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ÇEVRECİ ve YENİLİKÇİ AVM TASARIMLARI KAPSAMINDA ÇATI BAHÇELERİ

Öz

Günümüzün en yaygın sosyalleşme yerlerinin arasında alışveriş merkezleri bulunmaktadır. Kamusal mekânların geniş programlı hali olarak da tanımlanan alışveriş merkezleri birçok tasarım yaklaşımı ile tasarlanmaktadır. Birçoğu farklı tasarımlarda olan alışveriş merkezleri çevre dostu ve yenilikçi konseptlerde de karşımıza çıkmaktadır. Küreselleşme, artan nüfus ve beraberinde getirdiği artan ihtiyaçlar dünyayı sürdürülebilir tasarım yaklaşımlarına daha da yönlendirmiştir. Bu yöneliş içerisinde alışveriş merkezleri de bulunmaktadır. Yapılan bu çalışma kapsamında çevreci ve yenilikçi tasarım kavramı nedir, neden oraya çıkmıştır ve bu kavramlarla alışveriş merkezleri arasındaki bağlantı nedir? araştırılmıştır. Bu çalışmada çevre dostu ve yenilikçi bir tasarım olan modern çatı bahçeleri de incelenmiştir. Bu kapsamda çatı bahçeleri ve AVM kavramının birleştiği örnekler incelenmiştir. Yapılan bu çalışma kapsamında bu yaklaşıma örnekler incelenmiş ekolojik yaşama nasıl katkıları olduğu tartışılmıştır.

Anahtar kelimeler: peyzaj mimarlığı, çatı bahçeleri, doğa dostu tasarımlar, avm tasarımları

ROOF GARDENS WITHIN THE SCOPE OF ENVIRONMENTAL AND INNOVATIVE SHOPPING MALL DESIGNS

Abstract

Shopping centers are among the most common socializing places today. Shopping centers, which are also defined as the broadly programmed state of public spaces, are designed with many design approaches. Shopping centers, many of which are in different designs, also appear in environmentally friendly and innovative concepts. Globalization, increasing population and increasing needs have led the world to sustainable design approaches. There are also shopping centers in this orientation. Within the scope of this study, what is the concept of environmentalist and innovative design, why did it come out and what is the connection between these concepts and shopping malls? has been researched. In this research, modern roof gardens, which is an environmentally friendly and innovative design, were also examined. Examples where the concept of roof gardens and shopping malls are examined. Within the scope of this study, examples of this approach were examined and how they contributed to ecological life was discussed.

Keywords: landscape architecture, roof gardens, nature friendly designs, shopping mall designs

1. Introduction

The world population increased rapidly after the Industrial Revolution. However, the demands and needs have also increased rapidly. The industrialization required to meet these needs has increased. For nearly 200 years, more production than needed has been made without considering the coming years. This means overconsumption. In this production and consumption imbalance, nature has encountered a speed greater than the rate of renewal. As a result, nature has come face to face with negative consequences (Coşkun Kasap, Peker 2011). In the changing balance, people and societies act in line with the world view they adopt, and their actions harm nature and other environmental systems, especially by producing, using and destroying the artificial environment. Today, the terms "environmentalism" and "eco-efficiency" have replaced the destructive understanding. The fact that the "environmentally friendly built environment" approach, which aims to reduce the damage caused by the built environment to nature, conflicts with the desired situation in the context of environmental sustainability, forced this approach to change, and the people involved in the subject tried to go beyond the green (Darçın, 2014). As a result of increasing construction and increasing impermeable surfaces; the urban heat island effect is also increasing (Dihkan vd. 2018). All these factors necessitated the search for alternative solutions.

The accelerating increase in the negative effects of people on the environment they live in has caused the concepts of sustainable development and environmental sustainability to gain importance and to take both institutional and individual solutions to repair or minimize the damage to the environment. Today, many designs take various measures to reduce the damage they cause to the environment (Akbulut et al. 2018).

The population is increasing rapidly, in contrast to the ever-decreasing world resources. At the same time, consumption is increasing inexorably. In this global market and competition dilemma, the environmental issue, which is one of the most important issues, remains in the background. The biggest reason for this is the increasing population and the unavoidable demands it brings. In fact, how the use of natural resources affects the environment can be seen effectively from the past. The failure to foresee how and in how long nature renews itself has led to the consequences of many problems arising from this (Yararel, Aytar Sever; 2019). Shopping centers (AVMs) are the reflections of the transformation of the consumption understanding and culture, in which today's modern city life is presented to the people of the city.

The shopping mall concept is the common intersection of many issues today. At the beginning of these, socialization, recreation, need satisfaction and so on. There are many topics. They have even become symbols of today's cities. These spaces, together with their designer touches, appear as important places of pleasure and happiness. At the same time, it has defined it as an important meeting place where many different activities can take place with its closed and climate-controlled physical environment and safe social environment. Another explanation is that in these spaces, where everything related to the physical environment is arranged, on the one hand, social relations are organized, on the other hand, shopping activity is presented together with other leisure and recreational activities in order to increase the pleasure in the space (Goss 1993; Mugan Akıncı, 2014).

Within the scope of this study, roof gardens were examined in innovative shopping mall designs. Many examples from Turkey and the world have been examined. The "square mall" from Turkey has been examined together with the design strategies.

2. Modern Roof Gardens

Roof gardens are basically artificial applications. However, despite being artificial, they are very important application studies. The reason why it is so important is that the changing order in the global world brings with it many problems. For this reason, roof gardens are an important application that supports cities (Ekşi, 2021).

Increasing structural activities in cities with population growth and technological developments lead to depletion of natural resources, global warming and climate change, pollution of air and water, destruction of nature and environmental problems. In addition, many factors cause the destruction of the environment and natural resources (Dikmen, Savcı 2015). Roof gardens have existed since the earliest times of history. In the most general definition, they are defined as the vegetative layers on the structures. In the early modern era, the idea of green roofs was introduced on different continents. The first model was designed at the World Expo in Paris in 1867. In the 20th century, the pioneers of modern architecture, Le Corbusier, Alvar Aalto and Frank Lloyd, started to apply green roofs and walls in their designs together with construction (Abbas et al., 2020; Esringu,Toy 2021). A quality urban life is the result of a balanced design between buildings, roads and green spaces. However, meeting the housing needs of the rapidly increasing population in big cities causes a decrease in green areas, especially in city centers and their immediate surroundings. The different types of use of green areas in the city, the functions, sizes and service areas of green areas reveal their impact on the quality of urban life. It also creates the quality of the city. Due to the high real estate values of the lands in the cities and the inability to meet the green space needs of the increasing

population, it has led to alternative green areas in big cities. These areas have been used with different functions. One of the best examples of this is roof gardens. For example, with the multi-purpose use of terraces or roofs, it has been revealed that roofs have a great potential as green space. For centuries, people have been using roof and terrace gardens for both ecological and aesthetic purposes. Roof and terrace gardens have gained importance aesthetically, ecologically and functionally, which can protect people from the negative conditions of the external environment, as well as providing a green area where they can reach very close to the urban people (URL-1).

Benefits of roof gardens (Savaşır, Cengiz 2018; URL-1; Shafique et al 2018; Bianchini et al 2012)

- Ensuring biodiversity,
- Reduction in heating costs,
- Reduction in drainage cost
- Retains rainwater
- Improves water quality
- It gives an aesthetic appearance to the interior.
- Improves indoor air quality
- Reduction in dust and smoke levels
- Reduction in noise level
- Natural habitat for plants and animals
- creating an ecological corridor between the migration routes of living things or their natural habitats,
- providing stormwater management,
- preventing air pollution,
- providing sound insulation
- extending the life of the roof,
- Gained importance due to ecological and physical reasons such as increasing insulation and energy efficiency and increasing the real estate value of the building (Figure 2).

In addition, the use of roof gardens in buildings is an important factor that must be present in the building in order to gain LEED (Leadership in Energy and Environmental Design) certification (Savaşır, Cengiz 2018). The first roof gardens in history were built by the ancient Mesopotamian civilizations (Sumerians, Babylonians, Assyrians) in BC. From 4000 BC. The temples, which were built until the 600s and called ziggurats, are considered to be the first examples of gardens located above ground level in history (Seed 2011).

Urban sustainability; As stated in the sustainability explanation, social relations, economy and ecology have a balanced and harmonious order (together). When the concept of sustainability is examined in general terms at the urban scale, a sustainable urban area should

provide a balance between environmental protection-utilization balance, economic development, social comfort, equality and accessibility.

Everything in the city is in a balance following each other. For this reason, it is important to construct a healthy and livable urban environment and green environment in the city, which is focused on natural processes, provides ecological gains and serves the users. In short, a sustainable urban structure brings with it the evaluation of urban structures and open green spaces as a whole. Both are parts of a whole that cannot be separated from each other (Gülpınar Sekban, Bekar 2019). Roof gardens, which form a beautiful link between indoor and outdoor space, are among today's alternative open spaces. There are many reasons for designing roof gardens. But today, among the most obvious reasons; There are uncontrolled population growth, migrations, increasing technology, industrialization and environmental pollution developing in parallel, excessive consumption of natural resources. These problems create problems in all communities and create concerns about the future. Especially in cities, these pressures have been felt more intensely (Tohum 2011).

Increasing unplanned urbanization and increasing unqualified constructions have brought designers to alternative solutions (Gülpınar Sekban et al. 2019). There are many examples of roof gardens that form a beautiful link between indoor and outdoor spaces in Turkey and around the world (Table 1). Another application that comes at the beginning of these examples is “İstanbul Meydan AVM”.

Table 1. Examples of roof gardens in world (URL-2,3,4,5,6,7,8,9,10,11)

Zaera-Polo underlines that “identity-identity” is the main starting point in the design of “Meydan AVM”. Zaera-Polo describes the design process as follows; At the heart of the square

mall design is an open square that connects all surfaces with ramps and stairs. This square is both a social activity center that forms the center of the shopping mall and a multifunctional area that serves the stores surrounding it, both visually and in terms of transportation. A new area plastic was created with roof gardens in the square and a connection was made to the center (square). Pedestrian paths consisting of ramps and stairs are connected to the roof gardens in certain places, allowing people to go out to the green area. In the green area, there is a vista terrace that sees the square completely. The levels that frame this area form the viewing terraces. It is thought that the trees on these terraces will visually balance the perception of space for a long time. At the same time, these trees will meet the need for shade. In general, single-storey and two-storey architectures are designed with occasionally expanding roof eaves (Figure 1-2-3-4) (URL-12).

Figure 1. Meydan AVM roof garden applications (from Makbulenur ONUR archive)

Figure 2. Meydan Istanbul roof gardens (URL-13)

Figure 3. 3D design images (URL-14)

3. MATERIAL and METHOD

The main material of this study is applied green roof gardens. These roof gardens are built on shopping mall designs. In this context, primarily literature studies were carried out in the study. Then, “İstanbul Meydan AVM” was examined as a concept and design (Figure 5) (URL-15). Meydan Istanbul is located on the Anatolian side of Istanbul at $41^{\circ} 1' 26''$ N latitude and $29^{\circ} 7' 34''$ E longitude (URL-16).

Figure 4. Top view of roof gardens (URL 15, Google Map)

Within the scope of this study, the design concepts, constructs and purposes of roof garden applications are discussed. Some examples from the world and Turkey were examined. In the content of the study, Istanbul Meydan shopping center and roof garden projects were examined in more detail. In the last stage of the study, a 3-question survey study was conducted with 100 participants. The main objective of the survey was to measure knowledge and awareness of roof gardens.

4. FINDINGS

After the literature and observation studies of the study, the survey data with 100 participants were given. When we look at these results, it was answered that the roof garden application was seen before with a rate of 40% and not seen with a rate of 45%. The answer to the question "Have you ever seen a shopping mall design with a roof garden application" was answered by 10% yes, 35% I have no idea and 55% no. In the last question, the question "Do you find the roof garden applications visually aesthetic?" was asked to the participants. The answer to this question was 87% yes, 23% I have no idea. When we look at their socio-demographic characteristics, 32% of the participants are male and 68% are female. 36% of these participants are married and 64% are single. 12% of the participants are 20-25, 21% are 25-30, 45% are 30-35, 19% are 35-40, and 3% are over 40 years old. 43% of the participants have high school, 56% have university and 11% have postgraduate education. (Table 2-3).

Table 2. Sosyo-demografik analiz

Variables		Freq.	%	Variables		Freq.	%
Gender	Male	32	32	Marital status	Married	36	36
	Female	68	68		Single	64	64
	Total	100	100		Total	100	100
Ages	15-20	--	--	Education	Uncollected	--	--
	20-25	12	12		Primary school	--	--
	25-30	21	21		Middle School	--	--
	30-35	45	45		High school	43	43
	35-40	19	19		University	56	56
	40 +	3	3		Graduate	11	11
	Total	100	100		Total	100	100

Table 3. Findings on the survey data

Variables	Yes		No idea		No	
	%	Frequency	%	Frequency	%	Frequency
1*	40	40	15	15	45	45
2*	10	10	35	35	55	55
3*	87	87	23	23	-	-

1*: Have you seen a roof garden application before?

2*: Have you ever seen a shopping mall design with a roof garden application?

3*: Do you find the roof garden applications aesthetic visually?

5. CONCLUSION AND RECOMMENDATIONS

The results and suggestions obtained from this study were examined in two separate groups as indoor and outdoor. The results and evaluations for both groups are given below;

- Alternative green space designs are included in environmentally friendly and innovative shopping mall designs.
- Now, shopping mall concepts are not only used for shopping but also as socializing places.
- Roof gardens are among the aesthetic design strategies for both indoor and outdoor spaces.
- It establishes a connection between the open space and the interior.
- It provides benefits for the ecosystem and ecology.
- Provides housing for fauna.
- It provides thermal insulation for the interior.

Today, increasing the amount of green areas, which are carbon sinks, is also necessary for creating green infrastructure, reducing carbon emissions, preventing the urban heat island effect and air pollution. By spreading open green spaces and green infrastructure applications in cities, it is possible to ensure that more water reaches the soil. Thus, precautions are taken against both floods and overflows and the decrease in the presence of water (Esringü, Toy 2021)

The number of participants who have seen the roof garden application before is quite good. However, the number of people who see the roof gardens application in shopping mall design is very few. A very high percentage of the participants say that the roof garden application has an "aesthetic" feature (Table 2).

There are thousands of applications on roof gardens in the world and in Turkey. This study is an example of those studies. Of course, there are many design principles and approaches to roof garden applications. This study is based on literature and observation studies.

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