

The Research on the Architectural Space of Folk Houses in Guangxi Yao Mountainous Areas from the Perspective of Regional Culture

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Abstracts

Promoting and deepening the protection and utilization of traditional national villages is to enhance national cultural self-confidence, how to protect and inherit the resources of national traditional cultural villages, and scientifically use existing resources to achieve sustainable development has become a difficult problem to be studied and solved and further to explore the impact of regional culture on residential buildings in the mountainous areas of the Yao people in Guangxi and further to study how the essence of traditional architectural elements can inherit its culture with modern artistic language.

This study aims to explore the spatial characteristics and changes of residential buildings in Guangxi Yao mountainous areas from the perspective of regional culture. By comprehensively using on-site research, literature review, case studies, and interview research methods, this article conducts an in-depth analysis of the spatial layout and structural characteristics of Yao folk residential buildings in different geographical and cultural backgrounds. The research results reveal the profound influence of regional culture on the spatial design of residential buildings, and show how the characteristics and structure of architectural spaces develop and change with time and modern influences. In addition, the study also discussed the balance between residential architecture adapting to modern life and maintaining cultural heritage.

This article proposes a series of strategies for the protection and development of residential buildings, emphasizing the importance of promoting cultural inheritance and regional identity. The research not only provides a theoretical basis for the protection and development of Yao residential buildings in Guangxi, but also provides valuable guidance for future research in related fields.

Keywords: Residential Architecture; Regional Culture; Architectural Space Analysis; Cultural Inheritance

Introduction

The term "regional culture" is used to describe how various parts of China still contribute to the country's overall heritage and identity today. Nature, the humanities, and the social environment all have a role in shaping regional culture, which is itself constantly evolving via the incorporation of new traditions and ways of life. When it comes to the human spirit, regional culture is the social process that plays a part in the area, the main line of history, the scene as the bearer, and the reality of appearance. Including not only the national religion, philosophy, traditions, art, and whole value system, but also the national worldview, national economic, political, religious views, and other cultural manifestations. Therefore, as a country progressed historically, its values, aesthetic ideals, and traditions emerged as a result of a

confluence of natural and social factors. The Guangxi Yao ethnic Jinxiu Autonomous County, referred to as Yaoshan in the Chinese language, is a picturesque region and mountain range situated in the Guangxi Zhuang Autonomous Region in the southern part of China.

Fifty-six ethnic minorities in China have their own unique history and traditions and those national cultures are an irreplaceable legacy left by our ancestors. There is a big difference between contemporary popular culture and traditional national culture, so it is necessary to find a balance in the relationship between the two. From a diversified perspective, it is of great practical significance to protect and study ethnic villages. Promoting and deepening the protection and utilization of traditional national villages is to enhance national cultural self-confidence, how to protect and inherit the resources of national traditional cultural villages, and scientifically use existing resources to achieve sustainable development has become a difficult problem to be studied and solved. With the rapid development of the times, the practical functions of traditional residential buildings need to be continuously optimized and updated with the pace of the times. Yaoshan traditional residential buildings are a direct proof of the glory of China's ethnic minority culture. Due to the proliferation of modern building materials and design languages, the inheritance and innovation of traditional nations are particularly important.

The Yao people are a representative ethnic group in the history of Guangxi with a long history. In the long history of Chinese civilization, the ancestors of the Yao people were oppressed and disturbed by wars and continued to migrate to Guangxi and Guangdong in southern China. Eventually, a cultural circle pattern was formed with Jinxiu Dayao Mountain in Guangxi as the center, and continued to spread outward to southern Hunan, northern Guangdong and other places to form collateral branches. Due to differences in social environment, natural environment, and ethnic exchanges, each residential area has gradually developed into villages and settlements with Yao ethnic characteristics. These villages and settlements are the bearers and important components of the Yao cultural heritage. They are concrete manifestations of the Yao people's natural environment, economic technology, social form, political ideology and scientific and technological innovation. They are also the essence of the Yao people's traditional history and culture.

From the perspective of regional culture, the residential buildings in the Yao mountainous areas of Guangxi are not only symbols of the national spirit, but also the material expression of the traditional culture and intangible cultural heritage of Guangxi's ethnic minorities. These buildings reflect the harmonious coexistence between the Yao people and the natural environment, embodying the unique social structure and lifestyle. However, due to lagging economic development and remote location, these traditional villages lack effective protection and inheritance mechanisms.

With China's special urban-rural structural relationship, the socio-economic development of ethnic minority areas is uneven. On the one hand, ethnic minority villages, as important carriers of traditional ethnic culture, are facing the crisis of being forgotten and vacant. On the other hand, urban residents are full of interest and yearning for the traditional culture and folk customs of ethnic minorities, which has stimulated attention to the tourism and cultural industry in ethnic minority areas. Driven by the sharing economy and self-media economy, this interest has promoted the spread and development of ethnic minority tourism culture.

The residential buildings of the Yao people in mountainous areas of Guangxi deeply reflect the cultural traditions and living habits of the Yao people in terms of location, function, spatial structure and building materials. These buildings are not only cultural heritage but also

key elements in the development of the tourism industry. Therefore, it has become particularly important to renovate and upgrade these buildings to adapt to the needs of modern life while retaining their cultural value and historical significance. In the context of the proliferation of modern building materials and design languages, it is even more urgent to protect and innovate traditional national culture.

Research Objectives

1. To study and explore the influence of regional culture on the architectural space of Yao ethnic minority residences in mountainous areas and to explore the spatial structure and expression form of the architectural space of Yao ethnic minority residences in mountainous areas in the design.

2. To analyze the existing problems of Yao ethnic minority residential buildings in mountainous areas, and what modern art design paradigm should be used to innovatively design and transform the Yao ethnic minority residential architectural spaces in mountainous areas.

Research Methodology

1. Population and Sampling

1.1 Choice of research area

The researcher chose to conduct field research in the residential areas of Yao mountainous areas in Guangxi, mainly located in Jinxiu Yao Autonomous County, Laibin City, Guangxi Zhuang Autonomous Region. The local data are as follows:

- 1) The overall study of this study is the residential buildings of the Yao ethnic group in the Dayao Mountain area of Jinxiu Yao Autonomous County, Laibin City, Guangxi Zhuang Autonomous Region.

- 2) The sample of this study is the residential buildings in Zhaimentou Village, a Yao village in Liuxiang Township, Jinxiu Autonomous County, Guangxi Zhuang Autonomous Region.

- 3) The groups providing information are local villagers, government agency staff, experts in the design field.

2. Population sample Random sampling

The selection of research samples will focus on those individuals and regions that can provide in-depth information on the inheritance and innovation of residential architecture. Information provided by:

- 1) Five local residents with profound knowledge of residential architecture (Detailed information is shown in Table 1). They not only have rich traditional knowledge of architecture, but may also have experienced changes in construction methods.

Table1 Basic information of the interviewee

Serial number	Name	Profession	Years of residence	Relationship with Yao folk residential architecture
1	Long Wenbin	Local villager and craftsman	56 years	Mr. Long Wenbin grew up in a mountainous area of the Yao ethnic group. He understands the structure and materials of traditional residential buildings and has personally participated in the restoration of many buildings.
2	Zhao Wanqing	cultural researcher	33 years	Focusing on the protection of the cultural heritage of the Yao people in Guangxi, he has conducted in-depth research on residential architecture.
3	Li Zehua	cultural researcher	38 years	Focusing on the protection of the cultural heritage of the Yao people in Guangxi, he has conducted in-depth research on residential architecture.
4	Huang Meiyong	Village committee member	42 years	As a member of the village committee, Ms. Huang Meiyong actively participates in residential building protection projects in the village to promote the inheritance of cultural heritage.
5	Zhou Daming	Village committee member	35 years	Actively promote the development of tourism projects in Yao mountainous areas, and have unique insights into the commercial potential and market trends of residential buildings.

2) Five experts in folk residential architecture(Detailed information is shown in Table 2). These experts can be scholars, architects or cultural workers. They have in-depth understanding and research on the history, characteristics and innovation of Yao folk houses.

Table 2 Interview expert information sheet

Serial number	Name	Job title	Employer	Professional field
1	Tao Xiongjun	Full Professor	Guangxi Arts University	Minority Architecture
2	Lin Hai	Full Professor	Guangxi Arts University	Minority Architecture
3	Lu Hongyang	Full Professor	Guangxi Arts	Ethnic Minority Visual Design

University				
4	Qi Wanli	Full Professor	Guangxi Arts University	Ethnic Minority Visual Design
5	He Jinsong	Senior Engineer	Hualan Design Institute	Architectural Design

Research Instrument

1. Interviews

This refers to the guidance and documentation of in-depth interviews with architects, villagers, cultural inheritors, and other relevant individuals. The design of the interview outline includes on-site interviews with five Yao elders deeply knowledgeable about traditional domestic architecture. These individuals possess not only a rich understanding of architectural traditions but have also experienced firsthand the evolution of building methods. The interview content is divided into four parts. The first part collects basic information about the interviewees, gathering background data to understand their connection with Yao domestic architecture. The second part discusses the tradition and current state of Yao domestic architecture, examining traditional features, recent changes, and the present condition of these buildings. The third part explores protection and development measures, discussing the efforts and policies of the government and community regarding the preservation and development of domestic architecture. The fourth part looks into future development and prospects for innovation, seeking insights and suggestions on how to protect traditional architecture while advancing innovation.

2. Field Research

This involves meticulous on-site observation and recording of Yao domestic architecture, focusing on aspects such as structure, materials, construction techniques, and decorative styles. Observations also include the community's daily life, festival activities, and the role of architecture in these contexts.

3. Group Discussions

Esteemed experts and scholars are invited to form a panel to test and evaluate the interviews and engage in discussions.

Refinement and Processing of the Instrument:

This study, conducted from April 2020 to December 2023, utilized a series of diversified research methodologies to gather data and information. These methods included literature review, in-depth interviews, non-predictive behavioral observation, and group discussions. Additionally, expert panel discussions were employed to evaluate the architectural design of domestic buildings in the Yao mountainous regions of Guangxi. These discussions aimed to propose improvements, gather feedback, and apply the best solutions to practical designs.

Analysis and Statistical Treatment:

In this study, a comprehensive approach involving literature evaluation, in-depth interview analysis, and on-site observation was applied to thoroughly analyze the heritage and innovation of domestic architecture in the Yao mountainous regions of Guangxi. Through these methods, not only were the traditional values and current challenges of the architecture

revealed, but also the potential pathways for its development and innovation were explored. Ultimately, this aggregate of data provided profound insights into the preservation, utilization, and development of the architecture, offering substantial support for policy formulation and design practices.

Literature Review

The study of residential architecture in the Yao mountainous areas of Guangxi can be summarised in four main areas:

One is to take a single Yao mountain village as an example and conduct an investigation and research on the morphology and architectural features of the village. Xu Yingying et al.(2010) investigated the ancient buildings and settlements of Langshan Village, a flatland Yao village in Gongcheng County, Guangxi, and proposed corresponding protection and utilisation strategies in the Study on the Protection and Utilisation Strategies of Ancient Residential Buildings in Langshan Village, Gongcheng Yao Autonomous County, Guangxi. The typical features of traditional Yao villages and architecture in the mountainous areas of northern Guangxi were studied by taking Longsheng Xiaozhai village residence in Guilin as an example in "Research on the design and application of Guangxi Yao dry-rail type residential architecture based on sustainable development: taking Longsheng Xiaozhai village residence as an example" (Cong, 2017). Zheng Lipeng and Guo Xiang conducted detailed research on Nangang Gu Pai in the northern region of Guangdong, and in Nangang Gu Pai: Yao Villages and Architecture (Zheng & Guo, 2009), they summarised the basic features, architectural forms, and ethnic characteristics of the villages in Nangang Gu Pai, a Yao village in the northern region of Guangdong. Xuan Chen, in "Longsheng Xiaozhai Settlement and Dwelling Forms" (Xuan, 2011), studied the settlement forms and architectural features of Longsheng Xiaozhai Village in Guilin and summarised the basic ideas on how to inherit and protect the settlement forms and dwelling features under the current situation.

The second is to study and classify the characteristics of the Yao settlements in a certain Yao settlement area. Zhu Tao investigated the Yao settlement in Jinxiu, Guangxi, and pointed out in "Visiting the Architecture of the Yao in Jinxiu" (Zhu, 2009) that the multi-ethnic origin of the Yao people makes the architecture of the Yao people of different clans within the same geographical area also show differences. In "Architectural Characteristics of Yao Folk Houses in Yongzhou" (Yao, 2014), the architectural characteristics of the mountain Yao in the Yongzhou region are discussed in terms of ethnic concepts, architectural types, and architectural decorations. In "Generating New Settlement Forms and Architectural Forms Based on Regional Culture: Taking Jinxiu Eco-Museum Park Planning as an Example" (Lu, 2015), an article that examines the new paradigm of modern design in Jinxiu Yao Autonomous County in Guangxi under the influence of regional culture, the characteristics of Yao folk residence architectural culture and its application in modern design are described. Wang Mengpi wrote "Changes in the Cultural Changes of Huaban Yao Folk Houses and Architecture" (Wang, 2007) after a field study of the Jinxiu Dayaoyao Mountain area in Guangxi and summarising the characteristics and changes of the Huaban Yao folk houses and architectural culture, which provides a good model for the study of the Yao mountainous area's folk houses and architecture. In Guangxi Folk Habitat (Lei, 2005), Yao architecture is studied from the perspective of ethnicity, and Yao architectural cases are studied and analysed so as to put forward strategies for the protection and development of Yao residential architecture, but

the focus of the whole book is not only on the study of Yao mountainous area residential architecture but also on the study of residential architecture of other ethnic groups.

Thirdly, it is a comparative study of the settlements of many ethnic groups in a certain minority settlement area and the folk dwellings of the Yao people. In Zhao Zhi's *Research on Traditional Settlements and Folk Houses of Guangxi Zhuang* (Zhao, 2012), the folk houses of the Zhuang folk settlement area in Guangxi are classified and compared according to their ethnicity, and at the same time, the characteristics of the folk houses of Yao, Miao, and Dong are compared horizontally. By comparing a number of geographically similar but ethnically different villages, the conclusion is drawn that the ethnicity of the settlement and the regional coexistence are reached. The *"Folk Architecture of Northern Guangxi"* (Li, Quan & Lu, 1990) completed by Li Changjie and his colleagues also involves the comparison between Yao and other ethnic minorities, and a large number of dwellings, drum towers, and wind and rain bridges of Zhuang, Dong, Miao, and Yao villages in the minority areas of northern Guangxi are surveyed and mapped, which provides a rich and exquisite demonstration of Guangxi's ethnic minority architecture. In the early 1990s, the architectural profession made an important achievement of the ethnic minorities' residential buildings, *"Guangxi Ethnic Traditional Buildings"*, which comprehensively depicted the representative traditional buildings of the Han people and many ethnic minorities in Guangxi, including residential buildings, gardens, temples, ancestral halls, ancient bridges, ancient pagodas, academies, drum towers, etc., and carried out a large number of measurements and photographs, recorded the social and cultural information of the residential buildings and the villages where they were located in detail, and displayed the residential buildings of the 12 typical ethnic minorities in Guangxi, which also became the most important and beautiful display of ethnic minorities' architecture. The book is a detailed record of residential buildings and the social and cultural information of the villages in which they are located, showing a catalogue of the dwellings of 12 typical ethnic minorities in Guangxi, and it has also become a major reference work for the study of ethnic architecture.

Fourthly, it summarises the Yao settlements and dwelling forms and explains the factors that have an impact on their forms. In *Cultural Psychology and Yao Residential Architecture* (Zhao, 2009), the main architectural forms of the Yao are summarised, as well as the influence of religious beliefs, family ethics, and national consciousness on the architectural forms of Yao settlements. Xiong Wei's doctoral thesis, *"Research on Traditional Vernacular Architectural Culture of Guangxi"* (Xiong, 2012), comprehensively applies multidisciplinary theories and methods of geography, history, society, ethnicity, etc. to study the differences and summarise the architectural and cultural forms of residential architecture between residential architecture of other regions of Guangxi and that of the mountainous region of the Yao people, so as to comprehensively and systematically expound and sort out the architectural culture of Guangxi.

Research Scope

1. Scope of the content

From a regional cultural perspective, this study systematically explores the inheritance and innovation of residential architecture in the Yao ethnic areas of Guangxi. Through literature reviews and field research, it delves into the spatial structure, function, and material utilization of these buildings, aiming to reveal potential pathways for innovation and cultural continuation in modern design contexts of Yao dwellings.

2. Regional scope

This article takes Jinxiu Yao Autonomous County, Laibin City, Guangxi Zhuang Autonomous Region as the research object .

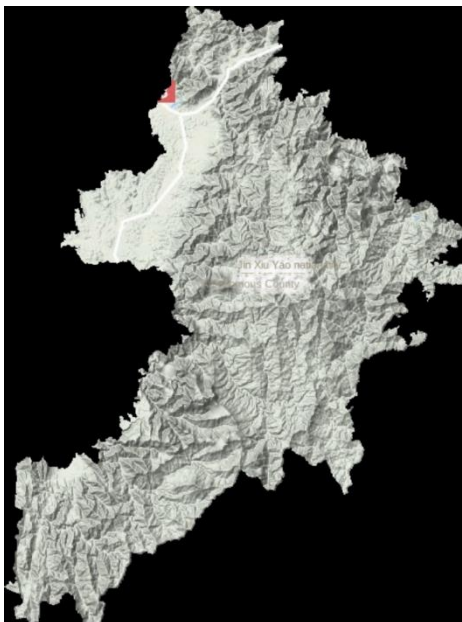


Figure 2 Topographic map of Jinxiu County, Guangxi
Source: From the author(2019)

3. Population range

Groups providing information include: house builders, local villagers, government agency staff, experts in the design field and tourists.

4. Scope of the time

From April 2020 to December 2023.

Conceptual Framework

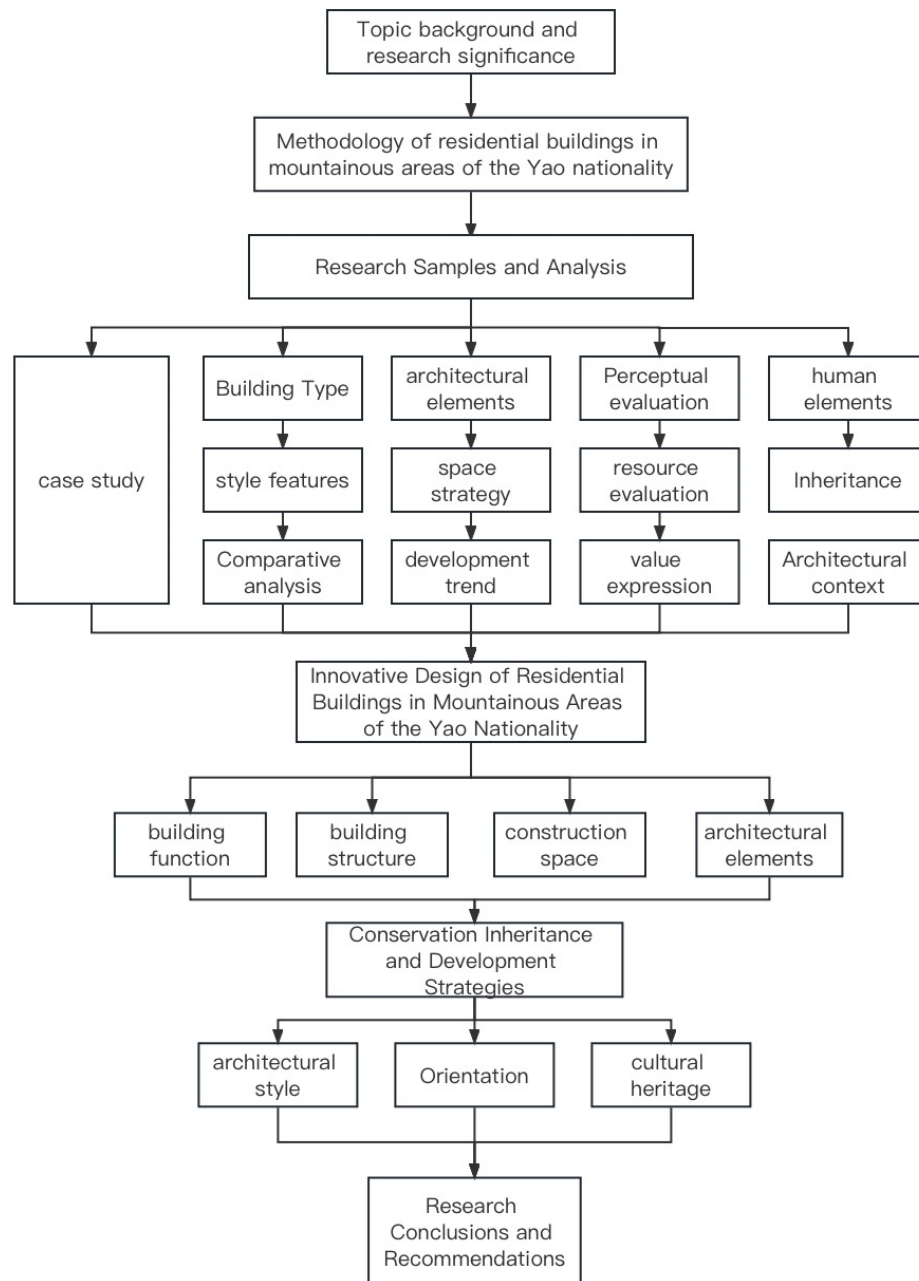


Figure1 Research Framework Roadmap
Source: From the author (2022)

Research Findings

1. Cultural Influence on Yao Residences in Mountains

The mountain residences of the Yao ethnic group in Guangxi, as external manifestations of thousands of years of social evolution and ethnic cultural accumulation, profoundly reflect the integration of the ethnic history, cultural spirit, artistic style, and geographical ambiance. These residences, as a tangible embodiment of culture, hold value both in their physical form and in the intangible aspects they encompass.



Figure3 The Yao ethnic villages built along the mountainsides.
Source: From the author(2021)

On the material level, the mountain residences of the Yao ethnic group in Guangxi are more than just physical structures of brick and tile. They reflect the depth of Chinese national history and the breadth of social development through village planning, architectural layout, structural design, and decorative art. Every architectural detail serves as a tangible record of the economic conditions, technological levels, and social ideologies of the time. The construction logic, materials used, and technical methods of these residences, shaped by different geographical environments and ethnic backgrounds, are uniquely distinctive. Such diversity showcases the evolution of these dwellings across various historical stages and economic contexts, forming a multifaceted epic of human societal development.

On the intangible level, the cultural influence of these mountain residences extends far beyond their architectural essence. They are both products of local culture and, in turn, shape and sustain the lifestyle of the region. From the simple spatial organization of family structures in primitive societies to the complex communal living forms in agricultural societies, the spatial organization and functional layout of these residences reveal the evolution of productive forces and changes in social relationships. Similarly, shifts in emotions and beliefs are engraved in the layout of the villages and the form and decorative details of the residences, making traditional homes more than just physical remnants. They are a continuation of traditional ways of living and historical narratives.

2. Analysis & Design Guidance for Yao Residences in Mountains

The study specifically focuses on the Yao residences in Jinxiu Mountain, Jinxiu County, in the Guangxi Zhuang Autonomous Region, as a unique representation of Yao architectural art. The findings indicate that these residences not only exhibit distinctive architectural

characteristics of the Yao people but also profoundly reflect the traditions and customs of the Yao ethnicity on cultural and social levels. The drum-shaped houses (As shown in the Figure 4) in Jinxiu Mountain Yao residences are a prominent architectural feature. Their cylindrical design and structural details, such as the use of wooden columns to support tile roofs and the construction of blue brick walls, demonstrate careful consideration of living space. These buildings are not only practical in addressing the local rainy climate and mountainous terrain but also reflect Yao social customs and emotional expressions in cultural elements such as "climbing floors" and "partition doors." These characteristics leave an imprint not only in architectural form but also culturally, showcasing the emotional expressions, social interactions, and emphasis on privacy in living spaces of the Yao people. Additionally, the use of painted eaves and bright tiles reflects the unique aesthetic and artistic creativity of the Yao people, further enriching the understanding of the spatial structure and expressive forms in the design of Yao mountain residences' architectural space.

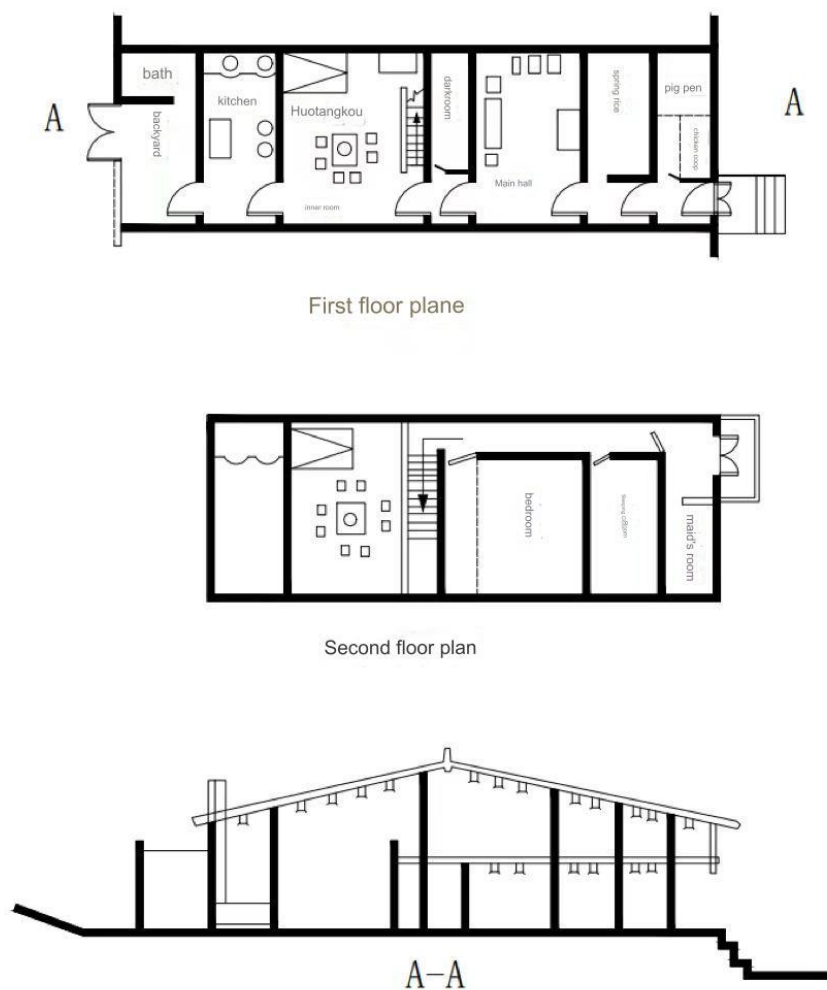


Figure 4 Architectural drawing of Shanyao residential buildings in Jinxiu County, Guangxi
Source: From the author(2023)

Through interview surveys, background information of the interviewees was collected, providing deep insights into their relationship with Yao ethnic residential architecture. The discussions explored the traditional characteristics of these residences, their changes in recent years, and their current state. In discussing the tradition and current status of Yao residential architecture, interviewees highlighted traditional features such as unique design, use of materials, and cultural significance. They also noted recent changes, including impacts of modernization and socio-economic development, and the challenges these changes pose to residential architecture and local communities. Regarding protection and development measures, the interview results indicated that while the government and communities have taken steps to protect these residences, there remain several issues and challenges. The problems mentioned by interviewees include insufficient funding, inadequate implementation of protection policies, and a lack of appreciation for the value of traditional architecture. Finally, in discussions about future development and innovation prospects, the interviewees proposed various insights and suggestions for protecting traditional architecture while promoting innovation. These include using modern technology to improve the functionality of the buildings while maintaining their traditional features; enhancing the promotion and education of the cultural value of Yao residential architecture to raise public awareness; and encouraging community participation and support in the preservation and development of traditional buildings.

Discussion

This study focuses on analyzing the traditional characteristics of Yao ethnic residential architecture in Guangxi while exploring the evolution and challenges faced by these structures in the context of modern society. From a regional cultural perspective, the study not only pays attention to the material aspects of the architecture, such as structure, materials, and design, but also delves into the deeper cultural values and social significance embodied by these buildings. These residential structures are not only concrete manifestations of Yao cultural history and artistic style but also play significant social and cultural roles within the Yao communities. Distinguishing itself from existing research, this study employs a comprehensive and multi-faceted research approach. Through in-depth interviews and surveys of local residents and experts, rich information about the traditional characteristics and transformations of Yao residential architecture was gathered. This information covers not only the physical attributes of the buildings but also includes residents' emotional connections, usage experiences, and understanding of their socio-cultural value.

The study deeply explores how Yao residential architecture confronts challenges amidst modernization while retaining its traditional features and cultural essence, from a regional cultural viewpoint. It proposes a series of suggestions aimed at protecting and developing these traditional buildings, including integrating modern architectural techniques and materials to improve the buildings' durability and functionality without compromising their cultural characteristics. Additionally, the study emphasizes the importance of raising public and policymaker awareness of the cultural value of these buildings and the necessity of encouraging community involvement in their preservation and development.

In summary, this research offers a comprehensive perspective that focuses not only on the material and functional characteristics of Yao ethnic residential architecture in Guangxi but also profoundly investigates their significant position in the culture and society of the Yao

regions. It provides valuable theoretical and practical guidance for the preservation and development of these cultural heritages.

Recommendations

Based on the findings of the study on Yao ethnic mountain residence architecture in Guangxi from a regional cultural perspective, the following suggestions are proposed:

1. **Preservation of Traditional Architectural Techniques:** Emphasize the importance of preserving traditional building methods and materials, which are integral to maintaining the cultural authenticity of the Yao ethnic residences.

2. **Integration of Modern Technologies:** Incorporate modern technologies to enhance the durability and functionality of these structures while ensuring that the integration respects and maintains the traditional architectural essence.

3. **Community Engagement and Education:** Foster community involvement in the preservation efforts and educate locals, especially the younger generation, about the significance of their architectural heritage to ensure its continuance and care.

4. **Cultural and Historical Documentation:** Document and study the historical and cultural significance of these residences extensively to create a comprehensive record that can guide future preservation and restoration efforts.

5. **Promotion of Cultural Tourism:** Develop cultural tourism that respectfully showcases these unique architectural spaces, generating awareness and economic benefits for the local communities while ensuring that tourism does not compromise the integrity of the residences.

6. **Supportive Policies and Funding:** Advocate for supportive government policies and sufficient funding for the preservation and restoration of Yao mountain residences, recognizing their value as cultural heritage sites.

7. **Collaboration with Experts and Academics:** Collaborate with architects, historians, and cultural experts to develop restoration and preservation strategies that are historically accurate and culturally respectful.

8. **Innovative Adaptive Reuse:** Explore adaptive reuse possibilities for these buildings in ways that can serve modern needs while respecting and preserving their historical and cultural significance.

9. **Public Awareness Campaigns:** Conduct public awareness campaigns to highlight the cultural and historical value of the Yao ethnic mountain residences, thereby garnering broader support for their preservation.

10. **Sustainable Development Practices:** Ensure that any development or restoration practices are sustainable and environmentally friendly, preserving not just the buildings but also the surrounding natural landscape.

By implementing these suggestions, the unique architectural heritage of the Yao ethnic mountain residences in Guangxi can be preserved and appreciated for future generations.

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