

# Green Feelings Shine into Reality

## -The Green Practice Road of Meixi Lake Primary School

Xiong Feng, Li Juan, Chen Shuang, Xie Shengfeng  
School of Business, Hubei University  
Wuhan 430062, China

**Abstract**—Green low-carbon environmental protection as a concept has gradually penetrated the hearts of people, and education is an important platform for green concept propaganda. As the new city of Meixi Lake in the green new city of Dahexi Pilot District, it has overcome many difficulties and set the green campus from planning to design step by step and there are many problems in the whole process. In the face of existing problems, the relevant managers have solved each difficulty. Finally, through the establishment of this green school, green concept and green knowledge are passed on to students, and the green concept is spread a little among the students.

**Keywords**—green education; green campus; green building; green management

### I. INTRODUCTION

With the concept of green development being promoted in China, education is in a special position. As a place where children learn and grow, it is very important to integrate the concept of green home construction into the campus. Meixi Lake New District of Changsha City is one of the first batch of 8 green ecological demonstration cities in China. The main feature of the Meixi Lake Eco-city master plan is sustainability-centered, and Xiao Wu, the head of the supporting primary school project in the Meixi Lake area, has many years of educational experience and a green feeling. The heart, through the green concept that has been injected into it from the design and construction, will step through the school's green education in the future education in all aspects of school, students, and learning.

The concept of green building has been proposed since 1992. After more than 20 years of development, it has become one of the important standards in the construction industry. Under the background of the overall promotion of greening in the construction industry, countries have put forward many targeted evaluation standards for the characteristics of campus buildings, and actively promote the construction of green campuses [1]. With the rapid development of green buildings, the development of green campuses has also grown rapidly [2]. The concept of a green campus has been developed leaps and bounds since its introduction to the Human Environment Conference in Stockholm in 1972[3]. In 1997, UNESCO officially proposed the concept of "sustainable education" based on a green campus. In 2007, the LEED standard system, the US Green Building Council, also targeted the Green Campus and also launched LEED for School, which provides a

complete and complete evaluation system, which provides a reliable reference for the later green campus construction [4] [5].

China's green campus evaluation standards are relatively simple, lack of detailed classification, which cannot provide direct guidance for the evaluation of green campus, which is not conducive to the popularization of green campus in China. Although the evaluation system of green campus in China also has relevant indicators such as land use, water use and indoor and outdoor environment, there are some defects in the specific settings of some necessary indicators [6]. China's "Green Campus Evaluation Standard" has requirements for prohibiting or restricting the use of materials, styling and hazardous substances, but does not make necessary requirements for the recycling of garbage and waste. At the same time, only energy saving and consumption reduction are required, but the specific implementation details are not required [7]. In the general green campus evaluation process, different options are weighted, and finally the weight system is used for scoring. However, due to the weight system, China's scoring system will cause the final result to be distorted when scoring and evaluating [8]. This paper uses the Meixi Lake New City supporting primary school in Changsha City to discuss the construction of typical green campus in China.

### II. THE BEGINNING OF SCHOOL PLANNING

#### A. The cause of establishment of the school

In the process of rapid urban development in Changsha, there is inevitably a situation of extensive development. Urban land is heavily invested, and the rationality of land use is often insufficient. Urban land, commercial, administrative and industrial functions are used in space. Competing and expanding, the traditional urban spatial pattern and architectural scale are broken. Large-scale residential areas and other buildings have been developed in pieces. Many residential areas, government agencies, schools, industrial parks, etc. have been closed management and become "urban castles". The phenomenon of the main street area constitutes the most basic unit in the urban structure of Changsha. The current situation of the closed avenues has put a shackle on the new development of the city. The contradiction between the block mode and the urban development trend that does not adapt to the future trend has emerged: such as poor accessibility, inefficient urban efficiency, and heavy dependence on cars. Cities are not suitable for walking; air

pollution, environmental degradation; strict functional divisions destroy the organic links within traditional communities, lacking public space and interpersonal relationships.

As an international new city, science and technology innovation city, green eco-city and sustainable city, Meixi Lake New City aims to establish a green, circular and low-carbon development concept, actively respond to national energy conservation and emission reduction policies, and build a city as a platform. The government is the leading enterprise, the enterprise is the main body, the market is effectively driven, and the whole society participates in the energy conservation and emission reduction work pattern. As an important part of the supporting facilities, the Meixi Lake District Supportive Residential Community Supporting Primary School (Meixihu Primary School) is adjacent to Meixi Lake, with Yuelu Mountain and the adjacent Meixihu Middle School of Changjun County. The environment is beautiful and the scenery is like Painting, known as the most "green" campus in Sanxiang. The school plans to cover an area of 55 mu, with a construction area of 25,000 square meters. It is estimated that the total investment will be nearly 100 million yuan. It will have a school scale of 48 classes. It is the Meixi Lake International Service and Technology Innovation New City that Changsha City Pilot Area wants to build. The education base is a public demonstration primary school to be built by the Yuelu District Education Bureau. Meixihu Primary School (formerly known as Yuelu District Experimental Primary School) is a public demonstration primary school sponsored by Jinmao Investment (Changsha) Co., Ltd. and organized by Yuelu District Education Bureau. As a school that looks so good now, it has many problems, big and small.

### B. Xiao Wu's green feelings

"Let the green become a habit", and cultivate the "small citizen" of the society with the beauty of the plum, the aura of the stream, and the feeling of green is the goal of the education of Xiao Wu. Xiao Wu was the small principal of Wuxi Village in Meixi Lake. He witnessed the transformation of Meixi Lake and witnessed the modernization of this school. Establishing a new school with a high starting point, and she also has higher requirements for education. "We are building a future-oriented school, and the students we cultivate should be future-oriented. The world is constantly changing, we are educating people. Thinking must change as well."

## III. CONSTRUCTION PROCESS

### A. School planning

At the same time, it falls on the school planning of Meixi Lake New City. There are three schools in the new city planning and four primary schools. The total land area is about 34.8 hectares (14.7 hectares for primary schools and 20.1 hectares for secondary schools). There are 228 (66+54+54+54) classes in primary schools, 10209 people; 198(78+66+54) classes in middle schools and 9767 people. Per capita land: 18 square meters / person in primary school; 26 square meters / person in secondary school. According to the proportion of 80% in Wuguang New City, the primary school is 14.4 square meters/person, and the middle school is 20.8 square

meters/person. Primary school students use 14.4 square meters of land, and middle school students use 20.8 square meters of land, which fully meets the supporting needs of primary and secondary schools in the district.

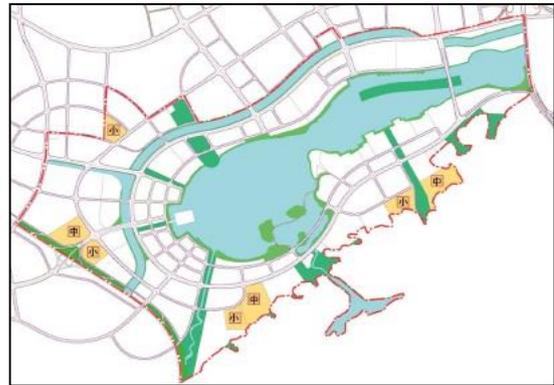


Fig. 1 School layout of the core area of Xincheng

### B. Construction problems

At the beginning of the school's decision, Xiao Wu felt that the school was an important platform for green education propaganda, and it was an international "Green City" that focused on green and environmental protection in Meixi Lake New City, and built Meixihu Primary School into a green concept. Green campus is imperative, but soon Xiao Wu encountered the first thing that made him a headache. Meixi Lake New City is the key development area of the Dahexi Pilot Area. The overall goal of the development zone to set the building design energy saving rate is not less than 65%. As a special type of building in the school, the requirement for an overall energy saving rate of not less than 65% is almost an unattainable requirement. After repeatedly discussing with designers and experts in green building, Xiao Wu decided to set a practical energy-saving standard for such a special type of building.

The new standard was quickly taken out by Xiao Wu and the efforts of the experts. In the subsequent repeated communication with the overall green planning department of the development zone, Xiao Wu encountered new problems. Considering the overall energy saving of the development zone, Meixi Lake New City has proposed a building energy saving rate of not less than 65% for each building. However, in the case of such buildings, the general energy saving rate is difficult to meet such standards. After listening to the advice of relevant experts, Xiao Wu carefully weighed the relevant guidance documents of Meixi Lake, and after discussing with relevant person in charge of the development zone, decided to refer to the US LEED standard, taking into account the differences in building types, schools and cultural and recreational facilities, low-level commercial finance. Land use rate (0.5 and 0.6) is difficult to achieve 65% for building energy efficiency. It is recommended to be no less than 60%. The LEED standard requires relatively high energy consumption for buildings. Therefore, the energy saving rate for LEED certification projects is correspondingly increased, and other projects meet 65%. Claim.

C. Disadvantages and advantages coexist

After carefully reading the relevant materials and standards, Xiao Wu found that such buildings in the school are not only difficult to save energy, but also have some energy-saving advantages. For example, according to office, school, commercial and other public buildings, the water consumption characteristics are relatively simple. Most of the water is used for flushing water, and the rest is used for washing. According to the principle of high quality, high quality, low quality and low water use, it is more suitable to use the water supply for this type of building and use the middle water for flushing. According to the "Standards for Domestic Water Consumption of Urban Residents" (GB/T 50331-2002) and the "Code for Design of Water in Buildings" (GB 50336-2002), flushing water accounts for more than 60% of the water consumption of office and teaching buildings, but this part The amount of water that can be recycled in a building is small, so it can be considered that about 1/3 of the flushing water is replaced by rainwater or medium water, and the utilization rate of the non-traditional water source can be more than 20%. This water saving advantage is also very good in other buildings which are difficult to achieve.

In the end, after discussion, Xiao Wu and the experts proposed the following transformation direction: positioning the project as a two-star green building and proposing a technical system for implementation. From the analysis results, according to the green two-star design requirements of public buildings proposed by the system, the implementation can basically meet the reporting requirements. Only the 80% of the total energy consumption of the building design is lower than the 80% requirement of the nationally approved or documented energy conservation standards. However, due to the school building, the air conditioning equipment and energy conservation improvement methods are limited, it is difficult to meet the requirements of the standard. In combination with the project situation, the use of adjustable external shading was chosen to improve the indoor thermal environment. In this way, through such continuous optimization of some designs and details, the project finally reached the "green" requirements of Xiao Wu and the leadership.

D. Green awareness

For green cities, there is a consensus among the relevant person in charge of the development zone. They all believe that the main purpose of creating a green city is to enable citizens to recognize and exercise their environmental rights and responsibilities, and to manage the environment through cooperation between the government and civil organizations and the public. Incorporate into community management, establish a community-level public participation mechanism, let environmental protection enter everyone's life, strengthen residents' environmental awareness and civilized quality, and promote public participation in environmental protection. Before the project is operated, its evaluation criteria are mainly determined according to the green community creation rate, the number of green schools (kindergarten, primary school), the proportion of green travel, and the proportion of urban residents living in the local area. In this way, good planning can bring good foundation conditions for the future construction and management of humanities.

The planned land area for primary and secondary schools is 34.8 hectares and the construction area is 348180 square meters. The planning and construction of primary and secondary schools not only needs to meet the current national standard, but also needs to consider the actual needs of the community residents: the farthest residential unit to the school gate is controlled within 1/2 mile of walking distance (refer to LEED-ND NPD15); And the planning and configuration of traffic roads need to meet safety requirements.

IV. MAIN GREEN BUILDING TECHNOLOGY

A. Campus Greening

Beautiful campus greening can cultivate students' healthy and up-to-date aesthetic tastes. In order to increase the amount of green, improve the campus appearance, and make students' learning and living environment closer to nature, Meixi Lake Primary School passes beautiful flower beds, flower stands, flower ponds, lawns, and shrubs. It is a place where the teachers and students provide rest, cultural entertainment and sports activities.

Flower beds are arranged on the outside of the corridor outside the teaching building and next to the air-conditioning frame to plant ornamental plants and form vertical greening. Roof greening can increase the thermal insulation performance of the roof. Vertical greening can form a shade to a certain extent and reduce the energy consumption of indoor air conditioners. At the same time, the campus is full of green, students can see green everywhere in their spare time, effectively reducing visual fatigue, which is conducive to the healthy growth of students.

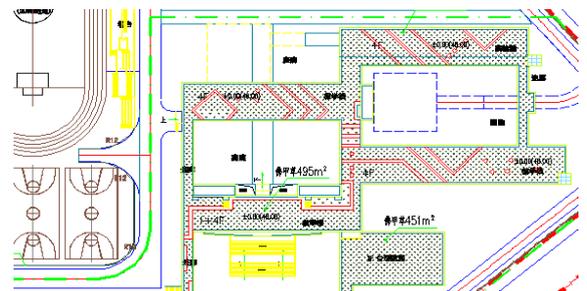


Fig. 2 Roof greening plan

B. Site's wind environment



Fig. 3 Campus diagram

In the planning and design stage, try to consider the formation of a comfortable outdoor wind environment on the campus and facilitate natural ventilation in the room. To this end, the CFD (Computational Fluid Dynamics) software was used to simulate the campus wind environment during the planning and design phase, and the air flow of the entire park was predicted to optimize the solution. Under the conditions of

10% wind and average wind speed in each season, the wind speed at the height of 1.5m from the pedestrian area around the teaching building (including the experimental building and administrative office building) is less than 5m/s, the wind speed amplification factor is less than 2, and no windless area appears.

C. Solar water heating

A 216m<sup>2</sup> solar collector is installed at the top of the teaching building of Meixihu Primary School, which uses clean solar energy resources to provide hot water for the teaching building bathroom.



Fig. 4 Solar water heating system

Since the school is an educational place, the external piping and some equipment of the solar energy system department indicate the direction of water flow, and the ecological classroom is used to explain the utilization of solar energy resources for students, and to cultivate students' awareness of resource conservation from an early age. While building green school hardware, take simple measures to achieve green level of software.

D. Building shading

There are large-area glass curtain walls in the east and south of the project (the height is 5.95m and the length is 21.8m and 14.4m respectively). In summer, a large amount of heat will enter the room from the curtain wall in the form of radiation, increasing the air conditioning cooling load and affecting indoor thermal comfort. In order to effectively reduce building energy consumption and improve indoor comfort.



Fig. 5 The external sunshade effect diagram of the class classroom

At the time of design, by reasonably analyzing the running height and daily running trajectory of the sun in winter and summer, combined with the effect of the external wall façade, the indoor lighting of the building is fully considered, and the outdoor shading system is set in the south and east directions of the joint classroom.

E. Rainwater utilization

The design of green buildings should be tailored to local conditions and resources should be used in a reasonable manner in combination with site conditions. Changsha is a water-deficient city, but it is rich in rainfall resources (annual rainfall is about 1331.3mm). Therefore, in combination with the topographical features of the site, the green space, roof and road rainwater in the project site are collected, and the rainwater is collected from the rainwater ditch next to the road to the rainwater. It is stored in the module mold, and the rainwater is disinfected and used for site greening and road flushing. The reservoir of the rainwater harvesting system has a volume of about 108m<sup>3</sup>, and the annual rainwater can be used up to 5564m<sup>3</sup>, which reduces the water supply load of the municipal pipe network.

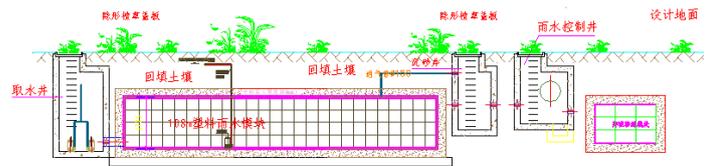


Fig. 6 Sectional view of the rainwater collection and utilization system

F. Indoor environment

Because the classroom is in a densely populated area, indoor air quality is essential to ensure indoor air quality, to enable students to grow healthily and to maintain a good learning status. In the design of Meixihu Primary School, the passive design is fully considered, and the simulation is carried out by computer. The size and position of the window are reasonably designed to ensure the natural ventilation in the room, and the natural ventilation is fully utilized in the transitional season.

Classroom lighting is an important part of the student learning environment. A good light environment not only benefits the students' physical and mental health, but also improves learning efficiency. Through the simulation analysis of the indoor light environment of the Meixi Lake Primary School teaching building, about 89.52% of the main functional rooms have the lighting requirement.

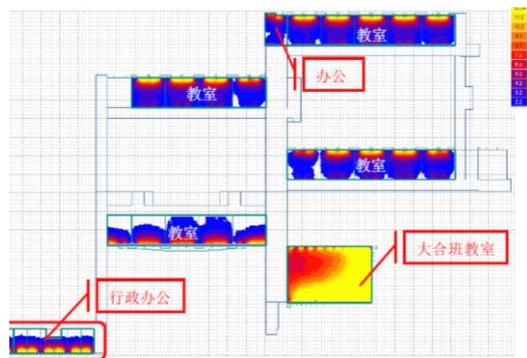


Fig. 7 Natural daylighting model

G. Semi-basement design

Meixihu Primary School arranges the buildings reasonably according to the terrain, fully considering the utilization of

underground space and the protection and utilization of the original terrain. The bottom floor combined with the height difference of the design has an open basement. As a equipment room and an ecological parking space, good natural lighting and ventilation effects can be obtained, and the running energy consumption of the building can be reduced.



Fig. 8 Semi-underground schematic

## V. COMPLETION OF THE SCHOOL

### A. Project completed

The millennium Yuelu, since ancient times, has gathered a lot of celebrities and created a highland of Hunan culture. Under the foot of Yuelu Mountain, Yuelu Academy has gone through thousands of years of string songs, and the school has been extended. Hundreds of schools are scattered all over the place. More than 300,000 young students are born in Yusi and Xuesi, and they can complete the journey from kindergarten to postdoctoral. When history opened a new chapter, Yuelu District was placed in the passionate era of the accelerated rise of the west bank of Xiangjiang River. Once again, with the attitude of the leader, efforts were made to create a modern education that matched the modernization of Changsha, and continued the "only Chu is material, Yusi is Sheng" Rongguang. "Quality education is the attraction of the city's gathering popularity, the influence of the regional core values, and the competitiveness of the future." Zhou Zhikai, secretary of the Yuelu District Party Committee, said, "The elders of the woods must be fundamental", the school is the foundation of education. It is necessary to take "a good school is the foundation of good education" as the starting point, strengthen campus construction, and promote Yuelu education to develop better and faster.

Giving priority to high-quality locations for education may begin with justly feelings, and the effect of this will continue to grow. There are 10 primary schools and 7 middle schools in the Meixi Lake area. All the 17 schools are planning and constructing according to the green building standards. At the same time, they actively advocate the construction of a green campus culture, making green education the focus of campus culture construction. Through the school's green ecological spiritual culture and material culture to positively influence students, infection, edification, students' deafness, subtle influence, and gradually form a green campus culture to promote family and society to participate in the construction of Meixi Lake green humanities.

### B. Green benefits

Meixihu Primary School teaching building mainly uses bright spot technology such as rainwater collection and utilization, solar water heating system and vertical greening. Among them, the rainwater collection and utilization system collects 5668.9m<sup>3</sup> of rainwater per year, and the annual available rainfall is 5564m<sup>3</sup>. At the same time, after the water-using appliances are all made of water-saving appliances, the annual water saving can be 1373m<sup>3</sup>. That is, the total annual water saving of the project is 6937m<sup>3</sup>.

In addition, the school uses solar water heating system to produce hot water at an annual rate of 2938.15m<sup>3</sup>. Compared with electric water heaters, it can save 198,000 KW·h of electricity per year; compared with gas water heaters, it can save 21,400 cubic meters of gas per year. The annual electricity cost can be saved by 119,000 yuan, or the gas cost can be saved by 50,000 yuan.

The construction of the green building of the Meixi Lake Primary School Teaching Building project not only provides students with a high-quality learning space, but also integrates the concept of sustainable development, and the concept of green throughout the design, construction and use of the entire project. . The project combines the characteristics of the school with passive energy-saving technology, which provides the experimental foundation for the ecological classroom and green building technology. It has important practical significance for cultivating students' awareness of energy conservation and environmental protection. The application of green technology is not only simple energy saving. Environmental protection is an important part of the inheritance of green concepts.

### C. Widely acclaimed

By 2006, the 3rd Kindergarten of the Provincial Government Office, the First Kindergarten of the Yuelu District Education Bureau, and the Wuxing Primary School of Yuelu District (Kindergarten) were rated as Changsha Demonstration Green School (Kindergarten), Furong District Rongyuan Primary School, etc. 11 The school (kindergarten) was rated as a municipal green school (kindergarten), and five communities including Xiangyanghu Community were rated as Changsha Green Community. The district and county (city) green series creation activities were carried out in an orderly manner, and 115 green schools (kindergartens), communities, institutions, hotels, shopping malls, and families were named and commended. In particular, Changsha's "green" work has also been commended by the state and the provincial level: Changsha No. 37 Middle School won the title of National Green School, West Lake Community and Xintian Community were rated as National Green Community; Furong District Liuzheng Street Primary School, Shuangxin School, Yuelu District Tonglupo Primary School, Central South University affiliated Experimental Primary School, Wangcheng County Leifeng School, Kaifu District Dongfengyi Village, Ercun and other 9 units were rated as provincial green schools and green communities. So far, Changsha has established 8 state-level green schools, 34 provincial-level and municipal-level 100; 5 national green communities, 12 provincial-level and 60 municipal-level.

Under the continuous efforts of Xiaowu and Meixi Lake project leaders, the "Green School" has gradually been realized, which enables the school to be integrated into the daily management work based on the realization of its basic educational functions and guided by the concept of sustainable development. Environmentally-friendly management measures are making full use of all resources and opportunities inside and outside the school to comprehensively improve the environmental quality of teachers and students. According to the Meixi Lake area control regulations, the 10.4 million square meters of Meixi Lake International New City will have 10 primary schools and 7 secondary schools. Among them, Meixi Lake International Primary School is the first "National Green Building Two Stars" and "United States LEED-SCHOOL Silver" Double Certified Green School in the province.

Next to Meixihu Primary School, Meixi Lake Changjun Middle School covers an area of about 130 acres, with a construction area of more than 90,000 square meters, 72 classes, and an investment of 320 million yuan. It is the largest middle school in Changsha with the largest investment and area. Meixi Lake Changjun Middle School is also designed and constructed in accordance with the most mature LEED green building standards in the world. Meixi Lake International Primary School and Changjun Middle School are preparing for school in the fall of 2012.

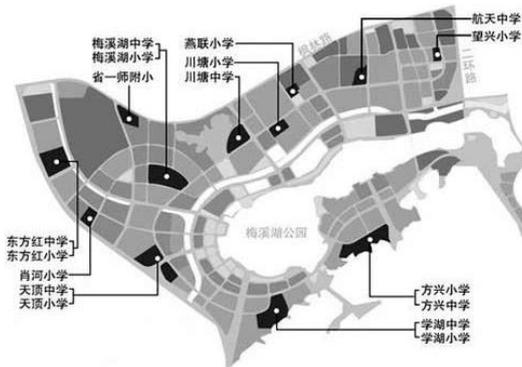


Fig. 9 Meixi Lake School Distribution

VI. GREEN IDEALS SHINE INTO REALITY

A. Green Campus

At present, the public supporting projects such as Changxi Meixihu Middle School and Meixihu Primary School have been fully put into use. The two campuses not only use two types of concepts, green ecological technical measures in hardware construction, but also focus on innovation in education concept. "Green education", practicing the road of characteristic development and scientific development. Guide the students' overall growth with the "Green Education Indicators", and build a school education system from the three aspects of "green moral education", "green teaching" and "green campus". People-oriented, pursuing efficient classrooms, focusing on all students, and promoting students to become adults. .

The two schools are undoubtedly green in terms of hardware. Both Meixihu Middle School and Meixihu Primary

School are designed and constructed according to the two-star green building, and have obtained design marks. How to integrate green software to build a three-dimensional, vivid ecological and beautiful campus on the basis of two types of hardware, so that the two concepts are continuously internalized, thus taking root in the hearts of students is the focus of current school efforts.



Fig. 10 Meixi Lake Middle School Green Building Technical Measures

B. Green Classroom

The school pays attention to the creation of the humanistic environment. The energy-saving technology publicity card is spread all over the campus. The "Green Campus Handbook" has a handbook. The campus garbage is sorted and recycled, and the waste is turned into a small production. It is also dotted with a nervous and enjoyable learning life. The school aims to educate people with "modern people with two concepts", from the inside to the outside of the classroom, from the school to the outside, to construct a green moral education culture. The school has developed the "Green Two-Type School-based Curriculum", published the "Green Campus Series Textbooks" from elementary school to high school, and incorporated them into the school-based elective course system. At the same time, pay attention to the two types of educational resources in the subject textbooks, let the two types of ideas into the teaching case, two types of knowledge into the classroom, and constantly internalize the two concepts of students.

02 绿色能源的呼唤

风能 就是利用空气的流动产生的可利用的能源。空气流动的速度越快，风能就越大。比如在沿海地区或地广人稀的大草原上，风能作为一种绿色能源有着巨大的发展潜力。

地热能 地球的中心有着很高的温度，而地热能就是蕴藏在地球内部的可再生能源。人们常常把它们用于温泉沐浴、灌溉农田、供热采暖等。但是目前为止，地热能的开发与利用仍处于初始阶段，随着科技的高速发展，我们对它的不断了解，地热能必会在绿色能源中占有重要的位置。

第三节 低碳行动在身边

Fig. 11 Elementary school, junior high school, high school green campus series

### C. Green School

In this way, Meixihu Primary School has become a good school with excellent environment, high quality and strong characteristics. The Meixi Lake Primary School, which was completed in 2012, has now become a public demonstration primary school built by the Yuelu District Education Bureau. The reputation of ecological blessings, educational highlands, and cradle of talents has made more and more students come here. At present, there are 3,522 students in the East and West campuses, all of which have reached saturation.

In Xiao Wu's eyes, the "two-type culture" advocated by the school not only needs to save the environment, but also achieves the "harmony between man and nature" and keeps the heart in harmony. She divided the "two types" into three levels: eye-catching, raising people, and raising hearts. "Essence of the eye refers to the school garden, teacher and student instruments, and classroom classrooms that are first seen. It is very beautiful and eye-catching; raising people refers to the Yuelu people who want to be happy in this yard; raising the heart is to encourage everyone's inner peace. Peaceful, and there is tolerance."

Combined with the school's existing resources, Meixihu Primary School has opened two types of school-based courses. In the third grade, two types of planting classes can be carried out. Children can go to the happy farm on the roof to grow vegetables, and they can also experience soilless cultivation under the leadership of science teachers. The fourth and fifth grades carry out life practice exploration and research courses. The children transmit the cutting-edge environmental concept, and then the children bring the idea into their own family, and the radiation affects the whole society. A "green" seed gradually sprouted in the deep roots of Meixi Lake Primary School.

### VII. CONCLUSION

The construction of green campus has begun to receive attention in many areas of China. Under the current situation that China's relevant standard system is still not perfect, it is also an appropriate method to use the relevant system standards that have been perfected in other countries. As an important public facility, the school's energy conservation and consumption reduction will become an imperative development trend in the future. The construction of green campus not only provides a good working and learning environment for teachers and students, but also plays a due role in the popularization of green environmental protection concepts among young people. The green campus combined with relevant green environmental protection related courses will enable young people to have a deeper understanding of green environmental protection, and the knowledge related to green environmental protection will not be boring. The school advocates an environmentally friendly lifestyle, and teachers and students consciously pay attention to environmental protection practices in their communities and personal lives.

### REFERENCES

- [1] Novi Yanthi, Hana Yunansah, Yona Wahyuningsih, Burhanudin Milama. Green Campus Initiative (Where do we start?)[P]. Proceedings of the 3rd Asian Education Symposium (AES 2018), 2019.
- [2] Liu X, Guo W H, Bao Y. Research on the Construction of Green Campus in Singapore Higher Education Institutions[J]. Building energy saving, 2019, 47(07):52-59+88.
- [3] Cheng J Y. A Summary of the Research Status of Green Campus Evaluation Criteria [J]. city building, 2019, 16(12):27-29+152.
- [4] Liu M, zhang Z W. Introduction to the Environment and Health chapter of the National Standard "Green Campus Evaluation Standards"[J]. Construction technology, 2019(14):8-12+16.
- [5] David Malone. Metrics should guide strategy for schools seeking LEED certification [J]. Building Design & Construction, 2018.
- [6] Chen T Y, Zhang Y Y, Tian G H, Liu C, Wang G, Wu Ao. Research on the Status Quo of Green Campus Construction in Chinese Colleges and Universities[J]. China Standardization, 2019(16):88-89.
- [7] Shen Y. Analysis of Relevant Policies on Promoting the Construction of Green Campus in China[J]. Journal of Hubei Open Vocational College, 2019, 32(15):31-33.
- [8] Zhang H. LEED-School certification in domestic development [A]. China Urban Science Research Association, China Building Energy Conservation Association, China Green Building and Energy Conservation Committee. Proceedings of the 8th International Conference on Green Building and Building Energy Efficiency[C]. China Urban Science Research Association, China Building Energy Conservation Association, China Green Building and Energy Conservation Committee: China Urban Science Research Association, 2012:12.