

Sustainable Development and Architectural Design of Featured Campus-in the Case of Wangcheng No. 2 Middle School in Jiangxi

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Abstract: Along with the continuous improvement of the level and quality of China's quality education, the scale and functional structure of the campus are gradually becoming more and more perfect, and a lot of schools are facing the problem of remodeling the old campus and constructing the new campus. This paper takes Xinjian County No. 2 Middle School Wangcheng New Campus in Jiangxi Province as an example, expounds and analyzes the constructive detailed plan and design requirements, objectives and principles of featured campus, and starts from the case overview, featured elements and cultural landscape, and summarizes and summarizes the actual architectural effect so that the actual architectural effect can be summarized. It also summarizes the actual architecture from the three aspects of case overview, characteristic elements and cultural landscape, so as to provide reference ideas for the plan and design of similar campus projects.

1. The influence and requirements of characteristic elements on campus constructive detailed planning

1.1 The influence of featured elements on campus constructive detailed planning

When architects make constructive detailed planning in the special geomorphic environment of the campus, they need to consider the influence of natural factors on the planning scheme, the design unit in the pre-planning needs to be made through field inspections, clear campus in the city of the specific topography and geomorphology, in accordance with the city's original mechanism on the basis of the choice of appropriate layout, technical means, architectural style and construction form. Campus as an important indicator of the level of urban development, by the community's attention, so in the campus constructive detailed planning work must follow the "local ecological protection, rational use of information" design principles, and is committed to creating a sustainable campus atmosphere. The empty public space of the campus, as an open area of the campus building, covers two important components of the natural landscape and artificial landscape, and how to organically link the daily teaching life with the characteristics of the campus is also one of the issues that the design unit needs to focus on.

1.2 The characteristic elements of the campus constructive detailed planning requirements

Jiangxi Province Xinjian County No. 2 Middle School Wangcheng new campus is located in a complex geographic environment, the design unit in the layout of the program needs to be combined with the typical geomorphology to take the planning principles of local conditions, environmental characteristics and human factors organically combined to ensure that the new campus and the complexity of the geomorphology of the interpenetration, intermingling. Campus culture can enhance the cohesion of teachers and students, and contribute to the continuation of urban landscape and cultural lineage. Relevant units in the campus constructive planning program need to fully consider the cultural and historical background of the city, in order to facilitate the city characteristics to show the best^[1].

2. Xinjian County No. 2 Middle School Wangcheng new campus architectural planning objectives and design principles

2.1 New campus plan and design goal

Xinjian County No. 2 Middle School was founded in the war period, more than seventy years ago, the new No. 2 Middle School has a deep cultural heritage, and has always been adhering to the development policy of "cultural management of the school" since the founding of the school. The new campus actively responds to the call of the state to learn from the strengths of the old campus, while optimizing and perfecting its management system in line with the development of the times, so as to promote the development and growth of Xinjian County No. 2 Middle School. In the constructive architectural scheme design of the new campus, it is necessary to take the reasonable and sufficient study space, relaxing and pleasant learning environment, functional and clear division of the area, appropriate scale of green landscaping as the plan and design objectives, in order to create a garden campus with good hierarchical and holistic for teachers and students^[2].

2.2 Plan and design principle of the new campus

Xinjian County No. 2 Middle School new campus plan and design need to strictly abide by the principle of student-oriented construction, secondary school students because of their age is in the world view, values and outlook on life of the formation of the stage, most of the time they spend in the campus, so a healthy campus atmosphere is more conducive to the physical and mental development of students^[3]. Therefore, a healthy campus atmosphere is more conducive to students' physical and mental development. China's government advocates the concept of personalized teaching for all kinds of secondary school strategic planning objectives to lay the foundation for the development of the new county two need to follow the principle of personalized design in the campus constructive detailed planning program, and strive to their own cultural heritage and teaching characteristics through the campus, and the development of the campus is a very important part of the school's development and development of the school's cultural and teaching characteristics. Campus building integration of teaching, sports, accommodation, greening, roads and other factors, in the overall program plan and design need to start from a holistic perspective, through the coordination of multiple to achieve the organic combination of ecological environment and humanistic education^[4]. Campus architecture not only creates a good learning environment for students, but also provides a convenient platform for students' life and communication. Relevant departments need to make reasonable configurations of architectural traits, types, materials and colors when carrying out the plan and design of the campus, so as to achieve the design principle of encouraging interaction. In the planning and design process of characteristic campus construction,

architects should first start from the ecological level, respect the natural landscape as much as possible, and ensure that the greening rate, oxygen content and decarbonization rate meet the corresponding standards; secondly, we start from the architectural level, as far as possible in the north and south direction, and choose appropriate insulation technology in order to provide sufficient sunlight and ventilation for teachers and students; from the cultural level, the design unit should respect the regional cultural characteristics of the city where the campus is located, and strive to create a complementary image of the campus buildings in order to highlight the unique campus style.

3. Xinjian County No. 2 Middle School Wangcheng new campus constructive building planning case study

3.1 Case overview

Xinjian County is located in the central north of Jiangxi Province, is the capital of Jiangxi Province, Nanchang City, municipal jurisdiction of the county, Xinjian No. 2 Middle School old campus is located in Nanchang City, the seat of the government, the northern end of the Red Valley Beach, Xinjian County City Center. According to the Master Plan of Wangcheng New District of Xinjian County (2011-2030), the People's Government of Xinjian County has decided to build the new campus of Xinjian County No. 2 Middle School in the northern part of Wangcheng New District, in order to improve the basic education facilities of the new district and expand the capacity of students in the urban area. The project base of the new campus is located in the northern part of Wangcheng New District, with Lianfu Avenue in the north, Lehua Road and the planned park in the east, and Xixia Road and the existing high-speed railway line in the south, with a total land area of 24.12hm²(Fig.1). The current status of the base is dominated by village land, accounting for 9.9% of the total land, there is an industrial land in the northwest corner, accounting for 0.5% of the total land, and the rest are agricultural and forestry land and water source^[5].



Figure 1: Geographic location of the base in Xinjian County

Figure 2 shows the constructive architectural layout of the characteristic campus, which takes the

central green space as the core and extends outward to form the overall planning structure of "one core and five blocks". It is intended to be built into two complete departments including junior high school and senior high school, which are two independent and interconnected teaching areas. The student cafeteria connects the teaching area with the living area, and the sports area provides a platform for teachers and students to do daily sports and running exercises. The structure of each area meets the functional needs of the campus and the characteristics of the topography and landscape, and the scientific architectural layout contributes to the unity and integrity of the campus architectural space.

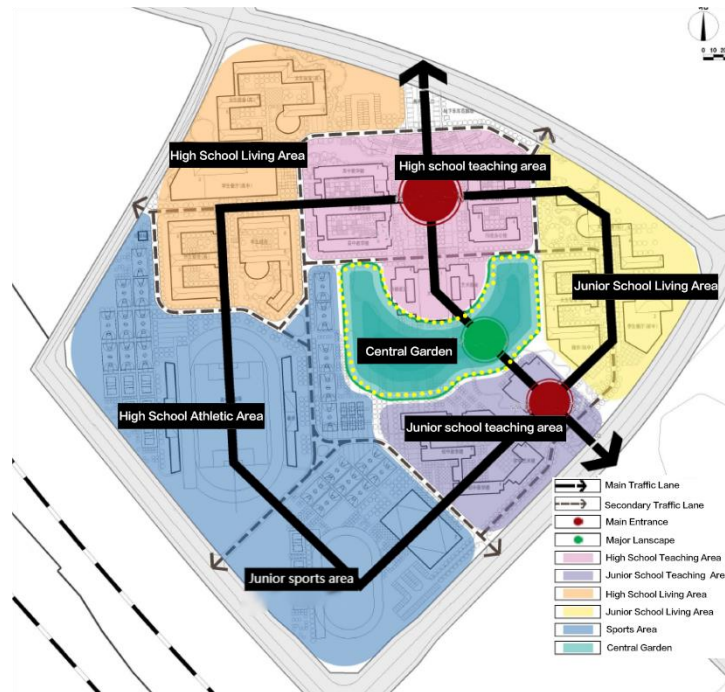


Figure 2: Functional Layout Diagram of the New Campus

3.2 Characteristic element analysis

3.2.1 Mutual integration of terrain features and design concepts

The central part of the site has a large slope, and the designer designed the central green landscape of the core campus at about 2.4hm², in order to highlight the overall logo image of the comprehensive building and weaken the adverse impact of the special terrain on the overall planning of the campus; the terrain in the southern part of the base is relatively high in elevation, and it is necessary to use suitable leveling means to avoid the adverse impact of the special topography on the overall planning of the campus. In the southern part of the base, the terrain elevation is relatively high, which needs to be repaired with the help of suitable leveling means, such as through the design of a number of terraces of different heights to connect the ramps and steps together, on which a number of sports fields can be arranged, to minimize the earth proportion of the construction project. The functional area planning of this project is shown in Fig. 3, which is a constructive detailed planning that perfectly integrates the artificial buildings into the natural terrain, fully reflecting the integration of terrain characteristics and design concepts.

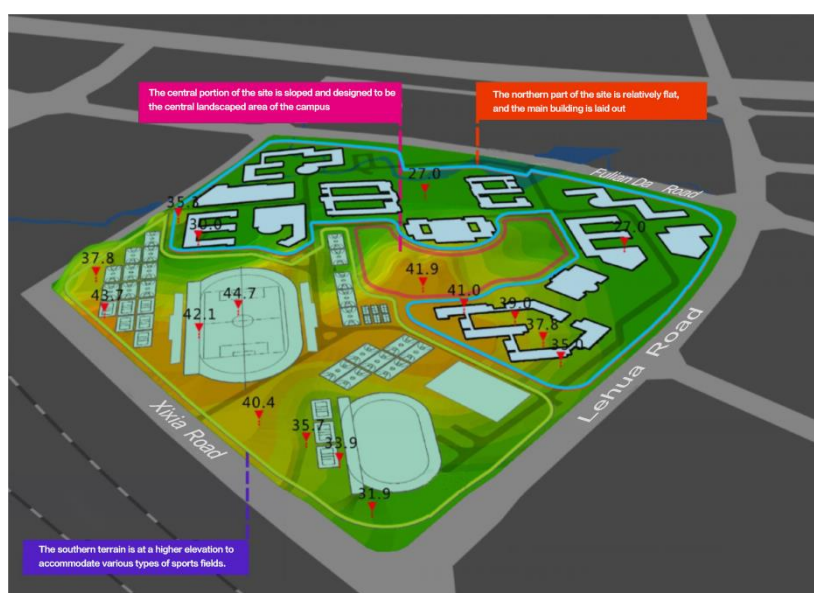


Figure 3: Functional area planning based on the terrain characteristics of the new campus.

3.2.2 Reasonable combination of independent elements and shared resources

Reasonable combination of independent elements and shared resources can be said to be another feature of the constructive architectural design and planning of Xinjian County No. 2 Middle School's new campus. The whole campus is roughly divided into two components: middle school and high school, and in combination with the basic needs of teaching practice, the designers connect the high school teaching area with the high school dormitory area to form the high school, and connect the middle school teaching area with the middle school dormitory area to form the high school. The designers connect the high school teaching area and high school dormitory area to form the high school, and the middle school teaching area and middle school dormitory area to form the middle school. The designer has designed a landscaped area between the middle and high school in order to connect them closely, and this kind of architectural design helps the daily management and maintenance of the new No.2 Middle School. Sports area and wind and rain playground integrated area building design in the southwest side of the campus, the main and secondary playground design takes into full account the natural climate and spatial characteristics of the new No. 2 Middle School two elements, and effectively improve the efficiency of land use at the same time, also highlights the organic combination of independent and sharing this planning feature.

3.2.3 Harmonious coexistence of campus style and cultural flavor

Scientific and rational campus style helps to carry forward the culture of righteousness, Xinjian County No. 2 Middle School has a deep cultural background, a long history, so in the constructive detailed planning of the new campus not only need to pay attention to the architectural style, space characteristics of the rational layout, but also need to represent the campus style of the cultural atmosphere show the most. The planning of the new campus aims to show the long history and culture of the Second Middle School, add color to the construction of the new campus campus, design units through the cultural corridor, theme wall, courtyard, theme sculpture theme and other cultural landscape structure planning and construction, to achieve a harmonious coexistence of campus style and cultural atmosphere (Figure 4). The campus design of this project creates a healthy and upward learning environment with a tiered courtyard setting and visual axis art. The school buildings are arranged in a north-south direction as far as possible, creating various spatial

levels through the multi-level design of different elevations, creating an atmospheric and neutral campus environment, so as to promote the cultivation of students' rigorous, realistic and healthy learning attitudes.

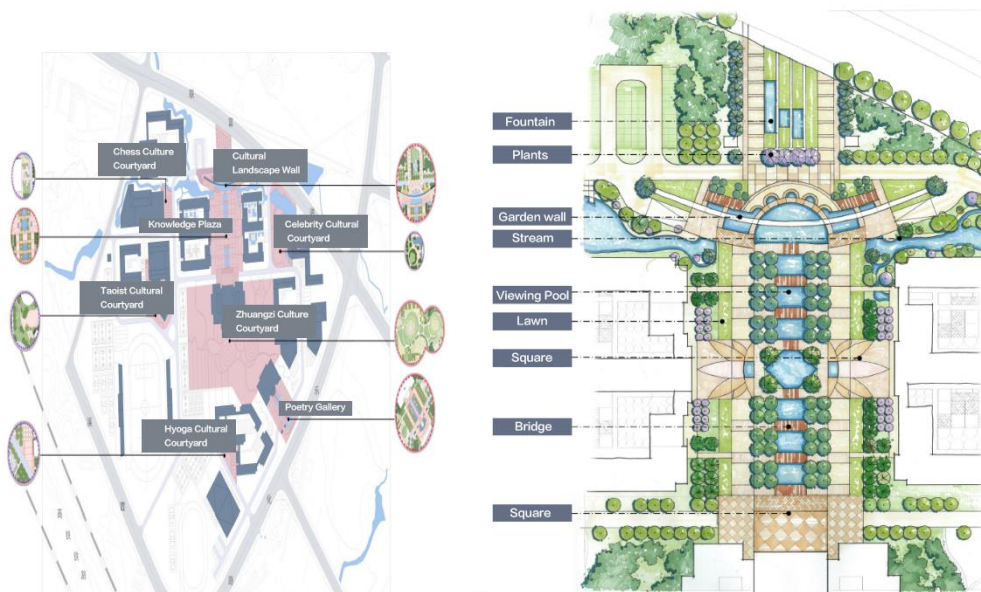


Figure 4: Schematic diagram of the planning of cultural landscape structures

3.3 Cultural landscape planning of the campus

3.3.1 Green landscape design

The central green landscape between the high school and junior high school can be regarded as one of the iconic landscapes of the new campus, and the core green space and the layout of building groups organically combined to form a shared sloping ecological environment. Each group is equipped with unique landscape courtyards, forming the center of the group, creating a beautiful and warm atmosphere for teachers and students to study and communicate. The sports area combines the landscape greening design and terrace treatment between the sites to form a characteristic "sports + landscape" external environment. Through the analysis of the local climate of the campus, it is recommended to use balsam camphor tree, ginkgo tree and yellow osmanthus tree as campus tone trees; balsam camphor tree, ginkgo tree, and red-leaved cherry tree as campus street trees; phoenix tree, beautiful cone flower, yellow osmanthus tree, red-leaved cherry tree, chicken-claw maple, and ginkgo tree as the sign planting trees of the main entrance; and yellow osmanthus tree, red-leaved cherry tree, five-horned maple, ginkgo tree, and balsam camphor tree as the node trees. Trees. In order to ensure the healthy growth of trees and achieve the best ornamental effect, it is recommended that the planting ratio of evergreen and deciduous trees in the campus should be controlled within the range of 4~5:5~6.

3.3.2 Cultural Landscape Planning

The main landscape of the new campus consists of four cultural nodes: Zhixing Square, Cultural Landscape Wall, Poetry Corridor, and "Laozhuang" Theme Garden, while the secondary landscape nodes are dominated by Theme Courtyard. The cultural landscape wall is located at the main entrance, creating the unique campus culture of No.2 Middle School through the landscape wall, scene sculpture, landscape texture, green vegetation and water features; Knowledge and Action Square is located in the middle of the high school teaching building, through the landscape columns,

character sculpture, landscape sculpture, green vegetation, paving tiles and other nodes show the "unity of knowledge and action" under the pen of Tao Xingzhi. The cultural elegance of "unity of knowledge and action"; "Laozhuang" theme garden is located in the center of the green space, with the help of the earth's landscape and landscape sculpture to create a Taoist cultural atmosphere based on the Taoist law of nature; Poetry Corridor located at the entrance of the southeast part of the campus, with the openness of the campus and the openness of the campus, with the help of the landscape sculpture. At the entrance of the southeast area of the campus, the famous poems of Wang Anshi, Du Fu and other celebrities are displayed in front of teachers and students in the form of an open gallery, and the actual architectural effect of the main cultural landscape nodes is shown in Fig 5.

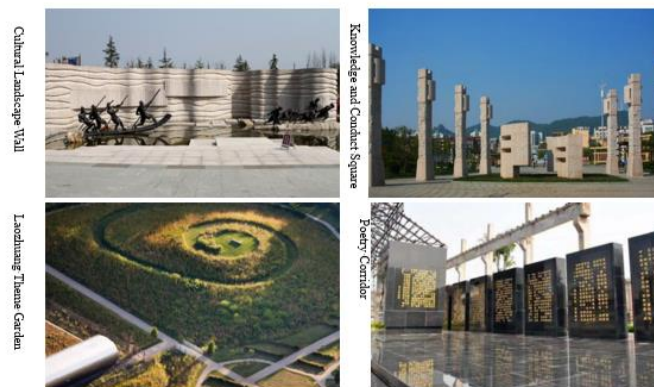


Figure 5: Actual effect of main cultural landscape nodes

4. Conclusion

Xinjian County No. 2 Middle School has a deep historical heritage, rich campus culture, as the county's only provincial key middle school, Xinjian County No. 2 Middle School has always adhered to the quality, enterprising, emancipatory philosophy of governance. The constructive detailed planning of the new campus should also follow the philosophy and purpose of the new No.2 Middle School, and is committed to carry forward the "cultural school" running characteristics of the new No.2 Middle School. The constructive detailed planning of this campus is based on the original topographic and geomorphological features, realizing the characteristic design of mutual integration of topographic features and design concepts, reasonable combination of independent elements and shared resources, and harmonious coexistence of campus style and cultural atmosphere, and at the same time, it also pushes forward in the design and planning of the green landscape and cultural landscape to show the unique style and cultural heritage of the new campus of Xinjian County No. 2 Middle School to the fullest extent. The new campus of Xinjian County No. 2 Middle School shows the unique style and cultural heritage of the school in the best way.

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