

Research on the Design of Living Spaces in New Rural Areas Under the Background of Rural Revitalization

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Abstract: With the rapid economic and social development in China, the urbanization process is accelerating, significantly impacting the country's economic and social progress. In this context, the Party and the government have increasingly focused on urbanization. We adhere to the principle of prioritizing the people and actively promote the integrated development of urban and rural areas. The report of the 19th National Congress explicitly proposed the implementation of the "Rural Revitalization Strategy," which is a key task in the construction of socialism with Chinese characteristics in the new era.

Keywords: Rural revitalization; New rural areas; Living space

1 Introduction

This research focuses on "Rural Revitalization" and "New Rural Living Spaces," exploring new dimensions and strategies in rural living space design from existing theories and examples. Additionally, it aims to optimize the planning of new rural construction by constructing a quantitative evaluation system for the evolution of rural living spaces, analyzing and classifying changes in rural living environments, and providing scientific methods and theoretical support for improving rural residential environments under the rural revitalization strategy.

2 Optimization of Functional Layout in New Rural Living Spaces

Based on the actual needs of rural residents and the current housing conditions, the study proposes the renovation and construction of houses to provide safe and comfortable housing conditions. Emphasis is placed on energy-saving, environmental protection, and aesthetics to promote the spread of green buildings in rural areas. Public service facilities such as squares, parks, and activity centers are suggested to enrich the cultural life of rural residents while focusing on the functionality and aesthetics of the space to create public spaces with rural characteristics. The study also proposes improving rural infrastructure such as roads, water supply, electricity, and drainage to enhance the convenience of rural residents' lives and strengthen environmental protection facilities to improve rural sanitation and overall image^[1].

2.1 Optimization of Materials and New Technologies in New Rural Living Spaces

Utilize locally abundant natural resources such as wood, bamboo, stone, and earth, which are both environmentally friendly and economical. Consider using new building materials that are renewable, recyclable, and energy-efficient, such as green concrete and ecological bricks. The design should follow the principle of "harmonious coexistence between humans and nature," respecting, conforming to, and protecting nature. The design should retain the original topography, vegetation, and water bodies as much as possible, avoiding excessive development and destruction. Reasonable planning of residential, production, and ecological areas based on topography, climate, and population distribution is essential. Concurrently, consider the continuous improvement of transportation, water supply, electricity, and drainage infrastructure to provide convenience for the broader rural population. The architectural style should coordinate with the local geographical environment and cultural traditions, reflecting regional characteristics. Traditional architectural styles can be combined with modern new Chinese design elements to create buildings that are both contemporary and rich in local characteristics. In the design process, energy-saving and environmental protection issues should be fully considered, using energy-saving technologies, green building materials, and renewable energy to reduce energy consumption and pollution. Measures such as greening, rainwater collection, and waste classification can improve the ecological nature of the living environment.

2.2 Improvement of the Evolution of New Rural Living Spaces in Rural Revitalization Construction

2.2.1 Construction of Rural Living Space Evolution Models

Rural living space refers to the places in rural areas where residents engage in various life and production activities. There is a dynamic relationship of mutual influence between this space and human activities: human activities shape the space, and the space, in turn, influences the activities. In the long run, this interaction promotes the continuous development and evolution of rural living spaces. In new rural construction, the design of living spaces should adhere to principles of integrity, economy, practicality, aesthetics, and ecological balance. Home design should aim for refinement, ensuring that villagers live comfortably while respecting and preserving their original lifestyles to create a familiar yet healthy living environment. Externally, the design should advocate using new Chinese courtyard landscape concepts, and for living facilities, natural gas and other clean energy sources can be utilized to achieve environmentally friendly living and reduce pollution emissions.

2.2.2 Subdivision of Stages in the Evolution of Rural Living Spaces

The evolution of rural settlements can be roughly divided into three stages:

1. Primitive Society: Villages were relatively closed societies, with farmers' living spaces centered on families and relatives. The residential density and number of urban residents showed an upward trend, with an evident tendency toward urban centralization.
2. Hollowing Period: Rural population growth, expanding family sizes, and increasingly tight living spaces. Houses aged, and living conditions deteriorated. Concurrently, the tide of urbanization swept through rural areas, changing rural residents' mindsets and income levels.

Some affluent villagers built houses on the village outskirts, followed by new residents, leading to the gradual aging and abandonment of village core areas, showing apparent "hollowing" trends^[2].

3. Pre-Road Attachment Period: As more farmers built new houses around the village, lack of planning led to chaotic living spaces and poorer living environments. Meanwhile, as urbanization deepened, some farmers turned to non-agricultural industries, increasingly demanding personalized and diversified living spaces. The construction of rural roads catered to these farmers' living preferences, with many building new homes along the roadsides for commercial and agricultural activities.

2.2.3 Analysis of Rural Living Space Expansion Dimensions

Based on this, the study theoretically explains rural settlement space evolution from macro-system, economic development, production space, and inertial space perspectives. From a systems perspective, the study examines the impact of the household registration and land systems on population distribution, agricultural production, and living space changes in Daxinzhuang, Tianjin, revealing the effects of institutional changes on rural living spaces. From a development economics perspective, it studies the mechanism by which farmers, as endogenous forces, influence the evolution of rural settlements based on economic rationality. The production space perspective summarizes and analyzes the main forms and development trends of rural economic activities driven by capital. The inertial space perspective uses the concept of "spatial inertia" to explain settlements' responses to changes in human activities. It explores the "successive stages" phenomenon in rural living space evolution and examines the causes of "leapfrog evolution" in rural settlement spaces based on "spatial inertia" and "social inertia."

3 Design Principles of New Rural Living Spaces Under the Background of Rural Revitalization

The design of new rural living environments should focus on improving villagers' well-being and adapting to village development. The spatial layout can be considered from three aspects: First, enhance basic infrastructure construction to stimulate community life vitality, guide government grassroots work standardization and normalization, and create efficient and high-quality rural living environments. Second, emphasize the government's service functions, focusing on improving people's living standards, building platforms to showcase government cultural construction, holding public activities, and integrating rural resources. Third, consolidate the grassroots government's leadership foundation to strengthen its role in the national strategy, showcasing the Party's leadership and serving the people through functional physical spaces^[3].

3.1 Principle of Economy

In new rural construction, the limited nature of resources such as land, water, and energy should be fully considered. Through reasonable planning and design, maximize resource utilization efficiency and reduce waste. For example, in residential construction, energy-efficient building materials and rational building layouts can reduce energy

consumption. In village planning, factors such as topography and climate conditions should be fully considered, rationally arranging building layouts and road directions to conserve land resources.

3.2 Principle of Ecology

In new rural construction, focus on protecting and restoring the ecological environment, creating a good ecological environment to provide residents with healthy and comfortable living conditions^[4]. For example, in village greening, attention should be paid to the diversity and ecological balance of vegetation, choosing suitable tree species and plant configurations to increase the village's green coverage. In sewage treatment, use environmentally friendly treatment technologies to ensure sewage discharge meets standards and reduce environmental pollution.

4 Design Strategies for New Rural Living Spaces Under the Background of Rural Revitalization

The design of new rural living environments centers on ecological protection and sustainability, actively utilizing renewable resources to reduce energy consumption and environmental pollution. The design should be forward-looking, preventing overdevelopment and short-sighted practices. To highlight regional characteristics and historical heritage, the design integrates traditional and modern elements, creating unique new rural living environments that enhance villagers' sense of identity and attract tourists, promoting rural tourism. The design aims to meet villagers' living needs, including housing, leisure, entertainment, and education, ensuring the livability and practicality of the space and providing complete public service facilities. To enhance community interaction and vitality, suitable social spaces such as public activity areas and open courtyards should be created to strengthen community cohesion. Additionally, modern technology, such as smart home systems and intelligent security devices, can be used to increase the technological content and convenience of life. Strengthening information and network facilities construction ensures villagers can easily access information and communicate.

4.1 Detailed Planning and Design of New Rural Living Spaces

The design of living rooms in new rural residential spaces should be based on local actual conditions. For most people, the living room's function is watching TV and receiving guests. If primarily for receiving guests, some area can be reduced to create an additional foyer for simple receptions. The overall layout adopts a new Chinese style, retaining traditional Chinese cultural features (Example: Figure 1& Figure 2) .



Fig. 1. Living Room Layout. Image source: drawn by the author.



Fig. 2. Living Room Layout. Image source: drawn by the author.

The main function of the bedroom is rest, with different requirements for different residents. Bedrooms should be located in well-lit directions to avoid dampness and cold, with blackout curtains to control light, allowing for daytime rest without light interference. Bedrooms equipped with dressing tables and wardrobes address basic living needs. Compared to traditional rural firebeds in Daxinzhuang Village, the design avoids carbon dioxide emissions in enclosed spaces and includes storage furniture to save living space.

4.2 Planning and Design of Supporting Facilities in New Rural Living Spaces

4.2.1 Space Design Aspects

Comprehensive Community Activity Center: Provide fitness, entertainment, and other facilities to increase cultural and sports activities for rural residents.

Public Squares: For residents to gather, relax, and enhance community cohesion.

-Children's Playgrounds and Elderly Activity Centers: Meet the needs of different groups, especially children and the elderly (Example: Figure 3& Figure 4) .

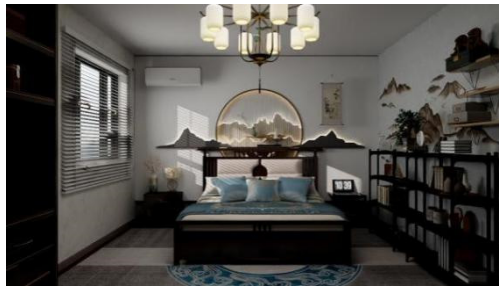


Fig. 3. Indoor space planning design drawing, image source drawn by the author



Fig. 4. Indoor space planning design drawing, image source drawn by the author

4.2.2 Environmental Design Aspects

Green Belt Planning: Plan and construct green belts to separate farmland and residential areas, creating a livable environment.

Garbage Classification and Treatment: Strengthen efforts in garbage classification and treatment to cultivate good environmental hygiene habits.

Environmental Management: Enhance rural environmental management to reduce pollution and noise, improving rural residents' quality of life.

4.3 Courtyard Space Design in New Rural Living Spaces

Courtyard space, as an essential part of rural life, should first meet functional and practical needs. Considering rural production and living methods, courtyard space should include functional areas such as drying areas, storage areas, and poultry farming areas. The layout of these areas should be reasonable and convenient for daily use. On the basis of functional needs, courtyard space design should emphasize aesthetics and greening. Planting flowers, trees, and other plants can beautify the environment and improve air quality. Landscape elements like ponds and rockeries can create pleasant courtyard scenery^[5]. Safety is a crucial factor in courtyard space design. Ensure fences, doors, and windows are complete to prevent accidents. Comfort is also important, with features like leisure seating and shading facilities providing a comfortable, pleasant rest space. Sustainability and environmental protection should be considered in courtyard space design, utilizing renewable energy like solar and wind power to reduce dependence on conventional energy sources. Environmental materials and technologies can minimize environmental impact. Integrating local culture and characteristic elements in courtyard space design showcases regional characteristics and cultural charm.

5 Conclusion

China's rural revitalization strategy is at a critical stage, where the design of new rural living environments plays a vital role in improving farmers' quality of life and happiness. The design process emphasizes humanization, sustainability, and eco-friendliness, meeting farmers' practical living needs, ensuring livable and practical space planning, and minimizing environmental impact by using environmentally friendly materials and energy-saving technologies to achieve harmonious coexistence with nature. At the same time, inheriting local culture is crucial, maintaining the unique rural style and cultural features through traditional architectural elements, respecting local customs, and protecting rural landscapes to create new rural areas that are modern yet retain their original rural charm. In the context of rural revitalization, we need to innovate in living space design concepts, find locally adaptable strategies based on specific conditions, study successful domestic and international practices, and integrate new technologies and materials to promote design innovation. Achieving this goal requires comprehensive support from the government and society. The government should formulate appropriate policies and provide necessary funding and technical assistance, while all sectors of society should actively participate to jointly support the process of rural revitalization and new rural construction.

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