



A PROPOSAL FOR REINTERPRETING THE CONCEPT OF HOUSING, TRANSFORMED BY GLOBAL EPIDEMIC DISEASES, IN THE CONTEXT OF FLEXIBILITY

KÜRESEL SALGIN HASTALIKLAR İLE DEĞİŞEN KONUT KAVRAMININ ESNEKLİK BAĞLAMINDA YENİDEN YORUMLANMASINA YÖNELİK BİR ÖNERİ

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Abstract

Global epidemics have significantly affected people's daily habits in various ways. In the field of architecture, the concept of space, originally shaped around people's lifestyles, has started to be reinterpreted in a new context. Houses, which were primarily used for shelter and basic activities like eating and occupied only for part of the day, turned into spaces that had to be inhabited continuously during quarantine, leading to the assignment of new functions and uses. This shift brought renewed attention to the concepts of flexibility, adaptability, and expandability in housing. In this study, a fieldwork was conducted within the scope of the Architectural Design II course for first-year students in the Department of Architecture at Gazi University, with the aim of examining changes in residential spatial design under the conditions of the global pandemic. Within this scope, students were asked to research how spaces could change and transform in the event of a room, an apartment, or a floor of a building being quarantined, and to develop alternative flexible design proposals by reinterpreting the state of isolation in this context. Accordingly, the study was conducted using qualitative research methods, and the projects were evaluated using content analysis. Ultimately, the study demonstrates that residential buildings can be reconfigured according to flexible design principles based on changing user needs, emphasizing the importance of instilling this awareness in architecture education from the very first year.

Keywords: Space, Flexible Design, Housing, Isolation, Architecture Education

Öz

Dünya genelinde ortaya çıkan salgın hastalıklar insanların gündelik yaşamlarındaki alışkanlıklarını birçok yönden etkilemiştir. Mimarlık disiplinde bakıldığında ise insanların yaşam biçimlerine göre tasarlanan mekan kavramı farklı bir bağlamda yeniden yorumlanmaya başlanmıştır. Özellikle çoğunlukla barınma, yemek yeme gibi ihtiyaçların karşılandığı, günün belli bir zaman diliminde kullanılan konutlar, karantina sürecinde uzun süre deneyimlenmek zorunda kalınan mekanlara dönüşmüş ve konutlara farklı kullanım işlevleri yüklenmiştir. Bu değişim ile ortaya çıkan fiziksel ve fonksiyonel yeni ihtiyaçlar konutta esneklik, değişebilirlik ve büyüyebilirlik kavramlarının yeniden tartışılmasına sebep olmuştur. Bu çalışmada da küresel salgın koşulları ile konut mekan kurgusundaki değişikliklerin sorgulanması amacı ile Gazi Üniversitesi Mimarlık Bölümü 1. Sınıf Mimari Proje II dersi kapsamında bir alan çalışması yapılmıştır. Bu kapsamda öğrencilerden karantina sürecindeki bir oda, bir daire ve bir binanın bir katının karantinaya alınmasını izole olma durumunu yeniden yorumlayarak alternatif esnek tasarım önerileri geliştirmeleri istenmiştir. Bu doğrultuda çalışma, nitel araştırma yöntemi ile yürütülmüş ve projeler içerik analizi yöntemi ile değerlendirilmiştir. Sonuç olarak çalışma, değişen kullanıcı ihtiyaçlarına göre konutların esnek tasarım ilkeleriyle yeniden kurgulanabileceğini göstermekte; mimarlık eğitiminde bu farkındalığın ilk yıldan itibaren kazandırılmasının önemini vurgulamaktadır.

Anahtar Kelimeler: Mekan, Esnek Tasarım, Konut, İzole, Mimarlık Eğitimi.



INTRODUCTION

Space, one of the most basic requirements for existence, and the understanding of space have always been sources of curiosity for human beings. In architectural terms, space is a shaped void (Rasmussen, 2000). According to Lefebvre (Lefebvre, 2014), space is a social product, with each form of production creating its own space. Space defines boundaries (Ritzer & Stepnisky, 2019). These definitions reveal not only the physical aspect of the space, but also its social and experiential dimensions. Defined as a space segment delimited by boundaries (Durukan & Öztürk, 2020), spatial design has had to be addressed in different contexts with the emergence of global pandemics. Living spaces which fulfill needs such as shelter, refuge, and eating have had to be rethought during global epidemics. As a result, designers have begun to create structures that are sustainable, economical, rapid, and capable of adapting to different needs. Architectural education also serves as a simulation of architectural practice in many ways (Paker Kahvecioğlu, 2007). In this process, it is crucial to raise awareness among students about how to design spaces that respond to changing needs and how to manage the design process effectively.

This study specifically examines the effects of global pandemics, which are very broad in scope, on the formation of spaces, limited to the context of flexibility in housing. The study investigates how housing becomes multifunctional during pandemics and how user behaviors change, seeking to answer the question: “How can the concept of housing be reinterpreted in the context of flexibility as a result of global pandemics?” Thus, it was discussed how spaces could change and transform when a room, an apartment, or a floor in housing, which is mostly designed independently of the user, is quarantined; the aim was to develop a solution proposal in the context of flexibility for the transformations that housing could undergo to meet individual needs. In this direction, a literature review on the relationship between epidemic conditions and the built environment was first conducted, followed by an examination of the concept of flexibility in residential buildings within this context. Based on the data obtained, a field study was conducted within the scope of the Architectural Project II course at Gazi University, resulting in a sample solution.

THE EFFECT OF GLOBAL EPIDEMIC DISEASES ON THE ORGANIZATION OF SPACE

Architecture has undergone constant change from its origins to the present day. During the modernization process, user-related physical data came to the forefront, driven by the demands of mass production in architectural practice. As a result, users were often treated as a standardized, uniform data set. In traditional societies, those who created and transformed space were also its users, whereas in the industrial period, the role of shaping space shifted away from users to designers and producers (Koolhaas & Mau, 1995). The changes that became prominent in the 20th century and continue today, such as shifts in family structure and population, migration trends, variations in overall welfare, and evolving state systems, have deeply impacted society. The pandemic has been one of the factors that has profoundly affected society, forcing the abandonment of many habits and necessitating change in daily life.

An epidemic is defined as “the occurrence of a disease at a higher-than-expected rate within a specific population and time period. In other words, the number of observed cases exceeds the expected number” (TC Ministry of Health of the Republic of Turkey , 2023). Epidemic diseases are a biological phenomenon with a history that predates human civilization. It is widely accepted that the microorganisms responsible for these diseases existed before humans. Although these microscopic organisms, which are too small to be seen with the naked eye, have caused mass fatalities, their existence remained unknown for a long time. In earlier times, diseases were often attributed to air pollution or regarded as divine punishment, with a sacred meaning attached to them (Kılıç, 2020).

As a result of these epidemic diseases that impact human life, daily routines have also been disrupted, making certain vital changes necessary. Consequently, as epidemics profoundly affected social life, the human–space relationship began to be reexamined in new contexts. This led to an investigation into how communal living spaces can meet requirements such as hygiene, isolation, natural ventilation, and adaptability to changing conditions.

With the emergence of global epidemics, discussions have shifted away from instant solutions in shaping the built environment toward the need for systemic transformations that ensure spatial justice and

address the needs of all individuals. As a result, the issue of singular spatial needs arising from global epidemics has been examined from a broader perspective, leading to holistic, inclusive, and flexible solution approaches (Ensarioğlu, 2021).

The built environment refers to the man-made physical surroundings in which people live and carry out their daily activities (Carmona, Heath, Oc, & Tiesdell, 2010). With the onset of global epidemics, built environments from the urban scale down to individual spaces have been significantly affected, prompting necessary changes and transformations. In epidemics primarily spread through close contact, prolonged presence in crowded and poorly ventilated indoor spaces contributes to airborne transmission. In fact, in environments with poor air quality, the virus can potentially spread over distances greater than two meters (Cevik, Kuppalli, Kindrachuk, & Peiris, 2020). As a result, the initial measures to limit the spread of the epidemic focused on social distancing, isolation, mask usage, quarantine practices, and curfews (Ensarioğlu, 2021).

This article focuses on creating isolated spaces within existing built environments, specifically in residential buildings, and examines the transformations that housing can undergo to meet individual needs within the context of flexibility.

THE CONCEPT OF FLEXIBILITY IN HOUSING

The concept of flexibility has been widely discussed in architectural literature. It emerged as a product of the Modern Movement and, after the 1950s, introduced the notions of “time” and “the unknown” into the design process, offering a fresh perspective on functionality in architecture (Colquhoun, 1990).

Norberg-Schulz, approached the concept of flexibility in two distinct ways (Norberg-Schulz, 1963). The first involves the ability of a structure to grow or shrink without losing its integrity, by adding or removing elements. The second refers to the capacity for elements and relationships within the structure to change over time. Oxman, defined flexibility as the ability to adapt to changing conditions, and described concepts such as expansion and adaptability as derivatives of flexibility (Oxman, 1975). Votava, also associates flexibility with the concepts of “physical adaptation, the ability to fold and collect, the capacity to combine and separate.” (Votava, 2006). In architectural space, these related concepts demonstrate that flexibility can be addressed at various scales, including product design. Hertzberger has emphasized the feature of flexibility that allows for diversity. According to him, the foundation of flexibility lies in the inclusion of mechanisms that support different uses within a design (Hertzberger, 1991). Bayazit, defined flexibility as “the ability to return to its original state once the effect is removed, after undergoing a change in form under the influence of an external force.” (Bayazit, 1979). This definition highlights the ability to maintain its existence and preserve its characteristics, rather than disappearing when exposed to an external effect (Okutan, 2017).

The concepts of flexibility, adaptability, development, changeability, and expandability can be defined as follows in relation to the architectural process and product:

- The growth or shrinkage of a building without losing its integrity through the addition or removal of elements,
- The transformation of elements and relationships,
- The behavior that requires the structural system to adapt in order to meet changing needs and activities,
- The need for both the changeability of partition walls and the organization of spaces with specific qualities, as well as the need for partition changes (Buğday, 1991).

Musgrove, defines flexibility as the changeability of partition walls and the creation of spatial organizations that do not require the variability of separating and dividing walls (Musgrove, 1973). Flexibility in housing is further defined as the ability of a design to respond to the changing needs of users in the face of evolving conditions (Andiç, 1999). The inability of houses to adapt to these developments over time leads to functional and physical obsolescence in the built environment. These factors, which accelerate functional obsolescence, have sparked discussions and efforts to find solutions

for concepts such as flexibility, changeability, adaptability, and expandability in architectural spaces (Alga, 2005). Numerous design experiments have been conducted to provide alternative solutions to the changing needs of a family over the life cycle of a house. Notable examples include Riken Yamamoto's 1988 Hamlet House, which accommodates three generations, Şengül Öymen Gür's housing design, conceived around the idea of multi-generational living, developed in her studio, the fragmented house design by Sedat Gürel, which earned the Aga Khan Award for Architecture, Hiroshi Hara's concept of a village within a house, designed for his own use, Cengiz Bektaş's expandable garden house design, the influence of Japanese culture on housing design, and Shigeru Ban's housing design, consisting of 9 grids.

The meanings attributed to housing and the functional performances expected from it also evolve in response to changing conditions. During periods marked by global epidemics, housing became a fundamental living space, with its use expanding beyond shelter to include functions such as education, entertainment, and work. This has made the effective and multifunctional use of space essential (Ak, 2020). It is crucial that each of these spaces addresses different spatial needs, that the spaces are designed with flexibility to accommodate various functions throughout the day, and that they can quickly adapt to changing usage patterns and varying numbers of users (Klein, 2020). Therefore, in this process, the concept of flexibility has become not only a design necessity but also a vital requirement. As a result of this necessity, spatial arrangements that can adapt to situations requiring isolation, particularly in residential buildings, have come to the fore. In this article, isolated spaces are discussed within the framework of the concept of flexibility in residential buildings, and an alternative solution to changing conditions is proposed.

DESIGN STUDIO METHODOLOGY AND FINDINGS

Within the scope of this study, the issue of isolated spaces in housing, emerging due to global epidemics, was examined through the lens of flexibility, with the aim of developing an alternative solution to this problem. In this context, a field study was conducted with a first-year student from the Department of Architecture at the Faculty of Architecture, Gazi University. The field study was carried out in two stages due to the scope of the research. This study is an example case and was conducted in two stages due to the scope of the study. The Kadıköy/Moda region was designated as the design area. The student explored the concept of place by conducting detailed analyses in this region and identified a suitable location for the design problem. Through this process, the student generated multiple concepts related to the context of place (Figure 1). The second stage focused on spatial design and production. At this stage, the student developed a scenario for alternative space production in housing, using the concepts derived from their analyses, abstractions, and the design principles they formulated. In this way, the scenario was shaped in alignment with the concepts established during the first stage, and spatial production was carried out accordingly.

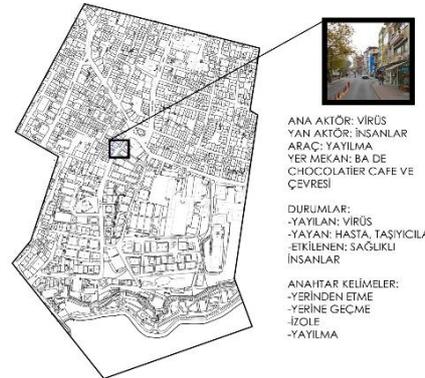


Figure 1. Design space and concept discovery process

While analyzing the design area, the student examined historical and contemporary maps, overlaying them to observe spatial and structural changes over time. He identified that in historical Kadıköy, detached and individual houses were more common, whereas today, particularly as one moves away from the coastline, the increasing demand for housing has resulted in denser and more adjacent

buildings. The analysis extended beyond plan views to include sectional drawings. It was observed that green areas have gradually been replaced by buildings. Additionally, parts of the coastline were filled in, with new green spaces introduced in their place, resulting in a shift from sea to land-based greenery. Some residential buildings have since been converted into commercial spaces, indicating a shift from domestic to business functions. Furthermore, buildings that existed in the 1930s, as identified through historical references, have been replaced by new structures (Figure 2).

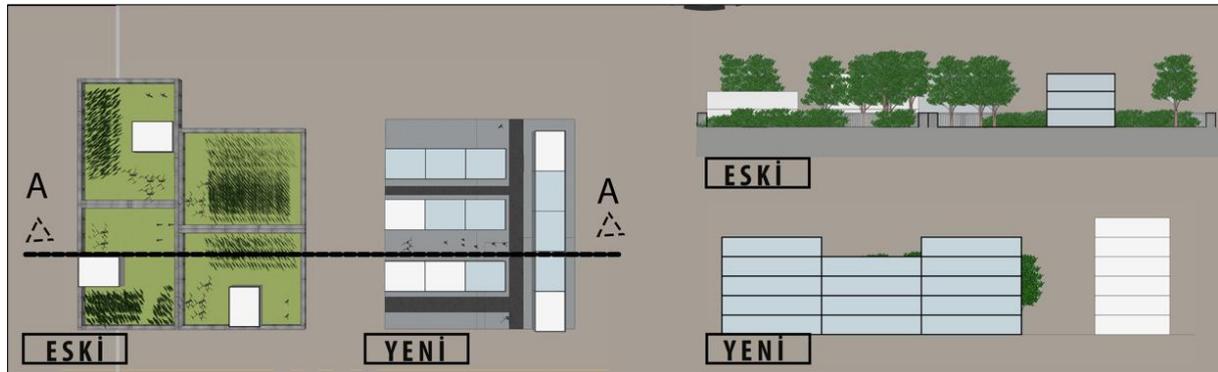


Figure 2. Spatial analysis conducted through historical layers (Student project)

The student drew an analogy with the processes of isolation and spatial transformation during the pandemic and, as a result of his analysis of historical layers, produced the concepts of ‘moving’, ‘taking one's place’ and ‘being displaced’. Building on these ideas, he defined the design area and translated these concepts into notions of isolation and dispersion, which shaped the foundation of his design scenario. In this scenario, the virus was positioned as the primary actor, while people were considered intermediate actors. It was assumed that the virus spreads through patients and carriers, affecting healthy individuals. Based on this framework, he abstracted the design area by mapping the potential spread of the virus and defined isolated volumes within the space accordingly.

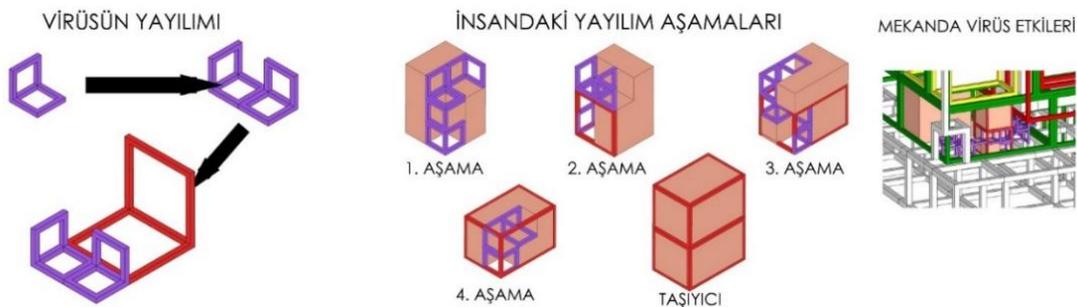


Figure 3. The rules governing the spread of the virus in humans and in spaces (Student project)

He designed his project by taking into account the conditions of periods marked by epidemics. Considering the restrictions imposed during such times and the quarantine requirements for patients, he recognized that people were compelled to spend extended periods at home. In response, he created user-oriented alternative living spaces within the home. These spaces were designed with movable walls, allowing them to be reconfigured according to the user's preferences. This enables individuals to adjust their environments for greater comfort, especially in spaces where they spend most of their time. Additionally, the prolonged indoor stay brought about the issue of insufficient fresh air. To address this, the movable walls were positioned to allow physical and visual access to the outdoors. In quarantined apartments, depending on their location and configuration, these elements can transform into balconies or semi-open spaces. Furthermore, semi-open spaces needed during quarantine can also be designed to extend beyond the room's boundaries, projecting outward along the building's exterior façade.

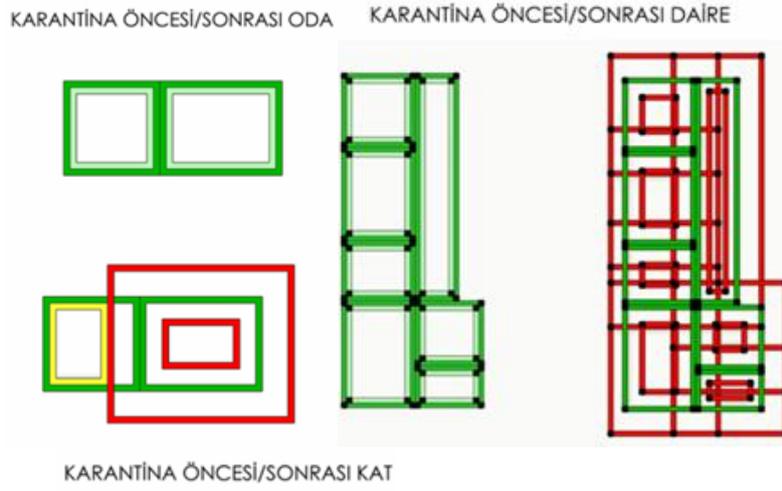


Figure 4. Comparison of housing plans before and after quarantine (Student project)

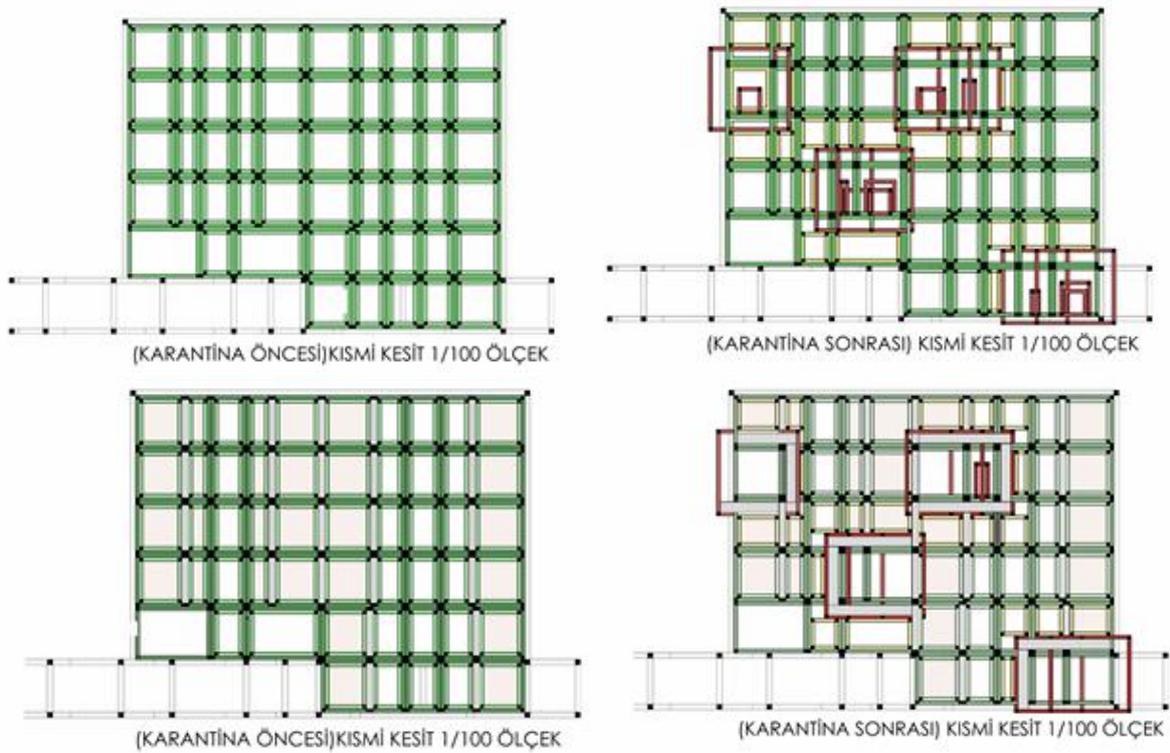


Figure 5. Comparison of cross-sections of spaces before and after quarantine (Student project)

CONCLUSION

It is clear that the education provided during architectural training plays a major role in understanding the various criteria essential to housing design. For this reason, architecture students should be made aware that different designs must be created according to user profiles and needs, and the disadvantages of building identical housing for everyone should be emphasized. While housing is traditionally understood as a unitary living space, the assignment of new functions and meanings to it in recent times has led to a re-evaluation of residential design.

The prolonged impact of global pandemics worldwide has necessitated a reassessment of existing living spaces and housing designs. The pandemic has increased the need for green spaces and highlighted the importance of our relationship with nature and environmental awareness. It has also reemphasized the importance of incorporating sunlight and natural ventilation, as well as the planning of green areas, front gardens, and balconies in residential buildings, particularly in the context of urban planning.

Prolonged crisis periods have compelled designers to create buildings that are sustainable, economical, quickly designed, self-sufficient, and capable of accommodating multiple functions (Güney Yüksel, 2021). The study conducted within the scope of the Project II course also contributed to raising awareness among early-stage design studio students.

As a result, global epidemics have necessitated radical changes in the way houses are used. It has become clear that housing must serve not only as a shelter but also support a variety of functions. The ability of a house to function as a living, working, and educational space and to rapidly transform into isolated zones relies on spatial flexibility. Experiencing and applying flexibility within the design process is also essential in fostering sensitivity to future challenges. For this reason, incorporating flexibility as a criterion in residential project processes within architectural education and emphasizing the importance of designing systems that can quickly adapt to different needs is considered a critical step that will shape the future of residential design.

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