

# The Renewal of Mongolian Traditional Dwelling Architecture in the Context of Nomadic to Sedentary Pastoralism

## Take the Example of the Hejing

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### ABSTRACT

The Mongolian yurt is the product of combination and evolution of the special arid grassland geography and nomadic culture in Xinjiang, which reflects the unique regional architectural and cultural characteristics. 21st century, with the property of China's economy, the rapid progress of urbanization and industrialization, and the introduction of nomadic settlement policy, the survival of nomadic traditional architecture is facing new challenges. In view of characteristic of the Mongolian yurt, this dissertation analyzes the architectural design characteristics of yurt for Mongolian people in Xinjiang region, and put forward the idea of adapting yurt to the development of modern urbanized architecture and social needs, based on the contradiction between the mobility of yurt and the settlement demanded by social development as the design basis for innovative design.

**Keywords:** *Mongolian yurt, Innovation Design, mobile, Protection and continuation*

## 1. INTRODUCTION

### 1.1. Design background

#### 1.1.1. Background of Mongolian herding

Nomadic herding is the practice of living on water and grass according to the seasons. The Mongolian nomadic civilization refers to the Mongolian people's long experience in the process of nomadic production and living on the Inner Mongolian steppe, which has led to the creation of a set of production and living styles, social systems, customs, philosophies and religious beliefs that are unique to the natural conditions of the Inner Mongolian plateau [1]. However, with the increase in population in the mountainous areas and the increase in the livestock load of the pasture, the degradation of the pasture is serious and the contradiction between man, animal and grass is becoming more and more prominent, making it difficult for herders to increase their income continuously.

After the founding of New China, the government vigorously called for sedentary herding and took active measures. In 1986, the Party committee and government of Xinjiang Autonomous Region proposed that the livestock industry in Xinjiang must change its four-season nomadic mode of production and take the path of sedentary development, through a series of measures such as extensive publicity and the construction and improvement of basic production and living facilities and service systems in settlements. 2016, the State launched the implementation of a new round of grassland ecological protection subsidy and incentive policy, with a total annual funding of 2.477 billion yuan allocated to Xinjiang. In addition, 150 million mu of grassland grazing ban and 540 million mu of grass-livestock balance were implemented.

#### 1.1.2. Difficulties faced by traditional Mongolian dwellings in the context of settlement

Nomadic traditional residential architecture is under great pressure to survive. The settlement policy has raised the living standards of herders, but traditional Mongolian

architecture is under enormous pressure to survive. Firstly, the government built a large number of houses for the local herders, who voluntarily gave up their original form of residence. Secondly, the general trend is for herders to change from a nomadic life to a static sedentary life. The unique features of the yurt, such as its ease of construction and dismantling and its ease of transport, are no longer relevant. The once unique architectural landscape of the steppe has been replaced by low-cost brick houses with uniform specifications, most of the original buildings have been demolished, and the traditional buildings that remain have not been given the attention and protection they deserve [2].

## 2. MONGOLIAN TRADITIONAL ARCHITECTURE RENEWAL ORIENTATION AND STRATEGY

### 2.1. Development orientation

The updated design inherits the genes of the traditional yurt and proposes an adaptation of the yurt in conjunction with modern urbanized architectural development and social needs. The original site was the location of the company headquarters of the Xinjiang Construction Corps, and the surrounding settlements were scattered and lacked a service centre. Based on the local residents and the function of the original site and the lack of services, learning and activities in the area, it was decided to design an activity centre to serve the local nomads, the Corps, and the residents of the surrounding villages.

### 2.2. Update strategy

Determine design ideas based on local conditions. After the research of local residents and geographical environment, we found that the problem of scattered settlements and less foreign economy. Based on the local traditional cultural characteristics and regional features, the design ideas for the renewal of the building were determined. Based on the regeneration concept, the main user groups were identified and the internal functions of the activity centre were designed.

Discover the contradictions of development and develop a design concept. The design is based on the contradiction between the mobile nature of the yurt and the need to settle down in society. The main body of the building is "static", but the "dynamic" part is introduced through a design approach that combines the structural characteristics of the yurt.

Preservation of traditional culture and integration of traditional elements. The design carries the responsibility of displaying the local traditional culture, and by incorporating the traditional elements of the ethnicity and national aesthetics in the design of the building renewal, the beauty of the Mongolian traditional culture is shown

to the users and the original local culture blossoms into its true charm.

## 3. DESIGN FOR THE RENEWAL OF MONGOLIAN TRADITIONAL ARCHITECTURE

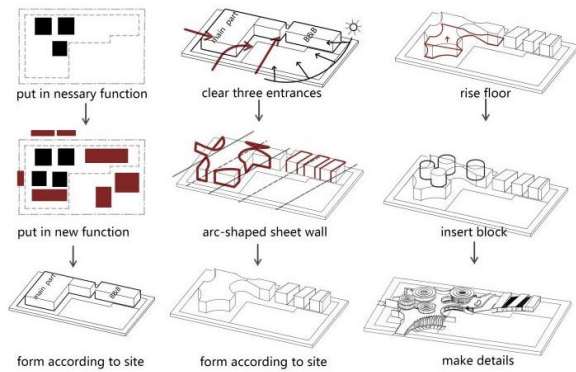
Basic overview of the village: Baluntai Town is located in Bayingol Mongolian Autonomous Prefecture, Xinjiang Autonomous Region, in the north of Hejing County, east of the border with Township in a small plain area in the middle of a mountain sandwich valley with a stream flowing through it. The original site is the location of the company headquarters of a regiment of a division of the Xinjiang Construction Corps, and the original house of the company is dilapidated and has become a dangerous house and needs to be rebuilt. The area is surrounded by pasture and loses slopes. The village houses are scattered and the building types are mixed, and cattle and sheep can be seen everywhere around.

The climate is a warm continental climate, with high altitude and large temperature differences between day and night. The climate is characterized by cold winters, long springs, slow thaws and lots of wind, and cool summers and autumns. The project site is flat and has many slopes around the site. The winter is cold and the summer temperature is suitable.

### 3.1. An architectural form with a spirit of place

In a sense, the spirit of place is an objectification and specialization of human memory, a sense of identity and belonging to a place. Once a green field with a few white yurts was the scene of a herdsman's life. The "circle" is the main element used in the generation of its form.

The regular building form is created according to the site and the required functions are inserted. The basic functions are office, reading, medical care, activities and, if required, the introduction of new functions such as a bed and breakfast, an agricultural experience area, an animal breeding experience area, a chess room and an education room. To the west of the site is a green area, which serves as the main road, thus defining the entrance. The whole site axis is turned clockwise in order to obtain the largest area of light on the south side. The original exterior shape of the yurt was built in accordance with the spirit of the circle and fullness of the building. This is why the stopping space was introduced by subtraction, using the circle as the basic shape and cutting into the original architectural finish. The cut-out creates a curved piece of wall that serves the function of bringing in the flow of people and receiving sunlight. A cylindrical block is inserted and the original shape rises up at the bottom to form a grey space, which at the same time forms an internal courtyard with the inserted cylindrical shape. This is shown in figure 1.



**Figure1** Form-creation

### 3.2. The pursuit of "movement" and "stillness" in architecture

As a traditional building of nomadic people, the yurt contains the crystallization of nomadic survival wisdom, and mobility is its first characteristic. The design revolves around the contradiction between 'stillness' and 'movement', and draws on the model of dock operation to introduce this model into the building, thus introducing the concept of 'architectural docking'. In the wharf mode of operation, a wharf is a building along a river where ships or ferries can berth to allow passengers to get on and off cargo.

The design revolves around this imagery, as shown in figure 2. The main part of the building is the 'static' part, and the building is subtracted by cutting into the building's extensions using the circle as a basic shape to create a number of recessed spaces, which are used as dwelling spaces. These spaces are the 'moving' parts of the building. The yurts are intended to be placed here in such a way that they can dock in the main building and use the activity centre. At the same time, because the building functions as a bed and breakfast, these spaces allow visitors to come and build their own yurts. This is a great way to experience the folklore of the area without the inconvenience of having to worry about safety, as it is located around the main building. This is shown in Figure 2.



**Figure2** Airscape

### 3.3. Excess space for internal and external penetration

Free-flowing space: The undulating terraces and

staggered building blocks create a forest-like architectural space on the first floor of the building. The building's interior and exterior permeate each other, allowing users to move freely between the interior and exterior. The first floor walkway is also a floating roof that connects the various volumes, creating a triple transition between outdoor - semi-outdoor - indoor spaces to be explored. The aerial walkway is interwoven with the ground level flow, allowing for a different view at every step. This is shown in Figure 6.

Atrium: The gap between the building and the walkway creates an internal courtyard, bringing sunlight, wind and other outdoor elements into the open corridor space and indoor space. This ensures natural ventilation inside the building, while taking advantage of the abundance of local sunlight to bring it into the building to a greater extent. In terms of sight lines, the space enclosed by the walkway is like a cave, leading people to look up and see. This is shown in Figure 3.



**Figure3** Scene graph

### 3.4. Materials and decoration

The facade is decorated with a combination of wooden poles that form the roof of the monolithic building, drawing on the grain of the yurt itself. The internal structure of the building is also based on the internal structure of the original yurt, which is reshaped by the interlocking wooden poles, giving the interior a sense of being enclosed, but not too enclosed.

The roof is also the focus of this design, which is modeled on the circular skylight of the original yurt, taking advantage of its breath ability and light. The glass and wooden frames are used to make the skylights to mimic the original yurt roof openings, allowing herders to sit indoors and enjoy the most beautiful starry sky roof given by nature in the vast grassland. Waterproofing has also been added to the edge of the roof so that rainwater will not slide down the slope of the roof, but will flow down the corresponding pipes.

intestine patterns, with red and blue cloth appliques embroidered with various patterns that are striking and eye-catching. As shown in figure4.



**Figure4** Section

#### 4.CONCLUSION

In today's urbanized world of architecture, the preservation of traditional buildings is of paramount importance. The yurt is a manifestation of the Mongolian people's understanding of the universe, and is full of the traditional customs and beliefs of the nomadic people, not only as a residence but also as a crystallization of their wisdom. The design focuses on the renewal of traditional Mongolian architecture, exploring the possible architectural forms and functions of the yurt in future development, and providing ideas for the continuation and development of the yurt in the future. At the same time, it attempts to combine tradition and modernity, so that the "static" and "dynamic" aspects of the building are in harmony with each other, and to design a design that is traditional in character but not lacking in heart, in order to provide a useful reference for future Mongolian building regeneration.

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