



## the Learning Network on Sustainability



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### **SUSTAINABLE DESIGN IDEA FOR ALL PEOPLE**

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#### **ABSTRACT**

In today's society, in addition to the material aspect of supporting human existence, it is more of a spiritual level of conceptual things. Based on the review and research of China's 40 years of reform and opening up, combined with today's design trends. Green design is an inevitable development trend of interior design, and contemporary design shifts from "people-oriented" to "natural-oriented". Green design is an attitude that requires people to build a sense of greenness in their minds. In the green interior design, it is required to consider the coordination between the building and the surrounding environment, and use various energy sources in the natural world to create a sustainable living environment for human beings. It provides new ideas and new perspectives for the sustainable development of China's design.

Keywords: Sustainable ,Green design ,Ecology,Energy saving

## 1. THE RESEARCH BACKGROUND

Facing the increasingly fierce market competition and deteriorating ecological environment in the “post-crisis” era, “sustainability” is no longer just a fashionable academic discourse, but has become the focus of attention in various fields of society. The world is approaching the edge of unsustainable, such as global warming, climate anomalies, disasters, ecological degradation and so on, these hazards are borderless, if not make corresponding changes, the survival and development of the entire human will be seriously threatened.

The idea of sustainable development has been brought into the field of design, which has contributed to a fundamental change in the design concept. Design is a kind of sustainable development design in the planning process of transforming the world, forming a project or a product. It refers to the re-evaluation of any organization or individual design scheme under the guidance of the sustainable development idea, in order to achieve a positive and lasting harmonious symbiosis between the elements. The basic point of sustainable development design is to solve two problems: one is “what to design”, which is the object of sustainable development design; the other is “how to design”, that is, how to apply sustainable development design to each object, and put forward the feasible plan.

The sustainable design idea not only emphasizes the function, performance, structure, shape, color, material and other factors of product design, but also takes into account the environmental factors and human factors, from which the green design idea is derived. Greende-sign is also known as ecological design, that is, to reduce environmental pollution, improve resource utilization, reduce energy consumption of the design. Greende-sign is oriented to the whole life cycle of the product, in which the environmental attributes of the product, such as disassembly, recycling, maintainability and reusability, are emphasized. The final embodiment of greende-sign is the green product, which is the carrier of the green degree of the product, and its basic characteristics are as follows, based on the products and the partial reusable of the products; based on the products and the partial retrievable refurbishment and multiple processing of the products; in addition, the products can be safely processed at the end of their useful life. On account of this concept, Lvle et al. put forward the theory of regenerative design. That is, replacing the current linear flow with a “source-consumer center-sink” circulatory system, forming a regenerative system, in which the sink in the previous process becomes the source in the next process. According to the experience of Lvle, the strategy of realizing regenerative system in design and implementation mainly includes the following aspects, let nature do work, learn from nature, take nature as background, give priority to sustainability and so on. In recent years, the rapid development of industry has brought unprecedented civilization to mankind. At the same time, it has also led to the destruction of the world's natural environment and ecological balance. The contradiction between people and living space has become increasingly prominent. All of this has also attracted the attention of the whole world. People are increasingly aware that the environment we live in should be considered as a unified system, advocating environmental awareness among everyone, protecting our ecological resources, and eliminating excessive consumption and energy waste. Today, mankind has shifted from the “people-oriented” design thinking to the “natural-oriented” design thinking. In this thinking, human beings are considered as part of nature. According to statistics, more than 50% of the material materials that humans obtain from nature are used to construct various types of buildings and their ancillary facilities, which in turn consume 40% of the energy that humans derive from nature.

## 2. SOURCE OF ‘SUSTAINABLE DEVELOPMENT’

The comprehensive concept of ecology is an important source of sustainable development thinking. This term was originally derived from Haeckel's “General Ecology of Organisms” (1866). Haeckel uses this term in the sense of the relationship between the organism and its environment; a Bramme believes that “ecology” is also used to refer to “energy, environmentalism”; The broad term “ecology” refers to the environmental protection in the sense of protecting the environment in the sense of personal survival and protecting the environment in the natural environment. The three meanings of the above “ecology” overlap and relate to each other, forming the overall concept of “ecology”. In 1933, O. Leopold published a famous paper on “Earth Ethics”, proposing that nature is regarded as a functional overall view of nature, in order to determine the overall community of the Earth (or the Community of Communities). Sexual health and a sound ethical orientation incorporate human economic behavior and all other actions into the ethical norms that safeguard the overall interests of nature. This is like the principle of China's fallen leaves. The leaves grow from trees and absorb carbon dioxide to emit oxygen during the growth process, contributing to the sustainability of the earth. After the end of life, they fall into the land and continue to play the role of nutrients.

## 3. GREEN DESIGN AND SUSTAINABLE DEVELOPMENT CONCEPT

In the 1960s, American design theorist Babanak published the monograph “Design for the Real World”, emphasizing that design should consider “limited earth resources” and propose environmental services designed to protect the planet. In the 1970s, the “energy crisis” broke out, and Babanak's “limited resources theory” was widely recognized. The concept of “green design” was first proposed by AvrilFox and Robin Murrell in their book “Green Design” in 1979. In the 1980s, a wave of “green consumption” emerged in the United States, which in turn swept the world. At the same time, the French designer Stark proposed a simple green design concept and advocated the design principle

of “less is more”. In the 1990s, green design became a hot issue in modern design research.

In 2010, the International Organization for Standardization (ISO) issued the ISO26000 Social Responsibility Guide in Geneva, which regards sustainable development and environmental protection as the overall goal of the series, and summarized it as “maximizing human happiness” and “minimizing the environmental impact of production activities”. Binary combination optimization. Therefore, sustainable development, green concepts, environmental friendliness, and ecological safety have become the general requirements for guiding design. In September 2013, green design leaders from China and the European Union advocated the registration of the “World Green Design Organization” (WGDO) in Belgium to promote green design concepts on a global scale, leading the era of industrial change, consumption change and social change.

Since the party’s 18th National Congress in 2013, China’s green development path has vividly reflected the whole process of concept innovation, system innovation, science and technology innovation, management innovation and cultural innovation. In this understanding of ideas and consciousness, the ideas and actions of green design must be further deepened. Green design is a concrete understanding of the relationship between man and nature. It is a concentrated projection of sustainable development in the economic and social fields. It is a modern design that realizes the sustainable use of natural resources, the continuous growth of green wealth, the continuous improvement of the ecological environment, and the continuous improvement of the quality of life. Green design is essentially seeking to maximize the intersection of “natural green, economic green, social green, and spiritual green”.

In China, we have always adhered to the traditional consumption concept of thrift. Confucius, the “sacred god of heaven” in China, said that “it is more luxurious than Ning Hao.” Confucius believes that thrift is a virtue, which includes the awareness of cherishing natural resources and energy. In the era of big industry where the social economy is developing rapidly, the city is expanding and encroaching on natural resources. Under this situation, the traditional concept of “frugality” has implications for contemporary sustainable development design, that is, modern design must follow the path of sustainable development, first of all to meet its economics. The economic here means that the resources are not consumed in a large amount, the distribution of natural resources is equalized, and the resources that have been destroyed and wasted are re-integrated and utilized to achieve the “frugality” of resources and energy.

A large number of construction and industrial wastes often cause the city’s “gray zone”. Taking the green design of urban parks as an example, several urban parks in China that are sited on “decommissioned land” are often based on reasonable disposal of such garbage. Thereby repairing the ecology and even “feeding back” the ecological environment. Shanghai Jiang River Aite Park is located at the junction of residential areas and factories. A large amount of construction waste and clumps of weeds become the label of this land. On the basis of this, Bin Jiang Aite Park reuses waste materials to the maximum extent and fills them into stone cages with construction waste, which not only effectively blocks the pollution caused by nearby factories and road vehicles, but also activates the abandoned space into a new one. public space. Another example is that Wuhan Garden Expo Park is also built on the garbage dump. It uses local restoration technology and ingenious space to create a way to turn the garbage mountain into a permanent urban green highland, avoiding secondary pollution and greatly saving waste disposal costs. To achieve a “feedback” to the ecological environment.

For example, Singapore’s Gardens by the Bay covers an area of 101 hm<sup>2</sup>. The entire park consists of three parts: Bay South Park, Bay East Park and Bay Central Park. The Gardens by the Bay is Singapore’s vision of the “City Garden”, designed to enhance the contours of the world’s cities while demonstrating one of the best horticultural and artistic aspects of the garden.

Focus on cultural symbolism. The design of the Bay South Park is inspired by the plant structure of orchids. Orchid is the national flower of Singapore and a symbol of Singapore. Therefore, the design scheme uses the characteristics of orchids to conceive the spatial layout of the park and express the cultural connotation of the entire park. Throughout the design, the greenhouse represents orchids rooted at the water’s edge, while the topography, roads and energy exchange systems symbolize orchid leaves, shoots and secondary roots, and theme parks and supertrees are the main nodes of the flowers, all of which constitute A complete system.

Focus on the combination with urban space. The design takes into account the combination of the Marina Bay complex and the Marina Channel for a visual view of each other. Greenhouse gardens, super trees and air trails have become new space landmarks. It is optimized for walking, roads and public transportation near the park to improve park accessibility and integrate with the Gulf Recreation System.

Focus on sustainable development. The terrain design takes into account the influence of the wind direction, so that the main wind can play a breezy effect in the space; the shade, the plant-filled grille and the artificial structures such as the greenhouse and the super tree will make the park most of the area shaded. The shelter; the greenhouse demonstrates the combination of sustainable engineering and energy conservation; the park landscape lake acts like an ecological filter that absorbs the water from the park, cleans it with aquatic plants and drains it to the reservoir.

Vigorously promoting “green design” and upgrading the development level have become the modern pursuit of a new round of production and life in the world. The current so-called “modern design” has gradually upgraded from the traditional sense of architectural design, product design, process design, engineering design, urban design, etc. to the system design under the guidance of green development and low carbon development and recycling development. , smart design, industrial model design, regional development design, virtual scenario design and even top-level strategic design. The green design will enhance the green innovation awareness, green innovation level and green standards of products, procedures, models, industries, engineering and systems from the source.

#### 4. SUMMARY

Design is never a piece of paper, a good or bad design, the most important thing is to see whether this design has taken a long-term perspective from the beginning of its birth. The success of a design, its philosophy is very important, I think a sustainable design concept for everyone, need to do the following:

##### 4.1 The rational use of materials.

Nowadays, with the development of society, many non-renewable resources are becoming increasingly scarce, and people are constantly asking for them while constantly calling for them. The real sustainable development concept, the first thing that needs to be done is to use materials reasonably, copy non-renewable materials with modern technology, and protect non-renewable resources. Designers, in fact, producers must always have a sense of sustainable design when designing a product. For example, designers need to consider the environmental hazards of materials during processing or refining; designers can The design reduces the use of parts, which simplifies the repair, standardization and upgrade process and extends the life of the entire product.

##### 4.2 Establish a legislative system.

From a long-term perspective, sustainable development needs the support of the government, not only the financial approval, but also the legal constraints on people's behavior. There are many people now. Although they understand the meaning of non-renewable, they never formally attach importance to the protection of non-renewable resources from behavior and thought. They are used to their own past practices and refuse to accept sustainable development to protect the environment and maintain Ecological balance.

##### 4.3 Increase publicity and education.

Whether it is officials, people, businesses, and corporate designers, they are responsible for carrying out various forms of publicity and education activities on environmental protection issues, raising people's awareness of environmental protection, enabling people to understand the national conditions, understanding the status quo of the environment, resources, and energy, and enhancing the crisis. sense. Incorporating "sustainable design" into the compulsory courses of higher education, and educating students on sustainable design, so that students learn to follow a new ethics, morality and values.

##### 4.4 Strengthen sustainable development design education.

Relevant colleges and universities can write design education content with the theme of "sustainable development" into relevant professional syllabus, such as urban planning, architectural design, environment (landscape) design, interior design, industrial (product) design, textile design, clothing. The syllabus for design, decoration design, etc. must clearly include "sustainable development" as a programmatic content in the outline: it is required to clearly list the subjects with "sustainable development" as a special content in the curriculum. And to organize the preparation of relevant textbooks. In the course of "Sustainable Development", which is offered in colleges and universities, it is required to combine the curriculum with the product development of the enterprise, and realize the situation of "government set up, school output, enterprise singing", give full play to the advantages of the three aspects, and help the government. Next, combine the professional education of the school with the projects and products of the enterprise. Turning the education of "sustainable development" into the supervision system of the government's environmental protection agencies, introducing education into the enterprise, and engaging design education in the product development stage of the enterprise, so as to achieve the product development stage mentioned above. The purpose of the environmental issues considered.

The sustainable development design reflects people's reflection on the environmental and ecological damage caused by modern science and technology culture, and also reflects the return of designer morality and social responsibility. In 1987, in the report of the United Nations World Commission on Environment and Development, "Our Common Future," "sustainable development" was defined as "the ability to meet the needs of the present and not to meet the needs of future generations." The development of harm", human beings should enjoy the power to live a healthy and productive life in a way that is in harmony with nature.

#### BIBLIOGRAPHY

1. Wang Xiang. Tourism Environmental Science. China Environmental Science Press. 2001..
2. Bao Jigang. Tourism Geography. Higher Education Press. 1999.
3. Huang Yiyi, Yang Dongyuan. A Review of Theoretical Studies on Eco-Cities at Home and Abroad [J]. Urban Planning, 2001 (01).