



The influence of Mediterranean modernist movement of architecture in Lefkoşa:

The first and early second half of 20th century

Ph.D. Candidate **Salar Salah Muhy Al-Din** *

Department of Architecture, Faculty of Engineering, Bharati Vidyapeeth University, Pune, Maharashtra- India

E mail: salars.muhyaldin@yahoo.com

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ABSTRACT

The twentieth century modern architectures in Lefkosia in North Cyprus are changing especially in residential building. This change is occurs based on the client's orders or because of the dilapidated condition of the buildings. Identify the characteristics of modernist architectural movement will help in identifying these buildings and recognize the changes applied on them. The paper aims to reach the rationale understanding about the norms of modern architecture in Lefkoşa in the twentieth century. The methodology is based on analyzing the residential buildings designed by local architects and "Ahmet Vural Bahaeddin" selected as one of the famous modernist architect in the twentieth century in North Cyprus. Residential buildings from Milan and Rome in Italy, as well as Baecelina in Spain selected for analysis. The paper tries to demonstrate the presence of vernacular elements in modern architecture in Lefkoşa. Two vernacular elements were studied, i) the patio (outside and inside interrelation), and ii) the façade materials (exposed stone) as vernacular elements in "Mediterranean modernist architecture". The paper delineated the influence of the "Mediterranean modernist movement" on modern architecture in Lefkoşa in the 20th century. The findings show that there is influence by Modernist movement of architecture in other Mediterranean cities in Italy and Espain on the modern architecture in Lefkoşa. The results contribute evidence to promote our understanding regarding the modernist architecture in Lefkoşa.

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1. Introduction

"Mediterranean Modernism movement" in architecture was one of the dialects between the presumed universalism of modernist architecture and the privacies of distinct places. It considered the vernacular building traditions of the Mediterranean region as a source for modernism in architecture in this region. This notion crystallized after the discourses between north and south of Europe about the modernism in architecture in the beginning of the last century (Lejeune, and Sabatino, 2010). The

differences in opinions that had developed during the 1920s between the architects of the North and the South of Europe toward the role of technology and tradition continued to define postwar production. "Mediterranean modernist movement" in architecture came out as modernist architectural philosophy in south of Europe. Vernacular architecture started to be

*Corresponding Author:

Department of Architecture, Faculty of Engineering, Bharati Vidyapeeth University, Pune, Maharashtra, India
 E-mail address: salars.muhyaldin@yahoo.com



discussed as a source of modernism in the "Mediterranean modernism philosophy". For example James Stirling's mentioned in his essay on *Regionalism and Modern Architecture* (1957) that: "The most visually stimulating chapters of Kidder Smith's recent book *Italy Builds* were not those on Italian Modern and Italian Renaissance, but that on the anonymous architecture of Italy" (Sabatino, 2010).

Hence, Vernacular elements considered as the primary sources of modern architecture in the southern Mediterranean. The influence of this philosophy could be observed in modern residential buildings in the first and early second half of 20th century in Lefkoşa, in North Cyprus. The designs have been held some vernacular elements in the modern buildings specially the stone facades and in the interrelation between inside and outside of the buildings (Patio). The paper tries to answer following questions; whether or not the Cypriot modernist architecture was influenced by "Mediterranean modernism philosophy" in first half of 20th century? Whether or not, other external factors affected the modernism in the architectural design of residential buildings in that period? The paper aims to define the character of modern architecture houses between first and second half of 20th century in Lefkoşa. The study tries to demonstrate the similarity between Ahmet Vural Bahaedden's design as North Cypriot pioneer in modern architecture and other Italian and Spanish design in the same periods. The paper hypothesize that if the "Mediterranean modernism" were influencing the architectural style in Lefkoşa after the first half of 20th century, then the introduction of vernacular elements in the residential buildings designed by 'Ahmet Vural Bahaeddin' is partially or totally result of that influence.

2. Literature review

2.1. Modernist movement of Architecture

With the end of nineteenth century and the beginning of twentieth century, because of Modern Movement in the societies of west Europe, architects started to leave past styles and began to work on a new form of architecture (Evans and Jeffery, 2005). Modernism in architecture focuses on Sullivan's saying that "form follows function", based on functional concerns. In this study the modern movements of architecture will be delineated to the first half of twentieth century. The first decade or so after the 'World War I' was a crucial and innovative time for architecture. The

new movement became international after World War I, where consist the development of simple geometric figures and simple facades free from ornaments released from any historical references. Buildings were to be "machines for living," reflecting the industrial revolution age (Le Corbusier, 1931). Consequently, Modernist movement in architecture had been crystallized as real movement. The best known of this movement were, between many, Walter Gropius, Le Corbusier in France, and Mies Van der Rohe in Germany. Gropius was the founders of the 'Bauhaus' (1919-1933) were established in Dessau focused on philosophy of modernism in architecture (Magdalena, 2002).

Gropius in 'Bauhaus' wanted to show a new consideration for technique and craft in all artistic world, and asked for re-assessment for art and craft characteristic of the medieval age, before art and manufacturing had diverted away. The Bauhaus was considering rationalization in design as well (Evans, and Jeffery, 2005). After World War II, this movement became more present in plain facade of high rise buildings with curtain walls in large houses.

2.1.1. General characteristic of Modernism in Architecture

Le Corbusier, one of Modern Architecture's pioneers in 1926 pointed his five points for new Architecture. One of the points was "free plan", which focus on continuity, transparency of place. This point is one of the important points for theory of Modern Architecture. He pointed "free façade" as complementary to free plan and took in consideration interaction between interior and exterior, and their relation to nature as well. Those two points were very crucial in new idea of architecture. The other three points of new architecture, which Le Corbusier described, were: the "pilotis" which means the columns in French language, where allowing the garden to creep under the building and "the horizontal window" and "the roof garden" (Benton, 2007).

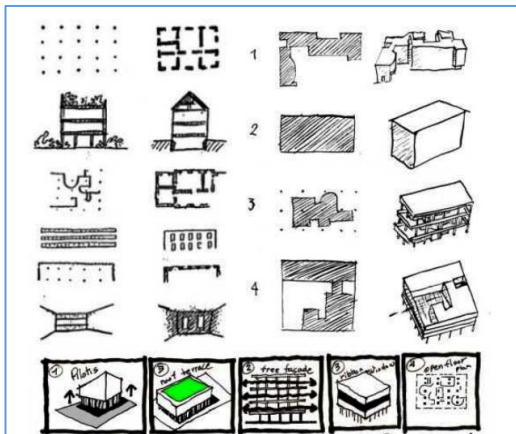


Figure 1. The five points of Le Corbusier (Monteaguda, 2013).

Generally Modern Architecture is characterized by some recognized elements as; refuse the past traditional and historical styles as a source for the architectural forms. Modern architecture is characterized by lack of ornament unless shows the functionality in the building. It focuses on the rectangular forms and horizontal and vertical lines. A Simple and smooth form in the design eliminates the excessive detail. Shapes of the buildings based on boxes, or connected boxes (Jones, 2011). Usage the modern materials, such as steel columns, and new masonry unites, by new construction systems, and emphasizing on exposed structural elements, such as beams and columns, with flat roofs. Construction of the buildings by using reinforced concrete or steel structure system. Later on the facade characterized by plain glass 'curtain walls' and 'honor façade' exposed concrete texture façade with getting rid of bearing wall in the facades became the evident of international modernist style. Stonework and bricks are unadorned, and used in rectilinear masses and planes (Monteaguda, 2013). The relationship between inside and outside of the buildings is one of the important elements in modernist architecture. That relation achieves through usage of large expanses of glasses which brings the building's site into the building, taking advantage of wide view to surrounded landscape. Consequence, large windows from floors to ceilings introducing natural light and penetrate it deep into the interior space of the buildings. Achievements of the maximum efficiency through apply a good orientation to take advantage of nature's forces to provide passive solar heating and cooling in different seasons. Hence, using the overhangs

above the windows and louvers for human thermal comfort is another character for modern architecture (Jones, 2011). The characteristic of Modernist architecture depend on the time periods of the design, where some time emphasizes on some elements more than others. Another factor is the location and climatic zones, where the advantages of climatic characteristics affect the design.

2.2. Mediterranean area

According to Gravagnuolo, B. (2010) "When we say Mediterranean we mean above all the solar stupor that generates the panic stricken myth and the metaphysical immobility." Mediterranean word has come from the Latin meaning "in the middle of the land" (Medius, refers to "middle" and terra, refers to "land"). It is an almost close sea between the European, African and Asian continents as shown in the figure '2'. The total area of Mediterranean area estimated by 2.5 million km², it is connected to the Atlantic with only 14 km wide through 'Strait of Gibraltar- Narrow' (Calcerano, and Cecchini, 2014).



Figure 1. Mediterranean basin Area (Calcerano and Cecchini, 2014).

Because of the diversity in geography and its extension on large area, the architecture of the Mediterranean has its own impression and own character. Several cities known as Mediterranean cities such as; 'Barcelona' in Spain; 'Aix en Provence' in France; 'Rome, Sicily, Palermo' in Italy, 'Dubrovnik' in Croatia, 'Athens and Crete' in Greece, 'Istanbul and Antalya' in Turkey; and 'Nicosia or Lefkoşa' in Cyprus, etc. The diversity could be imagined in these cities. Thereby the architectural character of these cities will be diverse through their history, culture, socio-politics, tradition and religion in one side and topography and microclimatic conditions in another side. However, the similar language of architecture could be perceived (Calcerano, and Cecchini, 2014).

2.2.1. Cyprus and 'Lefkoşa'

Cyprus historically had been returns to approximately 10000 BC. In the Mediterranean Sea after Sicily and Sardinia, Cyprus is the third biggest island. Cyprus is located in a north-eastern corner of Mediterranean Sea. Cyprus was divided into north part & south part in 1974. North Cyprus area is around 3,355 km², shares a maritime border with Syria to the east, and Turkey to the north. 'Lefkoşa' or Nicosia was started to be a capital city, since 600 AD. The walled city in Lefkoşa surrounded by 8-10 meters high stone walls which were built between 1489 and 1571 by Venetian to provided safety (Mesda, 2012). Today, Lefkoşa is the government center and main business center on the island. It is the last divided capital city in the world and this division gave to it a special character

2.3. Vernacular Architecture in Mediterranean area

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). See figure '3'.

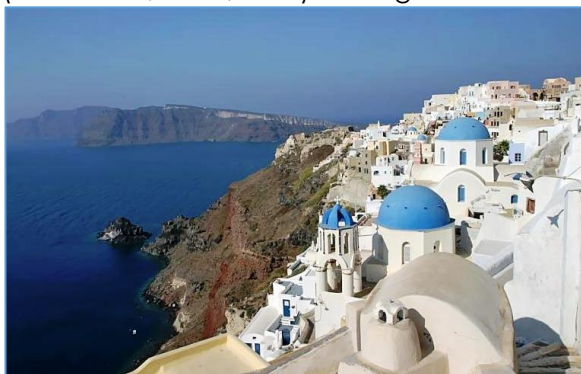


Figure 2. 'Santorini' in Greece.

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 residential 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 the 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 (Zoranic', 2012). The use of local materials, mainly earth and stone, is one of the characters of vernacular architecture and adapted to regional climate, see figure '4'. A good U-Value (Heat transfer coefficient value) for the building materials moderate the indoor temperature 'keep inner space cool in the morning and warm in the night' (Fernandes, et al., 2014).

Vernacular architecture reflects the spirit of local people and the real response to local environment, their culture and history. It identify by the regional characteristics. In general vernacular buildings may not meet, in many cases, with today standards of life style or comfort, but could give some advises about strategies to mitigate the use of non-renewable energy.



Figure 3. Mediterranean vernacular house shows local stones in façade and patio.

2.4. Mediterranean Modernist architecture

"Mediterranean modernism of architecture" can be known as a modern architecture that adopts vernacular buildings as a resource in order to harmonize material and space with context and culture (Zoranic', 2012). During his travels through Italy, 1907, Turkey and Greece 1911, and later Spain as well as the Western Balkans, Le Corbusier showed his interest for vernacular architecture (Vidal, 2008). This was the beginning of dichotomy between North Europe and south Europe to determine the concept of modernism in architecture and appearance of Mediterranean modernist architecture. The vernacular of the southern Mediterranean started to be discussed as a source of modernism. The differences in opinions that had developed during the 1920s between the architects of the North and the South toward the role of technology and tradition continued to define postwar production (Lejeune and

Sabatino, 2010). In addition to the diversity of the Mediterranean area and its climate character and interest for classical and vernacular environment, many other events after the World War I stimulate to develop this opinion (Vidal, 2008).

Le Corbusier was more than any other modernist interested in the Mediterranean classical and vernacular environment. Le Corbusier attribute was reaction for many events. Globally because of the great economic depression in 1930s and critique of industrial capitalism in, empower the right wing in Germany etc. in other hand finally the consequences of his loss at the 'Palais des Nations competition' in Geneva. His tendency shifted from an arts and crafts, which was clear in the first projects in "La Chauxde Fonds" and his machine oriented Modernism of the mid1920s (Plan Voisin, 1925) conveyed to a southern version. The main events were the great economic crisis and the industrial capitalism criticism in the 1930s, the rise of German rightwing parties and the rise of National Socialism that let Le Corbusier's in crisis, which made modernist arguments in the north difficult. Consequence was his loss at the *Palais des Nations* competition in Geneva. These events coincided with Le Corbusier's first meeting with 'Josep Lluís Sert' a Spanish architect in Barcelona and the other journeys to Athens as part of the fourth CIAM (International Congresses of Modern Architecture) meeting at which witnessed poor attendance of German architects (Lejeune and Sabatino, 2010).

The modernity of the North that crystallized in Germany was conceptualized around 'Industriekultur', incorporate art and industry. In Southern Europe like Italy, Spain, Greece, and Southern France as the Mediterranean region include modernity, was shaped less strict in adherence to technology. In one hand they adopted innovation, through Italian Rationalists like 'Luigi Figini and Gino Pollini, and Adalberto Libera' as Mediterranean modernists, in other hand tended to employ both new materials and building technologies and traditional ones.

2.5. Modern Residential Architecture

Residential place is a basic need since the origin of humanity. The functions and form of primitive dwellings changed to new form and functions which in modern dwelling. Human always tries to improve the quality of his dwelling and update it according to upgrading life styles standards and according his private needs.

The houses ostensibly have the elements of modernist movement in architecture which includes; absence of classical architectural adornment and elongated or large-pane windows. The horizontal surfaces and strong rectilinear geometry is generally seen in the modernist houses and architectural elements precisely rendered, typically white. Columns, beams and cantilevered parts (roof overhangs, louvers and balconies) often are seen in the buildings. Steel or reinforced concrete used in the construction. Free plan and focuses on continuity, transparency of place (Fricker, J. and Flicker, D., 2010).

Figure 5, shows 'Villa Savoye' the manifesto of modernist residential houses, which designed by 'Le Corbusier' and built (1929-1931) in 'Poissy-sur-Seine', France, (Morrissey, 2010).



Figure 4. Villa Savoye, Le Corbusier (Morrissey, 2010).

Although the concentration on the modernist architecture elements could be changed from region to other based on climate, culture and society. But generally modernist residential buildings consist of the majority of those mentioned characters.

2.5.1 Mediterranean modernist residents simulates Patio and Local stone façade

Patio means "Inner courtyard", that space of house which use for sitting and dining or other types of outdoor home activities (Anarjani, 2013). Patio is related with a garden that is depending of the culture, protected from outside view. The patio creates a comfortable environment if adapted with perfected use of water evaporation. It incorporates the external with internal to alleviates the shiny and hot outside and conveys it to shaded and pleasant interior. In warmer climates, patios are extensions of interiors that can double the living spaces, and giving to the home penetration in

the nature around the house. (Anarjani, 2013). Despite patio is an vernacular architectural element, but it demonstrate its functionality in modern residences, and recall the traditional Mediterranean life style which used to spend part of the day in houses outdoors. Many Italian architects in the 1930s expressed their interest in the Mediterranean patio house, which used to practice with the typology of patio house according to Mediterranean tradition with new outcomes.

2.5.1.1. Villa studio for an artist designed by Luigi Figini and Gino Pollini 1933

Luigi Figini is Italian architect he born in 1903 and died in 1984. He was one of the considered Italian Rationalist. They were considered Italian Rationalist. Gino Pollini, (1903–1991) Born in Milan, in 1926 Pollini joined Gruppo 7, and from 1929 he worked with his partner Luigi Figini (Blakely, 2011)

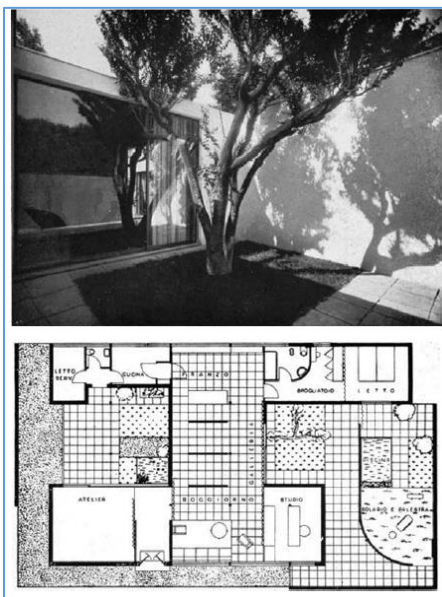


Figure 5. (Villa studio for an artist), Milan, V Triennale, 1933. Luigi Figini and Gino Pollini. (Lejeune, 2010)

They had partnership since 1926 and they were between the founders of Gruppo 7 and then members o M.I.A.R. (Italian Movement for Rational Architecture) to promote the research to renew architecture they designed and extended the Olivetti Factory, Ivrea, where Modern Movement principles applied. Moreover, they involved to design Church of the Madonna dei Poveri (1952–1954), Milan (A Dictionary of Architecture and Landscape Architecture).

Figini and Pollini were designing their buildings through pure geometric forms and ideal proportions, and applying aesthetic principles of rationalism. Villa studio for an artist (1933) and "Environment with living room and terrace" (1936) are two works of Figini & Pollini during their partnership. Villa studio for an artist designed by Luigi Figini and Gino Pollini for the Fifth Milan Triennale in 1933 was one of modern architecture showing a local, Italian declension. Figini and Pollini mixed the modern building elements and technology with traditional elements in the patio house, see figure '6'. 'Villa Studio' design with one-story, and flat roof, several open air courtyards applied in the building which give the opportunity to enjoy external spaces as extensions of the interiors. The design is not symmetrical, the architects gave the occupants transparency to outdoor spaces. White surfaces on the exterior elevation are incorporate with exposed brick, see figure '7', (Sabatino, 2010).



Figure 6. Villa studio for an artist Facades. (Costanzo, 2015)

After three years, the Figini & Pollini designed an "Environment with living room and terrace" (1936), which they described dialect between the organic (vernacular) and the machine age aesthetic through the concept of the patio(Evilien, 2015). See figure '8'.



Figure 7. Casa Dei Giornalisti Milano "Environment with living room and terrace" by Figini & Pollini. (Costanzo, 2015).

2.5.1.2. Adalberto Libera's "Unità orizzontale" (Horizontal Unit) in the Tuscolano neighborhood in Rome 1950-1954

Adalberto Libera (1903 -1963) was born in 16th of July 1903 in Villa Lagarina (Trento).

He is a great modern architect, one of the inviters to revive the architecture in Italy (Rovereto, 2013). He was one of the announcers to the movement for modern architecture in Italy. In 1927, he joined the Gruppo 7, established in 1926 in the Politecnico di Milano by Luigi Figini, Gino Pollini, Guido Frette, Giuseppe Terragni, Sebastiano Larco, Carlo Enrico Rava, and Ubaldo Castagnoli. He was responsible in 1930s, for many public projects in Rome, like Palazzo postale all'Ostiense of 1933 (with Mario De Renzi) and the Palazzo dei Ricevimenti e dei Congressi of 1937. During the 2nd World War, he stopped his professional activity and starts to think about the new fundamental themes of architecture. He returned to Rome in 1947 and started to collaborate with Ina-casa as director of the architecture section, and started his project 'Unità di abitazione orizzontale' ('Horizontal residential unit') at 'Tuscolano' in Rome in 1954. In March 1963, he died suddenly (Rovereto, 2013). Adalberto Libera's "Unità orizzontale" (Horizontal Unit) in the 'Tuscolano' neighborhood in Rome is an neighborhood built in the capital of Italy just after WWII. It consists of 200 houses for 800-1000 people, with three categories: the one-floor courtyard houses, the multi-storey building with accesses from balconies, and the services block. The study will concentrate on the first category which is one floor courtyard houses. The courtyard houses tissue responds to an isolation logic where the room, the patio, the house and the whole neighborhood are all inter-dependent elements through the frontage patio and the corridors or accesses ways as in vernacular architecture,

but are arranged following a geometrically controlled and repetitive pattern.

Fig 9, illustrates that the courtyard has L-Shape with interior opening system, means all the main rooms opening to the internal patios. Each four houses interlocked together and arranged in groups following vernacular concepts through cluster the houses in groups to promote the safety. In the same time the houses touching the walls of each other to promote thermal comfort in different climates, emphasize on the opening of the rooms toward the courtyard. Three of the houses facing the same interior L- Shape open space and the fourth one is opened towards outside, as shown in figure '10'. In this context the design formulating open space 'Patio' to each one of the houses. Each group of four houses is included between two 'pedestrian streets' with 2.70 m large which are irradiated from the main central open space (Fabrizi, 2014).

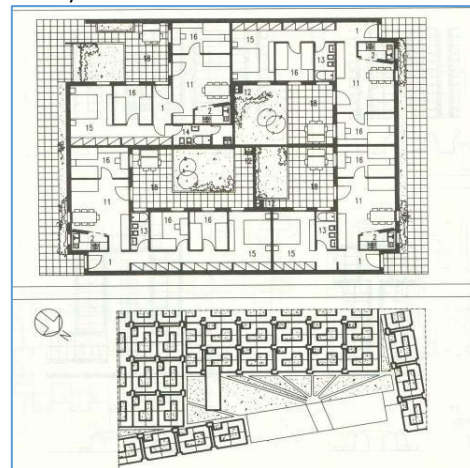


Figure 8. L- Shape patio 'Courtyard' Sources: Fabrizi, M. (2014)



Figure 9. Opened towards outside 'Patio' toward pedestrians streets (Fabrizi, 2014).

Figure '11' shows using exposed stone in the façade by 'Adalberto Libera' as one of the

characters for "Mediterranean modernist architecture".



Figure 10. Roma, (Horizontal Unit) in the Tuscolano neighborhood in Rome 1950-1954.

2.5.1.3. Jose Luis Sert and J. Torres Clave. House "WeekEnd," type A, Costas de Garraf, Barcelona, 1935

José Luis Sert, was a Spanish Architect, born in July 1, 1902, in Barcelona and died March 15, 1983, Barcelona (*José Luis Sert: American architect*, 2003). He worked with Le Corbusier and Pierre Jeanneret in Paris between 1929-1937, after his graduation from School of Architecture (Barcelona). The work of that period produced many projects like, weekend houses in Garraf with Torres Clavé, apartment houses in Barcelona, and a master plan for the city of Barcelona. Later he had his own office in Barcelona, (*José Luis Sert: American architect*, 2003). Josep Torres Clavé, (1906-1939) is an architect, designer and town planner. He studied architecture at Barcelona graduating in 1929 from the School of Architecture. He is one of the Spanish avant-garde artistic and modernist names in the 30s. In 1929 he became a founding member of GATCPAC (Group of Catalan Architects and Technicians for Architectural Progress). After one year gave rise to the establishment of the GATEPAC, to be on a state level. He worked with Sert in many projects (*Josep Torres Clavé: Barcelona, 1906 – 1939*, (n.d.). The Week End house in 'Garraf Barcelona, 1935), was One of the manifesto style of Mediterranean modernist architecture by Jose' Loius Sert with Torres Clave'. The building shows the usage of the stone in the facades, as well as presence of patio, recall the "Mediterranean vernacular architecture". See figure '12 & 13'

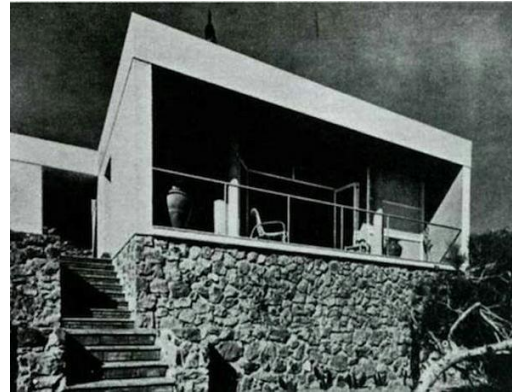


Figure 11. Week End house in 'Garraf Barcelona'.

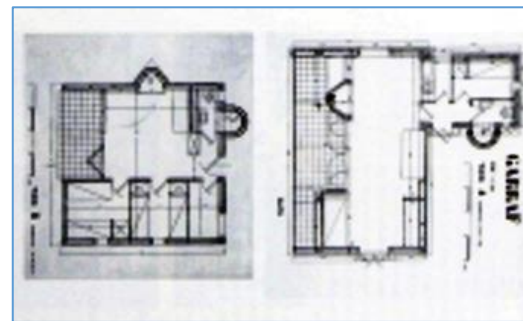


Figure 12. Plan of Week end house Garraf-Barcelona.

2.6. Modernist architecture in Cyprus

With industrialization and the following Modernist Movement in architecture in north Europe and south Europe, the local architecture in Cyprus has also been affected. Cypriot architects in that period gave many good examples of modern architecture on the Island. Nicosia General Hospital by Polis Michaelides between (1936-1939), which faced many changes in the 1950s, represents one of the examples of the international style of modernist movement in architecture and its influences on Michaelides from his experience in the office of Le Corbusier in the years 1930-32.(Kiessel, 2014). Ahmed Vural Bahaeddin, Neoptolemos Michaelides, Abdullah Onar and Ayar Kashief are significant names of local Cypriot modernist architecture.

3. Methodology

3.1. Research Design

This paper approaches the qualitative and descriptive method, following to the theoretical part. The theoretical analysis has been developed for assessment on case study's examples. Interview carried out with one of the pioneers in Modern architecture in north Cyprus

'Ayer Kashif' who graduated from Faculty of Architecture in Turkey after four years from his colleagues 'Bahaeddin' regarding the subject. The Analysis, which has been applied, consists of three main parts:

1. Through literature review we tried to identify key information that could help in identifying the influence of Cypriot modernist architecture by Mediterranean Modernist movement in south Europe which started in the end of 20s from the last century. Theoretical analysis applied through analyzing several works done for South European Modern architects, like 'Luigi Figini and Gino Pollini, and Adalberto Libera' as in other to investigate the vernacular elements interference in their design; first is the naked stone walls and second is the patio (outside and inside interrelation), as characteristic of Mediterranean modernist architecture.

2. The presence of patio and exposed stone walls in the modernist building design in Cyprus in 50s, 60s and beginning of 70s from twentieth century, as a vernacular elements and one of the characteristic of Mediterranean modernist architecture, as elucidated in literature review. This was implemented through The Case Study's examples are two residential buildings for the north Cypriot modernist architect Ahmet Vural Bahaeddin. He was one of pioneers who adopted modernist architecture in his works in the North part of Cyprus. He is worth of special attention to focus on his works as one of the oldest 'Modernist' architects. Bahaeddin born in 1927, he graduated from Faculty of Architectural Engineering, Istanbul Technical University. He started his career between the years 1955-1993. His works were mainly private residences, except few educational buildings and office buildings, such as building of 'Turkish Lyceum' in Lefkoşa, built in 1962. In his early professional life, he was a modernist who focused on importance of function. Later, he tended to "Organic Architecture" (Celik and Erturk, 2007).

3. The interview with architect 'Kashif' consist the following question;

- Either or not he thinks that his colleague 'Bahaeddin' was affected by Mediterranean movement in architecture, which arose in south Europe in the beginning of twentieth century?

Methodology frame work has been developed by author to reach the answer about the study questions assigned in the introduction of the study, as shown in figure '14'.

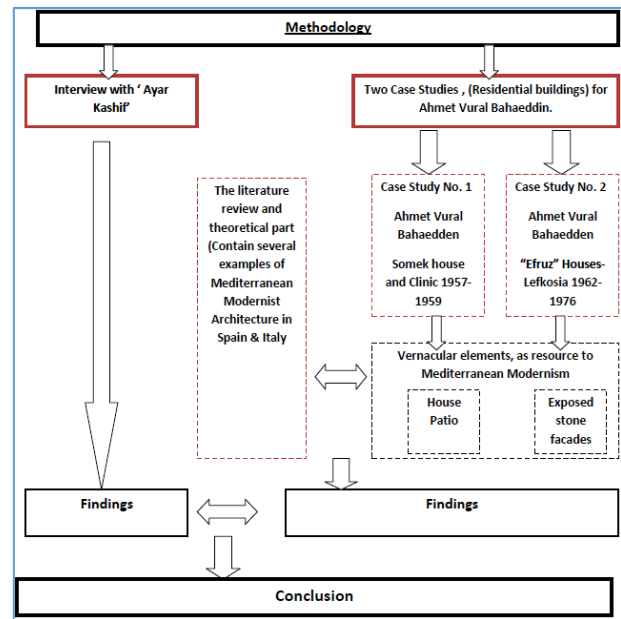


Figure 13. Methodology Framework (Developed by Author).

3.2. Case Studies

Two case studies selected in Lefkoşa to be analyzed. The case studies selected based on several considerations, which are; i) selected buildings are both residential houses, ii) both buildings have been design by Architect ' Ahmet Vural Bahaeddin', iii) the buildings classified as modernist architecture holding the characteristic of Modern architecture in the first half of twentieth century or after that by few years.

3.2.1. Efruz Houses (1962-1976)

Efruz Mass Houses or Mūdūroğlu Houses are designed between, 1962-1976 at Kumsal Quarter in Lefkosia by Ahmet Vural Behaeddin. These houses are considered one of the distinctive mass housing construction in Lefkosia. The construction company was Efruz Company, one of the famous construction companies in North Cyprus. The houses designed for high income householders. Typology of the houses is two storey row houses. The total area of one house is 200 meter square; the plan of the houses consists of two stories. The ground floor has an entrance, family lounge or living room, kitchen, toilet, laundry, garage and back courtyard and forecourt. The first floor consists of three bedrooms (one of them master bedroom), bathroom with toilet and transition space corridor to other spaces on the first floor (Esentepe, 2013). See figure '15'.



Figure 14. Plan of Ground and first floor (Developed by Author).

There are three different plans for 'Efruz' Houses but all the types have courtyards (forecourt and backyard) of houses. Those backyards and forecourts can be associated to the patio in vernacular architecture, which is one of the main resources to Mediterranean modernist in architecture. See figure '16'.



Figure 15. The Patio in the Efruz houses between two rows of building and forecourts in the frontage of each house.



Figure 16. Facade of the buildings (Esentepe, 2013).

In other hand the façade of 'Efruz' houses is covered partially by exposed local stones, see figure '17 & 18', which is another characteristic of the Mediterranean Modernist.



Figure 17. Exposed stone facades in Efruz Houses.

Using the white color to paint the façade and envelope of the building could be also one of the vernacular characteristic in 'Bahaeddin' designs. Hence the design of these houses holds more than one character of the vernacular architecture. It approaches the "Mediterranean modernist architecture" in the first half of twentieth century in south Europe; these examples could be detected in Spain and Italy as well as other Mediterranean countries.

3.2.2. Sömek House and Clinic (1957-1959)

'Somek House' is another design for 'Ahmet Vural Bahaeddin' the first registered architect of Cyprus Chamber of Architects in TRNC. The house was built in the years (1957-1959) in Lefke (Celik, 2005). Lefke is a small town belongs to Lefkoşa, located on the northern slopes of the 'Troodos Mountains'. American company with Mining Company of Cyprus (CMC) was quite developing that place because copper deposits were discovered in 1912. They built the town theater building which exists until today, post office, municipal building, and workers' housing. The building stands as one of the early applications of modernist architecture. It formed according to the principles of modern architecture in a new housing concept, with the beginning form of modern life in North Cyprus. Sömek House, designed considering the environmental conditions, socio-cultural characteristic and the needs of modern life besides being an architectural product. The building holds (Celik, 2005).

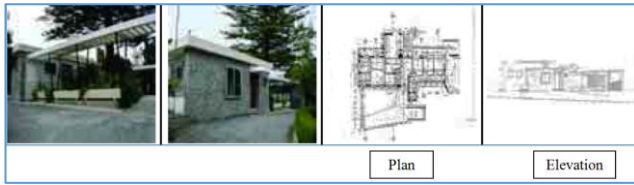


Figure 18. Somek house exposed stone facades, Plan and Façade. (Celik, 2005)

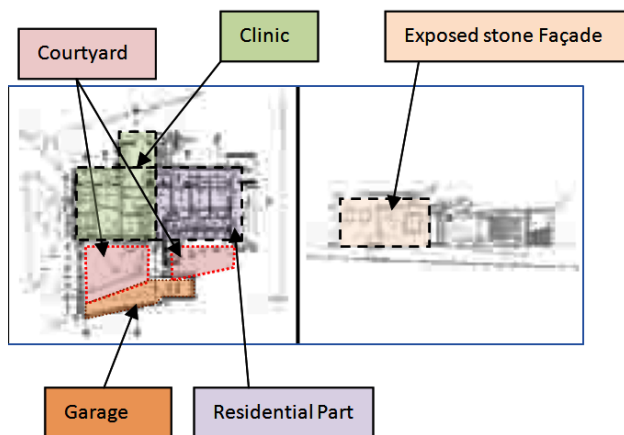


Figure 19. Details on plan and elevation (Developed by Author)

'Sömek' house and clinical spaces is located in four acres of gardens, including the farms of orange and flowers garden outside the courtyard and terraces are enriched with intense green. Clinical façade is covered with large pebbles collected from local area. The building is divided into two parts; one is clinic and other part is the house. See figure 19& 20. After passing through the courtyard, to the large garage, it will lead to into the house on the left. Central hall facing terrace and courtyard directly and it is opposite the entrance, and lounge terrace separated by glazing door. See figure 21. The building demonstrates modernist elements, such as perpendicular horizontal and vertical surfaces with big windows provided by louvers.



Figure 20. Relation between inside and outside.

Free open space and introducing inside to outside, moreover, using iron columns in the building characterize the plan of the house. It is also shows the mix with local and vernacular strategies, through transparency between inside and outside, as well as using local pebbles as exposed stone in the façade (Hera, 2010). See figure '22'. Hence once again 'Bahaeddin' demonstrate his trends to introduce the vernacular elements in his modernist works.



Figure 21. Using Iron forks in the right and exposed stone facade in the left (Hera, 2010)

3.3. Interview

During the meeting face to face with Architect 'Ayar Kashif' based on invitation from lecture of "Advance Research in Modern Architecture" Dr. Valentina Dona, the meeting held in Girne American University on 25th of March 2016. Architect "Ayar Kashif" who is the pioneer in establishing department of Architecture in Girne American University, since 1994 and he graduated from Turkey was one of the earliest modernist architects in North Cyprus with his colleague 'Ahmet Vural Bahaeddin'. The author asked him the following question;








- Either or not he thinks that the works of his colleague 'Bahaeddin' had something in common with the movement of architecture in other Mediterranean countries which arose in south Europe in the beginning of twentieth century?

- His answer was that “ He cannot aver that ‘Bahaeddin’ have been influenced by the Mediterranean movement of architecture in that period, but as architects we were, and even ‘Bahaeddin’, respecting the client’s opinion which was affecting the decision of the design deeply”.

4. Discussion

Several samples of modern architecture (residential buildings) from south Europe between 1900s-1950s have been showed in the literature review. Italy and Spain were the main sources of “Mediterranean modernist movement” in architecture. Theoretical analysis applied on four buildings, three of them were in Italy designed by Italian architects like Figini & Pollini as well as Adalberto Libera. The fourth building was in Spain designed by Jose Luis Sert & Torres Clave’. The analysis focused on the simulation or existence of two main vernacular elements ‘Patio and exposed stone façade’ in modern design of the buildings which is concerned in this study. The results demonstrate that all the projects have the sources of vernacular architecture, three of them combined both elements ‘ Patio & Exposed stone facades’ and only one of them has only ‘patio’ elements as vernacular source in the modern design (See table 1).





Table 1. Vernacular resources in Modern architecture design in south Europe (Developed by author).

No.	Name of Project	Architect Name	Date	Country	Vernacular Elements	
					House Patio	Exposed StoneFacade
1	Villa Studio for Artists	Luigi Figini & Gino Pollini	1933	Italy		
2	Environment with living room and terrace	Luigi Figini & Gino Pollini	1936	Italy		
3	Horizontal Units in Tuscolano, Rome	Adalberto Libera	1950-54	Italy		
4	Week end house (Garraf) Barcelona	Jose L. Sert & Josep Torres Clave	1935	Spain		

The two case studies for the modernist Cypriot architect ‘Ahmet Vural Bahaeddin’, ‘Efruz House & Somek House’ have been analyzed. Both considered as modernist architecture in North Cyprus and had been designed later of the previous buildings in South Europe. The findings demonstrated that both of ‘Bahaeddin’ houses had the vernacular elements in their

design “the Patio and exposed stone facades’, as shown in table 2.

Table 2. Shows the vernacular resources in Modern architecture design of ‘Bahaeddin’ buildings in Lefkosia developed by author.

No.	Name of Project	Architect Name	Date	Country	Vernacular Elements	
					House Patio	Exposed StoneFacade
1	Efruz Houses	Ahmet Vural Bahaeddin	1962-76	North Cyprus / Lifkosia		
2	Somek House	Ahmet Vural Bahaeddin	1957-59	North Cyprus / Lifkosia, Lefke		

Hence, the case studies as modernist architecture in North Cyprus, designed by one of the earliest modernists on the island demonstrate the similarity to Mediterranean modernist architecture characteristic. Moreover, architect ‘Bahaeddin’ represent one of the pioneers in the modern architecture movement in North Cyprus. Thus, his influence to Mediterranean modernist movement will influence other modernist architects to follow him. Therefore based on the findings above, the study shows that the modernist architecture in north Cyprus was influenced by the Mediterranean movement in south Europe. The opinion of ‘Ayar Kashif” who was one of the modernist architects in that period, clarifies one important fact. The fact is that the architects were affected by clients opinion, hence that could be one of the reasons to let architects follow the needs of the indigenous people on the island. Indigenous people affected until today by the vernacular elements in their houses, which exposed stone facades and house Patio are part of it. That led us to think the modernist architects and ‘Ahmet Vural Bahaeddin’ one of them were influenced by two main factors. One of them is the “movement of Mediterranean modernism” in Mediterranean countries. They were aware about it, because they studied outside of the island and had a connection abroad. Another one is the intendency of local people who likes to keep the vernacular elements even in their modern houses as we see until today. Those results supports hypothesis of the paper, which Hypothesize that the vernacular elements in the modern residential buildings designed by ‘Ahmet Vural Bahaeddin’ and modernist architecture generally is somehow affected by “Mediterranean modernism movement” in the first half of last century.



5. Conclusion

Many buildings have been built in Lefkoşa in the first and early second half of the twentieth century holding the character of modern architecture, whereas a several vernacular elements interfered in. Those buildings confuse the expert beholder to give a final judgment whether or not those buildings are holding pure modernist architecture features. The paper conducted following questions to investigate that; whether or not, the Cypriot architects were influenced by "Mediterranean modernist philosophy" in first and early second half of the last century? Is there other external factors affected the shape of the modernism movement in the architectural design of residential buildings in that period on the Island? To evaluate the influence of the "Mediterranean movements in architecture" or other factors on the modernist architecture in Lefkoşa, the paper proposed two main paths to study the subject: 1) investigate the effect of the vernacular elements on the Mediterranean Modernist movement in south Europe, basis on 'theoretical part' 2) and evaluate the effect of the same vernacular elements on the modern architecture in Lefkoşa, basis on 'Case studies & Interview'. The residential buildings of 'Bahaeddin' as pioneer modernist architect were selected as case studies to be analyzed. The results obtained based on theoretical assessment and through the interview. The main findings obtained are that there is similarity between the "Mediterranean modernist architecture" in Mediterranean countries such as Italy or Spain, and the Modernist architecture in Lefkoşa. There is hidden effect of indigenous inhabitant on the Island through applying their opinion on the architects while designing their houses. The study concluded that there is two main factors which influenced the Modernist architects to introduce vernacular elements in Lefkoşa in first and second half of 20th century. First is the Mediterranean modernism philosophy, which started in south Europe in the beginning of twentieth century. Second is the effect of the authentic dwellers of Lefkoşa or Cyprus who tend to involve the vernacular elements in their houses as aesthetic value and functional element.

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