



Study the influences of ethnic Han and ethnic Bai on Jidi village's modern Tibetan dwellings in Shangri-La, China

Yiling Hua & Norihito Nakatani

To cite this article: Yiling Hua & Norihito Nakatani (2023) Study the influences of ethnic Han and ethnic Bai on Jidi village's modern Tibetan dwellings in Shangri-La, China, Journal of Asian Architecture and Building Engineering, 22:6, 3320-3337, DOI: [10.1080/13467581.2023.2205476](https://doi.org/10.1080/13467581.2023.2205476)

To link to this article: <https://doi.org/10.1080/13467581.2023.2205476>



© 2023 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group on behalf of the Architectural Institute of Japan, Architectural Institute of Korea and Architectural Society of China.



Published online: 08 May 2023.



Submit your article to this journal [↗](#)



Article views: 840



View related articles [↗](#)



View Crossmark data [↗](#)

Study the influences of ethnic Han and ethnic Bai on Jidi village's modern Tibetan dwellings in Shangri-La, China

Yiling Hua and Norihito Nakatani

Department of Architecture Major in Architecture, Faculty of Science and Engineering, Waseda University, Tokyo, Japan

ABSTRACT

Chinese ethnic dwellings have recently undergone numerous changes under the influence of economic growth, thus provoking discussions on the relationship between traditional inhabitation and modernization. This paper aims to investigate the effects of modernization on Tibetan residences from the perspective of Shangri-La's unique multi-ethnic cultural milieu. The research was undertaken in Jidi Village, a traditional Tibetan settlement where the Matsutake industry has enabled residents to reconstruct traditional Tibetan structures by upgrading the local economy. Floor plans and section maps were drawn and analyzed based on a survey of residential buildings in Jidi village. Variations in construction and living situations were confirmed after interviews with Jidi locals. The results indicate that the horizontal distributions of Tibetan residential houses gradually transformed into a courtyard style in the past decades. Furthermore, we concluded that ethnic Han affected contemporary construction materials of Tibetan, whereas ethnic Bai influenced the architectural layouts and designs of architectural components through artisans' techniques. This study emphasizes the need to cultivate ethnic craftspeople, such as Tibetan artisans in the Shangri-La region, whose numbers are declining due to modernization.

ARTICLE HISTORY

Received 18 May 2022
Accepted 17 April 2023



KEYWORDS

Jidi village's Tibetan dwellings; modernization; ethnic minority; multi-ethnic cultures; Shangri-La; Tibetan dwellings

1. Introduction

The residential buildings and living environment of China improved dramatically with the rapid economic growth in recent decades. The modernization caused by rapid economic development has resulted in a growing landscape homogenization in various places, and the diverse local cultures are gradually disappearing in the rapid construction and development (Relph 1976). In ethnic minority areas, the situation is even more challenging that modernization have adversely affected or even destroyed traditional ethnic minority dwellings (Zhang et al. 2022). The relationship between modernization and traditional folk houses of ethnic minorities thus become a trenching research topic over this period. Numerous studies had carried out on the dichotomy between traditionalism and modernization, majority and minority. Among them, Joshua Bolchover proposed a rural-urban framework based on the architectural urban transformation of Mongolian immigrant settlements, which solves modernization problems in combination with a real case study (Bolchover, 2016). As tourism has become the primary driving force behind the influence of ethnic minority dwellings, Li studied the modern dwellings of the ethnic Bai and Naxi groups

and proposed protection strategies. Feng proposed the framework of Cultural Architectural Assets (CAA) to address the effects of modernization on the traditional dwellings of the ethnic Mosuo (Feng 2020). Even though many scholars have attempted to propose specific frameworks and design concepts, modernization has been more rapid than anyone could have anticipated across ethnic groups. A number of potential factors have remained unexplored in the context of modernization, such as the influence of local, modern or other ethnical cultures. Exactly as Rapoport proposed that non-material elements such as local cultural connotations influence the ultimate form of vernacular architecture more than material elements (Rapoport 1976). Studying vernacular buildings involves more than merely examining building types, but also scrutinizing local customs and traditions (Oliver 1969). Moreover, the variations in ethnic residential dwellings depend not only on the economic status quo but also profoundly connect with the local people and the various cultural contexts behind them (Norihito 2017). Therefore, only using modernization or urbanization as an explanation for the variations of ethnic dwellings is incomprehensive for outlining all the changes in minority residential architecture.

CONTACT Yiling Hua  derlindorma@asagi.waseda.jp  Department of Architecture Major in Architecture, Faculty of Science and Engineering, Waseda University, Tokyo, Japan

© 2023 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group on behalf of the Architectural Institute of Japan, Architectural Institute of Korea and Architectural Society of China.

This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial License (<http://creativecommons.org/licenses/by-nc/4.0/>), which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited. The terms on which this article has been published allow the posting of the Accepted Manuscript in a repository by the author(s) or with their consent.

Currently available research has yet to identify the various cultural factors that lurk behind modernization, especially those that influence the integration of multi-ethnic cultures. As a result, we take Shangri-La, the most marginal and multi-ethnic region in the southeast Tibetan culture area, as an example to explore the specific features and evolutions of Shangri-La's modern Tibetan dwellings. This paper attempts to show the influences of complex multi-ethnic cultures on local Tibetan dwellings through field research and resident interviews. We aim to explore the essential factors affecting the changes in ethnic minority dwellings and provide critical factors for preserving ethnic minority architectural culture to avoid the deeper homogenization under rapid modernization.

1.1. Case study overview

Tibetan cultural region is generally divided into three parts: the Ü-Tsang region, the Amdo region, and the Kham region. Diqing Tibetan Autonomous Prefecture belongs to the Kham region and is situated southeast of the Tibetan cultural area. As a junction area of Tibet, Sichuan, and Yunnan provinces, Diqing has always been at the edge of Tibetan development territory in history and has been viewed as the border of the ancient Tubo Dynasty.¹ Diqing is a unique multi-ethnic Tibetan district home to 26 registered ethnic minority populations, around one-sixth of Chinese minority groups. Shangri-la, the state capital of Diqing, is one of the most important cities on the Ancient Tea-Horse Road and is famous for the mysterious story written by James Hilton.² Shangri-La is also a multi-ethnic city populated primarily by Tibetans, with 40.31% of the entire population living in Jiantang Town (known as Gylthang in the Tibetan language).³

The economy of Shangri-La has experienced a boom period in the development of tourism during the past two decades, which improved the living environment and standard of residents accordingly. Upgrades have also been seen in the Shangri-la's transportation system, which not only links the tourist with various tourist attractions but also enhances direct connections between Shangri-La and various ethnic groups, including the Bai and the Han in the south. Communication between different ethnic cultures fosters the deeper integration of multi-ethnic cultures in Shangri-La. This fusion of multi-ethnic cultures directly reflects on Shangri-La's Tibetan residential houses,

including changes in building materials, construction styles, architectural layouts, and diversity in construction labors. The modernization of traditional Tibetan villages in Shangri-La is a gradually undergoing process. For the reasons outlined above, it is imperative to investigate the impact of modernization on Tibetan residences in Shangri-La.

1.2. Study Area

Jidi Village, a traditional Tibetan farming settlement in Jiantang Town, is located approximately 30 kilometers from Shangri-La's city center (Figure 2). Jidi is called Jedi in Tibetan, meaning a prosperous and safe land.⁴ Geographically, Jidi village lies in the southern hinterland of the Hengduan Mountains, with the lowest elevation at 3,200 meters and the highest elevation at over 4,000 meters. As a plateau basin settlement, Jidi village belongs to the plateau semi-pastoral mountainous area, and its average elevation is approximately 3300 meters. Jidi village has a long history, with Tibetan people living here for more than a thousand years.⁵ Furthermore, Tibetan Buddhism is the only belief that plays a vital role in the villagers' daily lives.

Norio Yamamoto pointed out that the margin of the farming boundary plays a major role in deciding if arable farming or pastoral farming would be dominant in Tibetan settlements due to the frigid natural environment of the Tibet plateau (Yamamoto 2019). Settlements with higher altitudes above the line would have primarily pastoral farms, while arable farming is prevalent in the settlements located below the boundary. However, both farming modes existed in Jidi Village because of its unique geographic conditions that own plains for farming and high mountains for grazing. Additionally, the semi-pastoral mountainous plateau is ideal for cultivating Matsutake, making Jidi village famous as the home of Matsutake. Since the 1990s, Matsutake from Jidi village has been increasingly exported to other cities, including Beijing and Shanghai.⁶ Jidi Village's matsutake trading system expanded dramatically with Shangri-La's tourism industry and eventually exported to overseas countries in recent years. As a result, Jidi village's industrial structure has shifted from a traditional farming and grazing community to a contemporary one that includes agriculture, animal husbandry, and the Matsutake trade. The rising economic prosperity of villagers has prompted

¹Referred to "Status in Diqing Tibetan Autonomous Prefecture" edited by Diqing Prefecture Ethnic and Religious Committee published in 1986.

²James Hilton was an English writer who wrote legendary stories about Shangri-La. His book named *Lost Horizon*, was published in 1960.

³Referred to the Main Data Bulletin of the seventh National Census of Shangri-La City published in 2021.

⁴Referred to "The Gazetteer of Jiantang Town in Shangri-La County" published by the Jiantang Town People's Government in 2009, P88.

⁵Referred to "The Gazetteer of Jiantang Town in Shangri-La County" published by the Jiantang Town People's Government in 2009, P89.

⁶Referred to "The Gazetteer of Jiantang Town in Shangri-La County" published by the Jiantang Town People's Government in 2009, P149.

them to remodel their homes, and the Tibetan architectural style is being rapidly updated. Consequently, Jidi village has become one of the typical traditional villages in Shangri-La that has been significantly influenced by modernization, giving a practical example for examining the modernization of Tibetan dwellings.

2. Literature review of Tibetan dwellings

Research into Tibetan residential architecture began in 1950 and has been conducted for nearly 70 years. Scholars such as Xu Zongwei have summarized the different types and designs of Tibetan residential buildings in China (Xu 2004). During the last few years, researchers have extensively investigated the internal constructions of Tibetan dwellings, which are all common to different Tibetan communities. As the largest structure in the living space of Tibetan residential buildings, the central column has become a symbol of Tibetan culture because it has the same spiritual function as the Mandala of Tibetan Buddhism (He 2009). Fireplace, which consumes the firewood and raises the temperature of the living room in residential buildings has also been treated as a living spiritual symbol of Tibetan dwellings (Wang 2006). The pictorial decoration of the interior wall implies the affluence of the family (Yu 2019).

As for the earliest recording of Tibetan residential dwellings in Shangri-La, it can be traced back to the local Chronicles published in 1939 (republished in 1991), which pointed out that Tibetan dwellings in plateau areas are mostly two-story buildings with three rows of columns (Duan 2009). At this time, Shangri-La's Tibetan dwelling house consisted of a single structure with rammed earth walls on three sides and a timber hallway in front. As a matter of roof style, Jiang had divided the Tibetan dwellings in Diqing into two types: the plateau shingle style (GaoyuanShanpianShi, 高原闪片式), which built at high elevations area with a pitched roof made of fir trees for easy drainage; and the river valley fortress style (HeGuDiaoBaoShi, 河谷碉堡式), which built at low altitudes region with flat roofs for easy water storage or drying of grain (Jiang 1997). The Tibetan dwellings in Shangri-la are in the first category. Zhai pointed out that the selection of building materials and spatial layout of the Tibetan residences in Shangri-La are deeply rooted in the Tibetan Buddhist culture and also the regional culture (Zhai, Bai, and Wang 2008). By understanding the spatial placement of the Buddhist Hall (placed on the top level), the residential area (located on the second floor), and the livestock area (located on the bottom floor), the Tibetan houses of Shangri-La were subdivided into sacred and profane regions from top to bottom (Taniuchi and Shiotani 2011). Shan interpreted Tibetan dwellings in Shangri-

La have strong characteristics of adopting local materials including trees and stones (Shan and Wu 2013).

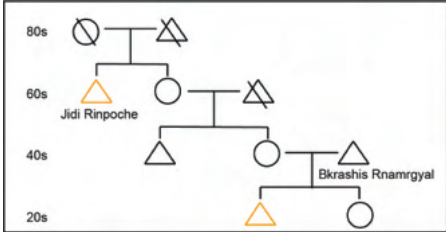
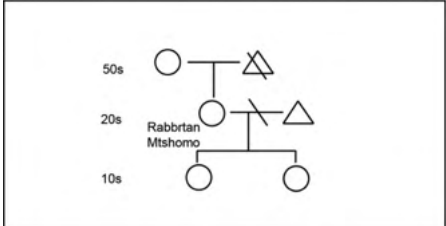
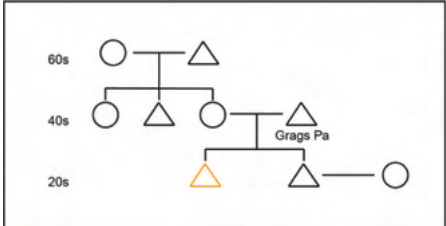
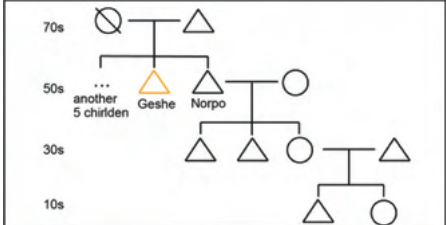
In addition to the aforementioned fundamental research, an increasing number of academics began to investigate the impact of modernization on the Tibetan dwellings of Shangri-La. Previously in 2003, Ewing remarked that ethnic Han pioneered the modernization of Tibetan regions by bringing novel building materials such as cement and brick in 1990 as part of the infrastructural upgrading (Ewing 2003). Dong proposed in 2013 that Tibetan residences in Shangri-La progressively adopted a hybrid architectural style with traditional timber structures enclosing non-traditional modern auxiliary structures, such as kitchens and baths (Dong and Jin 2013). As a result of the impact of globalization and urbanization, Shangri-La's Tibetan dwellings gradually lose their ethnic traits in the process of reconstruction and renovation (Zhao 2020). In consequence, the building's style becomes chaotic.

Scholars have long noticed the modernization trend of Tibetan dwellings in Shangri-La, but so far no researchers have yet to investigate where the influence of modernization came from and how Tibetan dwellings in Shangri-La changed. Especially, no studies have examined the modern evolution and influencing factors of Tibetan dwellings in Shangri-La based on multi-ethnic integration to date. For this reason, this paper selected a traditional Tibetan settlement in Shangri-La with rapid development due to modernization to examine the influences of complex multi-ethnic cultures on local Tibetan dwellings through field research and resident interviews.

3. Methodology

The research of ethnic minority dwellings necessitates not only an understanding of the specific cultural background of each ethnic group but also an appreciation of how that culture shapes architecture. As an anthropological research method, ethnography enables researchers to record and comprehend the cultural phenomena systematically (Pavrides, 2012). The ethnographic method is still less common in the dwellings of ethnic minorities than in traditional settlements (Wang, 2016) and vernacular architecture (Yun, 2016). Hence, this paper employed the ethnography approach to analyze the characteristics and influencing factors of modern Tibetan dwellings in Jidi village. Architectural surveying can help us grasp the visual status quo of residential houses. Conversely, only by interviewing residents regarding their family evolutionary histories can the invisible historical process of residential buildings be captured, such as the economic and cultural background of the family, the unique characteristics of Tibetan dwellings in the volume of building space, and the influence of Tibetan Buddhism on the family. In conjunction with this

Table 1. Basic information about family history.

No.	Householders	Family Composition
A	Bkrashis Rnamrgyal	 <p>Ora History of House A: Bkrashis Rnamrgyal's uncle-in-law is Jidi Rinpoche, the first person to achieve the highest degree of Buddhism and has a very high reputation in the village. The wooden structure was constructed during Rinpoche's tenure and completed voluntarily by the villagers. Jidi Rinpoche's family house is the most traditional and ancient architectural representative of Jidi Village. Although Rinpoche returned to secular life ten years ago, this house remains a landmark in Jidi village. The youngest son of the owner is currently learning in the monastery.</p>
B	RabbrtanMtshomo	 <p>Ora History of House B: No one in this family entered the temple. The economic situation of the whole family has been at a low level for the past few years because there is no male labor force. Due to financial difficulties, the house was never renovated after local Tibetan artisans constructed it.</p>
C	Grags Pa	 <p>Ora History of House C: The economic status of the entire Grags Pa family is middle-level in the village, and his son is currently learning in a Buddhist monastery. If Grags Pa's son successfully obtains Geshe's degree, the family plans to renovate their house.</p>
D	Norpo	 <p>Ora History of House D: Norpo's younger brother obtained a Buddhist Geshe degree in Lhasa five years ago, which is currently the highest degree in Jidi village. Norpo's family reconstructed their house in honor of this accomplishment.</p>

Female
 Male
 Members in the Tibetan Buddhist Temple
 Passed away
 Divorced

Table 2. Basic information of residential dwellings.

No.	Years of construction	Types of Building	Source of economic income	Whether family members work or learn in a monastery.
A	40	Wooden structure, Traditional dwelling	AF, MT, PF.	1, male, general degree.
B	30	Wooden structure, Traditional dwelling	AF, MT, PF.	0.
C	15	Wooden structure, Traditional dwelling	AF, MT.	1, male, general degree.
D	5	Wooden structure, Renewal dwelling	AF, MT, PF.	1, male, Geshe degree.

AF: Arable Farming. MT: Matsutake Trade. PF: Pastoral Farming.

Table 3. The evolution of construction workers.

No.	Traditional Main Building	Affiliated modern structure
House A	Local Tibetan workers	Local Tibetan workers
House B	Local Tibetan workers	Local Tibetan workers
House C	Local Tibetan workers	Han and Bai artisans
House D	Han and Bai artisans	Han and Bai artisans

study's topic, the family oral history document was an essential part of field investigations. The field survey was conducted in Jidi village in 2021, and the data collection is described in detail below:

First, we selected four representative houses in Jidi village according to the age of the house, the building renovation status, the composition of family members, the economic situation, and cultural beliefs of each house.

Second, we measured each dwelling to obtain the essential map data.

Thirdly, we conducted personal interviews with every householder. We asked the interviewees fundamental questions about family history, the present composition and living conditions of family members. The interviewees responded to each question individually. Regarding the evolution of architecture, we focused on verifying who built/rebuilt the structures, when it was built/rebuilt, and how it was built/rebuilt.

Eventually, we drew planar and spatial distribution maps of the four houses based on the measured data. We identified each house's architectural evolution and the cultural meaning of spaces via the interview findings. The alterations of Tibetan dwellings in Jidi Village in the context of modernization were examined by integrating ethnography approach and architectural surveying.

3.1. Research object

Considering the year and newness of the buildings, we selected one of the most representative newly renovated Tibetan houses, two traditional buildings that have not been renovated, and one of the average buildings that are transitioning from tradition to modernity. In addition, since Tibetan Buddhist culture is deeply related to Tibetan dwellings, the sample data can be divided into two categories: those who have family members learning in monasteries and those who do not. Jidi village has a famous Rinpoche, revered as "Jidi Rinpoche" by villagers, whose family house is one of the most ancient and traditional Tibetan buildings. Although Rinpoche returned to secular life ten years ago, his family remains a landmark in Jidi village. We selected Rinpoche's family building as a research sample for the representativeness of traditional style in Jidi village, and now the household is his nephew-in-law, Bkrashis Rnamgyal. Some low-income families in Jidi village cannot

afford renovations, so the traditional buildings have remained in their original condition. Among them, we found Rabbtran Mtshomo's family and selected it as the second research subject due to the authenticity of the housing. Most families maintain a medium economic level and have a comfortable living environment representing the most ordinary residences in Jidi village. The house of Grags Pa has thus been chosen as the third study subject. The newest house representative is Norpo, who rebuilt his home five years ago to celebrate his brother's Geshe degree. We selected it as the fourth subject. Four study subjects were numbered House A to D, with information and study founding listed below (Table 1 & Table 2).

The four houses are all civil structures and use basic building materials, including wood, stone, and mud-brick. Regarding the construction age, House A is the oldest house, which has existed for over forty years. In contrast, House D is the newest building that was rebuilt on the site of the old house five years ago. The basic information of each family, including population and economic situation, has been collected and sorted out based on interviews. The economic sources of the four families are mainly dependent on agriculture, among which the Matsutake Trade in July and August has also become the primary source of revenue in recent years. Besides, House A, B, and D are still engaged in animal husbandry. In the composition of family members, male members of House B, C, and D are entering the Tibetan Buddhist monastery, which gives the three families a direct connection with the temple. Based on the above information, this paper conducts the following detailed research.

4. Results

4.1. Floor plans and section maps of Tibetan dwelling houses in Jidi village

The following floor plans and section maps have been prepared to analyze the research subjects' current plan (Figure 3) and spatial layout system (Figure 4) using surveying and mapping data.

We received a precise spatial distribution of the four houses through the sectional drawing. Each dwelling A, C, and D had three floors with a more stereoscopic space than dwelling B. The first floor is for storage, the second for living, and the third is a place of worship with a Buddhist Hall built on it. We confirmed that the spatial arrangement of dwellings is closely tied to Tibetan culture, reflecting a living hierarchy consisting of Buddha, people, and items from top to bottom. Unlike the three-floor type, the layout of two-floors House B is vague due to its compact size, as the first floor is dedicated to storage and feeding livestock, and



Figure 1. Geographical location map of Diqing prefecture.



Figure 2. Geographical location map of Jidi village.

the second floor is for both living and worshipping. The sacred space is smaller and does not extend to a single floor, and the animals live under the same roof as humans. A further discussion of the specific reasons for the apparent differences is necessary.

4.2. Spatial distribution and floor plan of the sacred space

Sacred space is a significant area in Tibetan residences because it embodies the Tibetan people’s spirit and faith. There is a unique form of this space known as the Buddhist Hall, which houses Buddha statues and scriptures so that residents may participate in daily religious activities there. Additionally, the spatial location and size of the Buddhist Hall in residences are

directly related to whether family members attend the temple.

There are two categories of relationships between the Tibetan family and Buddhist temples in Jidi village. First, no one joined the Buddhist temple. Second, someone in the family attended a monastery and obtained a general or higher degree. If there are no Buddhist members in the family, then the Buddhist Hall can be on the same level as the living room. Accordingly, the family does not need to construct a new floor for the Buddhist Hall. Taking House B as an example, the sacred space and living space are co-located on the second floor of the building. In contrast, the Buddhist Hall must be on the top floor of the building if a member of the family enters the temple to practice. In this case, the concept of sacred space is no longer limited to the Buddhist Hall but also includes the kitchen, bedroom, fire pond, toilet, and other necessary living spaces



Figure 3. Floor plans of four Tibetan dwellings.

specially designed for the particular member. As a result, the faith area has evolved into an entire room containing a sutra recitation hall and essential living spaces. House A, C, and D were all built on the third floor to provide sacred space for the exceptional members enrolled in the Buddhist temple. Tibetan Buddhist temples' degree hierarchy system also influences sacred spaces in Tibetan dwellings, with a higher degree resulting in a more

luxurious design. As the member of House D's family is currently a non-secular Rinpoche with a Geshe degree, the oratory decoration is more luxurious than any other. Consequently, villagers often judge the current situation of one family solely based on the residential building since all the Tibetan dwellings in Jidi village adhere to the hierarchy brought about by Tibetan Buddhism. A two-story residence indicates that no one entered the

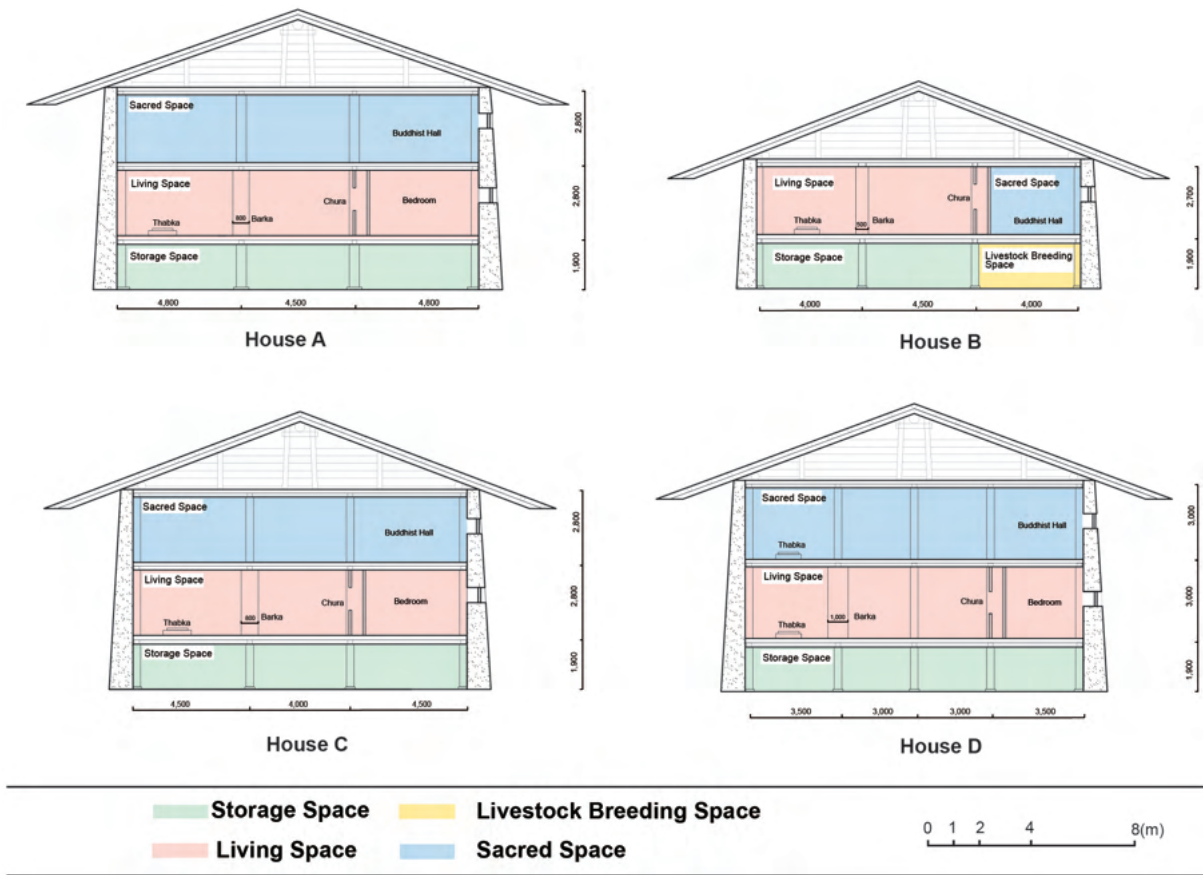


Figure 4. Section maps of four Tibetan dwellings.

Barka	House A	House B	House C	House D
	80 cm	50 cm	80 cm	100 cm

Figure 5. The size of the Barka in each house.

Buddhist temple, while a three-story home suggests that some family members are studying there. Furthermore, people can estimate the degree level of stylite in the temple based on the level of decoration on the third floor.

4.3. The current usage condition of traditional facilities in living space

Apart from the sacred space, the living area on the second floor is another crucial element of Tibetan houses. This space has three unique structures: a central column called Barka in the Diqing Tibetan language, a water cellar called Chura, and a fire pond called Thabka. The creation of the Barka can be traced back to the ancient Tibetan religion Bon, which asserted building a tree-like structure in the house to express nature's worship. The Barka is thicker than any other column and is the most prominent structure in the whole building. The general diameter of the Barka varies from 50 cm to 100 cm in Jidi village, while the other usual columns are under 40 cm. In addition, the thickness and ornamentation of Barka are closely

proportional to a family's socioeconomic standing and association with a Tibetan Buddhist temple.

House B has the smallest Barka with simple decoration due to no one entering the temple, while House D owns the biggest and most luxurious ornament because the stylist has a Geshe degree, as shown in Figure 5. Barka has evolved from a religious emblem to a family's identity and social standing.

Traditionally, the Chura in all four houses was the storage space for domestic water due to the lack of running water pipes and played a crucial role in fire prevention owing to the high prevalence of wooden frames. However, modern Tibetan residential houses in Jidi village have been equipped with water pipes that eliminate the need to store domestic water daily. Today, the Chura still holds water but is mainly prepared for a fire hazard. In contrast, the external ornamentation of Chura has become a decorative symbol serving the same purpose as Barka. House B has the simplest decoration, and House D has the most elaborate. In the same space, the stove Thabka used to be necessary for Tibetan people's daily cooking. But modern electrical appliances have displaced the time-consuming and heat slow Thabka as a means of cooking.

With the improvement of the living environment in Tibetan dwellings of Jidi village, the original purposes of traditional facilities within the living space have gradually diminished. Notably, decorative functions are increasingly

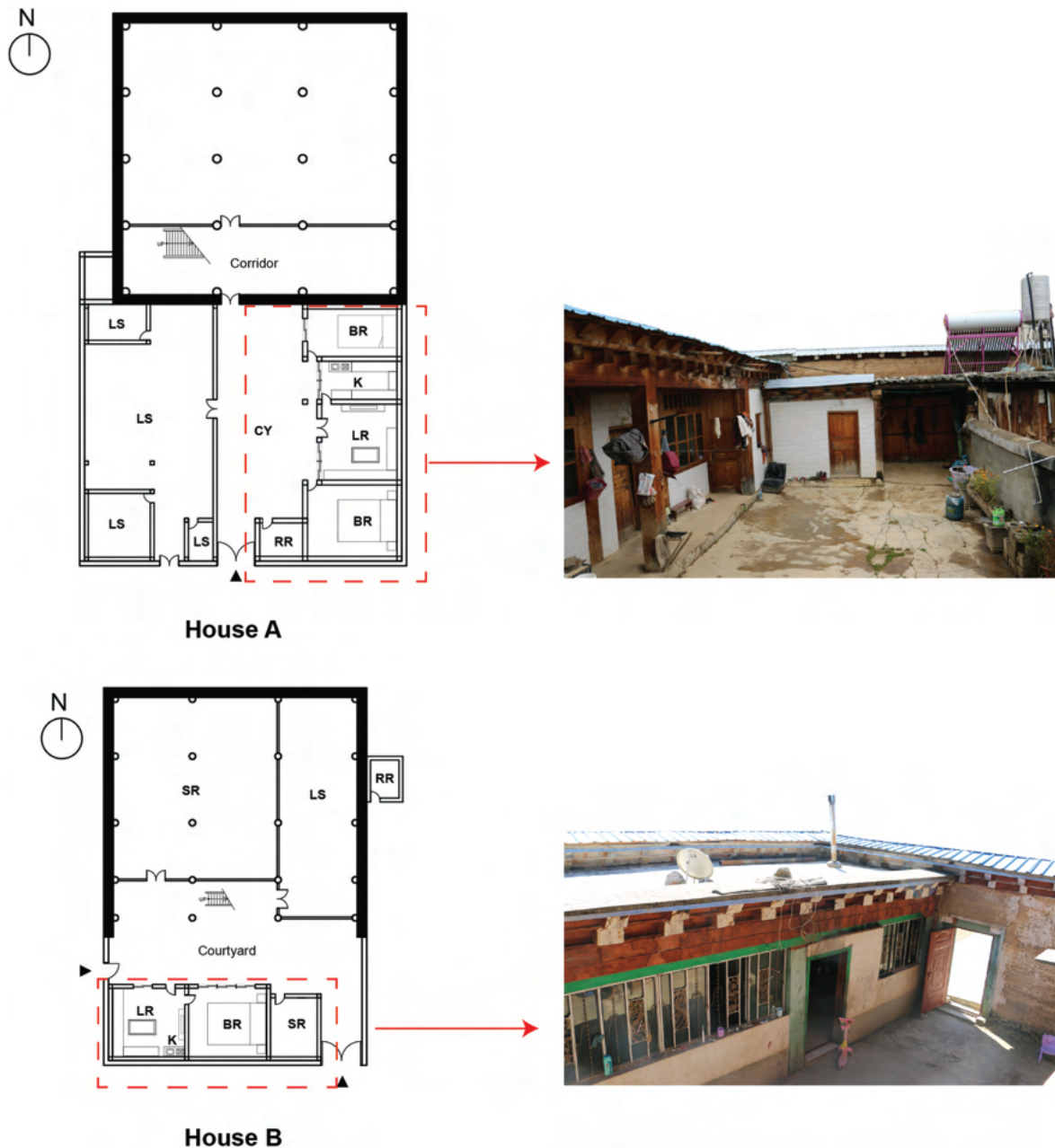


Figure 6a. Floor plans of Bungalows and traditional buildings.

replacing utilitarian ones. Modernization and improved living standards can summarize this phenomenon directly, but we still need to identify the reasons behind the changes in floor plans.

4.4. The current overall floor plan of Tibetan residences

During the investigation, we discovered that the current Tibetan dwellings in Jidi Village are not only composed of one traditional Tibetan residence. On the contrary, they all possess one or two attached non-traditional buildings adjacent to the main house or in front. This accessory structure is a one-story building that differs from traditional Tibetan houses in appearance and modulus, but it

retains the Tibetan style with its carvings and decorations. In recent years, combining traditional main buildings and modern attached bungalows has gradually become the dominant style of Tibetan dwellings in Jidi Village. We surveyed and mapped the attached buildings of four research samples to grasp the status quo of living situations in both traditional and extensional spaces. Floor plans of Bungalows and traditional buildings.(continued).

As shown in the planning maps, the attached bungalow is a complete architectural sequence space that combines a kitchen, bedroom, living room, toilet, and other basic living facilities. According to the survey results, the villagers have moved their daily life to the annex structure, while they only used the living room in the main house on commemorative days. It



Figure 6b. (continued).

represents the living space of a traditional house gradually losing its practical function, but the attached bungalow gradually gathers track of daily activities. We confirmed the following two leading causes for the above phenomenon.

- ① The lack of essential functions of traditional Tibetan Houses, taking Dwellings A, B, and C as examples
 A frigid natural environment in the Diqing plateau area makes Shangri-La residents

demand high thermal performance from their houses. Tibetan houses in Jidi village traditionally have a large dining area and only one stove for heating, which makes maintaining a comfortable temperature difficult. Furthermore, specially designed small windows that sustain the house's warm temperature contribute to poor household lighting. The final problem is that there are no toilets in traditional houses, which is a significant inconvenience in everyday life.

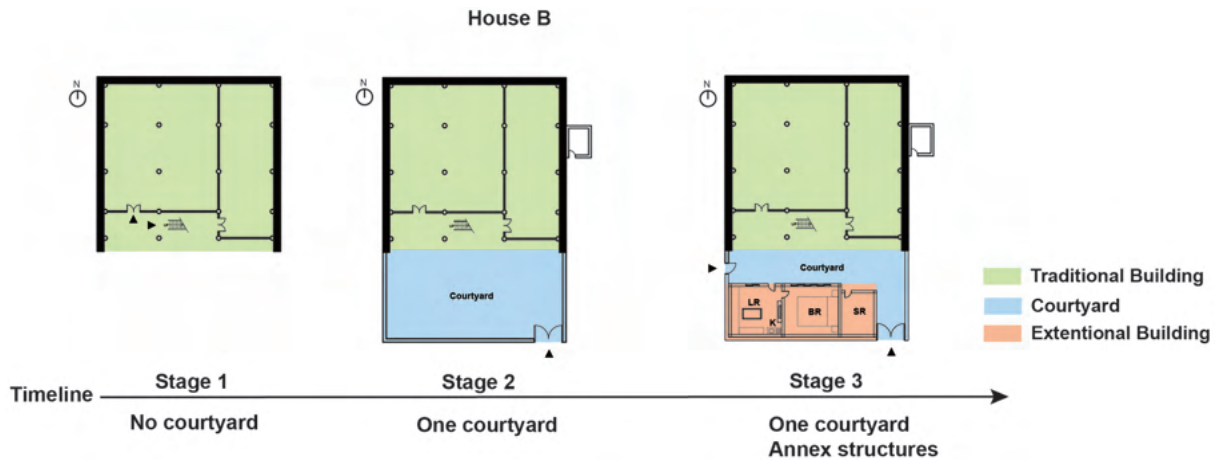


Figure 7. The evolution of House B.

Externally attached toilets depicted in drawings are used mainly by people enrolling in Buddhist temples. Traditionally Tibetan houses in Jidi village were not equipped to accommodate essential routine requirements because of the problems described above. As a means of self-innovation, the villagers spontaneously designed and built ancillary bungalows to compensate for the bother of traditional living space. Besides the dining room, old dwellings A, B, and C bedrooms have also begun to move out. The four houses converted their living spaces into newly built modern houses, preserving only sacred and storage areas in their traditional buildings. Residents have access to the Buddhist Hall every morning for praying and chanting sutras. Nevertheless, the frequency of utilization of living space in the traditional house has declined sharply because the space will be used only during the Tibetan New Year, special holidays, the visiting of guests, weddings, funerals, or any other essential activities.

Managers had to promote sport-for-development in professional sport contexts 1010.

Managers should seek to foster collaboration, local autonomy, and synergies.

② Changes in the financial industry, taking Dwelling D as an example

The traditional Tibetan building in House D is a rebuilt new structure with the construction of toilets, water taps, and other improvement measures that can fully meet life's basic needs. However, residents' daily activities are still primarily concentrated in the attached bungalow. A significant factor contributing to this was the change in the household income system. Farming

and animal husbandry were the primary sources of income for family D in the past. With the development of Shangri-La's tourism industry, the Matsutake trading system in Jidi village expanded and became the primary source of income for the villagers. Matsutake income can support a family's expenses for an entire year. Currently, all the family members of House D would climb the mountain to collect Matsutake during the rainy season, starting from July to September every year. There was often mud all over the body during this period, preventing residents from keeping their houses neat and clean. Considering the purity and holiness of the traditional new house, the family members of House D still choose to carry out daily life in the attached structure freely. Residents still go to the Buddhist Hall for blessing every morning after they clean themselves up. The prominent Tibetan building in residential house D has become a more solemn area than the attached bungalow. Ultimately, accessory structures' convenience increases people's reliance on them.

The inhabited space of traditional Tibetan buildings has undergone a subtle transformation in particular usages. Residents' activities moved to the attached modern structure, while the storage space and sacred space remain in the traditional buildings. Compared with the auxiliary structures built and used freely, traditional houses have absolute holiness because of the existence of sacred space. Tibetan culture is highly inherited and affects residents' utilization of buildings.

4.5. The evolution of residential structures

Due to the absence of drawing records for the four residences, we confirmed the alter history of the four homes by interviewing each homeowner. House D has no evolutionary history because it was constructed five

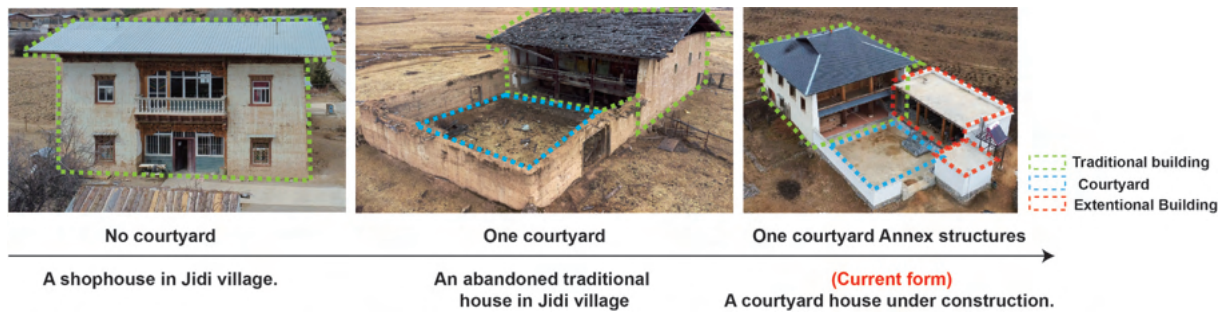


Figure 8. Photos of different types of dwellings in Jidi Village.

years ago on the foundation of a demolished traditional Tibetan dwelling. The development process for Houses A, B, and C follows a regular pattern in which each home advances through three stages: one traditional building, one traditional building with a courtyard, and one traditional building with a courtyard and annex buildings. Figure 7 depicts a graphical reconstruction of the evolution using Residence B as an example.

Given that the oral history of the four dwellings may not fully represent the architectural development history of Jidi village, we photographed three types of buildings in Jidi Village to validate the evolution study's accuracy, as depicted in the Figure 8.

In Jidi village, the traditional house without a yard has been converted into a tiny shop. Currently, the most representative single-courtyard home in the community is abandoned. Most residential structures have ancillary structures adjacent to the main house that progressively show a courtyard design. The evolution of visual records parallels the development of oral records. In addition, we found that construction worker turnover substantially affects the development of courtyard space.

4.6. The evolution of construction workers

For the construction methods of traditional buildings, as summarized in Table 3, House A is one of the oldest dwellings constructed using a traditional process by local artisans from Jidi Village. However, House D is the newest one constructed by ethnic Han workers from Heqing County (a county within Dali city) and Bai minorities from Jianchuan County (a county within Dali city). The attached structure of House C was also built by the ethnic Han and curved by the Bai ethnic.

Construction technique changes mirror Tibetans' shifting role in the building process. In the past, residential houses in Jidi Village were constructed chiefly through the exchange of labor between families, with each family sending one or more people to assist in constructing another family's home. The local Tibetan workers finished the construction by adhering to the

standard inheritance module. However, the influx of Bai and Han artisans completely transformed this construction system. These craftsmen are mainly from the Bai ethnic group of Jianchuan, the city of Dali, and the ethnic Han group of Heqing, another city of Dali. They currently represent most of the construction worker's market in Shangri-La due to their high craftsmanship and relatively reasonable prices. Residents in Jidi village started employing these workers to build houses. Therefore, Tibetan people in Jidi village no longer participate in constructing Tibetan houses and have been transformed from builders into bosses who only declare design specifications. However, we found Tibetan culture still plays a vital role in the construction process as a way of pledging dominance. The Buddha, specifically the Rinpoche of Tibetan Buddhist monasteries, should determine the layout of the Buddhist Hall and every ceremony date, including the construction date, completion date, and occupancy date for Tibetan residences in Jidi village.

Artisans from other ethnic groups will inevitably incorporate architectural components from their cultures into Tibetan architecture through techniques. We also discovered that changes in construction workers impact the structures and components of the buildings in Jidi village, as demonstrated in Figure 9. The changes in the design and expression form of the four residential doors support this view. With the introduction of modern materials in recent years, the dwellings of Jidi Village have gradually adopted metal doors rather than traditional wooden doors. In this case, only the traditional residential house A retains its wooden door. Residences B and C keep the traditional wooden door frame and adopt a modern metal door. However, the door of residence D has become more modern and complex in terms of material and design. Bai artisans created a new gate style for House D by combining traditional Tibetan wood carvings with traditional Bai door heads. In particular, the upturned part of the gatehouse eaves, which does not exist in traditional Tibetan dwellings, has a very high degree of similarity to ethnic Bai's door. Besides, House D's door jamb is closer to Bai's style. We found this modern door design

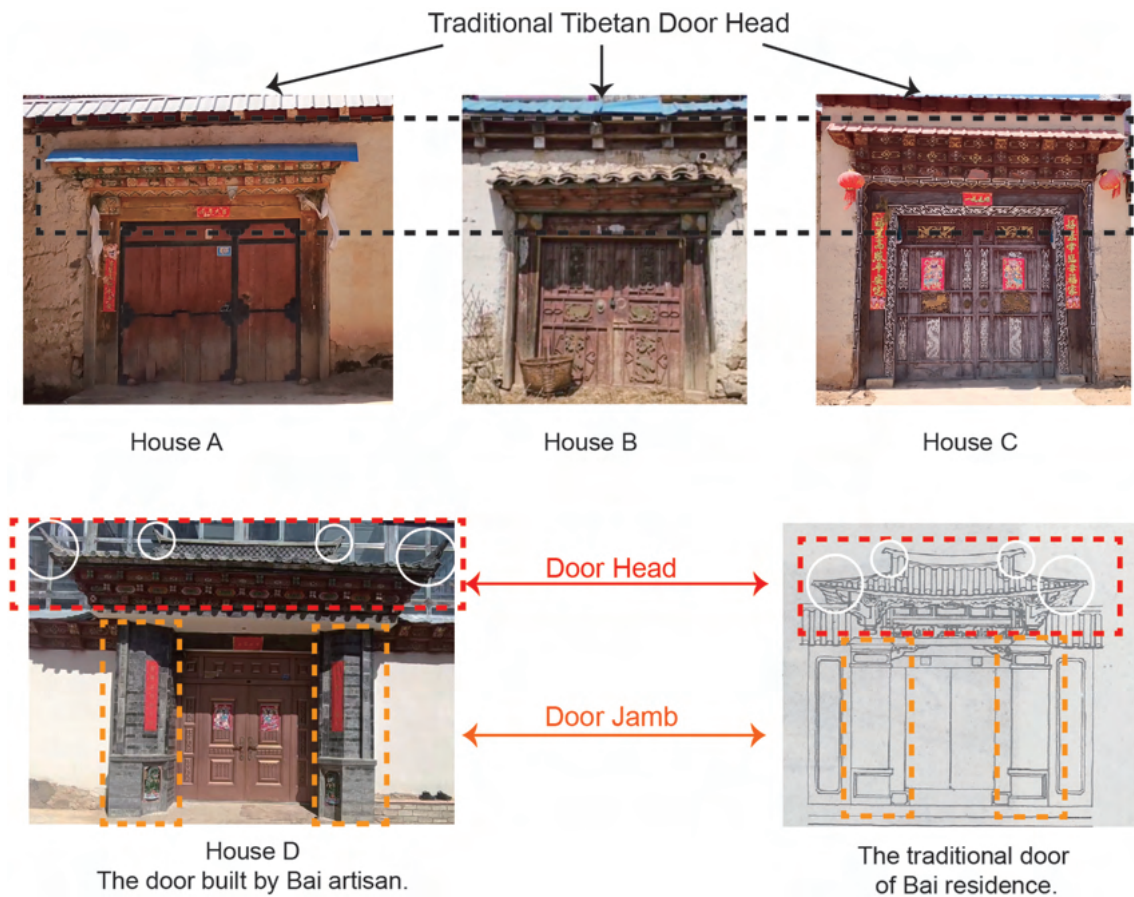


Figure 9. The entrance doors of the research subject.

very popular with the villagers because the grand gate head represents a family's economic and social status.

5. Discussion

Following the above analysis, modern Tibetan dwellings in Jidi Village exhibit variations in overall floor plans, three-dimensional spaces, construction materials, and construction workers. These changes result from the villagers' automatic adjustment to the inconvenient living environment of traditional buildings and multi-ethnic cultural effects in Shangri-La. The results triggered our thinking about the evolution of Tibetan dwellings in Shangri-La and the potential influence of other ethnic minority dwellings. We intend to interpret the development of Tibetan dwellings in the Shangri-La area in recent years and estimate the potential influences from other ethnic groups by using the survey data of Jidi Village.

5.1. The revolution of Tibetan dwellings in Shangri-La during the past decades

Scholars have surveyed and mapped the residential buildings in the Shangri-La area, but most of them only focused on the main traditional structure. With ten years as a benchmark unit, we selected

representative works that mapped the overall layout of residential buildings to summarize the evolution trend of Tibetan residential buildings in the Shangri-La area. The earliest records written by Duan Shouzi show that the Tibetan residence in Shangri-La consisted of a single house without any courtyard (Duan, 2009). However, in (Jiang's 1997) drawing, a simple courtyard with a small house built on one side of it appeared in the Tibetan residence (Jiang 1997). Zhai Hui's drawing, published in 2008, illustrated that one or two sides of the front courtyard had built soil palm houses for kitchen or storage space (Zhai, Bai, and Wang 2008). According to the horizontal section maps in this paper, the original single courtyard in front of the traditional house has enlarged into a spacious area where attached houses and courtyards coexist.

The above graph illustrates that the level plan of Tibetan folk houses in Shangri-La is becoming more diverse in recent years. The front courtyard space has undergone four stages: no courtyard, a simple courtyard, a courtyard with a preliminary bungalow, and a courtyard with a complete auxiliary structure. This evolution is consistent with the changing state of the layout described by the owners of the four residential houses in Jidi Village. Remarkably, the entire auxiliary structure makes the current floor plan of the Tibetan



Figure 10. Floor plans of Shangri-La's Tibetan dwellings during the past decades.

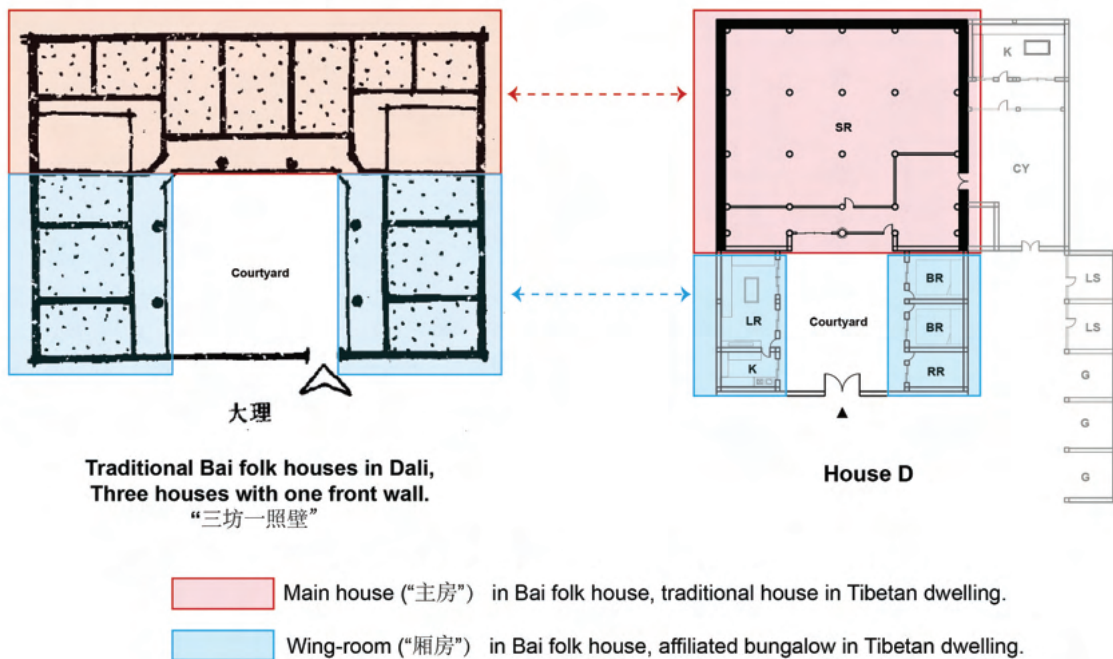


Figure 11. The comparison between Bai folk houses and modern Tibetan dwelling.

people's residence reflect a courtyard style (合院式) similar to the Bai traditional residences rather than Tibetan. To support this view, we conducted a comparative analysis on the level plan of modern Tibetan and Bai folk dwellings.

5.2. The integration of ethnic Bai cultures in the Shangri-La's Tibetan community

Three houses with one front wall (三坊一照壁) refer to the courtyard style (合院式) of a traditional Bai folk house in Dali. It is embodied as a main room (主房) connected by

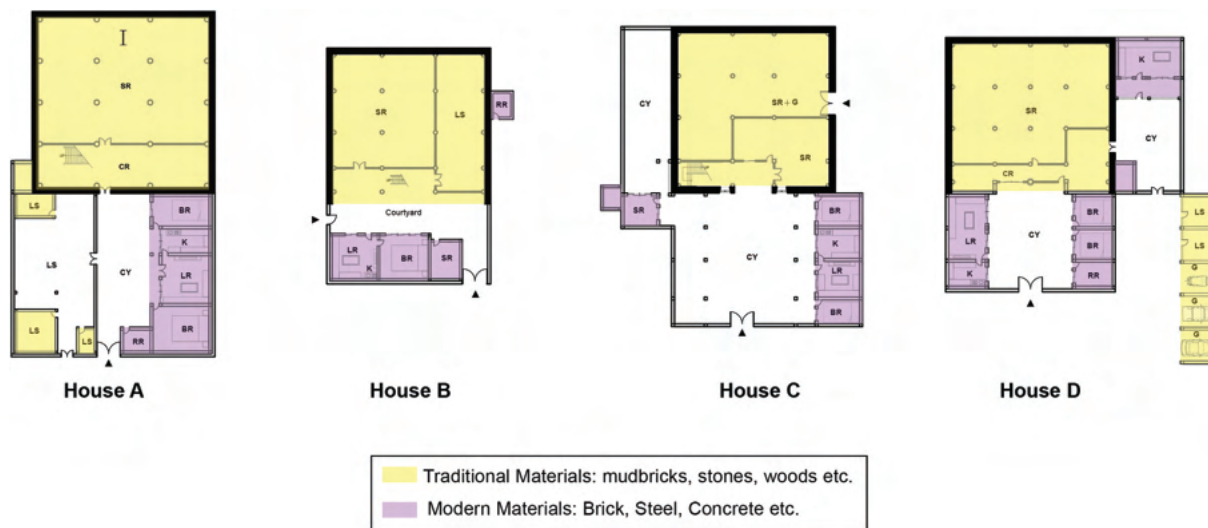


Figure 12. The building materials of four Tibetan dwellings.

two side wing-houses (厢房) on the floor plan. The modern Tibetan dwelling House D, whose constructors are Bai and Han workers from the Dali region, is highly similar to the traditional Bai residence on a floor plan. The attached structures on the east side of House D are not considered in the overall comparative plan as they are temporary structures used by the family during the Matsutake season and will serve as livestock sheds in the future. Regarding the traditional Tibetan structure of House D as the main room of the traditional Bai house, the attached structures on both sides of House D are equivalent to the wing room, as displayed in Figure 9. Furthermore, there is also a similarity in the primary and secondary grades between the two residential houses. The bedrooms in the main house of the Bai folk dwellings are designed for elders, while the wing room is for the younger generation. Similarly, the traditional Tibetan structure is regarded as a more critical space in daily life because of its sacred space, and the attached structure is relatively free and random.

In addition to the design of the door head discussed before, this combination of layout is another feature of integrating ethnic Bai's architectural cultures into modern Tibetan dwellings found in this paper. As an intermediary, the Bai workers contributed their skills and design concepts to Shangri-La Tibetan residences and facilitated multicultural integration successfully. The adjustment of artisans also raises the question of why Bai artisans from Dali City in the south can effortlessly enter Shangri-La to work. A major reason for this is the improved infrastructure of Diqing built by the Han people over the past decades. Improving transportation by the Han people provided a good platform for communication between

Tibetan people and ethnic Bai groups. The specific influence of the ethnic Han will be discussed below.

5.3. The alternation aroused by the ethnic Han on Shangri-La's Tibetan dwellings

In the past decades, the Diqing government has increased the construction of basic infrastructure, including the completion of air, land, and water transportation networks around 2000⁷ and the expansion of high-speed rail in a few years.⁸ Transportation improvement enables the various ethnic groups around Diqing to communicate more harmoniously. Construction artisans from other regions can more easily enter Shangri-La for technical construction exchanges. Aside from the various architectural labors, modern building materials were also introduced to Shangri-La. As a result, the building materials and the structure type of Shangri-La's Tibetan dwellings also evolved along with the introduction of modern materials. The traditional Tibetan residence is a civil structure built with traditional materials such as sun-dried mud-brick, wood, and stones. However, the attached buildings are mostly frame structures made of modern materials containing brick, steel, and concrete, as displayed in Figure 12.

New materials construct all the auxiliary structures in the study case. In conjunction with the analysis of plane evolution, it can be inferred that changes in building materials contributed indirectly to the formation of the Shangri-La's Tibetan courtyard style. As a result of the above analysis, it can be concluded that the architectural influence of the Bai ethnic on Tibetan dwellings in Shangri-La and the transformation of building materials can be attributed to the

⁷Referred to the "Shangri-La County Annals, 1978–2005". Compiled by Shangri-La Local Chronicles Compilation Committee. Kunming, Yunnan People's Publishing House, 2016. P587–596.

⁸According to the "Report on the work of the Diqing Government from 2005 to 2021".

construction of infrastructure by the ethnic Han. From this point of view, the Han also plays a critical driving role in the evolution of Shangri-La's Tibetan settlements.

5.4. The dominant role of Tibetan culture in residential houses

The evolution of Tibetan residences in Jidi Village demonstrates that the architectural influences of the Han and Bai ethnic groups are predominantly noticeable in the exteriors of the buildings. Nonetheless, Tibetan culture continues to dominate the interiors of Tibetan houses. Villagers can still discern Tibetan houses' social and cultural significance based on their size and ornamentation despite the integration of multiple cultures. Villagers can read the relationship between one family and the temple by observing the height of the building, evaluate the social level of one family by the decoration of the Chura, Thabka, and Barka, and estimate the Buddhist status of family members through the degree of the luxurious design of the Buddhist Hall.

Moreover, even the door built by Bai artisans gradually joined the symbolic system that the complexity represents the economic status. Architecture has become a carrier of Tibetan culture in these processes. Sacred space is a Tibetan residence's most frequently used and critical area. It is precisely because of the existence of the Buddhist Hall that traditional Tibetan architecture has more sacred significance than the attached modern-Tibetan architecture so that the villagers have absolute awe and protection of traditional Tibetan architecture. Although multi-ethnic cultures have been integrated into the dwellings, Tibetan culture and beliefs are still absolute dominants in the dwellings of Tibetan people.

6. Conclusion

The minority folk dwellings in the region of multi-ethnic areas are indeed a multicultural complex. Using the Jidi village as an example, this research examines the impact of multi-ethnic culture on Shangri-La's Tibetan dwellings in light of the present modernization issues of Tibetan folk houses. Integrated ethnographic approach and Space Syntax method were used to research modern Tibetan dwellings in Jidi village. The following conclusions are derived from an examination of the level plans, section maps, interview results and research references.

① Tibetan Buddhism's hierarchical structure profoundly impacts the scale, spatial arrangement, decoration, and traditional components of traditional buildings in Jidi village, revealing the overwhelming domination of Tibetan culture in Tibetan architecture. In the pursuit of a better living environment, however,

Tibetan inhabitants in Jidi village have produced numerous modifications and space enhancements to the Tibetan dwellings, which have become the most emblematic representation of the modernization of Tibetan residences.

② According to the analysis of overall level plans of research examples in Jidi village, it can be established that modern Tibetan dwellings have begun erecting reinforced concrete auxiliary constructions alongside traditional Tibetan structures. As confirmed by residents' oral histories and photo classifications, Tibetan dwellings in Jidi Village evolved from no courtyard to a simple large courtyard and eventually to a courtyard with attached structures. Analyzing relative references reveals that the inclusion of connected modern construction provides contemporary Tibetan dwellings in the Shangri-La region a solid resemblance to the courtyard residences of the Bai ethnic group.

③ Han and Bai's ethnicities profoundly influenced the modernization of Tibetan residences in Jidi Village, resulting from the unique context of multi-ethnic cultural integration in Shangri-La. The refurbishment of building materials is influenced by the Han ethnic, while Bai artisans influence the graphic design and construction of Tibetan houses. In addition, the decline of Tibetan artisans in Jidi village reveals that their traditions were not effectively transmitted; as a result, non-Tibetan artisans rather than their own were employed to construct contemporary Tibetan dwellings.

In ethnic minority areas, modernization and urbanization are unavoidable because the residents will not stop their pursuit of a high-quality living environment. Undoubtedly, more advanced materials and skilled artisans from other ethnic groups will significantly influence the folk houses of various ethnic minorities in the future. In this process, ethnic minorities like Tibetan must cultivate artisans by themselves to ensure the sustainable development of traditional architecture. Current economic systems have profoundly impacted the familial succession system of ethnic craftspeople. It is challenging to cultivate considerable numbers of ethnic craftspeople by relying only on the previous inheritance system, so we call on local governments and organizations to increase their support for educating ethnic artisans. The importance of ethnic craftspeople in the transmission of their own national culture cannot be overstated; when it comes to folk houses, they are even more knowledgeable than architectural experts. The ethnic artisans involved in the construction of local residential buildings are the only experts who can evaluate from a professional perspective which traditional elements should be retained or discarded in the face of modernization. Furthermore, it is necessary to maintain the primary construction status of ethnic artisans in their folk dwellings. In this way, the fusion of multiple cultures can be most effectively achieved

when confronted with another culture. Research on the training of ethnic artisans in China is worthy of more attention from architectural scholars in the future. It is precisely this area that we will explore in the future.

Notes

Ethnic Bai (Baizu, 白族) is a minority nationality with a long history and culture in southwest China. Mainly distributed in Yunnan, Guizhou, and Hunan provinces, among which the Bai nationality in Yunnan Province has the largest population, mainly living in Dali Bai Autonomous Prefecture in Yunnan Province.

Acknowledgements

The authors are grateful to the Jidi villagers willing to be interviewed and survey their houses for this paper. Our sincere gratitude extends to Cangpa Rinpoche and Rabutam for their assistance during the field trip. This study is one of the research outcomes of the Basic Research B Project(20H02341), which is funded by the Japan Society for the Promotion of Science.

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

This work was supported by the China Scholarship Council CSC202007030007

Notes on contributors

Yiling Hua is a Tibetan from Shangri-La and her Tibetan name is *Shesrab Kyi Grugzings*. She is a Ph.D. candidate at Waseda University in Japan, focusing on the research of the living environment in Asian highland settlements.

Nakatani Norihito is a professor at Waseda University in Japan. He is currently the Dean of the Architecture Department. His work focuses on the architectural history of Japan and the Millennium Villages.

Date availability

The authors confirm that the data supporting the findings of this study are available within the article and appendices.

Data source

All photographs included in this work were captured by the authors during on-site surveys conducted in 2021.

Figures 1–, Figure 7,10,12 were drawn by the authors. The photos in Figure 8 were taken by the authors. Figures 9, 10, and Figure 11 were drawn and edited by the authors.

Here are some quotes in Figures 9–11 listed as below:

Figure 9 The traditional door of Bai's residence is cited from "Yunnan Design Institute editorial group of Yunnan Folk

Houses" published in 1986, p27. China Architecture and Building Press.

Figure 10 Jiang's drawing is referred to "Yunnan ethnic housing culture", published in 1997, page 284. Yunnan University Press. Zhai's drawing is cited from "Yunnan Tibetan House", published in 2008, page 36. Yunnan Science and Technology Press.

Figure 11 The drawing of Bai folk house is cited from "Yunnan Design Institute editorial group of Yunnan Folk Houses", published in 1986, page 33. China Architecture and Building Press.

References

- Bolchover, J. 2016. "Settling the Nomads: Rural Urban Framework, an Incremental Urban Strategy for Ulaanbaatar, Mongolia." *Architectural Design* 86 (4): 20–27. doi:10.1002/ad.2063.
- Dong, J., and H. Jin. 2013. "The Design Strategy of Green Rural Housing of Tibetan Areas in Yunnan, China." *Renewable Energy* 49: 63–67. Google Scholar. doi:10.1016/j.renene.2012.01.065.
- Duan, S. 1939/2009. [Google Scholar] (:). ". First published in 1939, reissued in 2009. The Chinese name is 民國中甸縣志稿/中國地方志集成. 雲南府縣志輯 第83卷 民國中甸縣志稿. 83. Shanghai, China: Phoenix Publishing House.
- Ewing, S. 2003. "Traditions of Appearance: *Adaptation and Change in Eastern Tibetan Dwellings*. Traditional." *Dwellings and Settlements Review* 15: 73–84. <https://www.jstor.org/stable/41758031>
- Feng, H. 2020. Cultural Architectural Assets: A new framework to study changes and continuity of dwellings of Mosuo tribe in transitions. Doctoral dissertation, Birmingham City University.
- He, Q. 2009. *Research on Architectural Culture of Tibetan Vernacular Housings*. PhD Dissertation, 110–122. [Google Scholar]
- Jiang, C. 1997. *Yunnan Ethnic Housing Culture*. Yunnan, Kunming: Yunnan University Press.
- Norihito, N. 2017. *Moving Earth and Shape of Living: Travelling Along the Edge of Eurasia Plate*. Japanese: 動く大地、住まいのかたち——プレート境界を旅する. Tokyo, Japan: Iwanami Shoten.
- Oliver, P. 1969. *Shelter and Society*. ISBN 0-21466796-0. London: Barrie and Jenkins.
- Pavlidis, E., and G. Cranz. 2012. *Ethnographic Methods in Support of Architectural Practice*. *Enhanced Building Performance*. 299–311. Blackwell Publishing Ltd.
- Rapoport, A. 1976. *The Mutual Interaction of People and Their Built Environment*. Berlin, Germany: De Gruyter Mouton.
- Relph, E. 1976. *Place and Placelessness*. London: Pion.
- Shan, J., and Y. Wu. 2013. "Study on the Eco Low-Tech Strategy of Tibetan Dwellings in Yunnan." *South Architecture* 3: 4–7. Google Scholar.
- Taniuchi, M., and T. Shiotani. 2011. "A Study on the Spatial Concept of Tibetan People as Defined by Their Way of Spatial Recognition and Behavior in Their Dwelling Life: In the Case of Pooh-Lei Village in Shangri-La (Zhongdian) Prefecture, Yunnan, China." *Journal of Architecture and Planning* 76 (667): 1585–1592, Google Scholar. doi:10.3130/aija.76.1585.
- Wang, Z. 2006. "The Social and Cultural Background Analysis of the Tibetan Residence at the Northeast of Shangri-la: Investigation of Wongshui Village, Gezan Country, Shangri-la." *Architecture History* 24: 170–173. Google Scholar.

- Xu, Z. 2004. *An Introduction to Tibetan Traditional Architecture*. Beijing, China: China Architecture & Building Press. [Google Scholar].
- Yamamoto, N. 2019. *The World of Tropical Highlands*. Japan: Nakanishiya Press.[NDL Online].
- Yu, L. 2019. "Study on the Blending of National Culture in the Painted Decoration of Tibetan Dwellings." In 3rd International Conference on Art Studies, Paris, France: Science, Experience, Education. Atlantis Press. 303–307. <http://creativecommons.org/licenses/by-nc/4.0/>
- Yun, J. (2016). Experiential Analysis of the Vernacular: South Korea's Gudeul System. *Journal of Asian Architecture and Building Engineering*, 15(2), 169–175. doi:10.3130/jaabe.15.169.
- Zhai, H., W. Bai, and L. Wang. 2008. *Yunnan Tibetan House*. Yunnan, China: Yunnan Science and Technology Press.
- Zhang, M., J. Zhang, Q. Liu, T. Li, and J. Wang. 2022. "Research on the Strategies of Living Conservation and Cultural Inheritance of Vernacular Dwellings—Taking Five Vernacular Dwellings in China's Northern Jiangsu as an Example.Sustainability." 14 (19): 12503. doi:10.3390/su141912503.
- Zhao, Z. 2020. *Study on the characteristics of the cultural elements of Tibetan dwellings in Shangri-La*. Master's thesis, Beijing University of civil engineering and Architecture. [Google Scholar]