



## Reading wellness principles of modern architecture via its examples in Güzelyurt

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### Abstract

Güzelyurt is a small old town in the western part of Northern Cyprus. After the division of the island and the forced displacement in 1974, people from the South side moved to the North side and settled in single and double storey houses. These houses which are mostly located at the periphery of the town were designed after modern architecture principles and they provided good life standards for crowded families with their large indoor and outdoor spaces. During the covid-19 outbreak in 2020 it was observed that these houses have enabled a tolerable lockdown period for their users in terms of personal comfort and safety. This study first focuses on the relationship of modern architecture with illnesses and wellness; then the space arrangements of these houses in Güzelyurt and their impacts to the life standards of the owners during the outbreak is analyzed. The aim of this study is to discuss the benefits of modern architectural principles to human health and then tried to suggest solutions to apply this guiding spirit to new housing design systems in town, which increase the quality of life, create a better protection for possible future outbreak risks and can be applied to other regions in North Cyprus.

### Highlights

- Modern architecture design principles can be applied to post-pandemic house design.
- Güzelyurt houses can be good examples for implementation of these principles.
- Wellness concept in modern architecture can be a good tool in today's house design.

### Keywords

Güzelyurt; North Cyprus;  
Pandemic; Life at home; House  
design; Modern architecture;  
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## Modern mimarinin sağlık ilkelerini Güzelyurt'taki örnekleri üzerinden okumak

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### Öz

Güzelyurt Kuzey Kıbrıs'ın batısında küçük ve eski bir yerleşim yeridir. Adanın 1974 yılında 2'ye ayrılması ve zorunlu göçün ardından güney tarafındakiler kuzey tarafına geçerek tek ve iki katlı konutlara yerleşmişlerdir. Çoğunlukla kentin çeperinde yer alan bu konutlar modern mimarlık prensiplerine göre tasarlanmışlardır ve büyük iç ve dış mekanları ile kalabalık aileler için uygun yaşam standartları sağlamaktadırlar. 2020 yılında covid-19 salgınında bu evlerin modern mimari tasarımlarının kullanıcıların kişisel konfor ve güvenliği açısından tolere edilebilen bir izolasyon dönemi sağladığı gözlemlenmiştir. Bu çalışma öncelikle modern mimarlığın hastalık ve sağlıklı yaşam ile ilişkisine odaklanmaktadır. Daha sonra Güzelyurt evlerinin mekân düzenlemelerinin salgın sırasında kullanıcıların yaşam standartlarına olan etkileri analiz edilmektedir. Amaç; modern mimarlık prensiplerinin insan sağlığına olan faydalarını tartışmak ve bu yol gösterici ruhu; yaşam kalitesini yükselten, gelecekte olası salgın risklerine karşı daha iyi koruma sağlayan ve Kuzey Kıbrıs'ın diğer bölgelerinde de uygulanabilir yeni konut tasarım sistemlerine adapte edebilen öneriler oluşturmaktır.

### Öne Çıkanlar

- Modern mimarlık tasarım prensipleri pandemi sonrası konut tasarımına uyarlanabilir.
- Güzelyurt evleri bu prensiplerin uyarlanması için iyi örnek oluşturabilirler.
- Modern mimarlıktaki sağlık kavramı günümüz konut tasarımı için iyi bir araç olabilir.

### Anahtar Sözcükler

Güzelyurt; Kuzey Kıbrıs; Pandemi;  
Ev yaşamı; Konut tasarımı; Modern  
mimarlık; Sağlık

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## INTRODUCTION

As the world unexpectedly faced Covid-19 outbreak at the end of 2019, the systems in all fields were shaken. Economies collapsed, health sectors had to experience the worst scenarios, and the education sector had to shut down with all its tools. As it threatened the human life, the most important issue was first to survive; then to find new ways to protect the mankind from possible future outbreaks. Survival came with isolation for long periods, which is not the strong feature of humans. For their psychological health people have to socialize. If this need is somehow precluded, problems arise. But in force majeure situations like epidemics or pandemics, socialization should give way to other possibilities; we have to change our daily routine and replace socialization with something else; and our homes are best places for it, as everyone experienced during isolation periods. During the Covid-19 outbreak in 2020 the whole world spent a long time under lockdown at homes. Although the concept 'home' is always cherished and appreciated, it was never thought of being a 'mandatory isolation space'; but during these difficult times people discovered more values and qualities in home living. Home was the healthiest and secure place for all daily activities including working and socializing.

We are still going through pandemic days, but the vaccination enabled to relieve strict isolations and life seems to go back to 'normal'. This unidentified 'normal' comes with new rules, criteria and possible scenarios, especially about how to re-build our daily life and re-shape the urban spaces accordingly.

There is no doubt, that for our well-being and health we have to consider the environment we live in from many aspects: urban designing, public transportation, parks and other green areas, energy systems, communication tools, and especially our homes should be revised and adapted to post pandemic era.

The idea of re-organizing our lives and being prepared to possible new outbreaks is now the hot topic; but when it comes to thinking about how to re-shape the post-pandemic built environment, there are few researches. Manuel Duarte Pinheiro and Nuno Cardoso Luís made an analysis of researches related to pandemic and built environment. Although it was conducted 1 year ago (2020) the numbers can still give a general idea in 2021. According to their research on Web of Science (WoS), there has been a growth in the number of publications in 2020 about Covid-19 (more than

6000 references), but fewer than 1% of these refer to the built environment or buildings. On Science Direct, it is possible to find more than 8000 references, but, again, fewer than 1% of these are related to the built environment in any way (Pinherio and Luis, 2020). It seems that the concentration on other fields are more than the ones related to our environment and homes.

So, this research is aimed to contribute to literature by conceptualizing the importance of home in post pandemic era, evaluating the interaction between daily life habits and house designs during isolation periods; and suggesting possible ways for designing, which can be adapted generally; and as the research area a small town named Güzelyurt in North Cyprus is chosen. The main reason of this choice is the positive experience of users in their homes during pandemic. They were single and double story houses designed mostly by architects who followed modern architecture design principles. It is observed that these houses provided effective life standards to their users.

As Ibelings states, architecture is going through a new period since almost three decades with the effects of globalization which he called ‘supermodernism’ (Ibelings, 1998). As globalization shows it’s face in every field of life, the postmodern period seems to fade; and the efficiency of modern architecture design principles is visible again in force majeure situations.

Modernism was a rejection of the academic tradition of formal aesthetics and spatial hierarchies in favour of innovative creativity based on simplicity, abstraction, and the rationalization of problems arising from the place, destination, and available technology. An important point of the doctrine of modernism was the social program focused on the development of affordable housing communities along with social infrastructure and green areas (Tobolczyk, 2021). Besides its simple and pure forms and rational solutions, modern architecture tried to find best alternatives for fulfilling the basic needs of housing. In Le Corbusier’s phrases: “Modern life demands and is waiting for a new kind of plan both for the house and for the city...” (Le Corbusier, 1986).

This fact raises a question: Can modern architecture with its unique principles be applied to contemporary house design for establishing wellness, and can it be accepted as proven itself true with the pandemic experience in 2020? It is hoped to open a new debate platform about how the prioritization of wellness in modern architecture and its relationship to house design can be integrated to our era within new societal and cultural conditions and different needs of users.

## **MODERN ARCHITECTURE AS A TOOL FOR WELLNESS**

The definition and conceptualization of the term ‘wellness’ is not easy. The assessment tools for wellness have been improved since its first mention after the end of the Second World War; and now according to Myers and his associates it is defined as “a way of life oriented toward optimal health and well-being, in which body, mind, and spirit are integrated by the individual to live life more fully within the human and natural community” (Miller & Foster, 2010).

The Berkeley Well-being institute indicates wellness somewhere between physical health and mental well-being with 7 attributes as; emotional, physical, environmental, intellectual, occupational, social and financial. Among these attributes, environmental wellness means that we live in balance, connection, and synergy with our surroundings (Davis, n.d).

The relationship between human and its surrounding environment was always a challenge for architects. Creating the balance, and connection to nature, and combining it with interior facilities was on the agenda of all architects; and wellness in its pure and simple definition tried to cover the need for the integration of humans to the natural and manmade environment with all positive attributes. According to Parikh and Parikh, wellness is a consequence or effect of the functional component of architecture. Put differently, architecture causes or creates wellness via its functional aspect. Meaning and wellness are a result of often hard-to-separate aspects of architecture where utility, firmness, and beauty may well merge in ineffable ways (Parikh & Parikh, 2018). In other words, following Vitruvius' well known architectural components, 'wellness' is a new attribute attached to the triangle of utility, firmness and beauty as a subordinate under utility. Utility can be defined differently according to its context; but when it comes to manmade environment and housing in modern environment, it is about shaping it gently and harmless to the nature. This is what Adolf Loos described, when he was speaking of the peasants' houses on the lake shores. He expressed his sense of environment as: "the sky is blue, the water green and everything is profoundly peaceful. Mountains and clouds are reflected in the lake, and so are houses, farmyards, courtyards and chapels. They do not seem man-made, but more like the product of God's workshop, like the mountains and trees, the clouds and the blue sky." But the architect's pencil designed a "false note in this harmony. As an unwelcome scream [...] a villa..." (Giorgi, 2014).

From his phrase it can be conducted that nature and manmade environment can have a safe, clear, and strong bound; whereas the architecture should serve them as a supporting component; and this was a well embraced phenomenon in modern architecture.

Modern architecture was driven by the design practice, production and technology but more than all of these with social equality, human's health and the harmony between all these attributes. Mies van der Rohe's famous slogan 'less is more' is actually a declaration of avoiding exaggeration and focusing on the pure and real needs of humans. In this sense wellness- in an unspoken way- became a principle in architectural design.

The relationship of architecture and wellness in modern architecture can have its roots from the second decade of 20th century, although it is not mentioned directly until the end of the second World War. The beginning of 20's was a threshold in architecture; and modernity was embraced in the society with an avant-garde expression and architecture was the driving tool.

The world experienced many illnesses since its existence. When considered last two centuries, especially the 20th century; tuberculosis, typhoid, polio, and in 1918 Spanish flu breakouts can be seen the most lethal outbreaks. The 1918 pandemic likely killed 50 million people, with some estimates suggesting the death toll could be as high as 100 million (Beach et al., 2020). It was a severe pandemic and its health effects were huge. This pandemic was a one-off occurrence—a never-to-be-repeated epidemiological disaster—or whether it could happen again (Honigsbaum, 2019).

It was right after World War I, and as a driver of urban renewal it served for new design systems. The breakouts encouraged urban planning, slum clearance, tenement reform, and waste management (Megaheda & Ghoneim, 2020), and the reshape of the built environment was also on



the agenda. It was time for recovery from the lethal effects of Spanish flu pandemic and the unbearable loss of the world war. The well-being of the society was tried to be re-established again. But at the same time the tuberculosis as the most dangerous illness was also threatening lives all over the world.

There are many diversified reasons of how modern architecture got its root, and one of the most common receptions is that modern architecture started as a reaction to the overwhelming complexity of historicism. Besides this acknowledged definition, modern architects were also interested in human health and wellness. Although the emergence of modern architecture cannot be reduced to improving health conditions and prioritizing the wellness of people in their built environment, both reasons can be counted as influential factors especially in housing and health care design.

Associating architecture with these issues resulted with the pure and unique geometries, flat roofs, balconies, terraces within the white painted concrete constructions; and new materials like steel, glass and leather were first notable and distinctive features of architecture. The practicality and introduction of new materials brought new perspectives to the design and ideal life standards beyond functionality. Modern architecture always tried to adapt itself to new objectivity (*Neue Sachlichkeit*), which was mainly related to fulfilment of function.

Modernism was well concerned with issues of tuberculosis. This disease which has survived for over 70,000 years, infected nearly 2 billion people worldwide (Pinherio & Luis, 2020). For that period, it was common for those suffering from tuberculosis to receive treatment at a sanatorium. Part hotel, part hospital, a typical sanatorium was located in a pastoral setting away from the claustrophobia of cities, and outfitted with design elements to promote hygiene and wellness. Patients were prescribed a regimen of fresh air, sunshine, gentle exercise, and nutrition. South-facing windows, porches, and balconies at sanatoria enhanced sun exposure, while interiors featured linoleum flooring that could easily be cleaned (URL-1). The open-air treatment with a strictly hygienic course of life were best means for dealing effectually with tuberculosis (Daniel, 2006).

Not only sanatoriums but houses also needed adjustments. In modern period these adaptations or in other words ‘fight against illnesses in an architectural way’ resulted with change of space arrangements. Le Corbusier was one of the pioneers who took it far beyond simple functionality so issues of light, air and waste dictated even the smallest details of his designs. The effects can be seen in many of his design including the cult design of Villa Savoy, Weissenhof settlement and Pessac houses. In 1922 Le Corbusier’s *immeuble-villa* design with auxiliary bedrooms and roof-terrace gardens was used for the Pessac social housing estate near Bordeaux and later for the experimental housing that was his contribution for the 1927 Weissenhof Siedlung Werkbund Exhibition in Stuttgart (Campbell, 2005). These houses demonstrated Le Corbusier’s famous five points which were pilotis, free ground plans, free design of the facades, horizontal windows, and roof gardens.

The Weissenhof settlement (*Weissenhof Siedlung*) in Stuttgart allowed patrons to personally experience a new vision of society through architecture based around the ideals of reducing costs,

simplifying housekeeping, and improving living conditions (URL-2). For Le Corbusier it was a realization of an idea which he had in mind for a long time. He gave form to the idea of dwelling as a single spatial entity both horizontally and vertically, (Joedicke, 1990), where he managed a comfortable daily domestic life inside the house. In his houses (known as houses 14 and 15) one enters on the lower level, under the piloti-supported mass (Figure 1). Inside is an entrance lobby with cloakroom, furnace room, coal cellar, laundry room, maid's room, and storage. The next level is the primary living story. Here, there is an eating space behind the stairs, and a kitchen and bathroom at the far edge. The roof level features an outdoor garden and sunbathing terrace (URL-3). The efficiency of these houses which almost leads to an impracticality was widely discussed as much as his design in Pessac houses.



**Figure 1 - Maison de la Weissenhof Siedlung –Le Corbusier –photo Cemal Emden (URL-4).**

In 1923 the businessman Henry Fruges asked Le Corbusier to design comfortable and functional houses for his workers (Figure 2). As Le Corbusier was very devoted to standardization and industrial production of housing he created 5 housing types where he could use a simplified and efficient working spaces. According these 5 types the first three have complete arrangement with open space at the entrance and living room on the ground level. The occupants' daily activities are closely related to the outside environment; hence, the architect places more emphasis on the entrance. The remaining two housing types are located in a less-favorable location in the base, so the ground level is designed to be working space and the living space is elevated to the second floor. Such spatial arrangement distances the occupants from the outside world, so the design of roof garden is emphasized as compensation (Hsu & Shih, 2005).



**Figure 2 - Pessac Housing –Le Corbusier (URL-5).**

Associating house with health and wellness could be seen generally in all house designs in modern period. The Lovell Houses of Schindler and Neutra which was well organized around his full regime of sun, air, exercise, fasting, and diet strategies (Colomina, 2019) was one of them. Neutra designed the house for Dr. Lovell and his family. The main aim was to enhance the health through architectural design; and Neutra improved the functionality of the house by using new construction techniques, new materials and also new kind of indoor and outdoor space arrangement. Standardized techniques, prefabricated components, and simplified assembly resulted in high quality construction (URL-6). This house with its open plan living areas, balconies and sleeping porches, windows with overhangs was an example of how to regulate indoor and outdoor facilities, air flow, sun light and temperature (Figure 3). Although it didn't have a roof garden, the pool at the garden supported a qualified daily outdoor life. The pool which is directly associated with the open plan living area strengthens the indoor outdoor relationship and as the house is suspended on the side of a cliff, the pilotis become essential tools for the space arrangement and create a strong lead to other spaces.



**Figure 3 - The Interior of Lovell House (URL-7).**

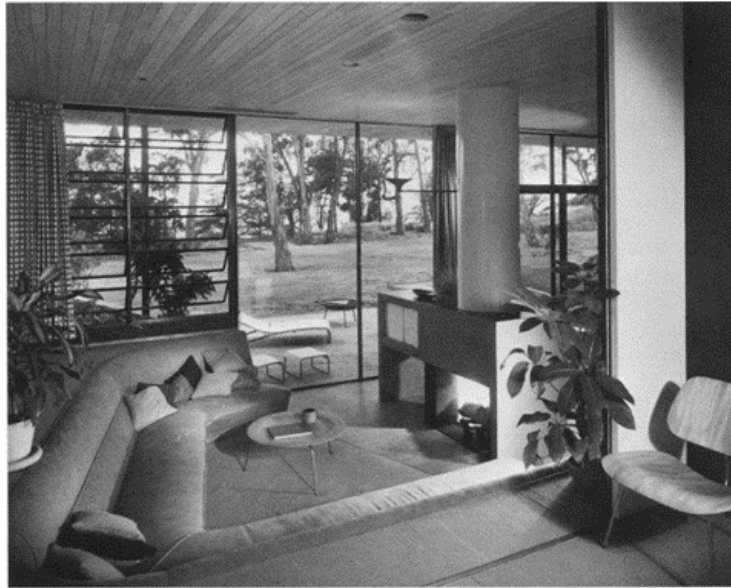


Le Corbusier was an influential architect. His way of thinking gave inspiration to his colleagues and challenged the house design in modern architecture. The social engineering behind his works and the desire to convert house design into a machinelike system brought not only standardization also new perspectives to space arrangements and to their relations. It cannot be claimed that only his 5 principles brought health and hygiene, just as it cannot be said that the use of the flat roof, balcony, summer house and recliner chair were the direct result of early treatment methods for tuberculosis, but the popularity of these modernist architectural features in the pursuit of good health and hygiene, placed them in the annals of a therapeutic lifestyle (Campbell, 2005).

Although modern architecture was shaped by the dominant medical obsession of its time tuberculosis and the technology that became associated with X-rays and produced a new and widespread change in the conception of space and the relation of inside to outside (Colomina, 2019), it cannot be reduced just to its geometrical attributes or space arrangement. It presented a life style, created hope and a new way of thinking of how to design homes which could provide comfort and health to humans. The spatial planning, whiteness, easy-to clean surfaces, exterior porches and gardens were tools reflecting the importance of human health and wellness; and besides that perfection in detail, unity and variety in mass, and availability for everyone made modern home design more evolutionary.

Tuberculosis as a serious illness of its period led architects to design houses with a sensitivity to people's health. The interior hygiene and cleaning, good ventilation, appropriate selection of material, enough sunlight and air penetration to spaces, invitation of nature inside, and a beautiful view to the exterior were indispensable. It was not just about rationalism or functionalism. The ideal of modernity in terms of house design was more about cherishing life at home considering the wellness of users.

Later in 40's after the 2nd World War this dedication or better defined social responsibility continued. One of the best examples was 'case study houses' program in United States. Between 1945-1966 architects designed 36 houses near Los Angeles reflecting modern design principles which included again practicality, new materials and an idealism of a domestic wealthy home life (Figure 4). This program was a reaction to post war prototype building design with the commitment of architects like Neutra, Soriano, Ellwood, and Eames. The purpose of the program was to provide a forum for talented architects, and it was reasoned that their work would be best served by showing it in context with furniture, floor coverings, lamps, textiles, flatware, pots and pans, even napery. Kitchens were fitted with the best of the new designs in ranges and refrigerators. An interruption in the flow of space became a sculptural statement (Mc Coy, 1975) which could be seen in many of these houses.



**Figure 4 - Entenza House, the cylindrical chimney, the curve of step to the dining kitchen level (Mc Coy, 1975).**

Valuing outdoor spaces as much as enclosed spaces, using cheap but new materials, creating clean surfaces with comfortable furniture, and well organized environmental factors like air flow, and sun shine were the goal of the program.

Modern architects were concerned about fulfilling the basic needs of the humans. Being socially engaged and thinking of better futures led them to think of every detail of human needs especially at house design.

According to Atmodiwirjo and Yatmo the basic human needs are those that are inevitable requirements towards human well-being, since they become the prerequisite before the other needs – that are more psychological, social, or cultural – could be fulfilled (Atmodiwirjo & Yatmo, 2015). At the same time, architects prioritized human lives, their needs and requirements within the framework of its general principles. These principles contained efficiency, simplification and standardization in terms of elements and space organizations. Fulfilling its functions with standards was strongly connected to wellness as a tool. Le Corbusier's well-known phrases 'the house is a machine for living in.' and where order reigns, well-being begins' were indicating the underlying principles in house design (Le Corbusier, 1986).

## **MODERN ARCHITECTURE IN CYPRUS**

Modern architecture started to be introduced with its ideas and practices in Cyprus in the 1930s as a result of professional architects who received their education in Europe and applied their practices in Cyprus (Phokaides, 2009; Aljuboori, 2018). Polys Michaelides played a significant role during this period in the modernization of architecture (Fereos & Phokaides, 2006). On the other hand, Ahmed Vural Behaeddin, Abdullah Onar, Ayar Kashief, and Neoptolemos Michaelides are

significant names to be mentioned in relation to local Cypriot modernist architecture (Muhy Al-Din, 2017).

Cyprus went through a transitional stage in terms of political and social conditions but also in the field of architecture during the period between 1930 and 1960. During this period international trends started to take over the anonymous vernacular production in relation to architecture (Fereos & Phokaides, 2006).

The trend in architectural design during the 1930s and 1940s was colonial historicism and the local Art Deco moderne was seen on private and public buildings. This trend continued until the mid/end of 1950s when there was an emergence in international architectural modernism right after (Kiessel, 2014).

It is indicated by Fereos and Phokaides (2006) that unstable political conditions and the lack of architectural schools had an effect in the modern architecture to spread in Cyprus. Local architecture experienced fluctuations due to political scene, and until today, it was shaped by architects who received their education overseas in institutions with various architectural cultures (Fereos & Phokaides, 2006).

Aljuboori (2018) states that modern architecture existed distinctively in Cyprus between the end of World War II and 1960. The author also mentions that the architects at that time were affected by pioneers of modern architecture like Le Corbusier and in the first half of the twenty-century by avant-garde movement.

The effect of Le Corbusier continued in Cyprus after the 1930s according to the traces. The first application of 'pilotis' and International Style by the Cypriot Architect Polis Michaelides appeared in 1936 on the island who received experience in Le Corbusier's office (Kiessel, 2014).

One of the essential elements of Le Corbusier's "Five Points of a New Architecture" which appeared in 1926 is the "pilotis" which the function of it is to raise the building up into the air to get rid of darkness and dampness and to create a space underneath the building for circulation of cars (Figure 5) (Kiessel, 2014).

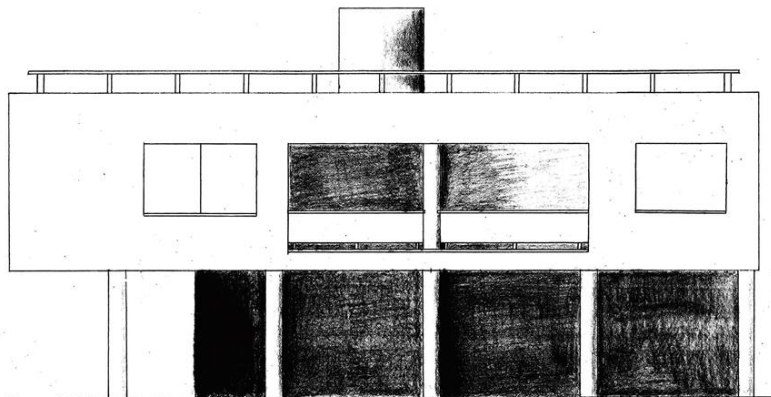


Figure 5 - Private residence in Famagusta-Maraş (Kiessel, 2014).

The most important architectural features are pilotis (columns), roof gardens, free façade, horizontal sliding windows, and free plans. Aljuboori (2018) states that the brutalist features, the simplicity, the nautical elements, and functionality all distinguished the modern architecture discourse of Cyprus. Residential and institutional architecture began to create a rational aesthetic which also created ties with the local vernacular choices (Phokaides, 2009).

It is obvious to see this trend in the architectural works by the first Turkish Cypriot modernist architect Ahmet Vural Behaeddin who completed his education in the 1950s and returned to the island. Phokaides (2009) stated that Behaeddin mainly designed private residences for the elite who had important social and political roles during the postcolonial period. Behaeddin used modernist vocabulary, furniture, and materials and this brought a cosmopolitan note to the domestic life (Phokaides, 2009).

Efrus Mass Houses is one of Behaeddin's works which has all the units towards the north. Behaeddin designed open areas and terraces towards the south to cut the direct sunlight in summer and these areas were also used by the family to gather together during winter (Figure 6) (Amen, 2017). There were common characteristics that these houses shared like the open plan. On the other hand, the living room and the dining room had a connection and on the other side there was a connection between the kitchen and the entrance of the house (Amen, 2017).

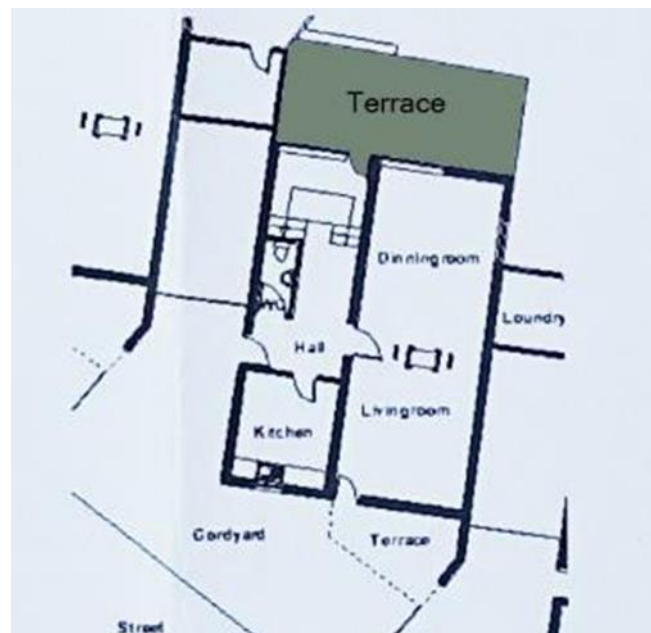


Figure 6 - Efrus Mass Houses (Esentepe, 2013).

Cyprus gained its independence in 1960 and modern architecture, as a symbol and an instrument of modernization and decolonization, became more important. The transition to Cypriot statehood and also the boom in tourist industry resulted in a boom in new buildings (Phokaides, 2009).

Another political break determined the end of the modern era (Fereos & Phokaides, 2006). Inter-communal violence started between Turkish Cypriots and Greek Cypriots in the 1950's and 1960's and civil war continued until 1974. As a result of ethnic conflicts between

two societies, the island was divided into two parts in 1974 (Gürel, Hatay & Yakinthou, 2012). The people from both sides were forced to displace and could not return to their houses or properties again. Many people both Greek and Turkish, lost their homes and properties when the island was divided into two with the artificial border, called the Green Line. With this Green Line Turkish Cypriots forced to migrate from South side to the North side of the island and Greek Cypriots from North to the South (IDMC, 2009). This division hampered the development process that started in the 1960s (Fereos & Phokaides, 2006).

Güzelyurt (Morphou) was one the regions where this displacement took place. It was predominantly Greek Cypriot before 1974. Nowadays the majority population consists of forced migrated Turkish Cypriots from the South side. Güzelyurt can easily be called a refugee town and although there were always Turkish Cypriot (Muslims) locals here (PRIO, 2011), this town was almost totally inhabited until the division of the island in 1974 by the Greek Cypriots (Hatay, 2007; PRIO, 2011). Currently the town is mainly inhabited by displaced Turkish Cypriots (KKTC SSTB, 2009; Şevketoğlu, 2010). According to the 2011 population census, 6696 locals are living in the region (URL-8).

## **GÜZELYURT HOUSES AND SPIRIT OF MODERN ARCHITECTURE**

Güzelyurt is an old city, which hosts many different cultures. The traces of this differentiation shows itself mostly in residential architecture. Through history, 4 influential periods that affected the architecture in mostly the urban areas of Cyprus can be identified and according to Özey (2004), these were chronologically Ottoman (1571-1878), British (British I 1878 -1930, British II 1930-1960), and Modern (1960-present). These main periods on residential building types give the overall identity to the Güzelyurt city.

Although the story of Güzelyurt houses goes back to the 16th century, today's daily life with its habits and standards brings the focus of this study to single family houses, which are built between 1960-1992. According to authors' observations there are approximately 600 houses in the region built in the modern style. When it comes to the houses from other periods; it is observed that those which are still in good condition are either preferred for temporary sheltering by non-locals or international students of nearby universities.

In 1974 after the displacement people started their new lives in their new homes. These houses were mostly built in 60's following principles of modern architecture. In a short while the comfort and space organization of these houses started to awake interest and new architectural concepts for family housing have been implemented in the region, although there were some impeding conditions. On one side, the migration of younger generation out of the district to capital city Nicosia was continuing (PRIO, 2011); on the other side, the region was mentioned to have an uncertain future, which is based on reunification negotiation, which discusses the possibility of territorial readjustment that would put Güzelyurt under Greek Cypriot administration with statements like the Annan Plan, Perez de Cuellar, and Boutros Ghali (İlseven, 2016).

At that period most of the Turkish Cypriots were also in financial difficulties. Their economic purchasing power developed gradually in decades. At the same time with the rapid growth of the



population the demand for housing increased. In this context, the government took actions towards the housing market. In 1978 after enacting the Social Housing Law, (Gazioğlu, 1996) local authorities and private sectors began to build state public housing to meet the demands of low and middle income people in the 1980s (Hoşkara et al., 1999). Two types of housing were built as duplex public houses (with garden) and apartments in 4 stages in Famagusta, Kyrenia, Nicosia, Güzelyurt (Omorfou), and Lefke in North Cyprus. During this period, the central government in Güzelyurt invested money in social house dwellings. The biggest investment in town by the central government was the construction of the social house dwellings, which were built between 1984 and 1992. These new houses with their porches and gardens had similar plan types as the ones from 60's; but they were relatively smaller (Figure 7).



Figure 7 - Duplex type mass houses in Güzelyurt (Authors, 2021).

Local people in the town are mostly engaged in agriculture or husbandry. As 60% of the population is elderly and thereof retired, they have strong attachments to their houses; and most of their daily life activities occur at home. Life flows slowly in Güzelyurt houses. The most common habit is to gather at verandas in the morning for coffees with neighbours, and with the family at the back garden at weekends for barbecues.

The period between 1950 and 1975 was when Cypriot architects designed housing in Cyprus. There was a transition from traditional to modern houses and this enabled the houses to be designed according to user specification (Cogaloglu & Turkan, 2019). Cypriot architects used reinforced concrete frame system in the buildings (Figures 8, 9) during these years and this enabled the buildings to have flexibility in designs and more organic solutions. Another distinction of this period is that the spaces which make up the plan schemes are functional in design (Cogaloglu & Turkan, 2019).



Figure 8 – A Front façade of a modern house in Güzelyurt (Authors, 2021).

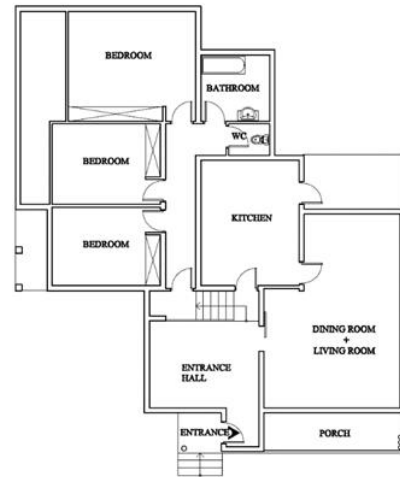


Figure 9 - A Plan schema of a modern house in Güzelyurt (Authors, 2021).

Most of the houses from 60's has 2 stories. Houses have a porch at the entrance; and an inviting hall. This entrance hall connects all rooms with a corridor. The ground floors involve 2 different living areas, a dining area, kitchen and cellar. Kitchens do not have open plan schemes, but connected to a 2nd porch. Sometimes a small study room is also possible. The bedrooms with balconies and bathroom are at the first floor (Figures 10,11,12). All houses have back gardens.



Figure 10 - A Façade of A modern house example from 60's in Güzelyurt (Authors, 2021).

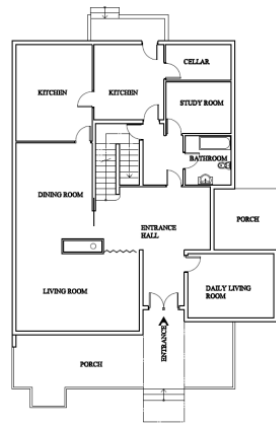


Figure 11 – The Ground Floor

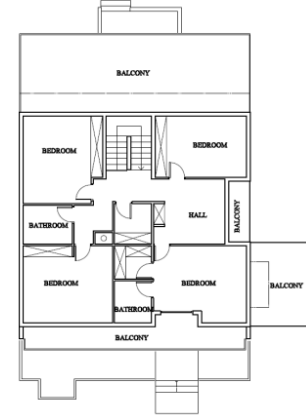


Figure 12 – The First Floor

The modernist architects always considered human health, comfort, and wellbeing in Cyprus by using pure and unique geometries, open and semi-open spaces such as balconies, terraces, and flat roofs. Amen (2017) states that the enormous terraces are places where the Cypriot people usually gather in their daily lives to spend their evenings. This routine still continues today. Especially

during the pandemic, the people in Güzelyurt went through this period with more comfort by having the flexibility to spend time indoors and outdoors in their houses (Figures 13, 14). The social houses followed the same design principles in a more relatively small scale; but having a front porch and back garden remained as essentials.



Figure 13 - The Interior of a modern house in Güzelyurt (Authors, 2021).



Figure 14 - The exterior of a modern house in Güzelyurt (Authors, 2021).

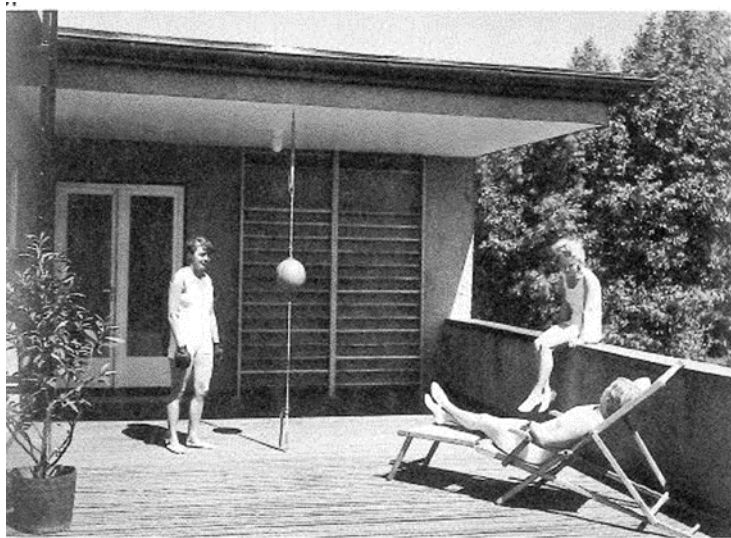
## LEARNING FROM GÜZELYURT HOUSES FOR POST-PANDEMIC PERIOD

In 1929 Sigfried Giedion published a manifesto in his book *Befreites Wohnen* (Liberated Living). In this book (Figure 15) he referred home as a place which makes our life easier, a place which is not a monument, not expensive, not with an eternal value (Giedion, 1929). While he was associating home mostly with hospitals or sanatoriums, he reflected an idea of being resilient, economic and healthy. It was more about practicality and suitability, and about fulfilling the functions which best serve for the users.



Figure 15 - *Befreites Wohnen*-Cover (Giedion, 1929).

This manifesto belongs to 92 years back; almost a century. At that time the world was facing tuberculosis, and was in a period of recovery from the World War I. People were trying to adapt to new conditions; and everything was centred around healthy and free lives, liberated from all concerns. In the 1920s and 1930s terms like “function”, “purpose” or “nature” were used all the time to describe an objective analysis and design process—with architectural movements being labelled “functionalism” or “new objectivity” (‘Neue Sachlichkeit’). Design and construction processes were based on optimising housing according to insolation diagrams. This was considered to have not only economic, but also hygienic and social benefits—up to the point of liberating housing and its inhabitants, providing “Light, air, opening” (‘Licht, Luft, Öffnung’) (Figure 16) (Seelow, 2017). This was understandable because of the effects of tuberculosis. Freeing homes from illnesses was the main focus.



**Figure 16 - Theo Effenberger. house in the Werkbund housing exhibition. Breslau. 1929.  
From Beatriz Colomina, X-Ray Architecture (Colomina, 2019).**

In years this ‘new objectivity’ turned itself into a new search of forms, aesthetics and comfort. Their interior-external relations, the feeling of spaciousness and qualified interior decoration were new attributes. The form-function relationship was still valid; and modern architecture was trying to keep the wellness of users with a tendency of keeping white and pure geometries, balconies or porches at homes. The journey of modern architecture between 20’s and 60’s resulted in healthy, liberated, and minimal house designs.

Now in 2021 the world is experiencing again an outbreak. When both periods with their unique circumstances are compared, it is as lethal as tuberculosis, and more resilience and sustainable solutions are necessary in case the world faces another outbreak and lockdown in future.

The measures should start by re-examining our houses. Housing characteristics have gained more importance in people’s lives due to the stay-at-home attitude experienced during the Covid 19 pandemic (Schellenberg & Fonberg, 2020). This reality brings some questions, such as (1) how to effectively avoid disease propagation, (2) how to minimize the environmental effect, and (3) how to maintain and improve the comfort of people spending most of their time at home (Tokazhanov



et al., 2020). Although life styles and cultures in different societies change the architectural design parameters, health factors and sanitary conditions are the same; and they can be applied to every different scheme. The outbreak showed that houses are no longer spaces, where we spend our time, create memories, feel safe and comfortable. Now they are also the only protective places in every single condition.

Güzelyurt houses proved themselves as having well protective and comfortable spaces. Based on their space arrangements, indoor outdoor relations, balconies and porches, ventilation systems, sun penetration and gardens; these houses are reflecting modern design principles and the sensitivity of modern architecture to human wellness.

So, how can we take some lessons and adapt a new housing system? Is it possible to find the guiding spirit of modern architecture in these houses and, if so how can it be applied to a post-pandemic design?

The pandemic in 2021 taught us the importance of green spaces, flexible building systems, the balance of indoor and outdoor spaces and indoor hygiene. Based on this experience, and on the characteristics of Güzelyurt houses, the post-pandemic houses for future can have the attributes, which are listed in the Table 1 below.

**Table 1 - Characteristics of Güzelyurt houses and the new suggestions for the post-pandemic houses (Authors, 2021)**

<b>Modern Design Principles</b>	<b>Reflection on Güzelyurt Houses</b>	<b>New Suggestions for Post-Pandemic Period</b>
<b>1. Pure forms with cubic volumes &amp; flat roofs / roof gardens / emphasis on horizontal planes</b>	Using pure forms & flat roofs	Using pure forms and flat roofs, Green roof terraces especially for the apartment type and social housing projects
<b>2. Clean Aesthetic / rejection of ornament / new materials</b>	Using traditional materials like stone in new ways and new structural systems like reinforced concrete frame system	Easily cleanable surfaces, touchless working house appliances, the coating materials of furniture to be antibacterial
<b>3. Promotion of human comfort and health</b>	Use of shading devices with appropriate use of glass for having natural light and air	Intelligent house systems for good ventilation, interior hygiene and cleaning, 1 wet space at the entrance halls, Enough natural sunlight and air penetration to spaces
<b>4. Balanced indoor /outdoor relation</b>	Having strong relation between indoor and outdoor spaces. (green gardens, balconies and porches)	Open and semi-open spaces like roof terraces, balconies and porches, Having larger gardens.
<b>5. Open floor plans</b>	Designing the areas together like living and dining area	Instead of open plans separate rooms, Extra 1 or 2 rooms for storage & working areas, Partitions/ folding elements.



It is possible to observe the modern period effects which are using pure forms with cubic volumes and flat roofs in Güzelyurt houses. Although it is very common to use flat roofs in modern houses, it is observed that the roof terraces are not commonly used in daily life. It is more common to use balconies, terraces, and gardens in single and double storey houses (Figure 17) in Güzelyurt and these open and semi-opened places are often used to socialize with family members and neighbours (Figure 18).

The people needed open and green areas during the pandemic lockdown for their physical and also mental health's. The term wellness involves the humans physical and mental wellbeing. Due to the pandemic, we remembered once more the importance of open and semi-opened spaces such as gardens, balconies, and terraces for wellness. It was observed that the space organization and the relationship created between the interior and exterior spaces positively affected the family members during this period. The people were able to comfortable move around in the open spaces of the houses during isolation.



Figure 17 - Outdoor space examples of modern houses in Güzelyurt (Authors, 2021).



Figure 18 - Outdoor space examples of modern houses in Güzelyurt (Authors, 2021).

Ateek (2020) believes that open areas like courtyards, gardens, and green roofs help enhance the mental health of the people in house quarantine and that the people will be in more interaction with the open areas of the house and public buildings after the pandemic. The open and semi-opened spaces which are common in Güzelyurt houses should be a design criterion for the houses in the future. Especially the roof garden usage of modern architecture, should be integrated to the communal life units like social house-dwellings and apartments. Thus, the people will have the opportunity to continue their living in spaces healthier and more integrated with the nature.

When the Güzelyurt houses are evaluated according to social wellness, it is observed that the neighbourhood relations and socializing with the family members continued during the pandemic period, just as it was before the pandemic period, by protecting social distance in open areas. The Güzelyurt houses enabling this kind of socialization is yet related to the spatial organization of the houses.

It is possible to see that the modern houses in Güzelyurt are far from ornamentations and designed with new interpretations with traditional materials. These houses are well decorated and are rich in material usage indoors (Figures 19, 20). These houses were obviously very successful during the pandemic in relation to user comfort and health. Space influences how and where people socialize,

manage domestic waste and recycling, store goods, prepare and consume food, the privacy for studying, relaxing, working, leisure time, and the adaptability to new requirements (e.g. Isolation, disability) (D'alessandro et al., 2020). Starting from this point, the space organizations of Güzelyurt houses and the idea of having separate rooms for each space in these houses gave many advantages to users during pandemic period. The houses were effective in enabling the family members to protect social distance and to isolate themselves when needed during this period. The family members comfortably continued their daily lives in separate rooms. Therefore, the design trend of the modern houses proved to be effective in supporting and protecting human health and wellness.



**Figure 19 - Indoor space examples of modern houses in Güzelyurt (Source: Authors).**



**Figure 20 - Indoor space examples of modern houses in Güzelyurt (Source: Authors).**

Spatial borders and organizations and the material choice of the houses will be quite crucial. Larsson et al., (2020) indicate avoiding shared rooms, providing unisex single-user wet space with a small sink, a toilet and a separate shower / bathroom. The authors also put forward the importance of natural ventilation. Easily cleanable surfaces, touchless working house appliances, the coating materials of furniture to be antibacterial will come into prominence in relation to hygiene. Organizations of the plans and the new materials will allow the people to get over the possible pandemic process more comfortably and healthily.

The houses in Güzelyurt are considerably successful in relation to natural lighting and the designs that welcome the nature. The use of shading devices with appropriate use of glass to receive natural light and air will also be preferred in the houses after the pandemic. Moreover, intelligent house systems can be adapted for good ventilation and contactless surfaces for interior hygiene and cleaning could all be used in the future homes. In addition, initial contact happens at the main entrance halls, so wet spaces could be designed close to entrance halls in the future homes to ensure hygiene. Also, natural sunlight and air penetration to spaces will obtain more importance after the pandemic period. The protection of social distancing will also be considered in interior space arrangements.

When the Güzelyurt houses are evaluated according to environmental wellness, it is observed that these houses are in balance and harmony with the nature and man-made environment. The strong relationship of these houses with the open and closed spaces has provided comfortable and healthy

environments to users (Figure 21, 22). The people who lived in single and double storey houses were luckier than the people who lived in apartments during the pandemic process. The people in apartments experienced boredom during this process. People realized the importance of indoor gardens even in multi-storey buildings during quarantine (Makhno, 2020; Wainwright, 2020). For this reason, green gardens should be arranged for multiple storey houses in each floor for socializing. The users have experienced the importance of the relationship between indoor and outdoor spaces during this process. It is obvious that open and semi-open spaces will gain more importance especially for the apartment type housings in the future. During pandemic period, people tended to cultivate in their own gardens. Therefore, future homes will have larger green garden areas.



**Figure 21 - Open and semi-open space examples of modern houses in Güzelyurt (Source: Authors).**



**Figure 22 - Open and semi-open space examples of modern houses in Güzelyurt (Source: Authors).**

The open plan application which belongs to modern architecture cannot be observed very often in Güzelyurt house plans. Mostly, each space was thought for separate areas. The open plan idea is mostly seen in Güzelyurt social house dwelling projects. It is obvious that the open plan idea will experience a change after the pandemic. Megahed & Ghoneim (2020) propose that an end might come to the open-plan spaces and more partitions between departments could be introduced as design solutions and layout after the pandemic period. In the post-pandemic period, instead of open plans, each space will be designed separately, also extra 1 or 2 rooms will be necessary for storage and working areas for the users. The spaces in the houses during the pandemic period have transformed into multi-functional spaces. Keenan (2020) supports that innovative multi-purpose furniture and adaptive spaces for eating, working and studying will be needed. Spaces will be transformed into other spaces according to need after pandemic period.

Houses that can provide effective social isolation and protection against viruses and infections is obviously required for people (Megahed & Ghoneim, 2020) and they can become more sustainable through ensured flexible and adaptable spaces which are easily adaptable according to the changing needs and lifestyles for residents (Capolongo et al., 2020; Wainwright, 2020).

The experiences gained during the pandemic process has once more evoked us about the importance of spatial organizations and the positive effects of outdoor spaces on humans' wellness.

By deducing from the Güzelyurt houses built in a modern style, one of the most important aims of this study was to lead the way for the future houses. In this context, it is thought that the above evaluations and suggestions will be beneficial for the wellbeing and health of the users for possible future pandemics.

## CONCLUSION

Architecture is concerned about people's lives. Tuberculosis which was a critical illness of its period resulted in architects designing houses sensitive to human health. This was a primary responsibility of the modern architects. Another pandemic which recently has significantly affected the whole world is Covid-19. The importance of house conditions was once more put on display in relation to people's health and well-being due to the lockdown because of the Covid-19 (D'alessandro et al., 2020). Many people had to continue work and education at their homes because of the lockdown during the pandemic. This has resulted in changes to our daily life conditions and habits. People had to spend most of their times at home due to the lockdown. Thus, owners started to transform the spaces in their homes. Parts of the living rooms, bed rooms, and kitchens were transformed into offices or classroom environments. It was observed that the houses which were designed after modern architecture principles in Güzelyurt allowed an endurable lockdown period during the outbreak of Covid-19 in 2020 in relation to personal comfort and safety of their owners. The users experienced the importance of the relationship between the open and closed spaces and saw the advantage of the gardened houses over the houses without gardens. It is not certain when the Covid-19 pandemic will end but it will be beneficial to develop suggestions about the designs of the future houses respectively.

The Güzelyurt houses which are designed in a modern style, have provided the users with comfortable spaces during the isolation process. Thus, these houses have a crucial feature of guiding the future houses. In the scope of the question asked at the beginning of the study, Is modern architecture still valid; or can its principles be applied to contemporary house design in post pandemic period? Following are the results:

- Using pure forms, flat roofs and roof gardens which are the key elements for Modern architecture will gain more importance after post pandemic.
- The requirements of modern architecture like enough sunlight and air penetration, natural ventilation, appropriate material selection, interior hygiene and cleaning, indoor and outdoor facilities, inviting the nature inside, and a beautiful view of the surrounding will gain more importance in the future homes.
- Using partitions between departments to ensure adaptable spaces for all users and multi-purpose furniture will be a requirement for indoor spaces.



- Instead of open plans, each space will be designed separately, also extra 1 or 2 rooms will be necessary for storage and working areas for future houses. The modern period Güzelyurt houses definitely have a separate laundry, cellar, study at the entrance floors, storage spaces, and an extra room for necessities. These spaces can easily be transformed to serve various functions after the post pandemic period. The space organizations of the modern houses have a quality of guiding the future homes.
- Entrance halls are the places where the first link between the external world is created. For this reason, a wet space can be designed at these locations for hygiene. Wet spaces with a toilet, small sink, and a separate shower would be a necessity after the pandemic period.
- Intelligent housing systems for good ventilation and interior hygiene and cleaning will be on the agenda. Easily cleanable surfaces, non-contact household appliances, choosing anti-bacterial materials for furniture will be on the agenda in relation to hygiene.
- Visible and accessible green elements and spaces will gain importance and future homes will have larger garden areas.

Through this study, the guidance of house designs for post pandemic period is researched and some suggestions are provided. There are still many questions which haven't been answered in relation to space and environment designs after the pandemic, so more multidisciplinary studies are needed in this context. It is a requirement to use healthy design and planning strategies more effectively to be able to create more sustainable architecture and environments for potential future pandemics.



## Conflict of Interest Statement

There is no conflict of interest for conducting the research and/or for the preparation of the article.

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## Copyright Statement for Intellectual and Artistic Works

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## Author Contribution Statement

A. Fikir / Idea, Concept	B. Çalışma Tasarısı, Yöntemi / Study Design, Methodology	C. Literatür Taraması / Literature Review
D. Danışmanlık / Supervision	E. Malzeme, Kaynak Sağlama / Material, Resource Supply	F. Veri Toplama, İşleme / Data Collection, Processing
G. Analiz, Yorum / Analyses, Interpretation	H. Metin Yazma / Writing Text	I. Eleştirel İnceleme / Critical Review

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