Product Design under the Low Carbon Design Concept

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Abstract

With the rapid development of society and the rise of people’s living standard, people pay more and more attention to environmental problems. Due to the frequent occurrence of bad weather such as the fog haze, dust storms, the low carbon environmental protection has become a new fashion and low carbon concept began to penetrate into our daily life. Low carbon design considers design as the foundation and the beginning. The designer mainly consider from product concept design phase and implementation phase, with low carbon concept as guiding ideology, use a kind of brand-new understanding to explain low carbon product design according to the understanding of industrial product design to innovate methods. This article mainly aims at analyzing how to explore new approaches as for product under low carbon design concept.

Keywords: low carbon, design, product, concept

1. Introduction

With the rapid development of economy, people's lives, are improved to a great extent and ascend. But we live in the environment is more and more bad, and it has attracted widespread attention. People began to pursue low-carbon products designed to reduce the damage to the nature, protect the environment. Which gives designers a new development direction, and gives the designer more social responsibility, and through the low carbon product design can contribute to environmental protection. Designers will low carbon concept into product design. This article mainly from the perspective of industrial product design, industrial product design and the problems of low carbon under the design concept of product design was analyzed.

2 Current problems existing in the industrial product design in our country

2.1 The appropriate materials have not been chosen

Production activities carried out without the appropriate selection of materials, material is the composition of the product, itself determines the quality of the products. Production equipment and technology are the quality and performance of the material as the important basis. The industrial products in our country, in the material selection design link, too much emphasis on economic efficiency, to reduce the cost as a key factor of purchasing selection, the toxicity of some materials have greatly, and poor biodegradable material was selected due to the low price. This has a serious impact on the quality of the product, especially in the plastic bag design material selection problem in our country. And as to push forward the environmental protection shopping in China in recent years, and in view of the widespread use in the market of our country can't degradation, the toxicity of big plastic bags for a wide range

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of adjustment. This kind of plastic bag has toxic substances, used in people's life is bound to produce bad effect on health. And its degradation characteristics will bring white trash, and white pollution.

2.2 Lack of scientific power source design
Battery is indispensable essentials in our life, but that in a battery waste battery is also a kind of pollution intensity big, with extremely high content of heavy metal waste of resources. The harm degree is extremely high, pollution diffusion involves many fields, including land resources, water resources, atmospheric resources will be contaminated. In our country, especially in the process of industrial production of electronic products, the power source of the battery as the main carrier, but the battery internal composition contains high mercury lead, either production or abandoned, will have serious heavy metal pollution. Why it can be a large number of production and use, mainly because the battery is simple in design and production process, there is little technical difficulty, and research funding is extremely low, with a wide range of consumer groups. And a number of plants in the battery production process is not environmental protection consciousness, exhaust emissions, some even directly without treatment waste water also caused serious pollution to the surrounding environment.

2.3 Serious resource waste
As people’s living standard rise, the change of consumption idea, life essentials and even upgrading luxuries extremely fast, people consumption idea change unceasingly, makes our life more and more waste. But for now the mobile phone, tablet and other electronic products renewal speed, more and more this kind of waste electronic products, caused the resource waste greatly. In addition, in the design of industrial products in China, can choose some cheap non-renewable materials, so that after the products are replaced, recycle and reuse, can't again so waste of resources will undoubtedly negative effects on the environment caused by the home.

3 Product design under the low carbon design concept
3.1 Choose environmental protection new materials
Choose appropriate material in product design is the key, in order to reduce the pollution to the environment, solve the emergence of these problems in industrial product design, the environmental protection concept is blended in among them, also responded to the requirements of the sustainable development strategy in our country. The application of some new environmental protection materials to reduce costs, but also can meet the needs of people of multi-function. Like grass, hemp and other materials can be used to make environmental protection wall; it also increases the moisturizing insect repellent effect, people can be at ease and comfortable enjoy the life. The new environmental protection materials based on low carbon environmental protection idea, as far as possible to reduce carbon emissions, to minimize the harm to the environment or even zero. So that you can achieve the harmonious coexistence of industry development and environmental protection, promote green circulation process of low carbon development.

3.2 Improving the structure of the power source of the product
Nowadays the main power source for the battery in our products, but the battery in the process
of production and waste will produce environmental pollution greatly, in order to solve this problem, the design department is the power source of the optimization of product structure, changed the original single power source design, and increase the development of the power supply use of space, improve the utilization rate of repeat. On energy conversion and utilization at present, based on low carbon design using the solar energy, hydro power and wind power can be further development, because the solar energy, hydro power and wind power are natural pollution-free natural energy, these energy into electric energy, and the use of the power is in the process of fully follow the principle of the low carbon environmental protection. Optimize the structure of the power source of the product design of product is no longer in our minds, has become a reality, such as press rechargeable flashlight, it through the hands of people pressure, converts kinetic energy into electrical energy, thus complete the flashlight charging process. This includes not only the environment, save energy, but also can make people in the environmental science and technology application feel the joy of new products and stimulate the creativity of people. In addition, there is a rechargeable battery (as shown in figure 1), its principle is through the smoke movement to drive the wheels of the internal fast rotating cutting magnetic induction lines, thus to recharge the battery. This not only conforms to the current exercise habits, is a highly efficient form of exercise, is an entirely new way of product use. In the view of improving the performance of product environmental protection at the same time, and greatly improve the performance of products of interest.

![Image](image1.png)

**Figure 1. Hand rechargeable batteries.**

### 3.3 Extending the life of the product, improve the utilization of resources
Industrial products renewal speed increasing in our country, it also brought serious waste of resources, the designer for the sustainable development of this kind of phenomenon also focuses on improving product performance and environmental performance. As mobile phones and other electronic products, for example, eliminated this kind of electronic product cycle is short, but some parts of the cell phone is can't waste recycling, which creates a serious waste of resources. Therefore, to strengthen scientific research of product development, the designer will low carbon environmental protection concept in the product design is blended in among them, so as to make the product to enhance its competitiveness, constantly extend the service life of products, to reduce resource waste and environmental pollution. Designers will also vigorously develop new products, waste materials can be fully used, and as far as possible
as the electronics material choose recycled available too, so can effectively reduce the waste of more, also follows the concept of low carbon development.

3.4 Sharing type design integrates social resources optimization allocation

Because we live in the earth, its resources are limited. Therefore need cycle on limited resources fully utilized the key for the design of low carbon. Product designers are constantly to fully tap the common demand, through the system optimization design to achieve the optimal allocation of social resources. The current problems such as traffic congestion, food safety has become a hot topic, and stand in the perspective of industrial design analysis, traffic, environment and other relevant information can be consolidated.

As the improvement of people's living conditions, a large number of private cars brought a lot of pressure to the traffic, the increase in the number of private cars also cost a lot of resources auto emission also seriously pollute the environment at the same time, the designer for this kind of phenomenon, devised a share carpooling travel concept. The carpool is now were introduced, mainly in view of the current residential areas, through a lift in a car, to carpool behavior, effectively reduce traffic, reduce traffic congestion, and reduce the automobile exhaust emissions. As shown in figure 2 for low carbon system work flow chart.

![Figure 2. Low carbon system work flow chart.](image)

4. Conclusion

Low carbon design has led to a new development trend, it is also a symbol of a kind of attitude to life and the social fashion. In the future based on the new material selection, optimize the structure of power sources, extended product life and social resources optimization allocation these aspects to carry on the further penetration of low carbon environmental protection design concept, will reduce carbon emissions.

Product designers in product design, according to the professional knowledge in combination with low carbon concept to design a practical environmental protection new products, improve their social responsibility, efforts to improve their professional knowledge, the enhancement of green environmental protection idea, let people feel in new products using high quality of life, at the same time in the product, on the basis of harmony with the environment, also call up people's environmental protection consciousness. Vigorously carry out green design, advocating low carbon life, thus promotes our country economy can truly realize the green development of sustainability.
References