

GREEN BUILDING CERTIFICATE SYSTEMS AS A GREENWASHING STRATEGY IN ARCHITECTURE

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Abstract

As a result of the depletion of natural resources, the destruction of green, the damage of the ecosystem, and having less habitable areas each passing day, the concept of sustainability has become an important parameter at every stage in the architecture field, from decisions related to planning and design to practice of those. All these reasons have led the way to establish green building standards and green building certification systems to reduce the negative implications of buildings on the natural environment through sustainable design. Today, green building evaluation systems have some practical problems. Recently, the increase in the tendency towards making green buildings with the purpose of advertising through the effective use of social media channels and the transformation of tendency into green building sector itself and into greenwashing strategies is the most important discussion point of the study. In the study, the concepts of sustainability, green building and green building certification systems were examined in detail, green building projects and certification systems that claim sustainability were discussed, and a theoretical perspective on green building certification systems as a greenwashing strategy in the field of architecture was introduced by referring to the evolution of environmental activist movements. Within the scope of this study, it was aimed to measure the consistency of the criteria of the green building evaluation systems that evaluate the green status of buildings on certain criteria such as LEED and BREEAM, which are becoming widespread on a global scale, by examining these systems in detail.

Key Words: Architecture, green building, green building certificate system, greenwashing, LEED, BREEAM.

1. Introduction

Consisting only one part of the natural environment, human beings started to produce their own buildings for protection, shelter, and some other needs within this environment. When we consider the concept of sustainability from an architectural point of view, buildings inhabited by human beings throughout their lives, highly using natural resources and also causing environmental pollution to a significant extent stand out. Today, the building sector increases its carbon emission, taking the lead among other sectors (Erten, 2011). Operations conducted within all stages of buildings such as building, occupancy, and maintenance cause 50% of the greenhouse gases causing global warming, 40% of the drinking water pollution, 24% of air pollution, and 50% of harmful CFC (Chlorofluorocarbon) and HCFC (Hydrochlorofluorocarbon) emissions (Yılmaz, 2014). Furthermore, the need for new buildings constantly increases. Therefore, the environmental implications of the building sector are expected to increase further compared to its current situation. USGBC (The U.S. Green Building Council) predicts that in the next 25 years, carbon dioxide emissions caused by buildings will increase much faster than other sectors with a rate of 1.8% per year (Erten et al., 2009). In addition, the construction sector is consuming 40% of resources, 12% of potable water reserves, 55% of forestry products, 40% of raw materials on a global scale for the construction or use of the buildings, while producing 45-65% of waste globally (Süzer, 2015). The rapid increase in the threats against the world such as consumption of water, material, resource and energy as well as carbon dioxide and greenhouse gas emissions has become a global issue. All around the world, notably in developing countries, energy consumption is increasing each day in proportion to the population. The share of the building sector in the total energy consumption also tends to increase in a continuous manner. As a result of improved living standards caused by economic growth (including the increased use of heating, cooling and ventilation alongside) and a notable increase in building quantity, the energy demands of residential units have tripled since 1990 (BAKA, 2013). The increase in energy consumption negatively affects the natural environment and disrupts the natural balance. The most important reason for these is the greenhouse effect. Fossil fuels used to meet energy needs cause a large amount of carbon dioxide emissions, which creates a greenhouse effect on the world. There are also other gases besides the carbon dioxide, which create a greenhouse effect, and these gases are called greenhouse gases (Özdemir, 2013).

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As a result of the depletion of natural resources, the destruction of green, the damage of the ecosystem, and having less habitable areas each passing day, the concept of sustainability has become an important parameter at every stage in the architecture field, from decisions related to planning and design to practice of those. All these reasons have led the way to establish green building standards and green building certification systems to reduce the negative implications of buildings on the natural environment through sustainable design (WBDG, 2019). Green building certification systems measure and evaluate the sustainability level of buildings within the scope of the established standards. These systems formed by the definition of green building standards are called certificate systems, evaluation systems, and rating systems in the literature. In this study, all of the aforementioned systems will be included as green building certification systems. Green building certification systems have been developed to measure the green building sustainability level and to provide the best practice experience for the highest certification level. The aim of green building certification systems is to make the future more sustainable with technology, by addressing issues that affect the environment and humankind. However, even though these systems seem sensitive to the issues related to environment and humanity, their sincerity can be questioned. In this study, in order to make this questioning, the sustainability criteria of green building certification systems and the ideal design process of a sustainable building in the building sector will be examined. In light of the data obtained, green building certification systems widely used around the globe will be examined.

However, green building certification systems have started to turn into a means of advertising developed to increase resource consumption in some cases due to its structure open to interpretation, its current values and the lack of sufficient audition. Green building certification systems consist of three branches namely economic, social, and physical. These systems have been used as an element of greenwashing and popular culture to make projects stand out and become preferable by consumers, except for the architectural designs that successfully practice green building requirements.

In the study, the concepts of sustainability, green building and green building certification systems were examined in detail, green building projects and certification systems that claim sustainability were discussed, and a theoretical perspective on green building certification systems as a greenwashing strategy in the field of architecture was introduced by referring to the evolution of environmental activist movements.

2. Methodology

2.1. Purpose and Scope

Common concepts such as sustainability, ecological architecture and green building have become an element of fashion and a marketing tool. In this study, the concepts of sustainability and green building in the field of architecture are examined and evaluated. Then, after a general definition of the concepts, the green building design process, sustainability criteria, and the green building certification systems were examined in detail. In order to practice sustainability criteria, green building certification systems play a guiding and encouraging role. As a result of the examinations within the scope of the study, the positive and negative sides of these widely used systems were introduced in terms of evaluation criteria.

Today, green building evaluation systems have some practical problems. The transformation of the green building concept into a rating-based standardization has always been a matter of discussion. Recently, the increase in the tendency towards making green buildings with the purpose of advertising through the effective use of social media channels and the transformation of tendency into green building sector itself and into greenwashing strategies is the most important discussion point of the study.

Within the scope of this study, it was aimed to measure the consistency of the criteria of the green building evaluation systems that evaluate the green status of buildings on certain criteria such as LEED and BREEAM, which are becoming widespread on a global scale, by examining these systems in detail. The purpose of this study is to evaluate the established criteria of green building evaluation systems in terms of different scales, conceptual structure and resource utilization levels of its design, and to determine the consistency of systems with these areas. In this study, the knowledge and experience of all actors about greenwashing, and how these actors use green building certification systems as a greenwashing strategy have been introduced.

At the same time, it has been considered that the findings of this study will raise awareness in this field and lead the way to future studies.

2.2. Methodology of The Study

For this study, the subjects that will help to measure the consistency in green building, green building criteria, green building production process and resource utilization were examined and the content of this study was determined accordingly. First of all, a literature review was made through current national and international articles, theses, books and websites on the concepts of sustainability, green buildings, green building certification systems (BREEAM and LEED) and greenwashing. The knowledge and experience obtained from master's education and studies on the related subjects were effective in the choice of subject and method.

In this study, the concepts of sustainability and green building are examined and defined in the historical process in line with the literature reviews on global-scale policies for issues related to resource consumption and environment. The concept of green building is expressed as the reflection of the sensitivity to resource consumption and environmental issues on the building sector. In this study, the fundamental principles on which this understanding is based are explained with its reasons. Green building certification systems developed in line with these principles for evaluating the sustainability of buildings have been examined in terms of their historical processes and evolution, and different classification systems reached through the sources reviewed have been introduced. The infrastructure and operation principles of BREEAM and LEED, the two most common methods of evaluation and certification methods based on worldwide standards, have been examined in detail, paying attention to accessing up-to-date information about these systems from the internet addresses where these methods are put into practice. The official website of the United States Green Building Council (USGBC), which includes the records of all projects that have applied for and been granted LEED certification, has also been used.

And following the research and examination process on green building certification systems, theses and articles written on comparisons were evaluated. In addition, the studies in which criticisms were made on the practice of green building certification systems and their deficiencies were evaluated were examined in detail.

3. Literature Review

3.1. Sustainability

In the first years of the industrial revolution that started with the invention of steam machines, with the effect of rapid development in technology, factories were established in city centers and the population in cities started to increase in the same rapid manner. Although mass production and urbanization, which occurred as a result of unplanned and unlimited industrialization and population growth, was initially considered as very important in terms of economic development, it was observed over time that they caused environmental problems that negatively affect human life and the natural environment. Factors such as the rapid reduction of unconsciously used natural resources, toxic wastes spreading to the environment, air and environmental pollution, the marketing race that encourages consumption, the increasing need for energy, the deterioration of ecological balance, the concreting of green areas are the most notable environmental problems caused by the rapid production and new technological developments in factories. The negative effects of these continuously increasing environmental problems caused global warming and climate change. The increase in greenhouse gas ratio of the atmosphere particularly causes seasonal shifts and sudden floods. The built environment and the building industry play an important role in climate change. However, the built environment is contributing resource consumption and greenhouse gas generation each day, which continues to negatively affect this situation (Gökçen, 2020). The increase in global human population causes more built environment to be formed.

Therefore, the concept of sustainability has emerged as a result of the efforts to solve these issues. Since the 19th century, the fact that global warming has become a threat to all people has made the concept of sustainable development gain importance instead of the economic development process that was effective until then. According to its most general definition, sustainability is the continuation of a product, the operation or use of a resource without being depleted or permanently damaged (Madge, 2009). Another definition of sustainability is as follows: An environmentalist world view that aims to use environmental and natural resources by taking into account the rights and benefits of today's people as well as future generations, thus ensuring social and economic development (Akgül, 2014).

Sustainability, as in many sectors, is among the frequently used concepts of the last century in the field of architecture and continues to be used more. As a social and economic sector, building sector has a significant impact on the ecological environment. The holistic approaches towards the concept of sustainability in the field

of architecture, which is directly related to the development of human societies, is of great importance for the subject. Hence the concept of sustainable architecture has gained importance with the concept of sustainable development. The concept of sustainable architecture was defined as all activities of building structures by taking into consideration future generations in its current conditions and in every period of its existence; it gives priority to the use of renewable energy resources, is environmentally sensitive, uses energy, water, materials and space effectively, protects the health, psychology and comfort of people (Sev, 2009) The concept of sustainable architecture consists a type of design that focuses on mediation with the ecological environment, respects natural resources, and embraces cultural and historical differences. Sustainable architecture is not only a kind of building construction process consisting of technical, architectural, social or financial restrictions, but also an understanding that aims to provide solutions that will support the importance given to long-term perspectives that consider the future today (Özmehmet, 2005).

After the oil crises of the 20th century, the issue of reducing dependency on other countries for energy resources came to the agenda, and with the increasing interest in environmental problems alongside, the concept of sustainability in the field of architecture and the importance of energy resources gradually became prominent. Saving systems for increasing the energy efficiency of buildings, reducing their carbon emissions and minimizing their negative effects on the natural environment are spreading rapidly around the world. According to its most general meaning, energy efficiency is the utilization and recycling of energy losses in many different forms such as heat, gas, steam, compressed air, electricity and all kinds of waste, and reducing the energy consumption through developing technology and preventing social welfare without decreasing its generation (Kavak, 2005). The International Energy Agency has announced that the energy consumption has increased approximately 1.5 times on the global scale since 1990s, and that this consumption will increase even more rapidly by 2030 and beyond. These figures prove the necessity of sustainability and energy efficiency movement in the field of architecture (TMMOB, 2008). In the past, the fact that any feature of a building was environmentally friendly meant that the building was sensitive to nature and the environment. However, today, in order to define a building as a sustainable building, there are many sustainability criteria that need to be designed and applied from micro to macro scale such as its environmental, social, economic, regional and global effects (Özmehmet, 2007).

The USGBC states that there are many definitions and concepts on green building design due to the spread of trends and innovations in sustainability principles globally. Among these, the terms green buildings, high performance buildings, sustainable buildings stand out as synonymous words, same concepts that are used as alternatives to each other in this sense. These terms are frequently used as acknowledged terms in the fields of architecture, engineering and construction industry in the 21st century with the increasing sensitivity to global climate changes and environmental changes in the world (Korkmaz et al., 2009).

3.2. Green Building

Buildings have extensive direct and indirect effects on the environment. Buildings use energy, water, raw materials, produce wastes, and emit potentially harmful atmospheric emissions during their processes such as construction, residence, renovation, reuse, and demolition (Geçim, 2018). Increasing sensitivity to global warming, water-scarce, environmental pollution, intensive resource consumption, waste production, and environmental problems caused by building construction and operation has affected the building sector as well and has resulted in the search for sustainability in construction processes (Açikel, 2019). Buildings, with the rapid increase in their number as a result of urbanization, are responsible for 40% of all greenhouse gas emissions. The fact that more people will live in cities in the future has made the concept of sustainable architecture and construction an obligation for today's world. Green just became a popular word in the 1980s. As the public awareness on environmental issues started to increase and the concept of green policy started to become prominent in developed countries, especially in Europe, "green" has turned into a symbolic word covering all environmental issues. Books about green products, packaging, and design rapidly spread all over the world. Green is actually a term coined in the field of politics; however, the field of design has adopted and embraced the term green more over time (Madge, 2009).

The buildings, which are increasingly demanded all over the world and designed with an understanding of sustainable thinking, are referred to by many names such as green building, environmentally friendly building, healthy building, ecological building, high performance building and environmentally sensitive building. ÇEDBİK (Environmentally Friendly Green Buildings Association) defines these buildings as follows: buildings that are considered within the framework of its entire life cycle starting from the selection of land, designed with a holistic approach as well as social and environmental responsibility understanding, applicable in accordance

with the climate data and local conditions, consuming only needed amounts, oriented towards renewable energy resources, using natural, non-wasteful materials, sensitive to ecosystems (Sur, 2012). California's Department of Resources Recycling and Recovery (CALRECYCLE) defines green building as follows: "These are structures designed, constructed, renovated, operated or reused in terms of ecological and resource efficiency. Green buildings are designed to meet specific goals such as increasing employee productivity, using energy, water and other resources more efficiently, and reducing the overall impact on the environment in order to protect the health of their users" (Kubba, 2012). The main purpose of green buildings is to produce less waste by using fewer resources while the buildings and their products are being produced, used and demolished, and to minimize their damage to the health of the building users and the ecological system (Darçın et al., 2016). Green building focuses on increasing the utilization of land, energy, water, materials and resources by reducing the negative effects of buildings caused by their design, construction, operation, maintenance and demolition on the human health and environment within their life cycle as much as possible. Green buildings should be designed and operated to reduce the overall impact on humanity and environment. The green building is designed and built in a way that minimizes the harms caused by the building and its users to nature, climate, and human health throughout the life cycle of the building. In addition, these buildings are designed to minimize water and energy consumption while increasing the recyclability of the materials used (Yudelson, 2008).

In order to reduce the environmental impact of buildings and to design green buildings, detailed definitions of such buildings should be made first. Only in this way can the average building and higher performance buildings be evaluated, and then a road map may be created to increase the performance of the current buildings. In order for a building to be defined as green, it must meet certain standards for areas such as sustainable land planning, water and energy, ecological material use, indoor air quality, user health and comfort, transportation and waste control, acoustics, and pollution. The purpose of these areas is to use resources efficiently and to reduce the negative impact of the building on the environment during its design and construction processes (Candemir et al., 2012).

Due to the fact that buildings consume a significant amount of energy over long periods of time and they cover a wide range of products and services, they are considered to be a priority area in policies and programs for increasing energy efficiency and climate change. Increasing energy efficiency for buildings is the leading action to reduce the effects of climate change in all developed countries. With the development of ecological and sustainable awareness, many studies have been and still are carried out in the building sector to reduce the negative effects of buildings on the environment. The building sector has turned towards environmentally friendly and ecological building construction to reduce the negative effects of buildings.

As a result of these practices, the evaluation of the criteria and applications related to the ecology, energy and environment of the buildings came to the agenda. Therefore, green building evaluation systems have been developed to evaluate the buildings within the scope of sustainable criteria (Yetkin, 2014).

3.3. Green Building Certificate Systems

As interest in green building projects increased, developed countries established green building certification systems to rate and certify the environmental impacts of these buildings, provide reference to other projects, accelerate practice processes and encourage the rest of the world about green buildings. Certified with certain standards, green buildings have created a new trend and a whole new sub-sector in the building sector as more valuable, sustainable, environmentally friendly, ecological, comfortable buildings that reduce energy consumption (Yonar, 2009). Green building certification systems are a means to fulfill the environmental agenda. They guide the project managers, design team and building owners by creating standards to be referenced. In particular, they create strategies to construct buildings that respect the natural environment (Cole, 2003). Green building certification systems are based on criteria, can be easily applied, and can easily evaluate buildings according to their location. The environmental effects of the buildings can be understood via these systems (Sev & Canbay, 2009). It is possible to measure the green qualification of a building in general. In this framework, green building certification systems attempt to provide a measurable reference to evaluate the effects of buildings on the environment, their sensitivity in protecting natural resources, and the energy efficiency they provide with practices (Akca, 2011). These certification systems are based on criteria in which the sustainability criteria of the building are examined through certain main and sub-headings and the environmental effects of the buildings are questioned (Açikel & Taygun, 2018). They consist of the criteria required to be met by buildings in order to be considered sustainable buildings. The evaluation process is carried out by examining the information collected and reported during the design and construction of the building separately according to each criterion and scoring

as a result of this examination. The total score obtained as a result of the evaluation is acknowledged as an indicator of the green level or sustainability of the building (Kobaş, 2011). There are many green building certification systems developed to measure the sustainability of buildings all around the world. Countries have developed certification systems in accordance with the climate conditions they have, local regulations they apply, and local construction traditions, materials and building types.

Certification systems have been created by experts from different specialties related to the construction industry, such as architects, civil engineers, mechanical and electrical engineers, to determine the definition of green building with a measurable standard (Erten, 2011). The first green building certification system was introduced in 1990 by the Building Research Establishment (BRE). This established certification system is called BREEAM (Building Research Establishment Environmental Assessment Method) and was established in England, where the industrial revolution started, and therefore, environmental problems were seen the most. Following the introduction of this system, LEED (Leadership in Energy and Environmental Design) was established by the USGBC in 1998. There are many other systems today, namely SBTool (Sustainable Buildings Tool) in Canada, HK-BEAM in Hong Kong, GREEN STAR in Australia, and CASBEE (Comprehensive Assessment System for Built Environment Efficiency) in Japan. Apart from these, some countries have also developed certification systems in accordance with their own standards. All systems have basically emerged for the same purpose, but have differences in methodology. BREEAM and LEED are the most acknowledged and preferred green building certification systems around the world. More than 2.2 million buildings have been registered with BREEAM for evaluation since 1990, and its market share in Europe is 80%. Although it was established after BREEAM, approximately 1.4 billion square meters of projects in 160 countries and in its region have been certified by LEED (Doan et al., 2016). Figure 1 shows the commonly used green building evaluation systems in the world.

Evaluation System	Date of Establishment	Certification Authority	Country
BREEAM	1990	BRE - Building Research Establishment	United Kingdom
LEED	1998	USGBC - U.S. Green Building Council	USA
SBTool	1996	ISSBEE - International Initiative for a Sustainable Built Environment Establishment	Canada
HK-BEAM	1996	BEAM - Building Environmental Assessment Method Institution	Hong Kong
GREEN STAR	2003	GBCA - Green Building Council of Australia	Australia
CASBEE	2004	JSBC - Japan Sustainable Building Consortium	Japan

Figure 1. Commonly used green building evaluation systems in the world.

Green building certification systems are practiced in many countries to fight against climate change. Until today, the demand for green buildings has increased rapidly; thus, green buildings now have a rapidly developing active market in the building sector. As a result, green building evaluation systems are rapidly developing worldwide and their use is becoming widespread each day. Green building certification systems are methods that emerged on a voluntary basis to measure the environmental performance levels of buildings. The fact that sustainability and green building concepts are becoming a trend and an effective marketing strategy leads the way to question these concepts as well as the green building certification systems that evaluate and rate these concepts.

3.4. Greenwashing

Concepts such as sustainability, green marketing, environmental awareness, and protection of nature have attracted attention since the 1990s, but they have attracted greater attention especially in the last decade. In particular, the concept of sustainability, which has become increasingly popular in recent years, has encouraged businesses to new pursuits. Social responsibility projects and green policies have turned into a new marketing weapon to strengthen the brand image and brand value, rather than being a public service duty of businesses to the society, and it also have become a powerful marketing communication tool. Today, environmental issues on a global scale have also caused an increase in social awareness on issues such as protecting the environment and nature. With this increase in environmental awareness, consumers have deliberately or unintentionally forced

businesses to embrace green strategies with the social pressure they create. Businesses have included their environmental claims in their marketing communication activities, advertising campaigns, and even on the package of their products in accordance with the new green strategies they have developed to keep consumers loyal to them and gain a competitive advantage against their competitors (Leblebici & Delice, 2017).

Presenting a product, brand, or organization as if it is environmentally friendly and protecting nature, broadcasting misleading advertisements based on untrue environmentalist claims, and engaging in marketing communication activities with these claims are called greenwashing (Tarakçı & Gökaş, 2019). Greenwashing was first mentioned in the Oxford Dictionaries as “Greenwash” in 1999, it was defined as the wrong and misleading information provided by the organizations that want to establish a social image as if they were socially responsible for the environment. It is also referred to as green sheen, painting green or green whitewash in the literature. In this study, this concept has been used as greenwashing. Greenwashing may be defined as the dissemination of incorrect or incomplete information by an organization to appear environmentally responsible before public opinion (Furlow, 2010). It refers to the situations where a product does not actually have the promised features despite the claim that it is an environmentally friendly product (Hasan & Ali, 2015). The concept has also been defined by Greenpeace. Greenpeace defines greenwashing as follows: activities of companies to protect and expand their market by presenting themselves as environmentally friendly and leaders in the fight against poverty (Karlner, 1997). Greenwashing is the presentation of a positive environmental image by using selected positive information without any negative information. Greenwashing is literally a superficial or insincere display of environmental sensitivity by an organization.

The statements such as environmentally sensitive, environmentally friendly or energy efficient written on the labels of products with commercial concerns have become a great marketing strategy for companies to sell their products or services faster and more than their competitors. Furthermore, most of the time, consumers buy products without looking whether the products can meet the features they claim. Such information pollution that misleads consumers in this way is an example of greenwashing activities. Greenwashing creates a perspective for the company, making it appear more environmentally friendly than it actually is. Greenwashing is a despicable term that is often used in industry. It was created by environmental activists to define the efforts of organizations to show themselves as environmentally sensitive. Greenwashing is an action that misleads consumers about a company's environmental practices (business-level greenwashing) or the environmental benefits of its products and services (product-level greenwashing) (Delmas & Vanessa, 2011). The term greenwashing has been used for construction companies, building materials, green buildings, and green building certification systems especially in recent years.

4. Examination of Greenwashing Activities in terms of Green Building Certificate Systems

Due to the emerging and widespread environmental activist movement as well as environmental awareness among consumers, companies use activities defined as greenwashing to influence the consumers to choose their products and services, to cover up the environmental negativities caused by or may be caused by their products and services, to avoid creating a negative image for society regarding the problems they cause, or to make the risks they cause more acceptable to the society (Özel, 2015). Due to the impact of the environmental activist movements on consumers, companies have seen it as a requirement to respond to this environmental trend with environmental events and activities. As a result of the awareness, which started in the second half of the 20th century in the USA and focused on issues such as the future of the world and the rapid depletion of resources, the green consumer class emerged. And these consumers, worrying about the environmental effects of products and services they consume and purchase, turned their attention towards green products and services (Zinkhan & Carlson, 1995). Especially in the early 1990s, the trend of green claims was used by many companies in a short period of time (Furlow, 2010). Today's consumer society depicts a consumer profile that is conscious, that research, questions, and effectively uses internet and social media channels. Due to the consumer profile that is environmentally friendly, aware of social responsibilities, and sensitive to sustainability practices, companies and brands have begun to search for means to show themselves as green, and thus, influence consumers.

Companies benefit from greenwashing, green marketing or green advertising means and tactics, and allocate a significant amount of budget for such activities to attract environmentally sensitive consumers and to avoid creating a negative image for the society about the environmental issues they cause. Companies appear to be green to attract environmentally sensitive people and promote the value of their products. Companies often make environmentally friendly claims that are in fact uncertain and sometimes untrue in order to attract green

consumers. As a result, greenwashing has become an ordinary, cliché, and preferred approach in the market (Furlow, 2010).

Especially, most companies operating in the building sector allocate much larger budgets for greenwashing activities than they allocate to environmentally friendly or sustainable production/activities (Nakajima, 2001). Greenwashing has a significant potential to cause loss of credibility for the green building industry and the market in general (Kubba, 2012).

It can be said that architecture and urban design are suffering from a green dream or illusion (Akkaya, 2019). Sustainable and green buildings, futuristic ecological cities, vertical aquaponics farms across the sky attempt to compensate the sins of modern cities and promise that nature will have its inhabitants back. These eco-cities promise a stylish, comfortable, green future with a low carbon footprint. Such approaches are far from examining the root causes of environmental issues, on the contrary, they just declare that they have solved these issues for good. Most of these ideas and images are nothing more than examples of greenwashing.

4.1. Target Score Categories for Green Building Certificate Systems

One of the most criticized points of the green building concept is that it has become a trend as well as a greenwashing strategy by becoming a means of marketing. For some investors, the brand value of the green building certification system is more important than the sustainability value of their projects. This situation causes green building certification systems to become a means of marketing. As a result, investors ignore some of the certification criteria, although they are important in terms of sustainability, on the grounds that they increase the cost, and attempt to collect points from easier criteria to raise their score. Even if a building fails to score on key environmental factors such as energy efficiency, it can achieve its overall target score by scoring high on other criteria that are less important or necessary to the environment, and be granted a green building certificate (Curwell, 1996). BREEAM, LEED, CASBEE, SBTtool and GREEN STAR, among the green building certification systems widely used by many countries around the world, have been examined within the scope of the research. All of the systems are methods created to evaluate the performance of the buildings. The five green building certification systems that have been researched are compared over the evaluation criteria in the Figure 2. Also, Figure 3 shows the percentage distribution chart of the criteria of the LEED green building certification system, and Figure 4 shows the percentage distribution chart of the criteria of the BREEAM green building certification system.

CATEGORIES	BREEAM	LEED	CASBEE	SBTtool	GREEN STAR
Energy Efficiency	✓	✓	✓	✓	✓
Water Efficiency	✓	✓	✓	✓	✓
Materials	✓	✓	✓	✓	✓
Indoor Air Quality	✓	✓	✓	✓	✓
Land Use	✓	✓	✓	✓	✓
Ecology	✓	✓	✓	✓	✓
Transport	✓	✓	✓	✓	✓
Process Management		✓		✓	
Management	✓		✓	✓	✓
Service			✓	✓	✓
Waste Management	✓	✓	✓	✓	✓
Economy				✓	
Sociocultural Aspects				✓	
Life-cycle Assessment	✓	✓	✓	✓	✓
Life-cycle Cost	✓			✓	
Visual Comfort	✓	✓		✓	✓
Acoustics	✓	✓	✓	✓	✓
Innovation	✓	✓			✓

Figure 2. Comparative analysis of the five green building certification systems examined over the evaluation criteria (Geçim, 2018).

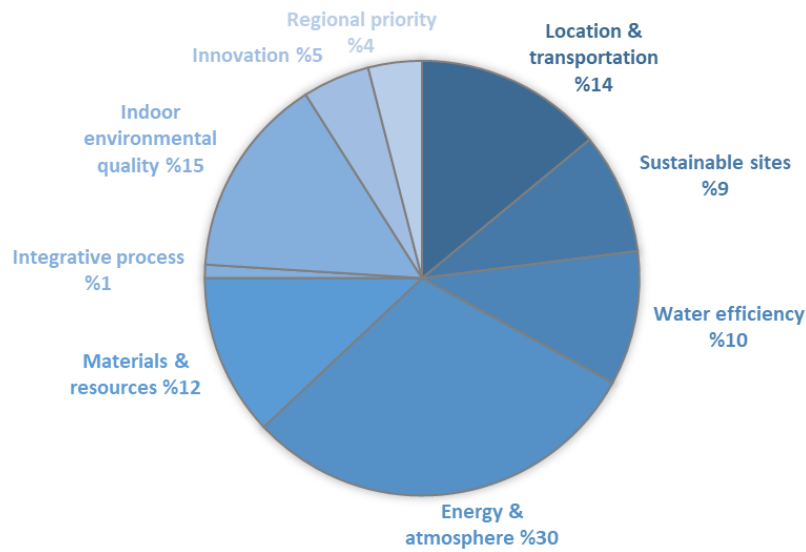


Figure 3. Percentage distribution of the criteria of the LEED green building certificate system (Geçim, 2018).

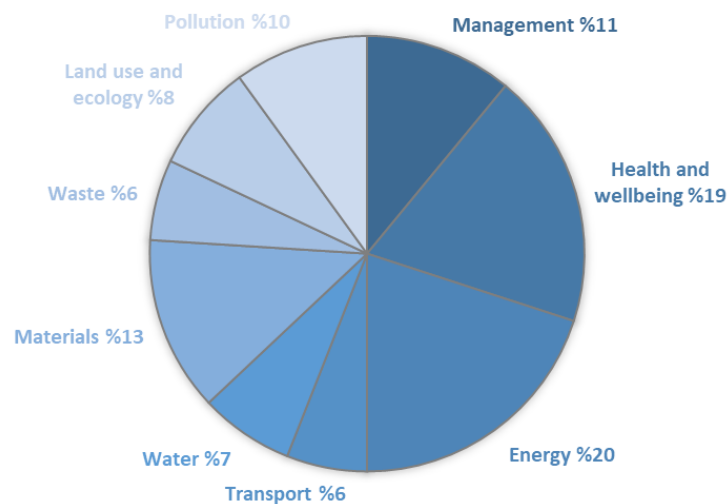


Figure 4. Percentage distribution of the criteria of the BREEAM green building certificate system (Geçim, 2018).

Considering that the main goal of an investor is financial return, the positive contribution of green buildings in marketing increases the interest of investors in this issue. Certificate systems are well-aware of the increasing market value, the brand value they attempt to bring and the added value in marketing have caused the certification systems to spread to such a great extent (Çelik, 2009).

We can present an example for this issue with the LEED certified Gebze Site project of Siemens company. In this project, bicycle parking areas, showers and changing rooms were built within the site for the personnel coming from close regions in order to reduce the use of cars. Furthermore, in order to reduce fuel consumption and carbon dioxide emissions, special areas are reserved in the parking lot for vehicles that can carry many people as well as vehicles with low emission and high fuel efficiency (Yaman, 2009). Such practices receive points in the LEED system. However, when examined more carefully, it can be seen that the site where this project is carried out is a difficult area in terms of public transportation and is not suitable for the use of bicycle. In addition, low-emission vehicle use is not common in our country, which is another notable point in terms of the applicability of the project (Yaman, 2009). In other words, many of the criteria applied in the project cannot actually be used fully, de facto, they were made only to collect the required score for the certificate. Furthermore, it can be observed that some materials are imported from abroad to comply with LEED criteria. It can also be said that this situation will cause

pollution due to longer periods or more effort required for transportation, therefore it conflicts with the criterion of locality. Many green building certified projects such as Gebze Site project of Siemens owe their certificates to these easy points such as bicycle parks and employee showers.

It is clear that green building certification systems give a good momentum to the building sector in terms of raising environmental awareness. However, the fact that green building consultancy firms provide consultancy for too many projects at the same time causes lack of supervision; therefore, insecurity caused by the building sector itself. In addition, the fact that green building certification systems ignore such applications made for scoring only seriously threatens the reliability of the market. Investors also carry out greenwashing activities through green building certification systems, by pre-determining the categories in which they will have difficulty in obtaining green building certificates, and preferring to get points from other easier categories accordingly.

4.2. Implications of Preferences on LEED and BREEAM Certification Systems in Different Countries

The reason for the existence of green building certification systems is that countries desire improving their building standards. The purpose of the certification systems was to create a unique system for each country considering its local standards, climatic data and living conditions of citizens. Later, as the LEED and BREEAM certification systems gained an international identity and became acknowledged, companies in countries that did not yet have their own evaluation system and companies that did not prefer the certification system in their country used these two certification systems (Arslan, 2015).

The fact that the criteria of LEED and BREEAM green building certification systems do not vary much for different regions and countries is one of the important problems for the consumers of those projects that want to obtain these certificates (Erten et al., 2009). The scoring system of the LEED certificate was created according to the local conditions, geographical and climatic characteristics of the USA, while the scoring system of the BREEAM certificate was created according to the local conditions, geographical and climate characteristics of the UK. The emergence and application of LEED and BREEAM green building certification systems in different countries negatively affect sustainability as a result of the different state policies, regional priorities and climates. Taking into account the climate conditions, geographical features, economic and social structure, the legal system, materials, and regional differences may provide better results; however, choosing the same system in different countries creates difficulties in achieving these results (Erdede et al., 2014). If LEED and BREEAM certification systems are to be used in different countries, they should be shaped according to the standards and living conditions of those countries. Requesting the same certificates used in the USA and the UK in other countries puts the applicability of the system in a difficult situation and it makes people think that there are other reasons behind this choice. In fact, since these certificates are of American and British origin, they comply with the legislation and regulations and even increase the cost of project construction.

It can be said that making an assessment based on certain criteria and scoring methodology ensures the system to be transparent and easy to apply. However, in LEED and BREEAM certification systems, similar scores are defined for most of the criteria, making it unrealistic to evaluate in countries with different conditions. For instance, while saving potable water resources comes first for some countries, for some countries issues such as energy saving, land use, and public transportation are more important issues. Being another example, while LEED and BREEAM systems support public transportation, the CASBEE green building certification system applied in Japan does not even address public transportation and the use of fuel-efficient vehicles. If national and regional priorities can be prioritized with the application of weighting coefficients in evaluation systems, better results may be obtained through systems (Sev & Canbay, 2009). In addition, bringing materials from abroad to find certified materials in order to get scores from certain criteria in the system increases the carbon footprint. This does not comply with the green building concept either.

To sum up, the companies all around the world and in Turkey mostly prefer and widely obtain LEED and BREEAM certificates for green building certification. The reason behind this situation is that the scoring system of LEED and BREEAM certification systems is more marketable and easier to meet than other global and local certificates. As a result, many construction companies prefer these popular certification systems for their projects due to their greenwashing and green marketing activities, although it increases the cost of their projects and requires strategies that are not suitable for the green building concept.

4.3. Reasons to Apply for Green Building Certificate Systems

Certain decisions to be taken in green building construction should be made at the early stages of the design process and should be planned in accordance with the green building standards. Green building principles ignored in the design process will significantly increase the usage costs in the future. For this reason, after the decision of construction of a building, decision makers should choose at the early stages which sustainability criteria in the certification systems can be met and which certification system should be preferred. Thus, the project can be shaped accordingly. Apart from all these, regardless of which certification system the green building candidate project is applied for, the design processes should be well understood and prioritized.

LEED and BREEAM certification processes are carried out online and carried out in English. For the countries that do not commonly use the English language, this process causes additional costs and requires working with staff who have foreign language knowledge as well as their own expertise. Companies work with LEED and BREEAM consultants in the projects to ensure a smooth process. This also means additional costs compared to usual projects. Due to additional costs such as certificate application fees and consultant fees, investors usually think that investment and construction costs of green buildings are quite high compared to traditional projects, which cause a bias against green buildings in advance. In fact, even if it is determined at the design stage whether a building will be a green building or not, the investment cost increases by 10% on average compared to other traditional buildings (WBDG, 2019).

Unfortunately, many investors today aim to receive these certificates for advertising purposes, although the costs are higher, and the designers are often excluded from the process. If needed, green building certification requirements are being adapted to designs later. However, when it comes to green building projects, these certification systems should be used not for greenwashing purposes but as a means to design an environmentally sustainable building. With the rising green building trend, many investors attempt to improve their green buildings and update their green building certification systems, which they did not prefer due to the costs at the beginning of their projects, just to obtain certificates that will enable them to do better marketing for their projects. At this point, for the sustainable building development process, which is an interdisciplinary integrated process, the most significant duties alongside the responsibility belong to the designers of such projects.

4.4. Use of Green Building Certificate Systems as Marketing Strategy

The reason why green design is applied in all these investments is the interest and care of people, users, about the concept of green building. When a conscious user wants to purchase a residence or office from a project, projects with green building certification stand out as an option. Therefore, a green design, moreover, a design documented to be green with an acknowledged certificate, is more preferred than other equivalents. The reasons such as low energy and water consumption throughout the life cycle of green buildings, easy waste management, minimizing the implications of projects on the ecosystem, and increasing the use of environmentally friendly materials make these green buildings more attractive for the investors (Pulaski et al., 2006). Today, with the increasing demand for energy and material resources, many business owners seek to obtain one of the sustainable design ratings for their projects in order to manage their operations accordingly (Molenaar et al., 2009).

Advantages of green building certification systems can be listed as follows: for designers, increase of basic knowledge on this subject, development of corporate identity and effective project management, improved customer satisfaction, reduction of capital costs with environmental materials; for investors, increased marketability, positive feedback on investment (URL-1, 2020). Although certification systems increase the economic value of projects, they can provide the desired results only when sufficiently understood and adopted by the team. Companies in many countries also benefit from tax reliefs and exemptions through these certificates besides the advantage of easy marketing of projects with green building certificates to consumers. They recover their budget by gaining more from these tax reliefs and exemptions than they spend on green building.

There are many reasons behind obtaining a green building certificate for a project. Green building certified projects are more prestigious than other projects for environmentally conscious investors and users, and are more privileged in terms of marketing. It is also an encouraging method for project owners and designers to develop and promote sustainable construction practices (Dönmez, 2018). For all these reasons, a company whose primary aim is not a sustainable environment or green buildings for their projects, organizes its projects to be qualified enough to obtain one of the green building certification systems with minimum cost, aiming to make their marketing easier and more preferable for people, and greenwash for easy marketing.

4.5. Differences Between Planned and Applied Designs of Green Building Projects

For conceptual clarification, the life cycle of a building can be divided into two phases as the pre-construction phase and the post-build phase. These stages are intertwined, and thus the boundaries between them are not clear. These phases may occur as life cycle design strategies that focus on minimizing a building's environmental impact. Analyzing the building processes in each of these two phases allows us to better understand how the design, construction, operation, and demolition of a building affects the ecosystem (Kim & Rigdon, 1998).

For example, trees have become an inseparable part of high-rise building projects, skyscrapers in particular. To make a skyscraper more attractive for people, roofs, terraces, balconies, facades, and all other eye-catching corners are decorated with big trees and plants. However, detailed solutions need to be provided for the trees in the visuals to keep them alive at those heights and to ensure maintenance and sustainability for them (Chant, 2013). In this context, images do not seem realistic when examined in terms of their soil values as well. Because trees becoming ornamental elements in the visuals actually need soil depth at certain heights in order to survive, but this situation is ignored during the generation of such images. Furthermore, the cancellation of the applicable solutions related to the soil-load relationship due to budget restrictions during the project process is not reflected in the promotional images of the projects.

One of the biggest criticisms towards LEED and BREEAM certificates so far is that the necessary examinations are not made after the construction is finished and when the building is used. But these certificates are obtained on the assumption that the building will meet the criteria exactly as it was designed. The evaluations show that many projects fail to achieve their intended performance defined at the certification stage, in fact, green buildings can show much less environmental performance than non-certified buildings (URL-2, 2020).

Especially through the comparisons made between the green building certification systems, the USA originated LEED certificate and Energy Star certificate, it has been revealed that approximately one-third of the buildings with LEED certification is actually not energy efficient, and the Energy Star certificate is more appropriate in terms of energy efficiency criteria. Based on these facts and the intense criticism on the subject, the obligation to report the energy and water consumption of the buildings that received LEED certification for 5 years was put into practice in 2009. What matters is not just obtaining a certificate, but building truly sustainable and energy efficient buildings (Tatlıdamak, 2010). Actually, the biggest reason for this negative situation is that green building certification systems such as BREEAM and LEED reward projects and companies not by proving that a building saves energy, but by predicting that it will.

Green skyscrapers have risen over the past few years as people learn that buildings emit more carbon dioxide than any other single source. People have also seen an increase in green washing by companies that acknowledge the market value of green and make false claims to fit the category. In an exemplary meeting of these two trends, a building in Mumbai calling itself the greenest of all buildings will be examined. Regarding this issue, Antilia Tower in Mumbai, designed by Perkins+Will, is one of the most controversial examples of greenwashing. When the three-dimensional renderings prepared in the design process of the Antilia Tower are examined, they give the impression that the project has a sustainable perspective. There are alive walls, ivy plants, and green roofs on all facades of the Antilia tower. The designers have announced that the tower will fight against the urban heat island effect of Mumbai through its vegetative covered walls (URL-3, 2020). The real life reflection of the sustainable perspective used in the promotions of the project caused intense discussions alongside. Because the 27-story tower was designed as a residential project that would belong to one family alone. And the photographs of the project after its completion in 2010 showed that there were no alive walls or green roofs (Figure 5). And the absence of the project on the website of Perkins+Will proves that the criticisms have a point. The fact that the green roofs and alive walls used in the promotional images of the project were not applied in real life shows that the existence of green and soil, their quality and application techniques were ignored during the design process (Akkaya, 2019).



Figure 5. Application of Antilia Tower Project and 3d image of the initial project (Akkaya, 2019).

5. Conclusion

The sustainable design approach for building designs has emerged due to damage caused to the environment and human health as a result of the increase in construction, and uncontrolled energy and resource consumption. The sustainable and environmentally friendly design approach is an understanding related to the construction, use, and maintenance activities of a building, with the aim of minimizing its effects on the environment and users and maintaining this result in the long term. Factors such as global climate change, depleted water resources, environmental and air pollution, and the rapid depletion of natural resources have made it inevitable to use environmentally friendly and sustainable green buildings in the building sector. Green buildings can also be referred to as sustainable buildings or as energy efficient buildings. Green buildings use energy efficiently, use water and other natural resources without harming them, and provide a safe, comfortable and healthy place. These buildings aim to cause minimum damage to the environment in terms of energy and resource utilization, and to keep user health and employee productivity at the highest level (Altun, 2016).

Today, green buildings have created a whole new sector within the building sector as buildings that are more valuable, environmentally friendly, ecological, comfortable, and energy efficient in terms of consumption (Özmehmet, 2005). In this study, a detailed literature review has been provided on the concept of green building. First of all, the definitions of the concepts of sustainability and green building, which are among the most important concepts of recent years, have been given in advance. Then, the international green building certification systems that play a guiding role to access these concepts have been examined, and the relationship of these systems with greenwashing activities has been examined in detail. In accordance with the determined facts, the result of this study has been presented with a critical point of view towards the applications of the examined systems.

Although green building and green building certification systems have a very important and positive impact on the construction sector as a whole, issues such as the liability risk and greenwashing cause considerable inconvenience, which requires much careful consideration (Kubba, 2012). Green buildings can be defined as buildings focused on green building certification systems. Certain fundamental principles of the green approach cannot be met within these green building certification systems. Therefore, certain aspects of this issue are neglected by the companies. The issue of certification is important, but it can be risky if it becomes the target itself instead of a means to achieve targets. In the report prepared by the Institute of New Buildings (NBI), LEED certified buildings were compared in terms of energy performance as the design and pre-design phases with the post-construction phase. The average savings estimated by energy modeling in LEED presentations made during the design phase for 121 buildings is 25%. The energy saving data measured for these buildings in the post-construction phase were entered in Figure 6. Some buildings have performed much better than their savings value.

However, according to the table in the report prepared, many buildings could not meet the 25% savings estimated in the design phase (Turner & Frankel, 2008). In fact, according to the data, some buildings created a loss instead of savings.

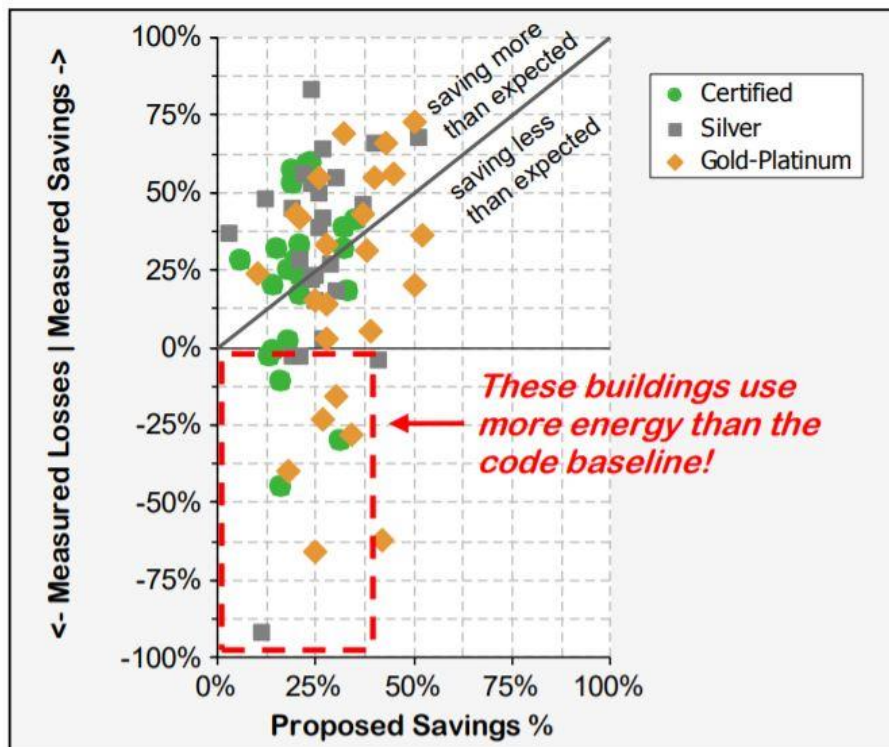


Figure 6. Measured versus proposed savings percentages (Turner & Frankel, 2008).

One particular example of a neither highly efficient nor energy intelligent LEED building for this topic previously mentioned is Antilia in Mumbai, India. This building is excessively large and consume tremendous amounts of energy, yet have been granted LEED certification due to point distributions. So, Antilia is an example of a building whose design does not fit category of energy efficiency building. This table shows that even if the buildings receive LEED certification, these buildings do not contribute to sustainability and were included in green building certification systems for the purpose of green laundering. It is possible for a building to become LEED certified, and yet benefit the environment very little (URL-3, 2020).

In addition, there are countless projects that did not obtain a certificate, did not even apply for it, but fulfilled all the criteria for being an environmentally friendly building. Actually, it is not a true manner to say that these projects are not green buildings just because they did not obtain a certificate. There is a cost for obtaining certification, and one should know that not every business can afford this cost burden or need certification.

Certificate systems evaluate the performance of all buildings under the same criteria. Green building evaluation systems of some countries may be preferred within the scope of greenwashing activities by countries due to their easy criteria and prestige. However, the criteria should vary depending on the needs, location, climate, and ecosystem of the regions to which they are applied. In this case, evaluating the criteria based on country or region differences is important in order to ensure more accurate sustainability conditions and to prevent greenwashing.

Some of the green buildings and certification systems have been criticized for being over-commercialized. However, it should not be ignored that even today these certificate systems are not static and are constantly renewed. It would be beneficial for those concerned to provide solutions regarding the neglected aspects of this issue, without allowing greenwashing.

To sum up, in order to minimize the damages to the environment, it is necessary to raise the awareness of the building sector and its users, to raise awareness on the concept of sustainability, and to truly apply criteria related to sustainability. The concept of sustainability should be evaluated with a holistic perspective instead of looking

from a narrow perspective on the issue. In their early years, green buildings were costly applications. Even today, green buildings continue to develop as financially costlier buildings. In order for green buildings to become widespread and permanent in the sector, they must be more budget-friendly financially, and countries as well as the building industry should support their development in this direction.

Especially in the 21st century, environmental issues caused by the building sector show that green building construction is not an alternative but a necessity. Therefore, in order to minimize the damage of the building sector to nature and humanity, the demand for green buildings should increase on a global scale. In order to raise awareness about energy efficient buildings, educational activities should be encouraged at all levels of education, and green building activities should be supported by countries with necessary tax reductions, grants and similar practices. Within the scope of green building, all units (architect, contractor, electrical, mechanical and civil engineers) should work in coordination and an integrated design should be provided for all. And of course, while all these developments are supported, the misuse of green building and green building certification systems as well as the greenwashing activities should be prevented.

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