

# **Construction of Indoor Functional Space and Regional Expression of Residential Areas in the Southern Mountainous Area of Laiwu**

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**Abstract:** Under the background of rural revitalization strategy and beautiful rural construction, based on the living patterns of modern villagers in the southern mountainous areas of Laiwu and the problems and problems of residential indoor space environment, the two main aspects are the planning of residential indoor functional space and regional cultural performance. Adhere to humanized design and use modern design techniques to create an indoor environment design for rural residences with regional characteristics and the spirit of the times, and humane care, in order to provide a new direction for rural revitalization strategy and beautiful rural construction, and improve the quality of rural life..

## **1. Introduction**

In recent years, with the improvement of rural residents' living standards, changes in rural residents' production methods, family models, communication modes, and other factors, the rural living mode has been modernized. The living needs of modern villagers, and the indoor functional spaces of rural houses urgently need to be transformed and innovated to suit the living mode of modern rural residents. At the same time, the design of the rural living environment in the new era cannot simply copy and copy the urban living environment. Instead, we should build a living environment with rural cultural characteristics and incorporate local excellent traditional cultural characteristics into the living space environment design.

## **2. Research on the Status of Residential Indoor Space Environment in the Southern Mountainous Area of Laiwu**

### **2.1 The Indoor Functional Space Division of Rural Houses is Solidified and Lacks the Times**

The southern mountainous area of Laiwu mentioned in this article refers to the section from Xianggou Village to Gangcheng in Niuquan Town. The mountainous residential houses follow the mountain and sit north to south. Most of them use the "patio" as the center. The courtyards are basically Vertical rectangle; housing is horizontal rectangle. At present, the functional layout of the villagers' houses is extremely unreasonable. Most of the kitchens and toilets are on both sides of the courtyard wall of the patio. The poultry pens, utility rooms, kitchens, toilets are separated from the house and bedrooms. The courtyard can only be reached, which greatly takes up the residents' time. When it is rainy or snowy, it is very inconvenient to move. Especially for the elderly and children, it adds a lot of safety risks. Some residential toilets are mixed with poultry pens. The toilet smells bad and the space is dirty, which affects people's psychological feeling. Most residential water pipes are installed in open-air courtyards and connected with water buckets. In winter, the water pipes are frozen, which adds a lot of unnecessary trouble to daily life.

### **2.2 The Interior Space Layout of Rural Dwellings is Random and Lacks Reasonable and Scientific Planning**

At present, most of the rural residents randomly arrange and use space according to their own subjective wishes, and often only pay attention to a certain part of the use function, ignoring the

rational and effective use of the overall space and people's mental and psychological needs. For example, in the bedrooms of teenagers, cereals, daily sundries, etc. are placed, ignoring the child's psychological feelings. In terms of lighting, simply installing a light bulb or electric light stick in the ceiling can easily cause glare. Children's learning environment is simple. Some elderly beds are tall and the lighting switch is inconvenient.

### **2.3 Rural Houses Lack Decorative Design for Interior Interfaces. Most of the Houses in the Southern Mountainous Area of Laiwu Are Farmers' Self-Built Houses**

The adobe, sand, lime, red brick, local stone, etc. are mostly used for the exterior wall and interior wall materials, and the cement, red brick, and tile are mostly used for the ground. The ceiling is made of PPC mesh or exposed beam structure. Residents usually use wood for beams, and use wood and cement for concrete. The roof is usually covered with reed foil and red tiles. The interior decoration of rural houses is monotonous, and the top surface of some houses directly leaks the original building structural materials, neglecting the decoration design of the interfaces such as interior walls, floors, and ceilings.

### **2.4 The Rural Residential Interior Space Environment Lacks Regional Characteristics**

The mountains and valleys in the south of Laiwu are vertical and horizontal, with beautiful scenery and beautiful ecological environment.

There are scenic spots such as Lianhua Mountain Scenic Area, Huanglongguan Scenic Area, Chaoyang Cave, Fenghuang Village, Yuntai Mountain, Liu Zhongying's Former Residence, Wang Xizhi's Beacon Hill, Yedian Reservoir, Xianren Mountain, Shangjiazhuang Reservoir, etc. It was revolutionary and anti-Japanese during the War of Resistance against Japan and the War of Liberation Base. Rural houses are surrounded by mountains and rivers and have a unique folk culture. However, some modern villagers live in old-fashioned environments, while others learn to walk in Handan. They blindly imitate the design of urban indoor space environment. The indoor living space environment lacks regional cultural atmosphere.

## **3. Reasonable Construction of Indoor Functional Spaces in the Residential Areas of Southern Laiwu**

### **3.1 Put in a New Functional Space**

With the rapid development of modern society, the lifestyle of rural residents has gradually changed. Some villagers in the southern mountainous areas have installed photovoltaic power generation, solar power generation, household appliances and communication equipment have gradually become popular. Rural drinking water, electricity, roads, telephones have been realized in rural life. Village-to-town connections such as cable television networks, buses, and the Internet have greatly strengthened the connection between rural and urban areas and facilitated people's food, clothing, and shelter. With the facilitation of rural life, more and more young people no longer work in agriculture and choose to work in cities. The rural labor force is mainly elderly. In order to save labor and increase income, many elderly people mostly plant cash crops that produce quick results and high income: pepper. Villagers' lives are becoming more and more free and leisurely. The village looks more and more clean and beautiful. However, the villagers' residential space has always maintained the traditional residential structure and model, and the old functional space separation has not adapted to the modern villagers' lifestyle. Therefore, in view of the current situation of modern residential areas in the southern mountainous areas of Laiwu, residential indoor housing should be based on the living habits, behavior patterns, indoor space usage, number of occupants and future uses of modern villagers. Into the new functional space to improve the different functional settings suitable for modern life, make rural residents' life more convenient and comfortable. The specific construction ideas are as follows:

#### **3.1.1 Optimize the flow of people**

Taking into account the daily behaviors of residents from waking up in the morning, washing,

cooking, eating, studying, using the toilet, working, meeting, and resting at night, the bedroom, bathroom, kitchen, dining room, study, toilet, utility room, living room, bedroom. The other functional areas are arranged scientifically and reasonably in the most direct and simplified way.

### **3.1.2 Put in a new functional space**

In view of the widespread presence of miscellaneous items such as cereals, fruits and vegetables in children's bedrooms, children's long-term residence will greatly affect their physical and mental health, and they are specially placed in functional areas such as study rooms, storage rooms, and utility rooms to rest the children. The space is separated from the learning and storage function space to achieve dynamic and static partitions and public and private partitions.

It is common for farmers to place poultry in the toilet space, which greatly reduces the cleanliness of the residents' toilet space and has potential adverse effects on the physical and mental health of the residents. The poultry houses and toilets are arranged separately to achieve cleanliness and partitioning. At the same time, a bathroom was added to the master bedroom to facilitate residents' daily lives. Add a balcony in the second bedroom to allow residents to dry their clothes and add a guest room for residents.

### **3.1.3 Adhere to the principle of humanized layout**

When planning and arranging functional spaces, people should fully consider the needs of lighting, lighting, wind protection, rain protection, sound insulation, and warmth, and arrange humanized requirements for the different functional requirements of each space.

## **3.2 Detailed Treatment of Interior Space[1]**

The design of residential space not only needs to consider the actual needs of people's lives, but also to study and solve people's various needs from a wider perspective. The beauty of living space is rooted in human needs. ] According to the production and living needs, folk customs and ergonomics of the residents in the southern mountainous area of Laiwu, the personality and psychological needs of the residents are comprehensively considered to carry out humanized design. For example, in a single functional space, it is common for villagers' houses to randomly place debris and expose it to the space, giving people a sense of confusion. Pay attention to the addition of storage space and add some storage cabinets to make the space clean and tidy. In terms of furniture furnishings, residents in the mountainous areas of southern Laiwu usually use Maza as a seat when dining. The height difference between Maza and the dining table is low, which is not in line with the optimal height difference between tables and chairs when eating. Long-term use will cause backache and backache. The body feels tired and should be organized reasonably and effectively in accordance with ergonomic principles. In terms of lighting, the design of lighting is lacking in villagers' houses, and almost one lamp is placed at random in each functional space, which greatly affects people's physical and mental health and work efficiency. [2] P39 [Designed according to different environments Varying and layered brightness distribution, setting different light tones for different space environments. If the indoor space environment is warm tones, the main light source for warm tones should be used for lighting; if it is cold tones, the lighting should be cold tones. The main light source. Cold light sources are suitable for housework, work and study; warm light sources are suitable for dining, reception, and audiovisual. ] Residential space lighting achieves the combination of basic lighting, local lighting, accent lighting, and decorative lighting, so that the lighting design meets the functional space requirements of rural residents' living behavior activities.

## **3.3 The Design of Indoor Environment Focuses on Meeting the Functional Requirements While Also Pursuing Form Beauty**

Villagers spend most of their time in the residential space from their daily living to social activities, from which they meet the five levels of physical, security, social, self-esteem, and self-realization needs. At present, villagers' economic income is increasing, living convenience and living patterns are beginning to change, but they ignore the psychological effect of indoor environment on people and lack the beautification and spiritual needs of indoor residential

environment. Villagers' houses should start from the content of space design such as the top, wall, ground, furniture and furnishings, and shape the space image based on the habitants' personality hobbies and behavior habits to give people spiritual satisfaction and beautiful enjoyment, and improve the villagers' lives quality.

#### **4. Regional Characteristics of Residential Interior Decoration Elements in Southern Mountainous Areas of Laiwu**

##### **4.1 Regionalized Excavation of Interface Decoration Modeling**

Different interface decoration shapes give different emotional experiences. The interior interface shapes of rural residences can extract decorative element symbols from local natural landscapes, humanistic landscapes, historical culture, folk culture and other aspects, and use modern design techniques and innovative thinking. The line surface gives regionalization to the interface decoration. For example, the residential areas in the southern mountainous area of Laiwu are mostly built in accordance with the trend of the mountain. The development of the village is based on the background of the mountain. The village area is distributed with large areas of forests, fruit trees and other cash crops. The shape symbols of mountains, forests, and fruit trees can be extracted for interface shape design. For another example, Laiwu has a traditional drama: Laiwu Bangzi, which was approved by the State Council of the People's Republic of China for inclusion in the second batch of national intangible cultural heritage on June 7, 2008. Graphic symbols abstracted from costumes and headwear can be applied to the interface design, which not only beautifies the interior space environment, but also reflects the strong local cultural atmosphere. Similarly, the modelling symbols of some agricultural tools can be applied to the interface decoration to show the rural life culture. The interior interface decoration of rural houses has a rich design language, which requires designers to design according to the actual conditions of the occupants.

##### **4.2 Regional Extraction of Interface Decoration Colors**

Color is the most expressive of indoor residential spaces and can change people's visual perception. At present, the color of the indoor residential space interface in the southern mountainous area of Laiwu is all white. Except for some old photos, printed on black paper with black ink for Chinese New Year, good wishes such as good health and good health, there are few other decorative colors. Indoors the space environment lacks beauty. We promote the revitalization of the countryside and the construction of a beautiful countryside. We must ensure that the construction of material civilization and spiritual civilization advance simultaneously, and gradually meet the needs of the spiritual level on the basis of improving the quality of people's lives and meeting people's material needs. The interface colors of villagers' indoor houses can extract representative colors from the local long history and rich traditional culture and customs, extract natural colors from local outdoor scenery, use the design color expression method, and combine with other elements of interior design to create an Indoor residential space with strong regional cultural atmosphere.

##### **4.3 Regional Performance of Interface Decoration Materials**

The decorative material of the interior residential space interface reflects the character of the space. When selecting the material for the interior interface decoration of the residential area in the southern mountainous area of Laiwu, it should be based on the principle of local culture. Rural interior residential space interface decoration materials can be selected from local building materials, local materials, and reasonable design. Modern materials can also be used to imitate the texture of local local materials, innovative designs of texture, and modern materials can be combined with local materials. Combined. For example, modern materials such as light steel keel can be combined with some vine-manner vegetation in local materials to highlight the characteristics of rural areas in the mountain area. Some decorative paintings or shapes can be made on the wall with straw, rattan and grains, and the partition can be used with some folk customs Playthings or plant pots are used

to separate the ground. The ground can be made of local red bricks, stone or the texture of local native materials, so as to enrich the space level with different materials.

## **5. Conclusion**

The strategy of rural rejuvenation and the construction of beautiful villages need to fully tap the material and intangible cultural heritage with farming characteristics, national characteristics and regional characteristics. The mountains in the south of Laiwu are beautiful, and the village is surrounded by mountains and rivers. It has excellent history and culture, simple folk customs, deep ethics, and close neighbor relationships. Satisfying the spiritual enjoyment of villagers is an important aspect of improving the happiness index of rural residents. Aiming at the current situation of indoor residential houses in the southern mountainous areas of Laiwu, this paper proposes how to improve the old unreasonable indoor functional space layout of rural houses and create an indoor space that not only meets the modern villagers' living mode, but also has strong regional characteristics surroundings.

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## **References**

- [1] Zhao Yi, Lü Congna, Ding Peng(2013). Tang Lina. Interior Design of Living Space-Project and Practice [M]. Beijing: Tsinghua University Press , 1st edition.
- [2] Tan Changliang, Sun Yan(2012). Living space design [M]. Shanghai: Shanghai People's Fine Arts Publishing House, first edition.