

Research and Practice on the Construction of Green Building Teaching System

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Abstract: The teaching system of green building is a kind of teaching system in which human, environment and nature coexist. The research on this aspect is mainly aimed at the green development of buildings, and puts forward the teaching concept of building that is suitable for nature. In the actual teaching process, it pays attention to the practical activities of green buildings, and carries out scientific and effective practical activities for the corresponding architectural design training.

Keywords: Green Building; Teaching System Construction; Research and Practice Activities

1. Introduction

The teaching process of green building teaching system is closely around the renewal of the teaching system, the optimization of teaching content and methods carried out by the corresponding national policies in building construction and environmental protection, and the development of practical activities is organized according to the student training program of related majors in colleges and universities.

2. Overview of green building teaching system

In the early stage of national development, the focus of work will be on economic development, so that our construction industry in the actual construction more from the perspective of people to think and design architecture. With the development of economy, nature and environment have been destroyed. In order to realize the harmonious coexistence of human and nature, the state considers the relationship between nature and human beings from a more comprehensive and reasonable point of view, considers the natural conditions before the construction, and finally considers the human demand for architecture. Under the guidance of this scientific building construction system, colleges and universities are gradually implementing the reform of green building education, and innovatively developing and applying more effective building teaching software and technology to improve the quality of green building education and teaching.

3. Research on the construction of green building teaching system

The integration of green building teaching system into the existing architectural teaching system is an education and teaching reform project that has been gradually promoted in colleges and universities in recent years. The development of this project is to enable students to learn more about ecology and green building in the process of learning basic courses of architecture. The main purpose is to enable students to master solid green building related theoretical knowledge, and establish the concept of sustainable development of resources and environment, according to the requirements of sustainable development of urban construction to complete the corresponding architectural construction design practice. The research on the construction ideas of green building teaching system is explained from the following aspects.

3.1 Finding effective technical means to complete the architectural design quantitatively

The completion of architectural design needs to consider some qualitative requirements and design contents

of building construction according to the environmental characteristics of the building location. In some aspects of data simulation and calculation, it needs to use effective calculation software to complete these quantitative calculation contents. At present, the widely used analysis and calculation software is energy consumption, acoustic environment analysis, ventilation condition analysis, daylighting analysis, including Energy Plus, Dest, etc., with the help of these highly efficient architectural design content analysis and processing software, we can promote the efficient completion of the quantitative calculation task of architectural design. In the actual teaching process, in the process of explaining the basic knowledge of green building, we need to infiltrate the learning and application methods of these software into the process of architectural teaching, so that students can gradually understand the practical application methods and application ways of these software.

3.2 Adding green building content according to the content of architecture curriculum design

In the process of basic architecture teaching, the actual learning and teaching content of green building are less involved. In order to further enhance students' understanding of green building, we need to take the concept of green building design, wind, water, greening and sunshine related to nature into account in the process of architectural design. In addition, the environmental friendliness of building materials, the renewability and the thermal insulation and maintenance of the whole building need to be considered in the actual architectural design. According to the previous concept of architecture teaching, students will ignore the special requirements of green buildings compared with ordinary buildings in the process of learning and designing buildings. Teachers should explain the differences between the two to students, so that students can understand and learn the actual content of green buildings.

3.3 Designing teaching practice design combined with key points of green building design

The study of architectural physics and related equipment is an important part of architectural curriculum. These two aspects introduce the active technology and passive space design, including air conditioning ventilation technology, water treatment and water circulation technology. These technologies must be considered in architectural design, and are also the basic content of architectural design. According to the teaching concept of green building, we need to carry out systematic study on these aspects, so as to effectively improve the environmental friendliness of buildings and improve the design and construction level of students in green building.

3.4 Completing the course design with appropriate evaluation methods

In the final stage of architecture learning, we need to design a construction design requirement for students, so that students can complete the course design under this requirement. Under the teaching requirements of green building system, the curriculum task of architectural design is also consistent with the design requirements of green building, and in order to better urge students to learn the design and construction requirements of green building, it is necessary to apply some high-quality building assessment methods to further promote students to apply the learned building knowledge to complete the task of green building curriculum design. Specifically, there are many green building assessment methods, which are suitable for students in curriculum design. The main method is environmental assessment method. In addition, computer simulation technology and environmental assessment method are suitable for the construction and design of the whole green building.

4. Technology required by the construction of green building teaching system

4.1 Application of digital technology

Digital technology refers to some computer software and corresponding technologies used in the process of green building construction, mainly including Ecotect, Weather tool and so on. These software can be used to evaluate the humidity and temperature of the building construction environment, the climate of the building construction site, and the impact of solar radiation on the building. In the specific use of this technology, we need to do a good job in the early preparation, including the overall idea of the scheme, such as the overall design planning and construction ideas of the building, and then we need to carefully consider some details of the scheme, including the ventilation mode of the house, the shading mode and the setting of the safety maintenance of the house, Weather tool carries out systematic simulation and prediction, so as to further determine the next construction content according to the actual prediction results. In addition, the further determination of the scheme also needs to evaluate the economy and ecology of the scheme. The construction economy is good, and

there is no other harmful impact on the ecological development.

4.2 Application of drawing software and technology

The application of drawing software is indispensable in the construction process of architectural drawings. Specifically, it includes two-dimensional drawing software and three-dimensional drawing software. Two-dimensional drawing software such as Auto CAD can also be used for three-dimensional drawing. The drawings needed in architectural design include paper version, mainly the floor plan of architectural construction, the detail drawings of some contents inside the building, and the electronic version, mainly the three-dimensional drawings of the building. In addition, the teaching of green building drawing technology requires not only to learn the corresponding drawing technology, but also to be able to understand the drawings, including two-dimensional drawings and three-dimensional drawings.

5. Development of green building teaching system construction practice

5.1 Theory and teaching practice organized in accordance with the reality of the school

The teaching resources and teaching cooperation units of colleges and universities are the actual contents that architecture majors need to strictly consider in considering students' theory and teaching practice activities. In addition, the number of students who need to carry out practical activities also affects the development of practical activities in the construction of actual architectural teaching system to a certain extent. The above contents should be considered before carrying out the actual practice activities, and because the development of teaching practice activities needs to have a certain effect, the number of participants in the practice activities organized each time and the batches divided should be as scientific as possible, so as to ensure that students can truly gain in the practice activities.

5.2 Creating corresponding practice design content for students

According to the teaching requirements of green building teaching system, teaching practice activities need to be carried out strictly according to the plan. The specific content includes three stages: preliminary preparation, design process and achievement display. Teachers need to accompany students in these three stages and do the corresponding guidance work. Specifically, in the process of design guidance, students need to investigate the various influencing factors in the building site, including climate, temperature, and humidity and so on, and then determine the subsequent influencing parameters. In addition, teachers should guide students in the process of building construction to adhere to the green building design and construction requirements and concepts to search for relevant information. As far as possible, the corresponding software is used to realize the quantitative calculation in the architectural design task, from the plane drawing to the actual three-dimensional drawing, and when necessary, the relevant model is established to carry out the design.

6. Conclusion

The construction of green building teaching system needs to consider the relationship between nature, architecture and human beings. We should firstly consider the relationship between nature to design building construction, secondly further determine the construction content according to human building needs, and finally consider the requirements of green building teaching for practical activities so that the practical activities of design science can further improve the students' architectural design level.

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