The Impact of Local Values on Façade Design; A Comparative Study on North Cyprus and Iran Contemporary Residential Buildings

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ABSTRACT

Façade, is the most impacting connection between humans and the built environment. It is the outer shell of a building. Façade is not only a reflection of the architectural character of a region, it is also a representation of local cultural, social, climatic, political and economic circumstances. Urban space is characterized by buildings' façades, neighboring buildings` façades, streetscape and environment. In the recent years, following the modern movement and globalization phenomena, architects started using modern design features in buildings and façades without considering the local values, so this has led to the emergence of similar looking images in urban areas. Surely, this problem is associated more with highly populated cities and developing world countries. The clients and their architects demanded and therefore supplied more modern features in façades, so today's building façades have continuously lost relations with their local origins and contextual surroundings. Façade design as a fundamental category of architecture should be constructed by proper considerations of the regions' values and cultural characteristics. In this respect, investigating the local features of the particular region could lead architects use these features more in their facade designs where more respect to place identity. In this regard, attention to local values' features in the symbolic and functional form is a gainful approach to keep the bond between place identity and modern houses.

This thesis attempts to highlight some of the local factors in Cypriot and Iranian residential buildings as used in contemporary housing. For this purpose, the study focuses on local factors including climate, material, culture, site and facade explanation and its components for discovering the impact of these features on facade

design within selected houses. Moreover, contemporary architectural periods of Cyprus and Iran have been scrutinized for learning the Cypriot and Iranian local factors and traditional housing features. Based on literature research, physical observation have been carried out in this study to reach comparative results. Based on findings, this study underlines some of the local features which have been used symbolically or functionally in contemporary houses façade of Cyprus and Iran.

Keywords: Façade design, Local values, Residential Buildings, Contemporary Period

ÖZ

Bir binanın cephesi, insanlar ile binalar arasındaki bağı kuran en etkin araçtır. Bir başka deyişle, cephe bir binanın kabuğudur. Bina cephesi, sadece bir bölgenin mimari karakterini değil, ayrıca, yerel, kültürel, sosyal, iklimsel, politik ve ekonomik şartlarını da yansıtmaktadır. Şehirler binaların cepheleri ve bunların oluşturduğu sokak silüetiyle karakterize olurlar. Günümüzde, Modernist mimarlar genellikle küreselleşmenin de etkisiyle, tasarladıkları binalarda ve bu binaların cephelerinde yerel değerlere yeterince yer vermemektedirler. Dolayısıyla, bu durum, şehirlerin birbirine aşırı derecede benzeyen bir görünüme sahip olmasına neden olmaktadır. Genellikle bu durum, gelişmekte olan ülkelerde ve büyük şehirlerde daha çok görülmektedir. Ayrıca, mimarlar ve müteahhitler tasarladıkları ve inşaa ettikleri binaların cephelerine modern mimarinin etkisiyle çarpıcılık kazandırmak istemektedirler. Dolayısıyla, cephe tasarımı mimarlığın temel alanlarından biri olarak, bölgenin yerel değerleri dikkate alınarak inşaa edilebilecekken; günümüz binalarının cepheleri, kendi yerel kimliklerini ve çevrelerindeki binalarla olan ilişkilerini süreç içerisinde kaybetmektedirler. Bu doğrultuda, bölgelerin yerel özelliklerini iyi analiz edip, çağdaş tasarımlarda bu unsurları göz önünde bulundurmak, o bölgenin kimliğine daha saygılı binalar tasarlamayı sağlayacaktır. Yani, yerel değerlerin, sembolik ve işlevsel rolüne gösterilecek özen, yerel kimlik ve çağdaş konutlar arasındaki bağı koruyacak, doğru yaklaşımlar yaratacaktır. Buna bağlı olarak, bu tezin amacı Kuzey Kıbrıs ve İran'ın konut mimarisini inceleyerek, çağdaş konutlarda ön cephe tasarımlarındaki yerel unsurları araştırmaktır.

Bu nedenle, Kuzey Kıbrıs, Gazimağusa ve İran, Tehran'dan seçilmiş konutların ön cephe tasarımları incelenerek, yerel etkileri keşfetmek için araştırma süreci boyunca, iklim, fiziksel koşullar, kültür ve ön cephe elemanları, bu doğrultuda incelenmiştir. Buna bağlı olarak, Kıbrıs ve İran'daki konut mimarisi ve gelişim süreci incelenmiş ve çağdaş mimarideki izleri saptanmaya çalışılmıştır. Çalışma kapsamında yapılan literatür çalışması, yerinde gözlem ve fiziksel analizler doğrultusunda Kuzey Kıbrıs, Gazimağusa ve İran, Tehran'dan seçilen konutlar üzerinde karşılaştırmalı bir analiz çalışması yapılarak, konut ön cephelerindeki yerel unsurların saptanması sağlanmıştır. Çalışmanın sonuçları baz alınarak, sembolik ve işlevsel olarak günümüz konutlarında kullanılan yerel unsurlar keşfedilmiş ve bu unsurlar sonuç kısmında açıklanmıştır.

Anahtar kelimeler: ön cephe tasarımı, yerel değerler, yerleşim yerleri, çağdaş dönem mimarisi

DEDICATION

This thesis work is dedicated to dear babak and my family

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INTRODUCTION

1.1 Introduction

Comprehending architecture lies within recognition of its constituent elements. In fact, humans depend on various factors for constructing their buildings in their peculiar ways as well as utilizing different features and elements. Therefore, people's requirement related to their lifestyle is one of the main factors that have an impact on architecture. In this aspect, culture and the historical background of people who are living in various regions have an effect on architecture. Façade as a fundamental category of architecture is based on people's cultural differences. These cultural varieties are means to interpret specific memories, emotions, meanings and local values that are spread with people who belong to a particular social group. People have built their houses not only as a means of shelter but also as a place which relates to their lifestyle and culture. According to Scheidt (1998), "a building is a meaningful cultural object" which is coherent to the region's historical background as well as all other factors that make the cultural characteristics. Rappaport (1969) noted that buildings have utilized to procreate the space to express feeling and way of thinking, than social processes, as well as to provide scene for defining the cultural activity in addition to prepare physical shelter.

Buildings are considered as significant part of cities, which plays major role in organization and arrangement of city appearance, which affects image of building

facades, as a connection between inner and outer space, have a main role in the making of cities' image. The image of the city is mostly related to its visual quality. Facades do play an important role in design of urban and environmental design. It reveals that besides common role of buildings façades it also represents the value of building and region as well. Moreover, facades are considered as a linkage between inside and outside environment, of the city's image.

Building facade include the local values to enable communication with the city residents. In turn, this creates strong connections between the building façade and city residents by considering the spirit of the place. Local values are defined through some elements such as language, lifestyle, history, traditions and natural conditions. It is talking about deep traditions remained from ancestors or exist in living ambient. Despite some of them belonging to the past due to their evolutionary procedure, these traditions create a sense of attachment and identity for people in the society, and make a work immortal.

During the 20th century, many cities all around the world transformed radically according with the process of modernization and industrialization. Technological, political, cultural, economic and demographic transformation caused changes in façade design housing. In other words, the built environment was most influenced by changes taking place in façade of buildings. Tehran in Iran and Famagusta in Cyprus with rich historical images are not exceptions to this case. With the arrival of modernism, Tehran and Famagusta started to lose their traditional identity and modern influence started to dominate the local values through paving the way for modernity to take over. In Tehran, the construction activities increased during the last two decades due to increasing population and the urban view transformed as a result of

different type of taste, needs, regulation in facades design. Famagusta as a university city is also under development pressure of rising student population and therefore construction. Although both of these cities have rich historical background, they have been greatly influenced by the changes taking place in the last two decades. The study attempts to highlight these changes through an evaluation of the selected cases so that a comparative ground can be formed in contemporary period.

1.2 Problem Statement

The façade is the outer shell of a building which represents architectural qualities of an area, and a representation of local, cultural, social, territorial, political nobilities and economic conditions. The building façade is an integrated system between rationality and beauty (performance and surrealism), which represent people's sensational reactions, and their imagination as well as stimulation. When approaching a building, its façade is an inseparable part from the city's perspective, and is understood as a connection between internal and external space of a building.

In the rapidly changing world, people have to survive in a constantly changing context. The advancement in technology brought in by the current century has been causing changes in the human life and environment. This is coupled with migration from village to town and from town to city. With the effect of globalization there has been a transition from the traditional living towards the modern life. Like all the other facts of culture, architecture, which is the product of tradition and culture, has also been very much influenced by the process of this transformation. Façade as the first connection between buildings and environment is affected by these changes as well. These changes primarily start with the emergence of modern architecture. Architects of this period have started to expand the thoughts and tendencies of modernism and

the movement soon spread internationally. From that time on, buildings and façades started being designed in conformity with the modern life and policy principles of architecture that could be valid almost in all countries.

Cyprus and Iran are no exceptions to this case. Because of their geography and culture, they both display rich historical past and cultural richness which is also reflected on their architecture. Different conquering states, cultural influences, geographic conditions and contact with the world architecture were of important factors that affected the architecture of Cyprus and Iran. The effect of modern movement (modernity) started to be observed in Cyprus and Iran along the same periods. With the growing population and demand for housing market, in parallel with the development of modernism, building structure started to expand its activity rapidly in the old towns, especially in facade design. Therefore, in recent years, due to the speed of building construction and uncontrolled urbanization created therein, these architectural problems have decreased the quality of the city image and façade design. As a result, the façade have started losing its identity and modern influence started to dominate the local values as modernity took over.

1.3 Aims and Objective

The subject of the thesis is concerned with the residential façade design of Iran and North Cyprus and covers contemporary period. The modern architecture developed markedly after the British period (1878- 1960) in Cyprus and Pahlavi period (1875-1970) in Iran. This study intents to investigate how this development has changed houses' façade design in Iran and Cyprus and how it affected local values relating to façade in two countries in contemporary period. It is not possible to evaluate impact of local values on façade design without considering its influencing factors and façade

components. Therefore, the study intends to discuss the climate, culture and material and effect of period of building on façade design. An evaluation of traditional architecture in Iran and North Cyprus has been carried out taking into consideration various aspects such as form, material, openings, and ornamentation of façade buildings. The main objective of the study is to pinpoint existing local values in both contexts and discuss whether they have influenced contemporary façade organizations in new housing examples.

1.4 Research Question

In order to achieve the aim of this study for the evaluation of the impact of local values on façade design in Tehran and Famagusta in contemporary residential buildings, it is necessary to respond to following questions:

Main question;

1-What is the influence of local values on the contemporary residential buildings' façade of Tehran and Famagusta?

Sub question;

2-What is general characteristics of Iranian residential buildings?

3-What is the general character of Cypriot residential buildings?

4-What is the general character of the modern and postmodern architecture in both contexts?

1.5 Limitations and Scope

Regardless of noticeable attempts for clarifying the local values in architecture within scholars, it is still difficult to find coherent consensus about local factors and its effect on facades, because of its wide span. Local factors include various types such as geographical, cultural, technological, economic, social, historical factors. In order to achieve a clear explanation, it is necessary to make the limitation related to the thesis

title. Therefore, this study has been limited to investigate and research specifically on climate, material and structure, culture and period of buildings.

Iran and Cyprus have been chosen for case studies. Iran and Cyprus, because of their geography, are important countries that have a rich history. Their historical past and cultural richness have been reflected on their architecture. Different conquering states, geographic conditions, cultural influences and contact with world architecture were some of important factors that affected to the architecture of Iran and Cyprus. Within the context of developing modernity, building construction started to expand its activity rapidly at the periphery of the old towns. In Tehran and Famagusta because of political changes and forced migration took place expanding the population of the two cities. Due to population growth and speed of building construction and uncontrolled urbanization, a lot of architectural problems have come about leading to an identity loss in the cities. Thus, with the effect of the globalization and modernity there has been a transition from the traditional to new style in city landscapes as a result of new façade designs. The thesis attempts to analyze this transformation in Tehran and Famagusta through selected case studies.

The other limitation of the study is related to the architectural period and the characteristics of houses. The study focuses on cases where the impact of modernity is evident in form. Therefore, the most recent historical periods in Cyprus, the Ottoman (1571- 1878) and British Colonial (1878-1960) periods and in Iran Pahlavi period have been taken as the bases for the selection of the cases. Also due to differences in building views based on their functions, it is difficult to find coherent investigation for all type of building's façade because of its wide span, and this study is focused on residential buildings.

1.6 Methodology

As mentioned before the study investigates impact of local values in façade design in residential buildings in contemporary period in Iran and North Cyprus. On the basis of this argument, this study to learn effect of local features on facades in Iran and Cyprus and compare together. The research covers the residential buildings constructed in different years from Shariati districts, Maryam street in Tehran and Gulseren district, Yildiz street in Famagust, that that the buildings approximately are in similar conditions. These have formed up the case studies of the research. In addition to the case studies, literature survey, archived studies and observation and compare two cases form the main structure of the thesis. To achieve the aim, a literature review has considered on existing definition of façade and its role in building. Then it is investigated the global and local factors that influence façade design and façade components. Climate, culture, material and structure, site and location and period of buildings are the factors that is studied. According to limitation of study is studied the characters of residential buildings and modern and after modern period. After definition of the subject, for analysis case studies in Iran and Cyprus, it is necessary to know key issues about character of traditional houses in Iran and Cyprus, a general research is done about residential buildings in Iran and Cyprus.

The next section is the physical analysis process. Documentation of the local values and façade components is done by a field work. During the survey, detailed observation are carried out on the buildings. It consist of photograph and drawing and notes about these buildings. An inventory form is prepared for investigating the effect of local factors on façade components about period of building, climate, material,

ornamentation, plan, site plan, openings and compatibility of them with region. Finally the findings of two case studies compare together to find the result.

1.7 Structure of the Thesis

The chart below shows the breakdown (structure) of the entire thesis. In Figure 1.1, Chapters, main chapters, and related sub-chapters are given in a systematic way.

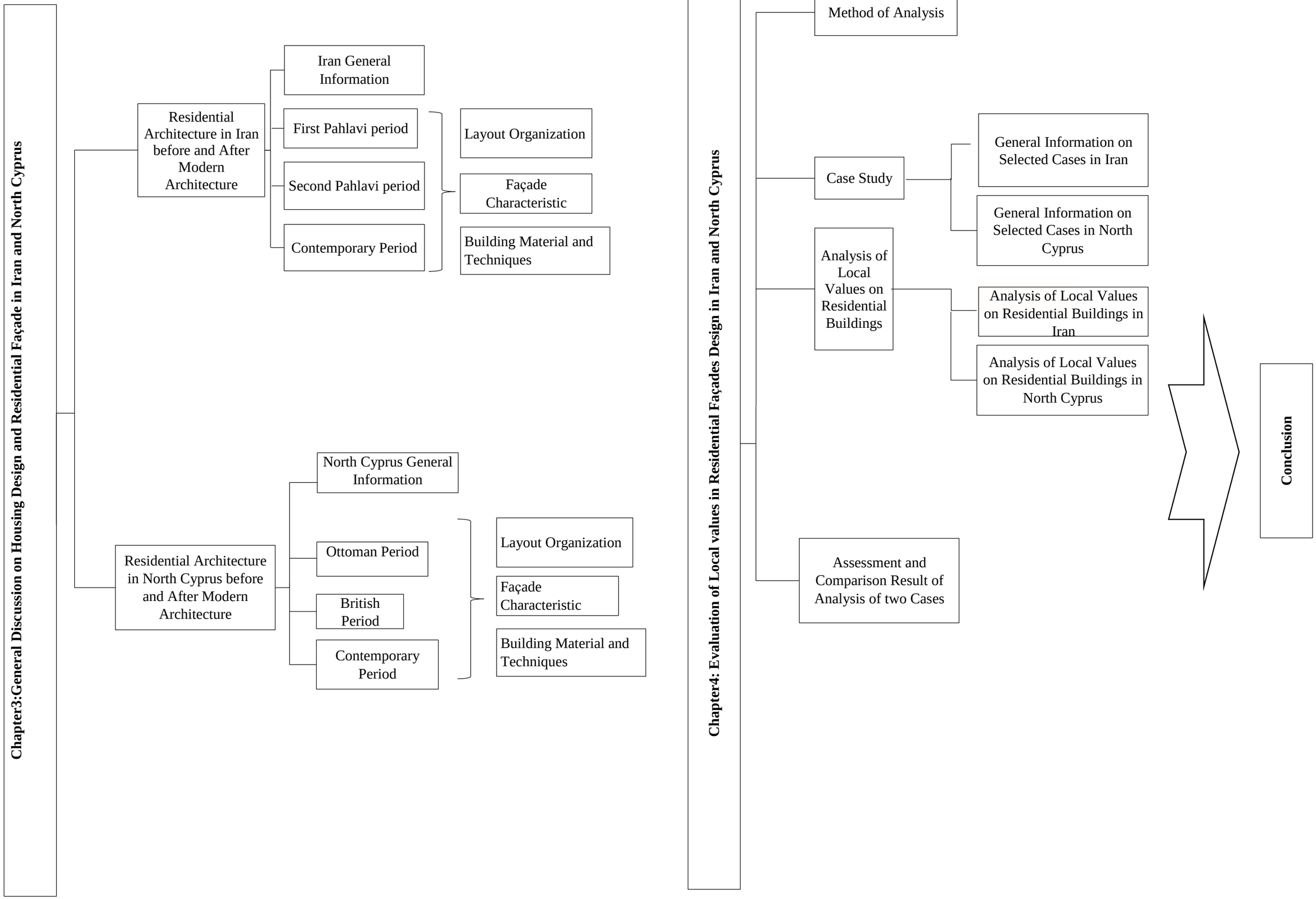
Methodology of Study

Chapter 1
Introduction

- Problem Statement
  - Nowadays, the building facades are continuously losing their connection to their local identity and surrounding environment
  - Lack of consideration of local values in the buildings
  - Resulted in an increasing growth of some sort of heterogeneity and imagery roughness in the cities, as well as incompatibility and lack of heterogeneity in façades.
- Aim and Objective
  - Recognition of the local values in Tehran and Famagusta (Northern Cyprus) and rate of their impacts on façade design in existence condition.
  - Recognition and re-definition of local principles and to the Iranian and also Cyprus habitat and culture and local values.
  - What are local values in design of Iranian building facades, and how these principles and values are used in Tehran building façade?
- Research Question
  - What are local values that influence façade design in residential buildings?
  - How the local principles and values are effected in building facades?
  - What is impact of modern façades on the buildings in Tehran and Cyprus and their conflicts with local values?
- Limitation and Scope
  - Façade design
  - Residential Building
  - Contemporary Period
  - Comparison façade design in Iran and North Cyprus according to local values factors

Chapter2: general Discussion on Façade Design and Contemporary Residential Façade Design And Local Values

- Façade
  - Role of Façade
  - Factors Influence the Façade Design (Local and universal)
    - Period of Building
    - Site, Location, Region, Topography
    - Geographical factor (Climate)
    - Culture
    - Building Material, technology,
    - Plan, Layout
  - Factors Influence the Façade Design (Local and universal)
    - Form and shape
    - Opening
    - Color and Texture
    - Building Material and Structure
    - Balcony
    - Roof
  - Residential façade Design
    - Residential Façade Design in Modern Architecture
    - Residential Façade Design after Modern Architecture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Assessment and Comparison Result of Analysis of two Cases
Conclusion

Chapter 2

GENERAL DISCUSSION ON FAÇADE DESIGN AND INFLUENTIAL FACTORS

Today`s building façades continuously lose connection to their local identities and contextual surroundings, more attention is required when designing façades in order to come up with designs that synergize with their unique surroundings. This does not imply that building façades should be approached in a typical traditional manner, but rather that their design should be a result of different factors, interacting and overlapping, and in respect to the physical and non-physical context. Façades should be designed in respect to high performance, aesthetics and efficient constructability for example, and this in return indicates that variations in façade designs are a positive indication that buildings are responding to their built and natural contexts. Architects and designers should respond to side effects of globalization resulting in the spreading of out of context styles, unresponsive and kitschy, in order to save the visual interest in the city and the beyond physical meaning of architecture. It is advised here that architects and designers articulate the very meaning of modernity within local architecture and environment.

The façade, the first and most impacting connection between humans and the built environment, the outer shell of a building, is not only a reflection of the architectural character of a region, but also a representation of local cultural, social, climatic, political and economic circumstances. Building façades are an integrated system

between the rationality of function and the surrealism of beauty, capturing people`s imagination and triggering emotive reactions (Bechtel & Churchman, 2003).

Towards the second half of the 20th century the effect and the vision of returning architects from Europe and the US was infused with local traditions and the art of building to produce a more domesticated modernity, local style. The result was a special version of Modern Architecture that was characterized by being dynamic, asymmetrical, providing new ratios of solid and void in façades, and demonstrating a vibrant and dynamic composition that is based on a volumetric interplay between horizontal and vertical volumes. Unfortunately, many of architects today have failed to produce similar buildings and are producing an architecture that is devoiced of meaning, so extravagant and unsophisticated (Daher, 2008).

Globalization and the increased cultural friction on local architectural and urban aspects resulted in the construction of countless buildings with mere connections to their local identity. When observing cities' contemporary urban context, a clear contrast among the different façades with different architectural languages and inconsistent heights is highly noticeable, especially a lack of synergy between the more new façades and the surrounding environment, where façades disrespectfully respond to their cultural, historical and environmental conditions of the region. When approaching buildings` façades as an integral and inseparable component of city image, it is to be comprehended as the connection between the inner and the outer space of a building. Urban space is characterized by building façades, neighboring buildings` façades, streetscape and environment, even the scale around a building is specified through its façades. Building façades trigger various experiences to the

viewers and are in most cases considered for the evaluation of historical districts image.

In this chapter the definition and approaches about façade design, constructor physical factors, effective components and elements and physical and non-physical factors according to existing literatures will be studied. Then according to methodology of research, will be investigated, in brief, the approaches and construction features of façade design in historical period to find out the role of façades and local values for spaces definition in diversity periods of times in different places. And finally by separation the façade components and elements will be investigated the main indicates of faced design in residential buildings in contemporary period and urbanism approaches.

2.1 Façade

The city been influenced always by physical, economic, social, cultural parameters and in the passage of time and shaped and integrated its' totality in relation to them. According to many experts, symbol and manifestation of different existential dimensions of the city are appearance and physical body and its 'resulting qualities including the urban space. One of the most important urban physical components and elements in the which is effective especially in relation with citizens and strengthen the sense of place in the urban space, is the composition of buildings facades and in other words "city view".

Façade is the face of the building that shows its value and structure (Hien & Wang, 2006). It is the connection between inner and outer space that imposes considerable impact on the city image (Moughtin et al., 1995). Hien & Wang (2006) mentioned that

even the scale around a building is specified with its facades. Urban space is characterized by building façade, neighboring building facades, streetscape, and environment. Thereby, building façade influences all aspects of its ambience and illustrates its significance in relation to the images of city and subsequently districts.

A building façade presents various experiences to the viewers (Moughtin et al., 1995) and is mostly considered for the evaluation of a district image. In fact, the image of a building façade is presentable through its visual elements that are basic elements of visitors' evaluations.

In Cambridge dictionary (2008), "Façade" means the face of a building, especially the principal front that looks onto a street or open space. In construction, the exterior of a building is called facade. In building design, facade is the most important part. Because it specifies a framework for other components of a building.

2.1.1 Role of Façade

Façade is one of the most effective and flexible elements in visual qualify of buildings and also in qualify of urban space. The role of façade can be studied in two parts; the role of façade in building design and in urban design.

Bickenback (1987) states that façade has five main functions (Figure 2.1):

1. Protective
2. Connector
3. Represent
4. Transparency
5. Part of total

These are the purpose that the designer tries to creating balance and adapt between them.

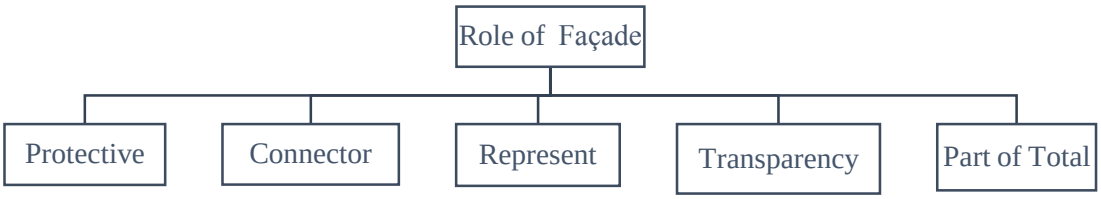


Figure 2.1: Role of façade (Bickenback, 1987; 78)

2.1.1.1 Façade as Protective Element

The most basic and outermost and even the first duty of façade id protecting the human against atmospheric and climatic factors one the one hand, and insidious animals and social disturbance other human ,on the other hand, is created the space that named "House" and started to build outside and exterior side worthy. As long as the home for its residents have protection role and they made it to protect themselves against external threats, viewing had not meaning. Residential buildings were enclosed and integrated walls, with minimum opening to outside and façade had not meaning for residential buildings. Because the building had Minimum opening to deal with the wind, heat and cold and animal and human influence, but deprived the building of enough light and ventilation. Gradually increased need for these blessings, as a result, Create openings rose in the wall and the need for third shell for more protection increased (Alexander, 1979).

2.1.1.2 Façade as Connector Element

Although one of the role of façade is protector between the human and exterior threats, but it must to play the role of connector between inside and outside, public and private, crowded and reclusion, nature and artificial spaces. Human had needed lights and ventilation and also connection between inside and outside, so the façade had been the connector between outside and inside and supplied entry for light, air and guests and created good visibility out of the building. Openings (windows and doors) were an element of the façade, assumed the role as physical and intuitive interface.

2.1.1.3 Façade as Represented

Façade is not just the protected and connector. As someone's character representing by the appearance and clothing, the buildings should present the character and function and even social status of the building. In developed countries, the façade are displayed feature which shows the features of whom are living behind it, and the façade shows and signs the family characters and social status of owner of the building (Alexander, 1979).

Selecting quadrilateral in building has been caused that they find specific direction. Sloping roof and development of potential directions is reasoned that one of the direction is selected as a main and most important and available side and against side is called "back wall" or "front-end". The front side called "façade" the end of Medieval. Affectation and pretense was in the first of way in this period and just cathedral and churches is showed in different form. And the other public buildings such as Municipalities and Guild association were stopped exaggerated pretense. But by renascence, new developments emerged and later turned out to be a problem. In the Renaissance, Board of Trustees of the churches were not only the rich core and customers for architects, But Bourgeois (upstart Merchants, bankers and industrialists) were added to the queue of architects' customers. Architect not only was signing his work in the construction of palaces and public and private buildings; but also, It has become his experience for attraction more and richer customers .so the building should be introduced his designer and builder's skill and art. So the architects tried to creating buildings with especial views and became famous, and this competition so accelerated between architects that these buildings are one of the reason of the cities messes.

2.1.1.4 Façade as Parts of the Whole

Answering to three factors above, in best situation, creates the building with acceptable façade; but in fact, in the urban space, human are not faced with one building and its façade, rather, the building is the part of more big space called city, and its ugly impact on the quality of whole public space and its beauty is subject to coordination with other elements of the site. Building is not an isolated and self-sufficient and should be an element of a unified community in keeping with its character and credibility. As, in a building every part of the total will mean by the other components of the building, in one street or avenue view, the building façade is a parts of whole city. The bricks build wall, in walls "doors" and "windows" and other similar components make Space organisms such as rooms, hallways and stairs and collection of these organisms, constitute the building. Thus, facade, as mentioned, is not independent element, it is a complex knot of tissue, as the street or square or city (Bickenback, 1987).

2.1.1.5 Transparency

Transparency was transferred to architecture while it was one of the Principles of rationalism and a socio-political slogan of time and the concepts of "light" and "transparency" were the main element of New-oriented aesthetics. The purpose of Transparency in viewpoint of first generation of modern architects wasn't merely "the other side of being found" a material to create a visual relationship between the inside and not outside. Rowe (suggests that the purpose of transparency, was much more than that what modernist architects of the fifties and sixties picked up of it. He says that "transparency is always happening somewhere in spaces and places associated with two or more levels Polysemy. He analyzes Le Corbusier's projects and showed how far there is diversity, in the relationship between the vertical and horizontal levels. These are cases that each space will create transparency. Against this relative socialism

of Le Corbusier, heirs of modernist architecture had enough to create "transparency by glass walls". (Figure 2.2). For villas located in the green area, glass façade could be a suitable interface between inside and outside, But it was useless these glass façade for apartment complexes, because glass facades funded purely visual relationship while ventilated internal spaces problem was solved only with the help of complex technical tools and devices (Figure 2.3) . The idea of "full transparency" was appropriate for the type and specific performance of buildings Such as commercial and office spaces, and was used for the special climatic conditions such as central and northern Europe. But this solution was expensive and requires great care. Another consequence of adhering to transparency for light, air, green space and the use of throughout glass was that, material forming by the glass Shells, even if could provide for the continuity of life inside and outside the building; but destroys the interaction between mass and space, and the role of positive and negative space areas.

Figure 2.2: Transparency as Release levels in floors, Villa Stein de Monzie, Le Corbusier, "Les Terrasses", Garches (Vaucresson), France, 1926-1928 (URL1).

Internal and external communications, that evoke two worlds and two different mood, was so important which led to the entrance and windows and facade to play the role of a connector on the human mind and each of them turned out to be a special place.

Figure 2.3: Transparency as vertical levels of space; L'Esprit Nouveau Pavilion, by Le Corbusier, kollaren, Paris, France, 1925 (URL2).

2.1.2 Factors Influencing the Façade Design (Local and Universal)

The architectural thought of any region is impacted by a variety of factors which can be summoned into environmental, historical, cultural, social, technical, aesthetic, economic and political factors alongside other issues that also contribute to the formation of the character of each urban environment. Since these factors inevitably impact façade form and characteristics, they will be investigated within a deeper context of literature.

Robinson and Tanno (2003) believe local and varying environmental aspects have to be respected when designing a building, as the façades can have an immense environmental impact on the internal conditions within acting as the direct interface between what lies within building limits and what lies beyond. Design of façades can and will influence thermal and lighting conditions and hence energy use associated with the provision of these specific conditions Sadly, decisions regarding the provision of such environmental conditions are often considered later in the design process, losing significance gradually.

Scheidet (1998) claims these factors can be studied in two parts: global and regional (local) and the effect of each of these factors and their relation with architecture of building façade can be assessed. While some of these features can be either general or

regional schemes, but the impact of some factors is more important in this part. For example architectural style, age of the building, size of shape, value of the building forms, lights, color and used materials can affect building façade evaluation. But in the Indigenous Territory, this could be another way of keeping up with ways to show local and regional development with different international signs of facade. In each of these factors this resolution can be carried out. For this reason, in a category, affecting global factors (global-General) are pointed out, and then local and regional factors are checked.

Robinson & Tanno (2003) are mentioned general or global factors in facade design as follows:

1. Environmental approaches
2. Period and Contemporary popular styles world in the field of architecture and urbanism
3. Architecture global approaches in façade design- global architectural trends styles.

Local values is investigated as follow according to environment limitation that the building design is created in its region:

1. Region factors: including the location of site, topography, locating the façade design

2. Climate factors: including regional temperature, humidity, wind, altitude, climate and other factors identified in this issue.

3. Cultural factors: Including factors such as language, religion, national identity and historical traditions and social customs in the context of the project is building.

4. Factors style and method of construction: Including byelaw binding rules in

designing the facade in each region, and geographic area, as well as local popular styles in the use of forms or special materials in some areas (Robinson & Tanno, 2003).

Environmental approaches (global sustainable development policy)

Sustainable development was firstly used with the title of "environment" in 1970. Then, international foundations and organizations, in the 1980, reports global strategies of the environment and natural resources, with the aim of achieving sustainable development through environmental protection and natural resources. Indicators of sustainable development can be studied in four groups: social, economic, institutional and environmental. Sustainable development is a process to achieve stability in any activity that requires quick replacement and integration of resources. Sustainable development along with economic growth and human development in a society or a developed economy, tries to obtain sustainable development, through economic development (Sheweka, S. & Mohamad, N., 2012).

Akalin, Wilson & Kilicoglu (2009) in environmental sustainability, energy consumption and the indoor environment are mentioned Sustainability in architecture was presented with topics of reducing energy consumption, local design, adapting to ecological processes, return to the life cycle of the use of materials with titles such as green architecture, eco technology architecture etc. Sustainable architecture is actually a subset of sustainable design, and perhaps it is one of the most important contemporary trends which is the logical response to the problems of industrial age. Sustainable architecture, like other architecture concepts, has principles and rules of its own, and it encompasses three stages, each of them have their own strategies:

- Energy saving
- Design to return to the life cycle
- Design for humans

They mentioned in the research area of facade, are used sustainable along with architecture, leads the mind to the green energy and façade issues and they believe sustainability, in addition to energy categories, covers various aspects such as social, cultural and economic sustainability. Architecture as a whole, can be used in all sectors of sustainability, and play various and effective roles. Architecture tries to improve and stabilize overall architectural elements. Sustainable design, is a flexible design, and can be effective in different situations, and in the long run, takes advantage of having the power and flexibility to adapt to different environments (Akalin, Yildirim, Wilson & Kilicoglu, 2009).

The outer skin of the building (façade) can play an important role in sustainability. For optimum environmental responsiveness parametric façade studies ought to investigate various building orientations, voids and window openings, vertical and horizontal shading devices, building material`s textures and colors (Wang & Hien, 2006), all integrated within the design itself. Going into more detail regarding these considerations, the solid to void ratio is an important aspect. Openings in façades not only play a role in the enrichment of the appearance and the amenity of a building also providing a connection with outdoor spaces, but are one of the major environmental considerations in the design process. This solid to void ratio is governed by a variety of complex factors such as privacy, visual continuity and connectivity, building function, measures of bearing walls, local specific climatic conditions, ventilation and humidity among others (Reda, 2013; Wang & Hien, 2006). Ratio of building openings

imposes a major impact on the energy efficiency of the building`s envelope (Wang & Hien, 2006). Poorly designed and installed openings, for example widows and skylights, can cause the building to become too cool or hot.

According to the environmental aspects Haase and Amato (2004) are studied in selection and use of appropriate materials and the importance factors in sustainable design. The climatic factors is considered in the design of the facade varies depending on the weather in each region, but in general, in every zone the following items is considered in designing façades:

- High or low temperature can be possible using the appropriate façade or green facades.
- Setting the input light for visual comfort, with regard to the climate, should have different dimensions in all four directions. Even the type of awnings and the depth are different in each region, and light adjustment is effective.
- Adjusting the effect of wind, with suitable wind getting for use in space, and reducing the destructive winds, By planting deciduous and evergreen trees, in the right place, depending on the climate and wind direction, reduce damaging effect of wind.
- appropriate Ventilation, with correct placement of the openings, and their correct orientation relative to each other, and even their size can be controlled. Openings should be located further in order that natural flow of air is used.

2.1.2.1 Period of Building

Building cover, as one of the most important elements has background an entire range of architectural history, and many cultural, social, political and even religious manifestations civilization are lent it. In fact, the first and oldest duty of the building cover, protecting humans against external threats. Enclosure, for thinking

Neanderthals, was a symbol of defense and spacing with the outside world. Stay tuned man by dragging a wall chose one of the easiest ways for survival against animal and environmental degradation, and managed to build a shelter. In these shelters, raw and natural material used with the lowest turnover, but their use was not optimal. Gradually use of material were exterminated from their 100 percent nature and normal and they varied. By evolution of the design and built different buildings regional and ethnic distinctions have gradually replaced with local distinctions and climates (Larkin, 2010).

As long as the habitations were habitually reserved for its inhabitants only as o protection and used for protect against external threats, it did not matter what the appearance of the cover or, what it today call "façade". Residences were initially enclosed only with rigid, coarse and seamless walls that were connected to the outer space with a minimum pore. Gradually, the outer walls of the habitats were gutted to light or shade. With increasing economic and psychological stability, little by little, humans did not think of their own home as the fortress to be defended continuously, but also tended to offer it as an appealing look for themselves and their families (Larkin, 2010). Thus, the cover of the building that was originally created to meet purely functional needs, gradually in layers appropriate to express the demands of users, a layer that was able to represent the people's spirituality and decorations in the form of decorations and arrays.

In the scope of history, defend against both types of settlements changed completely. What was resistant to attack animals and bad weather factors, should be resistant to attack other people also. This time around residential complexes defensive perimeter fence and cover emerged. High solid fence was common in most urban core was seen

early. Thus, the task of protecting humans from the walls of the houses was transferred to the towers of the cities, and the walls of the houses were getting freer, lighter and more open than before.

Colquhoun and Frampton (2002) believe the façade was only presented as an independent architectural element, which architects wanted to emphasize through proportions and spatial organization in a particular direction. This was seen mostly in buildings with social and religious functions and in other buildings, especially residential houses were not used. In most of the first civilizations of China and India to Iran, Mesopotamia, Egypt, Greece and Rome, the house was introverted manner, and therefore, and the building did not have a significant external appearance. In many cases, the outer wall of the house was the only uniform plate with the same materials that did not show anything from within itself.

Throughout history, there are three important variables, that the evolution of the facade depends on them .First, the "configuration and network components Front", which is independent element, the second "exponential relationship building facades and urban context" and the third, "How to position the facade in relation to the spatial organization of the whole building ". In modern times, all three of these have been substantially revised. In following the course of this transformation is explained briefly (Frampton, 1992).

First, according to the security needs of users and the climate, the houses were designed introverted, and village-oriented focus, and any field around a social space were called "the gathering place". Looking at the history of the first civilizations of China, India and Iran, Mesopotamia, Egypt, Greece and Rome, it find introspection

House. The oldest houses excavated in Sumer, the traditional home of today, this introspection one of the principles of architecture in the homes of Muslim countries, but it is not the result of Islam, only by fixed and lasting (Frampton, 1992). Interestingly, not only ancient Greek and Roman homes were introverted and formed around a central courtyard, but also Roman villas and palaces of other civilizations which has four fronts or, in the words of today, four facades (figure 2.4), behind the back long wall is preserved from the sight and abduction of strangers. The only examples of extraterrestrial buildings that is seen before the Middle Ages in the West, are very primitive and simple huts, based on European farms, or some single public buildings in towns and villages (Benevolo, 1976).

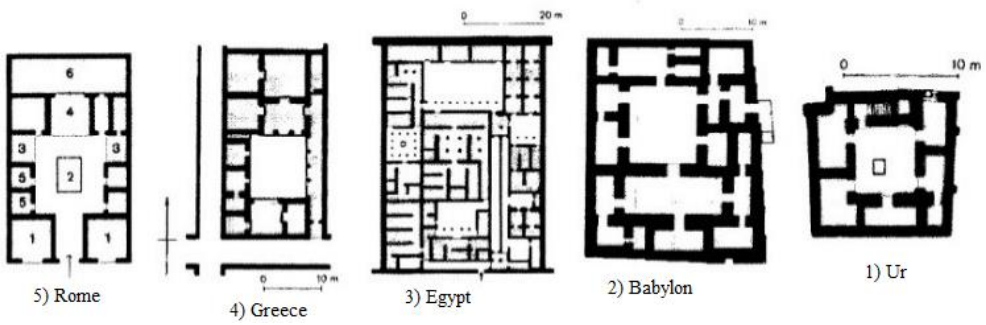


Figure 2.4: Introspection in the history of the formation of housing view, Houses of Ur, Babylon, Egypt, Greece, and Rome (Benevolo, 1976; 134).

Even the principle of extroversion cannot be generalized to the architecture of the public buildings of all civilizations and ages. Because the Egyptians and the civilizations of Mesopotamia and Ancient Iran drew around their temples solid wall thick and long wall, They even were created and the courtyard in front of their rocky temples. Only the Greeks and to some extent the Romans built their temples individually, inspired by wooden huts. But they are also made by creating a joint between open and closed spaces with columns, created a semi-open space, in figure 2.5 which can hardly be called the "façade" of today's concept.

Figure 2.5: Temple of Poseidon at Cape Sounion, built circa 440 BC (Ching, 1943; 126).

Throughout the history of Europe, the window to see the scenery outside the assumed role of a frame, and the outer, the eyes of the building and its residents to the urban space. To still be able to see without being seen, various measures were taken. Technical limitations, and lack of modern materials and dimensions of the window and kept in moderation. In contrast to solve the problem to raise the height of the bottom of the window, the Chinese seat building, invented a variety of networks and fences, and finally, into the immediate spaces on the ground floor non-residential uses were examined. Streets, in the Middle Ages, among compact multi-storey residential buildings were shot. Ground floor, generally in workshops, warehouses and stables, respectively, and the residential sector was up. Gradually, with the development of urban life and the importance of public space, the external display is based in the city was emphasized. With regard to the importance of a city view, sufficient evidence is provided by historical texts. According to "Descartes" always in a certain city officials, who takes care of the private duty was to assist public order (Ching, 1943).

Medieval architecture in the building cover was another cause major changes, developments such as the emergence of large surfaces open up and emphasize the role of visual communication coverage. In a new interpretation of the architectural walls, lighting and architectural space provided and non-structural part of the building cover bearing was separated and recognizable.

According to Ching (1943) studies in Renaissance, Renaissance men believed to be the order of the world, we wanted to order reflected also in homes and cities. In addition, the Renaissance belief emerged that architecture is a science and all its components must be in a mathematical fit and be integrated, so the city streets directly were that of horizontal lines and repeating elements of the uniform were formed. That's why the view of two-dimensional in this period became important and horizontal lines straight roof, without breaking, the arc of the semicircle, flat strips of stones over the doors and windows and pillars in front of the building as core elements facing forward returned (Figure 2.6).

Figure 2.6: Renaissance building; Steward and Palazzo Rucellai" by "Alberti" is an example of the Renaissance house. During this period, the number of openings in the facade rose (Ching, 1943; 209).

Since Renaissance, new developments began to take shape, which centuries later that was the problem. At that time, a change in attitude towards the role of the architect in the design and implementation of building arose. During this period, customers' rich and original architect, the board of trustees of the church and church fathers were not. But the bourgeoisie (merchants, bankers and industrialists upstart) were also added to the queue of customers. Architects during the construction of the "signature" is evaluated, and the history to attract more customers and wealthier than they were, and then the need to introduce the skills and art of architecture itself had the starring themselves, plan building a model is made and notified. The competition over the

centuries, so their acceleration, which today has become one of the ravages views (Ching, 1943). Need lighter and better ventilation on the one hand, and to produce larger glass surfaces in the nineteenth century, led in the early twentieth century, larger windows than walls are transparent. Transparency is one of the principles of rationalism and the principles of rationalism and a political slogan was then extended to the architecture and concepts of "light" and "transparency" were the main pillars of modernist aesthetics (Gutter, 1987). Strength and glory inherited from the past that was crystallized Views, political and cultural questions, and one of the weaknesses and urban development was introduced last. Chastity appeals not to use slogans decorating and also contributes to the problem, the Global windows promoted. It is noteworthy that for the first generation of modern architects transparency merely "find the other side of" a gender, to create a visual relationship between the inside and not outside.

Colin Rowe (1889) studies have shown that, for transparency- in transparency book- much more than it was what modernist architects of the fifties and sixties, it was understood. According to him, "transparency" is always somewhere happens, the spaces, places with two or more levels of meaning can be attributed to ", he analyzes the work of Le Corbusier, showed to what extent, the diversity of the relationship between vertical surfaces and there is horizontal. Where each, creating an atmosphere of transparency .Holistic versus relative Le Corbusier, the legacy of modernist architecture, to create "the transparency of the glass wall" was sufficient. Glass facades are suitable for villas located in a green area, and would establish the proper relationship between inside and outside, but it was useless for residential apartments. Especially the glass facade was merely to provide visual relationship, and fix the problem internally ventilated spaces, only with the help of sophisticated instruments

and devices was technically feasible. The idea of "full transparency" appropriate type and specific performance of buildings (such as commercial spaces office), and the special climatic conditions such as central and northern Europe were usable. But this solution requires a lot of cost and accuracy. Adherence to transparency, on the pretext of providing light, air, green space and use glass entrance had another consequence. Even if the windows could prolong life inside and outside the building to provide interaction between mass and space, the role and background, positive and negative space to die. Convert posing a thin crust, contrary to Protect facade, and so in the seventies and eighties, a strong reaction among residents created, the architects of the revised serious compelled.

Figure 2.7: Philip Johnson’s house in Connecticut, the Glass House, 1949 (Rowe, 1964; 99)

Choosing a rectangular form direction to bring the building. Form a sloping roof and the potential expansion of the building, led to Western man the four façades potentially one that has a front more important and allows you to view and better access the main front against the rear wall or front-end called, two on If you connect it to another context, is a secondary front (Farwell & Burchard, 1933).

Baroque and political oppression, but the architect created a pause in the expression of personality, but failed to destroy its root. Baroque architect, mercenaries and remained subordinate to royal master, until after the dismantling of the aristocratic system, as quickly as possible all the more reparation. In the Baroque era, the building had to exclusively represent the character and reputation of its owner, even if the credit was left to falsification of facts, false credit was created (Rowe, 1983).

In baroque, Space is independent and extends outwards in a tendency to control larger areas. Some characters of façade in baroque are:

- Wide use of ornaments
- Large scale ceiling frescoes.
- Great emphasis on details and the use of color, light and shade, sculptural in façades.
- External facades are characterized by a central projection.

In contrast to renaissance building which can be easily and quickly understood and perceived, baroque buildings are huge and complicated with great concentration on the reflection of power and supremacy (Figure 2.8).

> "The use of columns, domes, towers and oval windows Use of columns, domes, towers and oval windows" (Ching, 1943;257).

Figure 2.8: Baroque building; Villa Amerika and Appuldurcombe House, examples of Baroque façade (Ching, 1943; 260).

Industrial revolution, and the rapid growth of urban population, led to the mass production replaced craft production. In serious condition, the customer cannot be identified, is posing to represent him. Therefore, façade should represent a "function", and later the building structure is introduced. Interestingly, that is, until the late twentieth century, with theorists from Sullivan to Gropius and Wright, the term function, what is it meant to be but rather the nature of a building and its contents are considered, the form must follow it. The spread of American pragmatism, Marxism-Leninism, under the management of Martin Wagner, from 1928 on, the function was popularized to mean the operation and use of space (Blundell, 1990). Since then, for forty years, the performance was turned into a scientific discipline. That any product, you should follow it. Functional architecture, the slogan had become intense, with the aesthetics of Descartes, and the established order, it was glorified glory. Besides these main trends, some of the pioneers of modern architecture, tried to enter the subject of the architecture and design of the facade. For example, Erich Mendelsohn tried to enter the new semantic elements in the façade design (Figure 2.9 sketch Mendelssohn). He knew horizontal stripes in views embodies a new society, where hierarchical (vertical) had lost their meaning.

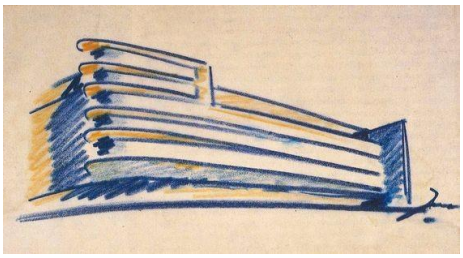


Figure 2.9: sketch of Erich Mendelsohn, preparatory sketch 1919 (Blundell, 1990; 111).

He stretched his volumes "carrier's rhythm of the modern metropolis" will be created by the car. He tapes "horizontal navigation" as a metaphor to show the relationship

between the cars and turned the building form (Blundell, 1990). Reflections on the facade structures interesting history of its own. In addition to structural changes and the space community in the nineteenth century saw changes and developments in construction materials which arose was the basis for a paradigm shift.

In the nineteenth century engineering technology, innovations such as the Crystal Palace in London and the Eiffel Tower in Paris brought together a stimulus to sexual steel transparent like glass, the aesthetics of modernist influence. Architecture engineered to comply, not just the usefulness and functionality borrowed, but "structural integrity" also apply to become an important and doctrine of the modernist architecture and it promoted the method of Mies van der Rohe (Blundell Jones, 1990).

In the twentieth century the pillar of the community industry and daily service broadcasting was swollen. The expensive facilities for large industrial companies, banks and insurance companies an opportunity to gain prestige and showing them (Figure 2.10). Present possible solutions to save urban space, presents a framework while maintaining architectural creativity and express the character of the owner and resident can these trends in order to maintain and improve the quality of urban spaces coordinate.

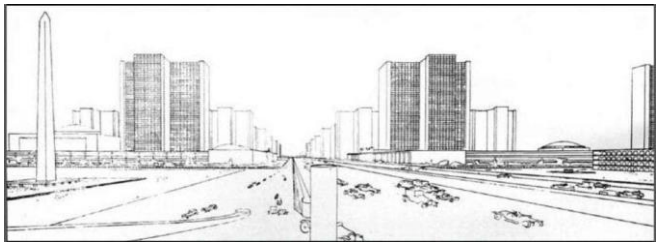


Figure 2.10: Today's image of Le Corbusier, the city of tomorrow and its planning by Le Corbusier (Etchells, 1929; 54).

Pioneers of contemporary architecture, all of a sudden the building of three-dimensional introduced that should be on all sides of perception and experience, they ("Rotated facade" means a view that because of the ability to turn pedestrian around the building, should continuity necessary to meet) spoke.

According to the literature and history that mentioned and briefly, the Factors influencing the architectural design of the building façade in different historical periods are as a below table:

Table 2.1: Characters of building façade in different periods (adapted from global history of architecture; Ching, 1943)

Historical periods	Relation of façade with the urban fabric	Relation of façade with organization building	Configuration and network components Front
Ancient period	Integration of different façade	Introversion	-Façade protective role -Uniform materials -Reduced opening -Wide landscape and lack of detail
Medieval	1. harmony of façade, despite the diversity 2. The fabric of the building façade and the city based on the speed	Extraversion	-Greater openness levels -A ground residential applications -Invention Network enclosures -facades, décor of life behinds the scenes
Renaissance	1. Order with hidden geometry 2. uniform with repeating elements	Extraversion	-two-dimensional view .-Design of non-religious views -straight lines roof -semi-circular arches on the façade -pillars in front of the main element -changing attitudes towards the introduction of an architect with design view
Baroque	1. view of the public space	Reagent	-glaring and seduction -Decorations -Variety of Materials -Regular and consistent network
The Industrial Revolution	1. Heterogeneous with urban fabric 2. Dramatic	Functional	-One Building -Due to the performance -No decorations -Global Window -emphasis on vertical and horizontal lines -Mass production-
20th century	1.Diverse views of the urban fabric 2.Confusion 3.Independent views	Transparence	-No distinction between clients façade design -Diversity -Production of empty spaces between Views

2.1.2.2 World architectural trends styles

To better explain the meaning and definition of "facade", the views of some scholars in the field of architecture, in relation to the building, its layout. And more global approach to contemporary architecture in the area of residential buildings checked. Trends define a generation. In contemporary architecture, they create moods for the industry and determine how our personal space will influence our daily lifestyles.

Le Corbusier:

According to Le Corbusier, "the means to solve the problem from the inside out and enrich the aesthetic concept". This was the thinking that led to the focus of the next generation to be hidden in the plane deviated action and solve the main task of the designer to be considered. This approach is still the mentality of the world's most exclusive architects and managers (Von Moos, 1982). In this field, Le Corbusier in toward a new architecture book is introduced the house as a machine for living, as the car is the machine for moving. He introduced five characters for modern buildings:

"1. The columns lift building from the ground up
2. The flat roof and roof garden
3. The free plan
4. Long and wide windows
5. Free facade, walls and floors for consoles" (Ching, 2005; 291).

Le Corbusier from a modular network with golden proportions to plan and facade design and proportions used and the size of the human body uses the model of his own design. Rowe (1964) in article by name "The mathematics of the ideal villa" entitled mathematics ideal villa Palladio villa with structural similarities between parts of a networked environment Le Corbusier one of the villas has shown. Even though both villa system fit the same and a mathematical regularities excellent follow, but Villa Palladio includes spaces bug fixed and the mutual relations coordinator, while Villa

Le Corbusier, the classes landscape of open spaces in the floor and roof of a new defined made. This approach is in the process of building a significant role that is played in architecture in different parts of the world.

Erich Mendelsohn:

In addition to these trends was that some of the pioneers of modern architecture were trying to bring other issues in architecture and facade design. Erich Mendelsohn in Erich Mendelsohn (1993) tried to enter the new elements in the facade design. He is the epitome of modern society views Landscape Views knew where hierarchical (vertical) have lost their meaning. He symbolizes equality and democracy for Horizontal and Vertical contrasted with an emphasis classic buildings was raised. He stretched his volumes "carrier's rhythm of the modern metropolis" knew that were created by the car. He tapes "horizontal navigation" as a metaphor to show the relationship between the vehicle and the building's form. In the past comprehensively to the approach of the architecture were among the styles that the influence of Mendelssohn in building design and contemporary performance styles intuitive new found "jump cosmic" and "folding" can refer that the most important architects Zaha Hadid and Frank the field he Gehry - the definition of the facade of the new building and found that in most of their works by Mendelssohn's theory in this case is obvious.

Bauhaus and phenomena function

After the industrial revolution and the rapid growth of urban population led to the mass production replaced craft production. In this situation, not posing identify customer specifications can introduce him. Morris (1992) in Bauhaus on the Carmel and the Crossroads of Empire mentioned the facade should represent a "function" and later the building structure. Interestingly order theory theorists, including Sullivan, Gropius and

Wright to late twenties of the twentieth century, the term function, which is used at the time, but the essence of a phenomenon meant. The content of a building he was considered the very essence of that form should follow it.

2.1.2.3 Site, Location, Region, Topography

The site and context are yet another major façade design factor. Building site size, configuration, topography, geotechnical characteristics, ecological features, accessibility to property, etc. are site forces which cannot be excluded from façade design. These forces play an important role in specifying locations of entrances, main facilities and the general layout of the building alongside façades. According to LaGro (2001), studies Contextual forces include the nature of the surrounding fabric of natural and built elements. The existing patterns and characteristics of surrounding fabrics can provide clues for designing facades, influencing the configuration and use of material, style, colors and materials. Also, when buildings are built adjacent to or between existing buildings they should be responsive to their existing context through their design, and also should represent a transitional treatment what is old and what is new. To facilitate the transitional potential of new buildings in its simplest manner, their design can match cornice line, follow a colonnade, use similar materials and relate building proportions. Existing buildings of a city can be used as reference material for the design of more contemporary buildings, so the built environment becomes more and a mosaic of coherent units.

For construction of any building, first of all, there must be space and plots of land. In architectural science, this piece of land is called "project site". The most important work in architectural design, is having a thorough understanding of the context of the project. The following factors can be studied:

"1. Investing the situation (neighborhood)
2. Access Network (paths)
3. Climate Analysis
4. Analysis of Site Geometry
5. Checking the view "(Shuqai & Abdel-Aziz, 2014; 20).

Façade affects some items in building, which require special considerations, Including: the orientation of building and facade, doors and windows, building materials, color and texture of the exterior facade, and all shading elements, all of which are designed with the integrity with the site. Investing the details in this regard is important aspects of rigidity and flexibility, openings play important roles in enriching the appearance and amenity visual of façade, so how to connection to the open space in a building, in addition to environmental aspects, has the beauty and flexibility in design of facade. The rigidity of the façade depends on managing the complexity, confusion and a variety of factors such as privacy, visual continuity, connectivity, performance, local features and climatic conditions (Wang & Hien, 2006). Among the most important effects of site on the facade is the placement of whole façade and openings, in addition, according to direction of sun light, access, geotechnical features, environmental characteristics, and climate of the site, the façade is designed.. The Contextual power available on the site specifies an integrated nature of natural elements with synthetic elements in the facade design.

LaGro (2001) in Site analysis book mentioned collectively, the features of the site and its surroundings, in conjunction with the project's program, determine the attribute data that are collected for the site inventory. Site inventories map important physical, biological, and social or cultural attributes (Table 2.2). These may include circulation patterns and traffic volumes, existing utility systems, or architectural character within the surrounding built environment.

Table 2.2: Site analysis; physical, biological, and cultural attributes that mapped at the site scale: (Adapted from site analysis by LaGro, 2001)

Categories	Subcategories	Attributes
Natural	Soils	Bearing capacity Porosity Stability Erodibility Fertility Acidity (pH)
	Topography	Elevation Slope Aspect
	Geology	Landforms Seismic hazards Depth to bedrock
	Climate	Solar access Winds (i.e. prevailing or winter) Fog pockets
	Vegetation	Plant communities Specimen trees Exotic invasive species
Biological	Wildlife	Habitats for endangered or threatened Species
Cultural	Land use	Prior land use Land use on adjoining properties
	Legal	Political boundaries Land ownership Land use regulations Easements and deed restrictions
	Circulation	Street function (e.g., arterial or collector) Traffic volume
	Historic	Buildings and landmarks Archaeological sites
	Sensory	Visibility Visual quality Noise Odors

Façade is a function of visual potential and existing mystery in site, including below items:

"1. Color and type of materials
2. The amount, direction and dimension of openings
3. Design of views visible with proper design of facade
4. Orientation of facades and inviting site
Enhancing visual quality and attention to nature
6. Access the site and role of façade on readability
7. Natural elements associated with building through the facade
8. Input of façade as analytical element of Site
9. Paying attention to the proximity of site and facade design based on the neighborhood
10. Coordination of façade with texture of site Including the use and potential
11. Coordination of cultural and historical site with designed façade
12. Improving customer satisfaction and quality of the space with Coordination of site plan and façades" (Robinson and Tanno, 2003; 12).

The low number, and simplicity of human settlements before the Industrial Revolution made identifying and analyzing issues of settlements easy. But after the Industrial Revolution with the progress of science and technology, architecture, and expanding the size and diversity of types of applications and creating new applications, new issues arose in the cities, which made cities out of primary organic state. Thinking of city as a machine for living changed the basic concept of city. The combination of these trends, attracting the attention of urban planners and geographers to locate an plan according to proper planning, requirements and capabilities of city, in a proper neighborhood, and taking into account all the needs and specific characteristics.

The majority parts of the buildings in a residential complex are residential structures. Studies related to housing, residential density, and the like in each planning are of particular importance. Housing planning must be comprehensive considering weather conditions, natural condition, and sociocultural conditions, or factors related to urban economy. The result of these studies determine the texture and view of communities,

and response building of residential complex with its dependencies. Residential buildings is composed of most of the buildings in each Bio collection. Housing planning should be considered with a comprehensive view of the natural, social, and cultural conditions and / or factors related to the urban economy and determining the face and texture of neighborhoods and responding to building a biosphere with all its dependencies (Reda, 2013; Wang and Hien, 2006). Residential divisions: Villas, residential units, apartment complexes and abandoned units locating residential places: to create a suitable location for of residential use, residential neighborhoods should not be in areas exposed to pollution in no circumstances, and should not be in places without enough light, should not be in places with extra humidity, and exposed to noise.

Among the most important effects that locating could have on façade following items can be mentioned:

> "1. Local, regional and municipal Integration of land and facade
> 2. Environmental and social integration
> 3. Façade Weight according to the model of building location
> 4. To Interact and communicate effectively with regard to land planning and locating
> 5. Accommodation encourage and proper spatial distribution with locating to continue Network loading of place properties in the Facade
> 6. To define anticipated use quality of the place according to locating programs.
> 7.The composite or generally prevailing weather conditions of a region, as temperature, air pressure, humidity, precipitation, sunshine,cloudiness, and winds, throughout the year, averaged over a series of years"(Robinson and Tanno, 2003; 42).

2.1.2.4 Climate factor

Climate has ever been a problem in the design of buildings, and its control a major factor governing architecture. The shape of buildings has been greatly influenced by the requirements of climate, because climate imposes limitations-the problem of

designing buildings that are in harmony with the climate. Climatic determinism has been widely accepted in architecture geography, although it has recently found rather less favor. No need to deny the importance of climate to its determining role in the creation of built form and façade as well. In architecture the climatic determinism view, still rather commonly held, states that the imperatives of climate determine the form and façade of shelter and building for primitive man until now (Givoni, 1969).

In Cambridge dictionary (2008) definition of climate word is:" the composite or generally prevailing weather conditions in region". Climate denotes the meteorological conditions local only to a particular place, like the radiation, air currents at ground level, temperature, humidity and precipitation peculiar only to a limited area. It is the latter which architects have to encounter and intimately know, so that they do not compete against it, but go along with it and derive the best results from its beneficial qualities, and guard against the ravages of its undesirable qualities. It can be said to be the part of nature that immediately surrounds a building and enters it, not just superficially but deep into its character. Though climatology may appear to be a new science, the architect has been a climatologist far longer than he may realize, because the architect throughout the ages has been controlled the climate through orientation, site and town-planning devices such as tree-planting, wind-breaks, etc. History may provide some valuable lessons, and also explain these differences. It will reveal that the characteristic features of the architecture of any country were developed through special influences. Sir Bannister Fletcher (1987) gives prominence to six: (1) Geography, (2) Geology, (3) Climate, (4) Religion, (5) Social customs and (6) History. A review of the history of architecture may provide illustrations which will indicate the major role of climate in developing architectural characteristics. The simultaneous

influences of other factors, such as geographical and geological conditions, historical and artistic background, economy, technology and availability of materials, should also be taken into account, for often two places, with similar climate, may have different architectural expressions. But a careful analysis will reveal the fundamental characteristics, which will show surprising similarities.

> "Climate, as it affects human comfort, is the result of air temperature, humidity, radiation (sunlight), air movement (wind), and precipitation (rain). To achieve comfort, these factors need to be handled in such a way as to establish some form of balance between the environmental stimuli so that the body is neither losing nor gaining too much heat, nor is subject to excessive stresses from other variable. In climatic terms, therefore, a building needs to respond to heat, cold, ground and sky radiation, wind, and other stresses, and the various parts of the building may be considered environmental control devices" (Fitch & Branch, 1960; 136).

Givoni (1969) in climate consideration in building and urban design studied below items:

Temperature

Temperature is the degree of heat of a place, and depends on the radiation, latitude of the place, its height and surroundings. The temperature based on the permeability of the building and the interior structures is a contribution to the welfare of the population living in it, so that by necessity in the area of hot, dry or areas with extreme coldness, shape, form and type of materials in the facade are to achieve the desired temperature that has shown a lot of changes in different climates. A study of the diurnal cycle of temperatures for the year would reveal useful information. This study lead to the design and location and shape of openings, the use of shades, the type of roof, insulation, material and color the façade, either light or dark according to its needs.

Wind and Humidity

These are related phenomena with temperature, and play a vital role in causing physical comfort or discomfort. At high temperatures most breeze creates comfort conditions, whereas dry breeze cause more discomfort. These would suggest itself to the architect, as to when passage for air currents are necessary. For good ventilation in tropical climates, not only must rooms nearly as possible face breeze, but the shape of the rooms and the relative size and position of the doors and windows have to be correct. It is important that there should be ventilation fairly near the ceiling, high up in the walls, or actually in the ceiling to let the heated air scape. The side of the building facing the breeze needs to have more window area and preferably low in the wall, than the other side, to avoid the creation of draughts by suction.

Rain

The intensity of rainfall of a place strongly influence its architecture, for dependent on that the architect decides on the most suitable slopes for the roofs on his buildings, the overhang, the method of storm water disposal both from the roof and from the ground, the arrangement and placing and size of windows and use of material and balcony in façade.

Sunlight

Sunlight is necessary in buildings, because: 1- there is an evident desire for it as it has a psychological effect on well-being; 2- it is a powerful bactericidal agent; 3- it has specific curative effect in certain illnesses and a stimulant to a person’s resistance to illness; 4- it is essential for the growth of living bodies; 5- it facilitates ventilation by causing convective currents; 6- it can be used as a source of heat. Thus, it will be seen that sunlight is an important factor, not only in a biological manner, but also because

the other elements of climate are in turn dependent on it and influenced by it. It is important to know how much of solar radiation is best suited for the particular place. If it is situated in a latitude far north or south, it would be necessary to avail of as much solar radiation as is possible; on the other hand in the tropics, it would be necessary to intercept most of the solar radiation, not only in buildings, and its immediate surroundings, but also in the town-plan and its region-plan (Givoni, 1997).

Table 2.3: Main factor of climate; adapted from climate consideration in building and urban design by Givoni, 1997; 29-44).

temperature	Cold- dry; Humid -heat
humidity	Low, high
Wind	Desirable or undesirable, and hence whether it should be encouraged or discouraged.
Rain	Comes mostly under construction, but involves climate by the need to keep out rain while retaining ventilation, especially in hot, humid areas.
Radiation and light	Desirable or undesirable, and hence whether it should be encouraged or discouraged.

While these could be arranged along the climatic scale according to severity, they will be examined for the responses they generate in terms of form, materials and façade.

In different climate some factors are important to buildup and create comfort conditions for residents. These items are: the position of building, shape, size and location of opening, size of buildings, form and shape of buildings, use of material, ventilation.

Façade design in different type of temperature:

Architectural design of residential building used to be developed by accumulated observation from immediate surroundings. Design without designer method passed on

from one generation to the other. Conversely, contemporary design style that is developing recently tends to be more universal and ignores the nature and its environment (caricature in figure 2.11).

Figure 2.11: Façade design in different climate; Architecture must be seen also as a cultural process not only as physical product (Prianto, Bonneaud; 80).

Traditional society gave us data about the relation between building physical performance and climate condition. Buildings that rely on natural qualities for comfort need to be thoughtfully planned. Their location, material, opening, roof, mass of building orientation, and plants nearby matter. They also need to be shaped to avoid direct sunlight and catch breezes. Buildings that use the following strategies can be comfortable (Koch and Nielsen, 2002).

In following part it will be investigate façade design in major type of temperature:

-Hot, dry areas are characterized by high daytime temperatures and uncomfortably low nighttime temperatures, a fluctuation best met by delaying the entry of heat as long as possible so that it will reach the interior late, when it is needed. Koch &Nielsen (2002) are explained; This is achieved in façade by use of high heat capacity materials, such as mud, stone, and various combinations of these which provide a “heat sink,” absorbing heat during the day and reradiating it during the night; by as compact a

geometry as possible, which provides maximum volume with minimum surface area exposed to the outside heat; by mutual crowding, which provides shading, and reduces the areas exposed to the sun while increasing the mass of the whole building group, thus increasing the time lag. Heat buildup by reducing the number and size of windows and placing them high up to reduce ground radiation; by painting the house white or some other light color to reflect a maximum of radiant heat; and by minimizing ventilation during the hot time of the day. Another device for increasing the dwelling's heat capacity is to use the almost infinite heat capacity of the earth. Another instance is the widespread use of double roofs and the use of shutters, but the choice among these different solutions, as has already been suggested, is culturally determined.

-Humid Heat**:** Buildings in hot-humid climates need to be different from those in hot-dry climates. Heavy buildings can moderate the temperature in dry areas. In places where the climate alternates between dry and wet seasons, heavy buildings are comfortable in the dry season, but during the rainy season are damaged by mold growth caused by condensation. Buildings in humid climates are also subject to more intense attack by insects, and materials rust and decay much more quickly than in other environments. One of the most important goals is to build of "lightweight and low heat-storing materials" so there won't be much heat radiated towards the inside. Traditional building materials like wood, grass, palm, and bamboo are cheaper as well as cooler than masonry. Humid heat areas are characterized by heavy rainfall, high humidity, relatively moderate temperatures with little daily or seasonal variation, and intense radiation. The required responses are maximum shade and minimum heat capacity. Heat storage has no advantage when there is little temperature variation, and

heavy construction will hinder maximum ventilation, which is the primary requirement for helping the body lose heat. The requirements, almost the exact opposite of those for dry heat, call for open, low heat capacity buildings with maximum cross ventilation, and hence long narrow geometry and widely separated forms, with walls at a minimum. The building should be located on the windward side or crest to take advantage of cool breezes. The buildings could be long and narrow to allow cross-ventilation. The form of the roof should be planned to promote air flow. Vents at the rooftop effectively induce ventilation and draw hot air out.

The openings should be shaded by external overhangs. Use of mosquito netting curtains inside walls of openwork or vent blocks. Windows or shutters on one or two sides can block breezes on cool evenings. Screen porches or verandahs to allow openings to unscreened windows in the center of the building. Outlets at higher levels serve to vent hot air. The openings should be shaded by external overhangs. Outlets at higher levels serve to vent hot air.

The walls should be painted with light pastel shades or whitewashed, while the surface of the roof can be of broken glazed tile (china mosaic flooring) to reflect the sunlight back to the environment, and hence reduce heat gain of the building (Figure 2.14). The use of appropriate colors and surface finishes in facade is a cheap and very effective technique to lower indoor temperatures. The surface finish should be protected from/ resistant to the effects of moisture (Koch and Nielsen, 2002).

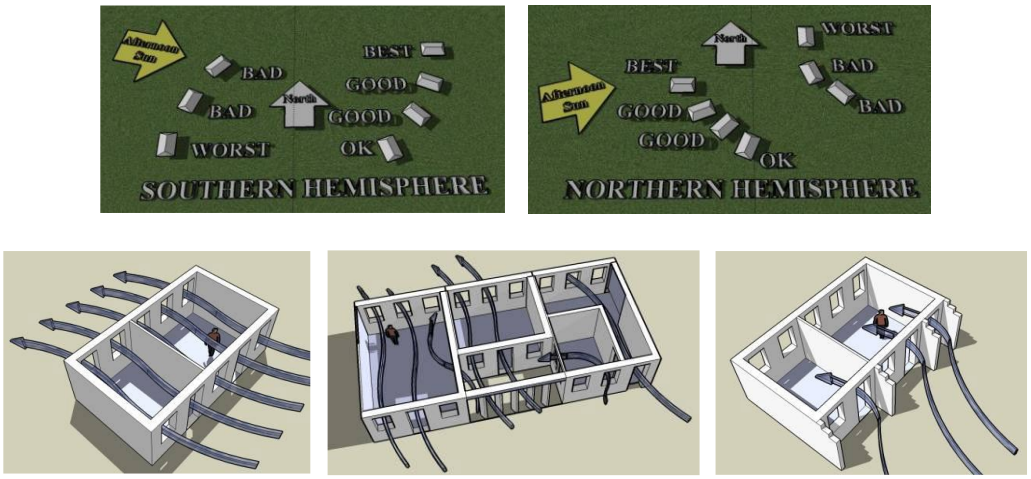


Figure 2.12: Building and windows position for ventilation: Keeping sunlight off of building walls (Givoni, 1969; 52).

-In cold climate: There are different degrees of cold, and variations of intensity and duration, but the principles for keeping warm are the same and relate closely to those for arid heat. The same principles apply, except that the source of heat is now inside rather than outside, and the attempt to stop heat flow is in the opposite direction. In this climate, The building are located side by side in a way that enclose each other and the urban spaces become as small as possible to reduce the cold wind penetration into urban spaces The extreme cold weather during the greater part of year in cold makes necessary for residential areas to take advantage from maximum sunshine, daily temperature fluctuation, heat protection and prevention from winter cold wind. So the form of building is designed and constructed to cope with extreme chill. The buildings form in the cold region have a compact plan and texture. The building formation should be in a way that reduces the contact surface with outer chill so that less heat may transfer from inside to outside. Small openings in low numbers are used to prevent the thermal exchange between outside and inside of the building in these regions. If the windows are large, it’s necessary to apply a shade.

The openings used in the south side are larger and longer to take maximum advantage of sunshine. Also it should be prevented from settling the openings in the direction of cold winds. Double walled windows are also proper to minimize the thermal exchange. Meanwhile, the rate of internal air exchange and natural ventilation should be minimized as much as possible to prevent from breeze in the building and inner heat exit to out. In comparison with warm and dry regions, the dimensions of openings in this region are increased to make use of heat energy of sunshine. High thickness of walls, in turn, also prevents heat exchange between inner area of building and outer environment.

The standards of architecture in cold regions are nearly similar to those of warm and dry regions; and the only difference is in heat producing sources. In warm and dry regions this source is from out of building but in cold region is from inside. Roof buildings in some area with cold climate have steep roofs but some regions often have flat roofs. The steep roofs, if covered well, are much better than flat roofs because the rainwater is easily directed away from the roof. But if it is depends on the material.

The materials used in buildings in cold and m regions, like in other regions, are from the available materials there. These materials should have a good thermal capacity and resistance to keep the building warmth in its inner area. So the body of these buildings is from stone (or wood, cob mortar, adobe and bricks).Table 2.4 shows the effect of climate elements on façade building:

Table 2.4: Impacts of climatic factors on the façade design (adapted from climate consideration in building and urban design; Givoni, 1969).

Climate elements	The climatic elements in façade building
Sunlight	-Stretch of facade -Building orientation -Based on the skylight and opening on the Southern Front -Use awnings and windows according to the amount and intensity of sunlight
Temperature	-The use of appropriate materials -Insulation -The number and area of the openings -Reduce the adverse effects of air temperature using the form building
Humidity	-Resistant materials in the rain , -Façade role in reducing interior condensation and humidity indoors
Wind	-Low-pressure areas, parts of the high-latitude -Direction from north to south and from West to East -Depending on the wind direction in the valley because of the difference of night and day -In mountainous areas, the temperature difference causes local winds -Elongation and orientation of buildings according to the direction and wind speed
Rainfall	-The average annual rainfall low and medium -To Choose materials that are resistant to the rain

2.1.2.5 Building material, technology, system

Materials form an integral part of the facade buildings. The site selected as well as the nature of the surroundings, determine the facade type, and choice of building material. The type and form of structure is determined by the type of material used. The concept of "façade materials" glorifies the endurance and visual aspects of design. Not only does it provide meaning but also enhances the aesthetic quality of a building (beauty and structure). This part takes a look at the reasons that make building materials an important aspect of architecture. Façade materials help to:

• Establish a relationship between visual quality and structural stability

• Select the appropriate technique of construction

• Provide character and visual appeal to the structure

• Decipher the time and era of construction of a building

• Trace the evolution of the art of construction

• Mix aesthetic elements with practicality highlight the theme and concept of design of the building project

• Determine the appropriate site for a project based on availability of material and suitability to the design

• Determine the budget of building projects

• Establish a relationship between quantity and quality.

Building material signifies structural existence. It demonstrates the presence of aesthetic sense in a design, and hence, defines the practicability of the structure. The use of building materials while designing a structure is symbolic of its existence in the field of architectural visualization. It helps establish a relationship between the visual quality and structural stability in architecture. The building material selected by an architect generalizes the type of architecture practiced in the construction. Architecture focusses on the techniques of construction, which are in turn, based on the design concept or theme. The execution involves adoption of different kinds of masonry styles signifying various types of architecture, based on the kind of construction technique(s). There was a time when complete structures were built of a single building element. Today, things have developed to such an extent that different elements are used in different nooks and corners of the same structure:

Visual Impact

The building material affects the vision of a structure, as it deals with the appearance-related qualities of the structure. It also impacts the durability of the structure. Hence,

the character of the architecture is determined by the quality–quantity relationship of the building material used. It also influences the theories of simplicity and complexity in the context of architectural design. It has encouraged innovation too. Naturally, building materials have been an important part of architectural symbolism. They have completely revolutionized the field of architecture by creating iconic structures all over the world. Structure and material reflects the kind of architecture used with respect to the function of the building. It is that aspect, which literally describes a structure. It is also the aspect, which helps to conserve and preserve cultural and historic values. In a religious structural design, the kind or type of building material used depicts the kind of architecture. For example, the building material used in mosques is characteristic of Islamic architecture, which is distinct from that of temples, which transport us to the majestic era of their creation. The kind of architecture, the form of art and the customs of a period or civilization are glorified by:

1) The kind of material used as the basic element

2) The availability of the building material, in the period when the structure was built

3) the dressing or technique in which the building material has been used As far as sacred places and their relation with architecture are concerned, building materials are responsible for the presence of cultural spots on the world map.

The kinds of symbols used on these structures show the time of erection and provide information about the period in which they were built and the kings who got them built. Hence, building materials also act as time logs and help us learn how art in construction evolved. Be it sacred places or any structure of culture importance, building materials contribute greatly to the retention of the true aesthetics of the theme and function of the structure. They preserve the customs and traditions without

tampering with the philosophy of the design. Not only do building materials instil a sense of function and utility, they provide aesthetic pleasure without losing focus of the practicality.

Elements of a building structure

The elements of a building structure are typically based on the kind of material used in its construction. Each and every division of space in a design takes into account the main theme or concept of the structure. Depending upon the building material(s), each element of the building is related to the other in terms of the concepts of color, dressing and outlook. The materials used for an element also, quite often, contribute to its terminology. These materials bring out the theme and concept of the design quantitative aspects, depending upon the type of design. The material used establishes a relationship between the endurance of a structure as well as the technical and structural aspects of the design of the built environment. The beauty of architecture can be enhanced by repeated effective executions of these interrelationships. It is possible to obtain astonishing outputs by taking advantage of these very interrelationships.

Architecture is born out of the shrewd of concept and matter. Through history architecture has been shaped by the continual transformation of material technologies and application methods. Its course of development is inseparable from the shifting terrain of technology and the social effect that result. Innovation new material is motivated by variety factors. The recognition of an acute social, economic or environmental need can spur novel solutions, as seen in the development of the sky scared in land- starved cities in 1880s, modern social housing during the 1920s, and urban expansion during the 1970s oil crisis. The expansion of new technologies

beyond their original field can also spark innovation, such as material developed for military or aerospace uses that find their way to the consumer marketplace. The most significant developments in contemporary architecture is in the first 19th century that affected specific representations in architecture of world. The dramatic developments of this period, the forms and architectural styles, along with transformation and metamorphosis in building materials have led to a range of building types with different views. In the meantime, advertising of companies about construction materials, has had an impact on progress in manufacturing technology. And accordingly, the special division for the application of building materials in contemporary architecture of world can be considered. Architecture requires a clear purpose and must be expected with conviction and precision. This goal demands thoughtful consideration of every space, system and material in a project- especially elements introduced by consultants and the contractor, which must be closely mentioned for the purpose of design integration. Building technology in façade design is not to be given less of importance. With the advent of architecture and the pinnacle of scientific progress in construction techniques, for example the use of steel and concrete, construction processes have been greatly impacted and facilitated, giving way for more freedom in the building and façade construction hence design. New technologies also examine the growing interest in incorporating advanced glazing elements into more comprehensive facades and building systems in a manner that increases comfort, productivity and amenity for occupants and reduces operating cost.

In this part briefly consider some material and its character in façade design from buildings materials technology book by shrivastava (2012):

Type of material mineral

Earthen minerals were some of the first materials that early hominids used to make shelter and tools. Archaeological records indicate active manipulation of stone during the prehistoric period known as the Stone Age into the copper and Bronze Age roughly marks the beginning of the recorded history. Loam, Stone and ceramic were fundamental to the genesis of the civilization, and they give physical form and order to the first cities.

(a) (b)

Figure 2.13: Use of mineral material; a) teotihuacun mexico, b) changcheng great wall (shrivastava, 2012; 49).

Stone

Rock is the product of crystallization of liquid magma .the most common type of stone used for building include granite and basalt(igneous), sandstone and limestone (sedimentary), and marble, slate, and gneiss.

Figure 2.14: Stone in façade; horten Copenhagen (shrivastava, 2012; 63).

Stone Façade

Using this method became popular in the mid-60s and it is still on going. For stone facades of stone plaques, colors and sizes to provide, such as travertine, Garden Silk, marble or stone of scissors, which has a rough surface, and in places where the architecture, the need to so violence is on the surface, is used. On the surface of some stone facade porous is available. These holes, very convenient to install because cement sand mortar from the rocks, intruded into these holes, and prevent its separation from the facade. Including travertine. Some stones such as rock gardens, silk, marble, marble and Chinese stones with polished surface and due to the stone, property suction is not, well, facade does not stick, and May later facade is separated, and fall. The reasons for the suitability of the stone facade, in a few cases have been summarized by construction experts:

1. No change in color and absorb dust
2. Moisture resistance
3. The variety of colors and sexes
4. Run fast, easy and clean
5. Heat Insulator and without foundation
6. Ability to run on all levels
7 - The easy restoration
8. Flexibility and the ability to form proper accountability on all levels
9. Ideal for interior and exterior decoration of buildings, shops, cafes and restaurants
10. The abundance and availability
11. Ability to create the desired shape (manual and automatic)
12. Durable (if appropriate)
13. The cost of maintaining a relatively low.

Select sizes and stone depends on where it is used. Stones that are used in the exterior, in front of climatic factors such as sun, rain, gases in the air are resistant. In front of the stone, may only be a stone or multiple stones variety. With a well-designed and coordinated the rocks at each other, beautiful stone facades can be created in the building. Attention to use of stones durable high resistance against frost and bad weather and the environment (sun, water and humidity) with tissue and the desired shape without cracking, porosity, pore, and money and economy. Stone facade has several types, which can be major differences in the different types of rocks found in nature called.

Some type of stones that are used in façades:

-Pebble stone façades

-Recycled stones

-Cut stone for façades

Loam

Loam consist of equal parts clay, silt, and sand. Loam is a relatively weak material, which can be strengthened by adding gravel and organic reinforcing material such as straw. Loam is typically employed in one of two form: as prefabricated bricks and blocks or as loose bulk material for in-situ casting.

Using brick in façade:

From Uruguay in South America to Japan in the easternmost point of the Earth, from the islands of Madagascar in South Africa to England in the northern part of Europe, "brick" is a sign for architecture and is a symbol of humility, nativism, and interest in history. Brick was the most widely used building material in the world and it still is.

All kinds of brick occupies minds of great architects in the world. Modernists such as Walter Gropius, Frank Lloyd Wright and Alvar Aalto, worked with bricks in their buildings beautifully and with maximum impact possible. From the depth in history and Roman bridges, Ziggurats, temples and monuments such as Taq Kasra, that they are all superior monuments in their era, to the theory of modern architecture with soil and towers of brick, and even the theory of housing in the future on another planet, they are all about "bricks".

Figure 2.15: Imperial Hotel, as architect Arata Endo apprenticed Wright on that project (URL 3).

Today Brick is considered one of the sub fields of Earth Architecture. It is still in subdirectories of architecture, because of the color, size and strength, brick has a wide variety, and favored by most designers. Brick has no restrictions about the form, structure, materials, and climate, because it is flexible, durable, cheap and with identity, and it is easy to work with. In addition, there is the possibility of making bricks in every time and place.

Ceramic

A ceramic is a nonmetallic material, such as clay, that is transformed by heat into a stone like substance. Common ceramic elements used in building construction include bricks, pipes, tiles, and ceramic panels.

Figure 2.16: Ceramic in façade; Yong He Gong in china (shrivastava, 2012; 90).

Despite the changing in load- management practices, stone and ceramic are still used. After the ascendance of steel, concrete and wood stud framing system during the nineteen century, earthen material were applied in veneer form- layered with other materials to create architectural surfaces with durability and presence.

Concrete façades

Concrete is a product of the impulse to replicate the beauty and performance of stone with the pliancy of a viscous liquid during the casting stage.it is considered the first artificial, as well as hybrid, material and has played a pivotal role in the history of building construction given it widespread use. By the dawn of the twentieth century, the age of concert has begun. Augusta Perret used this material for the façade of an apartment Block in Paris in 1903. His disciple Le Corbusier demonstrated the newfound freedoms permitted by reinforced- concrete technology in his Domino system of 1914-a prototypical structural framework that eliminated the load- bearing requirement of façade – establishing the conceptual signification of this technological approach. Although concrete became the basic of a new iteration of treated from of construction characterized by liner beam, columns, and plates; Le Corbusier's Notre Dame du Haunt (1955) signified a departure from this rational system (Figure 2.17).

Figure 2.17: Concrete in façade; a) Le Corbusier, Notre Dame du Haut. Ronchamp, France, 1995; b) steven holl architects, simmons holl; (shrivastava, 2012; 106)

Wooden façades

Wood has been used in construction building since before written history and is one of the most familiar and tacitly appreciated materials. Wood is associated with strength, lightness, warmth, and tactility and subject to decay like any natural material. Stone and wood are associated with the original forms and shelter. Because many primitive humans lived in or near forest, they gained extensive experience using wood as building material. In modern, the industrial revolution led to the mass production of highly engineered building components. While this development facilities the rapid construction of small scale building such as single family residences, it also gave birth of an industry focused more on expediency than innovation. The house that Frank LIyod Wright designed for Herbert and Katherine Jacobs in 1936 in modest in scale yet bold in its aspirations (Fig. 2.18).

Figure 2.18: Use of wood, Frank LIyod Wright, Jacobs House, Modison, Wisconsin, 1936, corner details with planet box (shrivastava, 2012; 137).

Wood's supportability to decay is well known, and various preservation method have been developed to limited deterioration in wood use for building construction and façade. Other method have been developed to yield wood with unprecedented flexibility (Figure 2.19, a). Christian Luther's development of the hot plates press in 1896 made curvilinear form in plywood readily achievable (Figure 2.19, b). So by this method has increased the wider design range for facade and building (Brian Arthur, 2009).

(a) (b)

Figure 2.19: (a) Issho Youtoku restaurant, Tokyo, japan 2009, detail of exterior vertical louvers; (b) Grand design steam bent timber house with Kevin McCloud (shrivastava, 2012; 209 &211).

Steel

Metal is the material most explicitly identified with periods of human civilization: the silver Age, Bronze Age, or Iron Age for example. Throughout history, metal has symbolized modernization- from early modern tools to amorphous metals resulting from nano- technological experiments, metals have propelled the advancements of society. Metal continues to define significant future trajectories for architecture. Although the Age of steel experienced its apogee during the twentieth century. The search for strength and beauty likewise motivates the use of metal in architecture, in both the application as building structure and as skin. Gustave Eiffel's tower in 1889 is the building that the metal was expose in building.

Figure 2.20: Gustava Eiffel's tower, Paris, France, 1889 (Shrivastava, 2012; 217).

In modern, application of metal in architecture reveals a fascination with industrial production and technological advancement. Embarking the machine aesthetic, architects utilized exposed –metal structure and façade and cladding for institutions and residence- functions that had previously been fulfilled by masonry, wood, or earthen material. Mies van der Rohe's architectural tour- de- force, Fransworth house, situated the Fox River south of Plano, Illinois, is an essay that subverts the unstable relation between man and machine (Figure 2.21).

Figure 2.21: Mies van der Rohe, Farnsworth house, Plano, Illinois, 1951; (buildings materials technology book by shrivastava, 2012; 227).

Architecture and engineers can collaborate closely in search for enhance design authenticity that express the performance of a building in its form and façade. This integrated approach seeks a visual expression for a building structure and façade by use of different material. During design process metal components may be fabricated precisely using computer controlled machinery that ensures a high level of quality

while minimizing waste (in figure 2.22, a). Metal also is a material which gives to the façade building texture and variety of colors and pattern by composite (Figure 2.22, b). Aluminum composite panel is one of the most function production of metal which is used in façade design this century. Because of high its performance.

(a) (b)

Figure 2.22 :) a) Sekki Ltd., Jinbocho apartment, Tokyo, 2008, exterior view; b) Colored metal; Nakamura & Lanvin house, Tokyo, 2004 (shrivastava, 2012; 227).

Glass

Glass is a material suspended between contradictory physical and perceptual states. In architecture, glass is utilized for its transparency and often regard as immaterial; yet depending on its particular characteristics and position relative to light source. Many architects believe glass as an invisible substance which allows direct connection between outside and inside or interior and exterior realms, others appreciates its dimensional and textural capacities to refract and suspend light rather than simply transmit. In modern the skilled integration of glass and iron was so executed in the construction of Crystal Palace in 1851 designed by Joseph Paxton, that this building now is considered the edifice that launched the modern movement (Figure 2.23,a). Another important modern structure with glass is Pierre Chreau's maison de Verre (House of glass) in 1932 that the walls were made of translucent glass bricks. No historical appraise of modern architectural glass would be complied without refer to

Philip Johnson's Glass House in 1949, by completely revealing the private activities of the home (in figure 2.23, b).

a) (b)

Figure 2.23: Glass façade; a) Joseph Paxton, the Crystal Palace, London, 1851; b) Kengo Kuma, water glass house, Japan, 1995; (shrivastava, 2012; 268 and 289).

Some technologies development in glass to use for façades:

The most sophisticated new architectural glass products incorporate both active and passive technologies to reduce solar- heat gain, mitigate thermal transfer, harvest energy, as well as provide illumination and/ or heating. Color is also a powerful design element in glass façade. The cladding of the Inotera Headquarters 2004 by Tec design studio in Taipei features panels of color- printed glass in various size, resembling an abstract rendition of ashlar wall.

Figure 2.24: Colored glass; UNStudio, La Defense, Almere, the Netherlands, 2004 (shrivastava, 2012; 301).

2.1.2.6 Culture

Culture is what people live with it. Culture is of the people, of traditions, ideas, beliefs and customs of a society, which is derived mainly from within, and at the beginning it will also affect the culture to create.

> "The basic tendency of perfection, the base fine is the foundation of culture. But on the human need for shelter and the built environment has a close link with the culture of the place it makes" (Fallah, 2013; 56).

Every society has its own culture that underlies the architecture of the community founded and its architecture reflects the local culture it. One of the issues is obvious and undeniable influence of culture on the formation of principles and values that will affect the environment (Rafatjah, 2013). Tylor, English anthropologist (1871): culture is intertwined totality of knowledge, religion, art, law, morals, customs and any other capabilities and habits acquired by man as a member of society. Klakn, American anthropologist (1951): culture points to a way to specify a group of people or whole scheme of life.

UNESCO (1997): culture, is a full generality of the characteristics of the material, intellectual and emotional, which specifies a particular social group. Culture encompasses not only art and literature, but also is a mirror of life, the fundamental rights of human beings and value systems, traditions and beliefs. Understanding the architectural environment and human activities only through understanding around the world of possible physical shape and purpose of architecture can be created within the human idea. So if we accept that reflect the physical architecture of human life, life in all dimensions, needs, beliefs and values in general need to understand the architecture of today and tomorrow we can be about the past architecture and culture. Some social

and economic relations with the natural environment and reflect the subtle cultural symbols (Fallah, 2013).

Every culture reflects the value system is a social system in a comprehensive sense of the word can be said that science and art are manifestations of this representation. While highly rational step in the direction of picks and only human consciousness is concerned, art is perceived issues dealing with emotion. Progress and development of science and art to grips with the common progress were Siegfried Gideon proved that "the period of the Baroque even scientific discoveries of mathematics in the world of perception phenomenon of assimilation and equal, and as part of the art, respectively. In the nineteenth century the way science and art were separated and the relationship between ways of thinking and ways of feeling disconnected ". Tension today between the architect and surveyor should also be a result of the rupture. Gideon strong focus on feel and think he is as it should be. Only a truly inclusive culture puberty can bring a sense of unity.The chart. The role of culture and architecture In order to understand the relationship between culture and architecture of the beginning of the relationship between space and culture is mentioned, the social construction of space as well as a culture that is built in shaping people's perception of themselves. Space in strengthening and cultural change is essential because the expected behavior patterns within a specific environment, reflects certain cultural values. This definition implies the construction of a mental space. The influence of mental space, in the range of visual and physical space is understandable. Architectural spatial organization of subjective and objective as in the past.

Table 2.5: Architecture by measuring culture (Ghannad, 2013; 35).

Architecture	Art	Society
Culture	Material	Tool Canvas Climate
		Style Method
	Spiritual	Value Ideals Norms
		History

The relation of culture and architecture, especially in the field of psychology, having regard to the relationship of man with his environment and artifact makes clear. Culture in two ways on the formation of architectural space is effective through laws and rules of behavior that led to the organization of functional and spatial hierarchy, and also through the creation of memories, beliefs and symbols in the form of physical symbols, archetypes and metaphors which creates a sense of architectural space. (Ghannad, 2013). Architecture as a container for human life reflects the culture in every society and in close interaction with structural features, historical, political, economic and social society. By people in the construction of architectural work in trying to take advantage of material things to protect our values and norms to follow. In other words, architecture is not any construction material environment based on a conscious change of mindset. Posing as an external manifestation in architecture and visual indicators and displays remarkable nature of the subject. The relationship between culture and architecture and facade that the perception in the audience swayed by its elements, is shown in table 2.6.

Table 2.6: Culture and building façade models based on the definitions of the four aspect (Gannad, 2013; 43).

Façade and culture	Façade	Culture
Functional	As a result of the interaction of a social component	**Sociology**
Conceptual	As an end product of art that encompasses mental excellence	**Aesthetics**
Functional concept	As in human life and includes effective actions	**Anthropology**
Perceptual	The psychological attitude to the built environment	**Psychology**

2.1.3 Components of Façade and Façade Elements

Urban view in various aspects and dimensions effects on the urban environment, in other words components of facade have been the argument goes beyond structural components and mentions to the pillars that support the formation and configuration of infrastructure and building design; that examine from this aspects:

1. Semantic and cultural aspects, 2. Environmental aspects and 3. Aspects of visual form and shape that shape and form the façades buildings.

In order to prevent the development of patterns of facades and volumes of the building without the semantic support, form and ecological forms and a disparate mix of wall street and city names facade forms, it is necessary to walls and building facades and as part of the visual landscape of the city unnoticed (Moughtin, 1999).

Building include 3 horizontal major parts: base or Ground floor, the middle part of the main floors and roof (Figure 2.25).

"1. Foundation or base that connects the building to the ground and pavement. This part of facade is often considered to be the viewer,
2. The middle section with rows of windows and may include the main floors
3. Roof that connected the building to the sky by roof line or sky line" (Martini, 1999; 27).

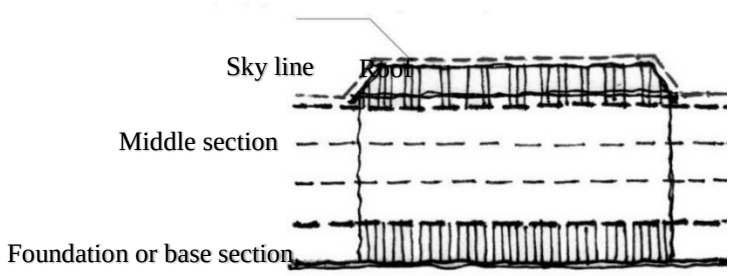


Figure 2.25: Different parts of the building, according to the (Martini, 1999; 27).

Also in a similar manner, but in combination with the façade buildings, he considered the components of façade are based on two urban aspects (pillar and details).

The main elements of the façade composition are as follows:

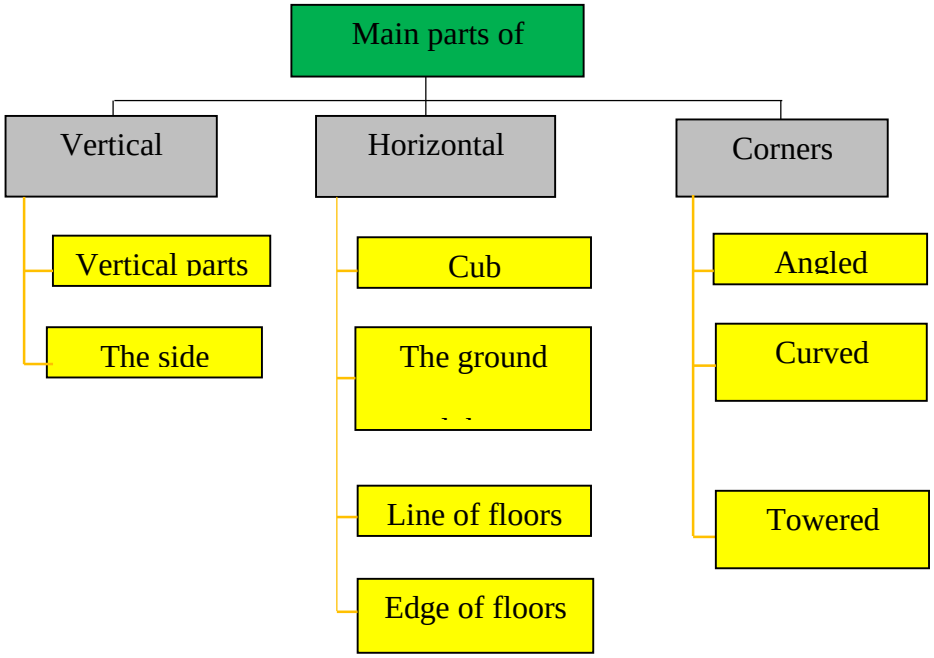
1. The elements that make up vertical Rhythms.

2. The elements that make up horizontal rhythms and creates façade lines façade lines are the most important geometric elements and the originator of the order are, but the combination of the components and elements of landscape or elements of a row that emotion in the observer creates and four divided:

- Baseline that is bottom edge of the street body border with pedestrian
- The line top of ground floor that is above stores and some entrances
- The floor lines that shape the relation between the components of floor such as windows.
- Roofline that is border between building and sky (Martini, 1999). "Roof line in comparison with "sky line" and "land scape" is mentioned to the local conditions and this is meant to be the line around o roof or group of roofs where the sky can

be seen as a background" (Moughtin, 1999;66). Roof line is the highest line and bound the building which is subscription between building and sky. The roof line is the part of sky line that can be seen from inside city space.

Table 2.7: The main components of the façade according (Moughtin a, 1999; 72).



When an observer moves in the tracks, the roof lines provides variable profile of the city. Since the roof line can be seen from close distance its visual richness is so important, so it is better the roof lines be designed enough attractive for street view.

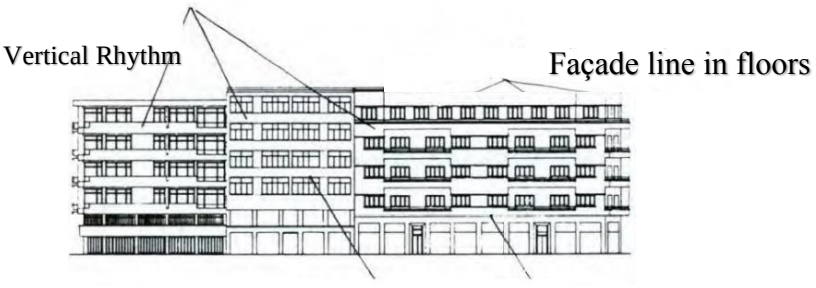


Figure 2.26: Pillars of façade (Krier, 1983; 39).

Krier (1983) in Elements of architecture is mentioned the base or ground part is one of the most important elements of urban façades. He believes that the ground floor is so important because people can see directly this part. This part sometimes is used for construction for shops or other commercial matters. When it finds the commercial nature undergoes constant change, especially in terms of decorations. The roof, the facade and the building of the Crown and the Crown shipped by body building. In this part he believes that the payment of the roof and floor of the terminal, due to the fact that the building, up and down, the lower part of the base building or the ground floor it is your special relationship with the land preserved and at the top, everyone needs to know where the building ends . people outside the field of view is so often the roof, trailing top-class facilities, design and composition of the façade is much more important than the roof He adds that layered horizontal view, a result of the performance is different, in principle, no difference in horizontal view it should never be designed. There is a clear distinction, especially between the ground floor, the floors and the attic is required. Tavassoli (1997) considers the basic structure of the body's major organs, the rhythm of horizontal, vertical, and the sky (roof) rests knows and believes that the first should be the body of Street this structure is illuminated.

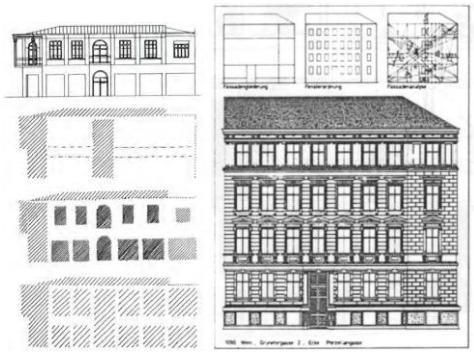


Figure 2.27: Components and parts of the façade (Tavassoli, 1997; 88).

Corners

the corner of buildings are one of important part in urban view and visual aspects. It is connected with to adjacent façades. It is a part of urban design for streets and providing appropriate for landscaping (Moughtin, 1999).

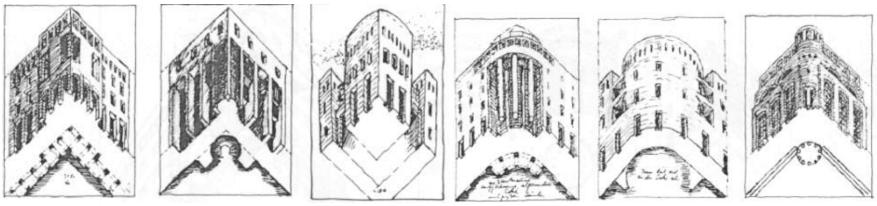
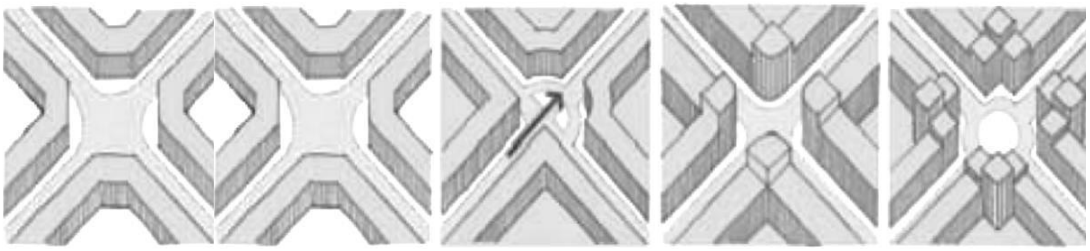


Figure 2.28: Corners of buildings (Moughtin, 1999; 77).

The buildings are located in the corner could have orientation toward the two street with indicator windows or tools. Figure 2.29 are examples of solutions emphasis on street corners.



a b c d e

Figure 2.29: Different ways to emphasize the corner;
(a): Rotate the structure to create a diagonal field
(b): Retreat and raise the height of the building to create a sense of formality
(c): To emphasize the height of the corners of the intersection
(d): Match two corners adjust to emphasize a particular direction
(e): Corner infiltrated the privacy of transition (Moughtin, 1999; 79-82).

In conclusion, façade components include:

1. Façade form

2. Opening of Facade include: Entrance and Window

3. Balcony and terrace

4. Roof

5. Ornamentation

6. Color and Texture

7. Material and Texture

2.1.3.1 Form and Shape

Capone (1999) analyzed six distinct architectural concept that is divided into two main categories, as primary and secondary categories. The main categories of form, function and semantic, while the second category includes construction, texture. It is possible to branch the architectural form's composition components. Processes can be branched as whole (no process), addition, subtraction, deformation and combined processes; relationships can be branched as unique (no relationship), interlocking (intersecting), adjacent (neighboring or contiguous), linking and combined relationships; organizations can be branched as nodal organization, clustered organization, linear organization, gridiron organization, combined organizations"; and ordering principles can be branched as repetition, hierarchy alteration, harmony, gradation, contrast, dominance, unity, balance and combined ordering principle (Krier, 1988). Processes for mass, space and façades, named as addition, subtraction and deformation, can be searched into four general headings. (Whole and combined processes are exceptional). These are: · Horizontal (lateral) process , vertical process ,Process from the top ,Process from the bottom oblique process Combined process Relationships for mass, space and façades, named as interlocking (intersecting), adjacent (neighboring or contiguous) and linking, can be searched into two general headings and these headings can be classified into three sub-heading. (Unique and combined relationships are exceptional). These are: Same or similar geometric shape relationship, Straight

relationship, angled relationship other special relationship. Different geometric shape relationship Straight relationship Angled relationship Other special relationship Organizations for mass, space and façades, named as clustered organization; linear organization; one-way arranged organization; two-way arranged organization and gridiron organization; can be searched into three general headings. (Nodal organization and combined organization are exceptional). These are: vertical organization, horizontal organization, straight organization, angled organization Oblique organization ordering principles for mass, space and façades named as repetition, hierarchy, alteration, harmony, gradation, contrast, dominance, unity, balance and combined ordering principle, will be branched and searched. Beside the architectural form's composition components, its branches and theoretical base to communicate the analysis of the buildings, and together with the formative ideas in this study; a diagram or a set of diagrams is utilized as well. The diagrams are drawings that, as abstractions, are intended to convey essential characteristics and relationships in a building. As such, the diagrams focus on specific physical attributes which allow for the comparison of that attribute between buildings independent of processes, relationships, organizations and ordering principles (Krier, 1988). The diagrams are developed from the three dimensional mass, space and façade configurations of the selected building. They take into account more information than is normally apparent in a three dimensional drawing like plan, elevation and section. In order to reduce the building into its essentials, the diagrams have been intentionally simplified. This elimination of all but the most important considerations makes those that remain both dominant and memorable.

According to what the form and function as elements Facade of the building also contains a definition of the shape of the form according to the shades of the body structure, front and rear protrusions Facade, horizontal and vertical lines, volumes total and partial, components Facade, rank and texture of the final expression of the form presented the requirements of what the definition of the form Facade plays an important role how to capture, manage, organize and layout the elements together independent or combined as a unit. 4. The analysis of these 4 sections form the Facade of the architecture (Table 2.8) and how it will be controlled.

Table 2.8: Building Facade form of analysis with respect to the arrangement as constructive elements, summary Krier, 1988 in elements of architecture.

Facade elements in shaping the architectural form analysis approaches	**Facade in the form of the following approaches**
Process elements	Whole Accessories Negative Spaces (decrease) Milestones (deformations) mix concrete elements
Relations between elements	Monopoly single (independent form element) Proximity in the troughs composition relationships
Organization of elements	System node Linear Systems One regular line Multi-line System Tools
Layout of elements	Repeat Hierarchy Change harmony Grading (prioritize) Conflict Mastery Unity the balance

2.1.3.2 Openings (Door, Windows)

Building façade openings have very comparing role on definition and identity of façade performance and identification and showing of local values.

The openings include kinds of entrances, windows, balconies, lightings and porches, which have different definitions and specification in different cultures and geographic regions but in the façade they are elements which find different roles with their various forms and configurations.

Generally façade openings should transmit physical and nonphysical message to audiences correctly by conversation and efficient templates (Tavasoli, 2000). Openings have two different areas (internal and external, private and public) and connect together into a distinct area of the flat surface.

Entrance

Buildings entrance contents two different parts and area (internal and external, private and public) and connection of such two different parts can't be done by smooth and flat surface (line entrance door) architects and urbanisms define the entrance by various words which have common concepts such as connection place of internal and external spaces , set of connected spaces ,etc. Tavassoli (2000) studied the entry point and its importance and believe that configuration and location of an entry on the body of building and also entries of set of the buildings in a street gives special visual values to the complex. Location of entry and arrangement of the openings each façade can lead to unity of body configuration or cam lead to weakness of this specially locations of entries are important to compose of space and form of squires and streets. However entry of each façade itself should have symmetrical or balanced composition or as minimum should identical compositions.

Also Krier (1983) believes entrance location and its architectures importance indicates role and function of a buildings so entrance of a large public building can't be a small take. Where it is hard to find it. Similarity existing of a large car entrance or wide and long streets for a small house is not approve private. Some of the authors consider an entrance not as a narrow board but a pink and connector space which includes various parts. They believe entrance stars, space which formed by backbiting or saliency of entry the columns and other entry elements cause to change it from a surface to a deficit space and entering from out of building in to internal part it is done by passing from connected spaces which make entrance space.

Two other manger specifications of entrance are convertibility (an elegant convection of the inner part and outer part and permeability (conjunction of inner and outer parts at the entrance). These two specification identify entrance as a location including set of space or set of spaces which able it to be as an intermediate element between light and darkness and also between private and public space. Entrance as a joint space, permit people to immediate entering of them to inner parts, a joint which gives time to the people to make themselves compatible with new internal spaces. Entrance has symbolic importance from mental and semantic aspects. Smithson believes that duality between in and out of a space converted and lead to an identity. House entrance should transmit independency concept of its residents. Entrance is not just an obstacle against strangers, but also is symbol of mentality (Smithson, 1974).

Window

Krier (1983) says: windows can be located in an architecture framing and consider them as an identified element of façade. Openings are composed each other with different performance and contexts to create new imaginations. The result is leading

light from out the simmer and creating an architectural form line the façade. Windows forms and shapes specially depends on to the outer spaces. From this viewpoint their relation to global façade is so important. He also introduce rectangle triangle and circle as main geometric forms for windows and mentions it should be precaution to apply triangle and circle formed windows became they are special shape and it should be saved to use them to present their context unless otherwise they are quickly degraded unimportant graphical shapes. He believes rectangle and square formed windows has simple but abstract forms and can be also used a coordinating element of façade.

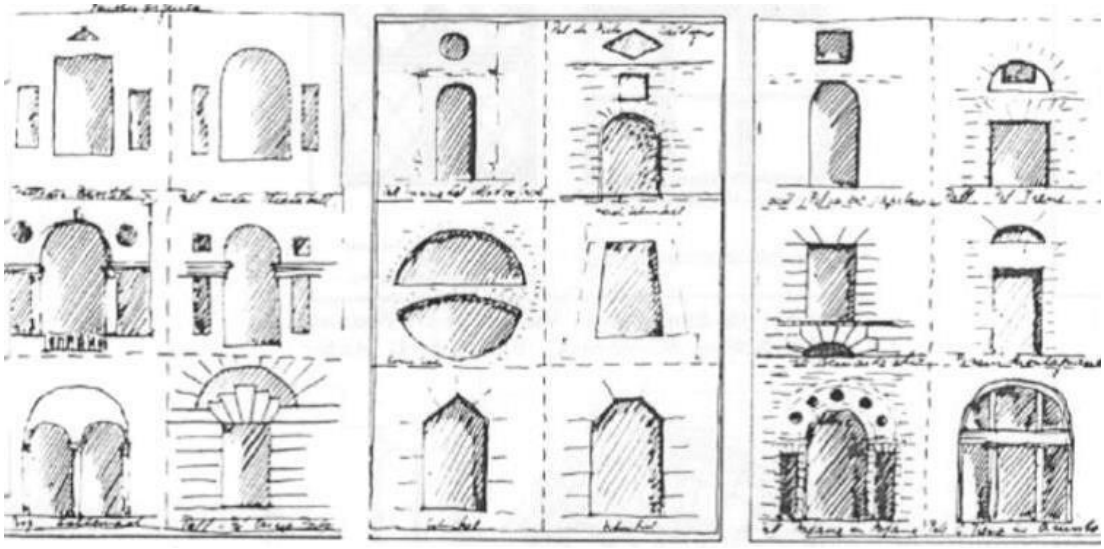


Figure 2.30: Window shapes and different combinations (Krier, 1983; 38).

Windows internal divisions depends on the kind of opening which some one likes to use. These divisions should be according to main performance and function of the window such as quality of its opening, air conditioning and cleaning. In addition the window divisions may be used to beautify its glass surface. In architecture history to have successful design for window divisions, it should be used perfect and separate squares (Krier, 1983).

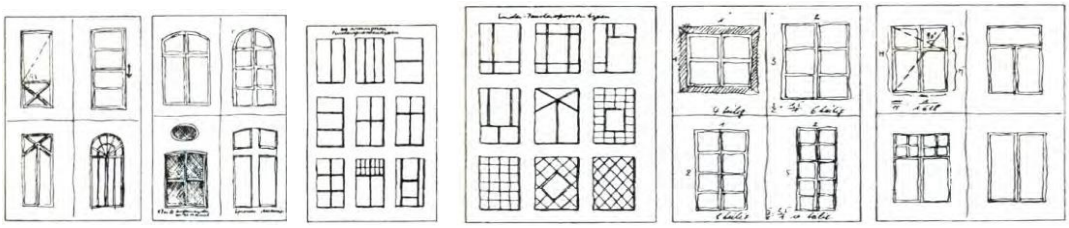


Figure 2.31: Internal divisions' windows (Krier, 1983; 39).

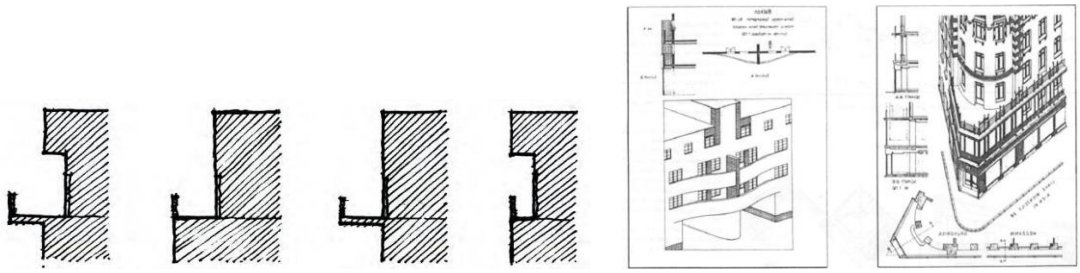
Windows internal divisions belong to the groups of details which are not paid attention in architecture design phase and selection of window shape and consequently their internal divisions is done by owner and at the time of building construction, so it is selected and supplied from existent type in the market.so it is not possible to issue and arrange mandatory requirements and criteria in this case. But it will be better to present some advises and comments to help architects to more appropriate selection of the windows and their internal divisions. Tavassoli (2000) have mentioned some pointes about this: "windows internal divisions should create visual tranquility in the viewers and users by satisfying horizontal and vertical axis symmetry. However unsymmetrical divisions which lead the windows axis to the right or left removes balancing and advises to use odd and symmetrical composition of window frames to better presentation of the ornamentations in the back of windows, such as curtain.

2.1.3.3 Balcony, Terrace

Salience windows, balconies and parches are independent spaces. Although they are yet in the private part of an apartment, however, they really expand its space and crate feeling of exit from building .exit from main façade .in addition these elements provide a batter view from urban life (Krier, 1983).

He believes that the windows, balconies and porches are not randomly distributed in the Facade. The better their accumulation in some class to differentiate between these elements is possible. This clearly increases the readability of different classes.. These

elements are considered as elements Facade and walls, and can deploy the row or column, next to each other horizontally or vertically to create rhythms, and the constituent elements of their walls.



(a) (b)

Figure 2.32: Balcony; an eaves and trough of building wall source; (b): Example of the salience windows, balconies and parches Example of the salience windows, balconies and parches (krier, 1983; 64).

Because of the visible of the protrusions of the building, another issue that is associated with them, and pay the visual richness to these levels. It is considered there are important and designed to the rule the protrusions are together in one building and the buildings adjacent creating a variety of compound volumes.

2.1.3.4 Roof

According to sources, comments on the concept of building Facade elements, "roof" or vertical line of the building, as one of the elements that should be in the discussion or communication with the outside Facade openness of architecture, examined. Defining roof portion of the upper end of the building, which cover and protect the bears, according to the natural effects such as snow, rain, heat, cold and harassment is safe and richest part of the roof of a building, it is against climatic factors. The radiation emitted from your roof with long wavelength, faster and more walls, loses its warmth.

Types of roof structure and materials:

- Integrated roofs or heavy fine

- A layer or two layers of lightweight roofs (roofing) are separated by air.

- Roofs style: style roofs may be a layer or a combination of two layers of roofing separated by a layer of air to be made. In this type of asbestos cement roofs roofing materials may be ceramic plates, galvanized iron and roofing materials aluminum and a metal grid suspended from the roof, covered with plaster, wood panels or acoustic (Tavassoli , 1997).

Roof is the highest and most vertical architectural element of the building. The most significant element of some of the buildings considered that the combination of volume and form the roof of the most interesting and most important element is visible from a distance, respectively. About the importance and sanctity of the vertical direction is expressed as "vertical direction has always been considered sacred. The overall shape of the roof under the influence of geographical and cultural factors, in different regions and in different eras, evolution and the variety offered.

Climatic factors shaping the roofs form .Indigenous Model in Sustainable Architecture in architectural phenomenon climate is:

1. Heat
2. Humidity and rainfall
3. Wind
4. Materials, structures and construction.

The role of culture in shaping the form of roofs, can the importance of building a ritual which has caused some communities in the past of materials, even exotic or special and expensive for manufacturing use them, such as the Maya and their homes with

local, simply was built, while the stone temples and monuments of their faith and the ziggurat or made other plans.

Roof types:

Roof types in a general category can be classified into three types, as follows: Roof arcuate and domes, flat roofs, sloped roofs.

1. Dome or arched shape: It seems that the word Arch common usage, and in some cases, includes a variety of roofing and building envelope such as the roof arcuate, flat or sloping is, thus, to identify the types of arch non- smooth, typically with brick or clay for bending or were made by arch, arched form of the word is used. Available evidence indicates the fact that the widespread use of this type of vault, the territories and regions that wood construction is not accessible enough. Arch types, in terms of its genesis, in the simplest case can be classified into three types. First, following the transmission of an arc arch with widely emerges, which is moving on a horizontal plane and is extended like a ceiling track. Second, arched period after an arc around a vertical axis to form emerges package, such as coatings and spherical dome. Third, a variety of coatings that by shifting the transmission or during the statements of various size. Dome is as one of the best materials, especially for large openings with a material such as clay brick and stone are known to be able to withstand the pressure.

2. Flat: The flat roof is the ultimate one that was enforced. Typically the most extreme layer of masonry materials such as mud various forms and appropriate facilities and experience local. And in many parts of the coating of thatch kneading by it been smoke in the rain resistance (Krier, 1990; 150). Today, with advances in technology emanates components as well as roof flat most of roof to be allocated and this in addition to the

development of methods of ceiling usability of the facade has raised an important role in the Facade of the building today.

3. Sloping roof, the rain forest areas and extensive green spaces is formed. In the past, as usual, due to insufficient access to wood, wood structures built homes with and for ease of disposal of rainwater from the roof, the roof was just as steep. The slope of the roof normally dependent on the amount of rainfall, while rainfall was higher, the slope of the roof were higher.

2.1.3.5 Ornamentation

Ornament begins as luxury. The more ornamented a building, a piece of clothing or an item of jeweler, the more labor has gone into its production and the more expensive it is. The Industrial Revolution and machine production changed everything. Suddenly decoration became cheap. Which coincided with the economic need for growth - the manufacture of more and more (decorated) stuff. This, in essence, is the argument of Marx, Morris, Loos and Veblen. Decoration characterized as a mechanism for capital to produce and sell more useless crap to the masses.

Of course, as soon as ornament becomes cheap, elite taste moves on. If decoration is suddenly cheap, then the plainer an object, the more valuable it suddenly becomes. This is, effectively, the birth of Modernism as described by Pevsner and others, the stripped aesthetic of the Bauhaus or the Arts and Crafts where the effort now goes not into ornamentation but into making the building or the product so that it *appears* simple. But with the added dimension of morality. The stripping-off of ornament suddenly becomes an ethical duty, which leads to the moralizing (rather than necessarily moral) arguments of the Modernists Among some architects, there appears to be a disinclination to use or exploit façade color and coloration in the built

form exists only as a by-product of construction materials. For these architects, color is a form or ornament that stands in opposition to the integrity of design and the built form.

Ruskin (1880) considers one of the key contributors to the theories underlying the Modernist movement, used his essay Ornament to espouse his views on the role of ornament: "the evolution of culture marches with the elimination of ornament from useful objects. Beauty of form was considered paramount by Loos and anything else was considered "wasted effort". To design and build without ornamentation was considered right and proper in the Machine Age of the early 20th century: "Building without ornament offers the greatest possibilities for purity and architectural expression. Decoration is inessential, mere outward compensation for inner impotence. Façade color was the least important element and open to weathering, so that what was originally a harmony would become a discord in a week; a discord that would strike the eye all the more clearly when pure painted colors have been used than where a more neutral tint is employed.

Le Corbusier asserted that 'the idea of form precedes that of color. Form is pre-eminent; color is only one of its accessories' (Le Corbusier, 1935, cited in Braham, 2002). While form and the interplay of light are central to Le Corbusier's work, as evidenced in many of his early buildings such as the Villa Savoye and Notre Dame de Haut, Le Corbusier also used color to draw attention to particular details. Le Corbusier suggested that "Color…is not an ornament or decoration, but an organic element of architectural expression. Le Corbusier 1953, cited in Wilkes & Packard, 1988; 676). Also he followed up on this assertion in a number of projects, notably the playful use of color in the façade of the Unité d'Habitation, a Modernist apartment complex in

Marseille. Somewhat in contrast, Gropius declared: “Architecture during the last few generations has become weakly sentimental, aesthetic and decorative this kind of architecture we disown. Gropius was christened the ‘silver prince’ by Wolfe (1981) due to his preponderance for façades featuring stainless steel and glass and his buildings were predominantly austere, functional and often white. Gropius spawned a generation of “White Gods,” architects who adopted a Modernist approach to the built environment and tended to favor a monochromatic approach to façade color (Wolfe, 1981). “Buildings became theories constructed in the form of concrete, steel, glass and stucco.

Sullivan’s contribution (1947) is similar:

> "I take it as self-evident that a building, quite devoid of ornament, may convey a noble and dignified sentiment by virtue of mass and proportion” Sullivan considered that ‘the form exists because of the function, and this something behind the form is neither more nor less than a manifestation of what you call the infinite creative spirit, what I call God" (Sullivan, 1947; 46).

This notion evolved into the ‘form follows function’ dictum, a guiding principle in Modernist architecture. Under Modernism, ornament was a crime; façade color was aligned with ornament and, by default, became its partner in crime. Modernism segued into the International Style, and Hitchcock and Johnson (1932) described this style as having a focus on the expression of volume rather than mass, and balance rather than symmetry with the concerted exclusion of ornament. The Modernist and International styles disdained the use of façade color as ornament and an artifact of the materials used in construction. However, Le Corbusier did in fact use color in some of his projects (for example, Villa Schwob and the Villa La Roche) and acknowledged that color can be used as a form of architectural expression.

2.1.3.6 Color and Texture

The colors are one of the most important factors in environment design and shape the architectural spaces. In fact, Color, most of the elements of texture, form and materials to reveal their executive. Whatever, the color is coordinated with mental and psychological needs and the memories of the audience, it will have more impact (Varian, 1998).

The role of façade is investigated with three approaches:

1. In symbolic terms: In examining the aesthetics of colors should have Regression from the perspective of ancient. One function of color in ancient times it has been symbolic fields, which is used in religious ceremonies, mythic or specify a particular social sphere. So in terms of historical and cultural façade design, choice of color will be important role in quality of created façade for audience.

2. In visual terms: Color aesthetics, goes back to influence their origin nature and the impact of colored objects is examined on the visual sense. For example, a color when is the light background seems dark, while it doesn't seem dark alone.

3. In emotional terms: In this approach is attention to the influence of color on the optic nerves and interaction between emotions and psychology with the world. For example, blue color when is seen in nature and sky and sea creates a sense of inner calm. While the same color on the walls of the home to feel hurt, so to understand the psychological one color must be measured in relation to the colors of the adjacent surroundings. So to understand the psychological effect of one color must be measured that one in relation to the colors of the adjacent.

Color is the perceptual sensation that begins in the retina in response to the light-waves reflected from objects and substances, and which is commonly assigned names such as red, blue or yellow (Goldstein, 1996). Visual perception is a complex process that is only partly understood. Incoming visual information, in the form of light-waves, is received by rod and cone receptors in the retina and these have different sensitivities: cone receptors are color sensitive and rod receptors are light sensitive but not color sensitive. There are about six million cone receptors in the retina and these are found in the fovea and peripheral areas of the retina; and about 120 million rod receptors located in the peripheral area of the retina, out-numbering cone receptors by a ratio of about 20-to-1. The fovea, located directly in the line of sight in the retina, is cone-rich and does not contain rod receptors (Goldstein, 1996).

> "A diverse range of theories exist that attempt to describe and explain the phenomenon of color as well as the relationship between color and aesthetic response. Many of these, which often make use of models and color notation systems, exist across a number of domains: physics, psychology, art and design. This section provides a summary of selected theories and models. This summary is not intended as an exhaustive review; rather as an illustrative examination of key theories and models. Also included are references to 'primary colors', 'complementary colors' and 'contrasting colors.' Primary colors, considered to be key colors, are integral color components for color combination Primary colors are occasionally referred to as 'opponent,' 'complementary' or contrasting colors" (Gage, 1995; 169-170).

	Country-culture cluster			
Colour	Anglo-Saxon	Germanic	Chinese	Japanese
White	Purity	--	Death Mourning	Death Mourning
Blue	High quality Masculine	Warm Feminine	High quality Trustworthy	High quality Trustworthy
Green	Envy Good taste	--	Pure Reliable	Love Happy
Yellow	Happy	Envy Jealousy	Pure Good taste	Envy Good taste
Black	Mourning Fear Expensive	Fear Anger Mourning	Expensive Powerful	Expensive Powerful

Figure 2.33: culture analysis of color meaning and association (Gage, 1995; 169).

The role of façade color in relation to urban design and planning policy. As will be discussed, the role of color is often acknowledged within urban design and planning policy as an important element. However, it is clear that there is often little or no overlap between current theories relating to the nature of the relationship between color and aesthetic response; and the way in which façade color is dealt with by architects and planners.

(a)

(b)

Figure 2.34: Colored houses façades; (a) in Burano, Italy (URL4) and (b) Buildings in Longyearbyen, Norway (URL5).

The façade colors also contrast somewhat amongst themselves and with the surroundings (either with the greens and greys of the natural surroundings in warmer months or the white of snow during the winter months), thereby adding visual diversity to the district. Figure 2.34 (b) features the buildings of Longyearbyen.

To conclude, façade color is considered one of a number of design elements that contribute to urban design aesthetics. More away from urban design and into the domain of architecture, the following section discusses the many ways in which architects use façade color in the built environment.

Texture

Texture is the size and organization pf the particles constricting surface. At the finer end of the scale is the texture of polished granite, which the eye identifies by its sheen. The texture of concert may vary all the way from the smoothness of steel-formed surfaces to the roughness product by bush-hammering. A brick wall has texture at two levels. There is the porous, rough surface of the brick themselves, and then at the large scale, the visual impression of texture formed by the brick standing proud of the mortar.

Another sort of texture has more to do with repetition of small design elements than with the nature of surfaces. Common example of this in modern architecture include façades constructed to precast concert elements, and multi- store blocks with accentuated mullions Texture have a great effect on visual weight, as well as being an important contributor to the architectural experience in its own right. Objects or planes which have smooth surfaces are commonly perceived as being less "heavy" than those which have rough surface.

2.2 Residential Façade Design

Residential building is one of the most important living spaces, in human society. From the Ancient Era till now, people try to promote their houses quality, according to their life style and latest needs. Residential architecture is a discipline in the architecture fields that concentrates on design of residences, varied from particular family homes to apartment complexes. Some of the famous modern architects in the world are well-known for their works on residences like Frank Lloyd Wright (Smith, n.d., 2009). Residential building is one of the most important living spaces in human society. From ancient era to present time with changing the functions which were done in primitive

dwellings (Table 2.9) and its occupancy offences (Table 2.10) with 3 or 4 generations occupant (grandfather, grandmother, mother, father, children and sometimes grandsons) to functions which are done in modern dwelling (Table 2.11) with different occupancy offences (Table 2.12 and 1 or 2 generations occupant (mother and father and children), human tries to promote the quality of his dwelling and updated it according to his upcoming necessities and life styles standards.

Table 2.9: Functions in Primitive dwelling (Teige, 2002; 58).

Production (agricultural and bestial)	Cooking	Housework
Sleeping	Recreation and Eating	Parenting

Table 2.10: Oftenest of home occupancy in Primitive dwelling (Teige, 2002; 58).

Occupants	Morning	Afternoon	Night
Male (grandfather, father)	At home or Farm	At home or Farm	At home
Female (grandmother, mother)	At home	At home	At home
Children	At home	At home	At home

Table 2.11: Functions in Modern dwelling (Teige, 2002; 61).

Cooking	Sleeping
Recreation and Eating	A part of Parenting

Table 2.12: Oftenest of home occupancy in Modern dwelling (Teige, 2002; 62).

Occupants	**Morning**	**Afternoon**	**Night**
Husband	At work, office, or factory	At work, office, or factory	At home
wife	At work, office, or factory	At work, office, or factory	At home
Children	In school	At home	At home

The façade can be considered as the most essential architectural elements which show the relationship between performance and the importance of building. The facade of every building, especially the residential buildings represent the cultural conditions of the period that the building was being constructed in its context." The façade of the residential building can also show the social identity of its residents and reflects the community identity. What that shapes the appearance of the city is important, including the urban views and spaces and elements such as scale, proportion, building style, building structure, building materials, paint, tissue etc. Each of these items can be different in different cities. Also, the image of the Iranian city is important such as the public and semi-public urban spaces, the private and semi-private spaces, square spaces and the market and so on" (Nasr, 2016; 158).

2.2.1 Residential Façade Design in Modern Architecture

The concept of the Modern Movement or Modernization, initially, can be described as rejection of traditions, and facing problems, from a new viewpoint, based on current and up to date ideas and techniques (Dinu, 2007). The concept of the Modernism originally can be described as what Harold Rosenberg entitles in his book, “The tradition of the new”; as a rejection of tradition, and facing problems from a new viewpoint based on current and up to date ideas and techniques. Modernization has the function for rejection of legend and elimination of the past (Dinu, 2007). Frequently "Modern" word has been used to point to the avant-garde, radical, progressive or even revolutionary movement since World War II. It also has included the term “contemporary” sense while transforming from meaning of "now" to "just now".

(a) (b)

Figure 2.35: (a): Street Comes into the House, Futurism (Umberto Boccioni, 1911); (b): Salvador Dali, the Persistence of Memory, 1931, Surrealism (Bocola, 2000; 304).

Consequently, the definition of "modern" got widened, as result of the mentioned transformation. Anti-historicism and attack on previous experiments introduce the other sides of Modernism. As an art term, Modernism includes many avant-garde styles that grew quickly under the name of Expressionism, Imagism, Surrealism, Modernism developed a period of experimentation, since the late 19th century, in Europe. In the late 19th century and in the beginning of the 20th century, architects also started to reject past styles, toward a form of a new architecture, which had roots in functional concerns. After World War I, these tendencies were identified as the International Style, which improved simple, geometric figures and unadorned facades that abandoned any use of historical references, in design. Later than World War II, this style confirmed itself in clean-lined, unadorned glass and curtain wall high-rise buildings, and massive housing projects.

2.2.1.1 Modern Residential Architecture

Regarding to architecture, the concept of Modern Architecture, includes the modern buildings, which were built with usage of technologies and materials that are related to modern architecture. It originated in the United States and Europe, and then, extended to the rest of world. The characteristics of Modern Architecture are defined in, buildings' concrete and steel usage in construction, its smooth design, and it's less ornament and unadorned form (Wolf, 1981). In urbanism, the Modern Movement

interests in a fast development through urban and rural landscapes, compressing spaces and creating a deeper sense of time in urban life.

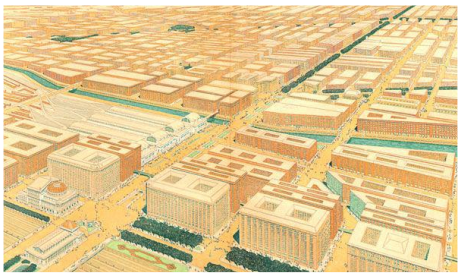


Figure 2.36: Daniel Burnham and Edward Bennett, city plan for Chicago 1909(Colquhoun, 2002; 48).

Figure 2.37: 20th century inventions (Inventions and Inventors), (Bocola, 2000).

Beside all changes, some progressions that were important for changing the pervious lifestyle and creating the modern living, raised in human society , so this changing effect on the house and residential place of human (Figure 2.37). Progressions such as; usage of X-rays, motor power, communication (telephone, typewriter), transportation (automobile, motor bus, airplane) and modern physics and applied science (Bocola, 2000). Each one of those mentioned progressions, are inventions that are effective on creating modern life style.

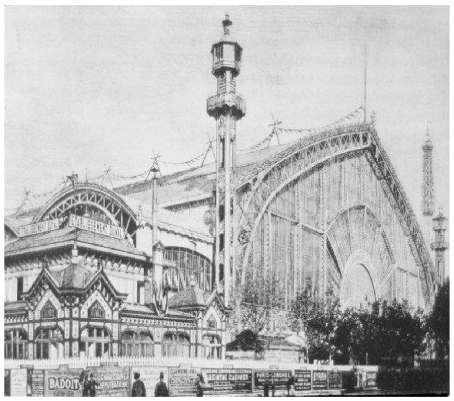
At the end of the 19th and the beginning of the 20th century, regarding to Modern Movement in western societies, architects also started to abandon past styles and began to work on subsequent form of architecture, which had roots in functional concerns.

When the pioneers of Modern Architecture abandoned the "forms of the past", it was not just about some motifs or ornamental elements but also, some general old space notions like, "linear perspective of the Renaissance" or, the patterns of the Baroque style. Particularly, they conflicted with "academic" composition of official architecture of nineteenth century in Europe. Because, design elements of such type of démodé layouts, could not deal with the new form of life in an open world, properly. After rejection of previous "styles", the initiating of the "new language of forms", according to new life's conditions, was necessary. The general purpose and the axial slogan for Modern Architecture was "Design for life". So, following to rising up the new world, by human new need for "orientation and identification", architecture also tried to gratify this need of him by means of Modern Architecture (Schulz, 2000). "Designing for life", can be considered as the new look of Modern Architecture. So, modern movement generally looks at issues of life, from a new view point.

2.2.1.2 Origins of Modern Architecture

According to some architecture scholar's idea, the Modern Architecture primarily was driven by technological and engineering developments, and using new materials such as iron, steel, concrete, and glass, to create new techniques for building construction and facade as a part of the industrial Revolution. So, the Crystal Palace by Paxton in Great Exhibition of 1851, Galerie des machines (Figure 2.38-b) by Dutert and Eiffel Tower (Figure 2.39) by Gustave Eiffel in Paris Exhibition in 1889, also Louis Sullivan's steel skyscraper, Wainwright Building in Missouri, US around 1890, showed the first attempts toward Modern Architecture, clearly (Frampton, 1992).

(a)



(b)

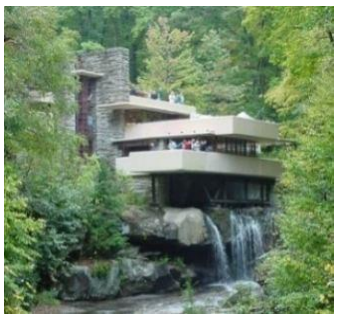
Figure 2.38: (a): Guaranty Building, (b): La Galerie des machines (Benevolo, 1971; 111, 236).

Figure 2.39: Eiffel Tower (Benevolo, 1971; 118).

The Bauhaus School, instituted by Walter Gropius, played the main role in the beginning of Modern Architecture.

(a)

(b



(c)

Figure 2.40: (a); Robie House, (b); Manhattan; Guggenheim Museum, (c); Falling water (Teige, 2002; 19).

The Bauhaus was considering rationalization in design. "Form follows function" was an architectural motto which included the goal of the Modernists, to shift the main point of architecture, to Constructionism and Functionalism (Fleming J., Honour H., Pevsner N., 2000). In addition, many other architects can also be considered as the leaders of Modern Architecture. Frank Lloyd Wright is one of the most Modern Architecture pioneer. Some of Wright's most famous designs are; the Chicago Robie House, Falling water in Pennsylvania, and the Guggenheim Museum in Manhattan (Figure 2.47 b) (Teige, 2002).Another pioneer of modern architecture was Mies Van der Rohe. Like many architects of the Bauhaus during Nazi regime escaped and settled in Chicago and then designed the Farnsworth House and the Seagram Building (Figre 2.40 c), there (Larkin, n.d.).

The final leader of Modern Architecture was Le Corbusier, which in urban scale, the Modern trend developed mainly by his ideas, especially in Chandigarh and Brasilia city projects. Finally, those trends and doctrines were promoted as a movement by the International Congress of Modern Architecture (CIAM) that had been established in 1928, as an international platform of the Modern Movement (Colquhoun, 2002).

In 1914, Le Corbusier, one of Modern Architecture’s pioneers in 1914, designed a skeletal structure for his Domino houses, with the aim of "liberating space from the slavery of load bears walls" and creating a good combination between interior and exterior parts of building. This type of thought and tendency in design was a beginning for a great jump toward to a new architectural style. With his five points for new Architecture in 1926, he proposed definite explanation of the new ideas. One of those points was "free plan”, which emphasized on continuity, transparency of place. In relation to free plan, he pointed to "free façade" also, which emphasized on interaction

between interior and exterior, and their relation to nature as well, rather than a conventional composition that existed before (Schulz, 2000).

These ideas are considered as the new architecture's points. The other points of new architecture, which Le Corbusier prescribed, were: "pilotis", "the roof garden" and "the horizontal window". Each point presented freedom that was achieved by use of modern technology and decoding the new Architecture's Principles (Colquhoun, 2002). In brief, they are (Figure 2.41):

1) *Les pilotis* - foundation posts/columns, allowing the garden to stretch below and under the building

2) *Les toit-jardins* - roof gardens, made possible by the reinforced concrete

3) *Le plan libre* - the open plan

4) *La fenêtre en longeur* - the continuous string of windows

5) *La facade libre* - no limitation in the free design of the façade (Danielson, 1996).

Generally Modern Architecture is characterized by:

● Rejection of historical styles as a source of architectural form and design

● An adoption to the machine aesthetic. some modernist architect considered architecture as a device to express "sleekness", "energy of machine" and their aesthetic observed function's matter, in all "forms" of their "design".

● A rejection of ornament

● Form's simplification and elimination of excessive detail in design

● Exposed structure, sleek/smooth form, flat roof

● Building's concrete or steel construction system

● More usage of glass in façade or concrete façade as façade texture.

Modernist architects were accompanied that, architect as a designer, should design all those necessities for buildings, from textile to furniture for building's interior part (Millais, 2009). Other features for Modern Architecture can be described as; more usage of white or gray color in the building's façade by increasing the usage of new materials like concrete, etc. (Figure 2.42). The other one is emphasis of horizontal and vertical lines in façade design of the modern buildings (Le Corbusier; Leader of the International Style, n.d.).

Figure 2.42: Applying white color and emphasis of horizontal line (Corbusier, 2001; 118).

2.2.1.3 Characteristics of Modern Residence

Le Corbusier' Modern villas (villa was as primary nominee for modern dwelling type developments in architecture) had free, open spaces without any ornaments. (Schulz, 2000). The five points of Le Corbusier's summarized ideas, can be seen in his work in terms of shape and facade components.

As mentioned before, Le Corbusier summarized his ideas about Modern Architecture and Residence transformations in his famous five points:

1) The pilots (supporting columns) (Figure 2.43): The skeletal system gives us the pilots.

The house is up in the air, far from the ground: the garden runs under the house.

Figure 2.43: Pilotis (supporting columns) (Corbusier, 2001; 134)

2) The roof gardens (Figure 2.44): the garden is also over the house, on the flat roof of house.

Figure 2.44: Roof gardens (Corbusier, 2001; 138)

3) Free plan (Figure 2.45): In previous time, load-bearing walls were forming the ground floor and the upper stories, up to the eaves. The layout was a slave to the supporting walls. Skeletal system in the house provided a free plan. The floors were no longer divided by partition walls and were free.

Figure 2.45: Free plan (Corbusier, 2001; 139)

4) The horizontal window (Figure 2.46): window is one of the essential elements of the house. Skeletal system provided a revolution in the usage of the window. Windows could run from one end of the facade to the other.

Figure 2.46: Horizontal window (Corbusier, 2001; 118)

5) The free façade (Figure 2.47) in modern house, columns set inside the house, behind from the facades. The facades were the light skins of insulating walls or windows and were free (Corbusier, 2001).

Figure 2.47: Free façade (Corbusier, 2001; 141)

Le Corbusier declared the problem of house, as the main problem of modern era that balance in societies depends upon it. Then, he described that:

> "Architecture, has for its first duty, in this period of renewal, that of bringing about a revision of values, a revision of the constituent elements of the house" (Le Corbusier, 1986; 227).

His Immeuble-Villas (Figure 2.48) which were villa complexes project, could be considered as a starting point to “residential hotel-type dwellings” with apartment’s area of 150 m². After World War I, beside “industrialization of construction”, and high demands in the housing sector, constructing new housing in large amount and scale, rapidly became essential. On the other hand, high and quick interest chance in housing sector caused the investments growing up in it. Mostly, housing developments and progress toward modern dwelling type can be observed by following the “new housing exhibitions” practices and their results (Teige, 2002). In those exhibitions, besides showing modern dwelling types, the procedure of their modernization can be observed. Some exhibitions will be named and described in following paragraphs.

Figure 2.48: Le Corbusier, Immeuble-Villas (Teige, 2002).

The 1923, International Exhibition of Architecture, that was arranged by Bauhaus in Germany, was the first type of practical exhibition, in relation to housing subject (Bauhaus, 1923). After it, in 1927, there was Stuttgart Werkbund Exhibition associated with “experimental housing colony”. It was an important exhibition that committed to improve last decade’s housing, toward new form of it and Mies van der Rohe had a directorial role to organize that exhibition. The Stuttgart-model housing colony was commissioned to build thirty-three houses that constructed with modern materials and new façades regarding to industrialized methods of construction .there were represented two rental multistory apartment houses (Figure 2.49).

Figure 2.49: J.J.P. Oud, 1927, Stuttgart Exhibition (Evert Marinus van Ojen, 2009).

Figure 2.50: Residential quadruplex, Mies van der Rohe, 1927, Stuttgart Exhibition (Teige, 2002; 194).

Between 1921 to 1930 three more exhibition held that focused on the plan are changing the form of apartments according to the modern man's need which plan shape the façade, because in this exhibition the main topic based on the function and plan. Another feature of this exhibition's colony, was concerning to other types of dwelling's inhabitants requirements, rather than a usual family, such as singles, or childless couples (Figure 2.51), with representing boarding-house type of kitchen, or apartments which included just a small corner for cooking.

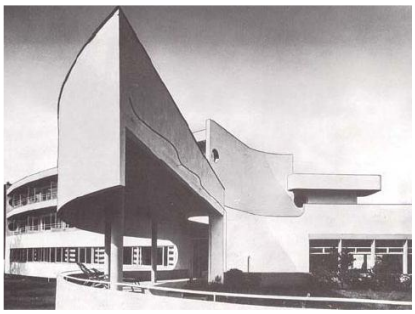


Figure 2.51: house for single people and childless couple, WuWa Breslau Exhibition, 1929 (International Congress Construction History, 2009).

As conclusions, the characteristics of Modern Residential Buildings can be described:

Types of Residence:

Modern dwelling type was transferred from primarily free standing villa to later Row housing and multistory apartment type.

Plan:

Free plan or the Open plan/Spaces; Skeletal system in the house provided a free plan without divided by partition walls and were free. Modular system as an ideal basis for universal standardization/ dimensional standardization in houses designs were used there (new dimensional standard according to human body proportions and golden ratio).

With regard to hygienic manner, there might be more than one bathroom in modern dwelling, particularly, for parents and other family members. In modern dwelling, each occupant should have his or her own bedroom, or at least, bedrooms should be divided between adults and children. The individualization of spaces in modern dwelling, for example, living room and dining space are as common spaces in modern dwelling and the other spaces are individualized.

Applying apartment sized small kitchen/ Built in kitchen

The dimensions of bedrooms changed distinctly and even sometimes reduced to a "Sleeping cubicle".

Applying added toilet and bathroom together in house

Modern dwellings included specific storage rooms and laundries.

Considering exercises space in modern dwelling:

Form Issues and Facade Organization:

- Rejection of ornaments

- Rejection of historical styles
- More usage of White or Gray color in facade (with applying material like concrete)
- More usage of glass in façade or concrete façade as façade texture
- Pilots or foundation posts/supporting columns; the house is up in the air, far from the ground.
- Dwelling form's simplification (sleek/smooth form) elimination of excessive detail in design.
- Free façade, no limitation in the design of the façade/ the facades were the light skins of insulating walls or windows and were free.
- The horizontal window the continuous string of windows/ Windows could run from one end of the facade to the other.
- Emphasis of horizontal and vertical lines in façade design
- Flat roof
- Roof garden/ the garden are also over the house, on the flat roof of house.

Building Technologies (Structural System and Building Materials):

Liberating space from the slavery of load bears walls (abandon the usage of Loadbearing system).

Skeletal structure which include, applying:

Reinforced concrete skeletal (Frame) system

Steel skeletal (Frame) system

Industrialization of construction method for dwelling construction

Exposed structure; honesty of materials, in which, materials like steel and concrete, are visible. In Modern dwelling application of new materials like Steel, reinforced Concrete, etc.

2.2.2 Residential Architecture after Modern- Postmodern

After modern some styles start to appear which Postmodern was one of them. Postmodern architecture began as an international style the first examples of which are generally cited as being from the 1950s, but did not become a style until the late 1970s and continues to influence present-day architecture.

2.2.2.1 Postmodern Residential Architecture

Postmodernity in architecture is said to be heralded by the return of "wit, ornament and reference" to architecture in response to the formalism of the International Style of modernism. As with many cultural fashions, some of Postmodernism's most pronounced and visible ideas can be seen in architecture. The functional and formalized shapes and spaces of the modernist style are replaced by diverse aesthetics: styles collide, form is adopted for its own sake, and new ways of viewing familiar styles and space abound. Perhaps most obviously, architects rediscovered the expressive and symbolic value of architectural elements and forms that had evolved through centuries of building which had been abandoned by the modern style. Influential early large-scale examples of postmodern architecture are Michael Graves' Portland Building in Portland (Figure 2.52, a), Oregon and Philip Johnson's Sony Building (originally AT&T Building) in New York City (Figure 2.58, b), which borrows elements and references from the past and reintroduces color and symbolism to architecture.

(a)

(b)

Figure 2.52:Postmodern; (a) Michael Graves' Portland Building in Portland; (b) Philip Johnson's Sony Building (originally AT&T Building) in New York City (Kolb, 1992; 58&76)

Postmodern architecture has also been described as "neo-eclectic", where reference and ornament have returned to the facade, replacing the aggressively unornamented modern styles. This eclecticism is often combined with the use of non-orthogonal angles and unusual surfaces, most famously in the State Gallery of Stuttgart (New wing of the Staatsgalerie Stuttgart) by James Stirling (Figure 2.53) and the Piazza d'Italia by Charles Moore (Figure2.54). The Scottish Parliament Building in Edinburgh have also been cited as being of postmodern vogue.

Figure 2.53: New wing of the Staatsgalerie Stuttgart by James Stirling ;(Ghirado, 1960; 93).

Figure 2.54: Piazza d'Italia by Charles Moore (Ghirado, 1960; 145).

Modernist architects may regard postmodern buildings as vulgar, associated with populist ethic, and sharing the design elements of shopping malls, cluttered with "gaws". Postmodern architects may regard many modern buildings as soulless a bland, overly simplistic and abstract. This contrast was exemplified in the juxtaposition of the "whites" against the "grays," in which the "whites" were seeking to continue (or revive) the modernist tradition of purism and clarity, while the "grays" were embracing a more multifaceted cultural vision, seen in Robert Venturi's statement rejecting the "black or white" world view of modernism in favor of "black and white and sometimes gray." The divergence in opinions comes down to a difference in goals: modernism is rooted in minimal and true use of material as well as absence of ornament, while postmodernism is a rejection of strict rules set by the early modernists and seeks meaning and expression in the use of building techniques, forms, and stylistic references.

New trends became evident in the last quarter of the 20th century as some architects started to turn away from modern Functionalism which they viewed as boring, and which some of the public considered unwelcoming and even unpleasant. These architects turned towards the past, quoting past aspects of various buildings and melding them together (even sometimes in an inharmonious manner) to create a new means of designing buildings. A vivid example of this new approach was that

Postmodernism saw the comeback of columns and other elements of pre modern design façade, sometimes adapting classical Greek and Roman examples (but not simply recreating them, as was done in neoclassical architecture). In Modernism, the traditional column (as a design feature) was treated as a cylindrical pipe form, replaced by other technological means such as cantilevers, or masked completely by curtain wall façades. The revival of the column was an aesthetic, rather than a technological, necessity. Modernist high-rise buildings had become in most instances monolithic, rejecting the concept of a stack of varied design elements for a single vocabulary from ground level to the top, in the most extreme cases even using a constant "footprint", with the building sometimes even suggesting the possibility of a single metallic extrusion directly from the ground, mostly by eliminating visual horizontal elements; this was seen most strictly in Minoru Yamasaki's World Trade Center buildings. Another return was that of the “wit, ornament and reference” seen in older buildings in terra cotta decorative façades and bronze or stainless steel embellishments of the Beaux-Arts and Art Deco periods.

Figure 2.55: Ancient ruyi symbol adorning Taipei (Kolb, 1992; 177).

In Postmodern structures this was often achieved by placing contradictory quotes of previous building styles alongside each other. Postmodern architecture often addressed

the context in terms of the materials, forms and details of the buildings around it—the cultural context.

2.2.2.2 Origins of Postmodern

The aims of Postmodernism or Late-modernism begin with its reaction to Modernism; it tries to address the limitations of its predecessor.

The list of aims is extended to include communicating ideas with the public often in a then humorous or witty way. Often, the communication is done by quoting extensively from past architectural styles, often many at once. In breaking away from modernism, it also strives to produce buildings that are sensitive to the context within which they are built.

Postmodernism has its origins in the perceived failure of Modern Architecture. Its preoccupation with functionalism and economical building meant that ornaments were done away with and the buildings were cloaked in a stark rational appearance. Many felt the buildings failed to meet the human need for comfort both for body and for the eye, that modernism did not account for the desire for beauty. The problem worsened when some already monotonous apartment blocks degenerated into slums. In response, architects sought to reintroduce ornament, color, decoration and human scale to buildings. Form was no longer to be defined solely by its functional requirements or minimal appearance.

Figure 2.56: Sainsbury Wing of the National Gallery in London by Robert Venturi (1991).

Robert Venturi was at the forefront of this movement. His book, complexity and Contradiction in Architecture (published in 1966), was instrumental in opening readers eyes to new ways of thinking about buildings, as it drew from the entire history of architecture and lambasted overly simplistic Functional Modernism. The move away from modernism's functionalism is well illustrated by Venturi's adaptation of Mies van der Rohe's famous maxim "Less is more" to "Less be a bore." The book includes a number of the architect's own designs in the back, including structures such as Guild House, in Philadelphia, that became major icons of postmodernism.

Figure 2.57 Vanna Venturi House with its split gable (Gossel, leuthouser, 1971; 56).

He sought to bring back ornament because of its necessity. He explains this and his criticism of Modernism in his Complexity and Contradiction in Architecture by saying that: Architects can bemoan or try to ignore them (referring to the ornamental and decorative elements in buildings) or even try to abolish them, but they will not go away. Or they will not go away for a long time, because architects do not have the power to replace them (nor do they know what to replace them with).

Venturi's second book, learning from Las Vegas (1972) further developed his take on modernism. He argues that ornamental and decorative elements "accommodate existing needs for variety and communication". Here Venturi stresses the importance of the building communicating a meaning to the public, a value shared by

postmodernists in general. This communication however is not intended to be a direct narration of the meaning. Venturi goes on to explain that it is rather intended to be a communication that could be interpreted in many ways. Each interpretation is more or less true for its moment because work of such quality will have many dimensions and layers of meaning.

This pluralism of meaning is intended to mirror the similar nature of contemporary society. The pluralism in meaning was also echoed in the postmodern architects striving for variety in their buildings. Venturi reminisces in one of his essays, A View from the Campidoglio, to that effect when he says that:

When [he] was young, a sure way to distinguish great architects was through the consistency and originality of their work... This should no longer be the case. Where the Modern masters' strength lay in consistency, ours should lie in diversity.

Postmodernism with its diversity possesses sensitivity to the building's context and history, and the client's requirements. The postmodernist architects often considered the general requirements of the urban buildings and their surroundings during the building's design. For example, in Frank Gehry's Venice Beach House, the neighboring houses have a similar bright flat color. This vernacular sensitivity is often evident, but other times the designs respond to more high-style neighbors. James Stirling's Arthur M. Sackler Museum at Harvard University features a rounded corner and striped brick patterning that relate to the form and decoration of the polychromatic Victorian Memorial Hall across the street, although in neither case is the element imitative or historicist.

2.2.2.3 Characteristics of Postmodern

The aims of Postmodernism, including solving the problems of Modernism, communicating meanings with ambiguity, and sensitivity for the building's context, are surprisingly unified for a period of buildings designed by architects who largely never collaborated with each other. The aims do, however, leave room for various implementations as can be illustrated by the diverse buildings created during the movement.

The characteristics of postmodernism allow its aim to be expressed in diverse ways. These characteristics include the use of sculptural forms, ornaments, anthropomorphism and materials which perform trompe l'oeil. These physical characteristics are combined with conceptual characteristics of meaning.
These characteristics of meaning include pluralism, double coding, flying buttresses and high ceilings, irony and paradox, and conceptualism.

Double Coded: While modernist architecture tends to be univalent inform, postmodernist architecture is characterized by double coding, the inclusion of messages to be interpreted by other professional architects and a separate set of messages to be interpreted by the buildings' users and inhabitants. In addition, postmodern double coding is often ironic. This can be seen, for example, in Philip Johnson and John Burgee's AT&T Building in New York City (Figure 2.58). The building looks both like a traditional glass and steel skyscraper and at the same time like an enormous grandfather clock culminating in an upward reaching Chippendale split pediment.

Figure 2.58: Philip Johnson's Sony Building (originally AT&T Building) in New York City (Kolb, 1992; 76)

It blends in with the other modernist buildings in its vicinity by mirroring and parodying many of their features. For example, its façade is left right reversible, it includes a great many 90° angles, its' ground level incorporates pillars, and there is a simple capital in the top horizontal row of windows.

Inconsistent: Postmodernist buildings present the viewer with an inconsistent surface that includes multiple colors and textures as well as disruptions to the building's symmetry. While modernist architects adhere to monochromatic color schemes, postmodernists often incorporate polychrome. Venturi, Rauch, and Scott-Brown's Gordon Wu Dining Hall at Princeton University exemplifies this. Its façade includes white marble, gray stone, light wood, dark metal, and red and black brick. Not only does the building's façade include a number of different colors, materials, and textures, but they also all combine to evoke a cartoon-like face (Figure 2.59).

Figure 2.59: Gordon Wu Dining Hall Bernard (Gossel, leuthouser, 1971; 206).

The building is both colorful and ironically double coded, both a university dining hall and an anthropomorphic smiling face. While sculptures tend to be separate from modernist buildings, postmodernist buildings often incorporate sculpture into the building itself. For example, Michael Graves's Portland Public Services Building prominently features an enormous, playful sculpture of the goddess Portlandia over its main entrance (Figure2.60).

Figure 2.60: Portland Public Services Building, Foster (Gossel, leuthouser, 1971; 219)

Similarly, Graves's Walt Disney Headquarters in Burbank (Figure 2.63) features seven 19-foot tall stone dwarves as caryatids, doubly coded as a subtle reference to classical Greek architecture and an overt reference to the type of business the building houses

Figure 2.61: Graves's Walt Disney Headquarters in Burbank (Gossel, leuthouser, 1971; 224)

Relativistic: Postmodernists emphasize multivalent messages, which inherently do not present a single, unified meaning. The message a modernist housing project such

as Pruit-Igoe or Alison and Peter Smithson's Robin Hood Gardens in London sends to residents is that all residents are all the same (Figure 2.62). While modernist architects have an idealistic, utopian view of what their housing projects can accomplish, postmodernist architects send a more relative, contingent message.

Figure 2.62: Pruit-Igoe or Alison Peter Smithson's Robin Hood Gardens (Gossel, leuthouser, 1971; 241)

In postmodernist housing projects, such as Jeremy Dixon's St. Marks Road in London, the message is relative. Although the floor plans are unusual as the result of the tight space and angled layout and what looks like one house from the front is actually two, residents nonetheless live in a building that fit in with the other Edwardian buildings on the street.

Figure 2.63: St. Mark's Road (New London Architecture) (Gossel, leuthouser, 1971; 249)

Their homes look like their neighbors' and yet each residence is distinct. The St. Marks Road housing includes twenty-four houses and twenty flats carefully fit into a tight space, but because it mimics the styles of the surrounding neighborhood it sends the

message to residents that they deserve the same style and class as those who can afford to buy larger residences.

Intertextuality of Art: Postmodernists consider the contexts of their buildings. For example, Hans Hollein's Haas House in Vienna is adjacent to gothic, baroque, turn of the century, and 1950s modern buildings, and Haas House functions like a "chameleon building" mediating between the complex and contradictory styles surrounding it (Jencks 11). Whereas modernists build autonomous skyscrapers, oblivious of the surrounding buildings.

Figure 2.64: Hans Hollein's Haas House in Vienna ;(Gossel, leuthouser, 1971; 263)

The stone portion of Haas House's façade with the repeated square windows blends into the style of the adjacent building. This stone gradually gives way to a glass curtain wall sheathing a cylindrical "tower" that not only evokes an ancient church or fortification, but literally reflects the mediaeval cathedral across the square. Haas House blends into pale green building next door with stone that fits together with colors in the neighboring building and repeated window motifs that evoke the adjacent building's windows. Postmodern architecture revisits the past, citing different periods and styles within a single building, but doing so ironically.

Not only do postmodernists make intertextuality references to other works of art, they reference mundane and popular cultural artifacts as well. While the few interstructural references modernist architects make tend to be to classical buildings, postmodernist architects include references to more recent architectural styles and popular culture.

Multiple, Smaller Narratives Modernists impose a single hierarchy of values, selecting an elite canon of appropriate sources. By contrast, postmodernists self-consciously deconstruct modernists' hierarchical system, in favor of pluralism and complexity. Modernist skyscrapers all look quite similar to each other; they are all variations on a basic box structure with similarly repetitive, regular window patterns and a limited number of construction materials. Postmodernist skyscrapers are united by how different they are from each other. In fact, they frequently include a variety of styles within a single building so that a single postmodernist building does not even fit into its own mold. The library incorporates a number of different styles, from gothic to modernist, blending in to the buildings around it. As mentioned earlier, Hans Hollein's Haas House in Vienna is another example of postmodern pluralism. It incorporates elements that link it to the buildings surrounding it, referencing modernism, baroque, turn of the century, and even the mediaeval cathedral across the square

Populist: Postmodern architecture tends to be playful, fun, and populist. Modernists completely disregarded the ability of regular people, including a building's users or inhabitants, to understand the messages of their architecture. Postmodernists' tries to pay far more attention to the messages a building sends to its average observers. Realizing that people see buildings in the context of the other surrounding architecture, postmodernists acknowledge the styles of surrounding buildings.

Three Dimensional: Postmodernist architecture favors curved lines and three-dimensional forms that disrupt the straight lines and rectangles of modernist buildings. Compare the image presented by the façade of more or less any modernist skyscraper with the façade of a structure like the Experience Music Project in Seattle or the Guggenheim Museum in Bilbao.

Figure 2.65: Cesar Pelli's World Financial Center Tower in New York City (Gossel, leuthouser, 1971; 277)

Pelli's World Financial Center Tower (figure 2.65) is a more understated example of the three-dimensional changes in the building's façade cause Jencks to wonder, "Is this a geode, or a thin building trying to get out of a fat one?"

2.2.2.4 Façade

In contrast with their understated, unadorned modernist counterparts, postmodernist buildings display more ornamentation and detail. Architects draw viewers' attention to the buildings' surfaces through the juxtaposition of different colors, textures, and building materials. For example, Arata Isozaki's Museum of Contemporary Art (MOCA) in Los Angeles (Figure 2.66) includes glass blocks, smooth panes of glass, red sandstone, polished white stone, and green sheet steel.

Figure 2.66: Arata Isozaki's Museum of Contemporary Art (MOCA) in Los Angeles (Gossel, leuthouser, 1971; 281)

Postmodernist architecture also draws attention to its façades through the use of asymmetry and symbolism. By shifting or rotating familiar axes or combining dissonant, eclectic, or referential elements, postmodernist architecture forces observers to take a second look- Unlike modernist buildings that look the same when left right reversed- postmodernist buildings' façades generally demonstrate chirality. By playing with a viewer's expectations, postmodernists hope to provide people with a structure that fulfills more than one purpose, supports more than one interpretation, embodies a sense of pluralism, and offers a level of complexity- While modernist structures appeal to architects with their purity and proportionality and appear sterile and dull to average observers- postmodernist structures appeal not only to architects with their pluralism and complexity, but to average observers who notice the asymmetry, colors, juxtaposition of styles, and other details in the buildings' surfaces.

2.3 Conclusions

The main aims of this chapter were the explanation of the residential buildings façade and its role in urbanism and then, the factors influencing in façade design in local approaches. Based on the dissections, the explanation of effect of period of building, site, climate, material and technology, culture and architectural world trends.

1. Effect of different periods in façade design in different era

2. Investing world architectural trends in different period

3. Determine the site on building's façade design in each region

4. Effect of climate on façade design and its position, material and structure, shape of building and openings and material in terms of adapting with climate.

5. Describe different material and chose those according to local material or technology and function

6. Effect of culture to building design and façade

Then, based on the dissections, the explanation of components of façade follows by priorities of this approach for preserving the aims of impact of local values on façade design. Those components of façade design are include the following:

1. Form and shape of building

2. Openings and their characteristics: entrance, windows and balcony

3. Type of roof in façade according to local factors

4. Color and texture in façade design

5. Ornamentation in façade.

Moreover, investing of residential building in facade character in modern and postmodern is discussed such as the character of buildings and changes in facade that are more emphasize addressed. Recently, buildings' façade have introduced as example of famous buildings in modern and postmodern era was briefly presented in this chapter.

Chapter 3

RESIDENTIAL BUILDINGS IN IRAN AND NORTH CYPRUS

Architecture (as the nonstructural element of the building facade) is part of the culture of each nation that has been shaped throughout the history and if necessary, it changes gradually according to the geographical location, the climatic characteristics, the customs, the values and beliefs. Thus, the architecture of a nation is particular and appropriate of the same nation and its culture elements. It is not possible to create the changes in the architectural style suddenly due to the economic and political reasons. The facade can be considered as the most essential architectural elements which show the relationship between performance and the importance of building. The facade of every building, especially the residential buildings represent the cultural conditions of the period that the building was being constructed in its context. The façade of the residential building can also show the social identity of its residents and reflects the community identity. What that shapes the appearance of the city is important, including the urban views and spaces and elements such as scale, proportion, building style, building structure, building materials, paint, tissue etc. Each of these items can be different in different cities. Also, the image of the Iranian city is important such as the public and semi-public urban spaces, the private and semi-private spaces, square spaces and the market and so on (Nasr, 2016).

3.1 Residential Architecture in Iran

Dwelling as a shelter is as the initial and basic requirement of the family. It has also found different meanings in various natural and artificial environments as one of the basic human needs. Despite these differences, dwelling has a high and holy concept in all communities that human being has achieved by being with providing it and he/she has experienced the life within this being, on the other hand, the residential way has given the meaning to human being's life. The traditional residential architecture is one of the effective factors in the appearance of Islamic-Iranian city that has valuable components and it is different in various parts of the country depending on the habitat. The architecture has formed based on the natural and ecological identity of each region and it has manifested in its architecture of the habitat as an identifying factor in the throughout history (Nasr, T., 2015). The passing of time and changing the architectural style has also affected on the residential architecture. In addition to local and regional features, Iranian dwelling architecture has been affected by the cultural and social foundations that contain the historical considerations as well. The country of Iran, the land of the Aryans, or earlier Persia, has priceless rich cultural background. For more than three thousand years, Persia played an important role in demographic movements, between Asia (East) and Europe (West).

The history of Iran is long and complex, and determined by rising and falling of successive dynasties, occasionally with break of chaos and confusion. The Medes, Achaemenid, the Sassanians and the Arabs, the Seljuks and the Mongols, the Timurids and the Safavids, then the Qajar and the Pahlavi, all governed there, consecutively. After the conquest of Iran by Muslims in 637-651 AD, the Sassanid Empire was destroyed and, it was led to declining of the Zoroastrian religion in Iran, ultimately

(Mackey, 1998). After that, most of Iranian population (Persians) became Muslim and the Islamic governments were initiated in Iran. However, the achievement of the previous Iranian civilizations partially remained in society.

Iran's climate is generally arid or semiarid, with exception of the Caspian coast in northern edge of the country. Iran's population increased dramatically during the latter half of the 20th century, reaching about 72 million by 2008, the number of households stood at 15.3 million (4.8 person/household).

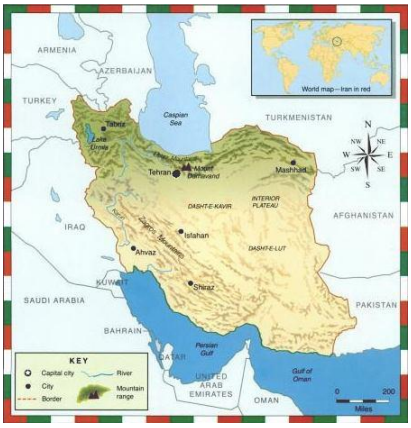


Figure 3.1: Map of Iran (Mara, 2007, p.5).

Regarding to Iran’s old civilization, its culture is one of the rich ones in the world. Its wealthy literature with thousands of poets and writers, glorious and remarkable architecture, its traditions that sometimes back to over 3000 years ago, beside other unique characteristics of this country emphasize on its old unique cultural background.

3.1.1 General Architectural Background

Iranian or Persian architecture is corresponding to the architecture of ancient Iran, which is rooted in the history from thousands years ago to the present time. Its samples spread over a large area from Syria to India (Pope, 1971). Persian buildings types are

various, from farmer Cottage to tea houses, garden pavilions to some of the most magnificent structures like mosques and palaces (Figure 3.2).

Figure 3.2: Naghshe Jahan Square, Isfahan, Iran, Safavid period (in Islamic Era) (Kateb, 2005, 39)

Iranian architecture has a great variety, in both structural and aesthetic subjects and has developed gradually, regarding to both earlier traditions and architect experiences. Some of its dominant features are:

> "A marked feeling for form and scale; structural inventiveness, especially in vault and dome construction; a genius for decoration with a freedom and success not rivaled in any other architecture" (Pope, 1965, p.266).

Traditionally, the main, influential idea of Iranian architecture has been its divine symbolism by which man is brought into communication and participation with the Powers of heaven (Ardalan and Bakhtiar, 2000).

Figure 3.3: Taq-i Kasra, Ctesiphon, Arabic Al-Mada'in, Iran pre-Islamic era (before 650 AD) (Kateb, 2005, 25).

According to Pope (1965), in Iranian architecture:

There are no trivial buildings; even garden pavilions have nobility and dignity, and the humblest caravanserais generally have charm. In expressiveness and communicability, most Persian buildings are lucid-even eloquent. The combination of intensity and simplicity of form provides immediacy, while ornament and, often, subtle proportions reward sustained observation. Also, his study on some available samples of buildings indicated various types of materials that were prevalent in Iranian architecture before contemporary period. Like clays that were on hand almost in everywhere and later than were applied in the form of molded mud in buildings and another material was lime mortar, which helped the development of brick later (Pope, 1965).

The characteristics of Iranian architecture were based on some essential features like: 1. Introversion, 2. Structuralism, 3. Homogeneous proportions (in accordance to modular units) and considering to human body proportion in design, 4. Symmetry and Anti-symmetry, 5. Minimalism or avoiding from any trivial detail in design. Generally, the development of Iranian architecture during the history can be categorized into following parts: Pre-Islamic architecture of Iran, Post-Islamic architecture of Iran, and Contemporary architecture of Iran (Figure 3.3) (Pirnia, 2005).

Figure 3.4: Samples about Iranians architecture different categories
(a) The ziggurat Chogha Zanbil, Pre-Islamic architecture of Iran (Kateb, 2005, p.63)
(b) Kabud Mosque Tabriz, Iran, Post-Islamic architecture of Iran (Poorhabib, 2007)
(c)Al Javad Mosque, Tehran, Contemporary architecture of Iran

3.1.1.1 Pre-Islamic Architecture of Iran (3000 BC to 650 AD)

The pre-Islamic styles represent 3 to 4 thousand years of several civilizations' architectural development within the Iranian plateau. Each of the periods of Elamites, Achaemenids (Figure 3.5 (a)), Parthians, and Sassanids were the creators of great architecture that has spread widely during the history. Some substantial remnants of the Elamite or proto-Elamite period are the Tappe Zagheh, the Ziggurat of Chogha Zanbil (Figure 3.5 (b)), and Shahr-i Sokhteh. The Achaemenids gathered artists and materials, almost from all territories of the country and they built large scale buildings. Pasargadae, along with Susa, and Persepolis, are some samples of the architecture of Achaemenids period.

a b

Figure 3.5: (a); Pasargadae, Achaemenids era (Pasargadae, n.d.), (b); the ziggurat ofChogha Zanbil, Elamite era (Kateb, 2005, 63).

3.1.1.2 Post-Islamic Architecture of Iran (650 AD to 1925)

The falling of the Persian Empire by invading Islamic forces, led to the creation of another Remarkable period in Iranian Architecture, Arts such as calligraphy, stucco work, mirror work, and mosaic work, brickworks in the form of different motifs, and sometimes plasterworks over bricks were used in architecture of Iran in the new era. Beside them, applying human portrait lithography that was common before decreased. Various structures such as bazaars, bridges, mausoleums, different palaces and specially mosques, were constructed in this period of Iranian architecture. Buildings which were built during this period can be divided to some classes like; Seljuk,

Ilkhanid, Timurid, Safavid, Zand and Qajar classes during post Islamic era, various forms of buildings which mostly were royal or public types were built in Iran. In addition during Qajar period (1776-1925AD) we can see some significant samples of Iranian traditional residential buildings. Because of the importance of that subject in this study, the characteristics of Iranian Traditional Residential buildings will be discussed in next section separately.

3.1.1.2.1 Iranian Traditional Residential Buildings

Iranian's traditional residential architecture includes the category of some principles and characters, elements that employed by Iranian old architects -"Me'mar"- and craftsmen, to construct Iranian traditional houses. Those characters and elements were mainly drawn, from Iranian cultures and architectural elements, from both Islamic and pre-Islamic times. Most of Iran's remaining traditional houses are from the Qajar period (1776-1925AD). According to geographical situation of Iran, which is being situated on the edge of deserts and arid regions and typically has hot summers, cold and dry winters, the most important characteristic of Iran's traditional houses was concerning to their climatic conditions (Pirnia, 2005).

Layout

The existence of hundreds of traditional houses with perfect designs (regarding to Iranian cultural, local and climatic, etc. conditions) shows, a deep heritage of Iranian traditional Architecture. Iran's old cities' fabric, are made-up of narrow twisting streets named "Koocheh", surrounding with high walls of adobe and clays.

Sometimes there are roofs on top of the walls too. This form of Iranian common urban design is regarding to desert region climatic features, to reduce the effects of dust storms and hot weather in summer with increasing the daytime shades which helps

also to keep warmth in urban area in severe winter conditions. Religious beliefs beside climatic problem and security reasons encouraged traditional Persian architects to create inward form designs for houses within those narrow “Koocheh”. These types of houses had local arrangement for protection; they all had enclosed gardens with high degree of privacy, preventing any view into the house from the outside world. Hence, while residential architecture in Iran, was designed in a manner of providing maximum protection for residents specially women and children, at the same time, was trying to furnish this protected inner as “paradise garden” (Figure 3.6) (Soltanzadeh, 1989).

Figure 3.6: View from old Tehran (Iran / Iranian Historical Photographs Gallery, 2010; Tehran 07).

In relation to ornamentation which was applied in Iranian traditional house, stucco work was the most widespread one for decorating Persian houses (Figure 3.7). Other artistic works that were applied there, were colored windows and mirror works, paintings, wood work, niches and also the vegetal ornamental form, frescoes and Muqarnas, and tile works (Kateb, 2005).

Figure 3.7: Stucco work in Iranian traditional house, Kashan, Iran (Iran / Iranian Historical Photographs Gallery, 2010; kashan 29).

The major parts and characteristics of Iranian traditional residential buildings are:

1. Portal: as mentioned above, usually Iranian traditional house had inward form design, so, the visible exterior layer of traditional house, was too simple, for example, just a pure high clay wall. So, the portal was as main element of exterior façade of house, and usually decorated by some ornamentation.

2. Hashti and Dalan-e-vorudi: the entrance part that contains usually a small octagonal shape plan space which were called Hashti, and, a narrow hallway that is linked to it and to the house's main courtyard, that were named Dalan-e-vorudi (Figure 3.8).

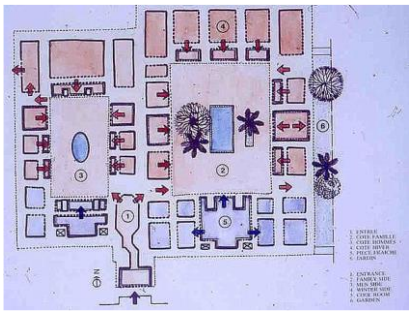


Figure 3.8: Sample of an Iranian traditional house plan (Rabbat, n.d.).

3. Spaces essential divisions in house, to exterior (Biruni) (Figure 3.9), as common part for guests and unknown peoples and the interior (Andaruni), private part of house for family members, women and children.

Figure 3.9: Biruni (common part) of an Iranian traditional house in Kashan, Iran; (Iran / Iranian Historical Photographs Gallery, 2010; kashan, 05).

4. A central courtyard, with a central pool, surrounding gardens, containing trees and flowers.

5. Iwan; is defined as a roofed hall or space which is walled on three sides and one end entirely, opens to a central courtyard, and have been employed in both public and residential buildings.

6. Talar and Shah Neshin; the main parts in common sections of house (Biruni) that were applied for guests reception and adorned by various type of ornaments and decorations.

7. Rooms: rooms were the important and main parts of Iranian traditional houses.

Two types of rooms according to usage of them were built in Iranian traditional houses which were named as “Se Dari”, three-door rooms (Figure 3.10) and “Panj Dari”, means five-door rooms. “Se Dari” was a smaller room that usually was used for sleeping and resting, and “Panj Dari” which was a bigger one, was used as living room.

Figure 3.10: Se Dari (three door room) of an Iranian traditional house in Kashan; Iran; (Iran / Iranian Historical Photographs Gallery, 2010; kashan 28).

8. Doors and Windows: in traditional house, doors and windows were other important elements. Doors usually had two pieces and sometimes were decorated by paintings and drawings. Windows in Iranian traditional house, most of the time were used for spaces' lighting (Figure 3.11). They usually were opened vertically and ornamented by wood work and colored glasses.

Figure 3.11: Window of an Iranian traditional house in Kashan, Iran; (Iran / Iranian Historical Photographs Gallery, 2010; kashan 29).

9. The house service parts: these spaces, like kitchen, stable, storage room and sometimes bathroom (because traditional house occasionally didn't have bathroom and inhabitants were using public bath of neighborhood), were placed at the back of main parts of house, usually, in another small courtyard, and toilet were placed also in the corner of courtyards that was accessible through one short passage.

10. Usually, the orientation of Iranian traditional house was north-south direction, match to seasonal condition. The winter part that situated in northern side, face to south for maximum usage of sunshine in winter, and summer part situated in south side, face to north side to decrease the sunshine effect in summer.

11. Applying symmetry principle in design: this principle is another important characteristic of Iranian traditional house, from various spaces arrangement around courtyards to façade design in house (Molla Zadeh, 2007).

Furthermore mostly in central Iran, an ingenious system of wind catchers which provided cool temperatures in the lower levels of the traditional houses in summer, were designed. Also, thick massive walls were employed to prevent the sun's heat in the summer, while retaining the internal heat in the winters in houses.

Figure 3.12: Wind catcher of one Iranian traditional house in Kashan, Iran; (Iran / Iranian Historical Photographs Gallery, 2010; kashan 18).

Briefly the major parts and characteristics of Iranian traditional residential buildings are summarized in table 3.1.

Table 3.1: Major parts and characteristics of Iranian traditional residential buildings; (summary of traditional Iranian house part)

Major parts and characteristics of Iranian traditional residential buildings.	
Portal	Talar and Shah Neshin
Hashti and Dalan-e-vorudi	Rooms: includes "Se Dari", three-door Rooms and "Panj Dari", five-door rooms.
Spaces essential divisions in house: Andaruni, Biruni	Traditional Doors and Windows
A central courtyard with pool, surrounding gardens	The house service parts
Iwan	House symmetric design
North-South orientation of Iranian traditional house	Applying thick massive walls
The usage of wind catchers system, mostly in central region of Iran	

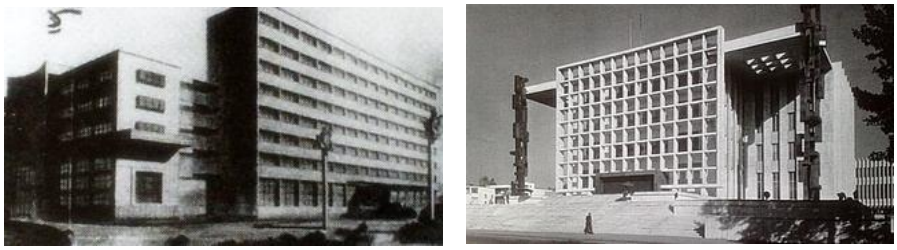
3.3.3 Contemporary Architecture of Iran (1925-Present)

The confrontation of Iran with Western Civilizations that mainly began with the Qajar Reign (1776-1925AD) caused severe political and social transformation in Iran after it. This subject, naturally, created a revolution of architecture and ultimately, the rise of a novel architecture in Iran. Nowadays, the architectural spaces that Iranians, are living there currently, were born in this process (Dehbashi and Diba, 2004).

In this atmosphere, some of the dominant traditional principles began to change and, this point was as an inception for new tendencies in various fields, within Iranian society. Specially, in the first Pahlavi period (after Qajar period), some movements, such as woman freedom and veil removing, academic foundation and new educational system, modern judiciary or court system, new armed forces organization, industrial developments and etc. emerged in Iran's society. Regarding to these movements, some of Iranian intellectuals' ideas like Akhundzadeh, Malkam Khan Nazemodolleh, Agha Khan Kermani, Talebof, were as intellectual support for those transformations (Ajoudani, 2007).

Contemporary architecture in Iran begins with the advent of the first Pahlav period in the early 1920s. During this era, Tehran, as capital city, have been changed and formed to a modern, industrial city, under some political, social and economic transformations. Regarding fast urban development, the old city walls, and some old neighborhoods, were demolished and new modern streets; new neighborhoods were organized, there. Consequently, the city lost its pervious old form and appearance, and went toward a new form of urbanization and identification. When social modernization removed ladies veils and gave them freedom, modern architecture with steel and glass and new construction technology, did something like this with Iranian traditional buildings and

unveiled them by removing their massive load baring clay walls. Gradually, the usage of modern material for building went forward and widespread and materials like Concrete, Joist, Steel and machine-made brick were used largely in construction (Bani Masoud, 2009). After that, in 1961 a 16-story steel structure Commercial Building that named Plasco Building (Figure 3.13) was built by Israeli designers (Bani Masoud, 2009).



(a) (b)

Figure 3.14: (a) Sepah Bank, Tehran bazaar branch; (b) Iran Industries Ministry buildings; (Bani Masoud, 2009, 224, 225).

In 1938, the first group of painters and architects, who were educated in Europe, established an architectural institution in the name of School of Architecture.

The new tendency was named Semi Modern style. This subject is obvious through their designs and monuments, for example like Azadi (Shahyad) Tower, by Amanat in 1971, Omar Khayyam mausoleum by Seyhoun in 1963, and Shushtar New Town by Kamran T.Diba in 1977 (Figure 3.15).

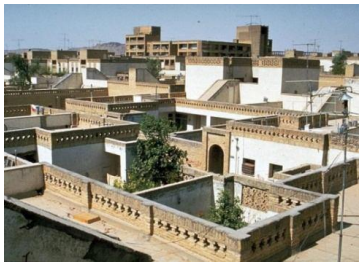


Figure 3.15: Shushtar New Town, Iran (Shushtar New Town, n.d.).

Nowadays, the contemporary architecture and current designs in Iran could be divided in some categories:

1. Returning to Iranian traditional architecture, this could be seen in religious centers design like Imam Khomeini mausoleum by Mohammad Tehrani.

2. Copying from western designs and imitating form western architects' works, especially western postmodern or deconstruction samples.

3. Continuing the pervious Semi Modern style, (Semi Modern style: the tendency that emerged in second Pahlavi era and was a combination between Iranian Traditional Architecture principles & motifs with International Modern Architecture principles and features).

4. Tendency to high-tech or echo-tech design.

5. Following the principles and characters of modern architecture, in design, merely.

For example, it could be considered in some residential buildings, high rise buildings and some other official and public buildings' design. As examples, for recent designs; Bandar Abbas city amphitheater building by Mohammad Reza Jodat in 2003, Mahestan Residential Complex in Kish by Darab Diba in 2006, Dezful Cultural Center in Dezful by Farhad Ahmadi in1995 and finally Armita (Bokharest) office Tower (Fig3.16) in Tehran by Behrooz Ahmadi in 1994, could be considered (Bani Masoud, 2009).

Figure 3.16: Armita (Bokharest) office Tower in Tehran (Bani Masoud, 2009; 476).

According to what mentioned above about design tendencies it could be said that; under effects of modernization, Iranian cityscapes and architectural spaces that people lived in them, have been changed. Nowadays rarely we can find respect to Iranian traditional architectural characteristics in architectural works. Respect to Iranian traditional architecture features in design doesn't mean superficially imitating from Iranian traditional architecture works for example by copying from their decoration style. Instead, it means, considering to Iranian traditional architecture deep principles in design. Such as respect to privacy and regard to climatic condition or vernacular approach, etc., which have roots in Iranians' culture, traditions and identifications during the history.

Iranian quasi-modern style architecture

The tendency for modern architecture was supported by architects like Gabriel Gorkian, Vartan Hovanessian, Paul Abkar and Marcel Rolland since the middle of the reign of Reza Shah.

> "The architecture of these people was formed by the modern Vienna architecture school influence and the German Expressionist architecture before the 1930s and France Art Novi" (Bani Masoud, Amir, 2009; 42).

Vartan Hovanessian who was the representative of this group and also a charm of the modernization of the of Reza Shah era, in his notes compared the Iranian modern architecture with the unveiling by Reza Shah and believed that as women previously were confined under the black veils, the houses were surrounded also under the high thatched walls and the modern architecture release the buildings from the veil that had caught it, with the use of glass and iron (Bani Masoud, Amir, 2009).

But eventually, none of the Iranian modernist architects could be faithful to the modern architecture principles which formed after the Siam Congress and even Hovanessian followed the Iranian features in his works (Bani Masoud, Amir, 2009).

During Mohammad Reza Pahlavi era, the multiple architectural movements replaced with the modern influential architecture. The shaped modern architecture of that period was mainly supported through the works of the architects and the creative Europe ideas including the International style, the Bauhaus school, Le Corbusier works, Frank Lloyd Wright, Richard Neutra, Alvar Aalto and James Sterling and its results were the Iranian modern architectural form that was named "quasi-modern style" (Bani Masoud, Amir, 2009). This style follows the pervious Iranian architecture rules for separating between the public spaces and the private ones and it is opposite the modern architecture which is trying to close the public and private spaces. In the 1960s and 1970s, the architects like Mehdi Alizadeh, Latif Abolqasemi, Faramarz Sharifi and Iraj Kalantari were carried out some experiences that influenced greatly by the modern architecture, but it had been combined with the atmosphere of Iranian architecture and hence, it was considered as the "quasi-modern style".

Historicism architecture and vernacular architecture

The historicism architecture was formed as a parallel movement through the Iranian prevailing atmosphere of the modernist architecture between 1960s and 1970s and it was influenced strongly by the intellectual movement of Iran at that time. Several events helped to shape it:

Holding the two international conference entitled "Examining the possibility of linking the traditional architecture with modern methods of construction" in September 1970 in Isfahan (with Louis Kahn) and "The Role of Architecture and Urbanism in

developing countries in Persepolis. (With James Stirling, Hassan Fathi, Kenzo Tange and Moshe Safdie) in October 1974, which in the first conference, some considerable discussion was addressed about the subject of "combining the traditional concepts with modern technology" (Bani Masoud, Amir, 2009). The issue of the sense of unity: the mystical tradition in the Iranian architecture (by Nader Ardalan and Laleh Bakhtiar) in 1973 that considered the Iranian architecture from the Suhrawardi's philosophy. Book authors believed that the rules of creative forces tradition inspire human and all of a community integrates as a form of cohesive and unit entirety.

> "The art and architecture are formed according to these rules in the traditional society. The architect in this community is the same mystic and Sufi of religion that becomes completely satisfied from the eternal source and its crystallization in the architecture is the reflection of the life" (Bani Masoud, Amir, 2009; 133).

The historicism architecture and vernacular architecture called refreshing or continuing the traditions and beliefs of the vernacular culture in the broadest sense is a doctrine. The nativism roots in some beliefs such as resistance against the outsider culture, honoring the ethnic origin and having wished of returning to the native pure vernacular cultural tradition. The historicism architecture and vernacular architecture of the Iranian architects did not come into existence by the theoretical teachings of postmodern thinkers like Robert Venturi and Charles Jencks, but it was rooted in Louis Kahn's architecture experiences and outlined discussions by Hassan Fathi in the “Architecture for the Poor”.

Iranian Architecture after the Islamic Revolution

Architects works after the Islamic Revolution of Iran includes a wide range of trends and artistic movements and they tried to push the Iranian architecture toward a free identity. The main Iranian architect’s trend in the two decades after the revolution was

an architecture that can keep the cultural heritage and the Iranian traditional architecture and at least, we cannot see other trends in the buildings which have been constructed by the government. These architects who are influenced by the postmodernism classicism movements have attempted to give an Iranian appearance to the contemporary architecture of Iran (Salehi Jazee, M., and 2002: 64). During this time, the style that has been supported by the government was the Iranian-Islamic architecture. This trend had been mainly reflected in the important governmental buildings which are financed by the governmental agencies.

The major concern of the architects after the revolution is to reconcile the tradition with the discussions and developments of the modern architecture which this property has been more seen in the works and thoughts of the graduated architects from Tehran University. Iranian Architecture after the Islamic Revolution was influenced by its past. But now the main feature of the Iranian contemporary architecture is pluralism, diversification and eclecticism (Bani Masoud, Amir, 2009).

Eclectic architecture: This style had been a common from 1331 to the early twentieth century in England, America and to some extent in Belgium and Italy. In the late nineteenth century, the Romantic architecture was gradually replaced by the eclectic architecture. During this period, the architects were not limited to the adaptation of a historical period. But any period at any place of the past could be a source of inspiration.

Despite all the complexities of identity conception and different perceptions of the experts about it, everyone knows that this term has been in crisis in the contemporary architecture and turns to an abstract concept. The loss of identity is not only in the

architecture, but this Weakness is visible in the cultural, social, national field. "The superficial and false imitating in “love to Europe” architecture was popularized after the Naseredin Shah trip to Europe and the also "German quasi-expressionist architecture and urban development” of "pseudo-twenties Europe" became common at the time of the first Pahlavi and after sending the student delegation to Germany and some European countries. This phenomenon influenced on the modern architecture and Urbanism so-called "Athenians Charter". The paradoxical thoughts and architectural styles influenced by developments 1960s onward in the Europe and America reached to the second Pahlavi era and virtually the Europe and America has become as a "styles transmitting device" and Iran as a" styles receiver devices". Still, the main references of our architects are the foreign architectural and Urbanism magazines that are used and imitated as a superficial manner and operationally we observe a combination of a variety of the modern, post-modern and roman eclectic styles (Etesam, 2000).

Urban façades from the mosque to the market and square are considered as the parts of the city’s soul that in addition to give an identity to the urban surroundings, they also create the sense of belonging to the place and they are a sign of a common belief. Lack of the necessary element formation for creating a relationship between these symbols and the modern architecture has led to a sense of separation from the past and also stopping the continuity of identity process in the Iranian architecture.

The presence educated and active architects from the early decades of the present century in Tehran have formed a pleasant perspective of a big city in the conscience of the observers. The perspective can be known as improving the urban environmental conditions and transcending the culture and the community's thoughts and although

the architects had taken such ideas from other lands, but they polished it by the Iranian themes and also the cultural and historical validity.

Therefore, the general purpose was to explore the innovation (latent and manifest in the structure) in the structure by the audiences as a familiar figure of the Iranian validity and embraces it. Hence, the architects of that era avoided from the pride and panache in their designing structures and sought the glory and greatness in the experience and communication with their audiences.

3.2 Residential Architecture in North Cyprus

Cyprus traditional houses and their facade features Cyprus, the third largest island after Sicily (25,460 Km2) and Sardinia (24,090 Km2) in the Mediterranean Sea, is located between three different continents (Asia, Africa, and Europe). Cyprus with the 9,251 square kilometers is third largest island after the Sicily (25,460 Km2), and Sardinia (24,090 Km2) at the Mediterranean Sea. This island has the 773 square kilometers coastline at the east side of Mediterranean basin. However, the special point that distinguished this island from other islands is the strategic location and subsequently the rich history of Cyprus. Cyprus is located between three continents which are Europe, Asia and Africa. Three nearest neighboring countries of Cyprus are turkey with 75 km distance at the north, Syria with the 105 km distance at the east and Egypt with the 420 km distance at the south of the island. According to Wright (1992), the earliest island settlers came from Southern Asia Minor or Syria in the early eighth century (BC). The strategic location of Cyprus has caused major powerful civilizations to take over the island in different periods.

Figure 3.18: Cyprus Location in the Map (URL6).

The capital city in the Northern Cyprus is Nicosia (Lefkoşa). Famagusta, Lefke and Girne are the three other major cities which are located at the seaside. The history of the countries influenced the architecture, whether in the design stage or construction process. Architectures are the one of the main sources for investigation on culture, tradition and lifestyle of the people belong to the particular geographical region. Many world powers in different periods of time effected the Cyprus history because of the specific position of the island. For instance, Assyrians, Persians, Roman, Byzantines, Venetians, Ottomans and British used to rule the Cyprus through the history of the island. At the current time, the north part of the island is under the rule of Turkish Republic of Northern Cyprus (TRNC) with 37 percent of the island, and the south part is ruled by the Republic of Cyprus with the 61 percent territory (Hadjistephanou and Vassiliades, 2004).

The island of Cyprus is divided into a Southern Greek-Cypriot and a Northern Turkish-Cypriot region since 1974. In the North, the internationally not recognized Turkish Republic of North Cyprus was founded in 1983.

In fact, until 1973 north and south parts of the Cyprus experienced the same history.

Table 3.2: Table of the Cyprus Periods (URL7)

Periods	From- To
Pre-Neolithic	Ca 9825- Ca 8200
Neolithic	Ca 8200 – 3900 BCE
Chalcolithic	Ca 3900 – 2500 BCE
Prehistoric Bronze Age	Ca 2500 – 1600 BCE
Late Bronze Age	Ca 1600 – 1050 BCE
Iron Age	Ca 1050 – 475 BCE
Classical	475 – 325 BCE
Hellenistic	325 – 58 BCE
Roman	58 BCE - 330
Byzantine	330 - 1191
Lusignian	1191 – 1489
Venetian	1489 – 1571
Ottoman	1571 – 1878
British	1878 – 1960
Cyprus Republic	1960 – 1974
Cyprus Turkish Federal State	1974 – 1983
Turkish Republic of Northern Cyprus (TRNC)	1983

The most evident effects on the contemporary architecture are related to the most recent historical periods: the Ottoman (1571–1878) and British Colonial (1878–1960). During its three centuries of dominance over Cyprus, the Ottoman Empire influenced the architecture of, among others, residential areas of the island. Following the Ottoman rule, Cyprus experienced the British colonization launched in 1878.

During the British Colonial period in Cyprus and after the World War II, parallel with the industrialization, a major economic transformation changed the island's agricultural economy to commercial one (Atun and Pulhan 2009). The early background of mass housing in Cyprus dates back to the Ottoman period when the

European planning involved designing mass housing to provide accommodation for low-income families (Pulhan and Numan, 2005). Then, during the British period, a variety of mass housing projects were completed to settle the government officials and low-income workers' families who had immigrated after the World War I from the rural to urban areas. Later, in 1963, during the civil war between the Greek and Turkish inhabitants of Cyprus, there was an urgent need for housing units for a multitude of refugees who had lost their houses during the war. During this period, the initial mass housing projects were executed in such major cities as Nicosia and Famagusta in Northern Cyprus following the Cyprus dispute (Pulhan and Numan, 2005). As a result, a number of multistory social houses were built in Nicosia between 1986 and 1993. These blocks of houses were built to provide 1500 units to settle the middle-income government officers. These row-type blocks were the prototypes of social houses built by the Government of North Cyprus (Sani, Ulucay, and Ulucay 2011). Subsequently, the Government of North Cyprus sought to build social housing in such other major cities as Famagusta. In the recent decades, mass housing projects have mostly been executed by cooperative companies throughout Northern Cyprus for both locals and foreigners.

3.2.1 Residential Architecture in North Cyprus before Modern

In the 14 periods of Cyprus history (Dincyurek, Mallick, and Numan 2003), probably the most evident influences on the contemporary architecture are those of the Ottoman and British Colonial. Ottoman Turks came to Cyprus in 1571 and ruled until 1878 (Goodwin 1971). After approximately three centuries of the Ottoman rule, Cyprus experienced a new period of civilization in 1878. The British period (1878–1960) started mostly with the aim of extending economic objectives.

During the recent decades following the civil war, Cyprus has experienced the highest rate of housing demand in its history and a subsequent rapid rate of construction. The boom in new home construction, which has partially come from the lower housing cost in Cyprus compared to other European and neighboring countries (Turker and Pulhan 2006), has encouraged construction companies to invest in mass housing projects.

3.2.1.1 Façade Characteristics of Ottoman Houses in Cyprus

Since the conquest of Cyprus (1571–1878) by the Ottoman Turks, the new settlers of the island have been building their own houses. It started to build a variety of buildings adapted to the Turkish lifestyle and culture. As Pulhan (2002) claims, due to the extension of the traditional methods, materials, and organization in Anatolia, in general, the house style in Cyprus compares most to that in Anatolia. The Ottoman Turkish house style, evolved as a form of housing influenced by the Turkish culture (Pulhan and Numan 2006), was widely accepted throughout the island by all religious and ethnic groups.

The interior spaces of earliest ottoman houses in Cyprus were thoroughly influenced by the Turkish culture, whereas the houses surviving in the older parts of Nicosia and Famagusta reveal the outer facade not so much influenced as the organization of the inner spaces at the beginning decades of this period (Yıldız 1996). The earliest houses built in the sixteenth century had their only facade facing toward the courtyard or the garden (Kuban 1995).

Layout

The house's layout in the period was influenced by the rooms ordering due to make the strong privacy for the house's residents. The Ottoman houses were built by effecting of the Muslims believes and Turkish culture. For instance, the garden houses

were designed to inspire the heaven with the massive garden walls around it to prepare the reclusion for the family members.

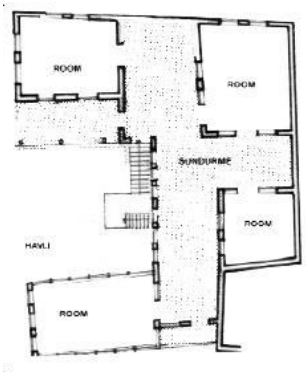


Figure 3.19: The Sample of Ottoman House's Layout (Pulhan, 2008; 131).

The house garden was surrounded by high and massive walls to enhance privacy for the house residents (Pulhan and Numan 2001). In fact, the Turkish residents strongly tended to provide complete privacy for their houses. Additionally, in Cyprus, in some cases, the urban houses were surrounded by additional walls built above the eye level (Pulhan and Numan 2005). The Cypriot builders used the same covering plaster for both the interior and exterior walls, while in some cases the outer side was left simple. In addition, some of the room entrance ceiling and the house's doors was formed by the arch. Nevertheless, the arch form above the entrance was not functional to bearing the ceiling weight. In fact, the arch type of the entrance was only the decorative features (Goodwin, 1971).

Façade Characteristics

Ottoman houses have the specific characteristics in the facade design that depend on construction year had some differences on their details. The earliest houses that had been built in the sixteenth century were enclosures, and their only facade was facing towards the courtyard or the garden (Kuban, 1995). Thereafter, by several changes that

emerged in the houses layout and features. The dichotomy characteristics of the houses facade led to create the different design for the private and public facing of facade. The inner facade that looking to the garden or courtyard were functionally organized. Moreover, the development of the houses facade had been shaped during the houses lifetime that led to reduce the separation of garden and street façade (Kuban, 1995).

Figure 3.20: Ottoman Street was shaped with houses in (Wall-City, Nicosia) (URL8).

The street facade was prevented the dichotomy between the ground part and the upper floor of the house. The houses facade shaped the Ottoman street and alley by its corresponding rhythm. The overhanging of upper level and the ground floor features -which emerged because of the houses layout- were significant characteristic of the Ottoman houses. However, the general specifications were not changed. In fact, most of the Ottoman houses –depend on the region that was built- had the same texture and features. The openings, decorative features, walls, colors and materials characteristics that had been used in their facade are surveyed and explained in the related subchapters below.

The Walls

Ottoman preferred to make the strong privacy for their houses, which was resulted the high and massive walls around the houses (Numan, Doratlı & Önal, 1996). The entry

wall included the niches and cupboards. Moreover, the middle wall in rooms was made up with niches for water-jug and lamps (Goodwin, 1971).

Figure 3.21: Inside of The House's Walls with Niches, (Wall-City, Nicosia) (URL9).

The Door

The door of Ottoman's houses is opened directly from the street or indirectly from the courtyard to the street. In fact, regardless of the door location, which opened directly to the house or opened to the courtyard, the gate or the house door is the sign of the private domain. The courtyard door commonly designed with the rectangular frame and double leaf door and masonry topped in the some cases by the large eaves (Kuban, 1995).

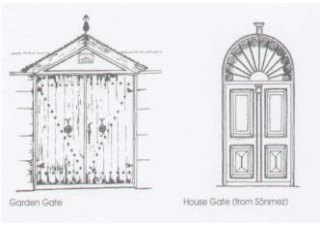


Figure3.22: Garden Gate and the House Two Leafs Door (Kuban, 1995).

Windows

Windows were opened toward the courtyard, sofa and garden mostly built in the same formation. In fact, in the 16th century windows facing the street which were not common from past. However, windows of rooms were different in size in compare

with the windows which were opened toward the courtyard, sofa and garden. In fact, the room windows were smaller than the other house's windows. The room windows have been designed for ventilation and lighting but to make the private space, windows used to build above the eye level. Thus, in Ottoman period room windows have been designed as decorative features (Eldem, 1969). In some cases in the period, they were used of two row windows in their houses which the upper windows were smaller and decorative (Kuban, 1995).

Figure 3.23: The Room Windows (Uluegin, 1998).

Moreover, rectangular windows were closed by proportion 1:2 which was create the vertical form. In fact, at the time it was the common proportion use for windows in many countries. However, the arched windows have never been a usual traditional features in Ottoman houses except for small head windows which came to the Ottoman territory as a European style.

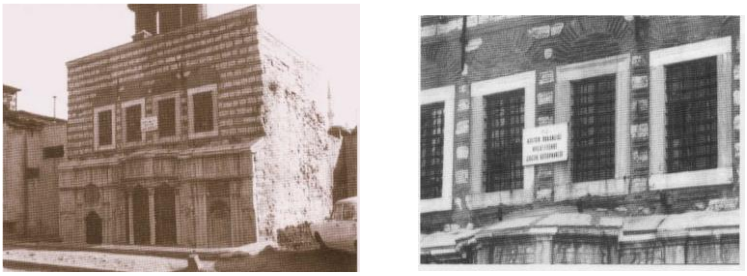


Figure 3.24: Ottoman Vertical Windows, Turkey; (Uluegin, 1998)

Façade Decorative Features

The building masters were not having a strong tendency to use of decorative features in the past periods. Their houses facades were horizontally divided by cornices and vertical pilasters underlining the geometry of their timber structure. In fact the straight lines which dominated in their design were resulted of using a wooden structure. However, some of the buildings were painted with the limited colors. Thereafter, as a Kuban (1995) mentioned, "the rhythm of structural elements, geometric patterning of the infill, simple decorative treatments of the balustrades, and shutters or window lattices were the main decorative features of the sober exterior". Indeed, most of the decorative features were used in functional aspect.

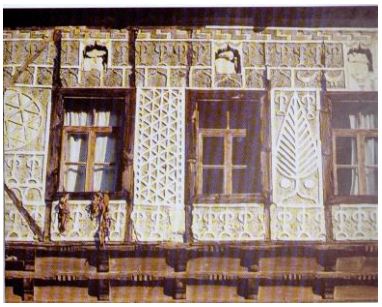


Figure 3.25: Façade Decorative Features in Ottoman House; Turky (Kuban, 1995)

Figure 3.26: Windows' Shutters in Ottoman House, Cyprus (URL10).

Nevertheless, during the 1703 to 1730 followed by rococo and baroque styles, some foreign artists had been invited for applying the decorative features on the building

facade. The decorative features being to appear by using the cantilevering elements such as the brackets and the eaves which were applied as architectural orders. However, most of the houses kept their geometrical simplicity instead of the decorative features.

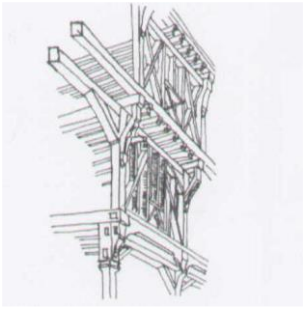


Figure 3.27: Brackets Construction (Kuban, 1995; 174).

The overhanging elements were the most characteristic features that used in houses facade for their structural specifications. The balcony or loggia (çıkma) that was the extension of the floor which was one of the significant overhanging elements in Ottoman architectural style. They were supported by diagonal elements into the wall which called furuş in Turkish language. Furuş were directly installed into the wall or braced by the wooden beam in the wall. Thereafter, by converting the simple diagonal form of furs to the narrow boards with the circular or polygonal, manifested the decorative elements for supporting the loggia or balcony.

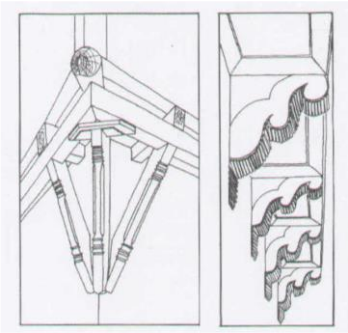


Figure 3.28: Three Common Types of Brackets in Cyprus Houses Façade, (Kuban, 1995).

During the nineteenth century Turkish people used the kafes in front of the houses windows that according to Kuban (1995), it was obviously the outcome of socio-religious demands. In fact, Kafes is movable element which it was rectangular frame included the diagonal hollow narrow laths. Kafes was covered the half of the window with its simple square shape in addition to make the possibility for house residents to remove it from windows.

Façade Color

By investigation on survived houses, it seems that the color were not the significant features in Cypriot houses. However, travelers from the period, spoke about the various colored houses in Istanbul which was the capital city for Ottoman Empire (Kuban, 1995). According to Castellan (1811), Ottoman Turkish people used to paint their houses with bright colors which was mess up the common harmony of the street. The colors which used to paint for houses were yellow, red, white and blue. However, it was illegal to use of colors for Christian population and followers the other religious. Thereafter, during the last decades of the eighteenth century, some of the building had been painted with the new colors such as pink, yellowish and olive green (Kuban, 1995). Nevertheless, scholars did not mention the reliable information about the use of colors in the earlier century of this period.

Figure 3.29: Ottoman House in Istanbul with the Pink Color of Façade (URL11).

Building Materials and Techniques

Stone have been used for constructing the houses as the main material. Turkish masters were used the yellow stone at the ground floor and timber frame at the first floor. In fact, the stone masonry system has been used at the ground floor, and the timber frame at the first floor were used with 'Baghdadi' or 'Bağdadi' construction system which was plastering over the wooden lattices (Kuban, 1995; Atun and Pulhan, 2009; Mesda, 2011). In fact, they were made the timber frame at first, then fill it with the mud-brick, adobe or stone. In addition, wood carcass were used to bearing the cross side loads. The gaps between the timbers frame had been filled with the rubble. In addition, wood carcass was filled by the stone with the square form or mud-brick. People in the rural parts related to the living area –hills or plains- were changed the materials in this construction technique. In fact, people that lived in the hilly parts used the stone, and mud- bricks were used mostly at the plain parts (Kuban, 1995).

According to Kuban (1995), the characteristic of the Ottoman house's roof was its simplicity. The building masters were not developed the complicated roof forms however, they paid the high attention to the house plan. They were built the roofs with the large eaves to protect the walls as well as increase the roof stability. The roofs commonly supported with the walls by simply horizontal joists (Kuban, 1995). Cypriot

people were used limestone (Village Marble) to cover their houses floor (Mesda, 2011; Atun and Pulhan, 2009). The roof of the hoses mostly covered by the thatch to provide the water tight layer for protecting the houses from rain.

The service area commonly constructed with the masonry system as a separated construction into the courtyard. The houses builder preferred to use of stone to construct the kitchen for protecting it from fire risk.

Figure 3.30: Baghdadi Construction System (Ahunbay, & Aksoy, 2005)

The service area commonly constructed with the masonry system as a separated construction into the courtyard. The houses builder preferred to use of stone to construct the kitchen for protecting it from fire risk.

Summaries of Ottoman Period and Its Influences on Housing's Features

Ottoman Empire after conquest the Cyprus influenced the island construction with the wide transformation, whether by affecting on the houses layout or their facade features. In fact, Ottoman period by considering the Turkish lifestyle and Islam had been achieved to extend its attitude all over the Cyprus. Accordingly, the characteristics of the housings have been brought in the table below as a brief summary for the ottoman housings' features.

Table 3.3: Ottoman Period and Its Effects on Housing Features in Cyprus; summary of Ottoman period part

Ottoman period 1571- 1878	
Courtyard (Hayat)	Located at the middle of house layout and surrounded by rooms
Door	Opened directly from the street or indirectly from the courtyard to the street with the rectangular frame and double leaf door and masonry topped in the some cases by the large eaves.
Window	Room windows were smaller than the other house's windows- In some cases, they were used of two raw windows in their houses which the upper windows were smaller and decorative. Moreover, almost all of the windows are vertical with the proportion 1:2
Entrance	Seki alti is the entrance area at the lower level of the floor where the door is located
Color	Yellow, Red, White, Blue, Pink, Olive green
Horizontal Separation	Utilizing the horizontal elements or lines to separate the floors
Wall	Massive walls that inside of it included the niches and cupboards- Commonly inside plastered with the white plastering
Shelters	The developed form of lattice that was changed during the Ottoman period to be the shutter
Balcony	Wide balcony at the first floor
Overhanging Elements	cantilevering elements such as the brackets and the eaves and projections
Decorative Features	Geometric patterning - diagonal elements under the balcony with the narrow boards and circular or polygonal formation.

3.2.1 Residential Architecture in North Cyprus in Modern

After approximately three centuries of Ottoman sovereignty, Cyprus experienced the new period of civilization in 1878. After the "War of Succession" in 1713, Britain had been worked on ascendancy the whole of Mediterranean mainland. She had been

interested in the Mediterranean Sea, simultaneously with extension of her colonization. In fact, the longing of Britain for takeover the Cyprus -especially for commercial aims- related to the beginning of 18th century (Ucarl, 1978). At the last decades of 19th century, Britain established the new political approach by emphasizing on the "temporary bases" to secure and grantee the routes of commercial ships that were coming from India and other countries which were been under the Britain colonization. Indeed, she used to settle the British people (most of them were Britain soldiers) in Mediterranean islands to actualize the "temporary bases". One of the significant islands for Britain was Cyprus, because of its particular strategic location. Britain in Cyprus started her domination from 1878 with the aim of extending her economic objectives. Nevertheless, for showing her domination, Britain needed to promote her own political, economic and cultural criteria all over the island. One of the significant approaches that she used for achieving the aim was built the constructions -as a sign of her dominance- in Cyprus with the different usage and purpose. In fact, Britain shaped the Cyprus architectures in the large scale to build the appropriate construction related to her purpose. Indeed, during the period many buildings were built which some of them are remained until contemporary time. British architectural period in the Cyprus has been divided by the several scholars in the two periods, early British (1878 to 1921) and late British (1921 to 1960) (Ozay, 2005; Hafizoglu, 2000). However, regardless of the separation, one of the importance point of the British colonial into the island were the several buildings that they left behind as their legacy. British brought the new construction materials and techniques to the Cyprus. In fact, the British period was the starting point for modernization in island.

3.2.2.1 British Colonial Period in Cyprus

After approximately three centuries of Ottoman sovereignty, Cyprus experienced the new period of civilization in 1878. After the "War of Succession" in 1713, Britain had been worked on ascendancy the whole of Mediterranean mainland. The British Colonial period was the starting point for modernization of the island. This architectural period in Cyprus has been divided by several scholars in two periods, the early British (1878–1921) and the late British (1921–1960) (Ozay 2005; Hafizoğlu 2000).

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Figure 3.31: Houses from Early British Period (Ozay, 2005)

They have been developed the architectural value in Cyprus by establishing the two major departments. The old construction was restoration under the Art and Antiquity

department supervision. The Art and Antiquity department was responsible for the revival the monumental architectures which were in danger of destruction. The second department was Public Works Departments (PWD) which was responsible for the construction of new buildings to build them proper for Cyprus architectural context during the late period (Schaar, et al, 1995).

During the early British period, the most of the attention was on built the administrative buildings, they have begun to build the housing by combining the Cypriot traditional architectural style and the new technique and material that have been brought to the island (spatially after the world war at the late period). The first housing project was the Government House in Nicosia which was burned in 1931 during the rebellion. After the World War I, British tried to solve the accommodation problems for her officials in Cyprus. Therefore, only the limited houses have been provided merely for senior officials. Thereafter, British government in Cyprus asked of PWD to design and build the numerous houses for satisfying her officials as well as solving the housing problem (Hafizoglu, 2000). They built the almost thirty houses in the island during the three years as an initial British colonial housing style in Cyprus (Schaar et al, 1995).

According to Tozan (2008), by increasing the British population (most of them were soldiers), the government decided to build low-cost houses to settle them in the least possible time. Therefore, the houses projects are divided to the two main categories in the period. The first category was the housing projects with the aim of providing the luxury houses for the governmental authorities, and the second category was the mass housing projects with the low-cost construction. Later, the British architectural style influenced the local private houses in Cyprus.

Layout Organization

As mentioned above, British mostly effected on construction technique. Indeed, the houses layout were not involved many alternations in the period. The Ottoman houses layout were commonly used for British houses construction in Cyprus. Likewise, in the Ottoman houses with the single story, the hall door opened directly toward the street. In addition, rooms were designed around the sofa such as previous. However, houses layout in some parts of the island (such as the houses in Çamlik Road in Famagusta), consisted of some differences (Ozay, 2005). These differences were emerged in the houses because of the dichotomy usage of them which were used for the residential and official purposes at the time. Thereafter, by beginning the late period the houses layout were involved to the some changes that create the period characteristics on hoses plan.

Façade Characteristics

British have built many buildings which consisted of similarity with the Cypriot construction characteristics. However, they did not construct the administrative buildings with the regional characteristics of the previous period of Cyprus except of window shutters and stone use which, stone was used for durable, fortified and affordable.

The Walls

The walls were commonly built with the sandstone behind the mud-brick. Stone as the basement of the British construction widely used to construct the exterior walls. Load bearing walls were built with the mud brick, stone or both of them. In addition, the rubble used as the walls foundation. The thickness of the load bearing walls were variable between the 40 to 50 centimeters, and the foundation part of the walls were

constructed with the variable thickness between the 75 to 90 centimeters (Hafizoglu, 2000). The inner face of the walls were plastered with white washed. However, bond stone at the corners were left freely without any plastering.

Figure 3.32: Exposed Bond Stone at the Corner (Hafizoglu, 2000; 63).

Entrance and Door

Entrance of the houses were mostly defined with the porches which located under the bay window. However, the single store houses that did not have the projection or bay window on top of the door the entrance door was opened directly to the street (Boğaç, 2005).

Door frame -spatially- in the early period commonly designed with round arched or rectangular form. Stone was used at the upper side of doorway frame like the door surrounding. They were used the Doric columns in two sides of doors for supporting the arch as well as a decorative feature (Ozay, 2005). The significant characteristic of the door form in the period was used of keystone at the center of the top side of the door. The keystone was designed with the symbols, figures or diamond as the door frame ornamentations. In addition, keystone as an ornament features used in the rectangular doorframe like the arch type.

Figure 3.33: Entrance Door of Single Storey House (Walled-City, Famagusta).

In the late of period, iron and glass work were appeared in the entrance door that manifest the message of the new period for Cyprus architectural style. The entrance doors with the two or one leaf were made of iron with the glass part. The glass part of the door generally had the iron wrought at the outside of the door (Ozay, 2005). Thereafter, iron was mostly used for producing the door, balustrades, shutters and roofs.

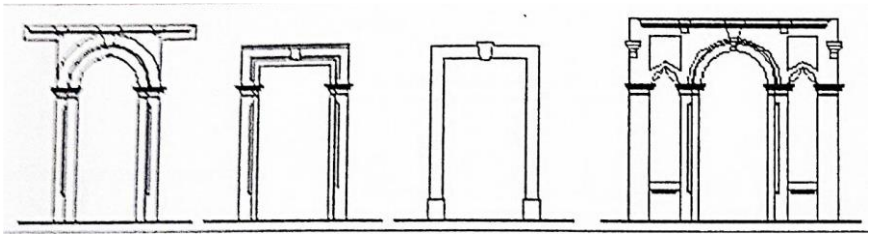


Figure 3.34: Various Types of the Door Frame (Ozay, 2005).

Figure 3.35: House's Entrance Door without the Cumba at the Upper Floor (Walled-City, Famagusta)

Windows

Windows are designed similar to the door frame with the stone surrounding. Regardless of the top side of the door frame -that have been designed with the arch type or rectangular form- windows were generally designed with the rectangular stone frame. In addition, they have been used of keystone, hollow triangle or simple form for upper side of the windows. In some cases, the vertical rectangular frame of windows continued to the floor level or to the ground (Ozay, 2005).

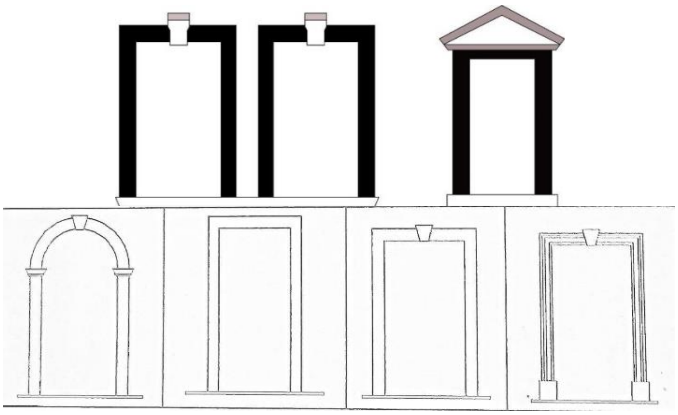


Figure 3.36: Different Types of the Windows Frame (Ozay, 2005)

Windows Shutters

The shutters were applied in front of the windows such as the previous period. However, the only difference was the proportion of them that related to the windows dimensions, the shutters were getting taller and widened than before

Figure 3.37: Vertical Windows with Timber Shutters (Walled-City, Famagusta), (Dasteri, 2014; 86).

Façade Decorative Features

At the corner of houses facade, they were used of Doric columns in addition to pilasters or rustications style. The dentils cornice has been used as decorative features under the ceiling eaves and wide balcony as well as entablature.

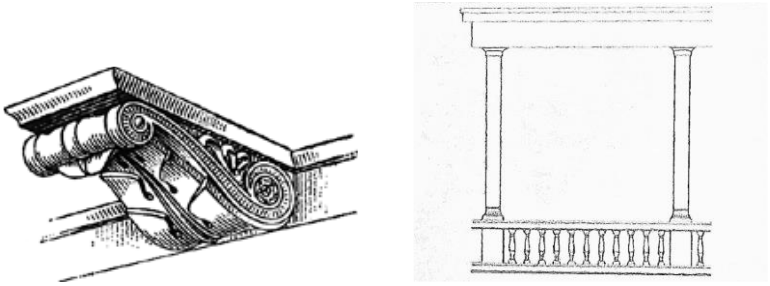


Figure 3.38: Dentil Cornice and Doric Columns (Dasteri, 2014; 86)

Figure 3.39: Dentil Cornice and Doric Columns; Walled-City, Nicosia (Dasteri, 2014; 87)

Meanwhile, the ironworks as the faced ornaments were widely applied at the facade elements. The balustrades were selected and applied to the proper location by attention to the entrance door type.

Façade Color

The color of the facade were related to the materials were brown, white, yellow or gray. However, the yellowish was the most popular color for the houses especially at the late period (Schaar, et al. 1995).

Figure 3.40: House's Façade from British Colonial Period; Walled-City, Nicosia (Dasteri, 2014; 88)

Building Materials and Techniques

British as a one of the pioneer countries for industrialization after the industrial revolution brought the new construction techniques in the island (Cap, 1935). British chose the stone as the main construction material because it was an abundance in the island as well as economically affordable. In addition, the use of stone for constructing the buildings was easy and fast as well as durable, fortified and appropriate to observe the impressive appearance for major government buildings. Thereafter, British by combining the concrete and sandstone began to build the buildings by the new construction technique and material. Since the concrete was spread as a new and ease material for constructing the buildings, gradually the stone role was decreasing in the late period and subsequently to the contemporary time concrete has been reached the highest level of use. Indeed, during the late period stone lost its importance in construction technique but still it was used as a decorative feature. Since, the concrete and other new materials had been begun to make the new building characteristics.

Summaries of British Colonial Housing's Features

Accordingly, houses that built in the period were utilized the British colonial architectural characteristics. However, the layout of the residential buildings were

mostly similar to the Ottoman period houses' plan. In fact, British achieved to change the some features that was resulted of the new technique as well as new materials that brought to the island after the World War I. in the table below have been attempted to summarize of utilized housing features in British period through the Cyprus.

Table 3.4: British Colonia Period and its effects on Housing features in Cyprus (summary of British period part).

British Colonial 1878- 1959	
Terraces	Large terraces at the ground floor
Door	Round arched or rectangular form for the entrance door, Keystone at the center of the top side of the door, Iron and Glass work were appeared in the entrance door
Window	Rectangular stone frame- Keystone, Hollow triangle or Simple form for upper side; Rectangular frame of windows in some cases continued to the floor level or to the ground
Entrance	Defined with the porches, opened directly toward the sofa
Color	Gray, White, Yellow
Horizontal Separation	Utilizing the horizontal elements or lines to separate the floors
Wall	Inner face of the walls were plastered with white washed sandstone; Bond stone at the corners were left exposed without any plastering
Balcony	Wide balconies in some cases designed at corners of building
Material	Stone- Sandstone- Timber- Concrete
Decorative Features	Shutters- Doric columns- Dentils cornice- Entablature for columns; Keystone designed with the symbols, figures or diamond

3.2.3 Cyprus Republic

The island of Cyprus is divided into a Southern Greek-Cypriot and a Northern Turkish-Cypriot region since 1974. In the North, the internationally not recognized Turkish Republic of North Cyprus was founded in 1983. In recent years Northern Cyprus has experienced a remarkable construction boom. These building activities increased noticeably after the (failed) peace-plan, which was initiated by the former UN-General Secretary Kofi Annan in 2003 (1). Since then, the contemporary architecture of Northern Cyprus displays a strong tendency of a Post-Modern, Western classicism (Yücel-Besim, Kiessel and Tozan, 2010). A mediating effect on the architectural process in Northern Cyprus by developments in Turkey -resulting in the beginning of a New Classicism in the island's north in the early 1990s- is obvious, as the design of Post-Modern buildings is often owed to Turkish architects (and developers), even though officially signed by Turkish-Cypriot architects. Thus the Turkish architects remain anonymous (Adanir, 2008, 5-6; Yücel-Besim, Kiessel and Tozan, 2010). In Turkey, the emergence of a Post-Modern (Western) classicism can be traced back to the beginning of the 1980s (2).

Façade Character in Contemporary Buildings

Explanation and particularly symbolic architectural features that have been discussed through above part of the thesis could argue that by passing the time, some of the traditional housing features are lost their exact functions. In fact, most of the traditional features that had been used functionally in two recants periods of Cyprus (Ottoman and British periods) are used mostly as a Cypriot people taste. In simple words, the traditional features are utilized in the local people houses symbolically as part of their culture to make the bond between the inhabitants and their houses. For instance,

keystone is the trapezoid shaped stone which had been placed at the final construction level of arches to lock the other stones into their positions that was used in the traditional houses, however, in the contemporary houses façade it is only used in symbolic form. An Arch is mostly used for caring the roof weight with greater span that in traditional houses commonly had been used in front of the veranda as a decorative features however this element is mostly used at the upper floors' balconies and top of the entrance door in contemporary houses façade (figure 41). Horizontal elements which were mostly appeared in the Cyprus traditional houses because of the construction methods that was used for constructing their houses. The horizontal separator elements are used in most of the multi-storey residential building to divide the floors at the facade surface by using the distinguished color or material (figure 3.41).

Figure 3.41: Contemporary Use of Arch in Cyprus Houses, Famagusta (Author)

Figure 3.42: Horizontal Separators, Famagusta (Author)

Other feature is brackets –as mentioned above- which were used under the balconies and overhanging elements to carry the weight or as a decorative features that in the contemporary architecture translated to the new form and only have been used in symbolic form (figure 3.43). Cumba or bay window is the protruded part of the façade which was built to being the veil for the women who want to visit the outdoor without being seen that in contemporary houses is used by designing the protruded frame all around the balcony which is symbolically inspire the traditional form of Cumba. Moreover, the entrance columns which had been used functionally are used in the contemporary houses mostly as decorative feature.

Figure 3.43: Symbolic Use of Brackets in Contemporary House, Famagusta (Author)

Wide balconies are the common traditional feature which are used in contemporary houses unnecessarily specially in apartments and residential complexes that limitation of usable area for the houses is substantial point.

Figure 3.44: Wide Balconies in Front of the Contemporary Residential Building, Famagusta (Author)

In addition, Because of the constriction technique and the usage materials in traditional houses, Windows were designed in vertical form and proportion 1:2 and in some cases -spatially in British period- they were continued to the floor level which are applied in contemporary houses only in symbolic form. For instance, in the some cases it is applied by connecting the two or more windows to each other by using the different color or protruded frame.

In addition, in the most of contemporary houses in Cyprus overhanging elements are applied through the balconies or decorative façade elements that have been inspired the overhanging elements which were used in traditional houses façade. By attention to the facade charecters, these symbolic use of traditional housing features in contemporary houses are led to build the proper home for the local residents.

Chapter 4

EVALUATION OF FACTORS ON FAÇADE DESIGN

During the 20th century, many cities all around the world transformed radically in according with the process of modernization and industrialization. The technological, political, cultural, economic and demographic transformation caused effects that appeared in façade design housing. In other world, one of the most part of built environment influenced by changes was façade of buildings. Tehran in Iran and Famagusta in Cyprus with historical image of the city were not exception. With the arrival of modernism, Tehran and Famagusta starts to lose their traditional identity and modern influence starts to dominate the local values through paving the way for modernity to take over. Tehran as a big city which construction increased during two decades and the urban view facde with different type of taste, needs, regulation in facades design; and Famagusta as a city is developing and rising population and construction. In regard of rich background history of two cities, evaluated the local factors in façades to find out impact of factors in façades in contemporary period and then findings of two cities compare together. This chapter is going to evaluate the signification of local values factors (climate, material, culture and façade components) of the modern residential buildings on some example, which were selected in one street in Tehran (Shariat street) and one street in Famagusta (Yildiz street); according to their façades features and similarity in economic, culture region in city and also similarity in types of buildings and period of construction houses. The cases studies include all of houses in selected street in Tehran (14 houses) and all houses in Famagusta case (16

buildings). On the basis the chapter covers an overview of the Famagusta and Tehran background and evaluate the effects of climate, material, culture and façade components according to traditional houses in selected cases in Tehran and Famagusta. However before focusing onto the defined local factors in façade design, it is necessary to know the background of Famagusta and Tehran.

4.1 Method of Analysis

The evaluation has been carried out in the light of the literature survey, archived study, observation and comparison. Especially, the case studies from the town of Tehran and Famagusta provide the fundamental source for making generalization about the character of local values in façade design residential buildings and development modernism in Tehran and Famagusta. The sample group buildings of Tehran in Shariati district from this case study has been presented fourteen inventory tables and of Famagusta in Gulceren district sixteen inventory tables (Figure 4.1) are given in the appendix for information them about the study.

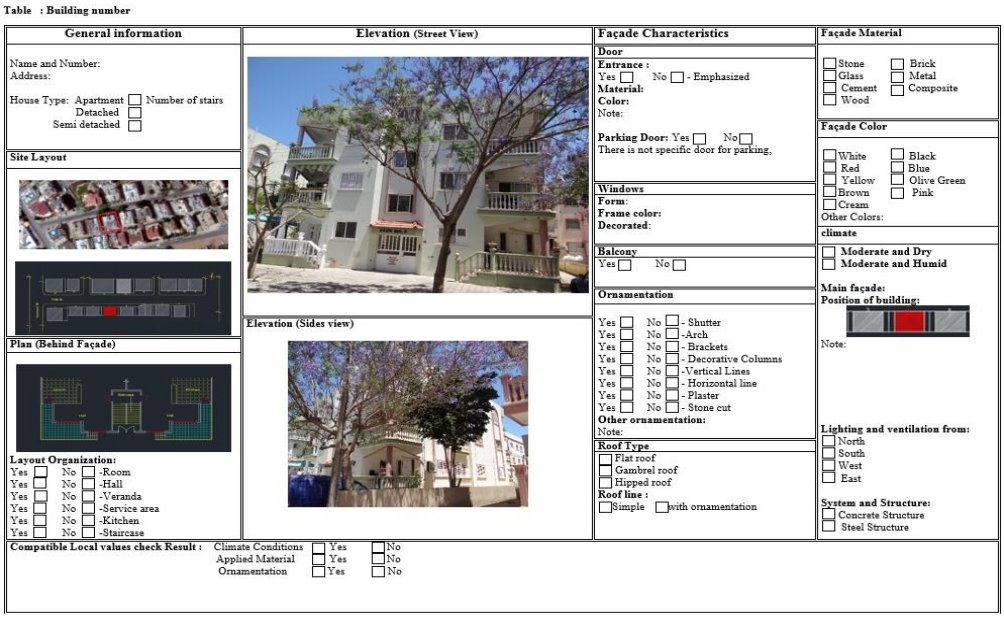
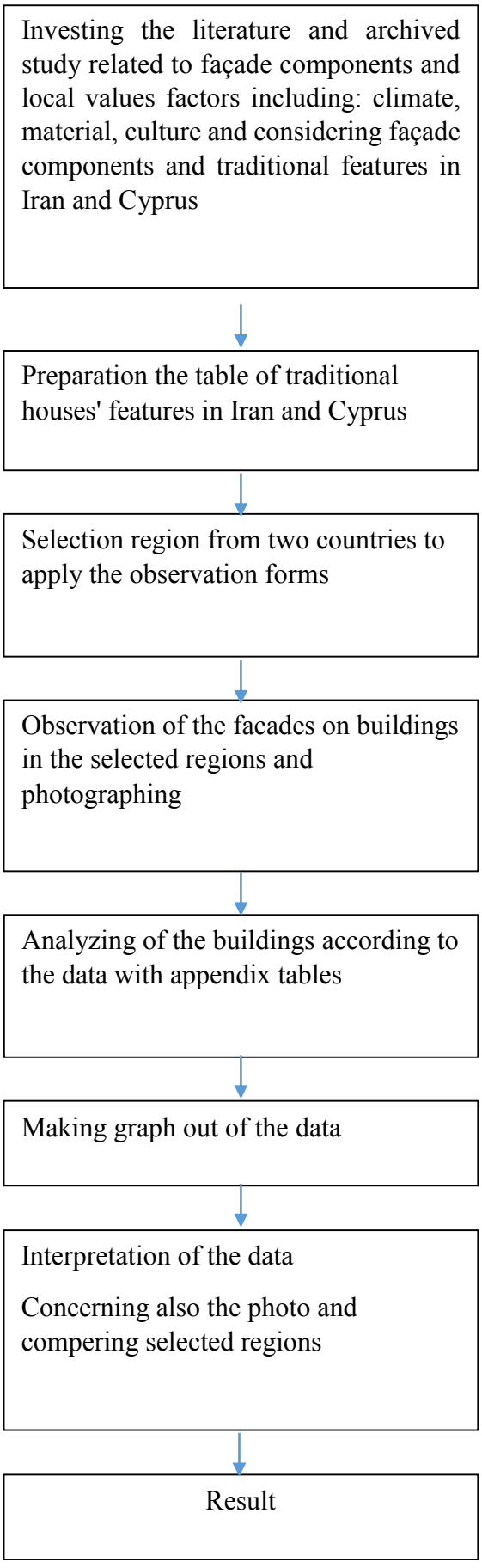


Figure 4.1: Sample of forms in appendix (author, 2017).



As seen in figure 4.2 the evaluation is based on investing the literature related to study about some local values factors including climate, material and culture and also study about façade components and investing contemporary residential buildings and considering the character of facades in Tran and Cyprus in traditional houses to find out the local features of façade , two street in Tehran from Iran and one street from Famagusta has been chosen and preparation tables according to the obtained data related to local factors and façade features of Iran and Cyprus. They are applied on buildings in selected regions, and photographs of the façade of buildings are taken. The data gained from the Observation are analyzed. The data Gained is turned out to the graphics with the help of Excel programmer. All the data is interpreted concerning also the photographs. A sub conclusion is gained of comparing the examples of Tehran and Famagusta

4.2 Case Study

Iran and Cyprus, because of their geography, are important countries that have a rich history. Their historical past and cultural richness have been reflected on their architecture. Different conquering states, geographic conditions, cultural influences and contact with world architecture were some of important factors that affected to the architecture of Iran and Cyprus. The effect of modern movement (modernity) start to be observed in two countries rapidly. Within the context of developing modernity, building construction started to expand its activity rapidly at the periphery of the old town. In Tehran and Famagusta because of some political development forced migration of people to the Tehran and Famagusta as big cities in two countries. Due to the population growth and the speed of the building construction and uncontrolled urbanization created therein, the rise of lots of architectural problem have decreased the identity of cities. Thus, with the effect of the globalization and modernity there has been a transition from the traditional to new style in city view and façade design as well. As a result these two cities start to lose their identity. Thus, impact of local values in these two cities is investigated to evaluated effect of modern movement on façade design in Tehran and Famagusta.

The observation is applied on 30 residential buildings façade in Tehran and Famagusta. The reason for choosing Famagusta in order to be evaluated is that In Tehran from Shariati district Maryam Street (Figure 4.2) and in Famagust from Gulseren district Yildiz Street (Figure 4.3) are chosen. All of buildings in two street have been investigated. There are 14 houses in Maryam Street and 16 houses in Yildiz Street. Two street have almost similarity in terms of the economic location in two different

city, number of apartment, detached and semidetached houses and number of buildings which constructed in same period time.

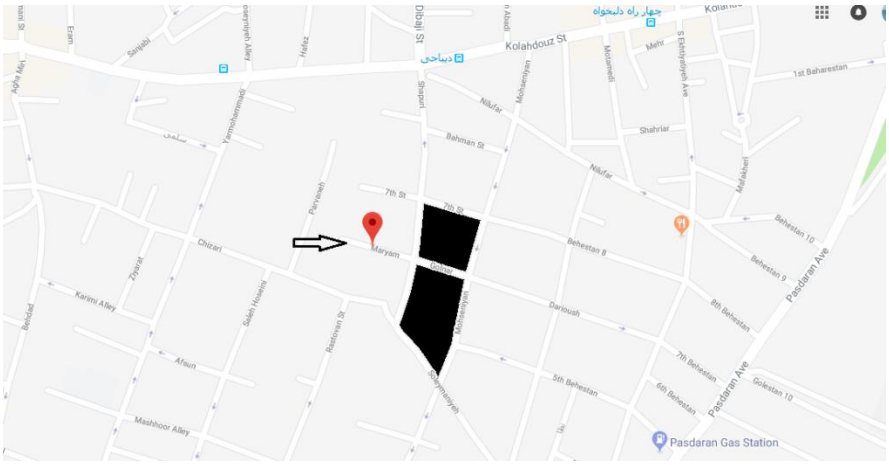


Figure 4.2: Tehran, Maryam Street (google map)

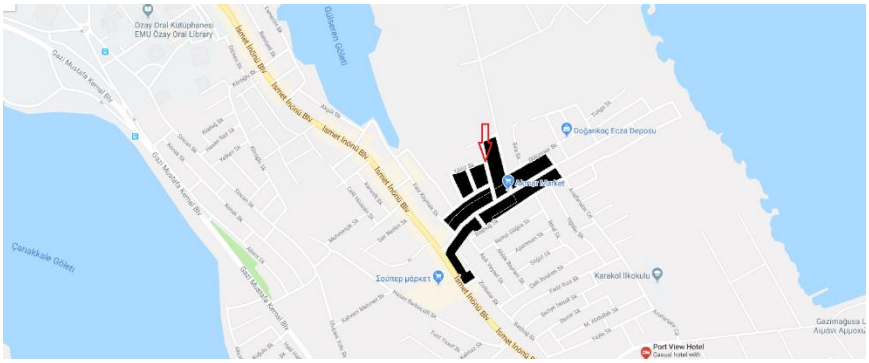


Figure 4.3: Famagust, Yildiz street (google map)

So, as it is related to the concern of the study, the façade characters and effect of climate, material, culture, site and plan to be evaluated in selected houses in Tehran and Famagusta according the literature studied in chapter three and it is adapted of traditional features of houses in Iran and Cyprus. And also each building is investigated in one table as given in the appendix in terms of local factors. However before focusing onto the evaluation, it is necessary to know the background of Famagusta and Tehran. It can be possible to see the place of selected buildings on the whole and critics more easily in this regard.

4.2.1 Residential Buildings in Tehran, Iran

According to Modernization and industrialization, during the 20th century most of the cities around the world have been undergoing a radical transformation. House, or generally, residential building, was one of the important parts that was influenced by some essential changes, too. In Iran, the first and the major transformation among the cities, has been observed in Tehran, capital of Iran.

Contemporary houses in Tehran since 1925, encountered with significant changes under the effects of modern residential buildings characteristics and principles regarding formal design issues as well as functional issues, which gradually transferred there. For example, they were affected in various aspects from their plan and façade design and spaces arrangement to their method of construction. Nowadays, Iranian houses are the results of those changes, and have fewer similarities with Iranian traditional houses, which were lived in before.

Tehran is the Capital of Iran had a population of about 11 million people at the time of the last official census in 2006 (Tehran Political situation, 2010). It is situated in south of the Alborz Mountains and north of the plateau of Iran with about 1,200 meters above sea level. Teheran has dry climate with warm summers and cold winters, often with snow. Its average temperature varies between -7°C to 39°C and its Rainfall is 200 mm annually. The city of Teheran is also the economic and administrative center of Iran. The economy of the city is based on food-processing, textiles, cement, bricks, sugar, chinaware, pottery, electrical equipment, pharmaceuticals and cars assembling. Also, Teheran is the administration center of the Country's oil industry.

Figure 4.4: Tehran map (URL 12).

About half of the manufactured goods of Iran are produced in Teheran. The organization form of the city was modified during the Pahlavi's sovereignty (1925-1979), in Pahlavi era (1925-1979), two architectural trends developed there: an imitation of Western styles that had little relevance to Tehran's climate and its cultural conditions and the other trend was trying to renew local design methods. Reza shah Pahlavi started a wide development of the country's capital, then; this movement was followed by his son, the next shah of Iran (Ghobadian, 2004).

Gradually many changes occurred in Tehran. For example; with growing Tehran's population and increasing constructions, the city expanded. This expansion was both toward northward and westward of the city. Also by passing time, the ownership type of Tehran's houses has been changed. The private ownership rate decreased and the rental ownership type increased. Other changes took place in the area of houses and

about their height. The area of houses in Tehran was decreased gradually, in parallel, the construction of high-rise residential building increased.

After Islamic revolution in 1979, Tehran's expansion rate got faster and some satellite towns also were constructed in its environs. Nowadays, area of Tehran is 707 km2 km² with 22 municipal districts, each with its own administrative centers. Briefly, a city which was merely, a town 100 years ago, has now become almost a modern metropolis, according to its governmental centralization and improvements in social welfare.

Regarding to Iran's old civilization, its culture is one of the rich ones in the world. Its wealthy literature with thousands of poets and writers, glorious and remarkable architecture, its traditions that sometimes back to over 3000 years ago, beside other unique characteristics of this country emphasize on its old unique cultural background.

4.2.2 Residential Building in Famagusta, North Cyprus

Famagusta, also known as Gazimağusa, is a city on the east coast Cyprus. It is located on the east coast of Cyprus Island on Mediterranean Sea which is the second large city in north Cyprus; with the population of approximately 6000 and harbor.

It's known for its preserved 15th- and 16th-century Venetian walls, which are surrounded by a now waterless moat. There are sweeping views from the top of the moat.

The city accommodates several remarkable historical monuments, as a part of architectural and cultural heritage of the island from its long, ironic, unique and turbulent history; including the fortifications that are considered to be one of the most valued ensembles of medieval architecture in the world. New urban developments

have been surrounded the historical core of the city. Formally or informally as the centuries; and the new layout is drastically different than the traditional layout. From the first century AD the urban development of Famagusta has been shaped and continued in seven particular eras until the contemporary situation of Gazimagusa.

Those seven period are: "the early periods (648-1192 AD – the foundation date of the city); the Lusignan (1192-1489); the venation (1489-1571); the ottoman (1571-1878); the British (1878-1960); 1960-1974; and the time after the 1974's war (Onal, Dagli, Doratli, 1999).

After the venetians era, the Ottomans came to the island, and afterwards the British colonial period began in (1878). Cyprus became independent from Britain in 1960 by the time of modernization, in the end of Cyprus's British period, for so many reasons such as current demands of the community and changes in society; new inhabited, commercial, tourism and entertaining zones were established out of the old city walls, as an extensive part on Asagi Maras district. This was same as some other areas out of the walled city. Therefore, the 1960's were the time for Famagusta to flourish in terms of culture and economy. The city developed on the way to the south west of Varosha as a tourist center (saeidi and Oktay, 2012).

Accordingly, I the late 1960, Famagusta became one of the best-known international centers of entertainment and tourism. On the other hand, there were structures that assigning the features of British colonialism; these buildings are reflecting contemporary tendencies in architecture, and they were mostly located in varosha. In this period, Famagusta's architecture reflectts a wish to join history and modernism chasing the progress. From its background, as a small harbor in the 7 century, in the

1970s Famagusta had become a town displaying the global tendencies of the modern architectural movement (Saedi &OKtay 2012).

Now**,** Famagusta is an important commercial hub of Northern Cyprus. The main economic activities in the city are tourism, education, construction and industrial production. It has an 115accer free port, which is the most important seaport of Northern Cyprus for travel and commerce. The port is an important source of income and employment for the city, though its volume of trade is restricted by the embargo against Northern Cyprus .Its historical sites, including the walled city, Salamis, the Othello Castle and the St Barnabas Church, as well as the sandy beaches surrounding it make it a tourist attraction; efforts are also underway to make the city more attractive for international congresses. The Eastern Mediterranean University is also an important employer and supplies significant income and activity, as well as opportunities for the construction sector. The university also raises a qualified workforce that stimulates the city's industry and makes communications industry viable. The total population of Cyprus is estimated at 940,100 at the end of 2015 compared to 938,400 last year, an increase of 0.2%, according to the "Demographic Report 2015" released by the Statistical Service of Cyprus.

The initial history of increasing construct residential buildings in Cyprus is resulted by the various transformation such as the political, societal, economical, and technological during the late of the nineteenth century. During the British Colonial period in Cyprus, and after World War II parallel with the industrialization, important economic transform appeared which resulted to change the island agricultural economic base to commercial transformation (Atun and Pulhan, 2009).

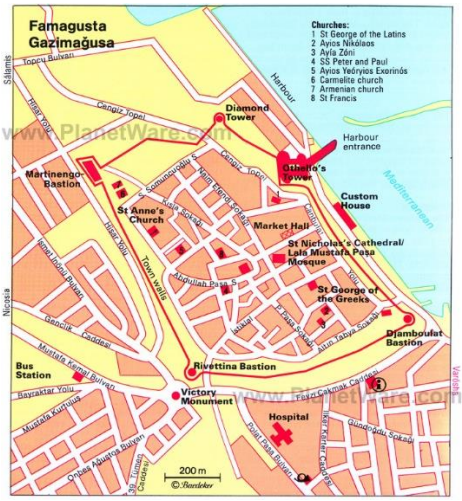


Figure 4.5: Famagusta map (URL13).

The longing of the rural people to live and work in the big towns through the Cyprus make the necessity to build the large number of houses., in the British to settle the government officials as well as low-income and workers' families after World War I who immigrated to the towns from rural parts. Later, residential buildings were constructed for preparing the living place for numerous refugees who lost their houses during the civil war. Since, numerous social housings have been built under the government responsibility, and limited cooperative companies to accommodate the Turkish people who required the houses immediately. Residential buildings were developed in the major cities such as the Nicosia and Famagusta in northern Cyprus after the Cyprus dispute (Gazioglu, 1996). Numbers of multi-storey houses had been built in Nicosia from 1986 to 1993. These houses were built to provide the 1500 units for settling the middle income governmental officers by the government of Turkish Republic of North Cyprus in North Cyprus (Mokhtarshahi, 2011).

In the recent decades, houses mostly have been constructed by the cooperative companies all over the Northern Cyprus for both of the local and foreign people. Cyprus as the unique island is the appropriate place for companies to extend their

activity. Therefore, residential buildings have been developed rapidly (particularly in the major cities) all over Northern Cyprus such as Famagusta.

4.3 Evaluation of Selected Buildings for Case Study

With the arrival of the British (1878- 1960) in Cyprus and Pahlavi (1875- 1970) in Iran architecture starts to lose its old traditional identity and the colonial influences start to dominate the local culture and values through paving the way of modernity to take over. These effects can also be seen on the facade of the buildings.

In this part parallel to the intention of the study, evaluation of local factors that investigated (climate, material and culture) on façade design in case studies in Tehran and Famagusta have been discussed. Residential buildings in Maryam street in Tehran and houses in Yildiz street in Famagusta has been chosen (the houses in these street are the buildings from different periods and various type of building and façade).

Evaluation has been carried out of the literature survey in terms of local factors and its effects on components of façade in regard to traditional houses features in Iran and Cyprus. However, by attention to the aim of this study focused on facade features to learn the compatibility between contemporary houses façades and local factors. Therefore, to reach the thesis objections, 30 forms have been prepared which are related to the houses in selected streets in Tehran and Famagusta in appendix. The most common traditional façade characteristics during the Ottoman and British periods have been investigated with the contemporary houses which located in Yildiz street in Famagusta and the most common traditional façades characteristic during the Pahlavi have been studied with the contemporary houses which located in Maryam street in terms of period of building, climate, material and culture So, the findings of

the physical observation are based on the impact of period of buildings, climate, culture and material as local factors on façade components (form, entrance and window, balcony and terrace, roof, ornamentations), which have been described in tables 4.1 Tehran and 4 .2 for Famagusta in following section and is evaluate the rate of compatibility of facde features with local factors in Tehran and Famagusta separately. To achieve the aim, by utilizing the tables have been tried to examine the findings in selected cases façade in Tehran and Famagusta. Finally the selected cases in Tehran and Famagusta is evaluated and compare together to achieve result. For easier investigation the buildings is addressed by number according to their tales' number in appendix.

The tables that have been found in the second and third chapter about the impact of local factors on façade components for selected cases for Tehran and Famagusta (Table 4.1 and 4.2):

Table 4.1: Description impact of local values on façade components in Tehran

	Local values factors	Specifications in façade components
Tehran	Climate	Form: Main view in northern and southern directions, building in east and west direction blocking or covering to other buildings, use of material with thermal capacity Location: building direction in North-South Entrance: Located in north or south direction. Window: Illuminating from the northern and southern fronts Balcony: Small balcony, walled from east and west, open in one direction, south or north Roof: Flat roof
	Material	Main material: Stone, brick Entrance: Wood, steel, glass Window: Steel, wood Balcony: Same with façade material, use steel for ladder Roof: For parapet same material used in façade
	Culture	Form: according to Islamic culture use of limited mass high wall around courtyard Entrance: Preserving the privacy of the entrance Windows: limitation in use of large windows and opening Balcony: private balcony, enclosed with small wall, small balcony if there is Roof: Ornamentation: according to history and culture use of brick work, Iranian and Islamic motifs, tiling, plastering, type of Persian arch, glass work.

Table 4.2: Description of impact of local values on façade design in Famagusta

	Local values factors	Specifications in façade features
Famagusta	**Climate - Heat and humid**	Form: The building is open from the four sides in order to air circulation Entrance: Located in north or south direction. Window: Illuminating from the northern and southern fronts Balcony: Small balcony, walled from east and west, open in one direction, south or north Roof: Flat roof and sloped roof The building is open from the four sides in order to air circulation, Opening around the building especially on the northern and southern fronts, windows with shutter, Main view in northern and southern directions
	Material	Main material: Stone, concrete Entrance: Wood, steel, glass Window: steel, wood. Balcony: Same with façade material, use steel for ladder Roof: Stone, concrete and mud brick and wood in past
	Culture	Form: According to Islamic culture use of limited mass high wall around courtyard, unrestricted use of free and open spaces, use of large balconies, open spaces around the courtyard Entrance: Preserving the privacy of the entrance Windows: limitation in use of large windows and opening Balcony: wide balcony Roof: ornamentation: column, balustrades, pilasters or rustications, arch brackets, shutter.

Accordingly, by comparing the features' that found in table above (table 4.1) with the selected residential buildings in Famagusta in terms of Cyprus characters and Tehran based on Iran features the charts and analysis have been obtained. The similarities between façade features and local values in contemporary houses of Tehran and Famagusta are evaluated in charts. So, in first part the façade buildings in selected street in Tehran investigate and observe by presented factors which are obtained of literatures in chapter two and three. Then the same comparison, then similar survey is done on the façade buildings in selected street in Famagusta. And for each street's building present a chart after that two chart will compare together. For investing the cases, the buildings divided to some categories according to type of buildings such as villa, apartments or colonies houses and period of their construction with numbered for better addressed.

To achieve the aim, by utilizing the tables that have been designed according to local values factors and façades features in the two selected countries buildings have been tried to examine the findings in contemporary houses facade. Therefore, 30 houses information with elevation photo, layout, and site layout have been brought from two streets residential buildings in Appendix. In the inventory forms (Appendix), have been found the exact compatibility as well as contemporary attention to local values factors in the houses' facades and layouts.in Gulseren, Yildiz Street in Famagusta and in Shariati Street, Maryam Street are the two selected streets which have included 40 buildings in variety types and ages.

4.3.1 Findings about Residential Façades in Iran

From Shariati district, Maryam street is chosen for case study in Tehran. There are 14 houses in this street. There are two detached and twelve apartment. Eight buildings have located in north direction of street and six of them in south direction (see in figure according to their arrangement in street).

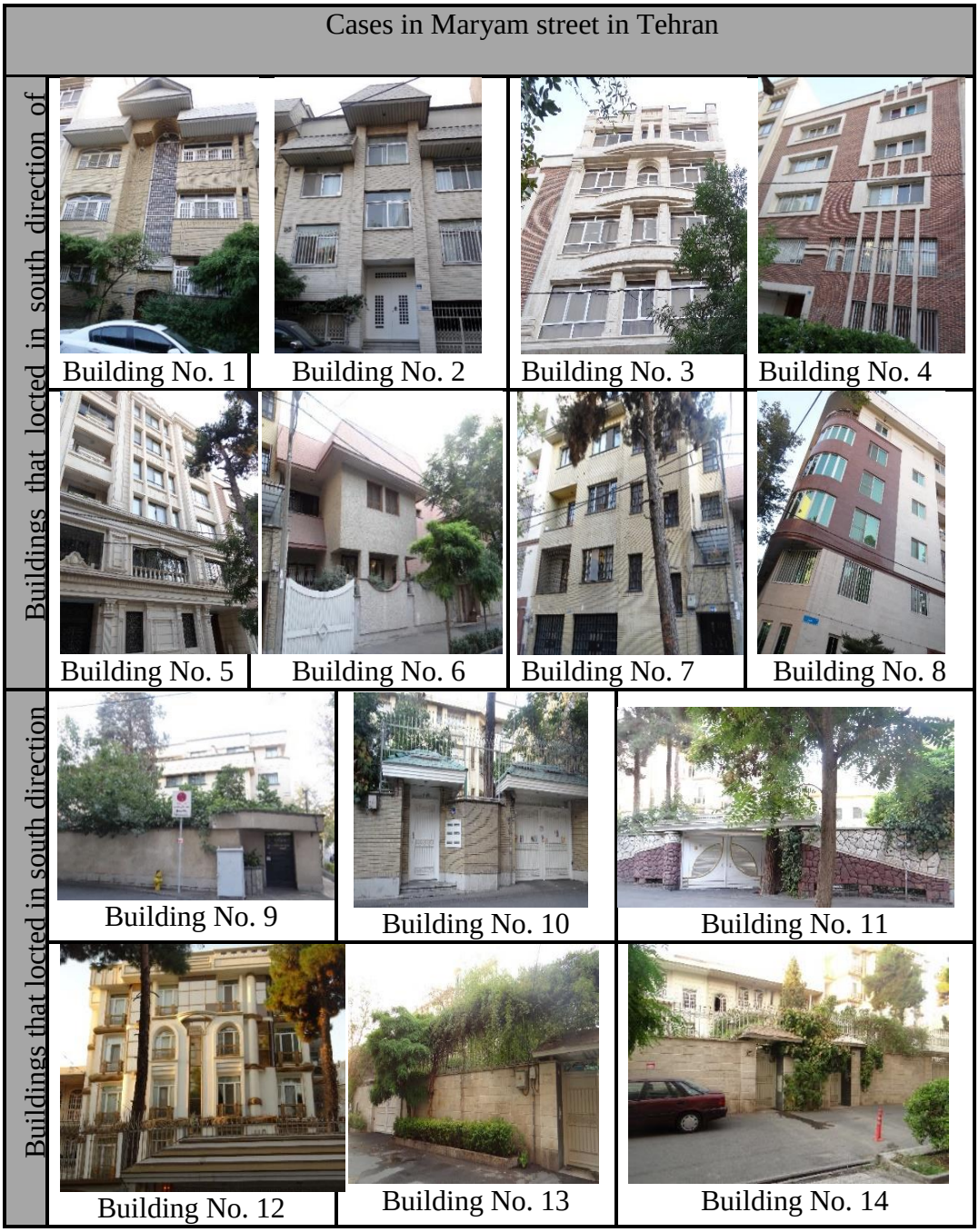


Figure 4.6: Buildings in Maryam Street (author, 2017).

Façade analysis in terms of local factors in Maryam Street

According to period of building, climate, culture and material the cases have been analyzed:

- **Period of buildings**

The houses in Maryam street have constructed between 1950- 2013. That is considered due to Chronological arrangement.

Two detached houses have built 1950- 1960; Building number 11 restored in 2008.	
	
Number 6	Number 11

Figure 4.7: Detached houses in Maryam Street, Tehran (Author, 2017).

The buildings within 1960- 1970, semi detached		
		
Number 10	Number 13	Number 14

Figure 4.8: Semi- detached buildings within 1960-1970 in Tehran (Author, 2017).

Two apartment between 1970- 1980 ,three stories apartment	
	
Number 1	Number 2

Figure 4.10: three stories buildings within 1970-1980 in Tehran (Author, 2017).

Four story apartment within 1990-1995

Number 6

Figure 4.11: Four story building within 1990-1995 in Tehran (Author, 2017)

Apartment between 2005- 2010	
	
Number 8	Number 9

Figure 4.12: Five stories apartment between 2005- 2010 in Tehran (Author, 2017)

Five and six stories apartment within 2005- 2010

Number 3

Number 5

Number 12

Figure 4.13: Five and six stories apartment within 2005- 2010 in Tehran (Author)

Five stories within 2010- 2013

Number 4

Figure 4.14: Five stories within 2010- 2013 in Tehran (Author, 2017)

As it is obvious in the cases in Tehran, two residential detached (Figure 4.7) which has been constructed before 1950, are two stories. The applied material is Concerete. The shape of the windows has been derived from modern style. The detached number 6 which is located in the south side, contrary to the others buildings which have locataed in south side, the enterance is not directly opening to the street, thus the main façade is behind a solid wall which the main formation of the façade is following the preveiling shape in the street.

The detached number 11; a two story building which is located in the north side, has been reconstructed one time. The main material of the main wall in made of tree stone and the main façade which is behind the wall, is made of concrete. The shape of the windows has been reformed to the arched shapes. The formation of the roof is a mixed of sliped and dome (Figure 4.15).

Figure 4.15: Reconstructed detached (author 2017)

the two buildings encompass a vast area, this reveals the overlook on the economical aspects in construction. Manifestly, these two buildings, follow the preveiling modern style based on the year they have been constructed.

The height of the buildings number 1 and 2, has been increased and changed to apartments. In the scope of materials, the building number 1 is small tiled marble and number 2 is made of bricks.

In the scope of the windows, building number 1 is simple form, with steel material for frames; the building number 2 has wider openings and the inner division shape of the frames became arc. Also there's a vertical window attached to the place of the staircase, which has the grade inner division and the upper part includes arcs.

The entrance of the building number 1 includes a few stairs before the main gate which is a simple steel door with a modest porch. In the building number 2, the entrance is directly connecting the inside to street without any porch and the wooden door has an arc shape in the upper parts. The roof of both buildings is slipped.

Figure 4.16: Difference between materials of cases in period of buildings (author)

Within the 1980 and 1985 the height of the buildings has been increased to 4 stories. In the buildings number 8 and 9, the applied material granite stones. In the scope of the shape of windows, in both buildings, they are vertically increased and a single façade encompassed various geometries.

Within the 2000 to 2005, the height of the buildings has been increased to 5 stories and the main material of the façade has become large tiled marble. However the

building number 12 is made of concrete with various colors. The shape of the windows has been increased in both horizontally and vertically and include various geometrical forms.

Within the 2010 to 2013, the building number 4 is made of brick and marble stone. In this way, the buildings between 1950 and 1960, are mainly detached ones encompassing vast area with low height. The buildings between 1970 and 1980, have been increased their height to three stories and became apartment. The buildings till 1995 reached to four stories. And from 1995 till now, the buildings became five stories and had height increase. In this regard, due to the overlook in construction planning and the increase in the height of the buildings, the skyline has been gradually disrupted.

Figure 4.17: Different between heights of buildings in period of buildings in Tehran (author, 2017).

- **Climate factor:**

Considering the climate factor as one of the major local values, the following is an analysis on the effects of climate factor on the components of façade.

The impact of climate on Form in Tehran Cases:

Due to the main climate of Tehran which is cold and dry, the buildings are covering each other in order to block the breezing wind. Consequently the main façade of the buildings is located in north and south sides. According to the construction planning in Iran, 60% of the area is allocated to the building construction and the rest to the open areas. Accordingly, the buildings which are located in the north sides of the street, include a solid wall in front of the street before the open yard and after that the main façade is located. The solid wall includes two entrance gates one for vehicle and one for man. In this sense, before 1985, the observable area of the façade was only the frontier solid wall however nowadays due to the increase in height of the buildings the upper parts of the main façade is also evident from the view of street. On the other hand, the buildings which are located in the south sides of the street, the main façade is directly attached to the face of the street and the courtyard is located behind the main building. In this regard, mainly whole the buildings within the Maryam street, follow the abovementioned criteria. But only the building number 6, which includes a courtyard in the front.

Figure 4.18: existing small yard in front of Sothern building number 6 (author)

According to criteria of the interrelations of the form of the façade and the climate which has been considered within the literature review, the overall shape of the façade of the designated buildings are compatible with the climate factors.

The impact of climate on Openings in Tehran cases:

Due to the climate issues the best side for the intake of sunlight is the north and south sides of the building. Within the case study, the location of the windows is in north and south sides according to the orientation of the building. Likewise, the creation of the entrances follow the mentioned criteria.

The impact of climate on balconies:

Within the designated group of buildings which has been studied, the buildings number 5, 7 and 10 are the only ones which include balconies; however the size of the balconies is small and covered in three sides. In view of climatic aspects in Tehran, the presence of the balconies is not necessary.

Figure 4.19: Balcony in selected cases in Tehran (author, 2017).

The impact of climate on roof:

According to the climatic issue in Iran, most of the designated buildings are flat roof except the buildings 1 and 2 which are slopped. The detached number 11 applied a mixture of slopped roof and dome.

Figure 4.20**:** Type of roof in Tehran cases (author)

The impact of climate on ornamentation:

According to the studies on facades of the designated buildings, no logical correlation between climatic aspects and the ornamentation of the façade has been revealed.

- **Culture factor:**

Considering the cultural factor as one of the major local values, the following is an analysis on the effects of culture factor on the components of façade.

The impact of culture on form:

In overall view, the form of the buildings according to the cultural and religious factors such as privacy, is introverted. The buildings which are located in the north side of the Maryam Street which include a courtyard, has tall vertical walls in front. Consequently the outside viewer is totally blocked from the inside of the building. However the building number 6 and 11 which has been constructed in 1950s, the frontier wall is shorten vertically and consequently there's a small amount of view to inside.

Figure 4.21: Exceptional building with small exterior wall in Tehran (author)

The impact of culture on opening:

Entrance: the door of the buildings are totally solid which gives no view to the outsider. Even the north buildings which encompass the courtyard in front have doors which are solid and blocks the view to the courtyard.

Figure 4.22: Solid entrance and culture (author)

Window: the windows of the buildings which are constructed following the modern style, are mainly horizontal however after the 1995 the windows became more vertical and at the same time the reflective glass has been applied which blocks the view to inside (Figure 4.23).

Figure 4.23: Form and size of windows in Tehran cases (author)

The impact of culture on balcony:

Within the designated buildings, the balconies are mostly covered in order to increase the privacy moreover the ladders of the balconies has been vertically enlarged in order to maximize the ocular protection from outside.

Figure 4.24: Enclosed balcony in Tehran case study (author)

The impact of culture on ornamentation:

within the buildings which has been constructed in modern style, the ornamentations has been evidently decreased, however in the ones following the postmodern styles, the application of the ornamentation has been increased specifically the traditional identical ones mixed with modern motifs.

Within two detached houses in 1950s to 1960s, the buildings number 11 and 6. The general forms are following the modern architecture. In the building number 6 no specific ornamentation can be seen, likewise the openings are simple. In building number 11, after the reconstruction, the ornamentations has been totally revised. The label borrowed the Chinese style.

Figure 4.25: Different type of ornamentation in detached building in Tehran (author)

The main façade applied a variety of colors. The window frames ornaments has been added. The entrance has been defined with an arch with two columns. Also two dome like roofs has been applied which are not relevant to the local identities. And various colors has been applied in the roof line.

Within the detached houses in 1960s to 1970s, the building number 1, has no obvious ornamentation. Only a sloped roof line has been applied coupled with two rows of columns defining the entrance. In the building number 2, obvious brickworks are evident, and various ornamentations can be seen in the window inner divisions including arcs. And one arc upper the entrance. In general more traditional identical motifs has been used in the ornamentation of this building.

Figure 4.26**:** Brickwork in Tehran case studies (author)

Within buildings 1970 till 1980 no obvious ornamentation is evident except a few window frames having arches and columns and a few in eaves in building number 13. Within buildings 2000 till 2005, a few ornamentations in the color of the façade is visible as a frame surrounding the entrance. The building number 9 includes a few horizontal lines.

Figure4.27: Horizontal line in façade in Tehran example (author, 2017).

Within building 2010 till 2013, the buildings 3 and 5 include stone works borrowed from the romance architecture including bracket, stream course, column roofline motifs and arced windows Coupled with ornamented entrances including porches with labels.

Figure 4.28: Ornamentation in Tehran cases (author)

The building number 13 is the exaggeration of the motifs in ornamentation in all the aspects even within the frontier wall of the courtyard.

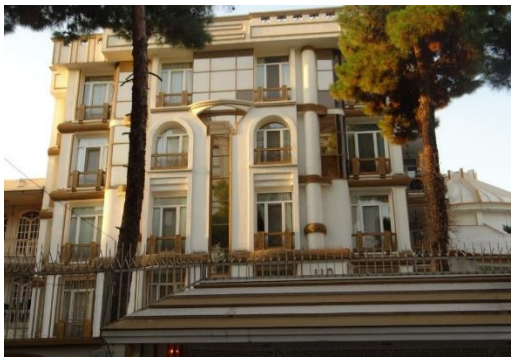


Figure 4.29: Exaggeration motifs in building number 13 in Tehran (author)

In the buildings in 2013, there is a major change in ornamentations by application of brick and stone mixture in a modern style. Application of vertical and horizontal lines coupled with use of few traditional motifs of brick. Likewise the entrance has been defend with a frame.

Figure 4.30: New style ornamentation in façade design due to new regulations in Tehran (author, 2017).

- **Material factor:**

Considering the climate factor as one of the major local values, the following is an analysis on the effects of climate factor on the components of façade.

Material and form:

Main material of façade: According to the studies in the designated buildings in Maryam Street. The materials which has been applied in buildings number 6 and 11 are concrete which refers to the modern architecture material according to the period of building.

Figure 4.31: Concrete façade in Tehran (author, 2017).

Within the 1960s till 1995, the main material of the façade is more local which are small tiled marble and brick. However from 1995 till 2010, the main material of the façade has become the granite stone and ornament marble which are imported from outside. In this period the main material applied in façade is not local and consequently the identity of the place has been disrupted.

Figure 4.32: Use of marble stone and brick in façade in Tehran case studies (author)

However in 2010 the new roles has been devised by municipality to force the new constructions to apply the local material in the façade to regain the traditional identity. Consequently, the brick material became one the prevailing applied materials and the designer were required to use brick in order to take the construction license. This issue is evident in the building number 4 (refer to figure 4.30).

Material and openings:

Entrance: the materials which has been applied in the entrance of the designated buildings have been changed throughout different building periods.

The entrance of the buildings on the north side are all steel due to their orientation which faces the courtyard. The entrance of the buildings on the south side, are made of steel without specific emphasize on them till 2000, however after the 2000 the doors became wooden including various ornamentations.

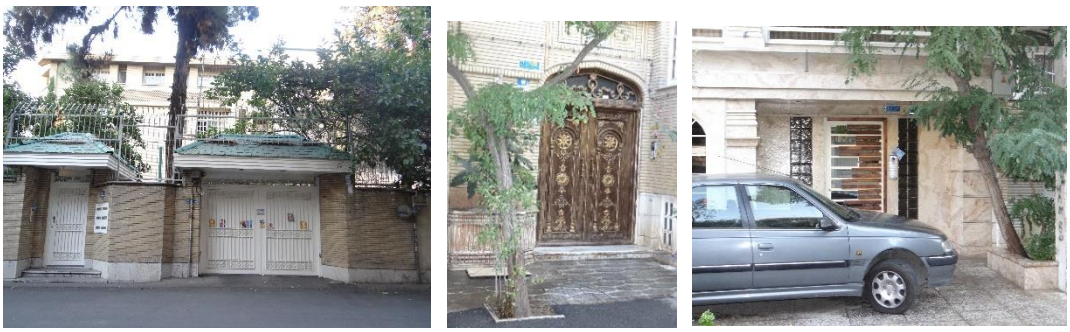


Figure 4.33: Use of different material for entrance in Tehran examples (author, 2017)

Windows: the material of the frames of the window are all steel. According to the energy efficiency rules from 2005 the PVC windows has been vastly applied.

4.34: Windows' material in façade (author, 2017)

Material for balcony:

All the balconies have been applied the same material of the façade (refer to figure 4.24).

Material and ornamentation:

Within the designated buildings, the main material which has been used for ornamentation is an extension of the main material of the façade, and consequently the conceptual interrelation between the ornamentation and its material has been disrupted and the ornaments lost the identical aspects.

4.35: Ornamentation in façade (author, 2017).

Material and roof:

The applied materials within the roofs of the buildings 1, 2, 6 and 11, which has been constructed before 1985, is mainly galvanized sheets. The rest are mainly the material of the façade.

4.36: Used material in roof in Tehran examples (author, 2017).

According to the abovementioned, generally the climate factor has been impacted on the façade. Generally the application of local materials, till 1995, is high, however from 1995 till 2010 it is evidently decreased and after 2010 due to the new governmental rules, is a mixture of local and modern ones. In general, through cultural aspects the buildings are compatible. And the ornamentation has been increased in 2000 till 2010.

4.3.2 Findings about Residential Façades in North Cyprus

In selected street in Famagusta, there are 16 buildings, that 8 buildings have located in south direction and 8 buildings in north of street. Three detached and thirteen apartment (see in figure 4.36 acccording to buildings arrangment in street).

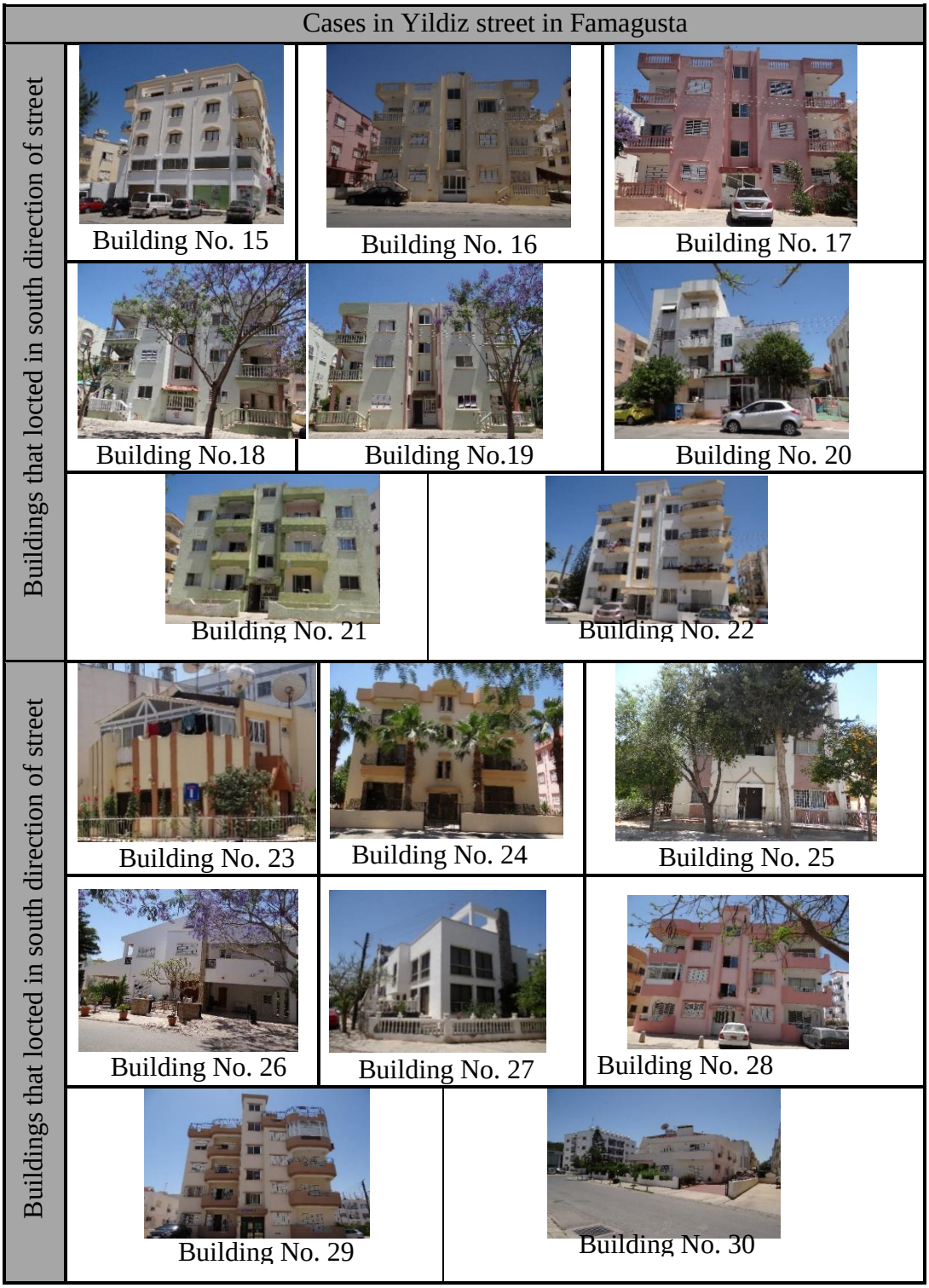


Figure 4.37: Buildings in Maryam Street in Famagusta (author, 2017)

Façade analysis in terms of local factors in Yildiz Street

According to period of building, climate, culture and material have been analyzed the buildings in Yildiz street in Famagusta:

- **Period of buildings**

The houses in Yildiz street have constructed between 1980- 2015. That is considered due to Chronological arrangement.

Apartments within 1980- 1990	
	
Number 20	Number 21

Figure 4.38: Houses within 1980-1990 in Yildiz Street (Author, 2017).

The buildings within 1990- 2000, mass housing project			
Mass housing			
	Number 16	Number 17	Number 18
			
	Number 19		Number 28

Number 24

Figure 4.39: Mass housing by Uzun Company within 1990-2000 (Author, 2017).

Two apartment between 2000- 2005 ,three stories apartment	
 Number 24	 Number 23

Figure 4.40: Buildings within 2000-2005 in Famagusta (Author, 2017).

	Detached buildings within 2005- 2015		
Detached	 Number 24	 Number 24	 Number 30
Apartmants	 Number 29	 Number 29	 Number 29

Figure 4.41: Detached and apartments in Famagusta within 2000-2015 (Author, 2017)

As it is obvious in the cases in Yildiz street in Famagusta,there are eight buildings in north side of street and eight in south direction.There are three detached buildings have constructed within 2005- 2015 and the rest buildings are 2 to 5 stories appartments. In general obvious all of buildings material is concerete with difference in color. The buildings within 1990- 2000 are built by mass housing with same plan and façade just a little differnce in some ornamentation. During the recent decades, many construction and architectural companies are established in Cyprus. Ozun company is one of this that in selected street in this study five apartemant is constructed by Ozun. (buildings number 16,17,18,19 and 28). As it seen pink color in façade is used more than the other colors,even in ornmentation.

Figure 4.42: Utilizing pink color in façade buildings in Famagusta (author, 2017).

Building number 23 has epecific façade. It has horizantal window that its form follow of its roof shape and this is just two story building in this street.

Figure 4.43: Two story building in Yildiz street in Famagusta (author).

In general view on Yildiz street buildings from 2005 until 2013 the height of buildings increased, but at the same time 3 detached buildings with modern architecture charecters is constructed (number 26, 27 and 30) .

- **Climate factor**

Considering the climate factor as one of the major local values, the following is an analysis on the effects of climate factor on the components of façade.

The impact of climate on Form:

Due to the moderate and hot weather of Cyprus, the designated buildings in case study in Yildiz street are open in 4 sides in order to circulate the air. The buildings are elevated from the ground level due to preventing humidity. The main orientation is northern-southern.

Figure 4:44: Form of buildings in Famagusta (author, 2017).

The impact of climate on Opening:

Entrance: the entrance is located in northern or southern side. The entrance of buildings which are located in north side of street is in south side and for the buildings which are in south direction of Yildiz street is in north side, expect detached building

Figure 4.45: Location of entrance in Yildiz street buildings (author).

Building number 15 and 30 which are located in intersection of Yildiz street and Gulseren street that the entrance is opened in the main street (Gulseren) and building number 23 in intersection with east street.

Windows: the orientation of the windows exist in all four sides in order to take the maximum circulation in all buildings. The size of the windows in almost all the buildings are the same normal size. However there are detached ones which follow the modernist style in openings in number 27, 26 and 30. They are more vertical and a little enlarged.

Figure 4.46: Size and position of windows in terms of climate, Famagusta (author)

Also there exists some shutters on the windows due to the energy saving issues.

Figure 4.47: Utilizing shutter in front of windows, Famagusta (author)

The impact of climate in balcony:

According to the climate issue, all the buildings encompass balconies and terrace. The balconies are open in at least two sides. The balconies and terraces are located in corner of buildings for better air circulation due to air humid in Famagusta.

Figure 4.48: Shape of balcony, Famagusta (author)

The impact of climate in roof:

The roofs of all the buildings is flat except the detached ones number15, 23, 26, 27 and 30.

Figure 4.49: Different types of roof, Famagusta (author, 2017).

- **Culture factor:**

Considering the culture factor as one of the major local values, the following is an analysis on the effects of culture factor on the components of façade.

The impact of culture in form:

Due to the cultural issue the buildings are mostly more extroverted in form. In the buildings with yard in northern sides, the frontier walls is vertically low made of ladder.

Figure 4.50: Extroverted form of buildings due to culture, Famagusta (author)

The impact of culture in opening:

Entrance: there is not specific limitation also for the entrance of buildings in Yildiz Street for emphasis on privacy. The entrance also such as form is compose. For the main gate or use of glass entrance for entrance. Glass is used for entrance and also mixed of glass and steel. For the man gate there is not specific limitation to use solid material as it seen in detached the door is open and made with short gate.so all of users' activities is visible in street.

Figure 4.51: Extroverted entrance in Famagusta (author).

Windows: according to the culture factor there is not limitation for applied windows in Yildiz buildings' street. There are large windows in vertical form even in ground floor, and some time interior part of house is visible from street. Also the large windows open in balconies. There is no limitation in size of windows in terms of culture.

Figure 4.52: Large windows in Famagusta (author).

The impact of culture in balcony:

Application of wide and open balconies is evident within all the designated buildings which shows the cultural openness of dwellers to the outside.

Figure 4.53: Wide and open balcony, Famagusta (author)

The impact of culture in ornamentation

Within the buildings number 20, 21 which has been constructed in 1950 to 1960, the ornamentation is only visible in the eaves in the upper and lower parts of the window frame with various colors. Also the false ceilings has been defined the entrance of the buildings. Within the buildings 16,17,18,19 and 28 which has been constructed in 1960 to 1975 and are related to the mass housing, the ornamentation is only Doric columns in the balconies and rectangular frame of the windows with different colors. Also application of the vertical lines upper the entrance is visible. The roof line has been emphasized with Doric columns and vertical lines. The building number 23 which has been constructed in 1985, the ornamentation is focused in vertical lines with different colors and the sloped roof. In the second story there's a vast window which the inner division follows the geometry of the roof line.

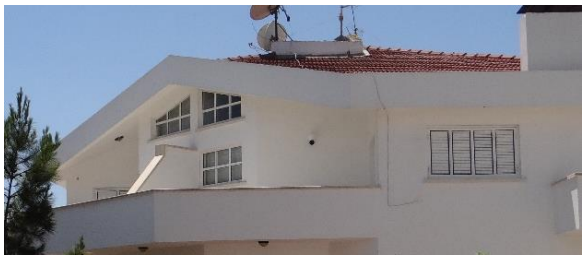
The buildings number 24 and 25 from 1995 till 2000, includes curved eaves. And a curved false ceiling upper the entrance. The balconies also covered with low height ladders. The buildings number 15, 22 and 29, which has been constructed between

2005 and 2013, the main ornamentation is in the focus on the upper frames of the windows, and use of string courses in the roof line of the building number 29. The three detached ones of 26, 27 and 30, are totally built in modern style and trace no local ornamentation except a few interplays of void and solid. And a bit more emphasize on the entrance. The windows also became more horizontal.

Ornamentation in windows

Ornamentation in entrance

Ornamentation in balcony



Ornamentation in roof line

Figure 4.54: Different ornamentation in components of façade, Famagusta (author)

- **Material factor:**

Considering the material factor as one of the major local values, the following is an analysis on the effects of material factor on the components of façade.

Material of façade:

In general, all the buildings in the yildiz street, applied the concrete in different colors except the number 27 which used a vertical motif of rubber stone in the façade.

4.55: Use of stone in façade, Famagusta (author).

Opening and material:

Entrance: The buildings number 22 and 24 has a transparent glassy entrance. The detached ones of 23, 27 and 30 has wooden doors. The rest have a mixture of metal and glass.

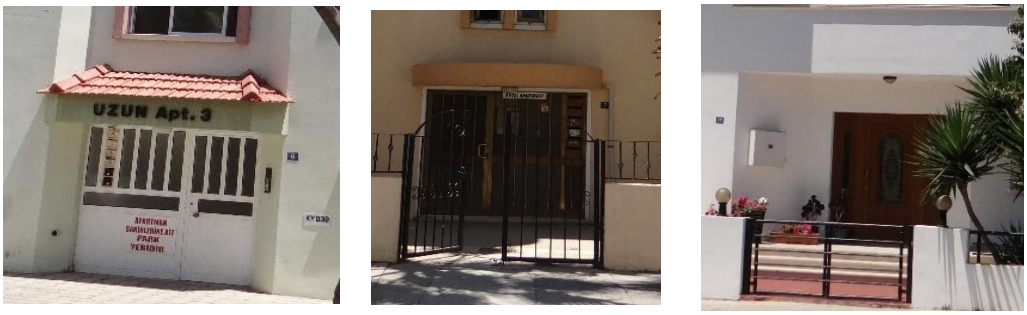


Figure 4.56: Use of different material in entrance

Windows: The frames of the buildings are mostly steel. The buildings after 2005 are UPVC.

4.57: Frame windows material, Famagusta (author).

Material in balcony:

The material of the balcony of buildings is mostly the extension of the façade material. In general, the buildings which constructed between 1950 and 1980 include some traditional motifs. The buildings which constructed between 1980 and 2000 due to the mass housing, follow a specific pattern, which follow modern style but the traditional motifs has been applied to them in a symbolic way. The recent buildings are three detached ones, which follow all the characteristics of modern style. The buildings after 2005 include simple forms deriving some patterns of local motifs.

4.3.3 Assessment rather comparison

According to findings of Tehran and Famagusta cases, refer to the factors which investigated is found out below results:

Components of Façade

Entrance: in Tehran in selected cases before 1980 were simple with small eaves at top of door with rectangular frame and in some cases existing arch above, but in the cases that constructed after 2005, entrance located in dent with especial design to give inviting sense and also is used wooden door and false celling; in Famagusta the buildings' entrance before 1980 which mostly in this case constructed by mass housing company are so simple without any indicated features with simple rectangular frame and steel door and glass, just there is small eave that is mostly written the name of company or apartment\ant. But in villas cases entrance designed and is used wooden door with dent space in front of entrance or some stairs. In apartment after 2005 attention to entrance design has increased and use bigger eaves on top of door or is used glass door.

Windows: windows in selected cases in Tehran's buildings include variety shape and proportion, it is not possible to categorize the windows even in same period, but as it can see in photos in Maryam street houses the size of windows which has used before 2000 smaller than after 2005 with simple rectangular steel frame with different type of internal division such as arch, netting small size rectangular in windows. The buildings which built after 2005 is observed bigger size of windows and in some cases in façade there are different shape of windows, rectangular and arch windows or horizontal and vertical. While in Famagusta cases the windows mostly are rectangular with regular proportion with two or three leafs door according to the size without more internal division and which is mostly used in often buildings is shutter in front of windows. Around windows mostly utilize frame with different color that are rectangular or triangular.

Balcony: in Tehran cases just in some buildings there are small balcony despite limited open space in buildings and the need for residents to use outdoor space. But in Famagusta all of buildings have wide balcony for each unit.

Ornamentation: in cases studied in Tehran, can be clearly seen the difference in the use of decorations in pre-2000 buildings and later. In buildings before 2000 almost there are not specific decorative feature expect in some cases which used brick work or some decorative elements in roofline. In cases after 2005 there are a lots of decoration in façade; different types of columns, brackets, crown, springs, vertical and horizontal elements, types of ladder and shutter, variety types of arches and stone work. In Cyprus also is seen some decorative features, around windows, use of vertical and horizontal elements, types of brackets under balcony, Doric columns in front balcony.

Result

According to the abovementioned, within the timeline scope, in both countries an increase in the height of the buildings is visible, however the one in Iran, Tehran is much more than that of Cyprus, Famagusta, due to the higher growth of population in Tehran. But as a main process both of them are experiencing an increase in the height specifically within the designated case studies.

Within the climate aspect, in both cases, the form and orientation of the buildings is following the climatic factors. Likewise, the formation of the windows in both cases, is highly affected by climatic factors.

Within the cultural scope, the formation of the buildings in Iran is introverted through the elements of window, balcony, and entrance and frontier wall in northern oriented buildings; however the formation of the buildings in Cyprus is totally extroverted through the elements of window, balcony and entrance. This shows the relevance of the cultural aspects with the architectural concretization of them in each country. The local values in ornamentation in Iran after 1995 has been gradually faded however, in Cyprus the designers tried to keep the local values in ornamentations even through attaching those motifs just as a symbol. Within the material aspects, in Iran before 1995 traces of local values in material is obvious, but between 1995 and 2010 the materials lost their local factors. Again after 2010, the local values has been applied to the materials in façade. However, in Cyprus the traces of local values in material is unceasingly evident within all building periods, within the case study.

Chapter 5

CONCLUSION

House as a significant part of humans' life is able to have a huge impact on its residents' life quality. In fact, Housing as a fundamental category of architecture should be constructed by proper consideration on the residents' cultural characteristics. However, achieving this goal would not be possible unless architects and designers will and sufficient knowledge and attention on the features which are related to the cultural background of their users. Therefore, one of the necessity for design of a proper house is the recognition of the features and elements that cultural bond between residents and their houses. In this aspect, investigating on the local values' features of the particular region could led architects to use the competent features in contemporary houses.

Residential buildings as an important category of contemporary architecture consist of different types of housing such as the private house, detached, apartment, and residential complex. Façade as a connective between inner and outer apace have a main role in city image. However, residential façade buildings commonly have been designed with little attention to the characteristics of their users and subsequently their cultural requirements. Therefore, it is necessary to investigate on local and traditional features to reach the appropriate cognition about those features that in contemporary houses could create the relation between façades and local values.

Furthermore, during the study it was tried to learn the “local values factors” explanation and its functions for discovering the facade elements which are used in contemporary houses. In fact, several attempts have been done by the scholars to clarify the local factors performance in façade housing. This thesis has tried to find the systematic approach for establishing the objective study relevant to the façade design according to local values. For this aim, the study attempted to find the coherent literatures related to the thesis subjects. Accordingly, two subjects -local factors and façade features in houses- had been scrutinized in depth within two chapters. Meanwhile, period of building, climate, material and as local factors and façade elements in recent architectural periods in Iran and Cyprus have been investigated to find their utilized housing and facade features. In this regard, content analysis method had been used as the thesis approach to analyze the literature.

The housing construction in Iran and Cyprus have been extremely developed during the recent decades. According to the high numbers of architects and constructions companies which are longing to extend their activity in the field, is based on providing the houses for the majority of the population and is expected that urban view will develop at future. In this regard, negligence to facade design and using of proper local features -to make the connection between façade design and urban image- could create the serious problem for making connection with identity of city.

In this aspect, attention to the local factors and facade feature and also traditional housing feature which have been studied, in fourth chapter, two tables founded for explaining the specifications for impact of local factors included period of building, climate, material and culture on Tehran and Famagusta façades (table 4.1 and table 4.2). Thereafter was tried to find the -exact similarity and contemporary interpretation-

within the selected cases in Tehran and Famagusta and facade features by utilizing the physical observation. For the aim, 30 inventory forms (in appendix) had been established for 2 different streets' buildings in Tehran and Famagusta to examine the founded features in residential buildings in these two cities.

As a result, it turned out the rate of adapting and Compatibility of façades with investigated local values and utilizing their features in building's façade; that are different according to period of buildings.

Afterwards, impact of local factors on façade features in contemporary residential buildings of two street in Teheran and Famagusta was demonstrated as a substantial result for the section.

Therefore, by attention to the results of physical observation which was evaluated in chapter 4 and also to the findings and results which were achieved from inventory forms was found impact of climate, material, culture and period of building on façade in cases studied in Tehran and Famagusta:

Period of construction has had signification impact on façade buildings in terms of using material, form and size of windows, openings and more on ornamentation, especially in Tehran. Considering the building's façade can indicate the period of construction; but in Famagusta it is less than Tehran. In Tehran and Famagusta heights of building have been increased during recent years because of population increasing and this impacts on façade design.

In terms of climate factor, it has had significant impact on orientation and arrangement of buildings in Tehran and Famagusta.

In Tehran generally there are two types site plan for buildings. The buildings which located in south side of street. In these buildings, first the body and volume of building is located and then the house yard is behind of building. So, in these buildings the main façade is beside of the street directly but in northern building first the house yard is located and after yard the volume of building and the main façade is behind of courtyard and what is visible in northern buildings is the yard wall entrance and parking gate. Generally, all buildings in Tehran has been blocked and restricted by adjacent building in east and west direction. While, in Famagusta houses have located in the middle of site plan. In Famagusta, northern houses has not necessarily yard in front of buildings. But there are open space in four direction of building for air circulation.

Windows in Tehran cases, are generally rectangular, but in last decade it has designed vertical. Due to increasing heights of adjacent buildings, in order to supply required sunlight for houses, the size of windows have become larger. In Famagusta, windows are generally rectangular. The windows open in balcony and terrace are vertical. Shutters have commonly used in front of in windows to control cold winter and summer heat.

Balcony is not conventional in Tehran cases, because having long cold months. While in Famagusta there are wide and big balconies and terraces in all cases.

According to façade evaluation, Tehran and Famagusta case studies are compatible with the climate factor in house orientation and arrangement in site plan.

Impact of material

local material such as brick and small size marble stone have been used in façade buildings in Tehran cases before year of 2000, but after that using of modern material big size of stone with variety color have been conventionally used because of to traditional modern and postmodern architectural has come over to traditional style. Due to increasing population in Tehran, house builders have tendency to use large size stone in various color for façade to bold and highlight their buildings to attract their customers' attention more .combination of stone in various colors has been used too. Romance and Greek facades have been applied by builders, after 2000 up to 2010. At the year of 2010 municipality of Tehran arranged and issued new criteria and regulations to prevent turbulence in the façade and to support using of traditional materials such as stone and brick so architects have been forced to use of brick and traditional material for getting construction license.

In Famagusta cases, plaster is more conventionally used for façades on various color, and in case studies it has just two detached buildings which have modern architecture has been used stone in one vertical part. Flat roofs have used in Tehran examples, while in Famagusta it seen flat and slopping roofs.

Windows material In Tehran cases is steel before 2005 and in all example steel has used for windows' frame, but in buildings after 2005 according to new regulations

In Tehran, before year of 2005 using of steel windows frame has been more conventional, but using P.V.C air closed windows has been mandatory for saving energy according to local regulation and in all cases have been used P.V.C .

In Famagusta using of steel windows is more conventional, but three cases which has studied have used P.V.C for windows' frame.

Impact of culture

Due to Islamic approach in Tehran cases, houses are introverted. Building form are more closed and private in Tehran and northern house yard have higher walls so nobody can see inside part of yard and house also form of entrance doors are closed too and nobody can see behind of door. In Famagusta may usual the yards are opened or have short walls and house yards are visible .and there are very less privacy against however larger in Tehran. In Tehran when the windows became larger in size and dimension (as previously said), using of reflective glasses for windows increased and curtains cover then at night times. Using of reflective glass or curtains is not common in Famagusta, so there are more than privacy. In Famagusta entrances doors are semi opened or are full glass and opened and so behind of them are completely visible which result more than privacy Yard have higher walls so it can see inside part of yard houses So, according to culture has had so significant impact on façade, general form of building and urban sight. There are not so open spaces such as balcony or terrace in Tehran buildings because of importance of privacy in Iranian culture in Tehran. In the buildings which have balcony, it has three closed sides and only one side of balcony is open that is the part of façade, while in Famagusta all of investigated houses have terrace in ground floor and balconies in upper floors and also vertical tall opening to balcony.

General result

Because of population increase and globalization in Tehran façade design and building enter to stone phases of postmodern architectural method to highlight the buildings and wing of ornamentation and large windows and height of buildings have been increased. There are visible turbulence because of using various architectural style

beside each other. In first view we can see many kind and materials and views on the façade and they don't give any urban identity for Tehran. In Cyprus we now find traditional architecture and there are much humanity in the city and city has own identity. However, mass housing is increased in Famagusta.

It seems that some regulation should be provided and arranged to prevent façade Important question is can the regulations make identity for cities as Tehran and Famagusta or there is limited the creativity of architects in their design? This question could be studied in later thesis

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URL4 :(Image: http://www.image53.webshots.com

URL 5: (Image: http://www.sxc.hu/pic/m/i/is/isdngirl

URL6: http://www.geographicguide.net/europe/maps-europe/maps/cyprus-europe.gif

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URL 13: https://www.google.com.cy/search?q=famagusta+map&tbm=isch&sourc

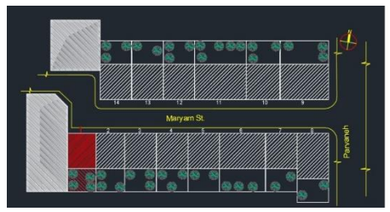
APPENDIX

Inventory form: 1

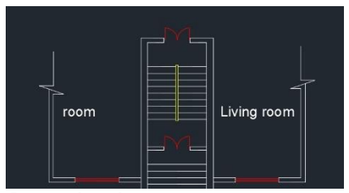
General information

Name and Number:
Address: No 1, Maryam Ave. Chizari St. Pasdaran St. Tehran. Iran
House Type: Apartment ■
Detached □
Period of building: 1970-1980

Site Layout

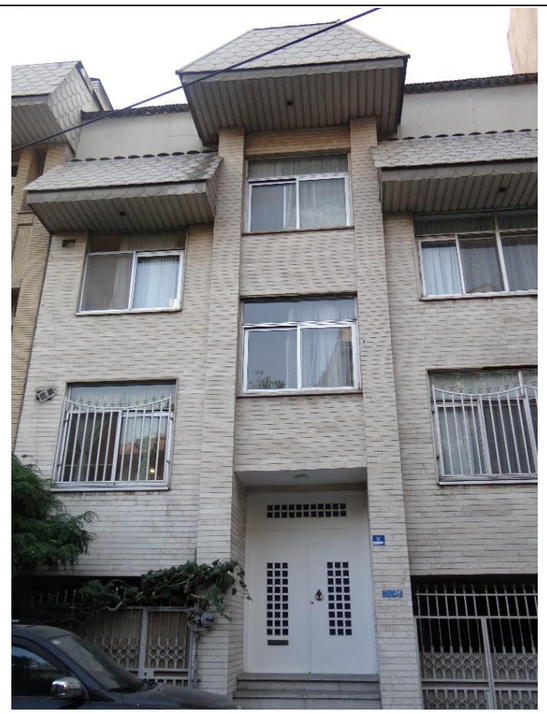


Plan (Behind Façade)



Layout Organization:
Yes ■ No □ -Room
Yes ■ No □ -Hall
Yes □ No ■ -Veranda
Yes □ No ■ -Service area
Yes □ No ■ -Kitchen
Yes □ No ■ -Staircase

Elevation (Street View)



Elevation (Sides View): Yes □ No ■

Façade Characteristics

Door

Entrance :
Yes ■ No □ - Emphasized
Material: Metal
Color: White
Decorated by short false celling above entrance but without specific ornamentation. It has been emphasized with changing level with four stairs ,because of Observe the height of the parking door
Parking Door: Yes ■ No □

Windows

Shape: Rectangular with repetitive sizes and aluminum fences in first floor
Frame material and color: Steel -White
Decorated: Without decorative element

Balcony

Yes □ No ■
In two sides with cement enclosure

Ornamentation

Yes ■ No □ - Shutter
Yes □ No ■ -Arch
Yes □ No ■ - Brackets
Yes □ No ■ - Decorative Columns
Yes ■ No □ -Vertical Lines
Yes □ No ■ - Horizontal line
Yes □ No ■ - Plaster
Yes □ No ■ - Stone cut
Other ornamentation:
Just it has used cement shaped enclosure in front of balconies

Roof Type

□ Flat roof
■ Slopping roof
□ Dome roof
Roof line :
□ Simple ■ With ornamentation
Creating fracture in the roof line

Façade Material

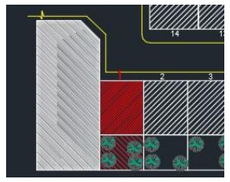
■ Stone □ Brick
□ Glass □ Steel
□ Plaster □ Composite
□ Wood

Façade Color

■ White □ Black
□ Red □ Blue
□ Yellow □ Olive
Green
□ Brown □ Pink
□ Cream
Other Colors:

climate

■ **Cold and dry**
□ **Moderate and humid**



Main façade: south side
Position of building:

It is blocked with two neighborhoods units in west and east sides. The main façade is located in south side and there is privet yard in south

Lighting and ventilation from:
■ North
■ South
□ West
□ East

System and Structure:
□ Reinforced concrete
■ Skeleton system

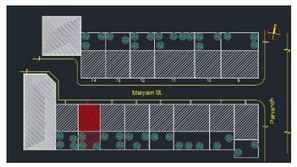
Compatible Local values check Result :
Climate Conditions ■ Yes □ No
Applied Material ■ Yes □ No
Ornamentation ■ Yes □ No. There is not specific ornamentation in façade

Inventory form: 2

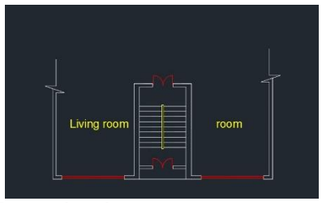
General information

Name and Number:
Address: No 2, Maryam Ave. Chizari St. Pasdaran St. Tehran. Iran
House Type: Apartment ■
Detached □
Period of building: 1970-1980

Site Layout



Plan (Behind Façade)



Layout Organization:
Yes ■ No □ -Room
Yes ■ No □ -Hall
Yes □ No ■ -Veranda
Yes □ No ■ -Service area
Yes □ No ■ -Kitchen
Yes □ No ■ -Staircase

Elevation (Street View)

Elevation (Sides View): Yes □ **No** ■

Façade Characteristics

Door

Entrance :
Yes ■ No □ - Emphasized
Material: Wood
Color: Brown
Wooden entrance decorated with arch

Parking Door: Yes ■ No □

Windows

Shape: Rectangular with repetitive sizes and aluminum fences in floors
Frame material and color: Steel -White
Decorated: Arched frame and inner division

Balcony

Yes □ No ■
In two sides with cement enclosure

Ornamentation

Yes ■ No □ - Shutter
Yes ■ No □ -Arch
Yes □ No ■ - Brackets
Yes □ No ■ - Decorative Columns
Yes ■ No □ -Vertical Lines
Yes ■ No □ - Horizontal line
Yes □ No ■ - Plaster
Yes □ No ■ - Stone cut

Other ornamentation:
There are rectangular brick box with Bricklayer

Roof Type

□ Flat roof
■ Slopping roof
□ Dome roof

Roof line :
□ Simple ■ With ornamentation
Creating fracture in the roof line

Façade Material

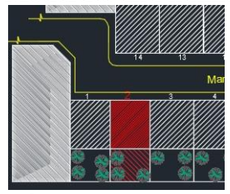
□ Stone ■ Brick
□ Glass □ Steel
□ Plaster □ Composite
□ Wood

Façade Color

□ White □ Black
□ Red □ Blue
□ Yellow □ Olive
Green
■ Brown □ Pink
□ Cream
Other Colors:

climate

■ **Cold and dry**
□ **Moderate and humid**



Main façade: North side
Position of building:

It is blocked with two neighborhoods units in west and east sides. The main façade is located in south side and there is privet yard in south

Lighting and ventilation from:
■ North
■ South
□ West
□ East

System and Structure:
□ Reinforced concrete
■ Skeleton system

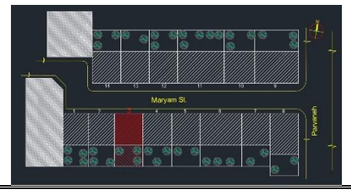
Compatible Local values check Result :
Climate Conditions ■ Yes □ No
Applied Material ■ Yes □ No
Ornamentation ■ Yes □ No

Inventory form: 3

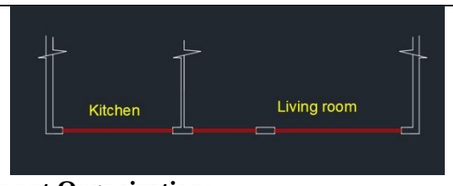
General information

Name and Number:
Address: No 3, Maryam Ave. Chizari St. Pasdaran St. Tehran. Iran
House Type: Apartment ■
Detached □
Period of building: 2005-2010

Site Layout



Plan (Behind Façade)



Layout Organization:
Yes □ No ■ -Room
Yes ■ No □ -Hall
Yes □ No ■ -Veranda
Yes □ No ■ -Service area
Yes ■ No □ -Kitchen
Yes □ No ■ -Staircase

Elevation (Street View)

Elevation (Sides View): Yes □ No ■

Façade Characteristics

Door

Entrance :
Yes ■ No □ - Emphasized
Material: Metal and wood
Color: white- Brown-Black
Decorated by short false celling above entrance and use of variety of color and material
Parking Door: Yes ■ No □

Windows

Shape: Rectangular with different sizes and some stone cut around frame
Frame material and color: P.V.C. -White
Decorated: Rectangular stone lintel around windows

Balcony

Yes ■ No □
In two sides with cement enclosure

Ornamentation

Yes ■ No □ - Shutter
Yes ■ No □ -Arch
Yes ■ No □ - Brackets
Yes ■ No □ - Decorative Columns
Yes ■ No □ -Vertical Lines
Yes ■ No □ - Horizontal line
Yes □ No ■ - Plaster
Yes ■ No □ - Stone cut
Other ornamentation:
There are a lot of ornamentation

Roof Type

■ Flat roof
□ Slopping roof
□ Dome roof
Roof line :
□ Simple ■ With ornamentation
Use of many stone cut

Façade Material

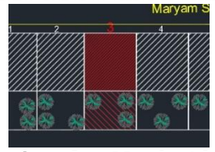
■ Stone □ Brick
□ Glass □ Steel
□ Plaster □ Composite
□ Wood

Façade Color

■ White □ Black
□ Red □ Blue
□ Yellow □ Olive Green
■ Brown □ Pink
□ Cream
Other Colors:

climate

■ **Cold and dry**
□ **Moderate and humid**



Main façade: North side
Position of building:

It is blocked with two neighborhoods units in west and east sides. The main façade is located in south side and there is privet yard in south

Lighting and ventilation from:
■ North
■ South
□ West
□ East

System and Structure:
■ Reinforced concrete
□ Skeleton system

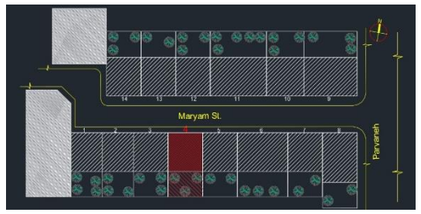
Compatible Local values check Result :
Climate Conditions ■ Yes □ No
Applied Material ■ Yes □ No
Ornamentation □ Yes ■ No .There are a lots of ornamentation in facade

Inventory form: 4

General information

Name and Number:
Address: No 4, Maryam Ave. Chizari St. Pasdaran St. Tehran. Iran
House Type: Apartment ■
Detached □
Period of building: 2010- 2013

Site Layout



Plan (Behind Façade)

Layout Organization:
Yes □ No ■ -Room
Yes ■ No □ -Hall
Yes □ No ■ -Veranda
Yes □ No ■ -Service area
Yes ■ No □ -Kitchen
Yes □ No ■ -Staircase

Elevation (Street View)

Elevation (Sides View): Yes □ No ■

Façade Characteristics

Door

Entrance :
Yes ■ No □ - Emphasized
Material: Wood
Color: Brown
Decorated by short false celling above entrance , emphasized by changing material and color

Parking Door: Yes ■ No □
There is rectangular stone bound around parking door

Windows

Shape: Rectangular with different sizes and aluminum fences in floors
Frame material and color: P.V.C. -White
Decorated: Rectangular lintel around windows

Balcony

Yes □ No ■
In two sides with cement enclosure

Ornamentation

Yes □ No ■ - Shutter
Yes □ No ■ -Arch
Yes □ No ■ - Brackets
Yes □ No ■ - Decorative Columns
Yes ■ No □ -Vertical Lines
Yes ■ No □ - Horizontal line
Yes □ No ■ - Plaster
Yes ■ No □ - Stone cut
Other ornamentation:

Roof Type

■ Flat roof
□ Slopping roof
□ Dome roof
Roof line :
□ Simple ■ With ornamentation
There is simple stone spline in roof line

Façade Material

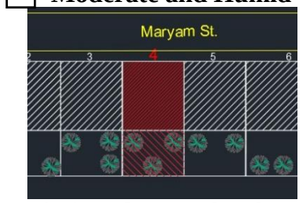
■ Stone ■ Brick
□ Glass □ Steel
□ Plaster □ Composite
□ Wood

Façade Color

■ White □ Black
□ Red □ Blue
□ Yellow □ Olive
Green
■ Brown □ Pink
□ Cream
Other Colors:

climate

■ **Cold and dry**
□ **Moderate and Humid**



Main façade: North side
Position of building:
It is blocked with two neighborhoods units in west and east sides. The main façade is located in south side and there is privet yard in south
Lighting and ventilation from:
■ North
■ South
□ West
□ East
System and Structure:
■ Reinforced concrete
□ Skeleton system

Compatible Local values check Result :
Climate Conditions ■ Yes □ No
Applied Material ■ Yes □ No
Ornamentation ■ Yes □ No

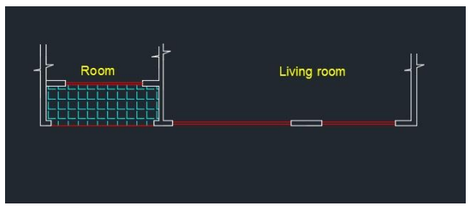
Inventory form: 5

General information

Name and Number:
Address: No 5, Maryam Ave. Chizari St. Pasdaran St. Tehran. Iran
House Type: Apartment ■
Detached □
Period of building: 2005-2010

Site Layout

Plan (Behind Façade)



Layout Organization:
Yes □ No ■ -Room
Yes ■ No □ -Hall
Yes □ No ■ -Veranda
Yes □ No ■ -Service area
Yes ■ No □ -Kitchen
Yes ■ No □ -Staircase

Elevation (Street View)

Elevation (Sides View): Yes □ **No** ■

Façade Characteristics

Door

Entrance :
Yes ■ No □ - Emphasized
Material: Steel
Color: Black
Decorated by short false celling above entrance with many stone cut ornamentation

Parking Door: Yes ■ No □
There is decorated parking entrance

Windows

Shape: Rectangular with different sizes and stone cut around windows
Frame material and color: P.V.C - Black
Decorated: Variety kinds of stone cut

Balcony

Yes ■ No □

Ornamentation

Yes □ No ■ - Shutter
Yes ■ No □ -Arch
Yes ■ No □ - Brackets
Yes ■ No □ - Decorative Columns
Yes ■ No □ -Vertical Lines
Yes ■ No □ - Horizontal line
Yes □ No ■ - Plaster
Yes □ No ■ - Stone cut
Other ornamentation:
There are variety kinds of ornamentation

Roof Type

■ Flat roof
□ Slopping roof
□ Dome roof
Roof line :
□ Simple ■ With ornamentation
There is stone arch above roof line

Façade Material

■ Stone □ Brick
□ Glass □ Steel
□ Plaster □ Composite
□ Wood

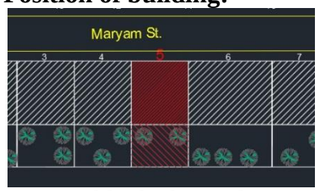
Façade Color

■ White □ Black
□ Red □ Blue
□ Yellow □ Olive Green
□ Brown □ Pink
□ Cream
Other Colors:

climate

■ **Cold and dry**
□ **Moderate and humid**

Main façade: North side
Position of building:



It is blocked with two neighborhoods units in west and east sides. The main façade is located in south side and there is privet yard in south

Lighting and ventilation from:
■ North
■ South
□ West
□ East

System and Structure:
■ Reinforced concrete
□ Skeleton system

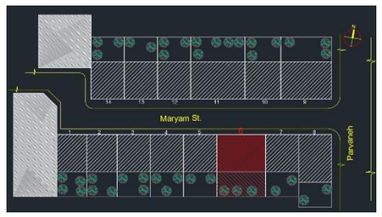
Compatible Local values check Result :
Climate Conditions ■ Yes □ No
Applied Material ■ Yes □ No
Ornamentation □ Yes ■ No - with lots of different ornamentation

Inventory form: 6

General information

Name and Number:
Address: No 6, Maryam Ave. Chizari St. Pasdaran St. Tehran. Iran
House Type: Apartment ☐
Detached ■
Period of building: 1960-1970

Site Layout



Plan (Behind Façade)

Layout Organization:
Yes ■ No ☐ -Room
Yes ■ No ☐ -Hall
Yes ☐ No ☐ -Veranda
Yes ☐ No ☐ -Service area
Yes ☐ No ☐ -Kitchen
Yes ☐ No ☐ -Staircase

Elevation (Street View)

Elevation (Sides View): Yes ☐ No ■

Façade Characteristics

Door

Entrance :
Yes ☐ No ■ - Emphasized
Material: Steel
Color: white
Decorated by short false celling above entrance but with different shape in entrance frame
Parking Door: Yes ■ No ☐
Parking door is formed by arch above

Windows

Shape: Rectangular with repetitive sizes and aluminum fences in first floor
Frame material and color: Steel -Brown
Decorated: Rectangular lintel plaster around windows

Balcony

Yes ■ No ☐
In two sides with cement enclosure

Ornamentation

Yes ☐ No ■ - Shutter
Yes ☐ No ■ -Arch
Yes ☐ No ■ - Brackets
Yes ■ No ☐ - Decorative Columns
Yes ■ No ☐ -Vertical Lines
Yes ☐ No ■ - Horizontal line
Yes ☐ No ■ - Plaster
Yes ☐ No ■ - Stone cut
Other ornamentation:

Roof Type

☐ Flat roof
☐ Slopping roof
■ Dome roof
Roof line :
■ Simple ☐ With ornamentation
Creating fracture in the roof line

Façade Material

☐ Stone ☐ Brick
☐ Glass ☐ Steel
■ Plaster ☐ Composite
☐ Wood

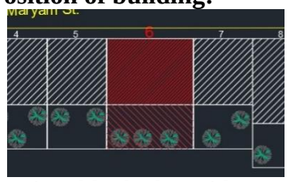
Façade Color

■ White ☐ Black
☐ Red ☐ Blue
☐ Yellow ☐ Olive
Green
☐ Brown ■ Pink
☐ Cream
Other Colors:

climate

■ **cold and dry**
☐ **Moderate and humid**

Main façade: North side
Position of building:



It is blocked with two neighborhoods units in west and east sides. The main façade is located in south side and there is privet yard in south

Lighting and ventilation from:
■ North
■ South
☐ West
☐ East

System and Structure:
☐ Reinforced concrete
■ Skeleton system

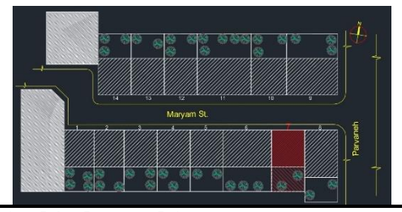
Compatible Local values check Result :
Climate Conditions ■ Yes ☐ No
Applied Material ■ Yes ☐ No
Ornamentation ■ Yes ☐ No. There is no more ornamentation in façade

Inventory form: 7

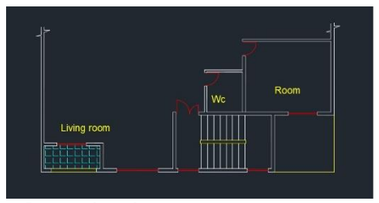
General information

Name and Number:
Address: No 7, Maryam Ave. Chizari St. Pasdaran St. Tehran. Iran
House Type: Apartment ■
Detached ☐
Period of building: 1990-1995

Site Layout



Plan (Behind Façade)



Layout Organization:
Yes ■ No ☐ -Room
Yes ■ No ☐ -Hall
Yes ☐ No ■ -Veranda
Yes ☐ No ■ -Service area
Yes ■ No ☐ -Kitchen
Yes ■ No ☐ -Staircase

Elevation (Street View)

Elevation (Sides View): Yes ☐ No ■

Façade Characteristics

Door

Entrance :
Yes ■ No ☐ - Emphasized
Material: Steel
Color: Black
Decorated by short false celling above entrance and grade inner division

Parking Door: Yes ■ No ☐

Windows

Shape: Rectangular with repetitive sizes and grade inner division window
Frame material and color: Steel- Black
Decorated: Brick lintel around windows

Balcony

Yes ■ No ☐

Ornamentation

Yes ■ No ☐ - Shutter
Yes ☐ No ■ -Arch
Yes ☐ No ■ - Brackets
Yes ■ No ☐ - Decorative Columns
Yes ■ No ☐ -Vertical Lines
Yes ☐ No ■ - Horizontal line
Yes ☐ No ■ - Plaster
Yes ☐ No ■ - Stone cut
Other ornamentation:

Roof Type

■ Flat roof
☐ Gambrel roof
☐ Hipped roof
Roof line :
■ Simple ☐ With ornamentation
There is canopy in roof line

Façade Material

☐ Stone ■ Brick
☐ Glass ☐ Steel
☐ Plaster ☐ Composite
☐ Wood

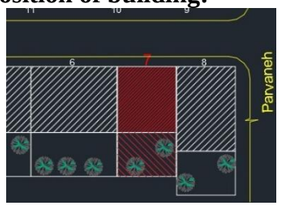
Façade Color

☐ White ☐ Black
☐ Red ☐ Blue
☐ Yellow ☐ Olive
Green
■ Brown ☐ Pink
☐ Cream
Other Colors:

climate

■ **Cold and dry**
☐ **Moderate and humid**

Main façade: North side
Position of building:



Lighting and ventilation from:
It is blocked with two neighborhoods units in west and east sides. The main façade is located in south side and there is privet yard in south
■ North
■ South
☐ West
☐ East
System and Structure:
☐ Reinforced concrete
■ Skeleton system

Compatible Local values check Result :
Climate Conditions ■ Yes ☐ No
Applied Material ■ Yes ☐ No
Ornamentation ■ Yes ☐ No

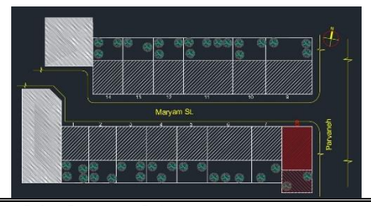
Inventory form: 8

General information

Name and Number:
Address: No 8, Maryam Ave. Chizari St. Pasdaran St. Tehran. Iran
House Type: Apartment ■
Detached ☐

Period of building: 2005-2010

Site Layout

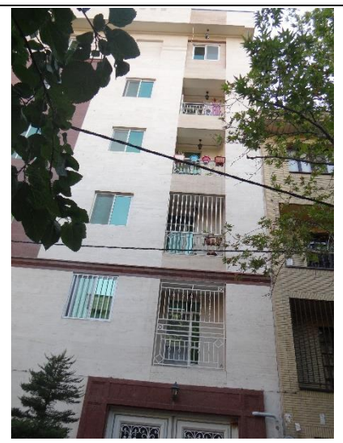


Plan (Behind Façade)

Layout Organization:

Yes ☐ No ■ -Room
Yes ■ No ☐ -Hall
Yes ☐ No ■ -Veranda
Yes ☐ No ■ -Service area
Yes ■ No ☐ -Kitchen
Yes ☐ No ■ -Staircase

Elevation (Street View)



Elevation (Sides View): Yes ■ No ☐

Façade Characteristics

Door

Entrance :
Yes ■ No ☐ - Emphasized
Material: Steel
Color: white
Decorated by short false arch celling above entrance but with arch ornamentation

Parking Door: Yes ■ No ☐
There is not specific door for parking,

Windows

Shape: Rectangular with different sizes and aluminum fences in first floor
Frame material and color: P.V.C.-white
Decorated: The windows are located in corner are curved

Balcony

Yes ■ No ☐

Ornamentation

Yes ■ No ☐ - Shutter
Yes ■ No ☐ -Arch
Yes ☐ No ■ - Brackets
Yes ☐ No ■ - Decorative Columns
Yes ■ No ☐ -Vertical Lines
Yes ■ No ☐ - Horizontal line
Yes ☐ No ■ - Plaster
Yes ■ No ☐ - Stone cut
Other ornamentation:
There is curved form part in façade

Roof Type

■ Flat roof
☐ Gambrel roof
☐ Hipped roof
Roof line :
☐ Simple ■ With ornamentation
There is stone canopy in sky line

Façade Material

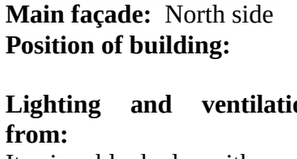
■ Stone ☐ Brick
☐ Glass ☐ Steel
☐ Plaster ☐ Composite
☐ Wood

Façade Color

■ White ☐ Black
■ Red ☐ Blue
☐ Yellow ☐ Olive
Green
☐ Brown ☐ Pink
☐ Cream
Other Colors:

climate

■ **Cold and dry**
☐ **Moderate and humid**



Main façade: North side
Position of building:

Lighting and ventilation from:
It is blocked with one neighborhoods units in west and east side is street. The main façade is located in south side and there is privet yard in south
■ North
■ South
☐ West
☐ East

System and Structure:
■ Reinforced concrete
☐ Skeleton system

Compatible Local values check Result :
Climate Conditions ■ Yes ☐ No
Applied Material ■ Yes ☐ No
Ornamentation ☐ Yes ■ No.

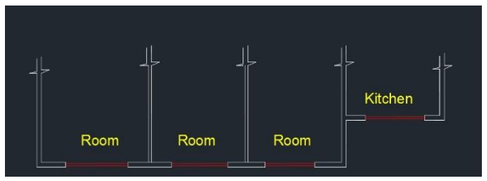
Inventory form: 9

General information

Name and Number:
Address: No 9, Maryam Ave. Chizari St. Pasdaran St. Tehran. Iran
House Type: Apartment ■
Detached □
Period of building:2000-2010

Site Layout

Plan (Behind Façade)



Layout Organization:
Yes ■ No □ -Room
Yes □ No ■ -Hall
Yes □ No ■ -Veranda
Yes □ No ■ -Service area
Yes ■ No □ -Kitchen
Yes □ No ■ -Staircase

Elevation (Street View)

Elevation (Sides View): Yes ■ No □

Façade Characteristics

Door
Entrance :
Yes ■ No □ - Emphasized
Material: Metal
Color: black
Decorated by short false celling above entrance but without ornamentation
Parking Door: Yes ■ No □

Windows
Shape: Rectangular with repetitive sizes
Frame color: Black
Decorated: By rectangular lintel plaster around windows

Balcony
Yes ■ No □

Ornamentation
Yes □ No ■ - Shutter
Yes □ No ■ -Arch
Yes □ No ■ - Brackets
Yes □ No ■ - Decorative Columns
Yes ■ No □ -Vertical Lines
Yes □ No ■ - Horizontal line
Yes □ No ■ - Plaster
Yes ■ No □ - Stone cut
Other ornamentation:

Roof Type
■ Flat roof
□ Slopping roof
□ Dome roof
Roof line :
■ Simple □ With ornamentation

Façade Material
■ Stone □ Brick
□ Glass □ Steel
■ Plaster □ Composite
□ Wood

Façade Color
□ White □ Black
□ Red □ Blue
□ Yellow □ Olive
Green
□ Brown ■ Pink
■ Cream
Other Colors:

climate
■ **Cold and dry**
□ **Moderate and humid**

Main façade: North side
Position of building:

It is blocked with two neighborhoods units in west and east sides. The main façade is located in South side and there is privet yard in North

Lighting and ventilation from:
■ North
■ South
□ West
■ East

System and Structure:
■ Reinforced concrete
□ Skeleton system

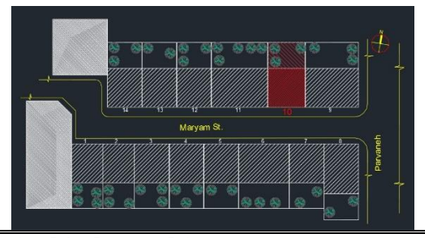
Compatible Local values check Result :
Climate Conditions ■ Yes □ No
Applied Material ■ Yes □ No
Ornamentation ■ Yes □ No.

Inventory form: 10

General information

Name and Number:
Address: No10, Maryam Ave. Chizari St. Pasdaran St. Tehran. Iran
House Type: Apartment ■
Detached □
Period of building:1960-1970

Site Layout



Plan (Behind Façade)

Layout Organization:
Yes ■ No □ -Room
Yes ■ No □ -Hall
Yes □ No ■ -Veranda
Yes □ No ■ -Service area
Yes ■ No □ -Kitchen
Yes □ No ■ -Staircase

Elevation (Street View)

Elevation (Sides View): Yes □ **No** ■

Façade Characteristics

Door

Entrance :
Yes ■ No □ - Emphasized
Material: Metal
Color: white
Decorated by short false celling above entrance but without ornamentation just sh

Parking Door: Yes ■ No

Windows

Shape: Rectangular with repetitive sizes and aluminum fences in floors
Frame color: White
Decorated:

Balcony

Yes ■ No □

Ornamentation

Yes ■ No □ - Shutter
Yes □ No ■ -Arch
Yes □ No ■ - Brackets
Yes □ No ■ - Decorative Columns
Yes ■ No □ -Vertical Lines
Yes □ No ■ - Horizontal line
Yes □ No ■ - Plaster
Yes □ No ■ - Stone cut
Other ornamentation:

Roof Type

■ Flat roof
□ Slopping roof
□ Dome roof
Roof line :
■ Simple □ With ornamentation

Façade Material

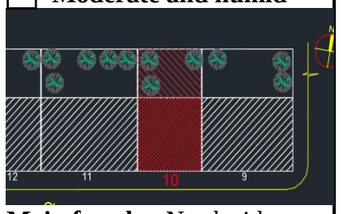
□ Stone ■ Brick
□ Glass □ Steel
□ Plaster □ Composite
□ Wood

Façade Color

□ White □ Black
□ Red □ Blue
□ Yellow □ Olive
Green
■ Brown □ Pink
□ Cream
Other Colors:

climate

■ **Cold and dry**
□ **Moderate and humid**



Main façade: North side
Position of building:

It is blocked with two neighborhoods units in west and east sides. The main façade is located in South side and there is privet yard in North

Lighting and ventilation from:
■ North
■ South
□ West
□ East

System and Structure:
■ Reinforced concrete
□ Skeleton system

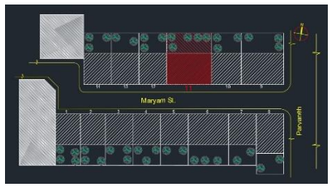
Compatible Local values check Result :
Climate Conditions ■ Yes □ No
Applied Material ■ Yes □ No
Ornamentation ■ Yes □ No.

Inventory form: 11

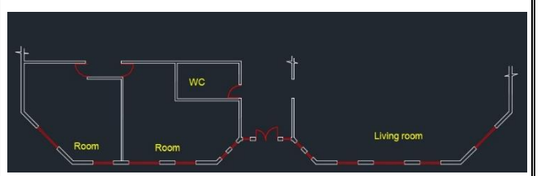
General information

Name and Number:
Address: No 11, Maryam Ave. Chizari St. Pasdaran St. Tehran. Iran
House Type: Apartment ☐
Detached ■
Period of building:1960-1970

Site Layout

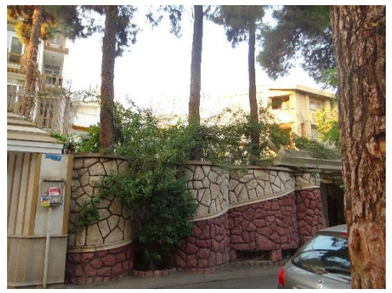


Plan (Behind Façade)



Layout Organization:
Yes ■ No ☐ -Room
Yes ■ No ☐ -Hall
Yes ☐ No ■ -Veranda
Yes ☐ No ■ -Service area
Yes ☐ No ■ -Kitchen
Yes ☐ No ■ -Staircase

Elevation (Street View)



Elevation (Sides View): Yes ☐ **No** ■

Façade Characteristics

Door

Entrance :
Yes ■ No ☐ - Emphasized
Material: Metal
Color: white
Decorated by short false celling above entrance but without ornamentation just shows the name of apartment

Parking Door: Yes ☐ No ■
There is not specific door for parking,

Windows

Shape: Rectangular and arched with different sizes
Frame color: White
Decorated: By rectangular lintel plaster around windows

Balcony

Yes ■ No ☐
In two sides with cement enclosure

Ornamentation

Yes ■ No ☐ - Shutter
Yes ■ No ☐ -Arch
Yes ☐ No ■ - Brackets
Yes ■ No ☐ - Decorative Columns
Yes ■ No ☐ -Vertical Lines
Yes ☐ No ■ - Horizontal line
Yes ■ No ☐ - Plaster
Yes ☐ No ■ - Stone cut
Other ornamentation:
Lots of inharmonic ornamentation

Roof Type

☐ Flat roof
☐ slopping roof
■ Dome roof
Roof line :
☐ Simple ■ With Ornamentation

Façade Material

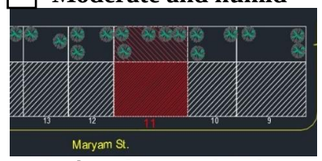
■ Stone ☐ Brick
☐ Glass ☐ Steel
■ Plaster ☐ Composite
☐ Wood

Façade Color

■ White ☐ Black
☐ Red ☐ Blue
☐ Yellow ☐ Olive Green
☐ Brown ☐ Pink
☐ Cream
Other Colors: golden

climate

■ **Cold and dry**
☐ **Moderate and humid**



Main façade: North side
Position of building:

It is blocked with two neighborhoods units in west and east sides. The main façade is located in South side and there is privet yard in North

Lighting and ventilation from:
☐ North
■ South
☐ West
☐ East

System and Structure:
■ Reinforced concrete
☐ Skeleton system

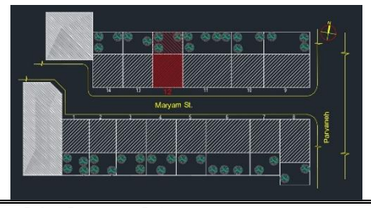
Compatible Local values check Result :
Climate Conditions ■ Yes ☐ No
Applied Material ■ Yes ☐ No
Ornamentation ☐ Yes ■ No. Lots of inharmonic ornamentation

Inventory form: 12

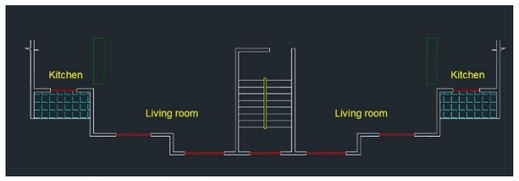
General information

Name and Number:
Address: No 12, Maryam Ave. Chizari St. Pasdaran St. Tehran. Iran
House Type: Apartment ■
Detached □
Period of building:2000-2010

Site Layout

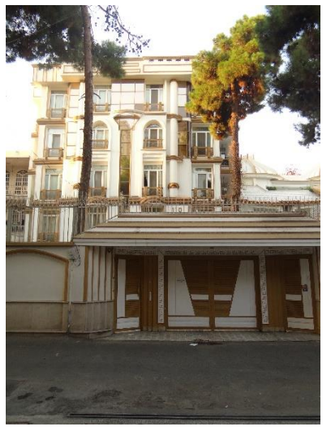


Plan (Behind Façade)



Layout Organization:
Yes □ No ■ -Room
Yes ■ No □ -Hall
Yes □ No ■ -Veranda
Yes □ No ■ -Service area
Yes ■ No □ -Kitchen
Yes ■ No □ -Staircase

Elevation (Street View)



Elevation (Sides View): Yes □ **No** ■

Façade Characteristics

Door

Entrance :
Yes ■ No □ - Emphasized
Material: Metal
Color: white
Decorated by short false celling above entrance

Parking Door: Yes ■ No □

Windows

Shape: Rectangular and arched with repetitive sizes and aluminum fences in floors, arched inner **Frame color:** white
Decorated: By rectangular lintel plaster around windows

Balcony

Yes ■ No □
In two sides with cement enclosure

Ornamentation

Yes ■ No □ - Shutter
Yes ■ No □ -Arch
Yes □ No ■ - Brackets
Yes ■ No □ - Decorative Columns
Yes ■ No □ -Vertical Lines
Yes ■ No ■ - Horizontal line
Yes □ No ■ - Plaster
Yes □ No ■ - Stone cut

Other ornamentation:
Just it has used cement shaped enclosure in front of balconies

Roof Type

■ Flat roof
□ Sloppingl roof
□ Dome roof

Roof line :
□ Simple ■ With ornamentation

Façade Material

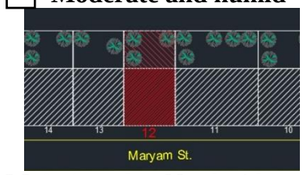
■ Stone □ Brick
□ Glass □ Steel
■ Plaster □ Composite
□ Wood

Façade Color

■ White □ Black
□ Red □ Blue
□ Yellow □ Olive Green
□ Brown □ Pink
□ Cream
Other Colors: **Gold**

climate

■ **Cold and dry**
□ **Moderate and humid**



Main façade: North side
Position of building:

It is blocked with two neighborhoods units in west and east sides. The main façade is located in South side and there is privet yard in North

Lighting and ventilation from:
■ North
■ South
□ West
□ East

System and Structure:
■ Reinforced concrete
□ Skeleton system

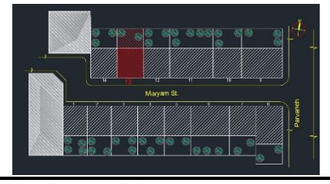
Compatible Local values check Result :
Climate Conditions ■ Yes □ No
Applied Material ■ Yes □ No
Ornamentation □ Yes ■ No.

Inventory form: 13

General information

Name and Number:
Address: No 13, Maryam Ave. Chizari St. Pasdaran St. Tehran. Iran
House Type: Apartment ■
Detached □
Period of building:1970-1980

Site Layout



Plan (Behind Façade)

Layout Organization:
Yes □ No ■ -Room
Yes ■ No □ -Hall
Yes □ No ■ -Veranda
Yes □ No ■ -Service area
Yes ■ No □ -Kitchen
Yes ■ No □ -Staircase

Elevation (Street View)

Elevation (Sides View): Yes □ No ■

Façade Characteristics

Door
Entrance :
Yes ■ No □ - Emphasized
Material: Metal
Color: White
Decorated by short false celling above entrance but without ornamentation just shows the name of apartment
Parking Door: Yes ■ No □

Windows
Shape: Rectangular with repetitive sizes and aluminum fences in floors, arched inner division **Frame color:** White
Decorated: by rectangular lintel plaster around windows

Balcony
Yes ■ No □
In two sides with cement enclosure

Ornamentation
Yes ■ No □ - Shutter
Yes ■ No □ -Arch
Yes □ No ■ - Brackets
Yes □ No ■ - Decorative Columns
Yes ■ No □ -Vertical Lines
Yes □ No ■ - Horizontal line
Yes □ No ■ - Plaster
Yes □ No ■ - Stone cut
Other ornamentation:
Just it has used cement shaped enclosure in front of balconies

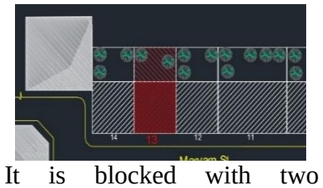
Roof Type
■ Flat roof
□ Slopping roof
□ Dome roof
Roof line :
■ Simple □ with ornamentation

Façade Material
■ Stone □ Brick
□ Glass □ Steel
□ Plaster □ Composite
□ Wood

Façade Color
■ White □ Black
□ Red □ Blue
□ Yellow □ Olive
Green
□ Brown □ Pink
□ Cream
Other Colors:

climate
■ **Cold and dry**
□ **Moderate and humid**

Main façade: North side
Position of building:



It is blocked with two neighborhoods units in west and east sides. The main façade is located in South side and there is privet yard in North
Lighting and ventilation from:
■ North
■ South
□ West
□ East
System and Structure:
□ Reinforced concrete
■ Skeleton system

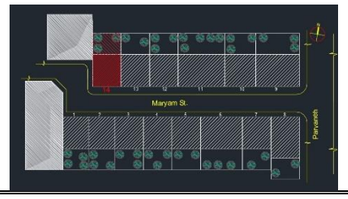
Compatible Local values check Result :
Climate Conditions ■ Yes □ No
Applied Material ■ Yes □ No
Ornamentation ■ Yes □ No.

Inventory form: 14

General information

Name and Number:
Address: No 14, Maryam Ave. Chizari St.
Pasdaran St. Tehran. Iran
House Type: Apartment ■ 2stairs
Detached ☐
Period of building:1970-1980

Site Layout



Plan (Behind Façade)

Layout Organization:
Yes ☐ No ■ -Room
Yes ■ No ☐ -Hall
Yes ☐ No ■ -Veranda
Yes ☐ No ■ -Service area
Yes ■ No ☐ -Kitchen
Yes ☐ No ☐ -Staircase

Elevation (Street View)

Elevation (Sides View): Yes ☐ No ■

Façade Characteristics

Door

Entrance :
Yes ■ No ☐ - Emphasized
Material: Metal
Color: white
Decorated by short false celling above entrance but without ornamentation just shows the name of apartment
Parking Door: Yes ■ No ☐
There is not specific door for parking,

Windows

Shape: Rectangular with repetitive sizes and aluminum fences in floors; arched inner division
Frame color: White
Decorated: Rectangular lintel plaster around windows

Balcony

Yes ■ No ☐
In two sides with cement enclosure

Ornamentation

Yes ■ No ☐ - Shutter
Yes No ■ -Arch
Yes ☐ No ■ - Brackets
Yes ☐ No ■ - Decorative Columns
Yes ■ No ☐ -Vertical Lines
Yes ☐ No ■ - Horizontal line
Yes ☐ No ■ - Plaster
Yes ☐ No ■ - Stone cut
Other ornamentation:
Just it has used cement shaped enclosure in front of balconies

Roof Type

■ Flat roof
☐ Slopping roof
☐ Dome roof
Roof line :
■ Simple ☐ With ornamentation

Façade Material

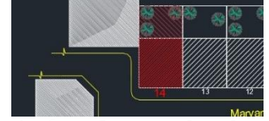
■ Stone ☐ Brick
☐ Glass ☐ Steel
☐ Plaster ☐ Composite
☐ Wood

Façade Color

■ White ☐ Black
☐ Red ☐ Blue
☐ Yellow ☐ Olive
Green
☐ Brown ☐ Pink
☐ Cream
Other Colors:

climate

■ **Cold and dry**
☐ **Moderate and humid**



Main façade: North side
Position of building:

It is blocked with two neighborhoods units in west and east sides. The main façade is located in South side and there is privet yard in North

Lighting and ventilation from:
■ North
■ South
☐ West
☐ East
System and Structure:
■ Reinforced concrete
☐ Skeleton system

Compatible Local values check Result :
Climate Conditions ■ Yes ☐ No
Applied Material ■ Yes ☐ No
Ornamentation ■ Yes ☐ No

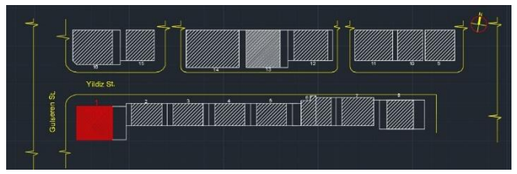
Inventory form: 15

General information

Name and Number:
Address: No 1. Yildiz St. Gulceren st.
Famagusta, North Cyprus

House Type: Apartment ■
Villa □
Period of building: 2005- 2015

Site Layout



Plan (Behind Façade)

Layout Organization:
Yes ■ No □ -Room
Yes ■ No □ -Hall
Yes □ No ■ -Veranda
Yes □ No ■ -Service area
Yes □ No ■ -Kitchen
Yes □ No □ -Staircase

Elevation (Street View)

Elevation (Sides view)

Façade Characteristics

Door

Entrance :
Yes □ No ■ - Emphasized
Material: Metal
Color: White
Decorated by short celling above entrance

Parking Door: Yes □ No ■
There is parking without specific door

Windows

Shape: Rectangular with repetitive sizes
Frame color: Black
Decorated: By triangle shape lintel above window

Balcony

Yes ■ No □
In two sides with metal enclosure

Ornamentation

Yes ■ No □ - Shutter
Yes □ No ■ -Arch
Yes □ No ■ - Brackets
Yes □ No ■ - Decorative Columns
Yes ■ No □ -Vertical Lines
Yes ■ No □ - Horizontal line
Yes □ No ■ - Plaster
Yes □ No ■ - Stone cut

Other ornamentation:
Triangle plaster shape with yellow color above the windows

Roof Type

□ Flat roof
■ Slopping roof
□ Dome roof

Roof line :
■ Simple □ With ornamentation

Façade Material

□ Stone □ Brick
□ Glass □ Steel
■ Plaster □ Composite
□ Wood

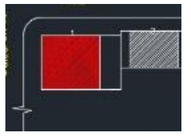
Façade Color

■ White □ Black
□ Red □ Blue
□ Yellow □ Olive
Green
□ Brown □ Pink
Other Colors:

climate

□ **Cold and dry**
■ **Moderate and humid**

Main façade North side
Shape of building:



I has open space from four direction (west side is street , east and south side has back yard and north side is main entrance and façade)

Lighting and ventilation from:
■ North
■ South
■ West
■ East

System and Structure:
■ Reinforced concrete
□ Steel Structure

Compatible Local values check Result :

Climate Conditions	■ Yes	□ No
Applied Material	■ Yes	□ No
Ornamentation	□ Yes	■ No

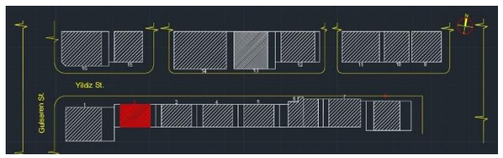
Inventory form: 16

General information

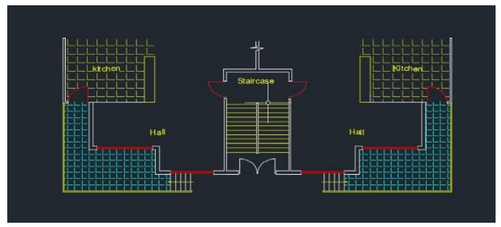
Name and Number:
Address: No 2, Can Apt. Yildiz St. Gulceren st. Famagusta, North Cyprus

House Type: Apartment ■ 3stairs
Villa ☐
Period of building: 1990-2000

Site Layout



Plan (Behind Façade)



Layout Organization:
Yes ☐ No ■ -Room
Yes ■ No ☐ -Hall
Yes ☐ No ■ -Veranda
Yes ☐ No ■ -Service area
Yes ■ No ☐ -Kitchen
Yes ■ No ☐ -Staircase

Elevation (Street View)

Elevation (Sides view)

Façade Characteristics

Door

Entrance :
Yes ■ No ☐ - Emphasized
Material: Metal
Color: White
Decorated by short false celling above entrance but without ornamentation just shows the name of apartment

Parking Door: Yes ☐ No ■
There is not specific door for parking,

Windows

Shape: Rectangular with repetitive sizes and shutters in front of windows
Frame color: white
Decorated: Rectangular plaster lintel around windows

Balcony

Yes ■ No ☐
In two sides with cement enclosure

Ornamentation

Yes ■ No ☐ - Shutter
Yes ☐ No ■ -Arch
Yes ☐ No ■ - Brackets
Yes ☐ No ■ - Decorative Columns
Yes ■ No ☐ -Vertical Lines
Yes ☐ No ■ - Horizontal line
Yes ☐ No ■ - Plaster
Yes ☐ No ■ - Stone cut

Other ornamentation:
Just it has used cement shaped enclosure in front of balconies

Roof Type

■ Flat roof
☐ Slopping roof
☐ Hipped roof

Roof line :
☐ Simple ■ With ornamentation
It has used same enclosure for roof parapet

Façade Material

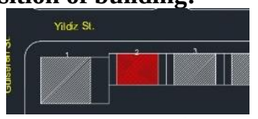
☐ Stone ☐ Brick
☐ Glass ☐ Steel
■ Plaster ☐ Composite
☐ Wood

Façade Color

☐ White ☐ Black
☐ Red ☐ Blue
☐ Yellow ☐ Olive Green
☐ Brown ☐ Pink
■ Cream
Other Colors:

climate

☐ **Cold and dry**
■ **Moderate and humid**
Main façade: North side
Position of building:



I has open space from four direction. In west and east direction, there is two neighborhood unit but according to the climate condition there is open space between the building and those units and south side has back yard and north side is main entrance and façade

Lighting and ventilation from:
■ North
■ South
■ West
■ East

System and Structure:
■ Reinforced concrete
☐ Steel Structure

Compatible Local values check Result :
Climate Conditions ■ Yes ☐ No
Applied Material ■ Yes ☐ No
Ornamentation ■ Yes ☐ No.

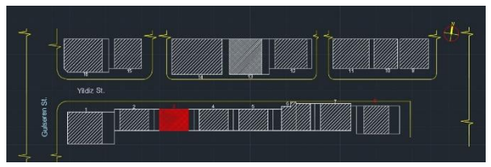
Inventory form: 17

General information

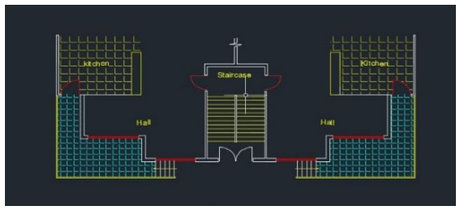
Name and Number:
Address: No 3, Can Apt. Yildiz St. Gulceren st. Famagusta, North Cyprus

House Type: Apartment ■ 3stairs
Villa □
Period of building: 2005- 2015

Site Layout



Plan (Behind Façade)



Layout Organization:
Yes □ No ■ -Room
Yes ■ No □ -Hall
Yes □ No ■ -Veranda
Yes □ No ■ -Service area
Yes ■ No □ -Kitchen
Yes ■ No □ -Staircase

Elevation (Street View)

Elevation (Sides view)

Façade Characteristics

Door

Entrance :
Yes ■ No □ - Emphasized
Material: Metal
Color: White
Decorated by short false celling above entrance but without ornamentation just shows the name of apartment
Parking Door: Yes □ No ■
There is not specific door for parking,

Windows

Shape: Rectangular with repetitive sizes and shutters in front of windows
Frame color: Pink
Decorated: Rectangular plaster lintel around windows

Balcony

Yes ■ No □
In two sides with cement enclosure

Ornamentation

Yes ■ No □ - Shutter
Yes □ No ■ -Arch
Yes □ No ■ - Brackets
Yes □ No ■ - Decorative Columns
Yes ■ No □ -Vertical Lines
Yes □ No ■ - Horizontal line
Yes □ No ■ - Plaster
Yes □ No ■ - Stone cut
Other ornamentation:
Just it has used cement shaped enclosure in front of balconies

Roof Type

■ Flat roof
□ Slopping roof
□ Dome roof
Roof line :
□ Simple ■ With ornamentation

Façade Material

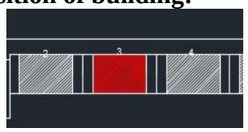
□ Stone □ Brick
□ Glass □ Steel
■ Plaster □ Composite
□ Wood

Façade Color

□ White □ Black
□ Red □ Blue
□ Yellow □ Olive Green
□ Brown ■ Pink
□ Cream
Other Colors:

climate

□ **Cold and dry**
■ **Moderate and humid**
Main façade: North side
Position of building:



I has open space from four direction. In west and east direction, there is two neighborhood unit but according to the climate condition there is open space between the building and those units and south side has back yard and north side is main entrance and façade
Lighting and ventilation from:
■ North
■ South
■ West
■ East
System and Structure:
■ Reinforced concrete
□ Steel Structure

Compatible Local values check Result :
Climate Conditions ■ Yes □ No
Applied Material ■ Yes □ No
Ornamentation ■ Yes □ No

Inventory form: 18

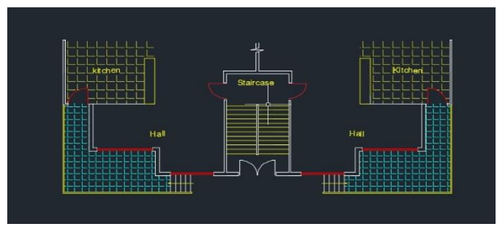
General information

Name and Number:
Address: No 4, Uzun 3 Apt. Yildiz St. Gulceren st. Famagusta, North Cyprus

House Type: Apartment ■ 3stairs
Villa □
Period of building: 2005- 2015

Site Layout

Plan (Behind Façade)



Layout Organization:
Yes □ No ■ -Room
Yes ■ No □ -Hall
Yes □ No ■ -Veranda
Yes □ No ■ -Service area
Yes ■ No □ -Kitchen
Yes ■ No □ -Staircase

Elevation (Street View)

Elevation (Sides view)

Façade Characteristics

Door

Entrance :
Yes ■ No □ - Emphasized
Material: Metal
Color: White
Decorated by short false celling above entrance but without ornamentation just shows the name of apartment

Parking Door: Yes □ No ■
There is not specific door for parking,

Windows

Shape: Rectangular with repetitive sizes and shutters in front of windows
Frame color: White
Decorated: Simple lintel under windows

Balcony

Yes ■ No □
In two sides with cement enclosure

Ornamentation

Yes ■ No □ - Shutter
Yes □ No ■ -Arch
Yes □ No ■ - Brackets
Yes □ No ■ - Decorative Columns
Yes ■ No □ -Vertical Lines
Yes □ No ■ - Horizontal line
Yes □ No ■ - Plaster
Yes □ No ■ - Stone cut

Other ornamentation:
Just it has used cement shaped enclosure in front of balconies

Roof Type

■ Flat roof
□ Slopping roof
□ Dome roof

Roof line :
□ Simple ■ With ornamentation
It has used same enclosure for roof parapet

Façade Material

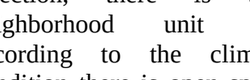
□ Stone □ Brick
□ Glass □ Steel
■ Plaster □ Composite
□ Wood

Façade Color

■ White Black
□ Red □ Blue
□ Yellow □ Olive
Green
□ Brown □ Pink
□ Cream
Other Colors:

climate

□ **Cold and dry**
■ **Moderate and humid**
Main façade: North side
Position of building:



I has open space from four direction. In west and east direction, there is two neighborhood unit but according to the climate condition there is open space between the building and those units and south side has back yard and north side is main entrance and façade

Lighting and ventilation from:
■ North
■ South
■ West
■ East

System and Structure:
■ Reinforced concrete
□ Skeleton system

Compatible Local values check Result :
Climate Conditions ■ Yes □ No
Applied Material ■ Yes □ No
Ornamentation ■ Yes □ No. There is no more ornamentation in façade and it seems colonies building without any specific characteristic

Façade

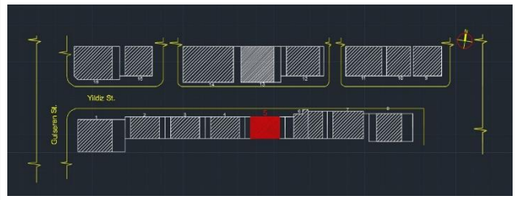
Inventory form: 19

General information

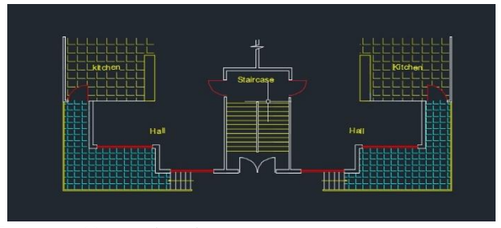
Name and Number:
Address: No 5. Uzun. 4. Apt. Yildiz St. Gulceren st. Famagusta, North Cyprus

House Type: Apartment ■ 3stairs
Villa ☐
Period of building: 2005- 2015

Site Layout



Plan (Behind Façade)



Layout Organization:
Yes ☐ No ■ -Room
Yes ■ No ☐ -Hall
Yes ☐ No ■ -Veranda
Yes ☐ No ■ -Service area
Yes ■ No ☐ -Kitchen
Yes ■ No ☐ -Staircase

Elevation (Street View)

Elevation (Sides view)

Façade Characteristics

Door

Entrance :
Yes ■ No ☐ - Emphasized
Material: Metal
Color: white
Decorated by short false celling above entrance but without ornamentation just shows the name of apartment

Parking Door: Yes ☐ No ■
There is not specific door for parking,

Windows

Shape: Rectangular with repetitive sizes and shutters in front of windows in first floor
Frame color: White
Decorated: Simple lintel under windows

Balcony

Yes ■ No ☐
In two sides with cement enclosure

Ornamentation

Yes ■ No ☐ - Shutter
Yes ■ No ☐ -Arch
Yes ☐ No ■ - Brackets
Yes ☐ No ■ - Decorative Columns
Yes ■ No ☐ -Vertical Lines
Yes ☐ No ■ - Horizontal line
Yes ☐ No ■ - Plaster
Yes ☐ No ■ - Stone cut

Other ornamentation:
Just it has used cement shaped enclosure in front of balconies

Roof Type

■ Flat roof
☐ Slopping roof
☐ Dome roof

Roof line :
■ Simple ☐ With ornamentation

Façade Material

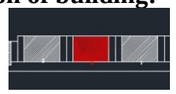
☐ Stone ☐ Brick
☐ Glass ☐ Steel
■ Plaster ☐ Composite
☐ Wood

Façade Color

■ White Black
☐ Red ☐ Blue
☐ Yellow ☐ Olive
Green
☐ Brown ■ Pink
☐ Cream
Other Colors: used olive green and pink in some parts

climate

☐ **Cold and dry**
■ **Moderate and humid**
Main façade: North side
Position of building:



I has open space from four direction. In west and east direction, there is two neighborhood unit but according to the climate condition there is open space between the building and those units and south side has back yard and north side is main entrance and façade

Lighting and ventilation from:
■ North
■ South
■ West
■ East

System and Structure:
■ Reinforced concrete
☐ Skeleton system

Compatible Local values check Result :
Climate Conditions ■ Yes ☐ No
Applied Material ■ Yes ☐ No
Ornamentation ■ Yes ☐ No. There is no more ornamentation in façade and it seems colonies building without any specific characteristic

Façade

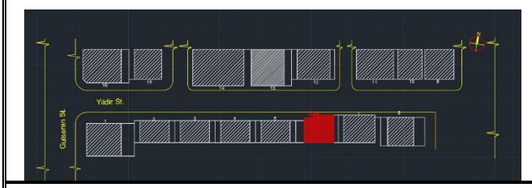
Inventory form: 20

General information

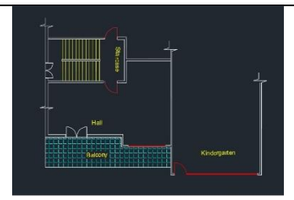
Name and Number:
Address: No 6. Apt. Yildiz St. Gulceren st. Famagusta, North Cyprus

House Type: Apartment ■ 4stairs
Villa □
Period of building: 1980-1990

Site Layout



Plan (Behind Façade)



Layout Organization:
Yes □ No ■ -Room
Yes ■ No □ -Hall
Yes □ No ■ -Veranda
Yes □ No ■ -Service area
Yes ■ No □ -Kitchen
Yes ■ No □ -Staircase
Kindergarten in ground floor

Elevation (Street View)

Elevation (Sides view)

Façade Characteristics

Door

Entrance :
Yes ■ No □ - Emphasized
Material: steel
Color: white
Decorated by short false celling above entrance but without ornamentation just shows the name of apartment

Parking Door: Yes □ No ■
There is not specific door for parking,

Windows

Shape: Rectangular with different sizes
Frame color: White
Decorated: Rectangular plaster lintel around windows

Balcony

Yes ■ No □
In two sides with cement enclosure

Ornamentation

Yes □ No ■ - Shutter
Yes □ No ■ -Arch
Yes □ No ■ - Brackets
Yes □ No ■ - Decorative Columns
Yes ■ No □ -Vertical Lines
Yes □ No ■ - Horizontal line
Yes □ No ■ - Plaster
Yes □ No ■ - Stone cut

Other ornamentation:
Just it has used cement shaped enclosure in front of balconies

Roof Type

■ Flat roof
□ Gambrel roof
□ Hipped roof

Roof line :
■ Simple □ With ornamentation
It has used same enclosure for roof parapet

Façade Material

□ Stone □ Brick
□ Glass □ Steel
■ Plaster □ Composite
□ Wood

Façade Color

■ White Black
□ Red □ Blue
□ Yellow □ Olive
Green
□ Brown □ Pink
□ Cream
Other Colors:

climate

□ **Cold and dry**
■ **Moderate and humid**
Main façade: North side
Position of building:

I has open space from four direction. In west and east direction, there is two neighborhood unit but according to the climate condition there is open space between the building and those units and south side has back yard and north side is main entrance and façade

Lighting and ventilation from:
■ North
■ South
■ West
■ East

System and Structure:
■ Reinforced concrete
□ Skeleton system

Compatible Local values check Result : Climate Conditions ■ Yes □ No
Applied Material ■ Yes □ No
Ornamentation □ Yes ■ No There is no more ornamentation in façade and it seems colonies building without any specific characteristic in Façade. The boundary between kindergarten and residential building is not clears

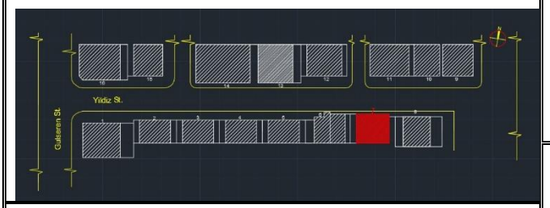
Inventory form: 21

General information

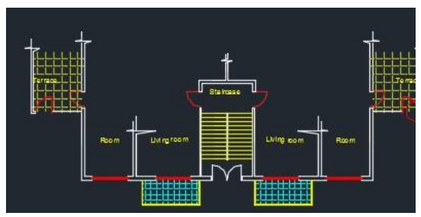
Name and Number:
Address: No 7.Fatush Apt. Yildiz St. Gulceren st. Famagusta, North Cyprus

House Type: Apartment ■ 3stairs
Villa □
Period of building: 1980-1990

Site Layout



Plan (Behind Façade)



Layout Organization:
Yes ■ No □ -Room
Yes ■ No □ -Hall
Yes □ No ■ -Veranda
Yes □ No ■ -Service area
Yes □ No ■ -Kitchen
Yes ■ No □ -Staircase

Elevation (Street View)

Elevation (Sides view)

Façade Characteristics

Door

Entrance :
Yes ■ No □ - Emphasized
Material: Metal
Color: white
Decorated by short false celling above entrance but without ornamentation just shows the name of apartment

Parking Door: Yes □ No ■
There is not specific door for parking,

Windows

Shape: Rectangular with repetitive sizes
Frame color: White
Decorated: Simple lintel under windows

Balcony

Yes ■ No □
In two sides with cement enclosure

Ornamentation

Yes □ No ■ - Shutter
Yes □ No ■ -Arch
Yes □ No ■ - Brackets
Yes □ No ■ - Decorative Columns
Yes ■ No □ -Vertical Lines
Yes □ No ■ - Horizontal line
Yes □ No ■ - Plaster
Yes □ No ■ - Stone cut

Other ornamentation:
Just it has used cement shaped enclosure in front of balconies

Roof Type

■ Flat roof
□ Slopping roof
□ Dome roof

Roof line :
■ Simple □ With ornamentation

Façade Material

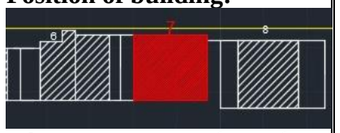
□ Stone □ Brick
□ Glass □ Steel
■ Plaster □ Composite
□ Wood

Façade Color

■ White Black
□ Red □ Blue
□ Yellow ■ Olive
Green
□ Brown □ Pink
□ Cream
Other Colors:

climate

□ **Cold and dry**
■ **Moderate and humid**
Main façade: North side
Position of building:



I has open space from four direction. In west and east direction, there is two neighborhood unit but according to the climate condition there is open space between the building and those units and south side has back yard and north side is main entrance and façade

Lighting and ventilation from:
■ North
■ South
■ West
■ East

System and Structure:
■ Reinforced concrete
□ Skeleton system

Compatible Local values check Result :
Climate Conditions ■ Yes □ No
Applied Material ■ Yes □ No
Ornamentation ■ Yes □ No. There is no more ornamentation in façade and it seems colonies building without any specific characteristic in Façade

Inventory form: 22

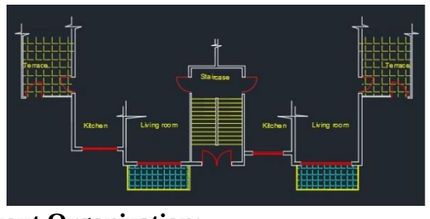
General information

Name and Number:
Address: No 8. Yildiz St. Gulceren st.
Famagusta, North Cyprus

House Type: Apartment ■ 4stairs
Villa ☐
Period of building: 2005- 2015

Site Layout

Plan (Behind Façade)



Layout Organization:

Yes ☐ No ■ -Room
Yes ■ No ☐ -Hall
Yes ☐ No ■ -Veranda
Yes ☐ No ■ -Service area
Yes ■ No ☐ -Kitchen
Yes ■ No ☐ -Staircase

Elevation (Street View)

Elevation (Sides view)

Façade Characteristics

Door

Entrance :
Yes ■ No ☐ - Emphasized
Material: Metal
Color: White
Decorated by short false celling above entrance but without ornamentation just shows the name of apartment

Parking Door: Yes ☐ No ■
There is not specific door for parking,

Windows

Shape: Rectangular with repetitive sizes
Frame color: White
Decorated: Simple lintel under windows

Balcony

Yes ■ No ☐
In two sides with cement enclosure

Ornamentation

Yes ■ No ☐ - Shutter
Yes ☐ No ☐ -Arch
Yes ☐ No ■ - Brackets
Yes ☐ No ■ - Decorative Columns
Yes ■ No ☐ -Vertical Lines
Yes ☐ No ■ - Horizontal line
Yes ☐ No ■ - Plaster
Yes ☐ No ■ - Stone cut

Other ornamentation:
Just it has used cement shaped enclosure in front of balconies

Roof Type

■ Flat roof
☐ Slopping roof
☐ Dome roof

Roof line :
☐ Simple ■ With ornamentation
It has used same enclosure for roof parapet

Façade Material

☐ Stone ☐ Brick
☐ Glass ☐ Steel
■ Plaster ☐ Composite
☐ Wood

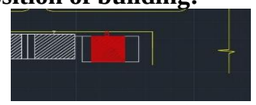
Façade Color

■ White Black
☐ Red ☐ Blue
■ Yellow ☐ Olive
Green
☐ Brown ☐ Pink
☐ Cream
Other Colors:

climate

☐ **Cold and dry**
■ **Moderate and humid**

Main façade: North side
Position of building:



I has open space from four direction. In west and east direction, there is one neighborhood unit but according to the climate condition there is open space between the building and those units and south side has back yard and north side is main entrance and façade

Lighting and ventilation from:
■ North
■ South
■ West
■ East

System and Structure:
■ Reinforced concrete
☐ Skeleton system

Compatible Local values check Result :

Climate Conditions ■ Yes ☐ No
Applied Material ■ Yes ☐ No
Ornamentation ■ Yes ☐ No. There is no more ornamentation in façade and it seems colonies building without any specific characteristic Façade

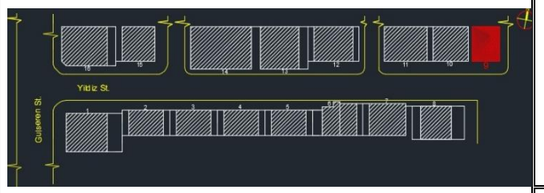
Inventory form: 23

General information

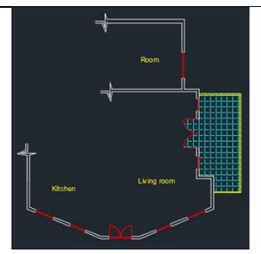
Name and Number:
Address: No 9. Yildiz St. Gulceren st.
Famagusta, North Cyprus

House Type: Apartment ☐
Detached ■
Period of building: 2000- 2005

Site Layout



Plan (Behind Façade)



Layout Organization:

Yes ■ No ☐ -Room
Yes ■ No ☐ -Hall
Yes ☐ No ■ -Veranda
Yes ☐ No ■ -Service area
Yes ■ No ☐ -Kitchen
Yes ☐ No ☐ -Staircase

Elevation (Street View)

Elevation (Sides view)

Façade Characteristics

Door

Entrance :
Yes ☐ No ■ - Emphasized
Material: Metal
Color: Black
Decorated by short celling above entrance

Parking Door: Yes ☐ No ■

Windows

Shape: Rectangular with different sizes and shape in second floor and shutters in front of first floor
Frame color: Black and white
Decorated: Simple lintel under windows

Balcony

Yes ■ No ☐
In two sides with metal enclosure

Ornamentation

Yes ☐ No ■ - Shutter
Yes ☐ No ■ -Arch
Yes ☐ No ■ - Brackets
Yes ■ No ☐ - Decorative Columns
Yes ■ No ☐ -Vertical Lines
Yes ☐ No ■ - Horizontal line
Yes ☐ No ■ - Plaster
Yes ☐ No ■ - Stone cut

Other ornamentation:
Triangle plaster shape with yellow color above the windows

Roof Type

☐ Flat roof
☐ Slopping roof
■ Dome roof

Roof line :
☐ Simple ■ With ornamentation
It has used same enclosure for roof parapet

Façade Material

☐ Stone ☐ Brick
☐ Glass ☐ Steel
■ Plaster ☐ Composite
☐ Wood

Façade Color

☐ White ☐ Black
☐ Red ☐ Blue
☐ Yellow ☐ Olive
Green
■ Brown ☐ Pink
■ Cream
Other Colors:

climate

☐ **Cold and dry**
■ **Moderate and humid**

Main façade North side
Shape of building:

I has open space from four direction (west side is street , east and south side has back yard and north side is main entrance and façade)

Lighting and ventilation from:

■ North
■ South
■ West
■ East

System and Structure:

■ Reinforced concrete
☐ Skeleton system

Compatible Local values check Result :

Climate Conditions ■ Yes ☐ No
Applied Material ■ Yes ☐ No
Ornamentation ■ Yes ☐ No

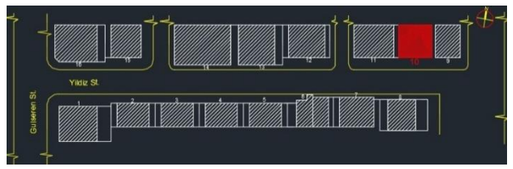
Inventory form: 24

General information

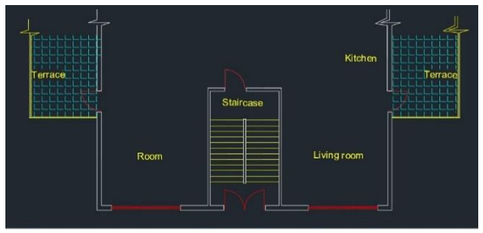
Name and Number:
Address: No 10, Can Apt. Yildiz St. Gulceren st. Famagusta, North Cyprus

House Type: Apartment ■
Detached □
Period of building:2000-2005

Site Layout



Plan (Behind Façade)



Layout Organization:
Yes ■ No □ -Room
Yes ■ No □ -Hall
Yes □ No ■ -Veranda
Yes □ No ■ -Service area
Yes ■ No □ -Kitchen
Yes ■ No □ -Staircase

Elevation (Street View)

Elevation (Sides view)

Façade Characteristics

Door

Entrance :
Yes ■ No □ - Emphasized
Material: Wood
Color: Dark brown
Decorated by short false celling above entrance but without ornamentation just shows the name of apartment

Parking Door: Yes □ No ■
There is not specific door for parking,

Windows

Shape: Vertical, rectangular with repetitive sizes
Color: White
Decoration : Specific triangle shape above windows

Balcony

Yes ■ No □
In two sides with cement enclosure

Ornamentation

Yes ■ No □ - Shutter
Yes □ No ■ -Arch
Yes □ No ■ - Brackets
Yes □ No ■ - Decorative Columns
Yes ■ No □ -Vertical Lines
Yes □ No ■ - Horizontal line
Yes □ No ■ - Plaster
Yes □ No ■ - Stone cut

Other ornamentation:
Just it has used cement shaped above entrance

Roof Type

■ Flat roof
□ Slopping roof
□ Dome roof

Roof line :
■ Simple □ With ornamentation

Façade Material

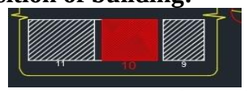
□ Stone □ Brick
□ Glass □ Steel
■ Plaster □ Composite
□ Wood

Façade Color

■ White Black
□ Red □ Blue
□ Yellow □ Olive
Green
□ Brown ■ Pink
□ Cream
Other Colors:

climate

□ **Cold and dry**
■ **Moderate and humid**
Main façade: North side
Position of building:



I has open space from four direction. In west and east direction, there is two neighborhood unit but according to the climate condition there is open space between the building and those units and south side has back yard and north side is main entrance and façade

Lighting and ventilation from:
■ North
■ South
■ West
□ East

System and Structure:
■ Reinforced concrete
□ Skeleton system

Compatible Local values check Result :
Climate Conditions ■ Yes □ No
Applied Material ■ Yes □ No
Ornamentation ■ Yes □ No. There is no more ornamentation in façade and it seems colonies building without any specific characteristic

Façade

Inventory form: 25

General information

Name and Number:
Address: No 13 Oncel Apt. Yildiz St. Gulceren st. Famagusta, North Cyprus

House Type: Apartment ■ 3stairs
Detached ☐
Period of building: 2000- 2005

Site Layout

Plan (Behind Façade)

Layout Organization:
Yes ■ No ☐ -Room
Yes ■ No ☐ -Hall
Yes ☐ No ■ -Veranda
Yes ☐ No ■ -Service area
Yes ☐ No ■ -Kitchen
Yes ■ No ☐ -Staircase

Elevation (Street View)

Elevation (Sides view)

Façade Characteristics

Door

Entrance :
Yes ■ No ☐ - Emphasized
Material: Glass
Color: Brown frame
Decorated by short false celling above entrance but without ornamentation just shows the name of apartment

Parking Door: Yes ☐ No ■
There is not specific door for parking,

Windows

Shape: Vertical, rectangular with repetitive sizes and shutter in front of windows
Frame color: Black
Decorated: By rectangular plaster around windows

Balcony

Yes ■ No ☐
In two sides with cement enclosure

Ornamentation

Yes ■ No ☐ - Shutter
Yes ■ No ☐ -Arch
Yes ☐ No ■ - Brackets
Yes ☐ No ■ - Decorative Columns
Yes ■ No ☐ -Vertical Lines
Yes ☐ No ■ - Horizontal line
Yes ☐ No ■ - Plaster
Yes ☐ No ■ - Stone cut

Other ornamentation:
Just it has used cement shaped enclosure in front of balconies

Roof Type

■ Flat roof
☐ Slopping roof
☐ Dome roof:
☐ Simple ■ With ornamentation
It has used same e

Façade Material

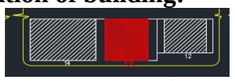
☐ Stone ☐ Brick
☐ Glass ☐ Steel
■ Plaster ☐ Composite
☐ Wood

Façade Color

☐ White Black
☐ Red ☐ Blue
☐ Yellow ☐ Olive
Green
■ Brown ☐ Pink
■ Cream
Other Colors: used olive green and pink in some parts

climate

☐ **Cold and dry**
■ **Moderate and humid**
Main façade: North side
Position of building:



I has open space from four direction. In west and east direction, there is two neighborhood unit but according to the climate condition there is open space between the building and those units and south side has back yard and north side is main entrance and façade

Lighting and ventilation from:
■ North
■ South
■ West
■ East

System and Structure:
■ Reinforced concrete
☐ Skeleton system

Compatible Local values check Result :

Climate Conditions ■ Yes ☐ No
Applied Material ■ Yes ☐ No
Ornamentation ■ Yes ☐ No. There is no more ornamentation in façade and it seems colonies building without any specific characteristic

in

Façade

Inventory form: 27

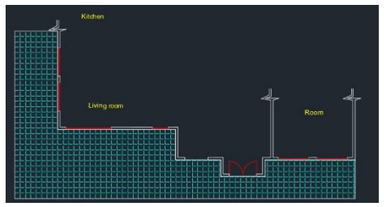
General information

Name and Number:
Address: No 11. Yildiz St. Gulceren st. Famagusta, North Cyprus

House Type: Apartment ☐
Detached ■
Period of building: 2005-2013

Site Layout

Plan (Behind Façade)



Layout Organization:
Yes ■ No ☐ -Room
Yes ■ No ☐ -Hall
Yes ☐ No ■ -Veranda
Yes ☐ No ■ -Service area
Yes ☐ No ■ -Kitchen
Yes ☐ No ■ -Staircase

Elevation (Street View)

Elevation (Sides view)

Façade Characteristics

Door

Entrance :
Yes ■ No ☐ - Emphasized
Material: wood
Color: brown
Decorated by short false celling above entrance but without ornamentation just shows the name of apartment

Parking Door: Yes ☐ No ■
There is not specific door for parking,

Windows

Shape: Vertical, rectangular with repetitive sizes and difference inner division
Frame color: White
Decorated: simple plaster lintel under windows

Balcony

Yes ■ No ☐
In two sides with cement enclosure

Ornamentation

Yes ☐ No ■ - Shutter
Yes ☐ No ■ -Arch
Yes ☐ No ■ - Brackets
Yes ☐ No ■ - Decorative Columns
Yes ■ No ☐ -Vertical Lines
Yes ■ No ☐ - Horizontal line
Yes ☐ No ■ - Plaster
Yes ■ No ☐ - Stone cut

Other ornamentation:
Just it has used cement shaped enclosure in front of balconies

Roof Type

■ Flat roof
☐ Slopping roof
☐ Dome roof

Roof line :
■ Simple ☐ With ornamentation

Façade Material

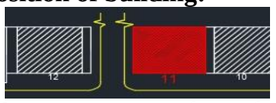
☐ Stone ☐ Brick
☐ Glass ☐ Steel
■ Plaster ☐ Composite
☐ Wood

Façade Color

☐ White ☐ Black
☐ Red ☐ Blue
☐ Yellow ☐ Olive
Green
☐ Brown ■ Pink
☐ Cream
Other Colors:

climate

☐ **Cold and dry**
■ **Moderate and humid**
Main façade: North side
Position of building:



I has open space from four direction. In west and east direction, there is two neighborhood unit but according to the climate condition there is open space between the building and those units and south side has back yard and north side is main entrance and façade

Lighting and ventilation from:
■ North
■ South
■ West
■ East

System and Structure:
■ Reinforced concrete
☐ Skeleton system

Compatible Local values check Result :
Climate Conditions ■ Yes ☐ No
Applied Material ■ Yes ☐ No
Ornamentation ■ Yes ☐ No. free plan consists of modern building characteristics with material texture.

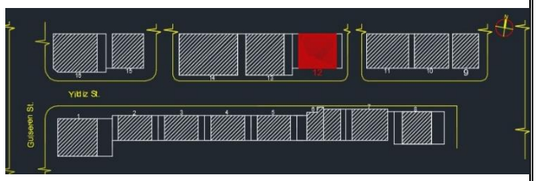
Inventory form: 28

General information

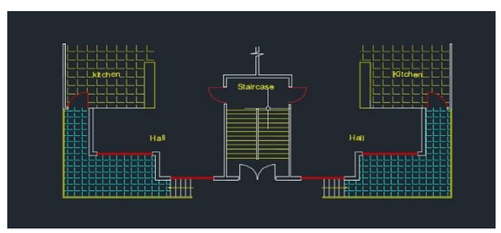
Name and Number:
Address: No 12, Ozaner Apt. Yildiz St. Gulceren st. Famagusta, North Cyprus

House Type: Apartment ■ 3stairs
Detached □
Period of building: 1990-2000

Site Layout



Plan (Behind Façade)



Layout Organization:
Yes □ No ■ -Room
Yes ■ No □ -Hall
Yes □ No ■ -Veranda
Yes □ No ■ -Service area
Yes ■ No □ -Kitchen
Yes ■ No □ -Staircase

Elevation (Street View)

Elevation (Sides view)

Façade Characteristics

Door
Entrance :
Yes ■ No □ - Emphasized
Material: Metal
Color: White
Decorated by short false celling above entrance but without ornamentation just shows the name of apartment

Parking Door: Yes □ No ■
There is not specific door for parking,

Windows
Shape: Rectangular with repetitive sizes and shutters in front of windows
Frame color: white
Decorated: Rectangular plaster lintel around windows

Balcony
Yes ■ No □
In two sides with cement enclosure

Ornamentation

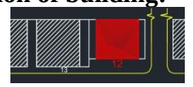
Yes ■ No □ - Shutter
Yes □ No ■ -Arch
Yes □ No ■ - Brackets
Yes □ No ■ - Decorative Columns
Yes ■ No □ -Vertical Lines
Yes □ No ■ - Horizontal line
Yes □ No ■ - Plaster
Yes □ No ■ - Stone cut
Other ornamentation:
One Arch near roof line

Roof Type
■ Flat roof
□ Slopping roof
□ Dome roof
Roof line :
■ Simple □ With ornamentation

Façade Material
□ Stone □ Brick
□ Glass □ Steel
■ Plaster □ Composite
□ Wood

Façade Color
□ White □ Black
□ Red □ Blue
□ Yellow □ Olive Green
□ Brown ■ Pink
□ Cream
Other Colors: two color tonalities of pink

climate
□ **Cold and dry**
■ **Moderate and humid**
Main façade: North side
Position of building:



I has open space from four direction. In west and east direction, there is one neighborhood unit but according to the climate condition there is open space between the building and those units and south side has back yard and north side is main entrance and façade
Lighting and ventilation from:
■ North
■ South
■ West
■ East
System and Structure:
■ Reinforced concrete
□ Skeleton system

Compatible Local values check Result :
Climate Conditions ■ Yes □ No
Applied Material ■ Yes □ No
Ornamentation ■ Yes □ No. There is no more ornamentation in façade and it seems colonies building without any specific characteristic
Façade

Inventory form: 26

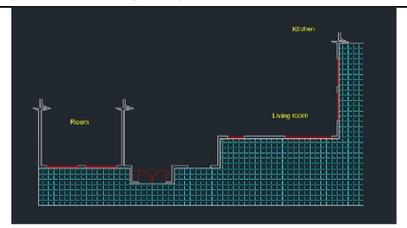
General information

Name and Number:
Address: No 6. Apt. Yildiz St. Gulceren st. Famagusta, North Cyprus

House Type: Apartment ☐
Detached ■
Period of building:2005-2013

Site Layout

Plan (Behind Façade)



Layout Organization:
Yes ■ No ☐ -Room
Yes ■ No ☐ -Hall
Yes ☐ No ■ -Veranda
Yes ☐ No ■ -Service area
Yes ☐ No ■ -Kitchen
Yes ☐ No ■ -Staircase

Elevation (Street View)

Elevation (Sides view)

Façade Characteristics

Door

Entrance :
Yes ■ No ☐ - Emphasized
Material: wood
Color: Brown
Decorated by short false celling above entrance but without ornamentation just shows the name of apartment

Parking Door: Yes ■ No ☐
There is not specific door for parking,

Windows

Shape: Rectangular with repetitive sizes and shutters in front of windows
Frame color: White
Decorated: Simple lintel under and upper windows

Balcony

Yes ■ No ☐
In two sides with cement enclosure

Ornamentation

Yes ■ No ☐ - Shutter
Yes ☐ No ■ -Arch
Yes ☐ No ■ - Brackets
Yes ■ No ☐ - Decorative Columns
Yes ■ No ☐ -Vertical Lines
Yes ■ No ☐ - Horizontal line
Yes ☐ No ■ - Plaster
Yes ☐ No ■ - Stone cut

Other ornamentation:
Just it has used cement shaped enclosure in front of balconies

Roof Type

☐ Flat roof
■ Slopping roof
☐ Dome roof

Roof line :
☐ Simple ■ With ornamentation
It has used same enclosure for roof parapet

Façade Material

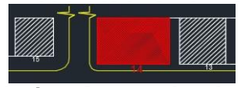
☐ Stone ☐ Brick
☐ Glass ☐ Steel
■ Plaster ☐ Composite
☐ Wood

Façade Color

■ White Black
☐ Red ☐ Blue
☐ Yellow ☐ Olive
Green
☐ Brown ☐ Pink
☐ Cream
Other Colors:

climate

☐ **Cold and dry**
■ **Moderate and humid**



Main façade: North side
Position of building:

I has open space from four direction. In west and east direction, there is two neighborhood unit but according to the climate condition there is open space between the building and those units and south side has back yard and north side is main entrance and façade

Lighting and ventilation from:
■ North
■ South
■ West
■ East

System and Structure:
■ Reinforced concrete
☐ Skeleton system

Compatible Local values check Result :
Climate Conditions ■ Yes ☐ No
Applied Material ■ Yes ☐ No
Ornamentation ■ Yes ☐ No. This building matches with modern characters.

Inventory form: 29

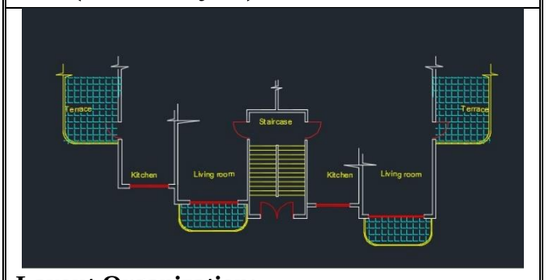
General information

Name and Number:
Address: No 15. Yildiz St. Gulceren st. Famagusta, North Cyprus

House Type: Apartment ■
Detached ☐
Period of building: 2005-2013

Site Layout

Plan (Behind Façade)

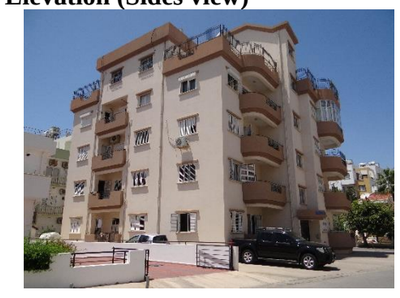


Layout Organization:

Yes ☐ No ■ -Room
Yes ■ No ☐ -Hall
Yes ☐ No ■ -Veranda
Yes ☐ No ■ -Service area
Yes ■ No ☐ -Kitchen
Yes ■ No ☐ -Staircase

Elevation (Street View)

Elevation (Sides view)



Façade Characteristics

Door

Entrance :
Yes ■ No ☐ - Emphasized
Material: Metal and glass
Color: Black
Decorated by short false celling above entrance but without ornamentation just shows the name of apartment

Parking Door: Yes ☐ No ■
There is not specific door for parking,

Windows

Shape: Rectangular with repetitive sizes and shutters in front of windows
Frame color: White
Decorated: Simple lintel under and upper windows

Balcony

Yes ■ No ☐
In two sides with cement enclosure

Ornamentation

Yes ■ No ☐ - Shutter
Yes ■ No ☐ -Arch
Yes ☐ No ■ - Brackets
Yes ☐ No ■ - Decorative Columns
Yes ■ No ☐ -Vertical Lines
Yes ☐ No ■ - Horizontal line
Yes ☐ No ■ - Plaster
Yes ☐ No ■ - Stone cut

Other ornamentation:
Just it has used cement shaped enclosure in front of balconies

Roof Type

■ Flat roof
☐ Slopping roof
☐ Dome roof

Roof line :
■ Simple ☐ With ornamentation

Façade Material

☐ Stone ☐ Brick
☐ Glass ☐ Steel
■ Plaster ☐ Composite
☐ Wood

Façade Color

■ White Black
☐ Red ☐ Blue
☐ Yellow ☐ Olive
Green
■ Brown ☐ Pink
☐ Cream
Other Colors:

climate

☐ **Cold and dry**
■ **Moderate and humid**
Main façade: North side
Position of building:

I has open space from four direction. In west and east direction, there is two neighborhood unit but according to the climate condition there is open space between the building and those units and south side has back yard and north side is main entrance and façade

Lighting and ventilation from:
■ North
■ South
■ West
■ East

System and Structure:
■ Reinforced concrete
☐ Skeleton system

Compatible Local values check Result :
Climate Conditions ■ Yes ☐ No
Applied Material ■ Yes ☐ No
Ornamentation ■ Yes ☐ No

Inventory form: 30

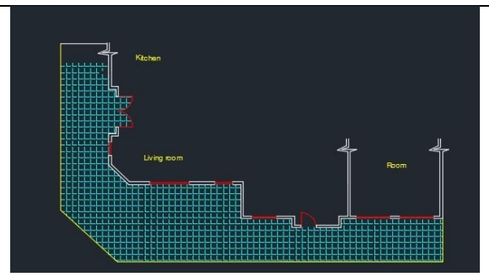
General information

Name and Number:
Address: No 16. Yildiz St. Gulceren st. Famagusta, North Cyprus

House Type: Apartment ☐
Detached ■
Period of building:2005-2013

Site Layout

Plan (Behind Façade)



Layout Organization:

Yes ☐ No ■ -Room
Yes ■ No ☐ -Hall
Yes ☐ No ■ -Veranda
Yes ☐ No ■ -Service area
Yes ■ No ☐ -Kitchen
Yes ■ No ☐ -Staircase

Elevation (Street View)

Elevation (Sides view)

Façade Characteristics

Door

Entrance :
Yes ■ No ☐ - Emphasized
Material: wood
Color: Brown
Decorated by short false celling above entrance but without ornamentation just shows the name of apartment

Parking Door: Yes ■ No ☐
There is gate door for parking

Windows

Shape: Rectangular with different sizes and shape in second floor and shutters in front of windows
Frame color: White
Decorated: Simple lintel under windows

Balcony

Yes ■ No ☐
In two sides with cement enclosure

Ornamentation

Yes ■ No ☐ - Shutter
Yes ☐ No ■ -Arch
Yes ☐ No ■ - Brackets
Yes ☐ No ■ - Decorative Columns
Yes No ■ -Vertical Lines
Yes ☐ No ■ - Horizontal line
Yes ☐ No ■ - Plaster
Yes ☐ No ■ - Stone cut

Other ornamentation:
Just it has used cement shaped enclosure in front of balconies

Roof Type

☐ Flat roof
■ Slopping roof
☐ Dome roof

Roof line :
☐ Simple ■ With ornamentation
It has used same enclosure for roof parapet

Façade Material

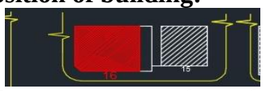
☐ Stone ☐ Brick
☐ Glass ☐ Steel
■ Plaster ☐ Composite
☐ Wood

Façade Color

■ White Black
☐ Red ☐ Blue
☐ Yellow ☐ Olive
Green
☐ Brown ☐ Pink
☐ Cream
Other Colors:

climate

☐ **Cold and dry**
■ **Moderate and humid**
Main façade: North side
Position of building:



I has open space from four direction. In west and east direction, there is two neighborhood unit but according to the climate condition there is open space between the building and those units and south side has back yard and north side is main entrance and façade

Lighting and ventilation from:
■ North
■ South
■ West
■ East

System and Structure:
■ Reinforced concrete
☐ Skeleton system

Compatible Local values check Result :

Climate Conditions ■ Yes ☐ No
Applied Material ■ Yes ☐ No
Ornamentation ■ Yes ☐ No