SELİN LALECİ

HISTORICAL COURTYARD HOUSES IN OLD NICOSIA,

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A THESIS SUBMITTED TO THE GRADUATE SCHOOL OF APPLIED SCIENCES OF NEAR EAST UNIVERSITY

By
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In Partial Fulfilment of the Requirements for the Degree of Master of Science in Architecture

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Approval of Director of Graduate School of Applied Sciences

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We certify this thesis is satisfactory for the award of the degree of Masters of Science in Construction and Architecture

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I hereby declare that all information in this document has been obtained and presented in accordance with academic rules and ethical conduct. I also declare that, as required by these rules and conduct, I have fully cited and referenced all material and results that are not orginal to this work.

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To My Mother Mrs. Rana Meltem Atlı…

ABSTRACT

Historical urban areas are unique settlements in terms of cultural, architectural and historical values. Throughout the history, Cyprus island has been impacted by a number of cultural influences (Byzantine, Lusignan, Venice, Ottoman, British etc…). The transformation of human socio-economic life had reflection on cultural values and this resulted in the formation of urban / rural landscapes. Historically, Cyprus courtyard areas provided space for family and neighbours to socialize. Courtyards are open areas which enclosed by walls or buildings. This research took place in old city of Nicosia, Cyprus. During the surveys courtyard houses within the walled city of Nicosia were determined and investigated for purpose of courtyard uses, courtyard shapes and sizes. In addition, occurance of vegetations within the courtyards have been evaluated. Research results indicated that courtyards are no longer used for their traditional purposes. Also it is determined that, some of the historical houses converted into bussiness premisses (cafe, art gallery, civil society building, etc.). It is necessary to emphasize that educational activities should be carried out in order to conserve the historical area and cultural values for future generations.

Keywords: Traditional houses; courtyard; courtyard gardens; walled city Nicosia; Cyprus

ÖZET

Tarihi kent alanları; kültürel, mimari ve tarihi değerler açısından önemli yerleşim yerlerilerdir. Kıbrıs'ın tarihsel geçmişine bakacak olursak birçok uygarlığın (Bizans, Lüzinyan, Venedik, Osmanlı, İngiliz, vb…) kültürel etkileri gözlemlenmektedir. Değişim içerisinde olan sosyo-ekonomik yaşam kültürel değerler, kentsel / kırsal peyzajı da biçimlendirmektedir. Geçmişten günümüze kadar avlulu evler, aile ve komşuların bütünleşmesi ve sosyalleşmesi için özel alanlar yaratmıştır. Bu araştırma geleneksel tarihi Lefkoşa evleri üzerine gerçekleştirilmiştir. Anketler sırasında, avlu kullanımları, avlu biçimleri ve boyutları bakımından, eski Lefkoşa şehri içindeki avlu evleri belirlenmiş ve araştırılmıştır. İlaveten, avlu alanlarının içerisinde oluşan bitki örtüsü de çalışmada irdelenmiştir. Yapılan sörveyler sonucunda elde edilen veriler göstermiştir ki; tarihi avlular artık geleneksel amaçlar doğrultusunda kullanılmamaktadır. Hatta bazı tarihi binaların özel işletmelere dönüştürüldüğü de belirlenmiştir. (kafeler, sanat galerileri, sivil toplum binaları, vb). Gelecek nesiller için tarihi alanı ve kültürel değerleri korumak için eğitim faaliyetlerinin gerçekleştirilmesi gerektiğini vurgulamak gerekir.

Anahtar Kelimeler: Geleneksel evler; avlular; avlu bahçeleri; surlarla çevrili şehir Lefkoşa; Kıbrıs

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CHAPTER 1
INTRODUCTION

Increase in the need for a living for human beings; has caused individuals to make new meanings to the outdoor living space. The open communal areas within the cities are where societies show their cultural values and social values. Courtyard areas are preferably located in the middle of the buildings. The term `courtyard` defined as a partially enclosed, semi-open, enclosed area. It is a space which planned and arranged according to its` services for certain purposes of individuals. These spaces can be examined from the ecological, aesthetic and functional aspects.

Depending on the geographical location of the country, courtyard designs can be affected by the climatic and cultural characteristics of the region. Therefore, both climate and traditional cultural values play a dominant role on courtyard designs. Courtyards provide physical environment for various social activities; for example religious or cultural events. Residential courtyards on the other hand, provide visual privacy for families, particularly for women. Residential privacy is also needed for a refined life and purity in Islam.

It is known that courtyards are mostly built as inner gardens of historical buildings, being constructed in parallel with the old usage and being converted into a different form of use in order to maintain the continuity of the historical beauty. The design model should take into consideration of climate and should integrate with the city.

This study explains the brief historical and cultural plans of Cypriot houses which influenced by different climatic conditions in relation to the house environment within the Nicosia old city. As a result, according to the evaluations of the users; cultural and heritage values will be assessed.

1.1 Thesis Problem

The dynamic social changes together with positive and negative aspects of physical environment have affected the traditional character of houses in the historical walled city of Nicosia. This fast and unexpected metamorphosts have also reflected to the inner courtyards of the walled-city houses.

The magnificient courtyard spaces of the past, now have reached such a dimension that they threaten both human health and environmental comfort in most parts of the city. The causes of threats due to negative uses of courtyards, together with positive uses have become the main research area in this thesis. The research aimed to find out how traditional Turkish Cypriot houses are protected and how they are used. Another subject that has been researched is the intensity of the use of green space in traditional Cyprus interior courtyards.

Within this framework in this thesis, it was determined that the courtyards were arranged in parallel to the old usage of the building, either as the internal gardens of the historic buildings in the direction of the obtained data or in a different way in order to maintain the continuity of the historical touch. For this purpose, two different house types in the housing type have been examined and compared. The result of the research is examined and it is aimed to provide information in the light of this study.

1.2 Aim of the Study

The aim of this study is to analyse whether occupants use their houses courtyards' in traditional way or not. The study at the same time tries to find out interrelationship among demographic layout of courtyard uses, physical environment of courtyards, functional use of courtyards and also vegetational use of courtyards. Simply, the study aims to catch positive points about the courtyard use and design which may guide future arrangements or developments.

1.3 Limitations of the Study

The study is limited with the selected 15 traditional courtyard houses of Nicosia walled-city. The study is not focused on buildings structures. It is focused on functional–spatial use of courtyards together with their environmental relationship.

1.4 Thesis Overview

The thesis consists of 6 sections, which are used in terms of landscaping and taking into consideration the importance of usage patterns.

Chapter 1: This chapter purpose, scope and method is section described.

Chapter 2: This chapter includes literature review of scientific articles and other academic sources related to the research subject. In addition literature review on existing courtyard houses around the world.

Chapter 3: This chapter proposes a theoretical framework for analyzing existing old historical courtyard houses in Nicosia, Cyprus.

Chapter 4: This chapter includes methodology and data analysis of the study.

Chapter 5: This chapter provides the result and interpratation of the study and presents the barriers in courtyard houses in Nicosia and discussion of the entire research by summarizing the result and answer research questions in courtyard houses in northern part of Nicosia, Cyprus.

Chapter 6: This is the last chapter which includes conclusion and recommendations for future research.

CHAPTER 2
LITERATURE REVIEW

2.1 Definition of "Courtyard" in Architecture

Courtyards are enclosed outdoor spaces which are open to the sky. Abass et al. defined the courtyard as an area without roof, wholy or partly surrounded by walls or buildings. (Abass et al., 2016). For thousands of years courtyards, as a common design feature particularly in houses, have been applied in many parts of the world. Basically, courtyards are used as a meeting place for the users and for other daily particular purposes (Edwards, 2006). Edwards (2006) in his book, "Courtyard housing: Past, Present and Future of the Courtyard", reveals that the courtyards do not belong to a particular period of time in history. It had been always existed. As a plan configuration, the idea of the courtyard stretches back to Neolithic settlements thousands of years ago (Abass et al., 2016).

2.2 Historical Evaluation of Courtyards

Courtyard houses are known as the oldest type of housing. The evolution of the courtyard form across the world, can be observed from excavations at Kahun in Egypt which goes back to 5000 years to the old Chaldean City of Ur before 2000 B.C. (Abass et al., 2016).

The characteristics of the courtyard houses are determined by the environmental features and culture of a particular region. Courtyards as the focal point of the house can be used as an inner garden. Over thousands of years, oldest example of the courtyards can be seen in Sumer and Egypt (Bekleyen and Dalkiliccedil, 2011). Later, in Greece and Rome courtyard houses were seen (Abdulac, 1982).

According to the definition of courtyard houses in architecture; a distinction between form and shape may prove useful. Form refers to the fundamental organization of space (as well as time, meaning and communication). In this regard, changes in shape and / or materials are less fundamental than relationships among domains. Examples based on this distinction, such as New Guinea villages and comparable examples from Amazonian

Brazil, show the relative importance of the shape of houses and central spaces as opposed to their form (the more fundamental organization of space). It follows that a court can be square, rectangular, round or amorphous, and its boundaries can be defined in different ways (Rapoport, 2007). In ancient civilizations, examples of courtyard houses revealed at Ur in Mesopotamia (2000 B.C.) as it is shown in Figure 2.1 (Blaser, 1985).

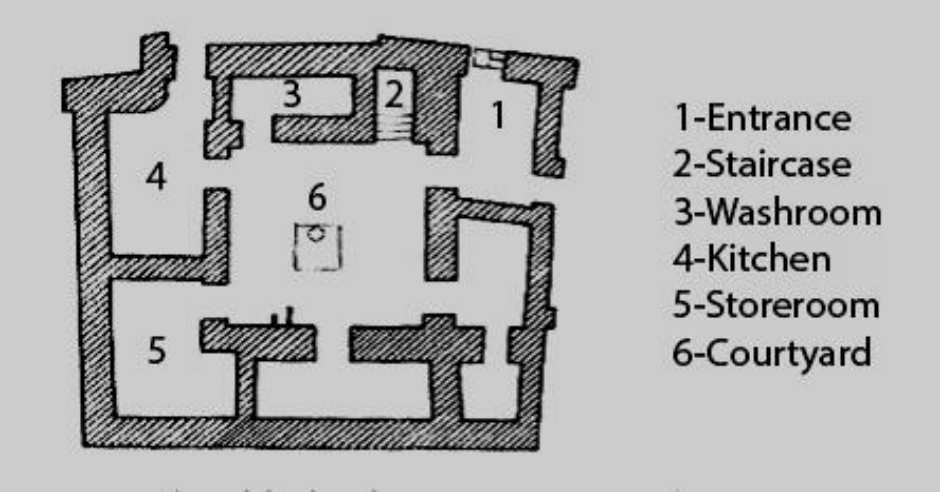


Figure 2.1: The courtyard house plan at Ur, Mesopotamia (Al-Dawoud, 2006)

During classical civilizations period, also known as the classical antiquity, another kind of courtyard design can be seen in Italy at 700 B.C which is called atrium surrounded by rooms. There was a water cistern in the courtyard for collecting the rain water. The atrium provided a private outdoor space for the occupants. The plan of house is shown in Figure 2.2 both classical era of courtyard and atrium.

During the Middle Ages and Renaissance period, by the collapse of the Roman Empire (A.D. 476), courtyard-style dwellings recurred in the Italian Cortile and monastic cloisters. The atrium became common as the main entrance in early Christian churches. In this area, there was a fountain or a cistern used for washing hands before entering the church (Blaser, 1985).

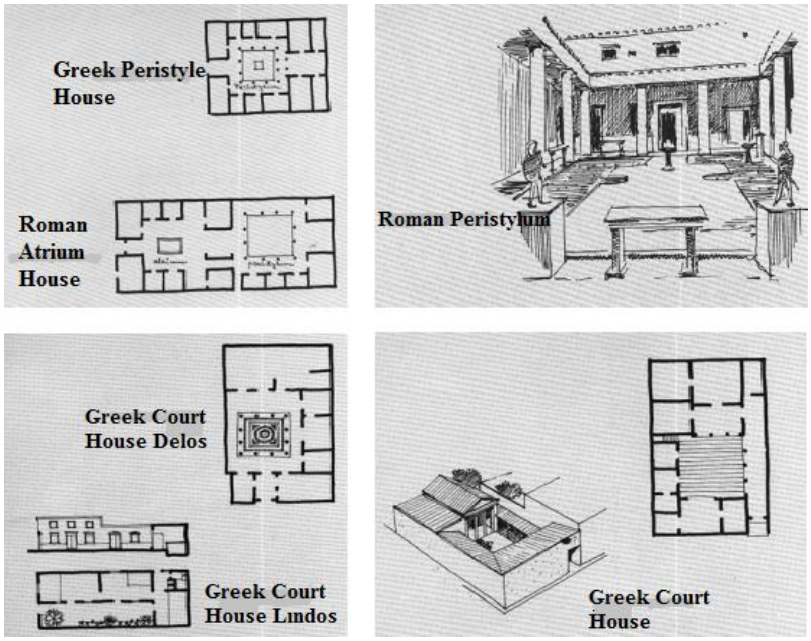


Figure 2.2: Typical courtyard houses that are common during the classical civilization (Schoenauer and Seeman, 1962)

Private courtyards provide isolated areas for women's comfort. Another element in the courtyard design (serdab) emerged in Mesopotamia region. Serdab was used to re-treat cool air to the house. Figure 2.3 shows total six plans of courtyard houses in Morocco (Das, 2006).

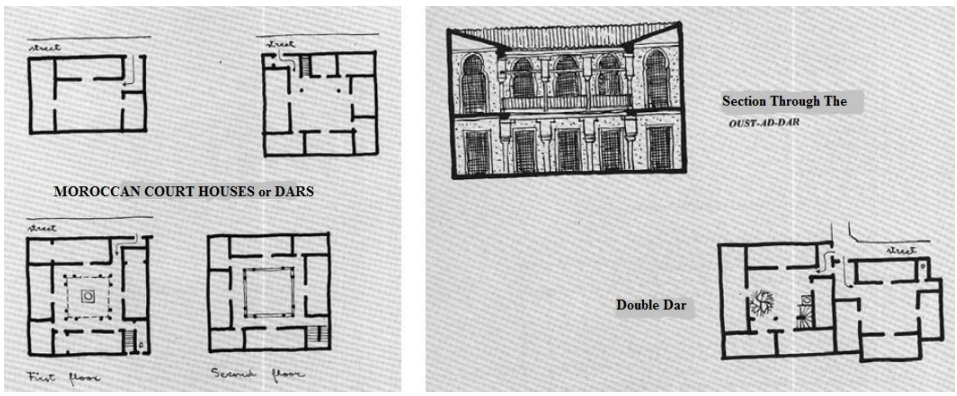


Figure 2.3: Types of courtyard houses in Morocco during middle ages (Schoenauer and Seeman, 1962)

In Modern civilization, the courtyard was first seen in North America. In the same period, it was also appeared in the south California influenced by Spanish-Colonial. After Marcel Breuer's idea of using courtyard for separating the sleeping area from living area, the courtyard type transferred across the United States till the East Coast (Das, 2006).

According to Duncan (1973), single-storey courtyard houses spread throughout Europe; this courtyard type was demanded by the low-income people. Additionally, the first courtyard house was built by Hugo Haring (1928) in the South. Then later, the design turned into an L-shaped plan, which will become popular in England and Germany during 1960s.

2.2.1 Courtyard form and elements

The circular, polygons, rectangular, square as well organic forms have been used through historical evolution of courtyards. The most popular among masses were rectangular or square form due to functionality of the building, limitation of structure innovation and less plasticity of material, due to economical in nature (Gangwar and Kaur, 2016). Although the basic plan of a residential courtyard is usually rectangular or square, it can also be circular or curvilinear.

Through history, this basic plan of the courtyard has been modified to fulfil many environmental features like topography, site, building orientation and function to create new shapes of courtyard such as U, L, T, or Y (Das, 2006; Reynolds, 2002). In addition, the design form of courtyard can be fully enclosed (four sided), semi enclosed (three sided) or in some cases even two sided (Meir et al., 1995).

Figure 2.4: Traditional courtyard plan type urban texture (Özkan et al., 2006)

Orientation of the building, walls and the natural elements of courtyards have been explored as an important architectural elements within each dwelling unit. Factors like building layout, the sun's movement, shading performance, solar gain and wind direction plays an important role in the orientation of the courtyard. Proper orientation is necessary for achieving thermal comfort (Meir et al., 1995).

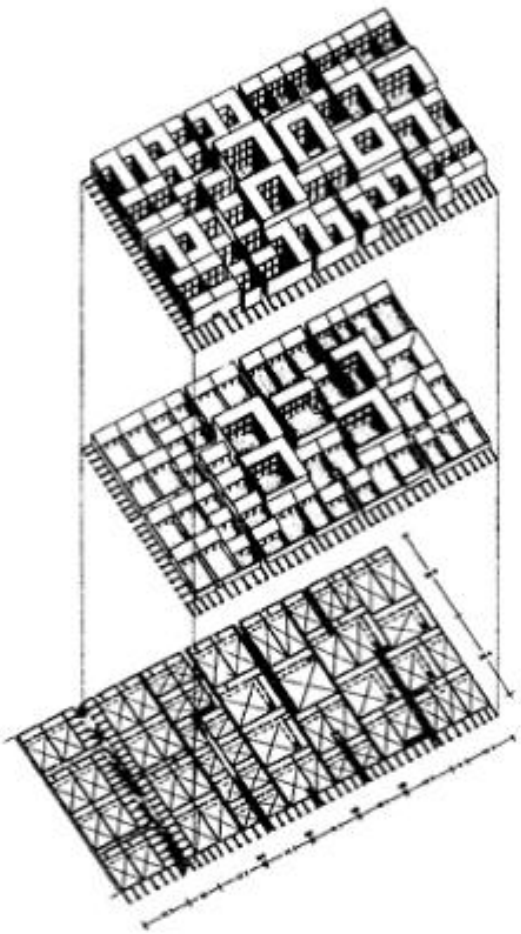


Figure 2.5: Traditional courtyard forms U shape, L shape, Rectangle, square forms (Özkan et al., 2006)

It is found out that, the natural elements like shrubs, trees and flowers within courtyards increase the thermal comfort, at the same time have potential to increase environmental benefits. Thus, when using water, water spray and tent, the internal courtyard and surrounding area become cooler especially during the sunny hours (Almhafdy et al., 2013).

2.3 Literature Review on Courtyard Houses

In this chapter literature review has been carried out on the subject of courtyard houses within the "Middle East Countries". Turkey and Iran have been chosen for literature review, as there were similar researches carried out within those countries.

2.3.1 Traditional courtyard houses of Turkey

Historical environment is a major document which demonstrates and reflects cultural identity. Cultural heritage is the collection of tangible and intangible values arising from human creativity and interaction between societies since the beginning of human life on earth (Celikyay et al., 2007). It is necessary to protect and restore cultural heritage sites and integrate them into the urban environment for sustainability (Celikyay et al., 2010). Anatolia, which hosts many civilizations, has also formed traditional houses shaped by climate, topography, socio-economic and socio-cultural structure over time. The characteristic of these traditional dwellings is the housing part and open spaces where the need for housing is met. This cultural heritage, which is reflected in Anatolian life styles and traditions for thousands of years, is a cultural mosaic form. The traditional Turkish houses consist of courtyards, stoneware, sofas and rooms. The most important determining feature of the Turkish houses is "Courtyards" (Bozkurt and Altınçekiç, 2013). Turkey has a lot of settlements which are rich of cultural and historical traces, therefore it is very important to protect and regenerate unique of historical heritage and to transmit cultural heritage to the next generation (Celikyay et al., 2010).

According to Kuban (1976), the Turkish house; for centuries Turkish people have been showing the shape and plan characteristics of the traditional Turkish family in accordance with their life culture and customs, is known and described as a type of housing that has responded to its needs.

2.3.2 Turkish house courtyard natural and cultural factors

Throughout history, courtyards have been a very good space solution in terms of architectural features. It was mentioned as a new phenomenon in the study of the nomadic cultures of the Taurus Mountains (1930s), where the courtyard was a new phenomenon for migratory groups, that there was no cuddle around the hair tents in the past, but as they decided to settle permanently, they built houses and added a courtyard. The life style of courtyard is designed according to daily needs. The internal and external environment is established between the spaces are inter connected. The courtyard is often kept closed off

street front along the ground floor wall. In the design, the courtyard, which is a member of internal fiction, it is the transition area in the residence. In traditional dwellings the home cultural life style is reflected in the courtyard. It is also a place where beliefs, traditions, socioeconomic and socio cultural structures are reflected. These cultural exchanges date back to the present day. These properties are also seen on the exterior of houses. The most important element in these houses, the high and windowless walls which surrounds the streets. This approach stems from the sense of privacy. The door, which is opened within these walls facing the street, is the only entrance. The doors are quite wide and so high that there is a small roof and a covered porch for protecting the ones standing in front of them from the rain and the sun. The doors into the courtyard consist of two large wooden canapes. The house is entered through the door to the courtyard. At the same time, the courtyard is the area where some daily work is done. During the day, children can play games under control, cruising area, washing and / or drying area for winter food, is an agricultural production area where animals are grown / protected. At the same time, the courts are a short lived social interaction with neighbors. As a result, the courtyard is semi-customary of traditional Turkish house because it is open to the outside (Bozkurt and Altınçekiç, 2013).

Natural factors affecting the formation of traditional Turkish house courtyard houses; topographic structure, soil, climate, building material and plant elements. Generally as soil building material; the formation of the enclosure wall, is used in brick and plaster building material. The most used building system in Anatolia is stone carvings between wooden carcasses. In addition, the depth and quality of soil is also an important factor in terms of the efficiency of the plants that grow in the yard. Climate; The increase in climatic diversity has been a decisive factor in the determination of the spatial arrangement, courtyard formation, roofing and façade characteristics in a large region like Anatolia.

In courtyards, which are shaped according to the values of temperature, humidity, wind and precipitation, high walls provide control of temperature and reduce the effect of wind. Humidity excess stone material was used in the regions where it is. In areas with low humidity, use of water surfaces and pools provides moisture balance in the courtyard.

Especially in order to absorb excess moisture plant elements used in the yard and then gradually it gives atmosphere by transpiration. In addition, climatic characteristics of a region influence the pattern, frequency and distribution of vegetation cover. This is a decisive factor in the use of building materials in the formation of the courtyard and in the use of the plant elements used in the courtyard.

The materials used in the walls of the houses and courtyards are selected according to the local conditions. Due to the dense wood of forested areas in the Black Sea region it is used in large quantities. In East and Central Anatolia stone and adobe materials are used. In addition, heat retaining and spreading properties of the material used are also benefit. Massive masonry and mud-brick walls keep the heat during the day and the temperature drops it gives back the heat at night. Thus, the heat of living places is protected and large temperature differences are prevented.

In the regions where the temperatures are very low at night, in the Eastern Anatolia Region and the Southeastern Anatolia Region, cool air circulates in the night and morning and takes heat from the mass of the structure. The heat that is built in the daytime is lost in the night and the houses are getting hot in the day and cool in the night. This effect is also valid for courtyards and provides suitable micro-air conditioning or ecological environments.

Plant element; Traditional architecture is a style that is harmonious with nature and is a product of human ecology. This approach is a result of the experience of humanity for centuries. Because of the microclimatic environment they provide, courtyard formation also allows warm climates to grow in cold regions. In addition, plant heat transfer elements in the courtyard, shadow effect, influencing the microclimate are the most important natural assets with wind protection and insulation capabilities. All courtyard in Anatolia is used for growing vegetables. In general, flowering plants and fruit trees are preferred. According to the climatic conditions, the fruit trees are arranged to create a shadow effect and also fruits are used. Regions were not stuck to a certain criterion in terms of plant arrangement; plants were planted in the spaces left in the courtyard pavilion.

Flowers are planted in pots in most of the areas, and are planted in courtyards in areas such as Hatay and Konya cities. The Aegean and Mediterranean regions, where the Mediterranean climate is dominant in terms of plant elements, are the richest regions and the Southeastern Anatolia Region, where continental climate dominates, is the poorest region (Bozkurt and Altınçekiç, 2013).

2.3.3 History of traditional Turkish houses

The Ottoman Empire has ruled Anatolia and Rumeli for nearly five hundred years and there are many monumental and civil architectural works dated to that period. Even though there are monuments that remain from the whole period, the earliest date for most of the remaining houses is the eighteenth century. Ottoman Empire ruled a wide amount of land and houses are formed within main principles, reflecting differences in details regarding ethnicity, the regional properties as well as political and historical events. These houses were mostly named due to their region or the origin of the inhabitants (Eldem, 1984).

As a result of excavations in Central Asia; it is revealed that the first houses are structures based on small courtyards and small adjacent property (Cezar, 1977). In Anatolia, "regional residential styles" have developed in parallel with the expansion of building materials, which depends on the historical and geographical conditions of the regions (Kuban, 1970). Turkish houses, which are surrounded by mounds and later surrounded by fortress-like walls and matured in time, also constitute the sub-structure of the plan schemes and formations of monumental structures in the form of cultural heritage (Cezar, 1977). As a result of excavations in Central Asia, the region was frequently used in residential architecture; with a square-planed space, and four columned and swollen (swallow) covered building remains. Examples of civil architecture with four domes with central domes are found in the square space and also in Maveraünehir and Khorasan regions from the fifth century (Çeşmeli, 1999). Sixth century Horasan house; eyvan (iwan) and corner rooms lined up around a central sofa.

When Anatolian traditional houses, especially in rural areas, are examined, it is seen that they are not independent from one to another, and that each is an independent structure that

opens to life or work, which is the meeting and study area (Arel, 1999). Thus, the settlement of the Turks in the Anatolian region exemplifies the root of the house types they have taken as an example.

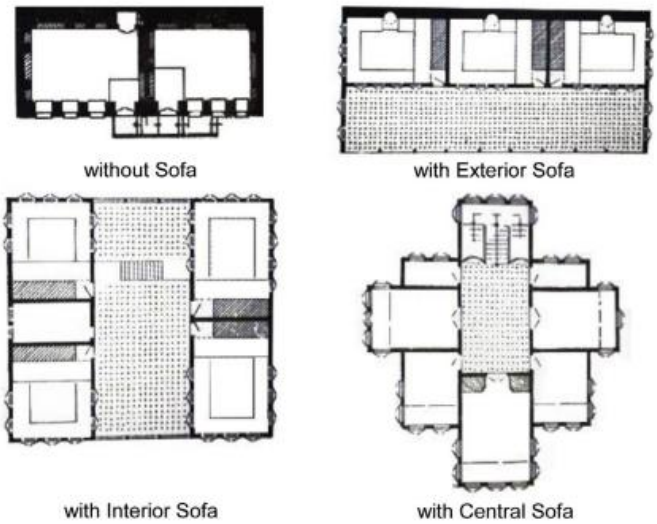


Figure 2.6: Eldem's categorisation of Turkish house (Eldem, 1984)

In the Ottoman period, (from the fifteenth Century), the main elements were composed of life, eyvan (iwan) and chambers (Yürekli, 2005), cedar, carpets, cupboards, niches etc. (Eldem, 1984), which is close to the modern architectural concept in which elements such as, bath, toilet, hamam, which are needed in the house with the architectural items, are located.

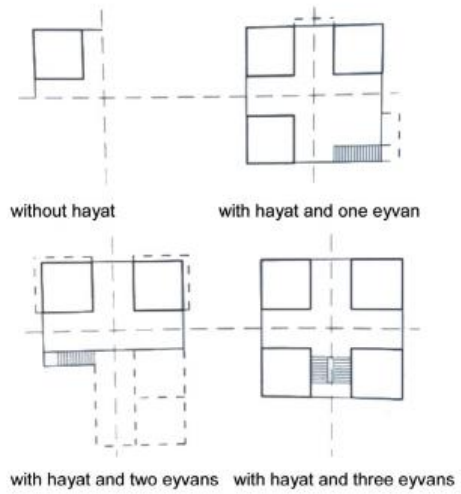


Figure 2.7: Kuban's categorisation of Turkish house (Kuban, 1995)

These houses are superior to the closed, solid and schematic European house of the period; organic, semi-open and open spaces with the external world and the landscape (Günay, 1998). The plan of the Horasan house was practiced in Ottoman residence architecture after being applied in closed madrasah and takyas of Seljuk period. Apart from Anatolia, the central plan scheme was applied to the residence architecture and the interior design was emphasized from the exotic sofa house, nineteenth century. The sub-structure of the monumental structure of the central hall, which has become an unshakable scheme of rical mansions, has formed (Arel, 1999).

2.3.4 Turkish house courtyard concept

The courtyard is a large section in the middle of the structures, preferably open or closed. Also it called the atrium in architecture. In Turkish architecture the courtyards are generally left open. The courtyard and / or patio, which is open space, is generally semi-general space; but this depends on the differences in the social relations of cultures, the concepts of privacy and sovereignty. It is known that there are two types of courtyards in ancient greek houses. The courtyard is called "courtyard" There are rooms for men's use around them, and rooms for women for the other. This order is also present in Roman

houses. But one of these courts is called "atrium" and the other is called "peristhylium". The terms and definitions such as outer courtyard, inner courtyard, front courtyard, port courtyard, patio courtyard, ceremonial courtyard, farm courtyard, covered courtyard, garden courtyard have emerged according to their place or function (Bozkurt and Altınçekiç, 2013).

- **The inner courtyard**; is a courtyard that is left in the middle or inside of the building. The courtyard, which is part of the structure on the large glass and forms a whole with it, is called the inner courtyard or "harem". The outer courtyard of the glass is the large square inside the border that surrounds it. This is called "harim".
- **The front courtyard**; is in front of a building.The precious courtyard; is surrounded by porticoes and the courtyard has become a semi-open space. The Han courtyard, the old inn and the caravanserai, are big spots where vehicles are built and the goods are loaded and evacuated.
- **Farm courtyards**; are defined as large courtyards and squares in the middle of the barns and poultry on the farms.
- **The ceremonial courtyard;** is in some official buildings and building complexes, the ceremony is separated by purpose and is defined as courtyard; it is also called the court of honor.
- **Garden courtyard;** in the middle are garden-like courtyards with lawns and flower beds (Bozkurt and Altınçekiç, 2013).

The settlements built in the Neolithic Age (8500-5500 BC.) are houses, temples, the patio and the courtyard between them. The walls of adjacent houses are separated. Megaron type houses; it is a building with front rooms or front courtyards and main rooms, two floors on one side and a courtyard adjacent to the other (Naumann, 1998).

These constructions are in the form of rectangular and square plan, and the plan types with the entrance section, a room inside and the center of the room have begun to be created. The mud-brick material used at that time was then left in stone and single-unit spaces were

created. Thus, the courtyard became a more organized space (Bozkurt and Altınçekiç, 2013).

Alacahöyük is an important settlement center in Chalcolithic period. Nowadays Alacahöyük housing in the urban texture and shape in plan scheme began to be seen. The courtyard design began to be considered in detail, courtyard in the oven, is located items such as benches. In the Early Bronze Age, megaron-type houses complete their development, while courtyard are more organized among residential groups. During this period, it is observed that urban settlements are surrounded by walls. While every interior space that makes up the texture of the settlement seems to be differentiated as a house, a workshop or a warehouse, it has been differentiated as a street and a courtyard outdoors; entrance gates are opened to courtyards (Aktüre, 1997).

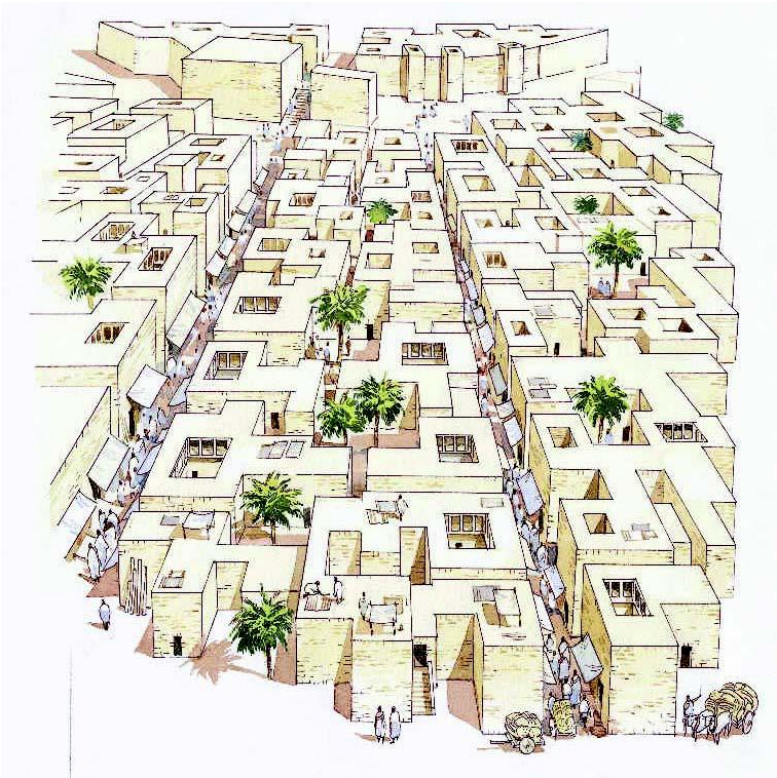


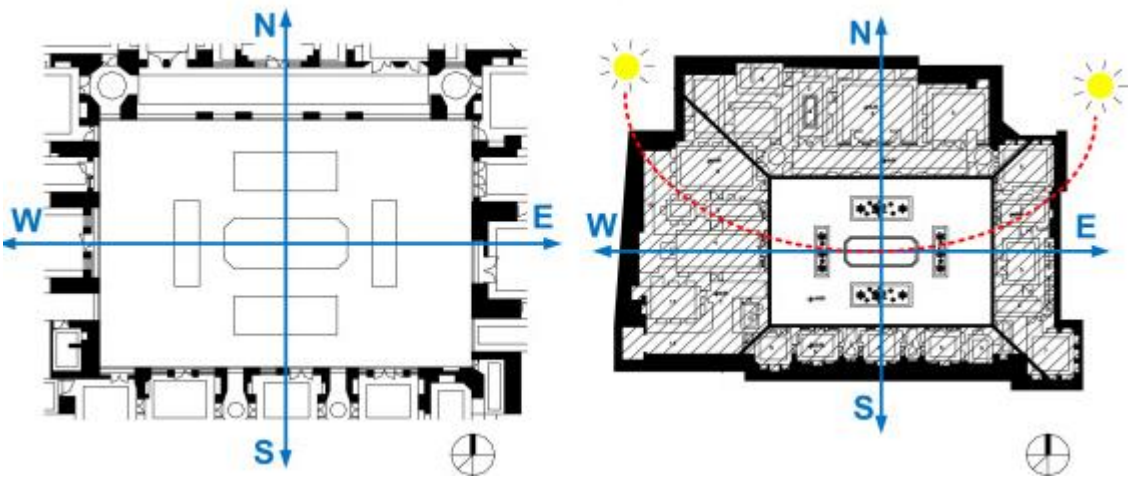
Figure 2.8: Representation of the shapes of adjacent residential building of courtyards (Google)

During Hittite civilization; the first organized state was dominated in Anatolia. The use of wood and stone was due to Anatolia's rich woods (Bozkurt and Altınçekiç, 2013). In this period, there are frequent adjoining residential buildings in building plots. Every residence opens to streets and sometimes to squares that are formed by the extension of the street. The houses were varying in size - small, small, courtyard –not use courtyard. Most of the courtyard have items such as oven and stove (Aktüre, 1997).

According to Schoenauer and Seeman (1962); Entrance to the residence with a single or double winged wooden door that is placed in a way to protect it, so that a shelter had been built in front of the door. A short corridor is reached through the courtyard, under the so called “prohyron”. The courtyard farm was an enclosed, planted, family - friendly, outdoor living area; in a sense, the center of the house is associated with the sky (Erdoğan, 1996). The courtyard was decorated with peristyle, stucco and wooden ceilings. In the middle of the courtyard there were pools called " impluvium " which were built to collect rain water. In addition to these structural elements, the courtyard was decorated with bronze and marble sculptures with a well-tuned channel system. The courtyard was enriched with small trees and flowers (Erdoğan, 1996).

2.3.5 Traditional courtyards in Iran

Outdoor open spaces, where rituals and other religious ceremonies took place, have had great importance in the history of Iranian traditional architecture. The traditional urban texture in the region is composed of compact clusters of adjacent houses with walls shared. When the building is heated and cooled in different seasons, the small surface area of the houses reduces the building's energy needs. The courtyard at the same time reflect the meaning of introvertion refering to privacy in Islamic ideology. Besides social and cultural features, climatic function of the courtyards is also an important factor as a micro-climate changer for improving the comfort conditions in the environment (Soflaei et al., 2017).

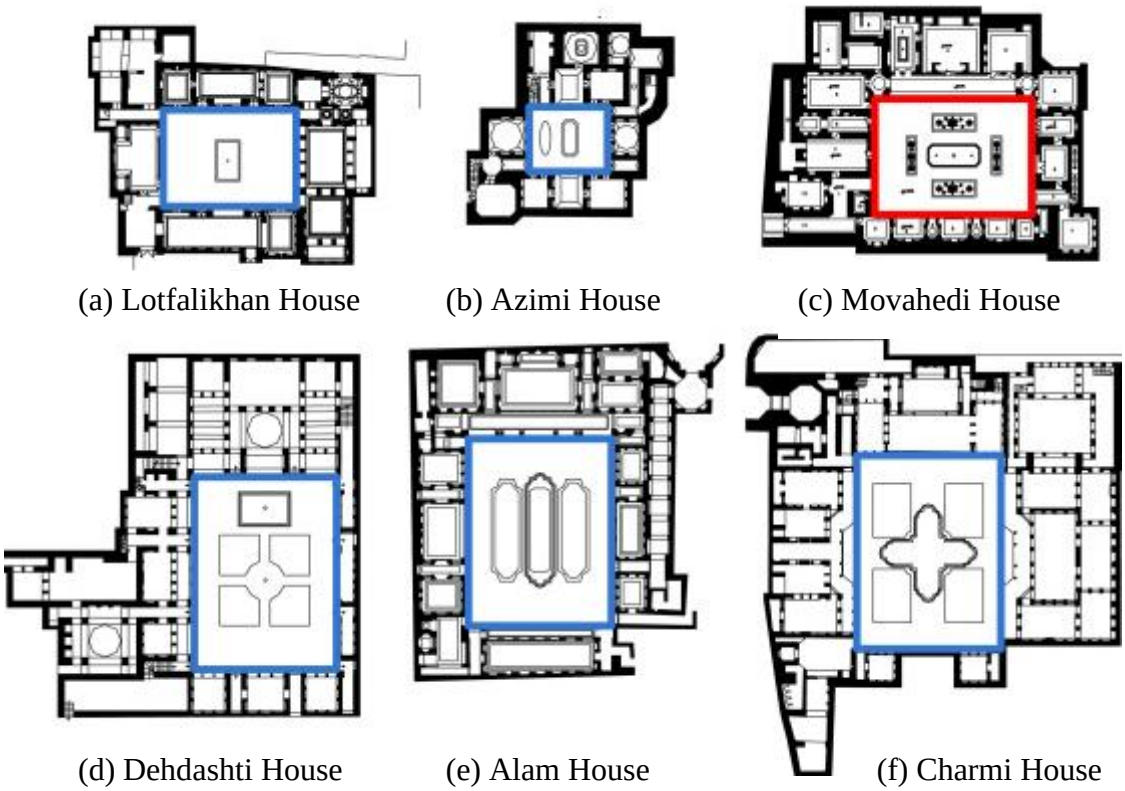


(a) Orientation and rotation angle of the house (b) The courtyard of house

Figure 2.9: Analysis of Criterion Movahedi House (Soflaei et al., 2016)

The trees, flowers, shrubs are commonly planted in traditional courtyards of Iran. Generally a pool can be seen as well. These elements provide comfortable, beautiful, and enjoyable settings. At the same time they also increase shading, relative humidity in the courtyard area providing thermal comfort for the occupants (Bonine, 1980). A courtyard is used in the northern and sunny winter months, south and shady side summer months. There is a wide open arch or Iwan on the side of the traditional courtyard, where the shading is provided at maximum level. The facades of the traditional central courtyard in hot arid regions help for protecting the indoor spaces from gaining heat and high outside temperatures. Therefore, the sizes, proportions and especially the heights of the north, south, west and east facades of the courtyard generally vary. The higher facades of the courtyards with a rectangular shape and a north–south extension are situated at the northern and southern sides. This characteristic prevents the direct gain of solar radiation by the higher facades, whereas the shorter facades at the western and eastern sides gain sunlight and heat directly during summer, but not during winter (Soflaei et al., 2017). Persian and wind orchestrated directly or indirectly to provide natural cooling and ventilation, usually inside or outside. Facing the open arched road, there are living rooms that are more exposed to sunlight in winter. The courtyard is generally furnished with burned square bricks. These brick surfaces are often cleaned by wetting which provide

cooling by evaporation. Without the need for modern heating and cooling systems, these courtyards are comfortable with traditional passive (natural) heating -cooling strategies in different seasons (Soflaei et al., 2017).



(a) Lotfalikhan House (b) Azimi House (c) Movahedi House

(d) Dehdashti House (e) Alam House (f) Charmi House

Figure 2.10: Six traditional Iranian courtyard houses (Soflaei et al., 2016)

The six selected cases are among the best and valuable traditional courtyard houses in Iran. These houses were designed by famous Iranian architects who carefully considered both social and environmental aspects (Haji-Qassemi and Karbassi, 1998), Kerman and Isfahan are the most ancient cities in the region with mesoclimate in Iran. Recent discoveries indicate that the history of Isfahan can be traced back to the Paleolithic period, as shown by the artifacts found in the area, which date back to the Paleolithic, Mesolithic, Neolithic, Bronze, and Iron Ages (Assari and Mahesh, 2011).

CHAPTER 3
COURTYARD HOUSES IN CYPRUS

3.1 Cyprus

Cyprus with the 9.251 square kilometeres is third largest island after the Sicily (25,460 km^2), and Sardinia (24,090 km^2) 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 105 km distance at the east and Egypt with 420 km distance at the south of the island. The capital city in the Northern Cyprus is Nicosia (Lefkoşa). Famagusta, Lefke, İskele, Güzelyurt and Kyrenia are the three other major cities which are located at the seaside (Dastjerdi, 2014).

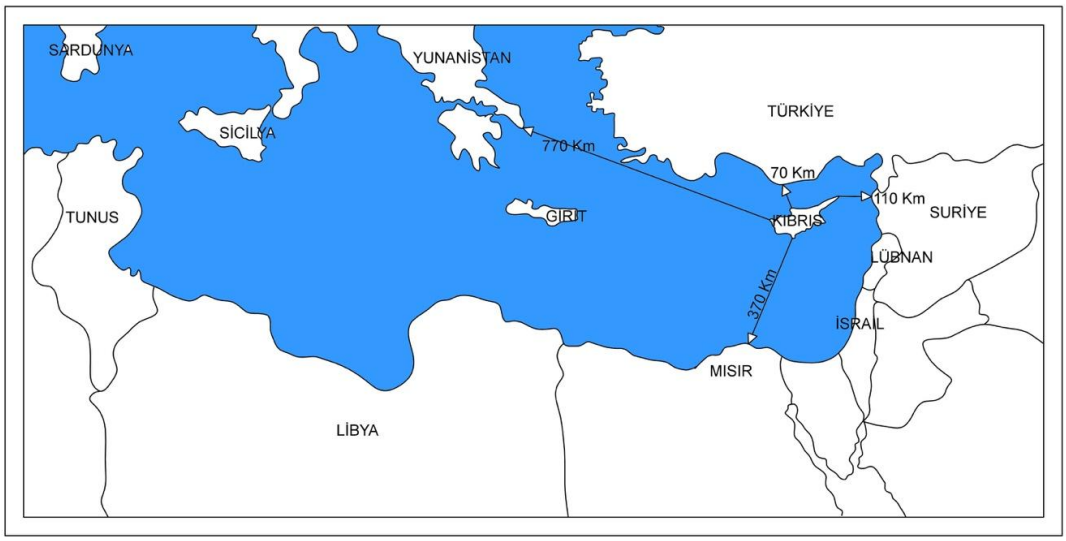


Figure 3.1: Cyprus ıslands and Neighborhood location in the Map (Google maps)

The history of the countries influenced the architecture, whether in the design stage or construction process. Architecture is 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, Romans, 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. In fact, until 1977 north and south parts of the Cyprus experienced the same history (Dastjerdi, 2014).

3.2 Cyprus Climate

In the countries of Mediterranean area the sun is desirable in the winter while in the summertime sun should be blocked and the cooling and ventilation are necessary. Clustered agglomeration houses because of the natural environment of the Mediterranean climate, is a part of the landscape. Clustered settlements are defendable and climatic responded through creating shades and protection from harsh winds with green plantation cover around the buildings extended on agricultural land (Fernandes et al., 2014). Climatic characteristics of Mediterranean area allow staying outdoors during all year; affect the organization of the houses courtyards, patio terraces and gardens as essential elements of residental units. Vernacular or traditional house in the Mediterranean region has a summer and winter portions the upper level used in the summer and ground floor in winter with fireplace. Kitchen is widely used in the winter, whereas the terraces and patio or outdoor spaces prepared to stay during the day in shady areas or to sleep at night (Al-Din, 2017). The climate character of any region is determined by the variation of several elements and their interaction with each other. The considered climatic elements, for human comfort and building design, are solar radiation, long wave radiation to the sky, air temperature, humidity, wind direction and speed, as well as precipitation such as rain, snow etc.

The climate character of any region is determined by the variation of several elements and their interaction with each other. The considered climatic elements, for human comfort and building design, are solar radiation, long wave radiation to the sky, air temperature, humidity, wind direction and speed, as well as precipitation such as rain, snow etc. (Khakzar, 2014). Cyprus fell in a Mediterranean temperate zone. Hot summers temperature average is 37.2 ^{0}C and the highest temperature hits above 40 ^{0}C in July which is the hottest month. The winter is mild to cool and wet. The average temperature is 15.5 ^{0}C, and temperature reaches lower than 5 ^{0}C in the January as the coldest month (Mesda, 2012).

3.3 Architectural History of Nicosia

Due to the island's sheltered location in the historical process is always important provider of Nicosia, the capital is the first city dating back 2250 years. The periods of Byzantine (395-1191), Luzinyan (1191-1489), Venice (1489-1570), Ottoman (1571-1878), British (1878-1960) and Cyprus Republic (1960-1963). The architectural works of different styles, which make up the island to reach a daily culture as a mosaic of cultures, have turned many settlements into open air museums. The works of Ottoman Period (1571-1878), which is an important place in the present day, and the settlement of island, provide examples of Turkish Architecture (Religious, Civil and Military Buildings) original functions (Turkan, 2016).

3.3.1 395-1192 AD Byzantine period

After the division of the Roman Empire, Cyprus began to be ruled by Byzantium, with Constantinople as its capital (Aliyu, 2009). In this period Christianity had settled to the island. So many monasteries, churches, chapels and other religious structures were built on the island. These structures began with the construction of the dome for the first time. The architectural works of different buildings, which had given the island reach mosaic of cultures and have turned into open air museums. Ledra is the first settlement in the area where the present day Nicosia city is located. Once upon a time, Ledra / Lidra / Ledrae was established 150 meters above the known Nicosia sea level. During the years when Cyprus

was in the Eastern Roman (Byzantine) administration, many churches were built on the island. The orthodox churches of Nicosia were built during this period (Atun, 2009).

3.3.2 1192-1489 Lusignan period

Nicosia has been the capital city of this period. Mansions, many houses, the gothic style cathedrals, churches and monasteries were available (Faslı, 2004). There were two types of housing in this period. Firstly there were cutstone walls, well-kept gardens and tidy, slim and elegant workmanship, outstanding luxury homes, and the secondly there was mud-brick construction system with a simple flat-earth-roofed house. Rich two-story homes were usually flat and rectangular windows and doors were simply had at the front. There were large gardens and courtyards. The wooden stairs go upstairs from the courtyard. Massive walls were built around Nicosia. It is argued that the city walls which probably functioned more as a bordering urban component than a fortification wall for defense had almost a rectangular slope (Numan, et al., 1996). Nicosia was three times larger than it is today and dominated by many buildings that have disappeared (Enlart, 1987).

Figure: 3.2: 1192 – 1489 Lusignan period, Turkish Bath, (photo taken by Laleci, 2017)

The Lusignan House, it is known that the house is used as a parsonage. This building has survived today until the 15. century. It's ground floor was built in the Lusignan period. This house exists in the walled city of Nicosia. The upperfloor bay windows and carved wooden ceilings were added at the Ottoman period. By the Chambers of the house today,

this building designed as a museum in accordance with its original look. By the late 1980s, however, the building was empty. After renovation, the house was opened to the public in 1997. The house has been furnished with authentic furniture from the Ottoman and Lusignan periods (Balkan, 1998).

Figure 3.3: 1192 – 1489 Lusignan period architectural features see Lusignan house (photo taken by Laleci, 2017)

In the Lusignan period, until the arrival of the Venetians, they left an intense cultural heritage. The island has built many cultural, architectural, artistic, technical and similar works of art by initiating social, cultural life processes in the european level of life. Nicosia, considered to have developed from a Roman Castrumu, is not a city built on a circular plan, but was conquered by a circle that gave the optimum solution due to the

emerging needs (Bergil, 1995). The use of the island as a capital city coincides with the end of the Byzantine period.

In 1192 during the reign of Lusignan kingdom, Nicosia was the administrative capital of the island. During the reign of the Luzinian Kingdom, the palace, the court, the cathedral, the archdiocese, the guesthouses, the monasteries and the knights were positioned in the walls of the house. This urban order reflects the medieval city order. Between 1489 and 1571 the city of Venice continued to be the capital of the island of Nicosia.

3.3.3 1489-1570 Venetian period

All investments intended for military purposes during this period. Housing is not the architecture factor to expand and strengthen the walled city of Nicosia and the houses also destroyed many works of Lusignan. Venetians developed and processed stone buildings and houses in urban places, crescent shaped doors and stone-arched or flat head and arms. The construction technique was the outer parts are smooth and massive stone walls, filling in the form of the rubble. The Venetians constructed a perfect circular wall; three kilometers long with eleven unique bastions at regular intervals and three monumental gates. They demolished the already built structure out of their proposed city walls and used their materials for the city wall (Faslı, 2004).

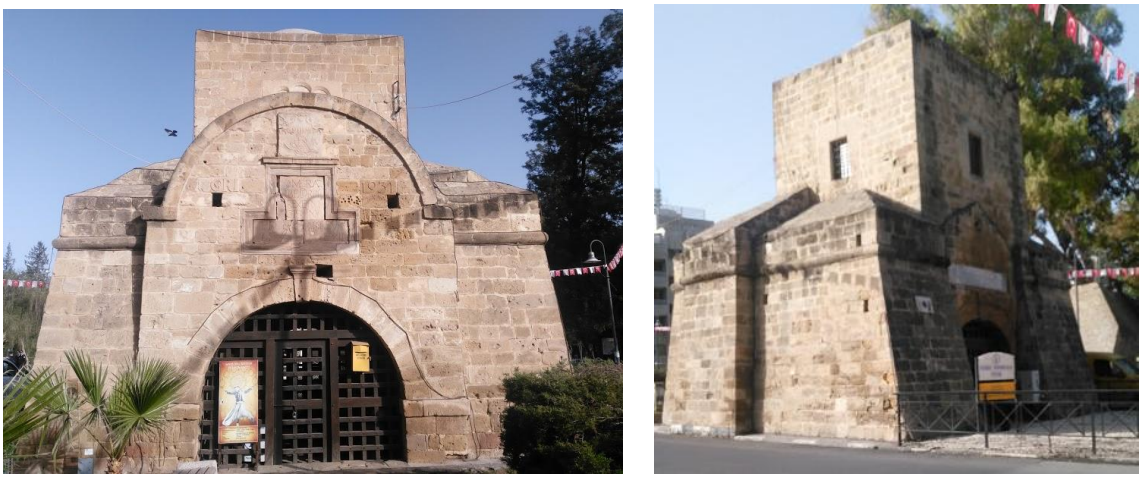


Figure 3.4: 1489 – 1571 Venetian period, Girne Kapısı (photo taken by Laleci, 2017)

This house exists within the walled city of Nicosia, and Selimiye Mosque located behind, now used as a museum of stone monuments; “The Lapidary Museum”. There are only the outer walls of the house. Gateway to the courtyard of the house and the pointed arch was old Lusignan palace. This kind of flowing tracery is known as the flamboyant style, and was in common use in the French cathedrals of the 15th century (Enlart, 1987).

Figure 3.5: 1489 – 1571 Venetian period, Lapidery Museums (photo taken by Laleci, 2017)

3.3.4 1570-1878 Ottoman period

Settlements are developed as residential areas in urban and rural settlements. In rural areas with low levels of culture, the land of economic production due to improved self-contained as a closed society. The Ottoman periods used to have very different building types; bridges, water ways, fountain, Turkish baths, caravanserais, Moslem theological school (medrese), mosques, and khans (Mesda, 2011). Courtyard and lean to roof are used in urban housing. Life has gone in semi-open lean to roof and patio, aspects of the walls facing the street was closed. People used to spend times in the bay window rooms on the first floor and also the porch entrance halls were used as living spaces. Climatic conditions allowed the system with a courtyard and a porch (Dağlı, 1999). According to Jennings (1993), Turkish people used to rule and live peacefully with the Christians, Jews, and Armenian in the island. Islam was the foundation of Ottoman Empire. Moreover, Turkish rules converted many churches to the mosques. Ottoman Empire such as the other rules used to exhibit its power by constructing the new building arround the Cyprus which were appropriate for Turkish people culture and their religion (Ozay, 2005). In Ottoman period, many residential houses Dervish Pasha Mansion (Derviş Paşa Konağı) and some public buildings (see Figure 3.6: Great Inn - Büyük Han) were also built with courtyards in the walled city of Nicosia.

Figure 3.6: 1571 – 1878 The Ottoman period Great Inn - Büyük Han (photo taken by Laleci, 2017)

3.3.5 1878-1960 British colonial period

Between the fourteen periods of Cyprus history, the most evident effects on the contemporary architectures is related to the most recent historical periods, Ottoman and British colonical periods (Dastjerdi, 2014). Ottoman architecture has been restored and the repair works of in the British influence was applied during this period. During the same period as construction material is yellow stone (sand stone) were used. Balcony ledges even under the wooden beams used instead of the yellow stone. Currently, we see the most intense type of this housing in the walled city of Nicosia, in the Zahra Street. Wealthy families used yellow stone material on surface of walls, especially in Nicosia. These homes had a large hole in their doors and windows. Some houses made of yellow stone columns erected on the porch and balcony decorated with motives. Marseille type tiles were used on the tile roof covering material (Mesda, 2011). 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). British brought the new construction materials and techniques to the Cyprus. In fact, the British period was the starting point for modernization in island. British and Cypriot architects started to design the houses by mixing the British and Cypriot architectural styles in the late period (Dastjerdi, 2014).

3.3.6 After 1960-to today

After 1960 until today formed the spirit of modern architecture. The traditional approach based on the housing construction was abandoned completely. Reinforced concrete structures have taken its place. Except for a few extra houses in rural area is completely transformed into villas. Most of the office and apartment buildings were built in urban areas (Ozay, 2005).

By preserving the 3 existing entrance gates and destroying the buildings surrounding it, which constitutes two thirds of the city, the inside of the city walls has been reduced to the present day shown in Figure 3.7.

Nevertheless, in this section, the history of the Cyprus has been tried to reach reliable information by comparing the Ottoman houses, architectural processes and the historical courtyards of with the houses which reached to the now a days.

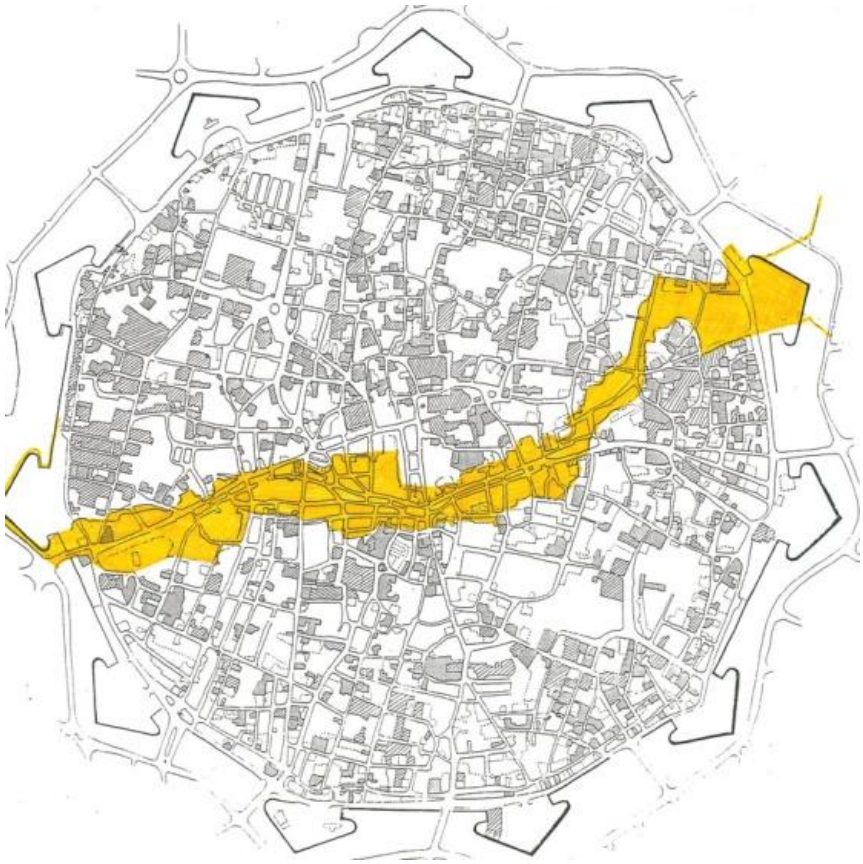


Figure 3.7: The final version city maps (Google maps)

3.4 Ottoman Houses Layout Organization

In this chapter courtyard houses within the "Ottoman houses layout organization" is disclosed.

3.4.1 The entrance

Seki altı is the entrance area at the lower level of the floor where the door is located. In fact, seki altı is vestibule in addition to be the room service area (Goodwin, 1971).

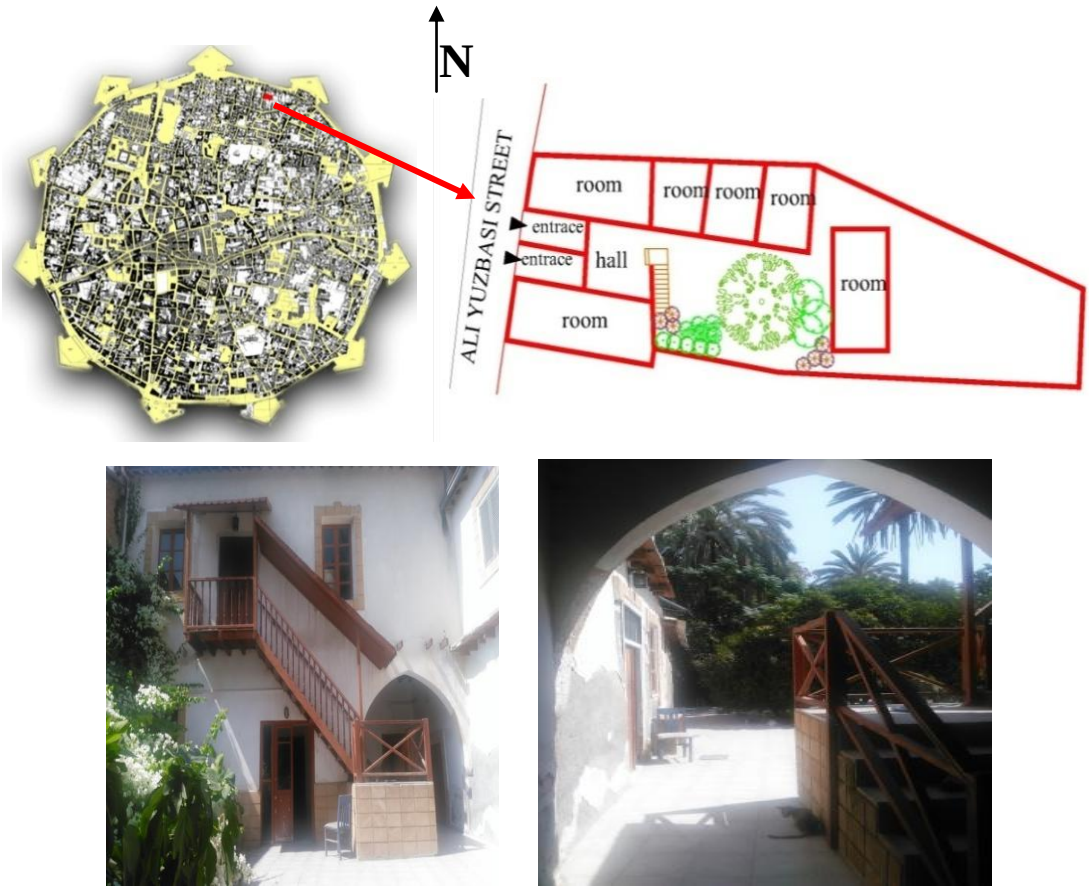


Figure 3.8: A typical old traditional village Cypriot courtyard (photo taken by Laleci, 2017)

3.4.2 Sundurma

Sundurma is the special setting which is generally use for transition from indoor to the outdoor. This space is harmonious to the traditional urban houses of Cyprus which is usually located in front of the row of rooms as semi open space toward the garden. As Pulhan and Numan, (2006) noted sundurma playing the important role in Cyprus traditional houses' layout organization.

3.4.3 The rooms

The Ottoman houses have had their own characteristics and features which distinguished them from previous houses in Cyprus.

The urban houses had a courtyard between the rooms. According to Eldem (1984), room is the significant characteristic of the Ottoman houses due to their shape and number. The rooms shape and their number directly influenced the houses layout. They were designed the rooms in tetrahedron shape, rectangular or square (Dastjerdi, 2014). According to Pulhan and Numan (2006), room in the traditional houses was an activitiy space for families. In fact, they did not have a direct connection to each other. Moreover, they had only one door for entrance. Transferring from rooms have been possible only sofa.

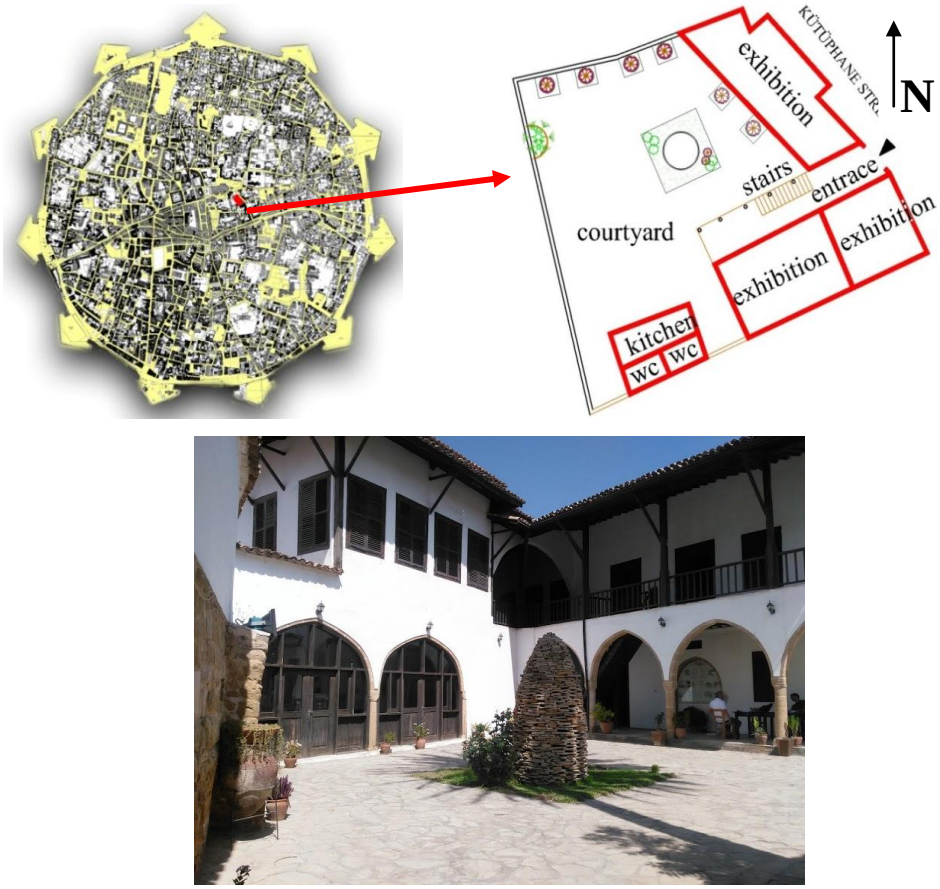


Figure 3.9: The Eaved house sample of Ottoman House (photo taken by Laleci, 2017)

3.4.4 Sofa

The second significant features in Ottoman's houses are sofa (hall) that mostly influenced on classification of houses plan. The designing layout of rooms and sofa are crated the

distictive characteristic for the Ottoman houses (Dastjerdi, 2014). In addition, sofa designed with the wide dimension to maket the suitable meeting place for family. This function of the sofa in Ottoman houses create the different charachteristic that distinguished Ottoman houses from other region house style (Eldem, 1984; Kuban, 1995).

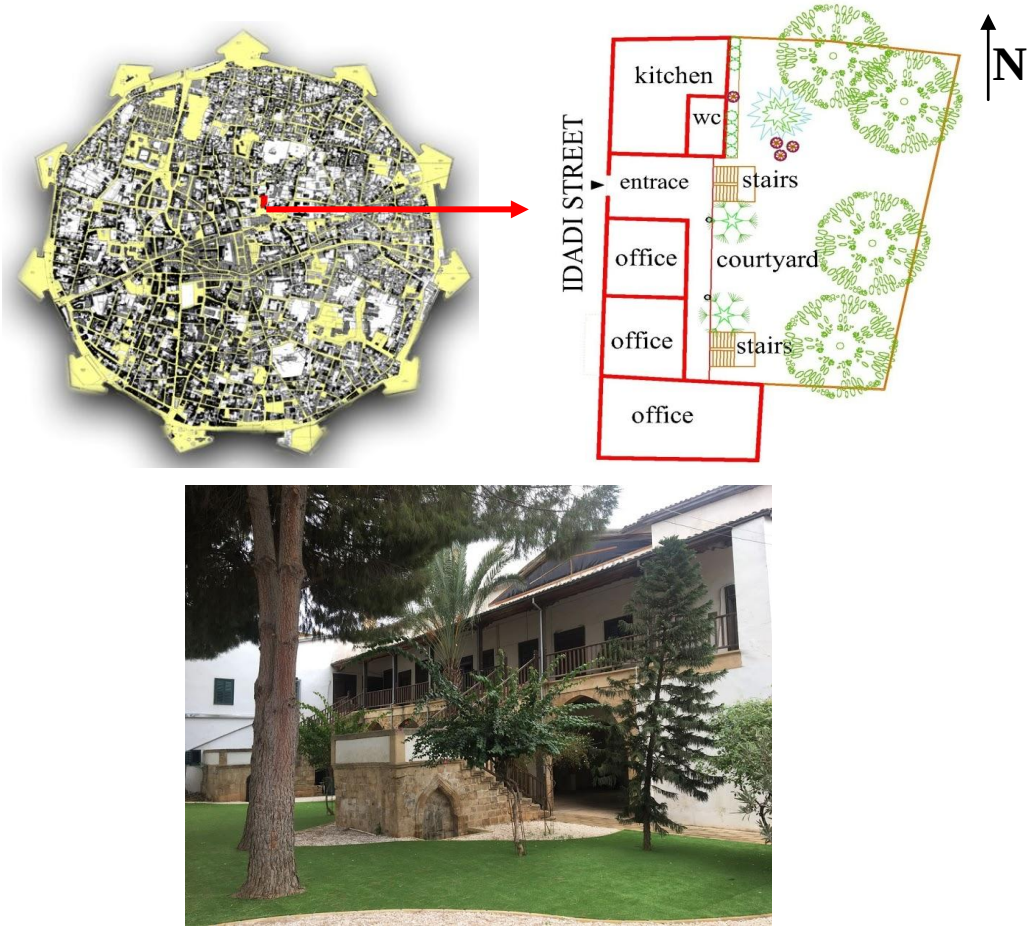


Figure 3.10: The Union of Cyprus municipalilities (photo taken by Laleci 2017)

3.4.5 The service area

The Ottoman houses commonly had the kitchen (mutfak), granaries room, bathroom (hamam), laundry and store room. They were built the service areas generally around the courtyard as a separate part from main house's building. Therefore, they had no strong effect on the houses layout organizations (Eldem, 1984). One of the significant service

areas in the houses layout was the kitchen, which was built appropriate for the women's daily activities. Kitchen (mufak in Turkish) located in the courtyard indepently from the main house's building to decrase the risk of fire. To make the beter situation for the household women it was connected with the other services room such as the pantries and the granaries (Kuban, 1995).

3.4.6 Staircases

Staircases in Ottoman houses were located at the outher hall which was positioned in front of the sofa to link the ground floor to the first floor. In fact, the staircase location were different by attention to the construction year in this period. For instance, the houses were built at the beginning of the Ottoman period, staircases was located at the outside of the house from the courtyard to the upstairs but since seventeenth century it has been located in the inner sofa (hall)(Eldem, 1984).

3.5 Overview of Courtyard Houses

Courtyard typology has existed for thousands of years since Neolithic settlements. Initially used as a protective barrier against the climate, human and animal invasion, it was developed as a primary typology. In the beginning, the logic behind this type plan was mainly to provide a protective area from outside forces, such as invasion by human and wild animals. The courtyard as a house plan type exists extensively from Morocco. However; it becomes a generic typology in hot, arid climatic landscapes and farms the basis of the urban pattern in the madinas of the Islamic world. As one of the most primordial forms of architecture, "courtyard styles" had been relevant for all types of buildings, residental, commercial, institutional or industrial. Historically this style has been most popular in residential architecture all over the world and in all climatic regions (Sthapak and Bandyopadhyay, 2014). Apart from the climatic and functional efficiencies of this plan typology, its cultural relevance is of equal importance. The courtyard is an exclusively private part of the house and is used only by remembers of the family. The courtyard, having been defined by the house itself and by high walls, is an "open the sky" space and is used primarily as an extension of the living quarters (Özkan et al., 2006).

The courtyard act as the focal point of the house. Most, if not all, rooms of the house have a direct connection with the courtyard, approached through the verandah arround it. The cultural aspects also drove the genealogy of the typology, as the cultures that it thrived in had cultural requirements for privacy and separation from the public realm, as well as grades of the attributes within the family (Sthapak and Bandyopadhyay, 2014). It has always been an important aspect of the comfort of a courtyard to include a monumental tree or calm and coll pond. In many house types, the kitchen also opens to this space with an oven or a tandoor where the fuel is kept, and smoke is let out of the house immediately. Cooking is a major household activity for the women, and the preparetion of food, cooking and, accoriding to the season, food processing, like drying, pickling or other activities of food preservation, all take place in the courtyard. The courtyard has become a multipurpose room where most of the activities of the family take place. The courtyard also provides a climatically controlled space from many of nature's unwanted forces, such as wind and storm (Özkan et al., 2006).

3.6 Three Climatic Phases of Courtyard

Climate has an obvious and direct effect on the thermal environment. While the combinations of the various daily climatic variables (air temperature, sunshine, humidity, wind speed and direction and precipitation) are endless, the design of buildings is concerned principally. The variation of the daily air temperature depends on the condition of the atmosphere. Even invisible moisture in the air, in the form of humidity, has a pronounced effect on the transparency of the air to radiation (Moore, 1993).

One of the main reasons of using courtyard for more than 5000 years is its environmental effects. In different climates, courtyard can be used as a source of day-lighting for adjacent rooms in deep plans. Further advantage of courtyard in winters is protecting the parent building from harsh conditions of weather such as winds (Upadhyay, 2008).

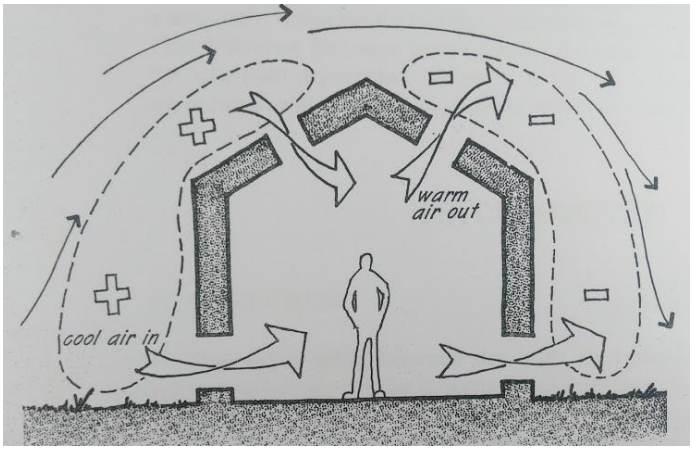


Figure 3.11: Wind circulation (Moore, 1993)

During cold seasons it may increases direct solar heat gain in the rooms which have glazing area on the courtyard. Its performance during summers is different. It can be a solar protector by planting deciduous trees in the courtyard. Furthermore, natural ventilation during hot seasons occurs through the courtyard especially in hot climates. During daytime the air in the courtyard becomes warmer and rises. This draws out the internal warm air into the courtyard through the openings. Consequently, it makes an air movement inside the adjacent building. During nights the process is opposite in which the ambient cool air sinks into the courtyard and enters into the internal spaces through the low-level openings. This makes airflows in the rooms and the cooled air becomes warm and then it rises and leaves the rooms through the high-level opening was shown in Figure 3.12. Bahbudi et al., (2010), point out that the courtyard can be more effective for natural evaporative cooling with the help of vegetation and fountains.

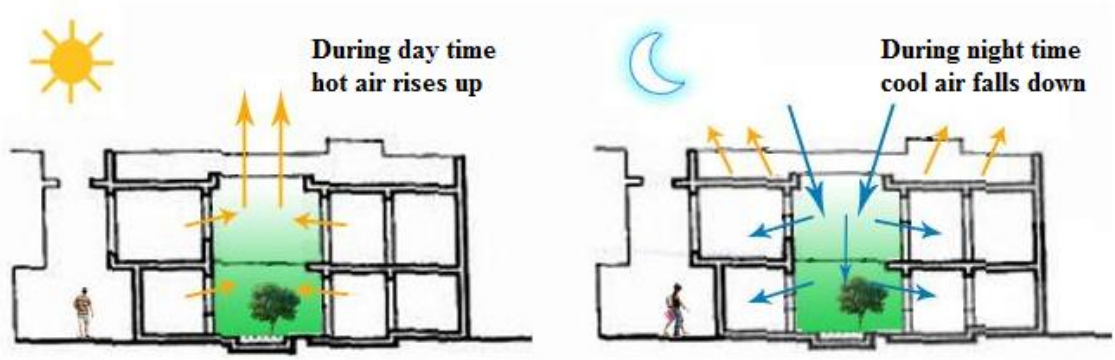


Figure 3.12: The courtyard's effect on ventilation during days and nights (Ahmed, 2013)

The high walls that reduce the temperature will increase the perimeter of the courtyard shaded areas. Thus the courtyard can be used daytime. For environmental point of view, atrium as a glazed enclosure can usually provide day-lighting and thermal comfort which reduce energy consumption of the parent building. In large buildings, it can be a significant source for natural lighting which replaces artificial lighting (Ahmed, 2013).

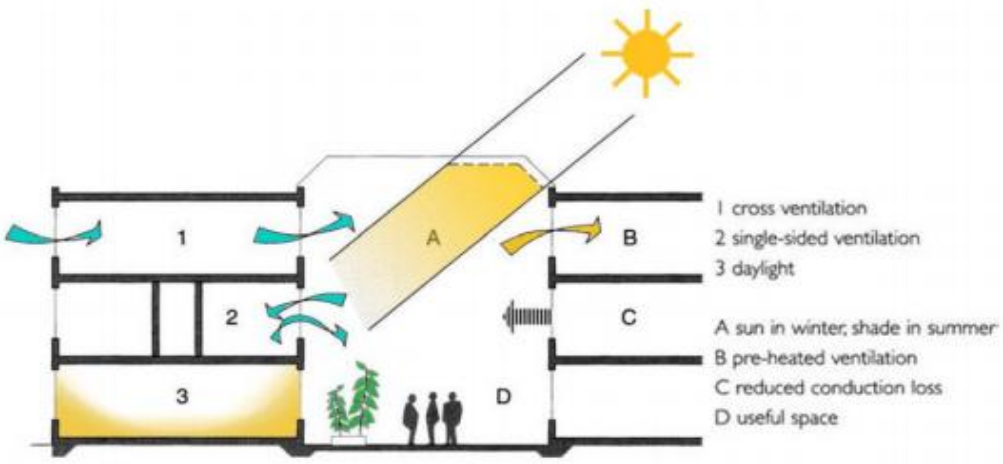


Figure 3.13: Environmental benefits of an atrium (Baker and Steemers, 2005)

Therefore, the required lighting and cooling energy (to eliminate the produced heat from the lights) reduces. Moreover, with compared to the windows on external walls, large area of glazing can be used open to the atrium because it protects the windows from heat loss

and harsh weather conditions (Goulding et al., 1993; Baker and Steemers, 2005; Hung, 2003).

The performance of atrium changes in different climates and seasons. In winters, the indoor air temperature is usually higher than the outdoor temperature because of the solar heat gain even in unheated atriums. This increase in temperature depends on the ratio of glazing area to the parent building wall area, and thermal transmittance of the walls as well. Furthermore, the glazing inclination and orientation affects solar heat gain, and then, indoor air temperature (Ahmed, 2013). The benefit of this temperature increase is to reduce heat loss of the heated walls and provide ventilation. For this reason, the heating energy of the building is reduced.

Courtyard type of houses can be said as climate-responsive houses particularly in hot countries. Courtyards behave like a chimney. Three thermal phases of courtyard can be expressed as follows.

- At night time, cold air falls into the courtyard and cools the deeper points of even furnitures. It can be said that, courtyard traps cool air at night time.
- At noon time, sun rises up and sunlight strikes courtyard. It makes courtyards air hot. Hot air rises up and draws cool air which is trapped at night time from the rooms. Thus cooling effect is created within the spaces and courtyard.
- During afternoon, on the other hand, air on the outside of building becomes warmer and further cooling movement is aetivated through small openings of outside walls. This time air movement is from courtyard to the outside of building, was shown in Figure 3.14.

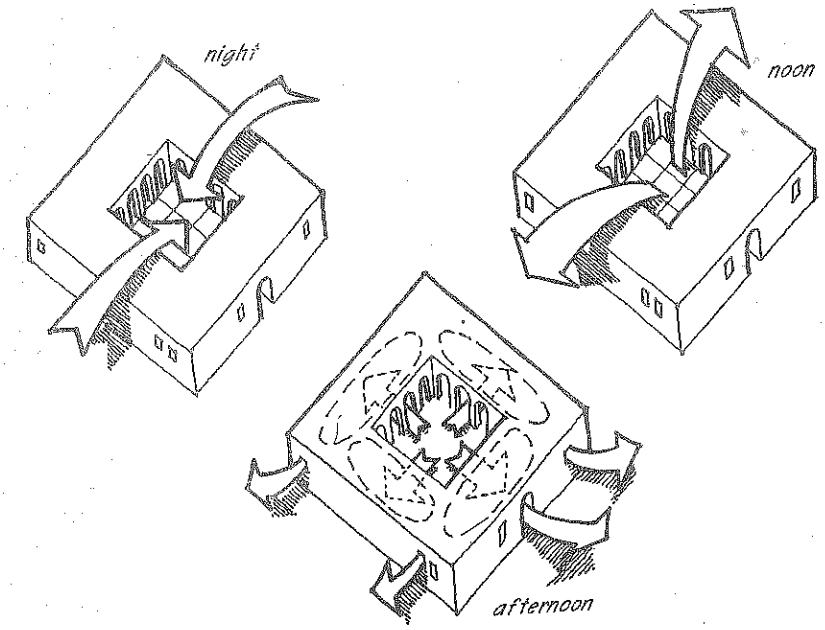


Figure 3.14: The courtyard warming passive cooling cycle (Moore, 1993)

Courtyard in residential buildings is commonly applied for the purpose of promoting comfortable indoor environments by offering natural ventilation and daylighting into buildings. In the Middle East, courtyards provide the much needed security and privacy for residents while reducing the infiltration of hot and dusty winds into the rooms with tall walls that build arround the courtyard (Safarzadeh and Bahadori, 2005). Courtyard creates a micro-environment that provides very pleasant living spaces with the presence of healing elements such as trees, flowers, shrubs and a pool water (Almhafdy et al., 2015). The influence of a courtyard on the thermal condition has a strong reliance on the envelope opening and exhibits a better energy performance in hot-dry and hot humid climates (Aldawoud, 2008). According to Almhafdy et al., 2015, the development of a courtyard has moved forward into the era of sustainability and green architecture, where the courtyard configurations can be classified into four. There are:

- Cluster courtyard

  a. Multiple : the design of the building creates four fully-enclosed courtyards.

  b.Spinal : More than one courtyard is attached to the building's central circulation route.

- Open courtyard : Group of buildings frame open spaces into the courtyards.
- Closed courtyard : The courtyard is fully enclosed.
- Complex/Interlinked courtyard : Courtyards are located on different floors and serving different purposes.

Generally, the U-shape of a courtyard with an aspect ratio of 1:2, which is considered as a rectangle has a better performance in terms of the thermal comfort as compared to the U-shape of a courtyard with an aspect ratio of 1:1, which is considered as a square (Almhafdy et al., 2015).

According to these properties; The types of plans mostly rectangular inner courtyard of the building in Northern Cyprus, is covered courtyard type. The most important features of this courtyard type design are not limited to comfortable indoor spaces. The user needs energy efficiency in the performance direction. The natural ventilation performance of the buildings provides efficient energy use.

3.7 Courtyard Houses in Nicosia

In urban mediterranean courtyard houses most of life was concentrated in the open and semi-open spaces (Dinçyürek and Türker, 2007). Courtyard is the common area wich is a certain connection between all places. Most of the daily work and social activities are done here. Especially in summer, when people are up all day and sleep whole night, it serves as an open – top chamber. The mediterranean style houses are generally seen in traditional courtyards.

According to the housing analysis in the walled city of Nicosia, functionality of the inner courtyard house has been preserved and its functionality changed. As an example, Cypriot Swallow hotel is typical rectangle courtyard houses for the type of converted residence which has been modified as a hotel use. Traditional Cypriot houses are planned very simple and functional. This ground floor plan includes living room, office, bedroom, kitchen and wc. was shown in Figure 3.15.

Figure 3.15: Cypriot Swallow hotel in old Nicosia (photo taken by Laleci, 2017)

Courtyard works as an extension of the kitchen during the morning and as living room during the evening to entertain the guests. A space for interaction for all family members, and encourage the family to act as a group. During the night, when the climate is conducive for outdoor activity, courtyards are also prefered as sleeping areas (Gangwar and Kaur, 2016). In the courtyard, green area plant groups were formed around the living areas. Plants are usually grown in pots. courtyards of the dwellings provide a variety of vegetation such as ornamental plants; Pelargonium hybrida, Cactus sp,Vinca sp.

As seen in Figure 3.16, old Nicosia city streets are bounded with walls. Generally streets are located on the principal axes and are full of twists and turns, therefore clustered courtyard buildings alleys constitute organic planning. Streets were wide and straight and several big squares were seen. Although all the nobility on the island lived there, the

unpaved streets made them think the place rural, despite the presence of many fine buildings. During Ottoman period, most of the cathedrals and churches were well preserved through their conversion into mosques or usage for other public functions. therefore a rapid destruction of the characteristic features of the town including the housing structure started (Oktay and Önal, 1998).

Figure 3.16: A view of an alley in old Nicosia (photo taken by Laleci, 2017)

As previously described the traditional domestic buildings are generally located along the narrow streets within an organic urban pattern; and courtyards defines semi-private spaces for the residents. Almost in all houses, which are modest in size and architectural details, interior rooms are organised around a multifunctional courtyard, which is a private or semi private outdoor space with a number of trees. Some of these houses have direct relations and even sometimes direct access to the private courtyard of the neighbouring house (Oktay and Önal, 1998).

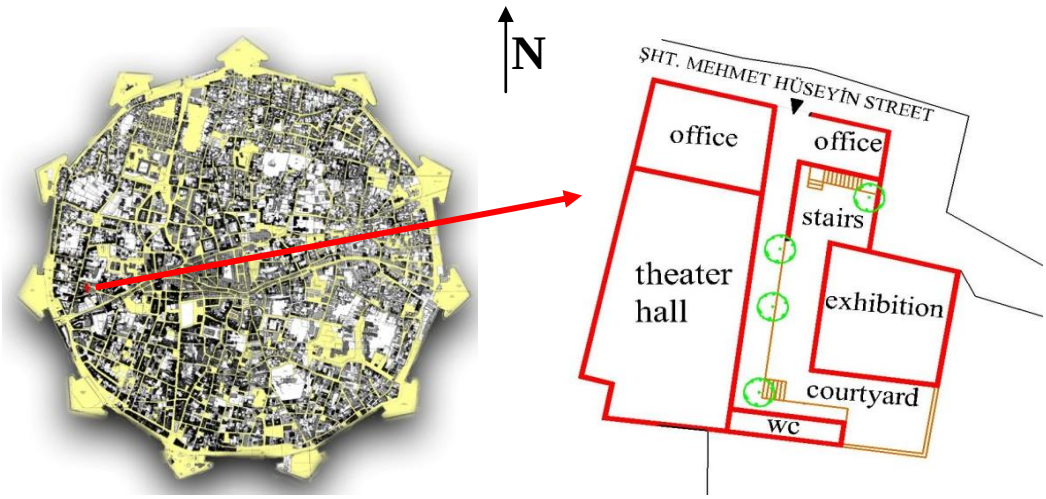


Figure 3.17: Plan of traditional courtyard house in Nicosia (photo taken by Laleci, 2017)

The house, shown in Figure 3.19, displays the characteristics of a typical Turkish house. The orientation of the house was not determined by climatological concerns but by its relation to the street. The street is considered as the public extension of the private house and used as a common outdoor room by neighbours. Looking at street was a significant part of life (especially in old times) and so, at least one room was provided with the maximum view (Oktay and Önal, 1998).

The ground floor wall, after being parallel to the street, forms the house by acquiring a rectilinear shape in the garden. A semi-open transitional space (sofa) sets the relationship to the street, the courtyard, kitchen and upper floor. The courtyard, with its trees, flowers and small vegetable plot, provides the closest relation with the nature. The use of the courtyard includes diverse functions such as sitting, receiving guests, drying foods, cooking with a wood fire, storing, washing and drying laundry, keeping pets, chickens, etc. and other types of house work (Oktay and Önal, 1998; Oktay, 2002).

Figure 3.18: The Samanbahçe house's settlement in Cyprus (photo taken by Laleci, 2017)

Samanbahçe houses' settlements built in 1896 with traditional materials and construction methods is still representing one of today's rare example of historical settlements within the walled city of Nicosia. The traditional Samanbahçe houses reflect the major characteristics of climate responsive house design. The houses settlement displays a rigid grid street system with straight North - south and east - west orientations (Yıldız and Manioğlu, 2015). This shown in Figure 3.18.

Today, the new physical developments in the old city Nicosia is carried out with a regional building regulation called article 96. Within the article open space formation is defined as mentioned below Figure 3.19.

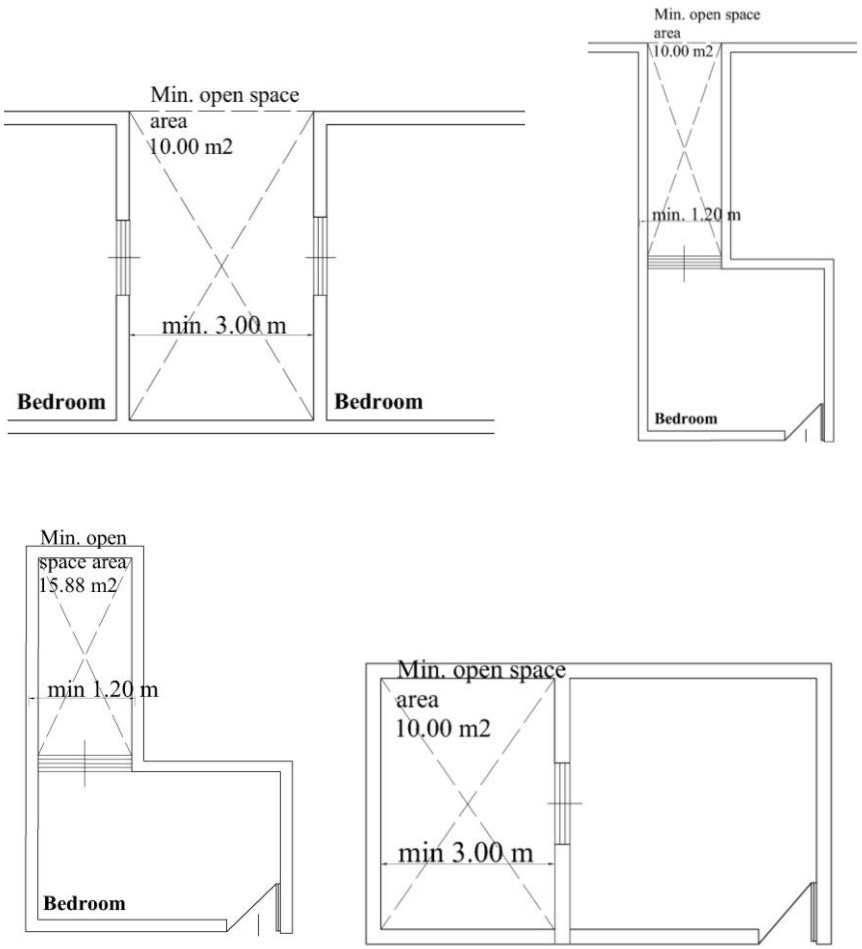


Figure 3.19: Open space formation directive according to regional building regulation (article96) in walled city of Nicosia

It can be understood that, this part of regional building regulation, causes a kind of open space in a plot which is useful only for ventilation and daylight purposes of rooms. These kind of open spaces don't act as open semi-private spaces that can be used socially for residents.

CHAPTER 4
MATERIAL AND METHODS

4.1 Research Methodology

This study was conducted in the old Nicosia city walls region within district of northern Cyprus between June 2017 to September 2017. A total of 15 houses have been identified for this study within the old Nicosia city walls. The selected buildings have been shown on the map in Figure 4.1.

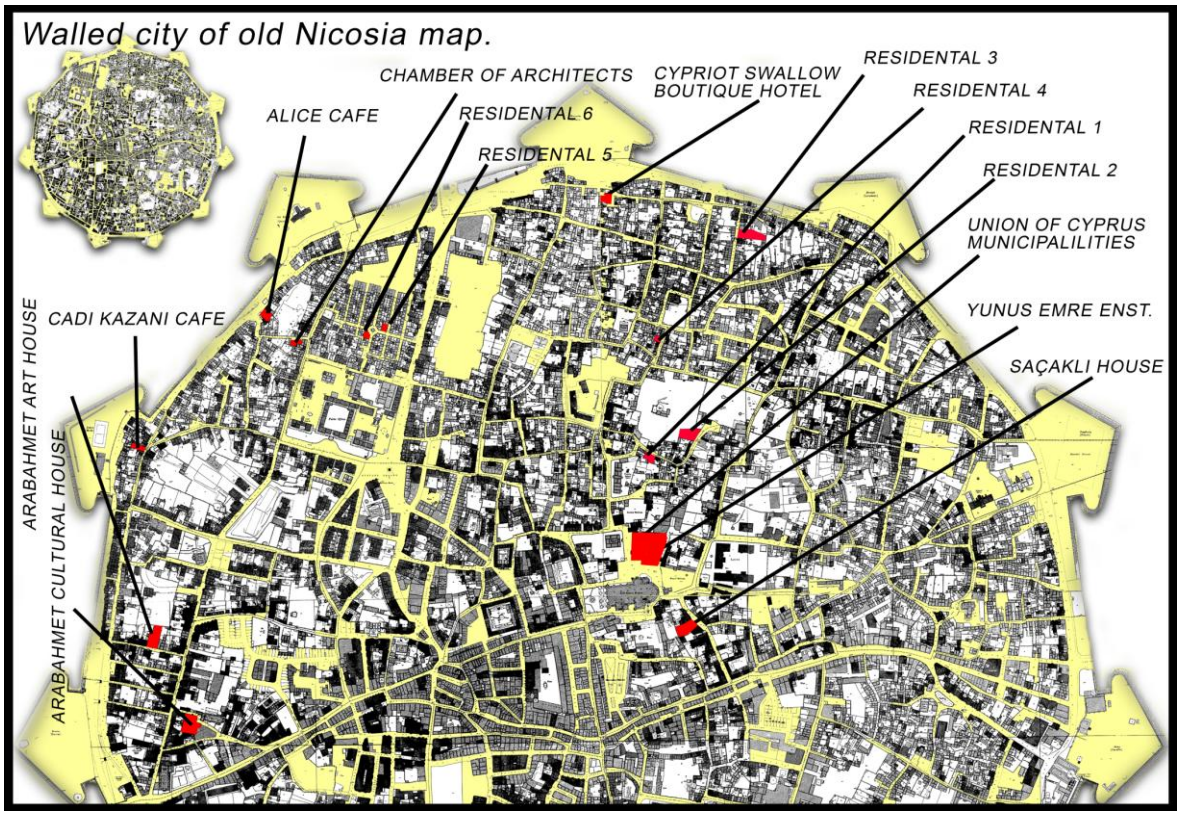


Figure 4.1: The Buildings examined in the scope of this research

According to the function in the courtyard, elements have been divided into four categories; A-) Perception on building and landscape designs in general, B-) The quality of

the landscape setting at the internal courtyard, C-) The frequency of the residents spending time at the internal courtyard in a day and structure , D-) Recreation and vegetation.

Through the questionnaire, vegetation percentage of courtyard garden and courtyard function have been identified. Functions included washing, drying, toilet, using garden. In addition the rooms which are facing towards the courtyard have been recorded, such as kitchen, outdoor toilet, sitting room. Through the survey, participants an expressed their comfort through the natural ventilation of the courtyard. The effect of cool weather in summer months, warm weather in winter months, the courtyard effect on house climate has been also taken.

During the survey courtyards of each historical house were investigated, and notes has been taken about the typology and use of courtyards.

4.2 Data Collection

According to the data collection, the general situation of traditional Cyprus courtyard houses has been examined. The proposed questionnaire is categorized into four main divisions, the demographic layout of users, physical layout of courtyards and functional use and thermal comfort analysis. The demographical information section was used for statistical analysis by categorizing gender, age and accommodation years. Functional and thermal sensation in the direction of the analysis was examined in a distinct group. These are the temperature and the plant cover.

4.3 Data Analysis

The data analysis, firstly percentage analysis method has been carried out to evaluate respondent’s data which includes demographic details (age, gender and total accomadation years), their years of experience in the field of construction.

4.4 Research Questions

The survey study is a scientific tool for the climatic of physical structure usage and user satisfaction of courtyard buildings and led to answer the following questions: (See Appendix II).

1. How is the physical structure and usage of courtyard in old Nicosia?
2. Which rooms are looking towards the courtyard?
3. Is there any porch along the courtyard edges?
4. User satisfaction: comfort conditions for winter months or summer months?
5. How is the use of courtyard houses?
6. Which type of plants is used in courtyard?

4.5 Questionnaire Layout

The questionnaire contained four sections. The initial segment of the survey was identified house area have been information about homeowners (Nationality, Age, Profession, Total accommodation years). The second part was intended to assess respondents how often they use their courtyards in old Nicosia. The third part was about respondents usage purpose of the courtyard area. The last part of the questionnaire was about the vegetation cover and vegetation type of the courtyard. In line with the prepared questionnaires;

- Examination of the usage patterns of inner courtyard buildings,
- With the social and demographic structure of the "Old Nicosia" region being changed, the use of these buildings, which are historical cultural heritage,
- Examination of plan types of inner courtyard buildings and accordingly comfort, vegetation, climate etc. explanation of the connection with the topics,
- Examination of courtyard - facing rooms of inner courtyard buildings according to interior-exterior function, Exp: (Kitchen - Courtyard, Living room - Courtyard, Sundurma - Courtyard etc.),
- The use patterns in inner courts are related with the demographic structure,
- It has been investigated that the courtyard buildings are also affected by the climatic temperature effect of the user. Data will be provided in the direction of the information to be made to this work (See Appendix II).

CHAPTER 5
RESULTS & DISCUSSION

5.1 Results

Courtyards thousands of years of tradition, culture, climate, and is the result of topographical features. These traditions can change from culture to culture, person to person. In addition, courtyards have been an intermediate space providing limited private spaces and street-house connections. The fact that these places are surrounded by high walls, physical factors and privacy features are defined as an area that affects the formation of courtyards.

Generally, courtyards are the most preferred type of residence and comfort in traditional residential settlements. The courtyards in the development of ecological values and sustainable socio-cultural factors have been effective. The characteristics of traditional Turkish courtyards are found in the former Nicosia region. According to the results of the survey conducted in old Nicosia region, in the direction of the answers given by the houseowner to the questions was analysis evaluated under 3 headings.

These data demographic layout of uses (nationality, age, profession, usage years), Physical layout of courtyards (plan type, area, rooms facing, porch, water tank availability), Functional use and thermal comfort feeling (main use courtyard, climate, vegetation type, vegetation cover), Vegetation used courtyards (ornamental, plant types) examination was conducted in accordance with these data. In the former Nicosia region, users living in courtyard-type houses were resident between.

Table 5.1: Participants demographic data in total (N=15)

Characteristics	Frequency	Percentage
Gender:		
Male	4	27%
Female	11	73%
Age:		
26 – 35	1	7%
36 – 45	6	40%
46 – 55	4	26%
56 – 65	3	20%
65 +	1	7%
Accommodation years:		
1 – 20	10	67%
20 – 40	3	20%
40 – 60	2	13%

According to analysis; 27% of the participants were male and 73% of the female. In the age range, the age of 36-45 is 40%. The population living in this resided for 1-20 years makes up 67% was shown in Table 5.1.

The courtyards converted into business premisses 60% and it is not used as a traditional courtyard house 40% used as houses. The courtyard-type plans examined in this area are 67% rectangle, 27% L-shaped, 4% Pentagon. The temperature values that users feel in the courtyards during summer and winter are as follows; In the Summer month 40% Cold, 33% Hot, 27% Marrow. In the Winter month; 33% Cold, 40% Hot, 27% Marrow was shown in Table 5.2 and Table 5.3.

Courtyard of use vegetation; *pelargonium hybrida*, *vinca sp*, *cactus sp* and *scullent plants* use. The old street view inside the city walls that we can see the reflection of the history can be clearly seen in the buildings. In the traditional Cypriot courtyard houses, user

profile and home function areas have changed with the increase of immigration factor. At present, courtyard houses are being tried to provide continuity in positive aspect by changing the function feature (cafe, museum, painting workshop etc.). It was shown in Table 5.2. Also increasing the green tissues in the traditional Cypriot courtyard, it is aimed to provide continuity with the new regulations.

Table 5.2: Survey evaluation analysis use of converted and green space usage.

DEMOGRAPHIC LAYOUT OF USERS					PHYSICAL LAYOUT OF COURTYARDS					FUNCTIONAL USE AND THERMAL COMFORT FEELING		VEGETATION USED COURTYARDS						
No	**Natio nality**	**Age Users**	**Profes.**	**Years of Use**	**Plan Type Courtyard**	**Rooms Facing to Courtyard**	**Porch**	**Water Tank Availability**	**Main Use Courtyard**	**Summer**	**Winter**	**Vegetation Type / Cover**	**Ornamental**	**Trees**	**Fruit**	**Shrubs**	**Ground Covers**	**Herbs**
1	TRNC	46 -55	-	-	L – shaped	Exhibition, Relax room, Conferance, Saloon	Yes	No	Sitting, Reading, Meeting, Exhibition	Cold	Hot	Ornamental /Yes	Pelargonium hybrida, Vinca sp.	Washingtonia robusta,	No	Canna sp, Pink rose, Pittosporu m tobira, Succulent sp.	Bougainvillea glabra, Jasminium officinalis	Ocimum basilicum
2	TRNC	36 -45	-	-	Rectangular	Hall, Cafe, Classroom	No	No	Vegetation, Reading, Sitting	Cold	Hot	Ornamental /Yes	Cactus sp, Vinca sp.	Ficus benjamin, Schefflera sp.	No	Lantana camara	Bougainvillea glabra,	No
3	TRNC	-	-	-	Rectangular	Hall, Wc, Meeting, Accounting room	No	No	Not being used	Cold	Hot	Ornamental /Yes	Pelargonium hybrida,	Washingtonia robusta, Pinus pinea, Ficus elastica, Araucaria sp, Schefflera sp.	Ficus carica	Nerium Oleander, Pittosporu m tobira	Bougainvillea glabra, Jasminium officinalis	No
4	TRNC	46 -55	Teacher	1-20	Rectangular	Saloon, Living room, Hall, Kitchen	Yes	Yes	Sitting, Eating, Resting, Reading	Cold	Hot	Mixture /Yes	Pelargonium hybrida, Aloe vera	Washingtonia robusta, Olea sp.	Cistus reticulata Ficus carica, Prunus persica	Agave sp, Tradescan tia sp, Orthrosan thus laxus	Scindapsus pictus, Portulaca grandiflora, Jasminium officinalis, Parthenocissus sp	Lavantha lavandula, Matricaria chamomilla
5	TRNC	56 -65	Retired	1-20	Rectangular	Theatral Saloon, Toy museum, Wc, Meeting, Picture room.	No	No	Sitting	Marrow	Cold	Ornamental /Yes	Vinca sp.	Ficus benjamin,	No	Pelargoni um cirosum	Jasminium officinalis	Ocimum basilicum
6	TRNC	-	-	-	Rectangular	Living room, Kitchen	Yes	Yes	Sitting, Eating, Playing	Marrow	Cold	Ornamental /Yes	Aloe vera, Vinca sp.	No	No	Nerium Oleander, Ficus iyrata	Scindapsus aureus	No
7	TRNC	-	-	-	L – shaped	Hall, Wc	No	Yes	Sitting, Eating,	Marrow	Marrow	Ornamental /Yes	Vinca sp.	Ficus benjamin, Washingtonia robusta	No	Dracena sp, Polygala sp	Bougainvillea glabra, Jasminium officinalis	No
8	TRNC	-	-	-	Rectangular	Kitchen, Wc, Badroom	No	No	Sitting, Eating, Resting, Reading	Marrow	Marrow	Ornamental /Yes	Pelargonium hybrida, Cactus sp, Vinca sp.	No	No	Solenoste mon scutellari oide, Schefflera sp.	Bougainvillea glabra,	No
9	TRNC	-	-	-	L – shaped	Hall, Wc, Living room	No	Yes	Sitting, Eating,	Cold	Hot	Ornamental /Yes	Cactus sp,	No	No	Cycas sp, Tradescan tia sp,	No	No

Table 5.3: Survey evaluation analysis use of housing type and green space usage.

DEMOGRAPHIC LAYOUT OF USERS					PHYSICAL LAYOUT OF COURTYARDS					FUNCTIONAL USE THERMAL COMFORT FEELING		VEGETATION USED COURTYARDS						
No	**Nationality**	**Age Users**	**Profes.**	**Years of Use**	**Plan Type Courtyard**	**Rooms Facing to Courtyard**	**Porch**	**Water Tank Availability**	**Main Use Courtyard**	**Summer**	**Winter**	**Vegetation Type / Cover**	**Ornamental**	**Trees**	**Fruit**	**Shrubs**	**Ground Covers**	**Herbs**
1	TR	36 -45	Waiter	1-20	Rectangular	Living room, Kitchen, Badroom	No	No	Vegetation,	Cold	Hot	Ornamental /Yes	Nephrolepsis exaltata, Cactus sp, Kalanchoe, Sedum sp, Aloe vera, Pelargonium hybrid	No	No	No	Scindapsus aureus	Ocimum basilicum
2	TR	26 -35	Housewife	1-20	Rectangular	Wc	Yes	Yes	Laundry	Hot	Cold	Ornamental /No	No	Fagus grandiflora	No	No	No	No
3	TRNC	56-65	Painter retired	1-20	L-Shaped	Studio	Yes	Yes	Sitting,Eating, Reading, Painting atelier	Hot	Cold	Ornamental /Yes	No	Washingtonia robusta, Passiflora sp	Cistus reticulata, Ficus carica	No	Bougainvillea glabra,	No
4	TRNC	46 -55	Retired	1-20	Rectangular	Kitchen, Badroom, Wc	Yes	Yes	Irrigate flowers	Hot	Marrow	Ornamental/ Yes	Cactus sp, Kalanchoe, Sedum sp, Aloe vera, Pelargonium hybrid, Vinca sp, Lilium sp.	No	No	No	No	No
5	TRNC	65+	Housewife	20-40	Rectangular	Kitchen, Badroom	Yes	Yes	Not being used	Hot	Marrow	Ornamental /No	No	No	No	No	No	No
6	TRNC	46 -55	Housewife	1-20	Pentagon	Kitchen, Badroom, Wc	No	Yes	Not being used	Hot	Cold	Ornamental /No	No	No	No	No	No	No

The datas collected during the research on the selected buildings in walled city Nicosia also point out some more findings. These findings are about the percentages of courtyard area over total building land areas (See Table 5.4).

Table 5.4: Percentages of "Courtyard Area over Total Building Land Area" of surveyed courtyard houses in walled city Nicosia

No	Surveyed Courtyard Houses	Courtyard Area	Total Land Area	Percentage of Courtyard / Land Area
1	The Eaved House	206 m^2	458 m^2	% 44,9
2	Yunus Emre Institute	398 m^2	650 m^2	% 61,2
3	Union of Municipalities	625 m^2	980 m^2	% 63,7
4	ArabAhmet Art House	254 m^2	434 m^2	% 58,5
5	ArabAhmet Culture and Art House	140 m^2	556 m^2	% 25,1
6	Alice Cafe	283 m^2	485 m^2	% 58,3
7	Chamber of Architects	189 m^2	391 m^2	% 48,3
8	Cypriot Swallow Boutique Hotel	6 m^2	220 m^2	% 2,7
9	Cadı Kazanı Cafe	52 m^2	127 m^2	% 40,9
10	Residence 1	10,5 m^2	91 m^2	% 11,5
11	Residence 2	63 m^2	209 m^2	% 30,1
12	Residence 3	220 m^2	439 m^2	% 50,1
13	Residence 4	9 m^2	73 m^2	% 12,3
14	Residence 5	20 m^2	84 m^2	% 23,8
15	Residence 6	29 m^2	89 m^2	% 32,5
AVERAGE	**Total 15 Courtyard House**	**2.504,5 m^2**	**5.286 m^2**	**% 47,4**

As it can be seen, the average percentage value of "Courtyard area over Total Building Land Area" for the surveyed houses came out as 47.4 percent. This result indicates that the open space formation directive of regional building regulation of article 96 must be reviewed. For the new development of residents or buildings in old Nicosia, the open spaces must not be only for daylight supply or ventilation of living spaces. Being part of the culture, formation of courtyards must be supported with building regulation directives.

Simply, instead of providing only 10 m^2 (minimum area as article 96 says) as open space should not be enough. It seems considering ratios of courtyard area with total land area will be better for urban pattern. Courtyards are very important spaces for climatic comfort, social life and functional space usage.

5.2 Discussion

Courtyards play an important role in shaping the physical, psychological and climatic environment in the courtyard houses (Sthapak and Bandyopadhyay, 2014). Architecture benefit is the significiance of courtyard by it is the central position enclosed by various landscape and tree elements, which play an important role in our social and working life (Meir, 2000). Also, courtyards are important for cultural heritage and local life style. In general, a courtyard plan level was used in accordance with the mediterranean houses. According to Rapaport (1969), courtyard houses have been used in different cultures which are both crowded and hierarchical. In this research we have found that the use of courtyards in the old Nicosia region has consists two different types. Firstly ıt was found that the courtyard houses are used by the families, the secondly they are used as cafe, restaurant, hotel etc.

Courtyard houses which are used by families were neglected and in ruined condition. It was observed that residents are not using courtyard spaces in general and they are usually using this space for utility kind of purposes. As a result of this research, ıt was found that traditional way of using courtyards is not existing anymore, this can be because of there is no longer Cypriot community living within this area of old Nicosia.

CHAPTER 6
CONCLUSION

In this study, it was determined that courtyard houses are not used as traditional way of Cypriot culture anymore, as the area currently has been used by refugees. Unfortunately it has been observed that traditional texture has not been protected by local community. It was noticed that traditional courtyard texture of walled city of Nicosia is disappearing. Many of the historically important old Nicosia houses are used for special (cafe, hotel, restaurant etc.) purposes. It could be emphasized that awareness should be given to the people who are living in the historical city, historical environment, culture and social interaction and sensitivity of this site, in order to conserve the area for future generations. This could be achieved by using EU and UNDP funded projects and involving social activities or educational programmes with Nicosia Turkish Municipality.

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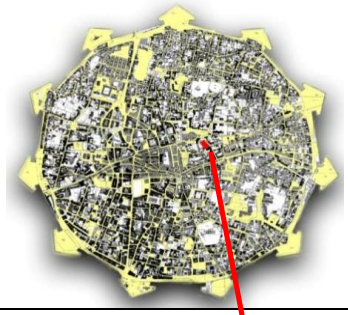
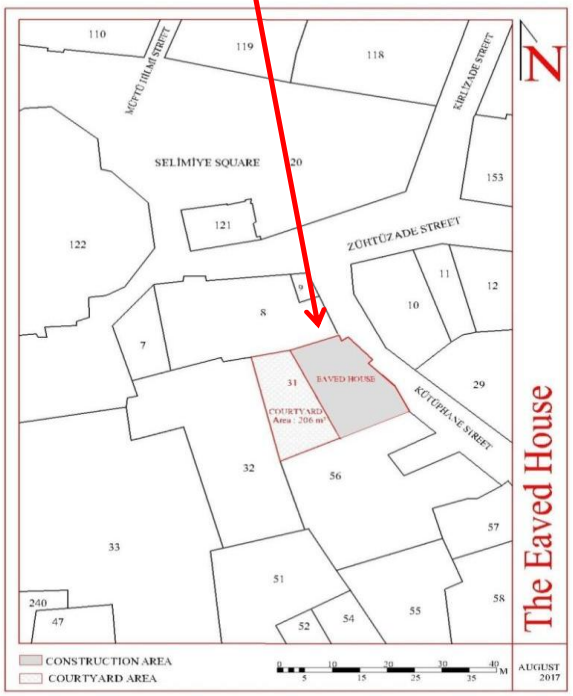
APPENDICES

APPENDIX 1: House Plans: The Eaved / Saçaklı House – 1

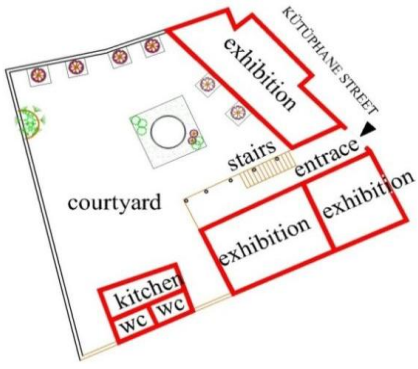
THE EAVED / SAÇAKLI HOUSE - 1



DISTRICT	Nicosia
ZONE	Selimiye
STREET	Kütüphane Street
PARCEL	31
PURPOSE OF USE	Public area
LAND AREA	458 m2
GARDEN AREA	206 m2
PLAN TYPE COURTYARD	L - shaped
USE OF FUNCTION	Reading / sitting / Meeting / Exhibition



SITE PLAN



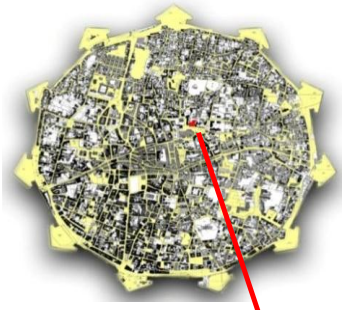
GROUND FLOOR PLAN

OUTDOOR SPACE

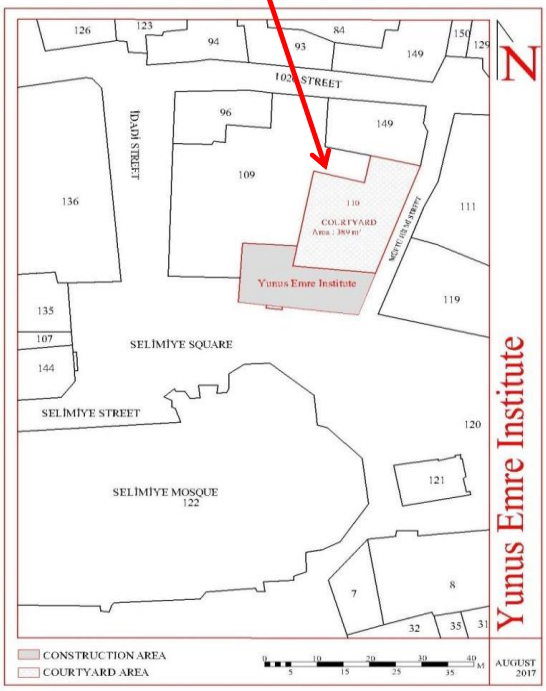
COURTYARD

House plans: Yunus Emre Institute – 2

YUNUS EMRE INSTITUTE - 2



DISTRICT	Nicosia
ZONE	Selimiye
STREET	Selimiye Street
PARCEL	110
PURPOSE OF USE	Semi-Public area
LAND AREA	650 m2
GARDEN AREA	398 m2
PLAN TYPE COURTYARD	Rectangle
USE OF FUNCTION	Reading / sitting / vegetation area



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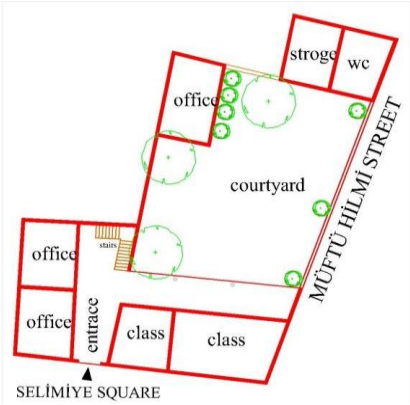


GROUND FLOOR PLAN

OUTDOOR SPACE

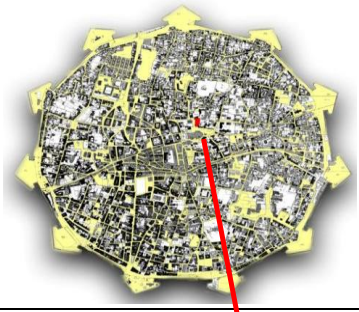
INNER COURTYARD

PORCH

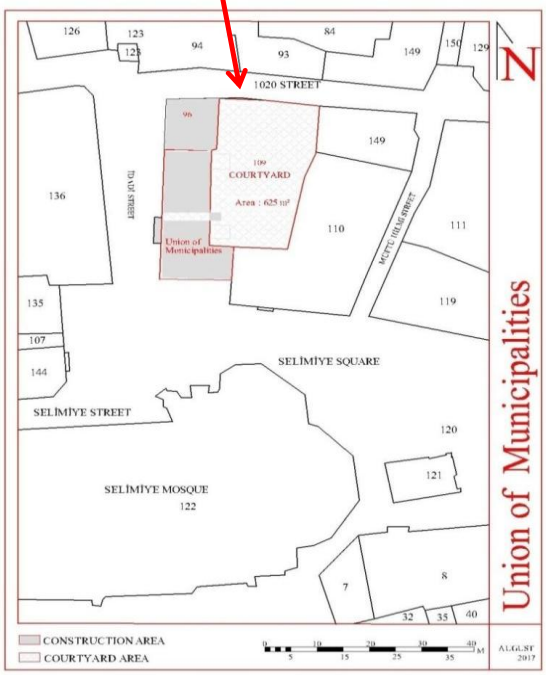
GREEN CORNER IN A COURTYARD

House plans: Union of Municipalities – 3

UNION OF MUNICIPALITIES - 3



DISTRICT	Nicosia
ZONE	Selimiye
STREET	İdadi Street
PARCEL	109
PURPOSE OF USE	Public area
LAND AREA	980 m2
GARDEN AREA	625 m2
PLAN TYPE COURTYARD	Rectangle
USE OF FUNCTION	Not used courtyard



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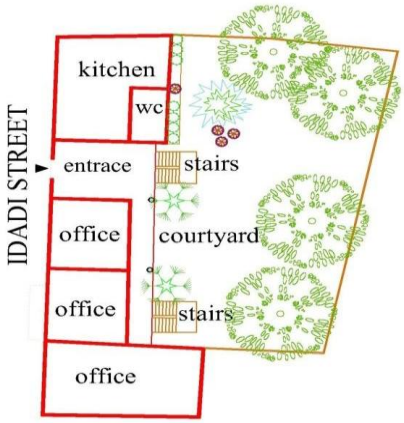
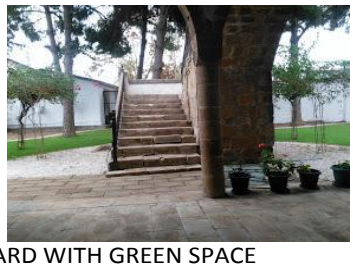


GROUND FLOOR PLAN

OUTDOOR SPACE

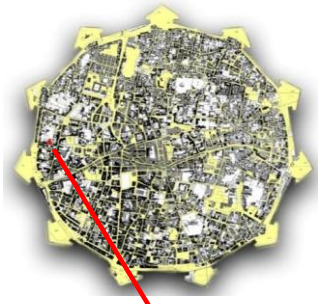


INNER COURTYARD WITH GREEN SPACE

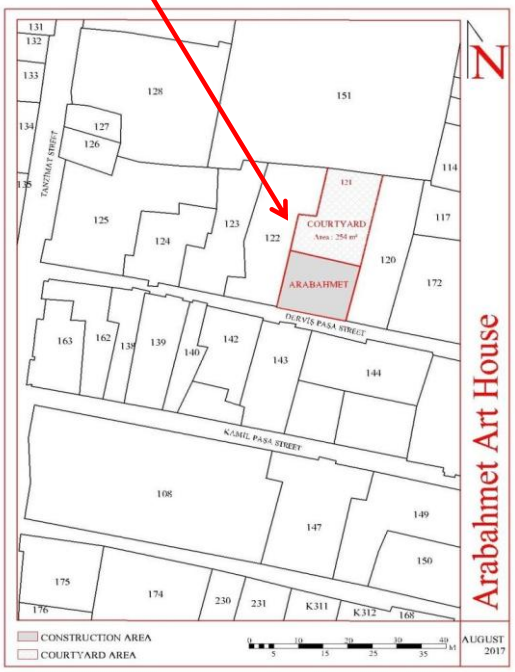
COURTYARD ENTRANCE

House plans: Arabahmet Art House - 4

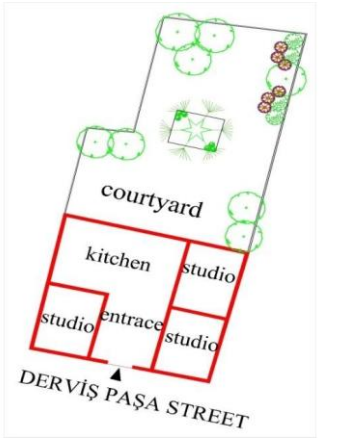
ARABAHMET ART HOUSE - 4



DISTRICT	Nicosia
ZONE	Arabahmet
STREET	Derviş Paşa Street
PARCEL	121
PURPOSE OF USE	Private area
LAND AREA	434 m2
GARDEN AREA	254 m2
PLAN TYPE COURTYARD	Rectangle
USE OF FUNCTION	Reading / Sitting / Eating / Resting



SITE PLAN

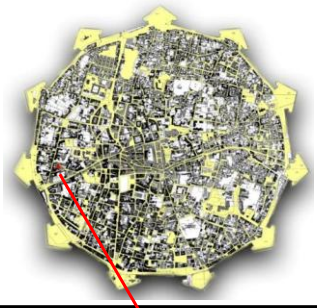


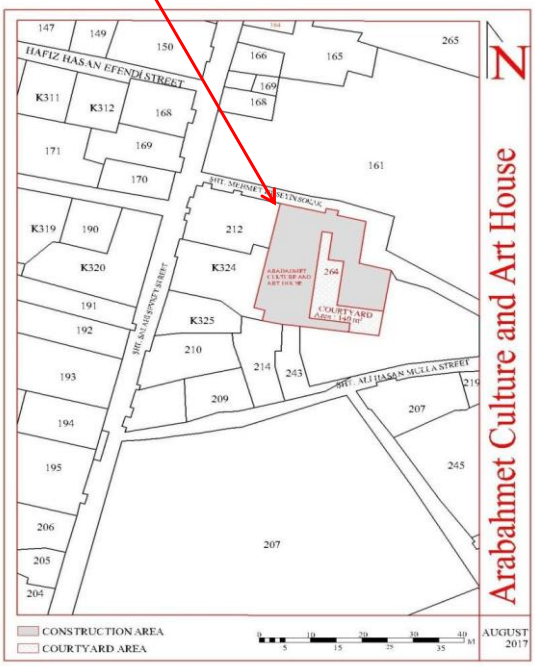
GROUND FLOOR PLAN

OUTDOOR SPACE

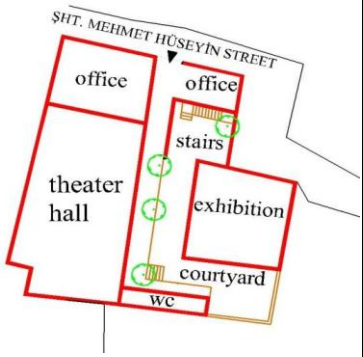
COURTYARD WITH GREEN SPACES

House plans: Arabahmet Culture and House – 5

ARABAHMET CULTURE AND ART HOUSE - 5		
	**DISTRICT**	Nicosia
	ZONE	Karamanzade
	STREET	Şht. Mehmet Hüseyin Street
	PARCEL	264
	PURPOSE OF USE	Public area
	LAND AREA	556 m2
	GARDEN AREA	140 m2
	PLAN TYPE COURTYARD	Rectangle
	USE OF FUNCTION	Sitting



SITE PLAN



GROUND FLOOR PLAN

OUTDOOR SPACE

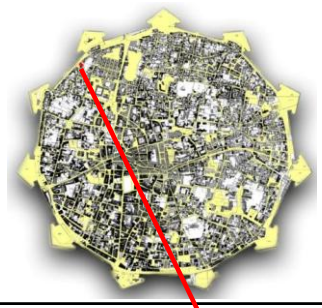
PORCH

INNER COURTYARD SPACE

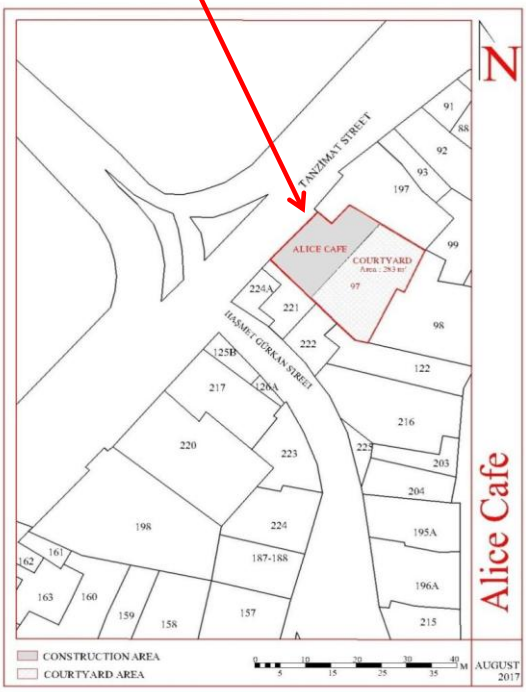
DIFFERENT LEVELS IN A COURTYARD

House plans: Alice Cafe - 6

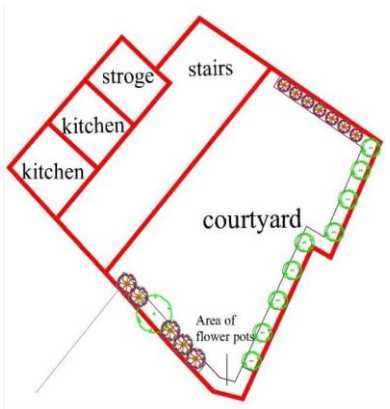
ALICE CAFE - 6



DISTRICT	Nicosia
ZONE	Mahmutpaşa
STREET	Tazminat Street
PARCEL	97
PURPOSE OF USE	Private area
LAND AREA	485 m2
GARDEN AREA	283 m2
PLAN TYPE COURTYARD	Rectangle
USE OF FUNCTION	Sitting / Eating / Playing



SITE PLAN



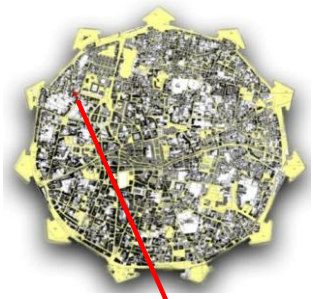
GROUND FLOOR PLAN

OUTDOOR SPACE

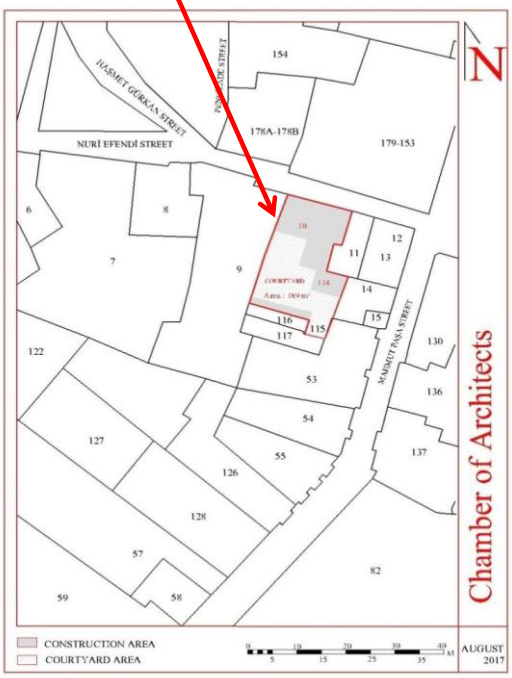
COURTYARD WITH GREEN SPACES

House plans: Chamber of Architects – 7

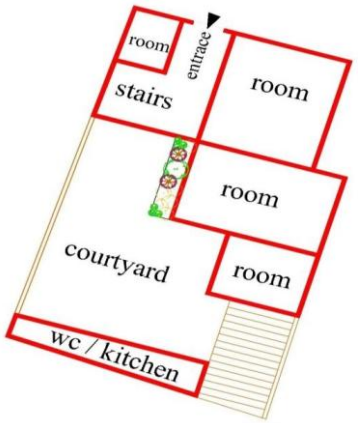
CHAMBER OF ARCHITECTS - 7



DISTRICT	Nicosia
ZONE	Arabahmet
STREET	Nuri Efendi Street
PARCEL	10-114-115
PURPOSE OF USE	Private area
LAND AREA	391 m2
GARDEN AREA	189 m2
PLAN TYPE COURTYARD	L - shaped
USE OF FUNCTION	Sitting / Eating



SITE PLAN



GROUND FLOOR PLAN

OUTDOOR SPACE

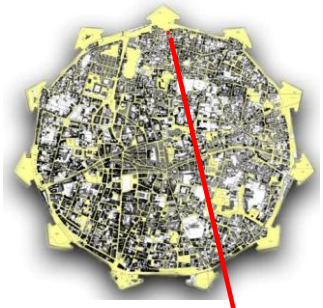
COURTYARD WITH

GREEN SPACES

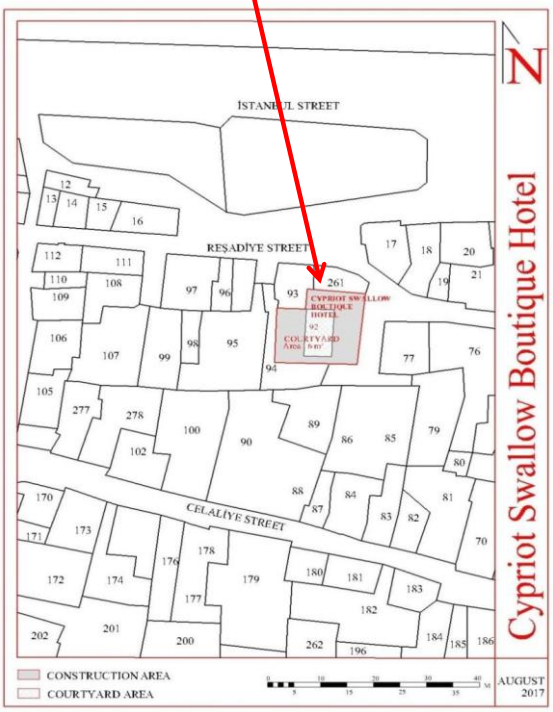
COURTYARD ENTRANCE

House plans: Cypriot Swallow Boutique Hotel – 8

CYPRIOT SWALLOW BOUTIQUE HOTEL - 8



DISTRICT	Nicosia
ZONE	Akkavuk
STREET	Reşadiye Street
PARCEL	92
PURPOSE OF USE	Private area
LAND AREA	220 m2
GARDEN AREA	6 m2
PLAN TYPE COURTYARD	Rectangle
USE OF FUNCTION	Reading / Sitting / Eating / Resting



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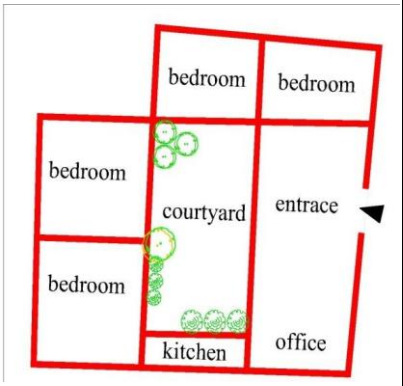


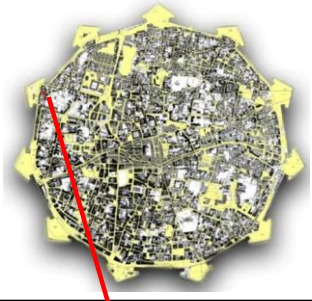
GROUND FLOOR PLAN

OUTDOOR SPACE

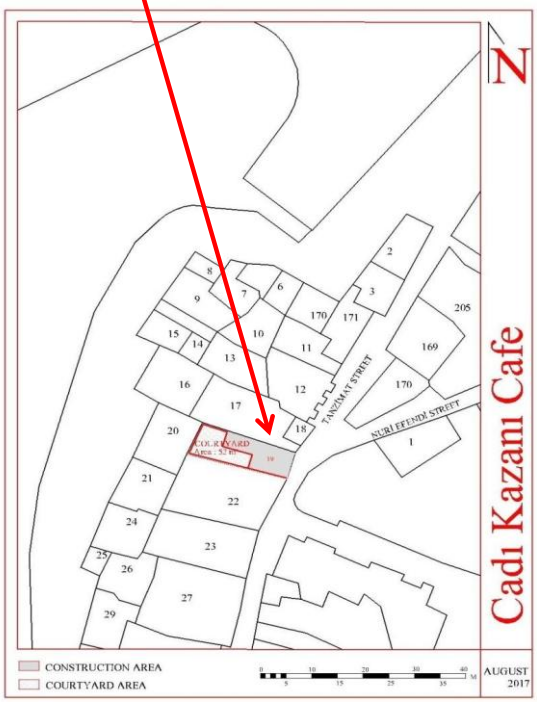
COURTYARD WITH GREEN CORNERS

House plans: Cadı Kazanı Cafe - 9

CADI KAZANI CAFE - 9



DISTRICT	Nicosia
ZONE	Arabahmet
STREET	Tanzimat Street
PARCEL	19
PURPOSE OF USE	Private area
LAND AREA	127 m2
GARDEN AREA	52 m2
PLAN TYPE COURTYARD	L - shaped
USE OF FUNCTION	Sitting



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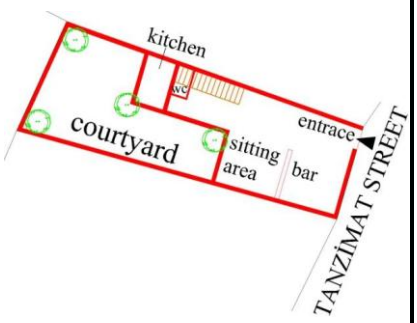


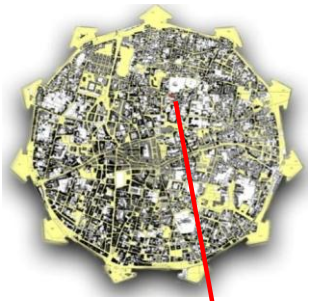
GROUND FLOOR PLAN

OUTDOOR SPACE

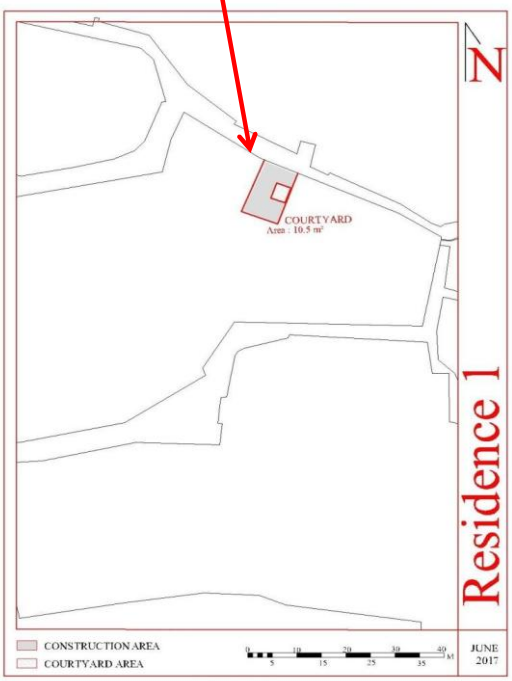
VIEW FROM INNER COURTYARD SPACE

House plans: Residence – 10

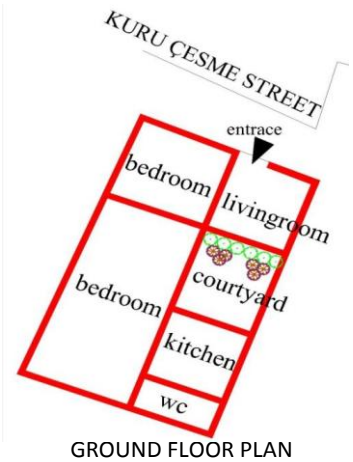
RESİDENCE - 10



DISTRICT	Nicosia
ZONE	Selimiye
STREET	Kuru Çeşme street
PARCEL	-
PURPOSE OF USE	Private area
LAND AREA	91 m2
GARDEN AREA	10.5 m2
PLAN TYPE COURTYARD	Rectangle
USE OF FUNCTION	Vegetation



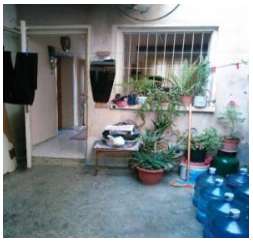
SITE PLAN



GROUND FLOOR PLAN

GREEN SPACE

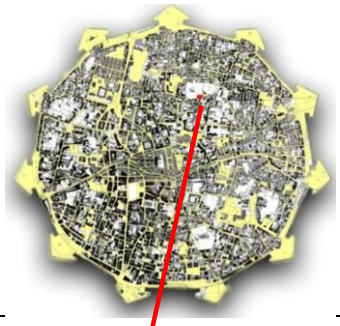
COURTYARD WITH GREEN SPACE



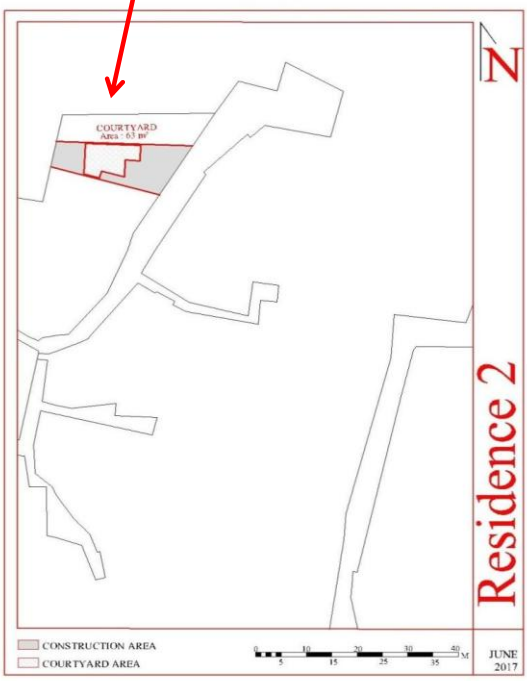
COURTYARD ENTRANCE

House plans: Residence - 11

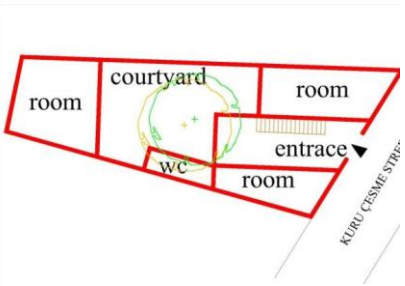
RESİDENCE - 11



DISTRICT	Nicosia
ZONE	Abdiçavuş
STREET	Kuru Çeşme Street
PARCEL	-
PURPOSE OF USE	Private area
LAND AREA	209 m2
GARDEN AREA	63 m2
PLAN TYPE COURTYARD	Rectangle
USE OF FUNCTION	Laundry



SITE PLAN

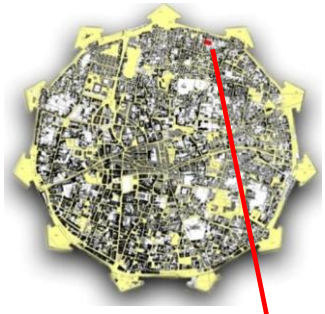


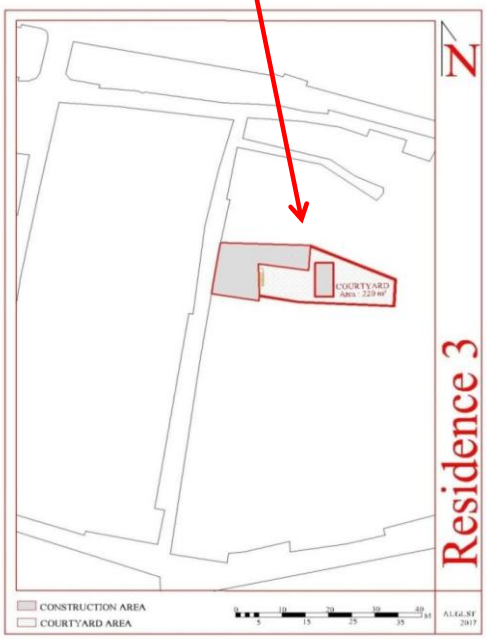
GROUND FLOOR PLAN

OUTDOOR SPACE

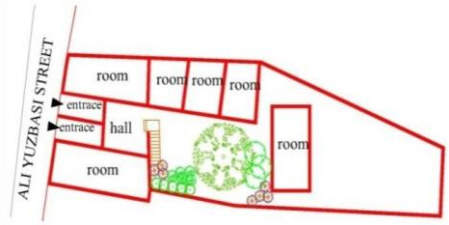
VIEW FROM COURTYARD SPACES

House plans: Residence – 12

RESİDENCE - 12		
	**DISTRICT**	Nicosia
	ZONE	Ayyıldız
	STREET	Ali Yüzbaşı Street
	PARCEL	-
	PURPOSE OF USE	Private area
	LAND AREA	439 m2
	GARDEN AREA	220 m2
	PLAN TYPE COURTYARD	Rectangle
	USE OF FUNCTION	Sitting



SITE PLAN



GROUND FLOOR PLAN

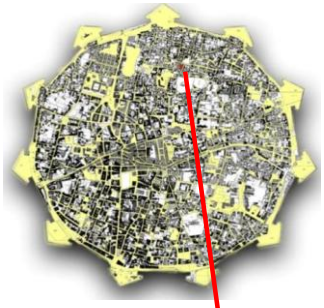
OUTDOOR SPACE

COURTYARD WITH GREEN SPACES

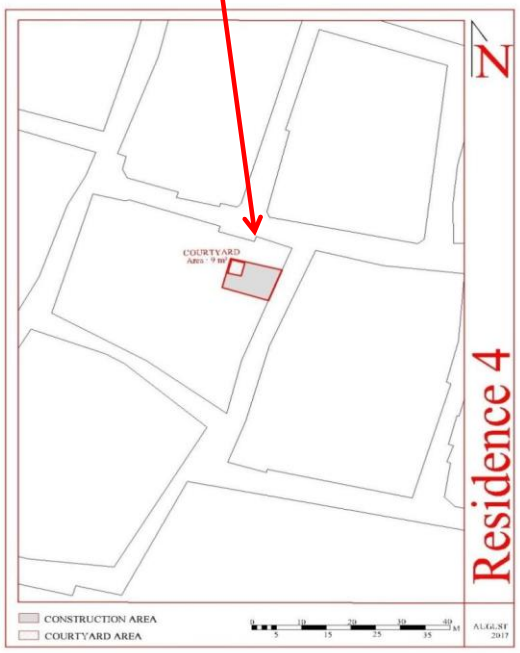
COURTYARD ENTRANCE

House plans: Residence – 13

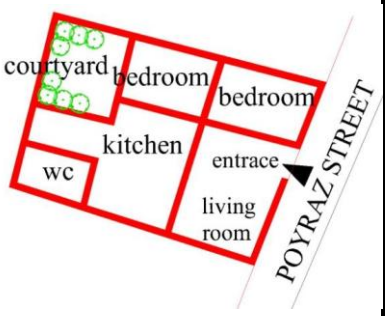
RESİDENCE - 13



DISTRICT	Nicosia
ZONE	Akkavuk
STREET	Poyraz Street
PARCEL	-
PURPOSE OF USE	Private area
LAND AREA	73 m2
GARDEN AREA	9 m2
PLAN TYPE COURTYARD	Rectangle
USE OF FUNCTION	Irrigate Flowers



SITE PLAN



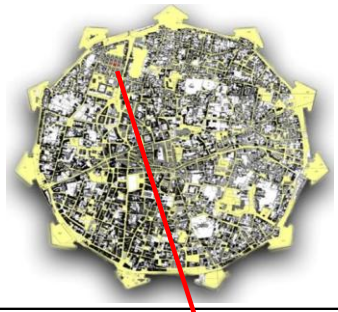
GROUND FLOOR PLAN

GREEN SPACE

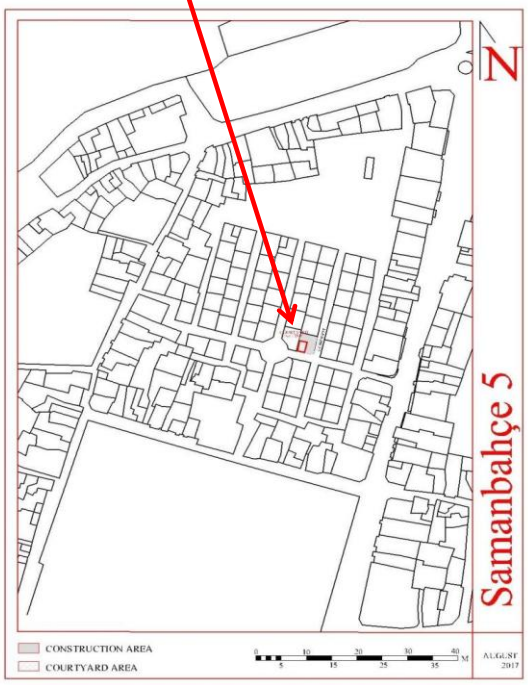
COURTYARD WITH GREEN CORNERS

House plans: Residence – 14

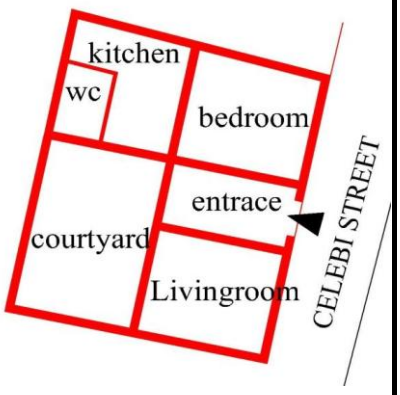
RESİDENCE - 14



DISTRICT	Nicosia
ZONE	İbrahimpaşa
STREET	Çelebi Street
PARCEL	-
PURPOSE OF USE	Private area
LAND AREA	84 m2
GARDEN AREA	20 m2
PLAN TYPE COURTYARD	Rectangle
USE OF FUNCTION	Not being used

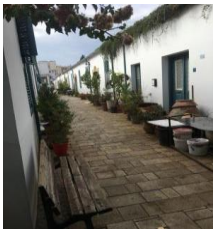


SITE PLAN



GROUND FLOOR PLAN

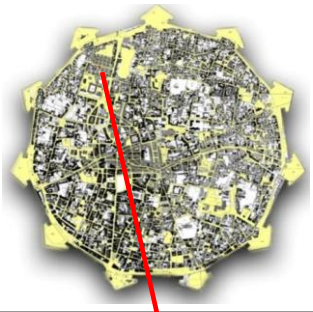
OUTDOOR SPACE



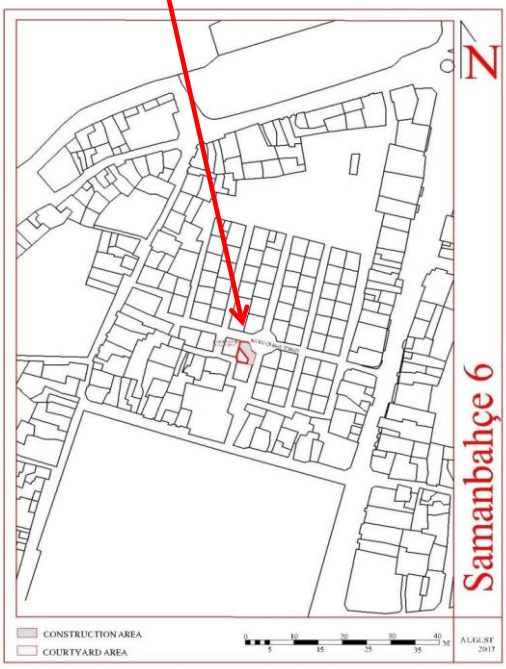
STREET VIEWS

House plans: Residence – 15

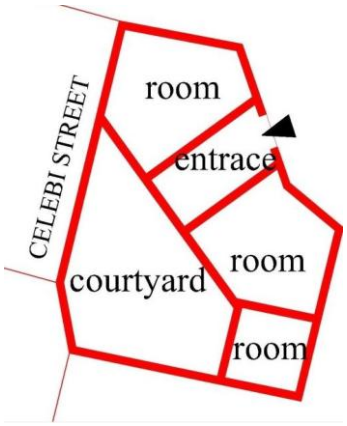
RESİDENCE - 15



DISTRICT	Nicosia
ZONE	İbrahimpaşa
STREET	Çelebi Street
PARCEL	-
PURPOSE OF USE	Private area
LAND AREA	89 m2
GARDEN AREA	29 m2
PLAN TYPE COURTYARD	Pentagon
USE OF FUNCTION	Not being used



SITE PLAN



GROUND FLOOR PLAN

OUTDOOR SPACE

VIEWS FROM COURTYARD SPACE

STREET VIEW

APPENDIX 2: Survey for Thesis Questionnaire

NEAR EAST UNIVERSITY

GRADUATE SCHOOL OF APPLIED SCIENCES

DEPARTMENT OF ARCHITECTURE (SURVEY FOR THESIS) / "Old Nicosia – Courtyard Gardens"

-This survey study is a scientific tool for the climatic investigation of physical structure usage and user satisfaction of interior courtyard buildings. Findings to be obtained without this work will be used in thesis and article.Thank you for your time.

-Bu anket çalışması iç avlulu binaların fiziki yapısı kullanımı ve kullanıcı memnuniyeti iklimsel açıdan araştırılması için bilimsel bir araçtır. Bu çalışmadan elde edilecek bulgular tez ve makalede kullanılacaktır. Zaman ayırdığınız için teşekkür ederiz.

Survey Date :

A. **INFORMATION ABOUT HOMEOWNERS**
1. Name –Surname :……
2. Nationality : ☐ TC TR ☐ KKTC TRNC ☐ Other Country (……)
3. Age : ☐ 16-25 ☐ 26-35 ☐ 36-45 ☐ 46-55 ☐ 56-65 ☐ 65+
4. Profession : ……
5. House Adress :……..... Plot References: ……Plan:……..Sheet:……Block:…….Parcel:……
6. Total Accomadation Years : ☐1-20 ☐ 20-40 ☐ 40-60 ☐ 60-80 ☐ 80-100
B. PHYSICAL STRUCTURE AND USE OF COURTYARD TYPE BUILDINGS

7. Plan of the house ? (Dimensions, Materials….)

☐ Garden Courtyard House

☐ Group of L-shaped house

☐ Shared courtyard house

☐ Patio House

☐ L- Shaped house II

☐ Atrium- type House

8. Section of the Courtyard (Heights, Materials…)

……
……
……

9. Size and area of the Courtyard? (Total m2)

……
……

10. Which rooms are looking towards the courtyard?

☐ Saloon

☐ Living room

☐ Hall

☐ Kitchen

☐ Badroom

☐ Wc

☐ Other

11. Is there any porch along the courtyard edges?

Yes ☐ No ☐

12. User satisfaction; Comfort conditions for <u>Winter months</u>

☐ Cold ☐ Cool ☐ Very Cool ☐ Marrow ☐ Hot

13. User satisfaction; Comfort conditions for **<u>Summer months</u>**

☐ Cold ☐ Cool ☐ Very Cool ☐ Marrow ☐ Hot

14. Is there any water resource within the courtyard?

Yes ☐ No ☐

15. Use of Courtyard ?

☐ Vegetation

☐ Sitting

☐ Utility

☐ Storage

☐ Eating

☐ Playing Area

☐ Resting

☐ Readin

☐ Cooking

☐ Knitting/Handcrafts

☐ Sporting / Physical Exercises

☐ Other

16. Vegetation type for:

☐ Ornamental ☐ Food ☐ Mixture

17. Vegetation cover?

Yes ☐ No ☐

18. Vegetation Details (Vegetables, Fruit, Tree, Herbs, Ornamentals)

Vegetables:……

Fruits :……..

Herbs :……..

Ornamental:……

19. What are the types of plants used in the courtyard?

Trees:……...

Shrubs:…….

Groundcovers:…….....

APPENDIX 3: Scientific Research Ethics Committee Approval Form

YAKIN DOĞU ÜNİVERSİTESİ

BİLİMSEL ARAŞTIRMALAR ETİK KURULU

Dear Selin Laleci, 22.06.2017

Your application titled **"Investigation Of Courtyard Houses and Gardens in Old Nicosia"** with the application number YDÜ/FB/2017/5 has been evaluated by the Scientific Research Ethics Committee and granted approval. You can start your research on the condition that you will abide by the information provided in your application form.

Assist. Prof. Dr. Direnç Kanol

Rapporteur of the Scientific Research Ethics Committee

Direnc Kanol

Note: If you need to provide an official letter to an institution with the signature of the Head of NEU Scientific Research Ethics Committee, please apply to the secretariat of the ethics committee by showing this document.

YAKIN DOĞU ÜNİVERSİTESİ

BİLİMSEL ARAŞTIRMALAR ETİK KURULU

Sayın Selin Laleci, 22.06.2017

Bilimsel Araştırmalar Etik Kurulu'na yapmış olduğunuz YDÜ/FB/2017/5 proje numaralı ve **"Investigation Of Courtyard Houses and Gardens in Old Nicosia"** başlıklı proje önerisi kurulumuzca değerlendirilmiş olup, etik olarak uygun bulunmuştur. Bu yazı ile birlikte, başvuru formunuzda belirttiğiniz bilgilerin dışına çıkmamak suretiyle araştırmaya başlayabilirsiniz.

Yardımcı Doçent Doktor Direnç Kanol

Bilimsel Araştırmalar Etik Kurulu Raportörü

Direnc Kanol

Not: Eğer bir kuruma resmi bir kabul yazısı sunmak istiyorsanız, Yakın Doğu Üniversitesi Bilimsel Araştırmalar Etik Kurulu'na bu yazı ile başvurup, kurulun başkanının imzasını taşıyan resmi bir yazı temin edebilirsiniz.