Green Design Strategy of Village and Town Residential Buildings under the Background of New Urbanization

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Abstract. Under the strategy of rural revitalization, how to promote the green development of village and township housing by taking the new road of urbanization development. On the basis of reviewing the status quo, Xue family of Lishuishan Village in Nanjing is taken as an example, the paper analyzes the green renewal design strategy of village and town housing from the three aspects of planning layout, single building design, energy saving and environmental protection. And this paper puts forward countermeasures and suggestions for the green planning and construction of villages and towns under the background of new urbanization.

1. Introduction

At present, China's urbanization rate exceeds 50%. To further promote urbanization, 18 major CPCs have proposed new urbanization strategic decisions based on the goal of determining urbanization rate to reach 60% by 2020. The villages and towns that are currently in full swing are an important part of the realization of new urbanization. 18 put forward the concept of "beautiful China", and successively put forward the concept and principle of ecological civilization to enter the whole process of urbanization, and take a new urbanization road of intensification, intelligence, green and low carbon. The party's 19 major reports put forward the overall requirements for rural revitalization in the areas of “industrial prosperity, ecological livability, rural civilization, effective governance, and affluent life”, depicting a beautiful picture of rural economic and economic development. Future social development. The greening of villages and towns is an important part of the sustainable development of villages and towns. The construction of villages and towns should consider economy, regulations, culture, ecology, focus on sustainable development, and achieve sustainable development "green construction and development." [1-2]

2. Formatting the title, author, the development status of township green housing

The house is the main building of the village. The rural housing is restricted by factors such as economic level and cultural cultivation. It has high energy consumption, low energy efficiency, serious pollution and other unresolved issues in design, construction and use, and less attention to sustainable development. Green Village and Town are villages and towns featuring "four sections, one environmental protection" and "sustainable development", with efficient use of resources, harmony between man and nature, and the relationship between technology and nature. With the goal of
achieving comprehensive integration, we strive to create healthy, comfortable and safe village and town life for residents. In the blind construction of villages and towns, problems such as unreasonable planning, inadequate infrastructure, serious environmental pollution, high energy consumption, and backward construction technology have emerged. Seriously affecting the development of villages and towns and the lives of residents does not meet the requirements of rural revitalization[3-5]. Therefore, under the guidance of new urbanization, how to plan, design and evaluate villages and towns is an urgent problem to be solved.

3. The green design strategy of rural residential buildings--Taking Wuxiangshan Village, Lishui City, Nanjing as an example

The construction of green villages and towns is more suitable for adopting a flexible design method of “cultivating harmony, saving circulation and opening up resources”, establishing flexible links with the environment and users, and minimizing negative impacts. The surrounding environment and people, and open a small loss of green living mode. The author takes the Nanjing Xue family as a research case and analyzes the green renewal design strategy of the village house.

3.1. Overview of village Projects

Xuejia is located in Honglan Town, Nanjing City. It has a subtropical monsoon climate with an average annual temperature of 15.4 degrees C and the highest annual extreme temperature is 39.7 degrees C, the lowest - 13.1 degrees C. The village is located near the Honglan Pudu Line and 246 Provincial Highway. The location advantage is obvious. The total number of households in the village is 65, with a population of 193. Xuejia covers an area of 80 mu, the total area of construction land is 20028.8 square meters, the slope of land is gentle, the geographical position is superior, and the location advantage is obvious. The surrounding villages are basically complete in shape. The villages mainly grow rice, wheat and economic trees and fruits.

3.2. Renewal Design Strategy of Green Construction in Villages and Towns

3.2.1. Renewal Strategy of Overall Planning Layout: Dredge vein-Acupuncture-Activation

Xuejiazhuang has a unique regional location, surrounded by villages, farmland, mountains, forests and reservoirs and environment. In the renewal design of the overall layout, a variety of green areas are set up, such as ecological farming areas, forest farms, theme villages. According to the theory of traditional Chinese medicine (TCM) acupuncture and moxibustion, the venation of villages is dredged, the key parts with sticking points are activated by Acupuncture and moxibustion, new blood is injected, so that the whole green design and concept can be connected in villages, the self-repair and operation ability of villages and towns can be restored, and the traditional historical and cultural venation can be continued. The newly planned village square and open space intersect the original layout of the village to preserve the traditional scale and structure of the village, to reproduce and regenerate the village, to improve the living environment, to reflect the rich culture of the village and the harmonious natural environment around it.(figure1)
3.2.2. Green Renewal Strategy of Single Residential Buildings-Green Variable Addition-subtraction Combination Method
Before the xuejiazhuang, these houses were already ruined and even partially collapsed. Local residents arbitrarily imitate urban architecture, lacking local cultural traditions, and housing presents a one-sided village phenomenon. In our village master plan, in addition to unique farmhouses and residential areas, there are different functional building units, such as plant research and development centers, leisure clubs, coffee shops and so on. A flexible and varied form of living was designed to meet the needs of different families and households by adding and subtracting combinations in a given space. Focus on creating communication space, using the green area inside each main body as a neighborhood communication space, and introducing green plants into the interior. There are also several centralized communication spaces in the village, including libraries and cafes[5]. Through vertical greening and roof greening in three-dimensional space, residential buildings can effectively regulate the environment, dust removal, noise reduction, energy saving, and cooling, providing a comfortable environment for the villagers (figure2, figure3).

![Fig.2 Residential Block Derivation Process](image1)

![Fig.3 Renewal of Residential Functional Characteristics](image2)

3.2.3. Green energy-saving design and environmental protection strategy

3.2.3.1. Water-saving and material-saving design
We should pay attention to energy saving and environmental protection, make use of recyclable materials, save energy economically and protect the environment, and increase the proportion of recyclable materials[6-7]. Vertical greening of buildings can improve the microenvironment, purify the air, reduce noise, and provide a pleasant environment for the event. The modular vertical green design is recyclable, lightweight and durable, achieving both green and energy-saving effects.

3.2.3.2. Environmentally friendly design: Domestic sewage treatment
The treatment of urban solid waste in villages and towns follows the 3R principle, namely the principles of reduction, reuse and recycling, to reduce, recycle and harmless disposal. First of all, by reducing production, then reuse as much as possible, finally through classification and recycling, finally to achieve harmless, reduced and resource. In Xujiazhuang's renewal design, solid waste is recycled in a distributed manner and some collection points are set up in the village. The residential garbage collection transfer station is located in the residential garbage collection transfer station with a service radius of 50 meters and a service radius of 200 meters. It is located in the downwind of the dominant wind direction, and is easy to transport and coordinate with the surrounding environment.

4. Countermeasures and Suggestions for Urban Housing Green Planning and Construction under the Background of New Urbanization

4.1 Planning the development of village morphology scientifically according to geographical and geological characteristics and local conditions
In the planning of villages and towns, it is necessary to reasonably control various indicators, reasonably select the land for construction of farmhouses, consider the distance of sunshine before and after, ensure that winter sunshine is not blocked, and the lateral distance meets the requirements of fire prevention and earthquake prevention. Residential planning and design continues the original form and development of the village[8].

4.2 Respect tradition, using local materials and construction technology to build energy-saving, environmentally friendly, green ecological rural housing
Townships and towns strive to use the original building materials and construction techniques to inherit traditional historical culture and design elements. Efficiently using energy, fully reducing energy losses, using renewable energy, and reducing building energy waste[9].

4.3 Overall plans for rural infrastructure, road grade hardening, water supply and drainage network facilities, and domestic garbage disposal facilities in place.
Improve the internal facilities of villages and towns, road planning and grading, water pipe network and garbage disposal facilities, to provide convenient living and environment for residents.

4.4 Pay pays attention to the spiritual and cultural needs of the villagers and improves the construction of rural public cultural facilities.
The spiritual culture of the villagers highlights regional characteristics and local traditional culture. In the planning of villages and towns, it is necessary to improve public service facilities, provide places for villagers to exchange, gather, and carry out cultural life, and enrich people's social activities.

5. the conclusion
Townships and towns should reflect the sustainable design concept, realize the construction and use of green houses in an appropriate way, reduce the energy consumption of houses, and build a green ecological environment[10]. It is an important aspect of the sustainable development of housing in rural areas. Xuejia Village of Wuxiangshan Village in Nanjing is taken as an example, the layout, green design and green energy conservation of the villagers' residence were discussed, and the relevant countermeasures and recommended housing for the village green design were put forward. However, the green planning and design of villages, towns and residential buildings still needs further study.

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