

CAN THE FUTURE OF SPORTS FACILITIES BE SUSTAINABLE GREEN BUILDINGS?

SPOR TESİSLERİN GELECEĞİ SÜRDÜRÜLEBİLİR YEŞİL BİNALAR OLABİLİR Mİ?

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ÖZ

Endüstrileşme süreciyle beraber, spor alanı içerisindeki tüm kavramların bir dönüşüm geçirdiği ifade edilmektedir. Spor kulüpleri, spor örgütleri gibi spor tesisleri de çağımızda yeniden tanımlanmaya ihtiyaç duymaktadır. Acımasız pazar koşulları ve profesyonel sporun rekabetçi ortamı, spor örgütlerini hayatta kalmak için yeni stratejiler geliştirmeye zorlamaktadır. Çevreye duyarlı ve sürdürülebilir olmak 21. Yüzyılın büyük bütçeli spor tesislerinin öncelikleri haline geldiği görülmektedir. Gerçekleştirilen bu çalışmada, yeşil bina konsepti içerisinde, çevreye duyarlı, kendi kendine yetebilen, sürdürülebilir spor tesisleri hakkında alan yazın taraması gerçekleştirilmiştir. Bu tarama sonucunda, Dünya'da ve ülkemizde yeni nesil spor tesislerinde uygulamaya geçen çevreye duyarlı yeşil bina örnekleri incelenmeye çalışılmıştır. Bu çalışmadan elde edilen bulguların spor alan yazını içerisinde önemli katkılar sağlayacağı ve yeni spor tesisi projeleri konusunda uygulayıcılara ve akademisyenlere kılavuzluk edebileceği düşünülmektedir.

Anahtar Sözcükler: Spor endüstrisi, yeşil bina, sürdürülebilirlik, LEED

ABSTRACT

Along with the industrialization process, it is expressed that all the concepts in the sport field have undergone a transformation. Sports facilities such as sports clubs and sports organizations also need to be redefined in our day. Ruthless market conditions and the competitive environment of professional sports force sports organizations to develop new strategies to survive. Being environmentally conscious and sustainable seems to be the priorities of large-scale sports facilities in the 21st century. In this work, the concept of green building was surveyed in the field about environmental friendly, self-sufficient, sustainable sports facilities. As a result of this screening, I have tried to examine examples of environmentally sensitive green buildings that have been applied in the new generation sports facilities in the world and in our country. Findings obtained from this study are thought to provide important contributions in sports literature and guide practitioners and academicians on new sports facility projects.

Key Words: Sport industry, green building, sustainability, LEED

1.INTRODUCTION

In this age, everyone is constantly talking that need to move to green. In fact, whether or not you confess to yourself, at some point everyone must follow this green movement that is happening today. The reason for this is simply that if we use the resources of our world that we live on at this rate, it will not be sustainable. This means that the natural resources we need to survive if we continue to consume in this way will be consumed. That is why many people are concerned about green buildings. But what exactly are the green

buildings? The purpose of this study is to answer this question and to take a closer look at green buildings (Kukreja, 2016).

1.1.Sports and Natural Environment in Literature

The relevance of the relationship between sport and the natural environment is based on the 1994 Winter Olympics in Lillehammer for the first time. Norway has carefully planned the construction of the facilities to be used during the Olympics in order to avoid negative effects on the environment. The Organizing Committee has launched more than 20 sustainability projects to ensure that games are environmentally friendly. The 1994 Olympics constituted a long-term heritage and were first recognized as "Green Games". Since then, the sporting industry has been committed to acting and has begun to develop strategies to reduce environmental impacts on sports facilities and events (Babiak and Wolfe, 2006).

Academic studies focusing on sport and environment in the last 15 years have been continually increased by Lenskyj (1998) with his first study of the complex relationship between sport and environment. Smith and Westerbeek (2007) have acknowledged that sports have become more responsive to the environment, but there is still concern about the negative environmental impacts of the activities of sporting facilities and the use of fuel in motorsport. An important development in the construction of the facilities, has been made in establishing the Leadership in Energy and Environmental Design (LEED), which was established by the US Green Building Council, an internationally recognized brand that provides a framework for green design implementation.

As a result of a study conducted on 16 major North American sports facility, sports facility managers came to the conclusion that they had to deal with environmental sustainability (Mallen, Stevens and Adams, 2011). Many facilities have begun to implement formal and informal environmental systems to address this new focus; facilities are trying to make progress in such areas as electricity saving and recycling, which improve environmental performance.

McCullough and Cunningham (2010), provided a theoretical framework for sports organizations to abandon their indifference to the environment from internal and external stakeholders, to implement the environmental sustainability program, to implement the possible consequences of such efforts, and to describe the pressures they face.

Trendafilova and Babiak (2013) investigated environmental sustainability in four major sports leagues in North America and as a result National Resources Defense Council of professional leagues (NRDC, a national environmental action group advocating environmental protection) found that systems, structures and process for greening activities jointly worked together. Another organization, the Green Sports Alliance, has been involved in professional sports to help and improve environmental performance. The organization has members representing over 100 sport teams from 13 sports leagues (Phafl, 2013).

In addition to being "something right" to Schmidt (2006), these environmental practices can contribute to the legitimacy of sporting organizations by reversing legal applications, saving money, and building stronger relationships with key stakeholders. Sports organizations now place more emphasis on the environment than on a strategic perspective and proactively address the environmental impact of their operations. When we look at the academic literature in general, the academic literature on sport and the natural environment has grown considerably over the last decade.

1.2.Environmental Enterprise Samples in Sports Industry

Over the past 11 years, the number and scope of environmental initiatives adopted by professional sports teams and leagues in North America have steadily increased and the Philadelphia Eagles (NFL team) has been recognized as a leader. More specifically, in 2003, the first sports fan training initiative, after the green adoption of Lincoln Financial Field, was initiated with the inclusion of renewable energy in support of recycling and environmental management. More than 30 of the 122 teams in the four major sports leagues in North America passed renewable energies and more than doubled their energy efficiency programs. Major League Baseball has developed the best environmental data measurement program and has enabled to work intensively to ensure the collection of recyclable glasses and bottles during events in All-Star games. The United States Tennis Association (USTA) has partnered with the NRDC in 2008 to launch its green efforts in the US, adopting a water bottle and aluminum can recycling program. In addition, supporters of USTA are encouraged to use public transport by taking the metro during the tournament (Trendafilova et al., 2014).

Similar initiatives have been shown in motor sports. Motor sports is a sector that is known globally and faces increasing pressures due to harmful effects. For this reason, they are working to reduce resource consumption and operate in an environmentally sustainable manner. The NASCAR and its stakeholders are committed to environmental sustainability. NASCAR's "Green Race" initiative is the result of nearly five years of dedicated work to make the sport as environmentally friendly as possible, and the company is calling for its sponsors, parts, teams and fans to participate (Trendafilova et al., 2014).

Similar initiatives are being adopted by football teams in Europe. Since 2005, the Federation Internationale de Football Association (FIFA) has been cooperating with the Local Organization Committees (LOC) for environmental protection and the German LOC has launched the Green Target environment program for the 2006 FIFA World Cup. For example, in the United Kingdom, Manchester United reduced energy consumption long before the government implemented the Carbon Reduction Commitment Energy Saver Plan. The UK club is now in the process of overhauling the latest technology in renewable energy to save even more energy. Italian soccer team Serie A clubs are also participating in environmental initiatives. For example, Genoa CFC has awareness campaigns on environmental education in cooperation with Amiu, the local company responsible for waste management in the city (Trendafilova et al., 2014)

1.3. Concept of Sustainability

A "green" or "sustainable" facility is designed, refurbished or operated as an ecologically and resource-efficient structure (Dick, 2007). These buildings often use energy-efficient processes to achieve long-term cost savings (Yost, 2002). Sustainability has also been described as "a holistic approach to environmental protection" by combining energy-efficient design practices and materials (Fried, 2005, p.182). Sustainable initiatives are not against the environment, it works with the environment (Suttell, 2006). Green buildings are structures designed to protect human health, increase employee productivity, use resources more efficiently and reduce environmental impacts. (Environmental Building News, 1999).

According to Mallen's research (2010), the top 10 challenges faced by plants in environmental sustainability are as follows; energy reduction, water reduction, easy environmental programming for customers, training for staff and customers, resource utilization for environmentally friendly products, waste reduction, tools of measuring energy saving, effective personnel systems for environmental design and implementation, boss's indifference towards "recycling" and ensuring compatibility.

2. GREEN BUILDING

First, to examine what a green building is; While an ideal green building serves its main purpose, it is a building project that will provide the most protection of the natural environment in the project area surrounding it. It is the true definition of a green building, where the building and the operator provide a healthy environment for all participants and protect the environment by not damaging the resources such as water, land and energy around the building (Yudelsson, 2010).

In addition, according to the US EPA (Environmental Protection Agency), "Green building is an application of creating buildings using environmentally beneficial and resource efficient processes." Green building is also known as sustainable or high performance building (U.S. EPA, 2016). Ries and Bilec (2006) also pointed out the benefits of green buildings as follows; It mentions three possible benefits of green plant construction: 1) conservation of natural resources 2) the increase of energy efficiency and water conservation 3) Improved indoor environment.

2.1. Green Building Standards

Green buildings have less negative impact on the environment than standard construction. These structures protect natural resources and provide recycling using alternative building materials. This structure minimizes site grading, conserving natural resources using alternative building materials, and recycling construction waste, rather than sending trucks to landfills. It creates natural lighting and exterior appearance for most of the interiors of a green building while creating high-efficiency HVAC (heating, ventilation, and air-conditioning) systems and low VOC (volatile organic compounds) materials, such as paint, flooring and furniture (Kessenides, 2005).

The key to making green buildings the mainstream was the development of reliable standards and assessment criteria around the world. In 1990, the UK government pioneered the movement of green standards by bringing BREEAM (the environmental asset method of the building research organization) to the market on the request of the British real estate industry. BREEAM was evaluating the environmental performance of

new and existing UK buildings in a wide range of buildings. By 2000, the US green building council, a group of more than 6,000 real estate experts, government and other non-profit organizations and schools, launched its own LEED (Leadership in Energy and Environmental Design) program. This program scored in the following categories. These categories include; sustainable region (14 possible points), water efficiency (5 possible points), energy and atmosphere (17 possible points), materials and research (13 possible points), indoor environmental quality (15 possible points) and innovation and design process (5 possible points). Companies can earn points in everything from redevelopment of brown areas to public transportation access. According to the LEED system, four ratings are possible: Certified (26-32 points), silver (33-38 points), gold (39-51 points), platinum (52-69 points). A LEED-Gold building has 50% less negative impact on the environment than standard buildings. A LEED-Platinum building has at least 70% fewer adverse effects. Many US cities and provinces now want new and refurbished public buildings to meet LEED criteria (Lockwood, 2006).

2.2.Green Buildings in Sports

It would be useful to give some examples from sports facilities receiving LEED certifications;

Mustafa Kemal Atatürk Sports Complex (Eskişehir) is a green building facility. This facility is the first Turkey's public building certified with the LEED Gold rating criteria. This building provides 10 percent of electricity and 20 percent of heating energy thanks to solar panels. The facility, which stores rain water and uses them in watering the garden, also provides natural lighting thanks to solar rays (http 3).

Konya Sport and Congress Center is the first Turkey's sport halls certified with LEED. Currently, this sport halls has the LEED silver score criteria. The energy efficiency of the building is 35.36%, saving 220.000 USD every year and the water efficiency is 52% (http 4).

In 2009, the **American Airlines Arena** became the first NBA facility to receive LEED certification in existing buildings, and now the arena has the LEED Gold certification. He used green roofing materials in building construction. Thus the roof reflects the heat and has the energy needed to cool the building (http 5).

Mercedes Benz which is in the US is the first stadium to have the LEED platinum certification. The manager of this stadium says about the success; "We set a goal to reach the highest LEED, because it was the right thing to do for our environment and our environment". The facility can store over 2,000,000 gallons of rainwater and prevent floods in neighboring provinces (http 6).

Soldier Field in Chicago was awarded the LEED Certificate after a rigorous certification and application process with the US Green Building Council (USGBC) on 1 December 2011. After the renovation and reopening of Soldier Field in 2003, SMG, Soldier Field and the Chicago Park District have also aimed to improve performance and productivity by lowering our carbon footprint. Through programs that reduce operating costs, save energy and water, and reduce emissions of waste and harmful greenhouse gases, Soldier Field is working to provide a healthier and safer building for audiences with environmentally conscious targets (http 7).

In 2011, the **Amway Center (Orlando, Florida)** became a leader in the sporting industry when it became a NBA facility that certified LEED Gold. The building's sustainable design features include 20% less energy use and 40% less water use than similar sized arenas. The results are as follows: Amway Center provides 1.3 million gallons of water annually (http 8).

Barclays Center, (Brooklyn) was awarded the LEED Silver Award for new construction in 2013. Designed as part of the field revitalization efforts, the arena serves as a brilliant example of an approach to sustainability. Bruce Ratner, Chairman of Forest City Ratner Companies, developer of Barclays Center and Atlantic Yards, said, "We are building an arena that focuses on creating one of the country's most sustainable areas, from site selection to consumables, and speaks as a cornerstone of sustainability through innovation and design sustainability. We did it." (http9).

Fashion Center; Portland Trail Blazers, the first sports center certified by LEED Gold, the home of Portland Winterhawks and Portland Thunder, reflects ongoing commitment to sustainability and the environment. Sustainability studies have focused on reducing energy loads during peak and off-season periods throughout the year. The lighting has been upgraded to LED and retro-commissioning scheme has been implemented. Management has purchased 100% renewable energy offsets and has voluntarily reduced carbon emissions. The facility follows the energy star rating of 80, indicating that it is a high-performance, energy-efficient building at the moment. Efficient sanitary fittings save about 741,000 gallons of water per year and more

than 88% of the waste stream is removed from the regular storage area. In addition, through active fan participation and training programs, more than 43% of fans and visitors use alternative means of transportation to participate in Fashion Center events and participate in the recycling ([http10](#)).

Philips Arena (Atlanta), consistently ranked among the top 10 concerts and event venues in the world, has a mass audience of sustainability messages for multipurpose space with 160 events per year and 1.6 million guests. Green efforts in the arena provide more energy savings than 4.5 million kilowatt hours per year ([http11](#)).

On May 24, 2012, after four years of construction, *Marlins Park* in Miami was awarded a LEED Gold Certificate in the Big Construction Baseball League. Despite the fact that the stadium's retractable ceiling design presents the greatest challenge of reducing energy use and providing LEED certification, the design team was able to achieve a 22.4 per cent reduction in energy use ([http12](#)), when only 14 per cent were required for certification.

Salt River Fields (Scottsdale), a training facility opened in February 2011, received a LEED Gold certification for its new construction in June 2011. There is a 140-acre space, separate training facilities for Arizona Diamondbacks and the Colorado Rockies, as well as club buildings and 11,000 seats ([http13](#)).

3.CONCLUSION

Of course, one of our main objectives is to make the world more sustainable when we think about the purposes of green buildings, but in fact the real purpose is more intense than that. When you decide to go green, your aim is to really help the protection of environment without disturbing the natural habitats. When you start a building project and break the natural habitats around you, you can create a bad butterfly effect. Even the slightest changes you can make will help us to be a better planet for all living creatures on Earth, not just for humans (Kibert, 2016). Sports facilities built with huge amounts of money have started to take their buildings from this point of view. Sports and recreational organizations have traditionally tried to create functional and innovative opportunities to meet the needs of their customers. In the last decade, green design and sustainability concepts have also developed in sports facilities as a mechanism for managing limited resources and reducing environmental impact (Kessenides, 2005).

4.RECOMMENDATIONS

Since our natural resources are inadequate for people's desires, the natural environment is destroyed and our healthy living spaces are now destroyed, sports facilities should try to meet the green building criteria in their big investments. Save energy by building solar panels, build systems to ensure water efficiency, and recycle their materials and resources. Only in this way we can lead a sustainable life and reduce the damage done by mankind.

Moreover, when the literature on sport management is examined, there is a lack of research on environmental sustainability and green buildings. Generally, studies are encouraging on the principles and necessity of green buildings, but in the literature there are few researches on the difficulties of establishments in the process of green building or on principles that are more easily adopted. More scientific work can be done in this regard. When the difficulties experienced by the facilities in the green building process are examined, the most common difficulty is related to energy reduction in the facilities (Mallen et al., 2010). Reasons and suggestions related to this obstacle in front of the facilities can be presented, trainings can be given by the people in the field of energy, and examples from abroad can be examined.

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