.	**1**
16. Definition of the parking space by creating the different level.	**0**
17. Definition of the parking space by creating curb.	**1**
18. Definition of the parking space by creating plant, flowers, foliage and shrubs.	**1**
19. The existence of the temporary park in front of the main entrance door.	**1**
20. The existence of bicycle parking	**1**
21. Secure bicycle racks	**1**
22. Guideline for blind people in the parking space	**0**
23. Guideline for wheelchair user people in the parking space	**1**
	15/23=65.2%
Accessibility in site of the building	
1. Visual contact with site and main entrance	**1**
2. Direct pathway to the main entrance from site.	**1**
3. The existence of the lighting systems in the site of the building.	**1**
4. Lighting quality of the site of the building (10 m visual contact)	**1**
5. The existence of the sign and guideline to the main entrance in the site	**1**
6. Appropriate material of the pavement for walking in the site	**1**
7. Definition of the pavement by using different colors.	**0**
8. Definition of the pavement by using different patterns.	**0**
9. Definition of the pavement by creating the different level.	**0**
10. Definition of the pavement by creating kerb.	**1**
11. Definition of the pavement by creating plant, flowers, foliage and shrubs.	**1**
12. Social activity: programmed the site area for various events or activities at the site of the building.	**0**
13. Guideline for blind people in the site of the building	**0**

14. Guideline for wheelchair user people in the site of the building	**1**
15. Provide shelter for porch area.	**0**
16. The Appropriate material for the porch area.	**1**
	10/16=62.5%
Accessibility of the building façade	
1. Definition of the building entrance by using different colors.	**1**
2. Definition of the building entrance by using patterns or different material.	**1**
3. Definition of the building entrance by creating the different level.	**1**
4. Definition of the building entrance by using the vertical elements	**1**
5. Definition of the building entrance by creating overhead beam elements	**1**
6. Definition of the building entrance by making the entrance door wider, ,narrower, or lower	**1**
7. Definition of the building entrance by making the entrance deep or indentations	**1**
8. Definition of the building entrance with ornamentation and decorative embellishment	**1**
9. The existence of the lighting systems of the building façade.	**1**
10. Lighting quality of the building façade (10 m visual contact)	**1**
11. Guideline for blind people in the building entrance	**0**
12. Guideline for wheelchair user in the building entrance	**1**
	11/12=91.6%
Accessibility in the entrance hall / lobby	
1. The existence of the natural lighting in the entrance hall/lobby	**1**
2. The existence of the lighting systems in the lobby of the building.	**1**
3. Lighting quality of the lobby	**1**
4. The existence of the sign and guideline in the lobby	**1**
5. Visual contact with entrance and vertical circulation	**0**
6. Visual contact with entrance and information desk or sign and guideline	**1**
7. Existing matt well	**1**
8. Social activity: programmed the lobby for various activities	**1**
9. Guideline for blind people in the lobby	**0**
10. Guideline for wheelchair user in the lobby	**0**
	7/10= 70%

- **Accessibility from Closed Environment to the Site front**

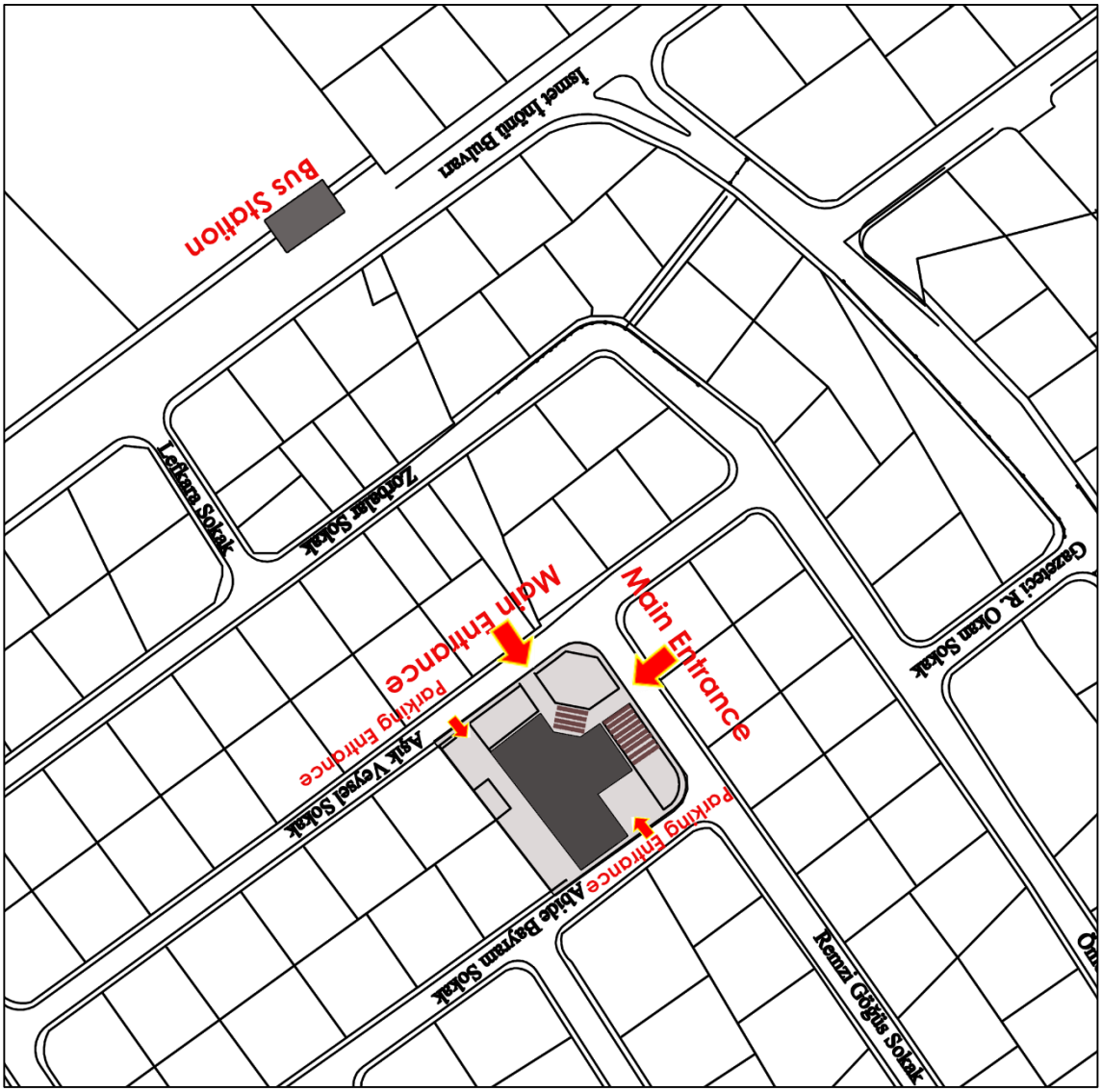


Figure 35: The location of Evolve Park

The result for accessibility from the closed environment to the site front of the Evolve Park (residential case) shows that this building contains 26.8% of the criteria. In this case, the less grade belongs to accessibility from the closed environment to the site front which city planner and municipality should pay attention to these problems.

- **Accessibility from the Station to the Site front**

Figure 36: The station near the Evolve Park

The distance between the bus station and site is around 400m which is acceptable. The number of the transportations cannot be changed because there is no train or other public transport systems in Famagusta but waiting time for buses can be improved by proper planning by EMU and government, which can be helpful for all people such as students, residents and visitors in Famagusta.

The location of the bus station is not according to the direction of the travel because there is just one station for both directions of the travel. Also the location of the bus station on the sidewalk is not proper and it causes to block the way of the passengers in the sidewalk.

There is no visual contact with the station and site entrance and also, there is no direct pathway between the station and site entrance. There is not enough facility in bus station such as stop bay, lighting, sign and information, nor enough seating space. In addition, there is no accessibility for bicycle users from station to the site, and no guideline for disabled, in between station and site.

- **Accessibility from the Street and Sidewalk to the Site front**

Figure 37: Adjust Street of Evolve Park

Signs and guidelines for this streets are not clear and visible, there are three streets adjust this building and none of them have the proper sign, even the visitors couldn't find the name of the street. This issue can be solved by municipality and government arrangement.

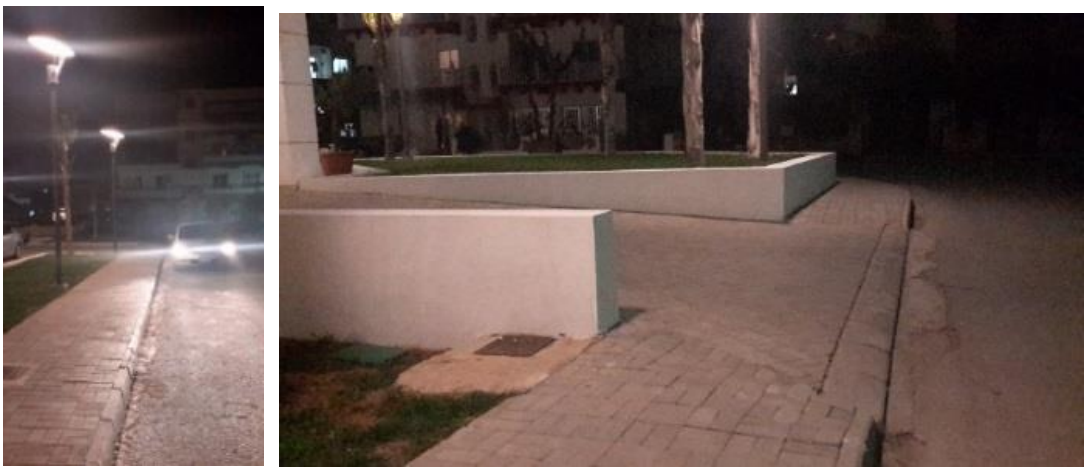


Figure 38: Adjust sidewalk of Evolve Park

The width of the sidewalk should be increased to at least 160 m for passing two wheelchairs and also, the tactile surface should define for the blind users.

- **Accessibility from Site front to Site Border (site entrances)**

The result for accessibility from site front to site border in evolve park (residential case) shows that this building replies to 47 % of the criterias.

In this case, there is no definition for entrance of the site which it can be solved by level differentiation, creating vertically elements and overhead beam elements, making the entrance lower, wider, or narrower,using articulating the entrance with ornamentation, using different materials, and creating lighting in the site's border.

- **Accessibility from the Site to the Building Entrance**

Figure 39: The site of Eolve Park

The result for accessibility from the site to the building entrance of Evolve Park (residential case) shows that this building replies to 67 % of the criteria.

It is necessary to create the guideline for the blind people in the site of the building by using tactile surface, and also the definition of the pavement should be considered by using different colors and patterns. It can be mentioned to the coffee shop in the site of the building for solving social activity problem. There is no entrance and access from the site to the coffee shop. By creating access to the coffee shop from the site of the building the social activity can be improved. Also, there is a chance of designing playground, and pergola in this site for residents and visitors to gather.

Figure 40: Parking space of Evolve Park

Following factors should be considered in parking space of Evolve Park:

Creating the guideline for blind people, developing car space by using deferent patterns and colors, creating special car space for disabled people, clearly marked floor for distinguishing of the car space, and existence of the direction sign.

- **Accessibility of the building façade**

Figure 41: The main entrance of Evolve Park

The result for the accessibility to the façade of the main entrance shows that this building replies to 92% of the criteria. Creating guideline for the blind persons, is the only factor which should be considered in this case when people wants to enter the building.

- **Accessibility in the Entrance Hall / Lobby**

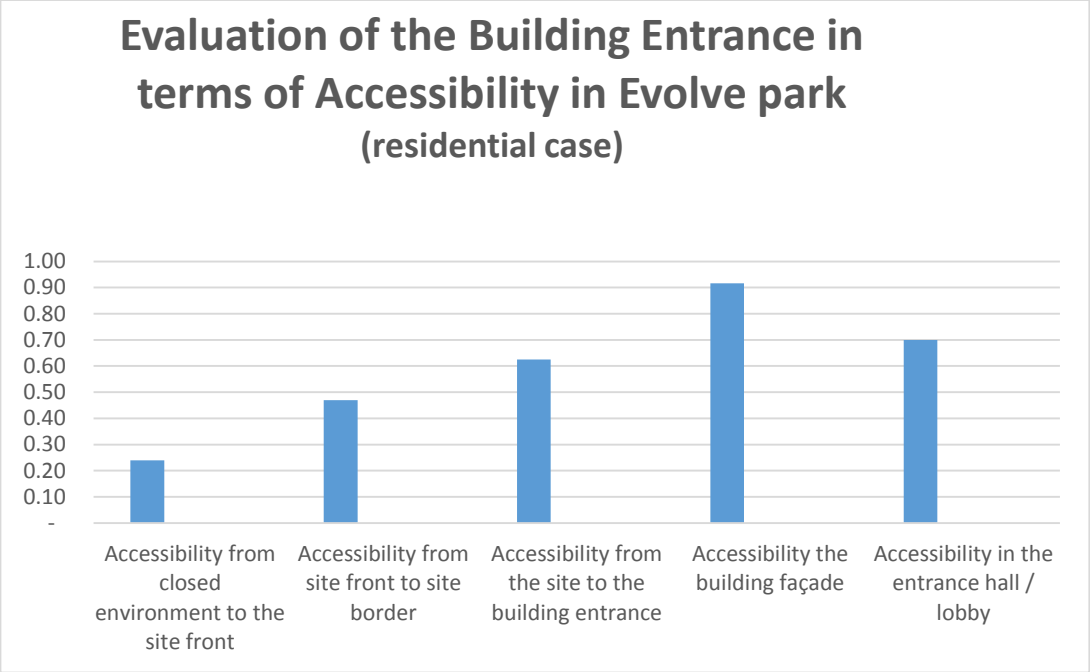
Figure 42: The lobby of the Evolve Park

The result for Accessibility in the lobby shows this building replies to 78% of the criteria. There are two main issues in the entrance hall and lobby for this case; the first issue is, there is no guideline for disabled. It can be solved by changing the information desk to the different levels for the wheelchair users and put the facility for deaf and blind people. The second issue is, the vertical circulation which is not visible for the visitors.

❖ **Final result for the building entrance evaluation of the Evolve Park**

The following chart shows the comparison between accessibility in the different areas of the building entrance in Evolve Park (residential case). The lowest score belongs to accessibility from closed environment to the site front and the highest score belongs to the accessibility of the building façade.

Table 8: Final result for the building entrance evaluation of the Evolve Park



4.2. Evaluation of the Accessibility in Lemar

Figure 43: The view of the Lemar

Lemar, in North Cyprus, is chosen as the commercial case which has the largest supermarket chain, cinema, food court, salon for bowling, billiard and etc. Lemar, is the largest supermarket chain in Famagusta, it has opened in 2012. Lemar includes entertaining complex as well as Popeye's and Burger City brands.

Table 9: Evaluation of the Building Entrance in terms of Accessibility in Lemar

Evaluation of the Building Entrance in terms of Accessibility in Lemar (Commercial case)	
Accessibility from closed environment to the site front	
Accessibility from the station	
1. Distance between public transportation station and site (maximum walking distance from bus station 400m ,800 m from train station)	1
2. Existence of more than one station for mass transportation	0
3. Waiting time for mass transportation system (a range of 3 to 15 minutes)	0
The existence of the stop bay in front of the station	0
The location of the bus station according to the direction of the travel	0
The location of the bus station on the sidewalk	0
7. Visual contact with station and site entrance	1
8. Direct pathway to the station from site entrance	1
9. The existence of the lighting system of the station	0
10. Lighting quality of the station (10 meters visual contact)	0
11. The existence of seating space for the station	1
12. The existence of sign and guideline for the station	0
13. Accessibility for bicycle user from station to the site	0
14. Guideline for blind people, in between station and site	0
15. Guideline for wheelchair user in between station and site	1
	5/15=33.3%
Accessibility from the street and sidewalk	
1. Traffic jam on the street	0
2. The existence of the street lighting systems	1
3. Lighting quality of the street (10 m visual contact)	0
4. The existence of the lighting system of the sidewalk	0
5. Lighting quality of the sidewalk (10 m visual contact)	0
6. The existence of the sign and guideline in the street and sidewalk which guiding people to the building	1
7. Definition of the sidewalk by using different colors	0
8. Definition of the sidewalk by using different patterns	0
9. Definition of sidewalk by creating the different level	1
10. Definition of the sidewalk by creating curb	1
11. Definition of the sidewalk by creating plant, flowers, foliage and shrubs	0

12. Guideline for blind people in the street and sidewalk	0
13. Guideline for wheelchair user in the street and sidewalk	0
14. Appropriate material (non-Slippery / roughness) on pavement	0
4/14=28.5%	
Accessibility from site front to site border	
1. Provide territorial reinforcement	0
2. Proper border definition	0
3. The existence of the sign and guideline in the site border	0
4. The existence of the lighting system of the site border	0
5. Lighting quality of the site border(10 m visual contact)	0
6. Visual contact with site entrance border and main entrance façade	1
7. Direct pathway to the main entrance from site border	1
8. Definition of the site entrance by using different color	0
9. Definition of the site entrance by using different patterns or material	0
10. Definition of the site entrance by creating the different level	0
11. Definition of the site entrance by using the vertically elements	0
12. Definition of the site entrance by creating overhead beam elements	0
13. Definition of the site entrance by making the opening lower, wider, or narrower	0
14. Definition of the site entrance by making the entrance deep or indentations	0
15. Definition of the site entrance with ornamentation and decorative embellishment	0
16. Guideline for blind people from site front to site border	0
17. Guideline for wheelchair user from site front to site border	1
3/17=17.64%	
Accessibility from the site to the building entrance	
Accessibility in parking space	
1. Visual contact with site entrance border and parking space	1
2. Visual contact with main entrance façade and parking space	1
3. Visual contact with lobby and parking space	1
4. Maximum 30-meters distance of the car space to the building	1
5. Maximum 1 meter different level to the lobby	1
6. The existence of the security by creating the attendant boots /patrols / camera security/ emergency telephones	1
7. The existence of the sign and guideline in the parking space	1

8. The existence of the lighting system for the parking space	1
9. Lighting quality of the parking space	0
10. Dimension and size of the car parking	1
11. Dimension size for the way of the parking space	1
12. The number of the car spaces	1
13. Dedicated car space for disabled people	0
14. Definition of the parking space by using different colors	1
15. Definition of the parking space by using different patterns	1
16. Definition of the parking space by creating the different level	0
17. Definition of the parking space by creating curb	0
18. Definition of the parking space by creating plant, flowers, foliage and shrubs	0
19. The existence of the temporary park in front of the main entrance door	1
20. The existence of bicycle parking	0
21. Secure bicycle racks	0
22. Guideline for blind people in the parking space	0
23. Guideline for wheelchair user people in the parking space	1
15/23=65.2%	
Accessibility in site of the building	
1. Visual contact with site and main entrance	1
2. Direct pathway to the main entrance from site	1
3. The existence of the lighting systems in the site of the building	1
4. Lighting quality of the site of the building (10 m visual contact)	0
5. The existence of the sign and guideline to the main entrance in the site	0
6. Appropriate material of the pavement for walking in the site	1
7. Definition of the pavement by using different colors	1
8. Definition of the pavement by using different patterns	1
9. Definition of the pavement by creating the different level	0
10. Definition of the pavement by creating curb	0
11. Definition of the pavement by creating plant, flowers, foliage and shrubs.	0
12. Social activity: programmed the site area for various events or activities at the site of the building	0
13. Guideline for blind people in the site of the building	0
14. Guideline for wheelchair user people in the site of the building	1

15. Provide shelter for porch area	**0**
16. The Appropriate material for the porch area	**1**
	8/16=50%
Accessibility of the building façade	
1. Definition of the building entrance by using different colors	**0**
2. Definition of the building entrance by using different patterns or material	**0**
3. Definition of the building entrance by creating the different level	**0**
4. Definition of the building entrance by using the vertical elements	**0**
5. Definition of the building entrance by creating overhead beam elements	**0**
6. Definition of the building entrance by making the entrance door wider, ,narrower, or lower	**1**
7. Definition of the building entrance by making the entrance deep or indentations	**1**
8. Definition of the building entrance with ornamentation and decorative embellishment	**0**
9. The existence of the lighting systems of the building façade	**1**
10. Lighting quality of the building façade (10 m visual contact)	**1**
11. Guideline for blind people in the building entrance	**0**
12. Guideline for wheelchair user in the building entrance	**1**
	5/12=41.6%
Accessibility in the entrance hall / lobby	
1. The existence of the natural lighting in the entrance hall/lobby	**1**
2. The existence of the lighting systems in the lobby of the building	**1**
3. Lighting quality of the lobby	**1**
4. The existence of the sign and guideline in the lobby	**0**
5. Visual contact with entrance and vertical circulation	**1**
6. Visual contact with entrance and information desk or sign and guideline	**0**
7. Social activity: programmed the lobbyfor various events	**1**
8. Existing matt well	**1**
9. Guideline for blind people in the lobby	**0**
10. Guideline for wheelchair user in the lobby	**1**
	7/10=70%

- **Accessibility from Closed Environment to the Site front**

The result for accessibility from the closed environment to the site front of the Lemar (commercial case) shows this building contains the 31% of the criteria.

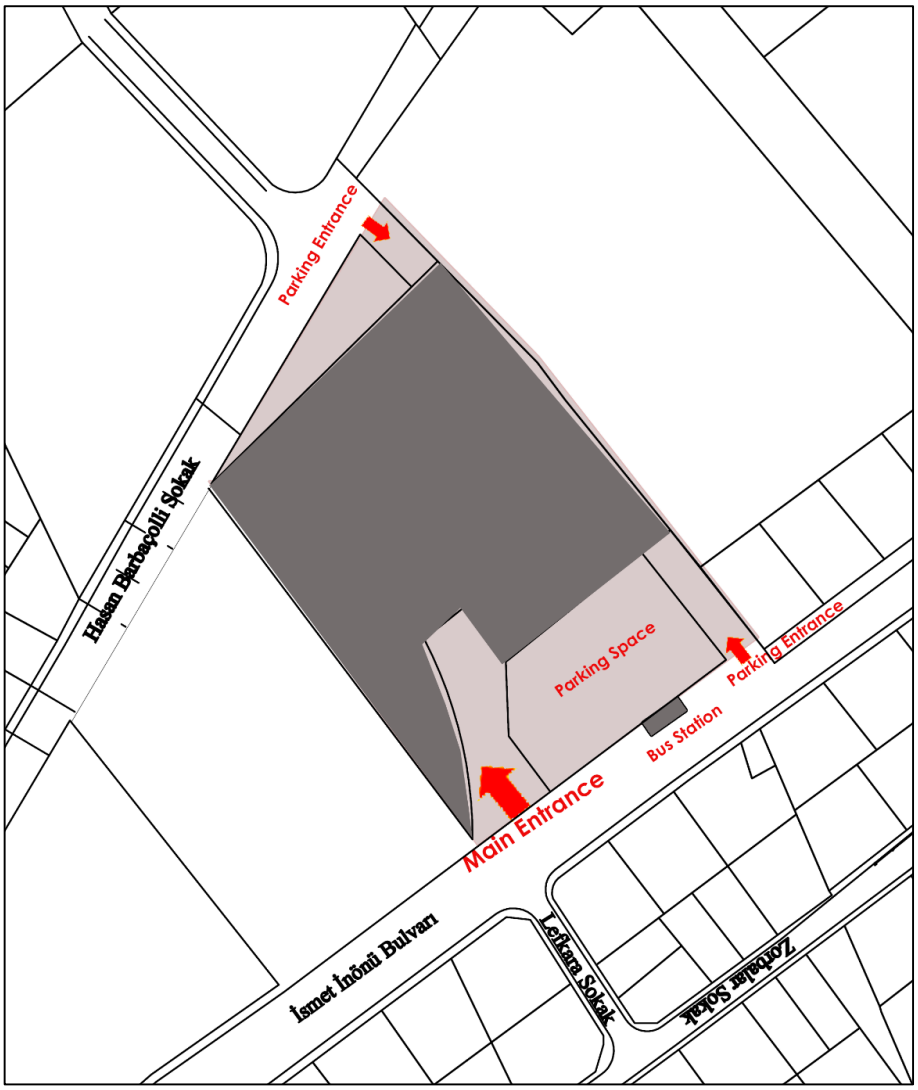


Figure 44: The location of Lemar in city

- **Accessibility from the Station to the Site front**

This station is as same as the station in case 1 (Evolve Park) which is mentioned before. Direct pathway and visual contacts from the station to the site front are two advantages in this case.

- **Accessibility from the street and sidewalk to the Site front**

Most of the time there is traffic jam in front of the Lemar in salamis road which can be solved by creating the stop bay for access to the parking space. The lighting quality of the sidewalk and street is not proper. There is no guideline for blind people. And sidewalk can be more defined by creating plant, flowers, foliage and shrubs. The location of the station is not appropriate, it is located in the sidewalk and blocked the pedestrian way. There is enough space behind the station to move the bus station more back.


Figure 45: The sidewalk of Lemar

- **Accessibility from site front to site border**

The result for accessibility from site front to site border in lemar (commercial case) shows this building matches to the 18% of the criteria.

There is no lighting system on the site border. There is no definition for the site entrance by using different levels, colors, and patterns, there is no vertical elements, or overhead beam elements to characterize the site entrance. The site entrance is not wider, narrower, lower than the border of the site, in fact, people cannot distinguish the site entrance, even hypothetically. There is no Guideline for blind people from site front to site border.

Figure 46: The site border of Lemar

- **Accessibility from the site to the building entrance**

The result for accessibility from the site to the building entrance in lemar (commercial case) shows this building contains 58% of the criteria.

- **Accessibility in parking space**

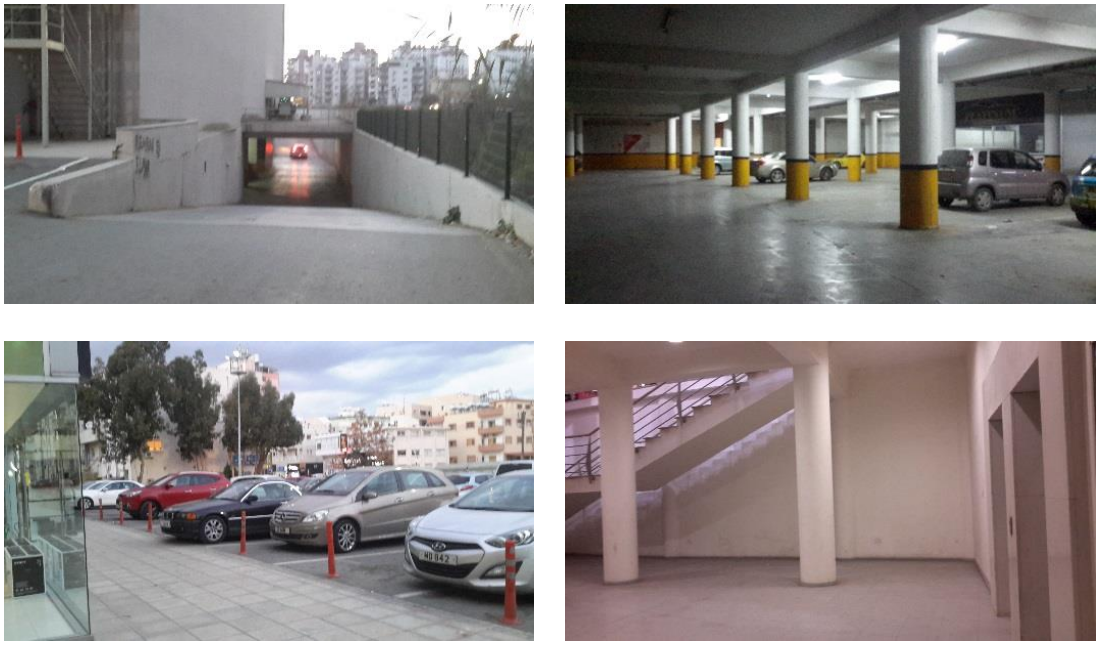


Figure 47: Parking space of Lemar

Lemar, has two separate parking space, one of them is located on the building's site and another is placed on the ground floor which has proper access to the hall entrances. Just a few points should be considered in this section such as lighting quality of the parking space which is not proper and there is no dedicated car space for disabled

people, and also there is no guideline for blind people in the parking space. In addition, there is no definition for parking space by creating the different levels and planting flowers, foliage and shrubs.

- **Accessibility in site of the building**

Figure 48: The site of Lemar

Following factors shows important issues in accessibility in the site of Lemar:

The lighting quality of the site of the building is not proper, there is no sign and guideline to the main entrance in the site, there is no definition of the pavement by creating the different level, curb, plant, flowers, foliage, and shrubs. Also, there is no guideline for blind people and also there is no shelter for porch area. The most important point, in this case, is the existence of too much parking space on the site which is interrupting people who want to reach the building entrances. In addition, there are some pergolas and tables in the site near the main entrance but there is no access from site to them.

- **Accessibility of the building façade**

The result for Accessibility of the building facade in lemar (commercial case) shows this building contains the 42% of the criteria. There is no definition of the building entrance by using different colors, patterns, materials, level differentiation, and also, there is no designation by using the vertical elements, overhead beam elements,

ornamentation and decorative. There is no guideline for blind people in the building entrance.

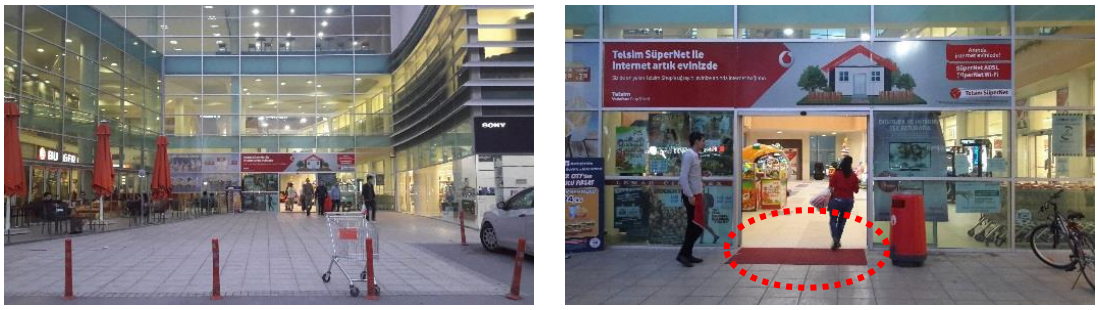


Figure 49: The main entrance of Lemar

- **Accessibility in the entrance hall / lobby**

The result for Accessibility in the entrance hall and lobby in lemar (commercial case) shows this building contains 67% of the criteria.

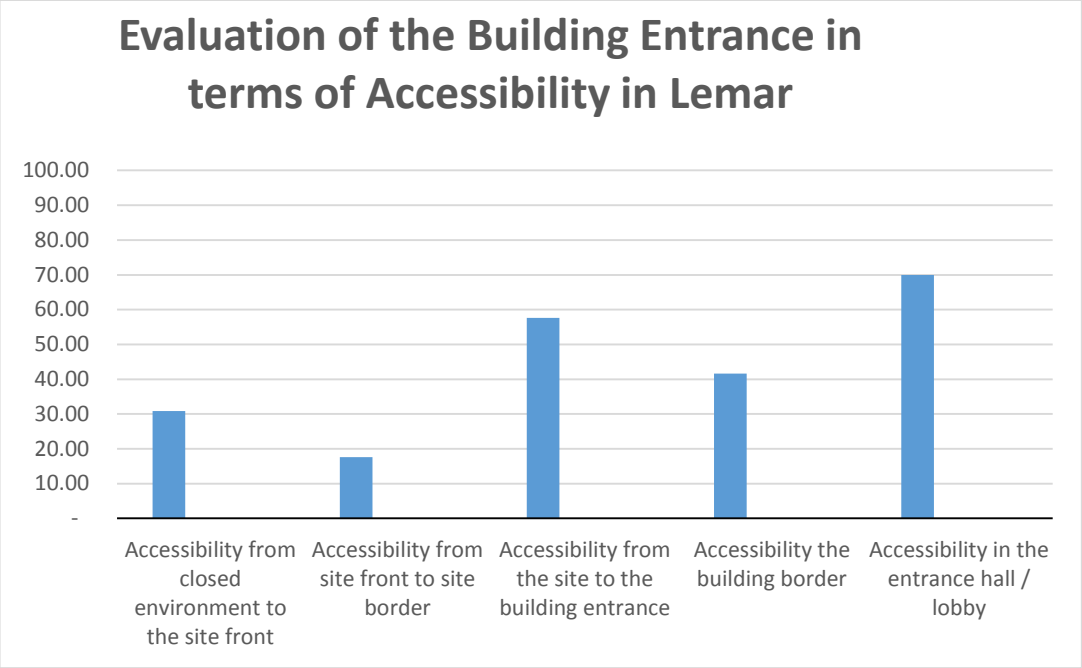
There is no sign and guideline (information desk or sign) in the entrance hall. In addition, there is no guideline for blind people in the lobby.

Figure 50: The entrance hall of Lemar

❖ **Final result for the building entrance evaluation of the Lemar**

The following table shows the Final result for the building entrance evaluation of Lemar. The lowest score belongs to the accessibility from site front to the site border, and the highest score belongs to the accessibility in the entrance hall.

Table 10: Final result for the building entrance evaluation of the Lemar



4.3 Evaluation of the Accessibility in Lala Mustafa Pasha

Figure 51: The view of the Lala Mustafa Pasha (URL 4.2)

This thesis tries to show the evaluation criteria of the building entrance in terms of accessibility that can be used for every building with different functions and different period. As a result lala Mustafa pasha is chosen as a historical and a touristic case.

The Lala Mustafa Pasha Mosque originally known as Saint Nicholas's Cathedral. It is the largest medieval building in Famagusta, Northern Cyprus built between 1298 and c. 1400. It was consecrated as a Catholic cathedral in 1328. The cathedral was converted into a mosque after the Ottoman Empire captured Famagusta in 1571 and it remains a mosque to this day. The Gothic style of architecture closely resembles closely the great cathedral of Rheims in Paris, France. For historic buildings, it is difficult to reply to the disabled people requirements without having no effect on the historical character of the building. The challenge here is to find alternative solutions or other innovative methods that do not conflict with preservation requirements. However, under all circumstances, the character of a historical building should be preserved. Any modification that seriously harms its character, material, features or spaces is prohibited (Goldsmith, 1997).

Table 11: Evaluation of the Building Entrance in terms of Accessibility in Lala Mustafa Pasha

Evaluation of the Building Entrance in terms of Accessibility in Lemar (Commercial case)	
Accessibility from closed environment to the site front	
Accessibility from the station	
1. Distance between public transportation station and site (maximum walking distance from bus station 400m ,800 m from train station)	0
2. Existence of more than one station for mass transportation	0
3. Waiting time for mass transportation system (a range of 3 to 15 minutes)	0
4. The existence of the stop bay in front of the station	0
5. The location of the bus station according to the direction of the travel	0
6. The location of the bus station on the sidewalk.	0
7. Visual contact with station and site entrance	0
8. Direct pathway to the station from site entrance	0
9. The existence of the lighting system of the station	0
10. Lighting quality of the station (10 meters visual contact)	0
11. The existence of seating space for the station	0

12. The existence of sign and guideline for the station	0
13. Accessibility for bicycle user from station to the site.	0
14. Guideline for blind people, in between station and site	0
15. Guideline for wheelchair user in between station and site	0
	0/15= 0
Accessibility from the street and sidewalk	
1. Traffic jam on the street	1
2. The existence of the street lighting systems.	1
3. Lighting quality of the street (10 m visual contact).	0
4. The existence of the lighting system of the sidewalk.	0
5. Lighting quality of the sidewalk (10 m visual contact).	0
6. The existence of the sign and guideline in the street and sidewalk which guiding people to the building.	0
7. Definition of the sidewalk by using different colors.	0
8. Definition of the sidewalk by using different patterns.	1
9. Definition of sidewalk by creating the different level.	0
10. Definition of the sidewalk by creating curb.	0
11. Definition of the sidewalk by creating plant, flowers, foliage and shrubs.	0
12. Guideline for blind people in the street and sidewalk	0
13. Guideline for wheelchair user in the street and sidewalk	0
14. Appropriate material (non-Slippery / roughness) on pavement	0
	3/14 =21.4
Accessibility from site front to site border	
1. Provide territorial reinforcement	0
2. Proper border definition (surveillance)	0
3. The existence of the sign and guideline in the site border	0
4. The existence of the lighting system of the site border	0
5. Lighting quality of the site border(10 m visual contact)	0
6. Visual contact with site entrance border and main entrance façade	1
7. Direct pathway to the main entrance from site border	1
8. Definition of the site entrance by using different colors.	0
9. Definition of the site entrance by using different patterns or material.	0
10. Definition of the site entrance by creating the different level.	0
11. Definition of the site entrance by using the vertically elements	0

12. Definition of the site entrance by creating overhead beam elements	0
13. Definition of the site entrance by making the entrance door wider, ,narrower, or lower	0
14. Definition of the site entrance by making the entrance deep or indentations	0
15. Definition of the site entrance with ornamentation and decorative embellishment	0
16. Guideline for blind people from site front to site border	0
17. Guideline for wheelchair user from site front to site border0	0
	2/17=11.76
Accessibility from the site to the building entrance	
Accessibility in parking space	
1. Visual contact with site entrance border and parking space	0
2. Visual contact with main entrance façade and parking space	0
3. Visual contact with lobby and parking space	0
4. Maximum 30-meters distance of the car space to the building	1
5. Maximum 1 meter different level to the lobby	1
6. The existence of the security by creating the attendant boots /patrols / camera security/ emergency telephones	0
7. The existence of the sign and guideline in the parking space	0
8. The existence of the lighting system of the parking space	1
9. Lighting quality of the parking space	0
10. Dimension and size of the car parking	0
11. Dimension size for the way of the parking space	1
12. The number of the car spaces	1
13. Dedicated car space for disabled people	0
14. Definition of the parking space by using different colors.	0
15. Definition of the parking space by using different patterns.	0
16. Definition of the parking space by creating the different level.	0
17. Definition of the parking space by creating curb.	1
18. Definition of the parking space by creating plant, flowers, foliage and shrubs.	0
19. The existence of the temporary park in front of the main entrance door.	0
20. The existence of bicycle parking	0
21. Secure bicycle racks	0
22. Guideline for blind people in the parking space	0
23. Guideline for wheelchair user people in the parking space	0

	6/23=26
Accessibility in site of the building	
1. Visual contact with site and main entrance	1
2. Direct pathway to the main entrance from site.	1
3. The existence of the lighting systems in the site of the building.	1
4. Lighting quality of the site of the building (10 m visual contact)	0
5. The existence of the sign and guideline to the main entrance in the site	0
6. Appropriate material of the pavement for walking in the site	1
7. Definition of the pavement by using different colors.	0
8. Definition of the pavement by using different patterns.	1
9. Definition of the pavement by creating the different level.	0
10. Definition of the pavement by creating kerb.	0
11. Definition of the pavement by creating plant, flowers, foliage and shrubs.	0
12. Social activity: programmed the site area for various events or activities at the site of the building.	1
13. Guideline for blind people in the site of the building	0
14. Guideline for wheelchair user people in the site of the building	0
15. Provide shelter for porch area.	0
16. The Appropriate material for the porch area.	-
	6/15=40
Accessibility of the building façade	
1. Definition of the building entrance by using different colors.	1
2. Definition of the building entrance by using different patterns or material.	1
3. Definition of the building entrance by creating the different level.	0
4. Definition of the building entrance by using the vertical elements	1
5. Definition of the building entrance by creating overhead beam elements	1
6. Definition of the building entrance by making the opening lower, wider, or narrower	1
7. Definition of the building entrance by making the entrance deep or indentations	1
8. Definition of the building entrance with ornamentation and decorative embellishment	1
9. The existence of the lighting systems for the building façade.	1
10. Lighting quality of the building façade (10 m visual contact)	0
11. Guideline for blind people in the building entrance	0

12. Guideline for wheelchair user in the building entrance	1
	9/12 =75
Accessibility in the entrance hall / lobby	
1. The existence of the natural lighting in the entrance hall/lobby	1
2. The existence of the lighting systems in the entrance hall of the building.	1
3. Lighting quality of the entrance hall	1
4. The existence of the sign and guideline in the entrance hall	0
5. Visual contact with entrance and vertical circulation	-
6. Visual contact with entrance and information desk or sign and guideline	1
7. Existing matt well	0
8. Guideline for blind people in the entrance hall	0
9. Guideline for wheelchair user in the entrance hall	0
	4/8=50

- **Accessibility from closed environment to the site front**

The result for accessibility from the closed environment to the site front of the Lala Mustafa Pasha (historical case) shows this building contains 11% of the criteria.

Figure 52: The location of Lala Mustafa Pasa

- **Accessibility from the station**: there is no bus station near this building and the grade for whole accessibility in the station is zero. Municipality policy can help to improve access from the city to the Lala Mustafa Pasa.
- **Accessibility from the street and sidewalk:** This building is a famous mosque and one of the best historical building in Famagusta but Lighting quality of the street and sidewalk is not proper and also, there's no proper sign and guideline in the street and sidewalk which guiding people to the building. There is no definition of sidewalk and street by creating the different level, curb, plant, flowers, foliage, and shrubs. There is no proper material for walking on the sidewalk, and also there is no guideline for blind people and wheelchair user in the street and sidewalk.

Figure 53: The street and sidewalk adjunct Lala Mustafa Pasha

- **Accessibility from site front to site border**

The result for accessibility from site front to site border in Lala Mustafa Pasha (historical case) shows this building contains 12% of the criteria.

There is no territorial reinforcement and border definition in this building, all grades are zero for accessibility from site front to side border except visual contact and direct pathway to the main entrance façade from the hypothetical border.

Figure 54: The site border of Lala Mustafa Pasha

- **Accessibility from the site to the building entrance**

The result for accessibility from the site to the building entrance in Lala Mustafa Pasha (historical case) shows this building contains 33% of the criteria.

- **Accessibility in parking space**

Lighting quality of the parking space is not appropriate. There is no visual contact between parking space and site entrance border and main entrance facade because the parking space is established behind the building. There is no security such as attendance boots/ patrols / camera security and emergency telephones. There is no sign and guideline in the parking space to guild people to the main entrance of the mosque. There is no mark and dimension for car parking. There is no definition of the parking

space by using different colors, patterns, the different levels, plant, flowers, foliage and shrubs. And also there is no temporary parking, bicycle parking, ramp for wheelchair users, and tactile surface for blind people.

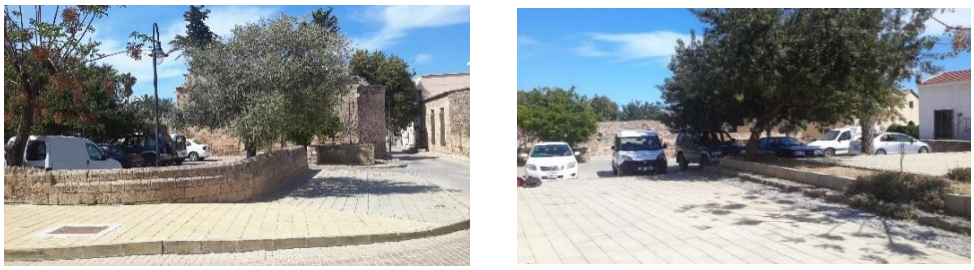


Figure 55: The parking space of Lala Mustafa Pasha

- **Accessibility in site of the building**

The lighting quality of the site is not appropriate. There is no sign and guideline to the main entrance. There is no definition of the pavement by using different colors, patterns, level differentiation, curb, plant, flowers, foliage and shrubs. There is no guideline for blind people and wheelchair users.

Figure 56: The site of Lala Mustafa Pasha

- **Accessibility of the building façade**

The result for Accessibility of the building façade in Lala Mustafa Pasha (historical case) shows this building contains 75% of the criteria.

The main facade of the building is the west front. There are three large gabled and canopied doorways as can be seen in the picture below, the larg amount of carved stonework that are very impressive. Above the main central door is a large wheel window set in decorative tracery, a common feature of French cathedrals and known as a rose window. There is a similar rose window in the refectory hall at the Bellapais Abbey.

Figure 57: The main entrance of Lala Mustafa Pasha

The lighting quality in façade is not good enough. There is no differentiation between the main entrance and site level and no guideline for blind people in the building entrance.

- **Accessibility in the entrance hall**

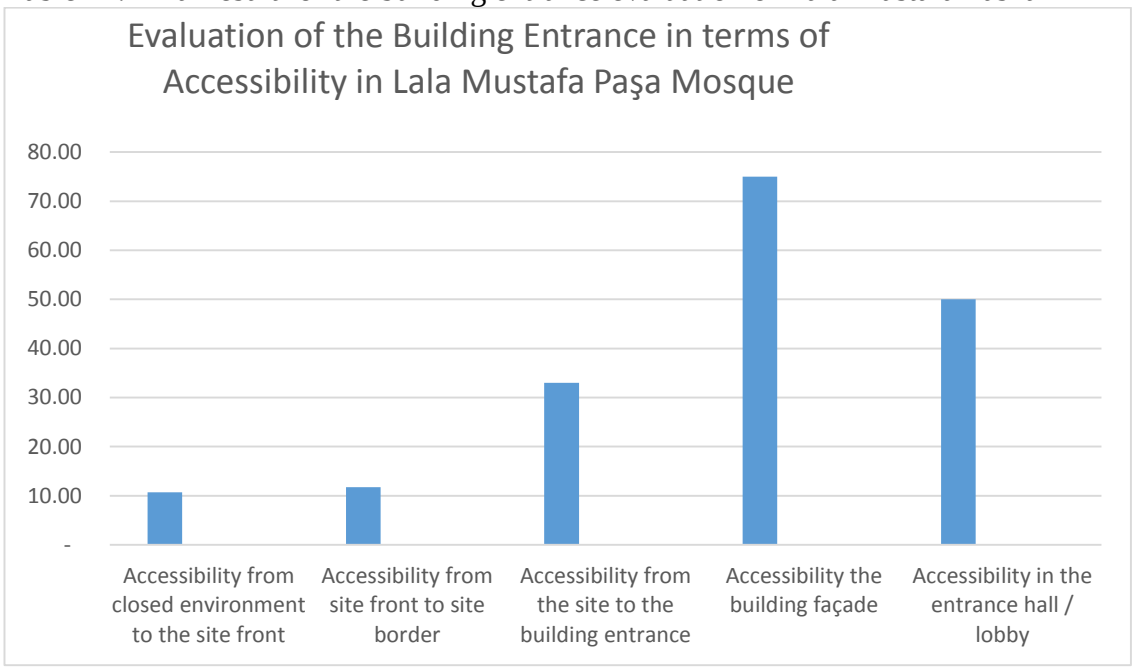
The result for accessibility in the entrance hall of Lala Mustafa Pasha (historical case) shows this building contains 50% of the criteria. There must be an information brochure about the history of this building but there is none for the visitors in the entrance hall. There is not any guideline for disabled and also no mat well in the entrance hall.

Figure 58: The entrance hall of Lala Mustafa Pasha

❖ **Final result for the building entrance evaluation of the Lala Mustafa Pasha**

The following table shows the final result of the building entrance evaluation in Lala Mustafa Pasha. The lowest score belongs to the accessibility from close environment to the site front, and the highest score belongs to the accessibility to the building facade.

Table 12: Final result for the building entrance evaluation of Lala Mustafa Pasha



4.4 Evaluation of the Accessibility in Magusa Municipality

Figure 59: The view of Magusa Municipality

Famagusta Municipality Hall, is an important building in the Modern history of Cyprus. It is near to the historical place of Famagusta (walled city). This building is located between 2 roads, Polatpasa Bulvari and Ilker Karter. Magusa Municipality has two entrances, the main entrance located on Polatpasa Street and the secondary entrance towards the Ilker Karter road.

Table 13: Evaluation of the Building Entrance in terms of Accessibility in Magusa Municipality

Evaluation of the Building Entrance in terms of Accessibility in Magusa Municipality	
Accessibility from closed environment to the site front	
Accessibility from the station	
1. Distance between public transportation station and site (maximum walking distance from bus station 400m ,800 m from train station)	1
2. Existence of more than one station for mass transportation	0
3. Waiting time for mass transportation system (a range of 3 to 15 minutes)	0

4. The existence of the stop bay in front for the station	1
5. The location of the bus station according to the direction of the travel	0
6. The location of the bus station on the sidewalk.	0
7. Visual contact with station and site entrance	1
8. Direct pathway to the station from site entrance	1
9. The existence of the lighting system for the station	0
10. Lighting quality of the station (10 meters visual contact)	0
11. The existence of seating space for the station	0
12. The existence of sign and guideline for the station	0
13. Accessibility for bicycle user from station to the site.	0
14. Guideline for blind people, in between station and site	0
15. Guideline for wheelchair user in between station and site	0
	4/15=26.6%
Accessibility from the street and sidewalk	
1. Traffic jam on the street	1
2. The existence of the street lighting systems.	1
3. Lighting quality of the street (10 m visual contact).	0
4. The existence of the lighting system for the sidewalk.	1
5. Lighting quality of the sidewalk (10 m visual contact).	0
6. The existence of the sign and guideline in the street and sidewalk which guiding people to the building.	0
7. Definition of the sidewalk by using different colors.	1
8. Definition of the sidewalk by using different patterns.	1
9. Definition of sidewalk by creating the different level.	1
10. Definition of the sidewalk by creating curb.	1
11. Definition of the sidewalk by creating plant, flowers, foliage and shrubs.	0
12. Guideline for blind people in the street and sidewalk	0
13. Guideline for wheelchair user in the street and sidewalk	1
14. Appropriate material (non-Slippery / roughness) on pavement	1
	9/14=64.2%
Accessibility from site front to site border	
1. Provide territorial reinforcement	0
2. Proper border definition (surveillance)	0
3. The existence of the sign and guideline in the site border	0

4. The existence of the lighting system for the site border	1
5. Lighting quality of the site border(10 m visual contact)	0
6. Visual contact with site entrance border and main entrance façade	1
7. Direct pathway to the main entrance from site border	1
8. Definition of the site entrance by using different colors.	0
9. Definition of the site entrance by using different patterns or material.	0
10. Definition of the site entrance by creating the different level.	0
11. Definition of the site entrance by using the vertically elements	0
12. Definition of the site entrance by creating overhead beam elements	0
13. Definition of the site entrance by making the entrance door wider, ,narrower, or lower	0
14. Definition of the site entrance by making the entrance deep or indentations	0
15. Definition of the site entrance with ornamentation and decorative embellishment	0
16. Guideline for blind people from site front to site border	0
17. Guideline for wheelchair user from site front to site border0	1
	4/17=23.5%
Accessibility from the site to the building entrance	
Accessibility in parking space	
1. Visual contact with site entrance border and parking space	1
2. Visual contact with main entrance façade and parking space	1
3. Visual contact with lobby and parking space	1
4. Maximum 30-meters distance of the car space to the building	1
5. Maximum 1 meter different level to the lobby	1
6. The existence of the security by creating the attendant boots /patrols / camera security/ emergency telephones	1
7. The existence of the sign and guideline in the parking space	0
8. The existence of the lighting system for the parking space	1
9. Lighting quality of the parking space	0
10. Dimension and size of the car parking	0
11. Dimension size for the way of the parking space	1
12. The number of the car spaces	0
13. Dedicated car space for disabled people	0
14. Definition of the parking space by using different colors.	1
15. Definition of the parking space by using different patterns.	1

16. Definition of the parking space by creating the different level.	1
17. Definition of the parking space by creating curb.	1
18. Definition of the parking space by creating plant, flowers, foliage and shrubs.	1
19. The existence of the temporary park in front of the main entrance door.	1
20. The existence of bicycle parking	0
21. Secure bicycle racks	0
22. Guideline for blind people in the parking space	0
23. Guideline for wheelchair user people in the parking space	1
15/23=23.5%	
Accessibility in site of the building	
1. Visual contact with site and main entrance	1
2. Direct pathway to the main entrance from site.	1
3. The existence of the lighting systems in the site of the building.	1
4. Lighting quality of the site of the building (10 m visual contact)	0
5. The existence of the sign and guideline to the main entrance in the site	0
6. Appropriate material of the pavement for walking in the site	1
7. Definition of the pavement by using different colors.	0
8. Definition of the pavement by using different patterns.	0
9. Definition of the pavement by creating the different level.	0
10. Definition of the pavement by creating curb.	1
11. Definition of the pavement by creating plant, flowers, foliage and shrubs.	1
12. Social activity: programmed the site area for various events or activities at the site of the building.	0
13. Guideline for blind people in the site of the building	0
14. Guideline for wheelchair user people in the site of the building	1
15. Provide shelter for porch area.	1
16. The Appropriate material for the porch area.	1
9/16=56.2%	
Accessibility of the building façade	
1. Definition of the building entrance by using different colors.	1
2. Definition of the building entrance by using different patterns or material.	1
3. Definition of the building entrance by creating the different level.	1
4. Definition of the building entrance by using the vertical elements	1

5. Definition of the building entrance by creating overhead beam elements	1
6. Definition of the building entrance by making the entrance door wider, ,narrower, or lower	1
7. Definition of the building entrance by making the entrance deep or indentations	1
8. Definition of the building entrance with ornamentation and decorative embellishment	1
9. The existence of the lighting systems for the building façade.	1
10. Lighting quality of the building façade (10 m visual contact)	0
11. Guideline for blind people in the building entrance	0
12. Guideline for wheelchair user in the building entrance	1
	10/12=83.3
Accessibility in the entrance hall / lobby	
1. The existence of the natural lighting in the entrance hall/lobby	1
2. The existence of the lighting systems in the entrance hall of the building.	1
3. Lighting quality of the entrance hall	1
4. The existence of the sign and guideline in the entrance hall	1
5. Visual contact with entrance and vertical circulation	1
6. Visual contact with entrance and information desk or sign and guideline	1
7. Social activity: programmed the lobby for various events	0
8. Existing mat well	1
9. Guideline for blind people in the entrance hall	0
10. Guideline for wheelchair user in the entrance hall	0
	7/10= 70%

- **Accessibility from closed environment to the site front**

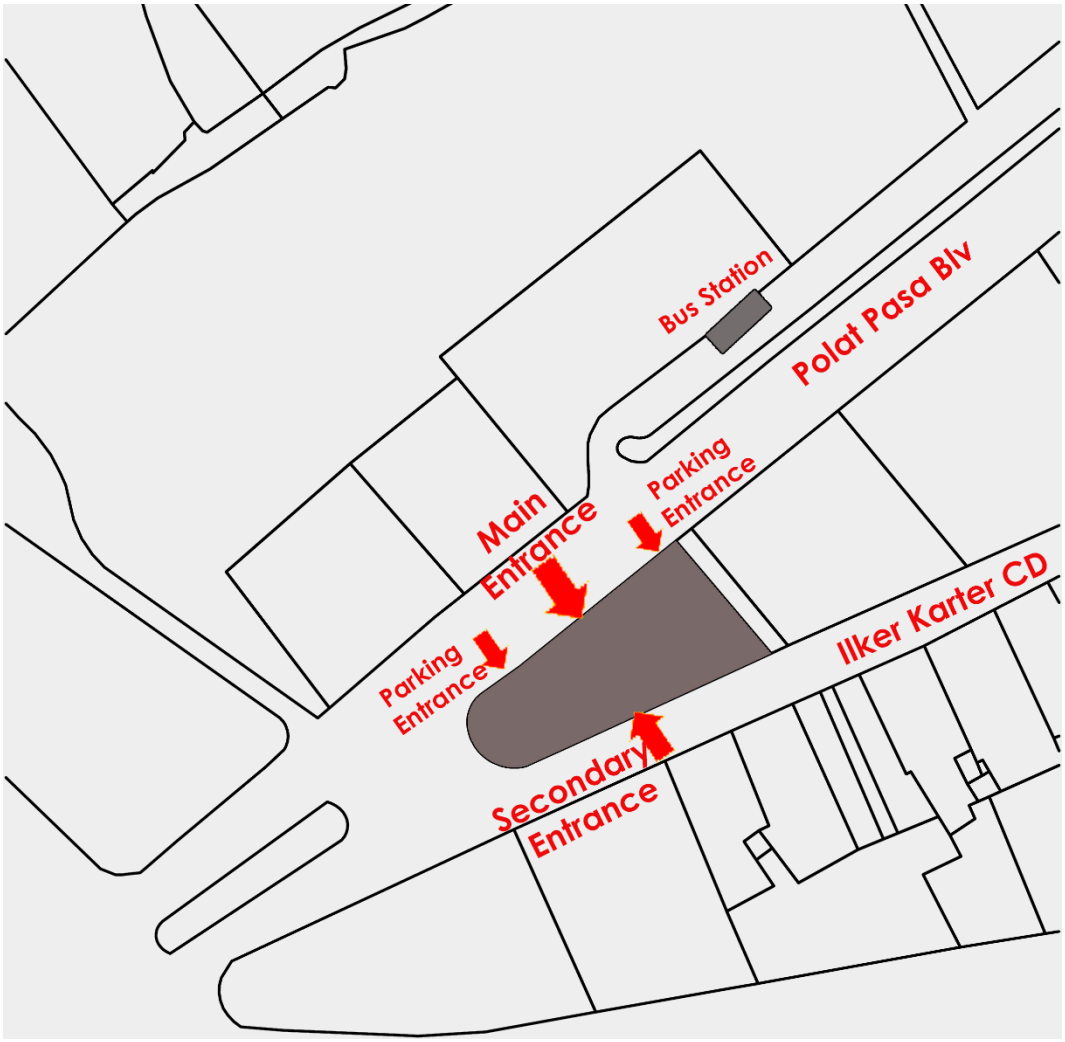


Figure 60: The location of Magusa Municipality

The result for accessibility from the closed environment to the site front of the Magusa Municipality (administrative case) shows this building contains 45% of the criteria.

- **Accessibility from the station**

Figure 61: The station of Magusa Municipality

There is one bus station just opposite the building in Polatpasa Bulvari street which doesn't have proper facilities such as; over waiting time, lighting system, sign, and also there is no accessibility for bicycle and wheelchair users and blind people.

- **Accessibility from the street and sidewalk**

Figure 62: The street and sidewalk adjunct Magusa Municipality

The lighting quality of the street near this building is better than its neighborhood but still not enough. There is no sign and guideline in the street and sidewalk which guides people to the building. And also, there is no tactile surface for blind people in the sidewalk.

- **Accessibility from site front to site border**

The result for accessibility from site front to site border of the Magusa Municipality (administrative case) shows this building contains 23% of the criteria.

Figure 63: The site border of Magusa Municipality

There is no territorial reinforcement provided and proper border definition for the site of the municipality building. There is no sign and guideline in the site border and the lighting quality is not proper in the border of the site.

- **Accessibility from the site to the building entrance**

The result for accessibility from the site to the building entrance of the Magusa Municipality (administrative case) shows this building reply to39.5% of the criteria.

- **Accessibility in parking space**

Figure 64: The parking space of Magusa Municipality

The parking space of the municipality, doesn't have sign and guideline and proper lighting quality. In addition, there is no facility for bicycle users and disabled people.

- **Accessibility in site of the building**

Figure 65: The site of Magusa Municipality

There is no proper lighting quality, sign, and guideline to the main entrance in the site. And also, there is no definition of the pavement of the site by different colors, patterns,

and different level. There is no tactile surface to guide blind people. Moreover, there is no social activity for various events or activities at the site of the building.

- **Accessibility of the building façade**

The result for Accessibility of the building façade of the Magusa Municipality (administrative case) shows this building reply to83% of the criteria.

Figure 66: The main entrance of Magusa Municipality

There is no immense problem in accessibility of the main entrance except lighting quality of the building façade and the guideline for blind people.

- **Accessibility in the entrance hall**

The result for accessibility in the entrance hall of the Magusa Municipality (administrative case) shows this building reply to77% of the criteria.

Figure 67: The entrance hall and lobby of Magusa Municipality

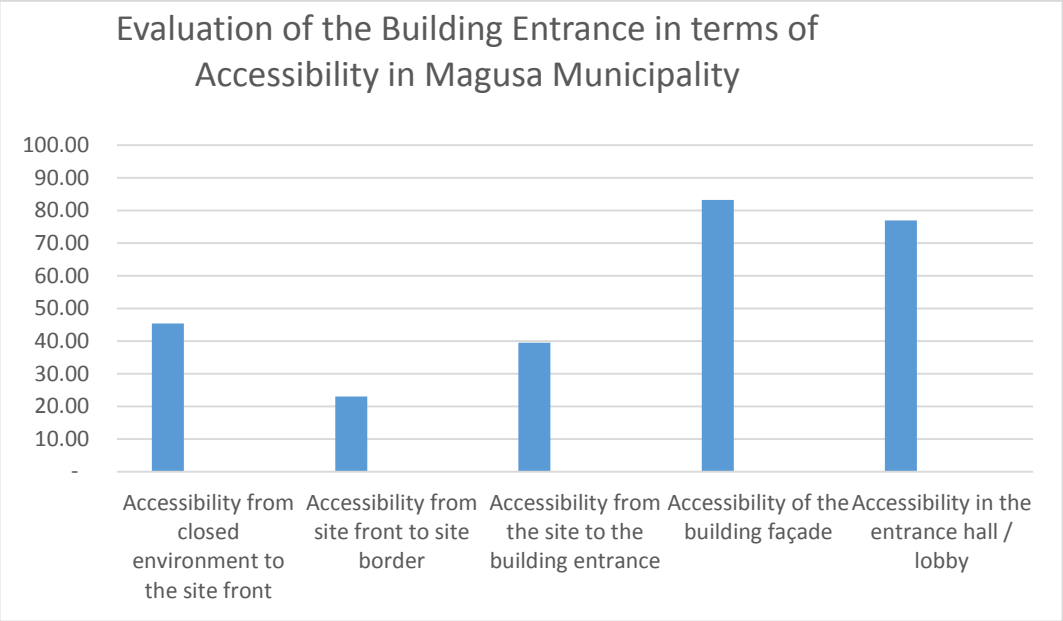
There is the proper design of the entrance lobby in term of accessibility except one factor, there is no guideline to guide disabled people in the lobby.

❖ **Final result for the building entrance evaluation of the Magusa Municipality**

The lowest score belongs to accessibility from the site front to the site border, and the highest score belongs to Accessibility of the building facade.

The following table shows the final result for evaluation of the building entrance in Magusa Municipality.

Table 14: Final result for the building entrance evaluation of the Magusa Municipality



4.5 Evaluation of the Accessibility in Famagusta State Hospital

Figure 68: The view of Magusa Devlet Hastanesi

Magusa Devlet Hastanesi, was opened on 2007. It is the second largest hospital in Famagusta. This hospital with 120 beds, serving local people. Magusa Devlet Hastanesi has 95 acres of land, with 18 500 square meters of interior space (URL 4.3).

This hospital is located between salamis road and yeni hastane road. This building has three entrances. Main entrance is located at the Yeni hastane road, emergency entrance is located at the Salamis road and the secondary entrance at the Emu university site.

Table 15: Evaluation of the Building Entrance in terms of Accessibility in Magusa Devlet Hastanesi

Evaluation of the Building Entrance in terms of Accessibility in Magusa Devlet Hastanesi	
Accessibility from closed environment to the site front	
Accessibility from the station	
1. Distance between public transportation station and site (maximum walking distance from bus station 400m ,800 m from train station)	1
2. Existence of more than one public transport station	0
3. Waiting time for mass transportation system (a range of 3 to 15 minutes)	0
4. The existence of the stop bay in front for the public transport station	1
5. The location of the bus public transport station according to the direction of the travel	1
6. The location of the bus station on the sidewalk.	0
7. Visual contact with public transport station and site entrance	1
8. Direct pathway to the public transport station from site entrance	1
9. The existence of the lighting system for the station	0
10. Lighting quality of the station (10 meters visual contact)	0
11. The existence seating space for the station	1
12. The existence sign and guideline for the station	0
13. Accessibility for bicycle user from station to the site.	0
14. Guideline for blind people, in between station and site	0
15. Guideline for wheelchair user in between station and site	0
	6/15=40%
Accessibility from the street and sidewalk	
1. Traffic jam on the street	0
2. The existence of the street lighting systems.	1
3. Lighting quality of the street (10 m visual contact).	0
4. The existence of the lighting system for the sidewalk.	0

5. Lighting quality of the sidewalk (10 m visual contact).	0
6. The existence of the sign and guideline in the street and sidewalk which guiding people to the building.	1
7. Definition of the sidewalk by using different colors.	0
8. Definition of the sidewalk by using different patterns.	0
9. Definition of sidewalk by creating the different level.	1
10. Definition of the sidewalk by creating curb.	1
11. Definition of the sidewalk by creating plant, flowers, foliage and shrubs.	1
12. Guideline for blind people in the street and sidewalk	0
13. Guideline for wheelchair user in the street and sidewalk	0
14. Appropriate material (non-Slippery / roughness) on pavement	0
5/14=35%	
Accessibility from site front to site border	
1. Provide territorial reinforcement	0
2. Proper border definition (surveillance)	0
3. The existence of the sign and guideline in the site border	1
4. The existence of the lighting system of the site border	0
5. Lighting quality of the site border(10 m visual contact)	0
6. Visual contact with site entrance border and main entrance façade	0
7. Direct pathway to the main entrance from site border	0
8. Definition of the site entrance by using different colors.	0
9. Definition of the site entrance by using different patterns or material.	0
10. Definition of the site entrance by creating the different level.	0
11. Definition of the site entrance by using the vertically elements	0
12. Definition of the site entrance by creating overhead beam elements	0
13. Definition of the site entrance by making the entrance door wider, ,narrower, or lower	0
14. Definition of the site entrance by making the entrance deep or indentations	0
15. Definition of the site entrance with ornamentation and decorative embellishment	0
16. Guideline for blind people from site front to site border	0
17. Guideline for wheelchair user from site front to site border0	1
2/17=11%	
Accessibility from the site to the building entrance	
Accessibility in parking space	

1. Visual contact with site entrance border and parking space	0
2. Visual contact with main entrance façade and parking space	1
3. Visual contact with lobby and parking space	1
4. Maximum 30-meters distance of the car space to the building	1
5. Maximum 1 meter different level to the lobby	1
6. The existence of the security by creating the attendant boots /patrols / camera security/ emergency telephones	1
7. The existence of the sign and guideline in the parking space	1
8. The existence of the lighting system for the parking space	1
9. Lighting quality of the parking space	0
10. Dimension and size of the car parking	1
11. Dimension size for the way of the parking space	1
12. The number of the car spaces	1
13. Dedicated car space for disabled people	0
14. Definition of the parking space by using different colors.	0
15. Definition of the parking space by using different patterns.	0
16. Definition of the parking space by creating the different level.	0
17. Definition of the parking space by creating curb.	1
18. Definition of the parking space by creating plant, flowers, foliage and shrubs.	0
19. The existence of the temporary park in front of the main entrance door.	1
20. The existence of bicycle parking	0
21. Secure bicycle racks	0
22. Guideline for blind people in the parking space	0
23. Guideline for wheelchair user people in the parking space	0
	12/23=52%
Accessibility in site of the building	
1. Visual contact with site and main entrance	0
2. Direct pathway to the main entrance from site.	0
3. The existence of the lighting systems in the site of the building.	1
4. Lighting quality of the site of the building (10 m visual contact)	0
5. The existence of the sign and guideline to the main entrance in the site	0
6. Appropriate material of the pavement for walking in the site	0
7. Definition of the pavement by using different colors.	0

8. Definition of the pavement by using different patterns.	0
9. Definition of the pavement by creating the different level.	1
10. Definition of the pavement by creating curb.	1
11. Definition of the pavement by creating plant, flowers, foliage and shrubs.	0
12. Social activity: programmed the site area for various events or activities at the site of the building.	0
13. Guideline for blind people in the site of the building	0
14. Guideline for wheelchair user people in the site of the building	0
15. Provide shelter for porch area.	1
16. The Appropriate material for the porch area.	1
5/16=31.2	
Accessibility of the building façade	
1. Definition of the building entrance by using different colors.	1
2. Definition of the building entrance by using different patterns or material.	1
3. Definition of the building entrance by creating the different level.	1
4. Definition of the building entrance by using the vertical elements	1
5. Definition of the building entrance by creating overhead beam elements	1
6. Definition of the building entrance by making the entrance door wider, ,narrower, or lower	1
7. Definition of the building entrance by making the entrance deep or indentations	1
8. Definition of the building entrance with ornamentation and decorative embellishment	1
9. The existence of the lighting systems of the building façade.	1
10. Lighting quality of the building façade (10 m visual contact)	0
11. Guideline for blind people in the building entrance	0
12. Guideline for wheelchair user in the building entrance	1
10/12=83.3	
Accessibility in the entrance hall / lobby	
1. The existence of the natural lighting in the entrance hall/lobby	1
2. The existence of the lighting systems in the entrance hall of the building.	1
3. Lighting quality of the entrance hall	1
4. The existence of the sign and guideline in the entrance hall	1
5. Visual contact with entrance and vertical circulation	1

6. Visual contact with entrance and information desk or sign and guideline	1
7. Existing mat well	0
8. Social activity: programmed the lobby for various events or activities.	
9. Guideline for blind people in the entrance hall	0
10. Guideline for wheelchair user in the entrance hall	1
7/10=70%	

- **Accessibility from closed environment to the site front**

The result for accessibility from closed environment to the site front of the Famagusta State Hospital (health care case) shows this building reply to37.5% of the criteria.

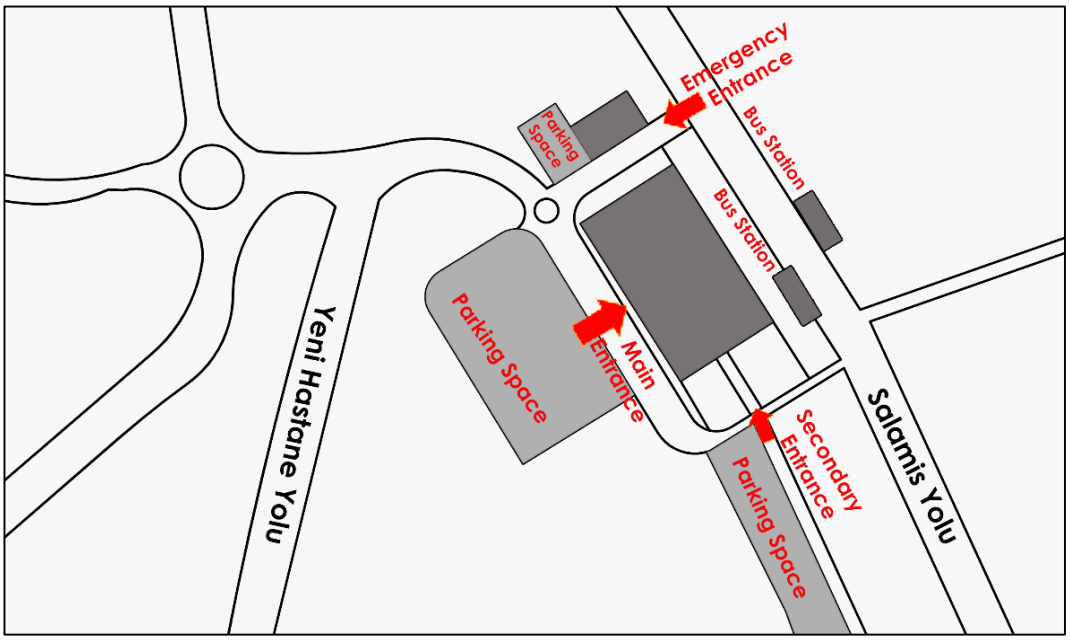


Figure 69: The location of Magusa Devlet Hastanesi

- **Accessibility from the station**

Figure 70: The station of Magusa Devlet Hastanesi

There is one bus station without any facilities in salamis road. The waiting time for the station is over 15 minutes, the location of the bus stop blocked the pathway for pedestrian. There are no lighting, sign, and guild line for the traveler. And also, there is no accessibility for bicycle user, the wheelchair user, and blind people.

- **Accessibility from the street and sidewalk**

Figure 71: The street and sidewalk adjunct Magusa Devlet Hastanesi

The information board of the building is located on the middle of the sidewalk and nobody can pass. The width of the sidewalk should be increased. In addition, there is no lighting and appropriate material. There is no definition of the sidewalk by using different color and patterns.

- **Accessibility from site front to site border**

The result for accessibility from site front to site border of the Famagusta State Hospital (health care case) shows this building reply to11% of the criteria. Because the border is not covered all around the site of the hospital.


Figure 72: The site of Magusa Devlet Hastanesi

- **Accessibility from the site to the building entrance**

The result for accessibility from the site to the building entrance of the Famagusta State Hospital (health care case) shows this building contains 43.5% of the criteria. There are 500 parking lots and also 34 parking emergency lots. Security cameras and a sentry are stablished around the hospital to create a safe and secure environment.

- **Accessibility in parking space**

Emergency Parking

Secondary Parking

Main Parking

No access for wheelchair user

No access for wheelchair user

Figure 73: Parking space of Magusa Devlet Hastanesi

The main border site of the building is in the salamis road and the main parking space toward the main entrance and there is no visual contact with site entrance border and parking space. There is the lighting quality problem is some part of the parking space. There is no dedicated car space for disabled people. In addition, there is no enough definition of the parking space by using different colors, patterns, and level different. There is no accessibility for bicycle and wheelchair users, and blind people in the parking space.

- **Accessibility in site of the building**

Figure 74: Site of Magusa Devlet Hastanesi

Magusa Devlet Hastanesi has 95 acres of land with the big site. The main problems of the site of Magusa state hospital are listed below;

There is no visual contact and direct pathway with the site and main entrance border (Salamis Road as the main road). The lighting quality of the building site is not proper, the sign and guideline on the site should be written in international language (English) as well to guild the foreigners. In some part of the site no appropriate material used for the pavement also, there is no definition of the pavement by using different colors, patterns, and plant. There is no social activity programmed in the site. In some part of the site, there is no accessibility to guideline for the disabled people such as wheelchair user.

- **Accessibility of the building façade**

The result for Accessibility of the building façade of the Famagusta State Hospital (health care case) shows this building contains 83% of the criteria.

Figure 75: The main entrance of Magusa Devlet Hastanesi

As mentioned in table 15 there is no serious accessibility problem in the main building façade except lighting quality and guild line for blind people.

- **Accessibility in the entrance hall**

The result for accessibility in the entrance hall of the Famagusta State Hospital (health care case) shows this building replies to78% of the criteria.

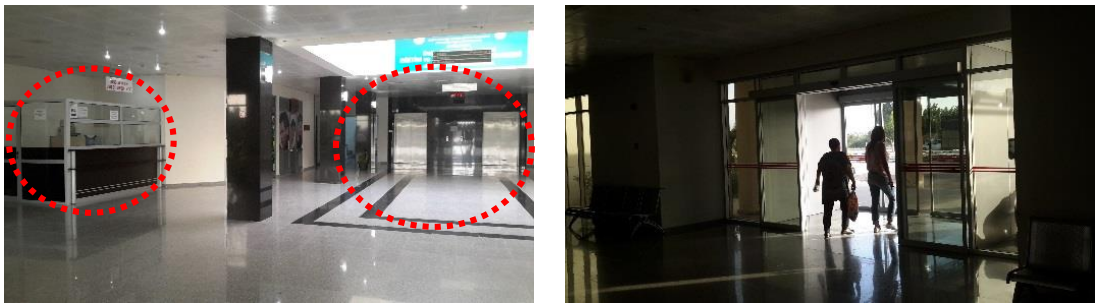


Figure 76: The entrance hall and lobby of Magusa Devlet Hastanesi

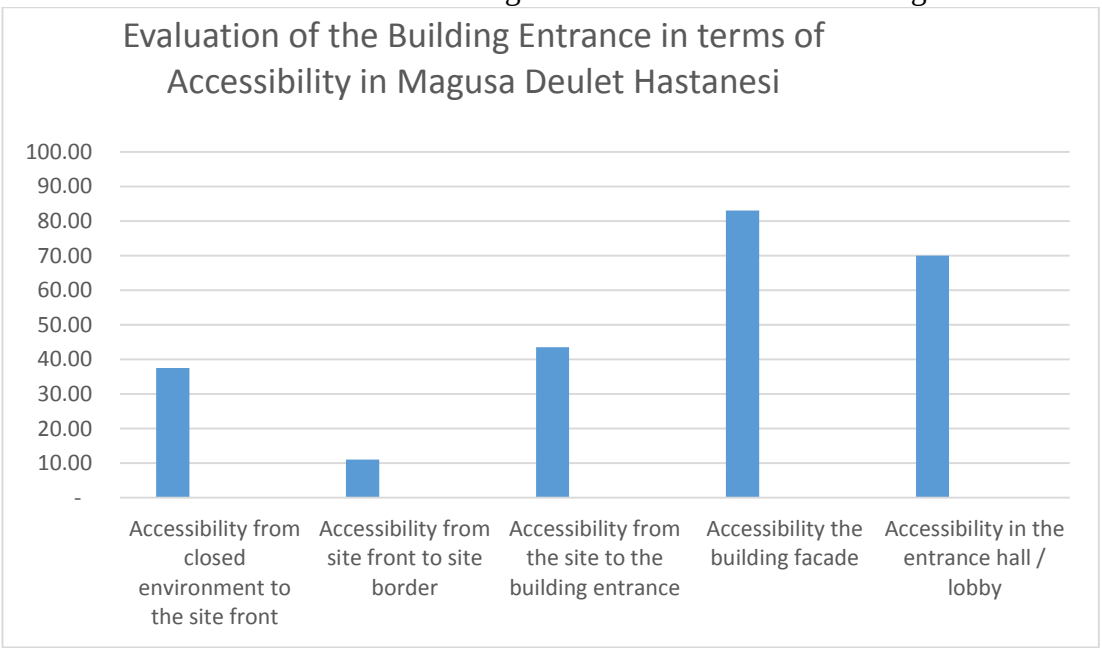
There is no serious accessibility problem in the main building façade except lighting quality and guild line for blind people.

❖ **Final result for the building entrance evaluation of the Magusa Devlet Hastanesi**

The lowest score belonged to accessibility from the site front to the site border, and the highest score belonged to Accessibility of the building façade

The following table shows the Final result for the building entrance evaluation of the Magusa Devlet Hastanesi.

Table 16: Final result for the building entrance evaluation of the Magusa Devlet



4.6 Comparing the Accessibility between the Cases

This section tries to evaluate the differences building entrance types in term of accessibility in Famagusta case. Following factors show the weak and strong parts of the building entrance space by comparison of the cases studies.

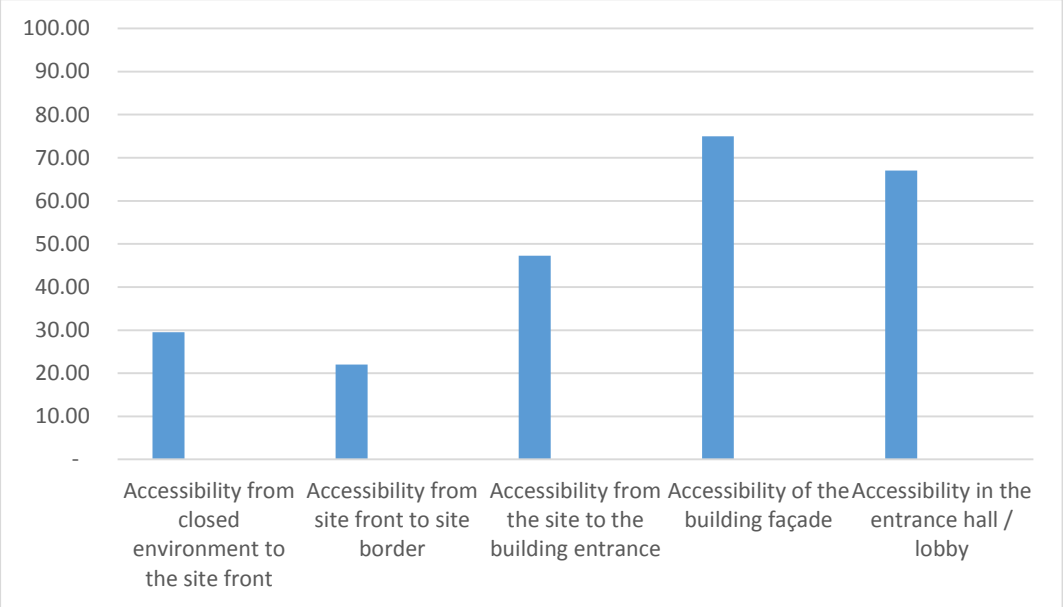
The weaknesses of the building entrance space in term of accessibility are;

- Accessibility from closed environment to the site front
- Accessibility from site front to site border

The strengths of the building entrance space in term of accessibility are;

- Accessibility of the building façade
- Accessibility in the entrance hall / lobby

Table 17: Comparing the Accessibility between the Cases



The weaknesses of the building entrance space relates to the city, that the municipality and the government should consider them more and try to find solutions to solve the

problems. The strengths of the building entrance space relates to the architecture and interior architecture.

This thesis tries to find problems of the accessibility from the closed environment to the building entrance with evaluation of the accessibility in the different building types in Famagusta, North Cyprus. These problems can be solved by the municipality politic, architectures, and owners. Following factors show the important accessibility problems in Famagusta which have been repeated in most of the case studies.

- Guideline for disabled people
- The existence of signs and guidelines
- Lighting quality
- Accessibility for bicycle users, the existence of bicycle parking, and secure bicycle racks.
- Waiting time for the bus station, and facility of the station such as signs and information, seating spaces and lighting and etc.
- The existence of the stop bay in fort of the bus station
- The location of the bus station according to the direction of the travel
- The location of the bus station on the sidewalk.
- Definitions of the sidewalk, parking space, and pavement by using different colors, patterns, material, levels differentiation, curb, plant, flowers, foliage, and shrubs.
- Appropriate material (non-Slippery / roughness) on pavement.

Chapter5

CONCLUSION

Accessible design get the best out of potential for residents, and visitors, furthermore for people who can readily use the building, the products, or services. This thesis tried to evaluate the entrance spaces (from city scale to the building scale) in term of accessibility, easy access, and safe access according to the spaces around the building entrance which are divided into 5 categories.

- The accessibility from the closed environment to the site front which is divided into two parts: accessibility in the station, and accessibility in the street and sidewalk.
- Accessibility from the site front to the site border
- Accessibility from the site to the building entrance which is divided into two parts: accessibility in parking space and accessibility in site of the building
- Accessibility of the building facade
- Accessibility in the entrance hall / lobby

In this study, the method has developed for evaluation accessibility of the buildings. This evaluation organizes with five stages which mentioned. Design criteria have prepared as the checklist and evaluated with the fuzzy method for each stage. Then the method tested with the case study of Famagusta. In the case functionally different building types have selected for evaluation. Residential building, commercial building, religious building, administrative building, and the healthcare building have evaluated for understanding accessibility of different type of the buildings.

As a conclusion in the first step, the method itself and the second stage the selected case study Famagusta have evaluated.

Flowing factors show the first step which method itself have evaluated;

- The developed method is applicable for different kind of buildings.
- The method is developed in the different scale from the city scale to the interior of the buildings which is included public area semi-public area semi-private area and private area.
- This evaluation criterion can be benefited and used by the owners, designers engineering, architects, governmental planning, city planning and etc.

In the second stage, it is important to mention the factors which are significate in access and accessibility from the close environment of the building to the entrance hall .The following shows the most important factors in accessibility of the building entrance area.

- Guideline for the disabled people (wheelchair user and blind people).
- The existence of sign and guideline for all people.
- The existence of the lightening system and lightning quality.
- Accessibility for bicycle user, the existence of bicycle parking, and secure bicycle racks.
- The existence of the security by creating the attendance boots /patrols / camera security/ emergency telephones.
- Definitions of the sidewalk, parking space, and pavement by using different colors, patterns, material, levels differentiation, curb, plant, flowers, foliage, and shrubs.
- Appropriate material (non-Slippery / roughness) on pavement.
- Visual contacts and direct path.

- Walking distance from the public transport system to the building (maximum walking distance from bus station 400m ,800 m from train station). Waiting time for the mass transportation system (a range of 3 to 15 minutes), the existence of the stop bay in front of the station, and the facility of the station such as sign and information seating space lightening and etc.
- Provide territorial reinforcement, and proper border definition.
- Definition of the site entrance, and the main entrance by using different colors, patterns and material, creating the different level, using the vertically elements, creating overhead beam elements, by making the entrance door wider, narrower, or lower than anticipated, by making the entrance deep or indentations, with ornamentation and decorative embellishment.
- The distance of the car space to the buildings (maximum 30 meters) and different level to the lobby (maximum one meter), the number of the car spaces (according to the function of the buildings and number of users and demand), the existence of the temporary park in front of the main entrance door.
- Social activity; programmed the site, lobby, and porch area for various events or activities.
- Provide shelter for porch area.

It is necessary to conduct further research on the entrances space as the significant part of the buildings (from city scale to the building scale). Accessibility, easy access and safe access are discussed in this thesis as the important factors of the building entrance design. Furthermore, it is necessary to research about others significant issues of building entrance design. For instance phycology, aesthetic, sociology, cultural, and

environmental control are others important factors of the building entrance design which this thesis recommend for further research.

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APPENDIX

Appendix A: Evaluation of the Building Entrance in terms of Accessibility

Evaluation of the Building Entrance in terms of Accessibility	
Accessibility from closed environment to the site front	
Accessibility in the station	
Distance between public transportation station and site (maximum walking distance from bus station 400m ,800 m from train station)	
Existence of more than one station for mass transportation	
Waiting time for mass transportation system (a range of 3 to 15 minutes)	
The existence of the stop bay in front of the station	
The location of the bus station according to the direction of the travel	
The location of the bus station on the sidewalk.	
Visual contact with station and site entrance	
Direct pathway to the station from site entrance	
The existence of the lighting system of the station	
Lighting quality of the station (10 meters visual contact)	
The existence of seating space for the station	
The existence of sign and guideline for the station	
Accessibility for bicycle user from station to the site.	
Guideline for blind people, in between station and site	
Guideline for wheelchair user in between station and site	
Accessibility in the street and sidewalk	
Traffic jam on the street	
The existence of the street lighting systems.	
Lighting quality of the street (10 m visual contact).	
The existence of the lighting system for the sidewalk.	
Lighting quality of the sidewalk (10 m visual contact).	
The existence of the sign and guideline in the street and sidewalk which guiding people to the building.	
Definition of the sidewalk by using different colors.	
Definition of the sidewalk by using different patterns.	
Definition of sidewalk by creating the different level.	

Definition of the sidewalk by creating curb.	
Definition of the sidewalk by creating plant, flowers, foliage and shrubs.	
Guideline for blind people in the street and sidewalk	
Guideline for wheelchair user in the street and sidewalk	
Appropriate material (non-Slippery / roughness) on pavement	
Accessibility from site front to site border	
Provide territorial reinforcement	
Proper border definition (surveillance)	
The existence of the sign and guideline in the site border	
The existence of the lighting system for the site border	
Lighting quality of the site border(10 m visual contact)	
Visual contact with site entrance border and main entrance façade	
Direct pathway to the main entrance from site border	
Definition of the site entrance by using different colors.	
Definition of the site entrance by using different patterns or material.	
Definition of the site entrance by creating the different level.	
Definition of the site entrance by using the vertically elements	
Definition of the site entrance by creating overhead beam elements	
Definition of the site entrance by making the entrance door wider, ,narrower, or lower	
Definition of the site entrance by making the entrance deep or indentations,	
Definition of the site entrance with ornamentation and decorative embellishment	
Guideline for blind people from site front to site border	
Guideline for wheelchair user from site front to site border	
Accessibility from the site to the building entrance	
Accessibility in parking space	
Visual contact with site entrance border and parking space	
Visual contact with main entrance façade and parking space	
Visual contact with lobby and parking space	
Maximum 30-meters distance of the car space to the building	
Maximum 1 meter different level to the lobby	
The existence of the security by creating the attendant boots /patrols / camera security/ emergency telephones	

The existence of the sign and guideline in the parking space	
The existence of the lighting system for the parking space	
Lighting quality of the parking space	
Dimension and size of the car parking	
Dimension size for the way of the parking space	
The number of the car spaces	
Dedicated car space for disabled people	
Definition of the parking space by using different colors.	
Definition of the parking space by using different patterns.	
Definition of the parking space by creating the different level.	
Definition of the parking space by creating curb.	
Definition of the parking space by creating plant, flowers, foliage and shrubs.	
The existence of the temporary park in front of the main entrance door.	
The existence of bicycle parking	
Secure bicycle racks	
Guideline for blind people in the parking space	
Guideline for wheelchair user people in the parking space	
Accessibility in site of the building	
Visual contact with site and main entrance	
Direct pathway to the main entrance from site.	
The existence of the lighting systems in the site of the building.	
Lighting quality of the site of the building (10 m visual contact)	
The existence of the sign and guideline to the main entrance in the site	
Appropriate material of the pavement for walking in the site	
Definition of the pavement by using different colors.	
Definition of the pavement by using different patterns.	
Definition of the pavement by creating the different level.	
Definition of the pavement by creating curb.	
Definition of the pavement by creating plant, flowers, foliage and shrubs.	
Social activity: programmed the site area for various events or activities at the site of the building.	
Guideline for blind people in the site of the building	

Guideline for wheelchair user people in the site of the building	
Provide shelter for porch area.	
The Appropriate material for the porch area.	
Accessibility of the building façade	
Definition of the building entrance by using different colors.	
Definition of the building entrance by using different patterns or material.	
Definition of the building entrance by creating the different level.	
Definition of the building entrance by using the vertical elements	
Definition of the building entrance by creating overhead beam elements	
Definition of the building entrance by making the entrance door wider, ,narrower, or lower	
Definition of the building entrance by making the entrance deep or indentations	
Definition of the building entrance with ornamentation and decorative embellishment	
The existence of the lighting systems of the building façade.	
Lighting quality of the building façade (10 m visual contact)	
Guideline for blind people in the building entrance	
Guideline for wheelchair user in the building entrance	
Accessibility in the entrance hall / lobby	
The existence of the natural lighting in the entrance hall/lobby	
The existence of the lighting systems in the lobby of the building.	
Lighting quality of the lobby	
The existence of the sign and guideline in the lobby	
Visual contact with entrance and vertical circulation	
Visual contact with entrance and information desk or sign and guideline	
Social activity: programmed the lobby for various events or activities	
Existing mat well	
Guideline for blind people in the lobby	
Guideline for wheelchair user in the lobby	