Vernacular Revival



An approach to preservation of vernacular architecture of 'Tày' ethnic minority in Vietnam

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Author: Minh Do Quang Examiner: Jesper Magnusson Supervisor: Jesús Mateo To my beloved hometown, Luc Yên

To my indigenous friends

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My greatest gratitude goes to *Swedish Institute* which offered me a scholarship to pursue a Master's study in Sweden.

My thanks go particularly to *Jesús Mateo* and *Jesper Magnusson* who constantly gave me encouragement and constructive feedback from the very beginning. Thanks to my friends in Vietnam for helping me to collect sufficient data when I was stuck here during the pandemic. I owe a special thanks to indigenous people, who had generously shared a lot of pictures and information about their houses as well as conducted the survey. Without them, this thesis could not be done properly. Finally, I am forever grateful to my family for their unfailing support and love.

Foreword

6

I have always interested in vernacular architecture and the cultural diversity around the world. Since I had grown up in a little small town in a remote region of Northern Vietnam, I had been exposed to the culture and traditional houses of indigenous people.

However, I've also witnessed a remarkable change in the housing landscape of the villages in recent years due to the introduction of new urban architecture from the city. Industrial materials like concrete, steel gradually have replaced traditional ones like bamboo, wood, and palm leaves. Many people believe that those modern houses replicated from the city represent development and prosperity. Nevertheless, it poses a threat to the vernacular architecture which has been used for hundreds of years. As an architect, I have been wondering how this vernacular architecture adapts to the circumstances of the modern world and what is a solution for this matter. This thesis is an investigation of the vernacular architecture of the indigenous people and case studies to propose a preservation model for the village from master plan to contemporary vernacular typologies.

Contents

- 05 Acknowledgements
- 07 Foreword
- 11 Introduction
- 17 Research questions
- 19 Chapter I: Observation

A study on stilt house - traditional house of 'Tay' ethnic minority

41 Chapter II: Case studies

Conservation models in Sweden

47 Chapter III: A master plan

A strategy on preservation model for the village

67 Chapter IV: Typologies

Different contemporary vernacular typologies

- 115 Reflection
- 116 References

















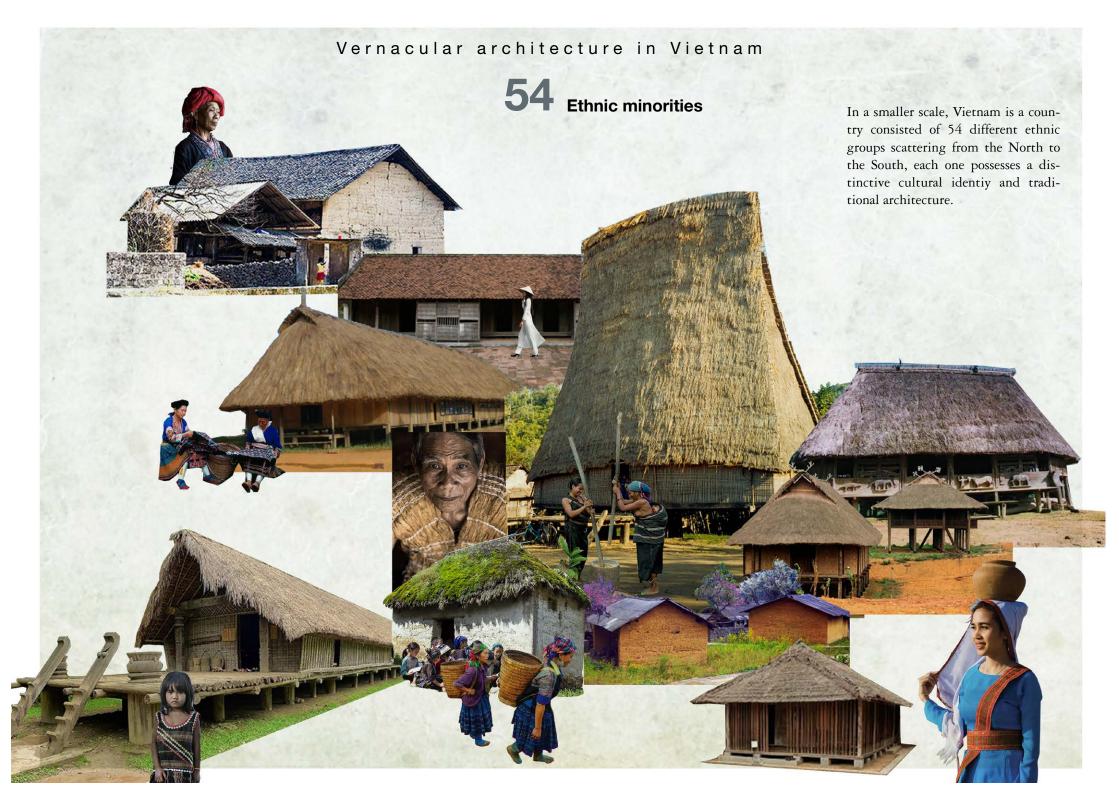
Introduction

"Vernacular architecture is described as a built environment that is based upon local needs; defined by the availability of particular materials indigenous to its particular region; and reflects local traditions and cultural practices" (Wikipedia)

On the global scale, vernacular architectures are unique to different places in the world, representing different climates and environments from Polar regions to the Equator. Vernacular buildings are examples of architectural sustainability since it is a result of a long process adapting to the local environment and built from local resources.

- 1. Igloo, Arctic circle
- 2. Wooden house, Sweden
- 3. Cob house, UK
- 4. Half-timber building
- 5. Decorated Mud houses, Africa
- 6. Mud brick houses, Egypt
- 7. Tulou, China
- 8. Thai stilt house, Thailand

[7]





The invasion of concrete and brick houses in the countryside

However, rapid urbanization and modernism has changed remarkably the built environment from the city to the countryside in the past few decades in Vietnam. It has not only changed the way indigenous people build their houses, but also the way they live in the new circumstances of the modern world. As the result, many of these vernacular architecture has faded out, transformed, or even disappeared in modern society.

Research questions

How to preserve the seemingly vanishing vernacular architecture of those ethnic minorities?

How these vernacular architecture adapt to the circumstances of the modern world?

Objectives

The goal of this thesis is to find a sustainable model for preserving and promoting vernacular architectures of 'Tay' ethnic minority while proposing contemporary vernacular typologies adapted to the modern lifestyle.



Chapter I: Observation



[9] Tày women in Yên Bái province

'Tày' ethnic minority

Population: Around 1,8 million (1,9 % of population of Vietnam)

Region: Mountainous region of Northern Vietnam

Economy: Agricultural activities (cultivating wet rice), livestock farming and forestry.

Religous belief: Ancestors worship

Language: Tây dialect

Traditional house: 'Nhà sàn' - Stilt house



[10] Traditional stilt house of Tày people in Nghĩa Đô commune, Lào Cai province

Among 54 different ethnic groups, 'Tay' people and their traditional stilt house are the subjects of my research. 'Tay' is the second most populated ethnic group in Vietnam, mostly live in the mountainous region of Northern Vietnam. They live in communities, forming villages, often at the bottom of mountains or near streams, rivers to get access to water from nature which is the crucial element to agriculture. Their main economy comes from agricultural activities (cultivating wet rice, corn and vegetables), combining with livestock farming and forestry. Tay people don't follow a particular religion but worship their ancestors. Within Tay communities, their traditional houses still can vary in different regions due to the influences and cultural exchange between different ethnicities.

20 | **Observation** | 21

Observation | 23



Stilt house in Lam Thuong commune, Yen Bai province (images: Xoi Farmstay)



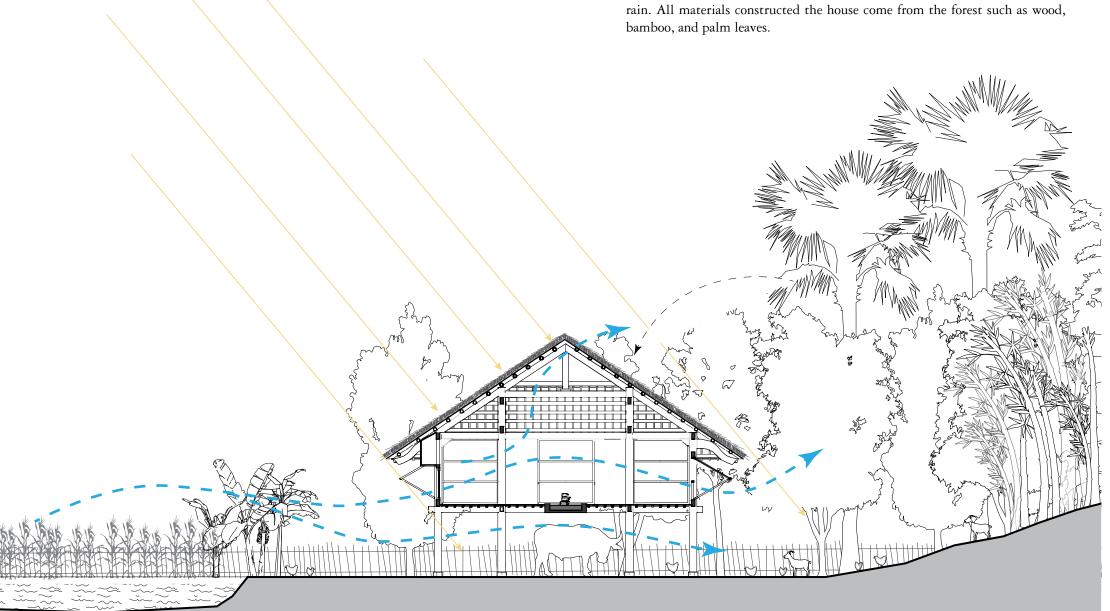
Tày people working on the field



Stilt house in Lam Thuong commune, Yen Bai province (images: Xoi Farmstay)

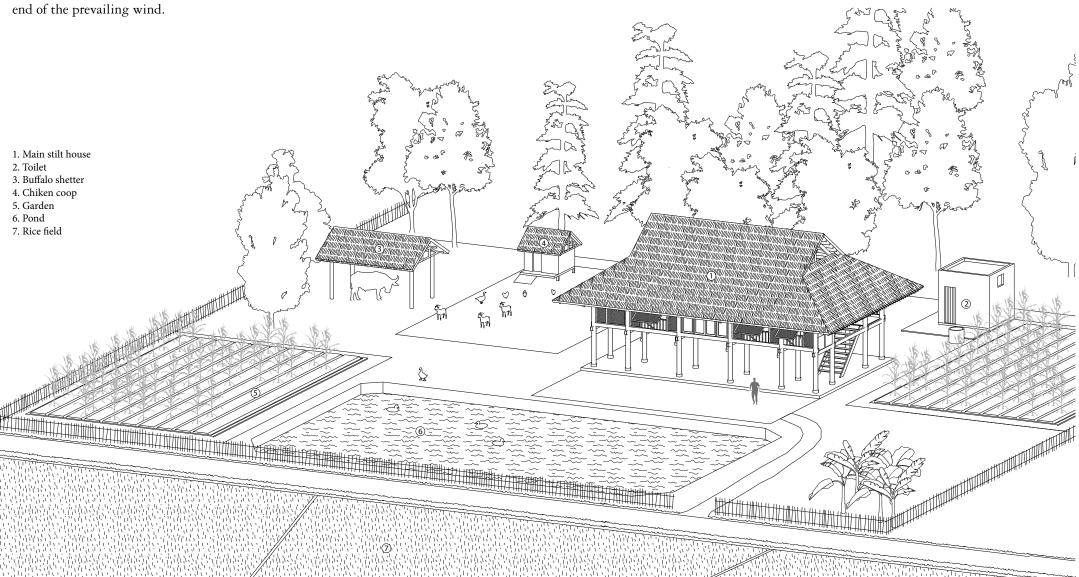
Principle

The section below shows the principle of 'Nhà sàn'. The lifted main floor creates a buffet area to counteract the high humidity of the tropical forest and to prevent dangerous animals. Underneath is a space to store working tools, a shelter for animal stocks at night, and resting spaces. The house is covered by a big thatch roof like a wide hat to protect the house from the sun and the rain. All materials constructed the house come from the forest such as wood, bamboo, and palm leaves.



Composition

Each household of Tây people living in the countryside nowadays consists of several components: the main stilt house for living spaces, a separated toilet, animal shelters, a pond for fish farming and reserving water, garden, and rice fields. The house is often located in a higher position to prevent flooding, with the back lean against the mountain to have an open view towards the field. The pond is placed in the front or on the side to cool down the prevailing wind before entering the house, while the toilet and animal shelters are placed at the end of the prevailing wind.



4

Traditional main floor plan 1 5m

- 1. Entrance
- 2. Wet floor
- 3. Central hearth kitchen
- 4. Altar
- 5. Private chamber

The living space

The main floor is a big open shared space, includes a central hearth which is also the cooking place; the altar which is the most solemn space, often placed on the mid axis of the house; small chambers at one end as a private space for young married couples and unmarried young girls. Besides, there is a wet floor where water and tools are kept, often placed outside the main floor next to the entrance.

This is a sitting-on-floor culture where all the activities happened on the floor from cooking, dining to sleeping. There is a hierarchy in the way Tây people using the spaces, between men and women, youngsters and elders; although, it is not necessarily to be followed in the modern lifestyle.

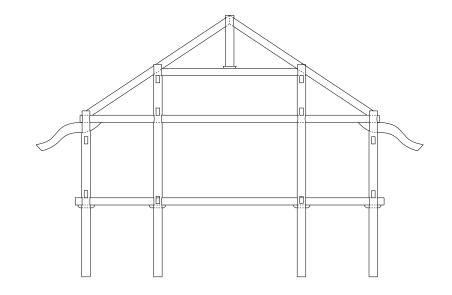


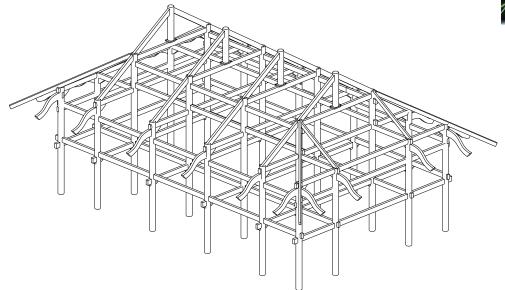
A ceremony happening in front of the altar - the sacred place connecting 'Tay' people to their ancestor.



The central hearth - the fire is kept frequently to keep the house warm during the winter and where family members and guests gather around.

MODULAR FRAME



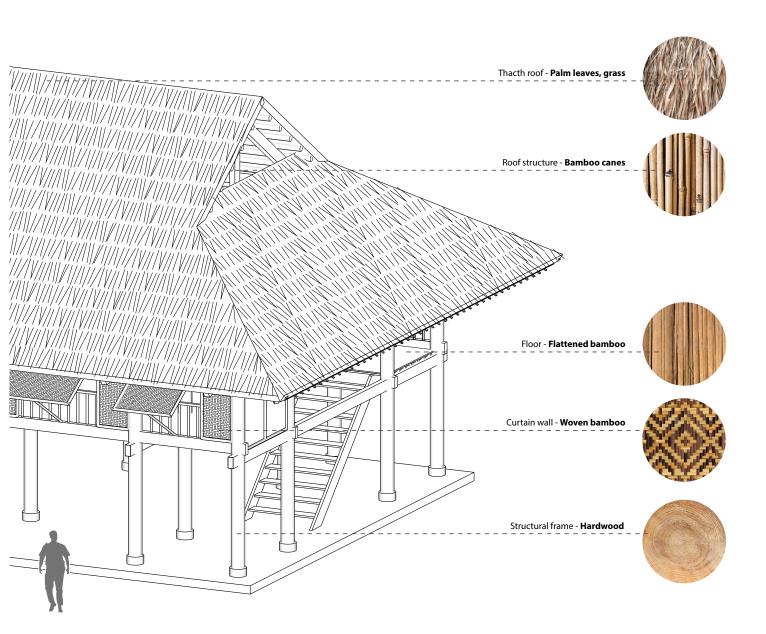




Local people re-erecting the house from old frame ($image:\ Jack\ Ecolodge)$

Structure

The structure of the house consists of 3 to 5 'gian' (2 modular frames create one 'gian'), depending on the needs and wealth. The modular wooden frame is constituted from separated elements such as columns, beams, cantilevers, which are joined together by interlocking joints. Then all the modular frames are connected together by long beams, creating a stable frame structure that can stand without anchoring to the ground. After prefabricating all pieces by carpenters, the construction requires the help of many people involved to erect the structure, since most of the pieces are long and bulky. On the other hand, the whole structure can be easily dismantled, moved then assemble at another place; therefore, it can be reused or inherited from generation to generation.



Materiality

The whole house is made out of local materials that used to collect from the jungles like wood, bamboo, palm leaves. Although, it is a time-consuming process and it might take years of preparation. Back in the day, to prepare materials, men went to jungles to find good quality hardwoods (the ones that can endure the distortion of changing moisture and temperature and woodworms havoc) while women collect lighter material such as bamboo and palm leaves.

However, the hardwoods that local people used to collect are not abundant and available anymore. These days, if they want to construct the house from good quality hard wood, they need to buy it from the business wood market, which mostly is imported from other countries, that makes the cost expensive and not affordable. In contrast, industrial materials like concrete, corrugated metal sheets are getting more available and convenient to get at any time.

Observation | 35

Threats and challenges

Along with the inevitable development and urbanization, the stilt house also has experienced significant changes responding to modern lifestyle and new materials.

Some of the current trends can be mentioned as follow:

- Increasing the height of the main floor to use the ground floor for extra functions. The height of the main floor, which used to be low merely for sheltering stocks and working tools, now has increased significantly to introduce new functions like kitchen, toilet or extra rooms.
- Concrete frame structure has been replacing the wooden one due to lacking resources and the availability of new material . Changing materials often go along with changes in its performance and expression; although, many households using concrete structures but still try to mimic the expression and details of wooden frames to keep the sense of tradition.
- New materials have introduced and replaced the traditional ones in all parts of the house from concrete floor to glass windows. Roofing material has also changed from thatch roof to clay tiles, fibro cement, or corrugated metal sheets. Although using such materials has affected negatively the built environment. For instance, the inside temperature can get really high during the summer; because of that, people tend to live on the ground floor more.
- Modern way of living also leads to change in the interior layout. The central hearth is gradually no longer exists, the kitchen tends to move to another auxiliary building next to the main house or on the ground floor. The toilet, which was used to be distanced from the main house, has moved closer or incorporated inside the house.

All of these changes have happened spontaneously. Although, by the nature of self-building, lacking understanding of new materials and techniques, it has led to many distortions in such a short period of time and thread to fade out of tradition. It has been a great challenge to transform the traditional house in a way that inherits the traditional values while adapting to the circumstances of the modern world.







[14]

Various versions of stilt house which are incorporated industrial materials

QUESTIONNAIRE 1. How long had your stilt house been built? 2. What materials are your house made of? Local materials (Wood, bamboo, palm leaves) Industrial materials (Concrete frame, corrugated aluminium, fibrocement, etc.) Please elaborate by ticking material options below: Wood Concrete | Palm leaves Bamboo Brick Aluminium Clay tiles Fibrocement Frame Roof Curtain wall Floor 3. Is the central hearth still kept in the main floor? Yes No, it had been removed 4. Do you feel comfortable and convenient when living in traditional stilt house? Yes 5. Do you have needs to upgrade your house to adapt to modern lifestyle? Yes 6. Which spaces do you wish to improve? Kitchen Sleeping space Living room Other (please elaborate): 7. Do you feel proud living in the traditional stilt houe? Yes No 8. Are you worried about the fading out of the traditional stilt house? Yes 9. If you can choose to build a house for your own in the future, what would it be? Stilt house, by local materials Stilt house, by industrial materials Modern concrete and brick house

Survey

In order to understand more about the situation and the current needs, a survey had been conducted with questionnaire and interviews.

In the end, there are 40 indigenous people had participated the online survey and few interviews had made.

Some of the comments and suggestions by local people:

"The traditional stilt used to use palm leaves for roofing, that makes the house cool during the summer; however it need to be maintained or replaced after few years. It's also the place where many insects are housed, and when the palm leaves decay, it will create a lot of dust on the floor, plus the poos from the insects, the house will easily get dirty.

Back in the day, people used to cook at the central hearth, smoke and dust will stick on the ceiling all wood structure, making the house not as pretty. Because cooking inside the main floor while there is no running water to the kichen, people have to carry buckets of water for use that is very inconvenient. I think the kitchen shoud be move out

Stilt house will have very little private spaces; so I think sleeping areas should have designed with curtains to create more privacy and also the toilet should be included on the main floor "

"Clay tile roofing and move the kitchen out to prevent the risk of fire"

"The running water should lead to in the kitchen, the bathroom should be built next to the house for convenience"

"Move the kitchen out of the house because it pollute the air"

"I want more rooms separated in order to install air conditioner"

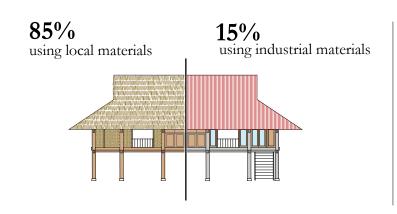
"Many things need to be changed in order to suit the younger people lifestyle"

"I don't want to change, I like it simple and airy as it is"

"Don't need to change because it is suitable for our Tay people"

Survey on the current needs

An online survey has conducted by 40 participants who are Tay ethnic people, currently living in thier stilt houses in Luc Yen district, Yen Bai province.



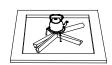


97% feel pround when living in the traditional stilt house

85% worried about the fading out of traditional stilt house

80% have needs to improve their stilt house

Some of the major needs:



Move the kitchen out of the main floor due to the smoke and the risk of the fire



Need more private space



Need toilet inside the house



Improve quality of spaces

What kind of house would you wish to have in the future?



65% Stilt house by local materials



13% Stilt house by industrial materials



22% Modern concrete and brickhouse



Chapter II: Case studies

During my study time in Sweden, I have opportunities to visit a number of tourist destinations which are based on architectural heritage, creating sustainable models in terms of preserving traditional architectures, culture, and nature.

42 | Case study







Case studies on architectural conservation

Sundsby Säteri Gårdscafé in Tjörn

Sundsby Säteri is located in a beautiful environment on the island in Tjörn.

It was an old manor farm from the 16th century. In 2003 Tjörn municipality bought the farm and then it was opened to the public. Now it is a recreational venue that includes a café/restaurant, small shops selling local products, a community garden, and a small museum telling the history of the manor. All of these are transformed and restored from traditional wooden buildings. Besides, it's also a nature reserve site and the place to host various events like Spring or Christmas markets, harvesting festival, concerts, etc. Today Sundsby Säteri is Tjörn Municipality's second-largest tourist destination attracted hundreds of thousands of visitors per year.

Kulturen in Lund

Kulturen is an open-air museum that was founded due to the concern that old traditions, ways of life and crafts would disappear as more and more people moved into the cities during the growth of industrialism.

The history of the museum was started from a manor house that was bought by Cultural History Association for southern Sweden in 1890. Then it has been expanded and numbers of historic buildings were moved to the area. Now it has more than 30 historic buildings of distinctive vernacular architectures of southern Sweden. The complex becomes a visitor destination that offers a variety of cultural events, exhibitions, and café/restaurant.





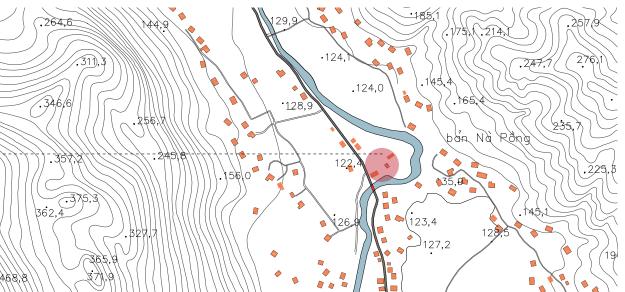




47

With the knowledge that I have gained from the study of stilt houses and inspirations from Sweden, in this chapter I will propose a strategy as an exemplary model for 'Tây' villages, aiming to preserve and promote their vernacular architecture on a master plan level.





Location

The chosen site is located in Lam Thuong commune, Luc Yen district, Yen Bai province (around 300 km to the North of Hanoi). Most of the inhabitants here are 'Tây' people living in their traditional houses. Their villages are located in a valley surrounded by mountains while stilt houses are placed either along the bottom of mountains or stick to the roads.

Weather

The sire is in tropical climate zone with high humidity and a high amount of rain (1.800 - 2.000 mm per year). The average temperature is around 22 degrees Celcius (the highest temperature can be 37-38 in the summer, while it can be under 10°C in the winter).

There are two dominant winds: South-East wind bringing cool wind with humidity and North-East wind bringing cold and dry air active during the winter.

50 | A Master plan | 51



Aerial view of the villages

Potential

With beautiful nature which is almost remained intact and the uniqueness in culture and landscape, the site has the potential to develop eco-tourism based on local heritage. Recently, few young local people, after going out to study in the big cities, have come back to the village and initiated homestay tourism- a model when tourists stay in the local houses to experience the local life and nature. This place like a hidden gem that has been attracting many visitors who want to have short holidays escaping from busy cities and be in the countryside.









Images: Xoi Farmstay and Jack Ecolodge

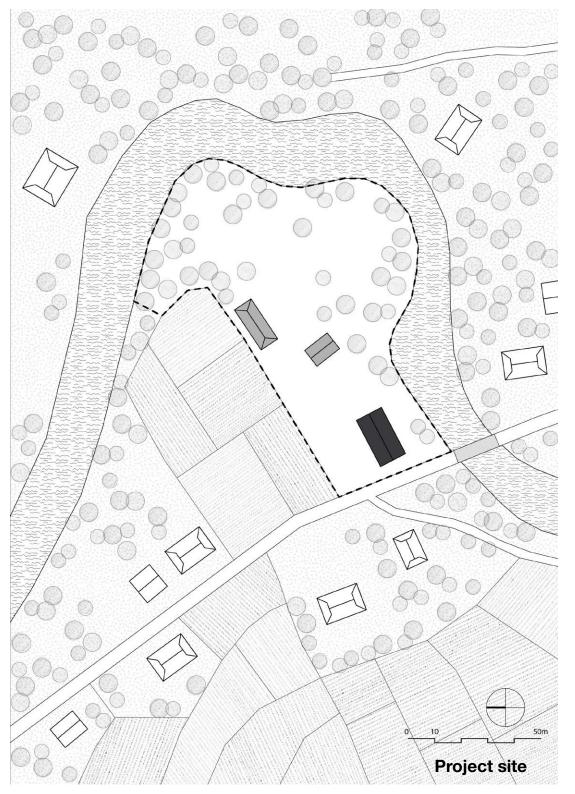
54 | A Master plan

Urbanization

However, urbanization has gradually changed the housing landscape and perception of the local people. More and more young people are moving to work in big cities with a dream of a better and modern life, while mostly older people and children staying in the villages. When coming back to visit their family on holidays occasionally, youngsters also bring back new ideas and perceptions adopted from the city to the village. Many people want to modernize their traditional houses or replace them with modern buildings.



Images: Jack Ecolodge



Communal house

The communal of the hamlets is also the culture house where local people gather for meetings, cultural activities, and communal sports like volleyball and football. However, it's often a simple concrete and brick building replicated from town which has no identity and not related to the local culture.

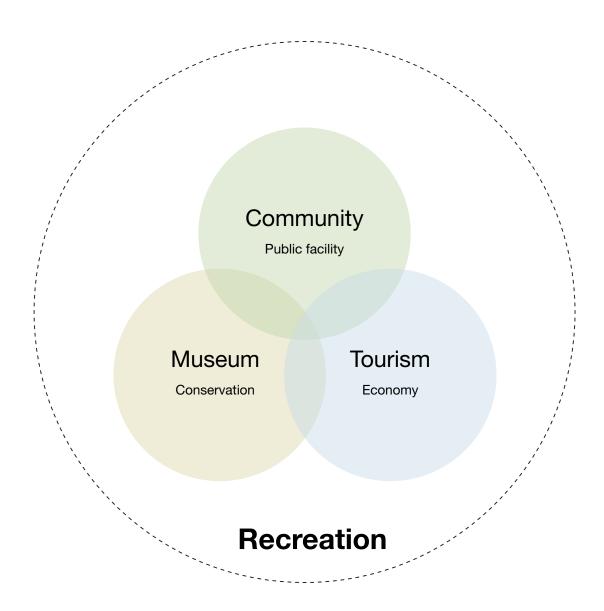
That is the reason why I chose he chosen site for the proposal that is the communal house site and its surrounding. Both the communal house and two existing buildings are made of bricks and corrugated aluminum roof that have no architectural or cultural values. Therefore, I suggest demolishing these buildings, but reuse the bricks for the new construction.



[15]

An example of a communal house in the village with voleyball court in the front

58 | A Master plan



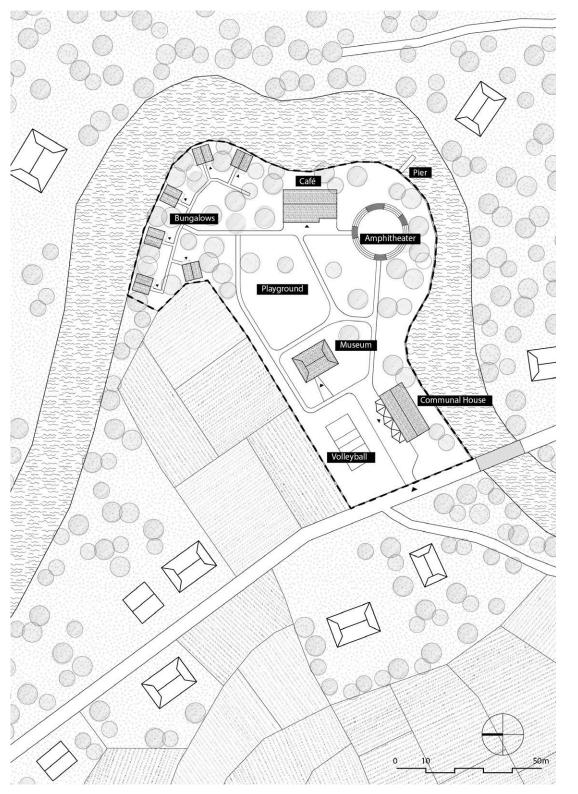
Strategy

My proposal is a master plan for the village which is combined of 3 elements:

Firstly, a museum serves as preservation of the traditional house and culture.

Secondly, a community center to provide public facilities for the locals.

Lastly, incorporating tourism to improve economy and create income to sustain the model. Overall, it is a recreational venue for both locals and tourists.



Master plan

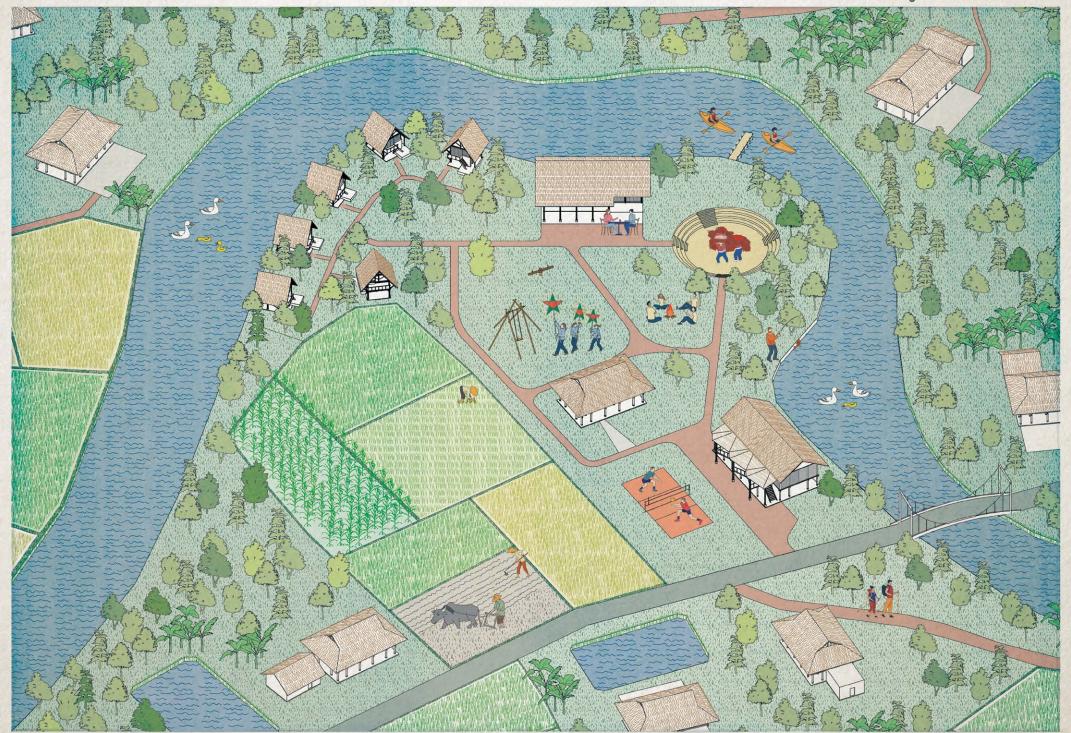
The master plan includes a communal house for community meetings which is placed close to the entrance, that makes it easy to access and outstanding. The museum, which is the original stilt house, is set in the middle as a focal point of the venue where visitors can learn about the traditional house and local culture. Several bungalows are located at the far end where having many existing trees and facing the stream, that will provide tourists certain privacy and better views, while a cafe/restaurant is placed nearby. Other community facilities are also incorporated into the venue such as an amphitheater, a playground for local festivities, a volleyball court, and a kayaking pier.

This recreational venue will facilitate tourism in the region by creating a tourist center in the village. With sufficient facilities, this model will attract more tourist both domestic and international, and supplement the homestay model which already exists but still very basic and fragmented.



Legend:

NHÀ VĂN HÓA THÔN TÔNG PẮNG - XÃ LÂM THƯỢNG



TÔNG PẮNG CULTURE HOUSE - LÂM THƯỢNG COMMUNE

67

This chapter dedicates to different typologies in the master plan as a guideline for the locals. All are inspired and developed from the original stilt house principle but adapted to new functions and requirements. The approach is to bring contemporary to the vernacular architecture as a way to re-vitalize the tradition.

68 | *Typology*

Inspirations

Several projects have been studied for inspiration of working with traditional material or combinations of traditional and industrial materials in a contemporary architectural language.

For example, in Suoi Re community house, bamboo was used as the roof structure that can achieve a quite large span. House in Chau Doc is a good example of mixing of concrete, corrugated metal panel, and wood in a contemporary house.



Suoi Re Community House / 1+1>2 Architects





Case Wabi ceramic pavillion/ Álvaro Siza

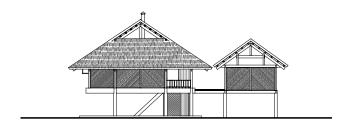


Son La Restaurant / VTN Architects

Building Typologies

ıme	Museum Original Stilt House	Stilt house 2.0 Small Intervention	Communal house	Cafe & Restaurant	Bungalow
Modular Frame	Wood	Wood & Concrete	Wood & Bamboo	Wood & Bamboo	Bamboo
1st Floor Plan					
2nd Floor Plan					
Axonometric					

Small interventions



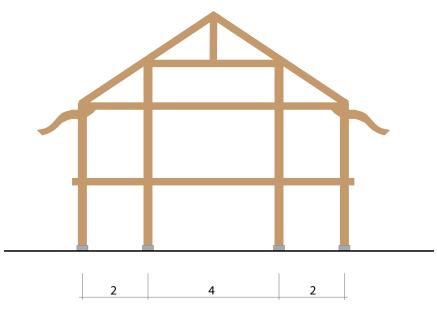
Stilt house 2.0

Structural intervention

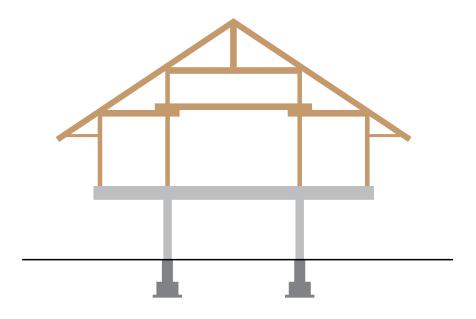
'Stilt house 2.0' is an upgraded version of the traditional stilt house.

Originating from the crucial reason makes local people have changed in the use of material from wooden frames to concrete structure, I would like to propose a new structural modular frame, which is a combination of concrete and wood, to reduce the dependence on limited hardwoods. By replacing the bottom part by concrete colums and beam that create a stable foundation for the house, the upper part now only have to carry the load of the roof which is relatively light (bamboo and palm leaves). Therefore, the wooden structure of the upper floor can be optimized to thinner and lighter.

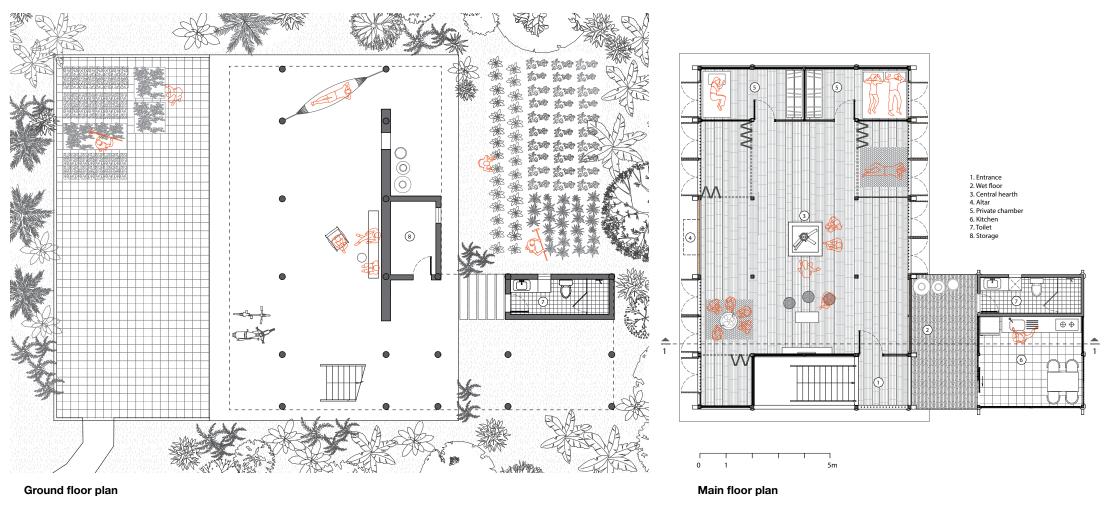
Furthermore, with a higher load-bearing capacity of reinforced concrete, the number of lateral concrete pillars can be reduced while the cantilever concrete beam can carry the load.



Original wooden modular frame



Combination of concrete and wood modular frame

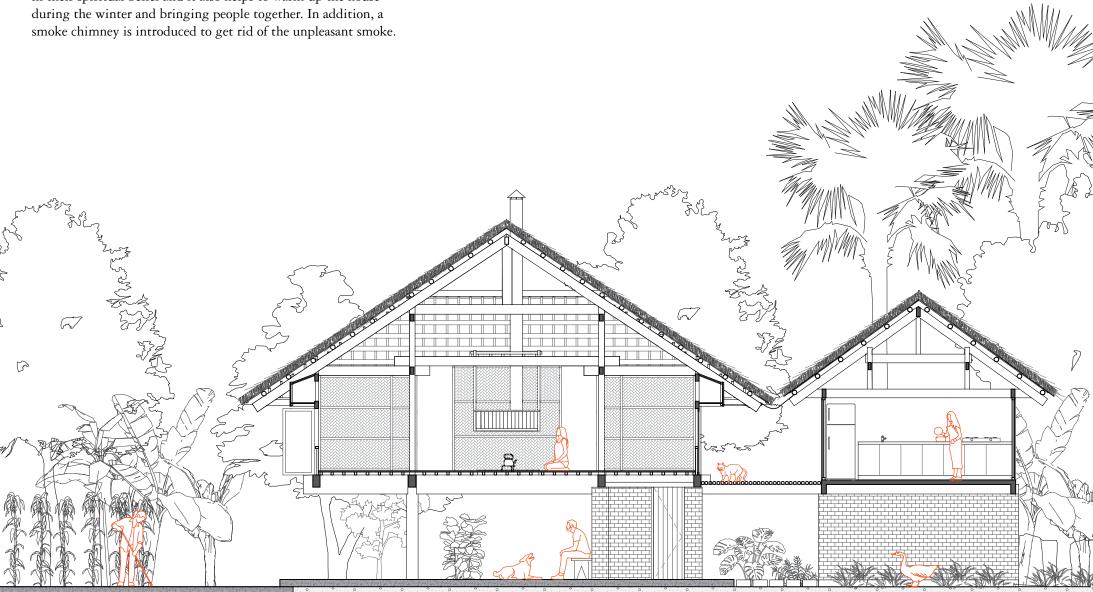


Spatial intervention

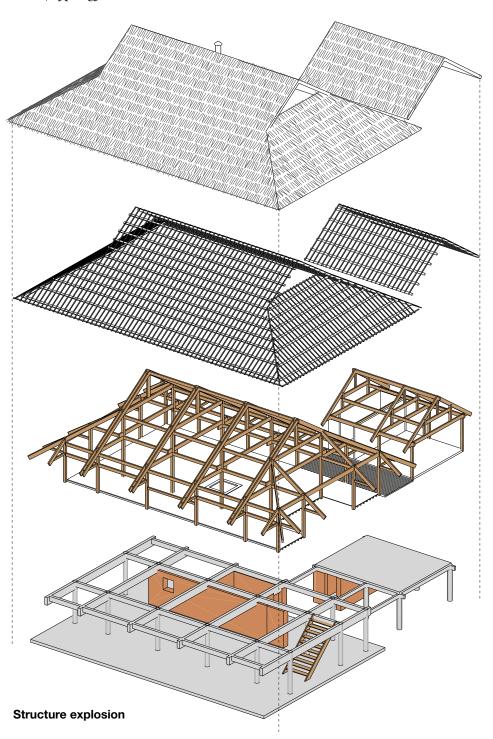
To provide more functions needed, an annex is introduced next to the main house with a modern kitchen and toilet. Flexible folding partitions made out of bamboo are added on the main floor to provide privacy when it is needed. On the ground level, a new toilet and storage are also incorporated accordingly at the back of the house.

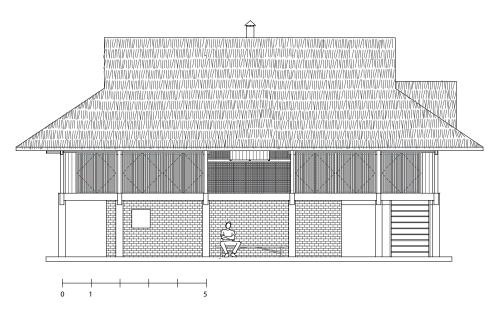
78 | *Typology Stilt bouse 2.0* | 79

The central hearth is kept since the fire plays an important role in their spiritual belief and it also helps to warm up the house

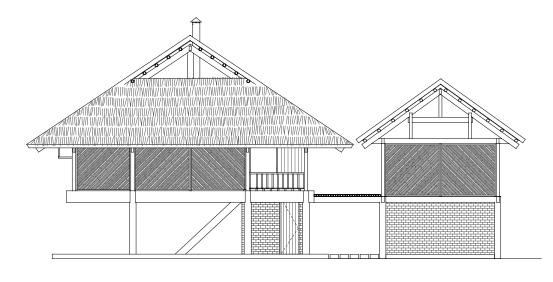


Stilt house 2.0 | 81





Front Facade



Side Facade



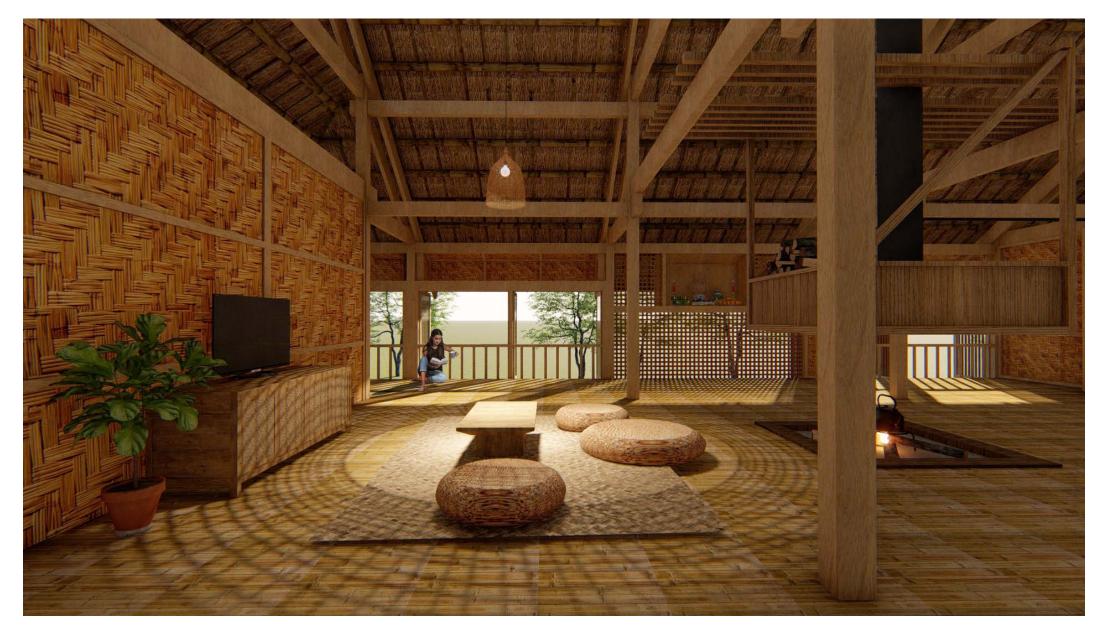
Exterior view of 'Stilt house 2.0' blended in the landscape

Stilt house 2.0 | 85

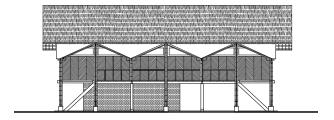


Interior view with central hearth equipted modern chimney

Stilt house 2.0 | 87



Contemporary living room space

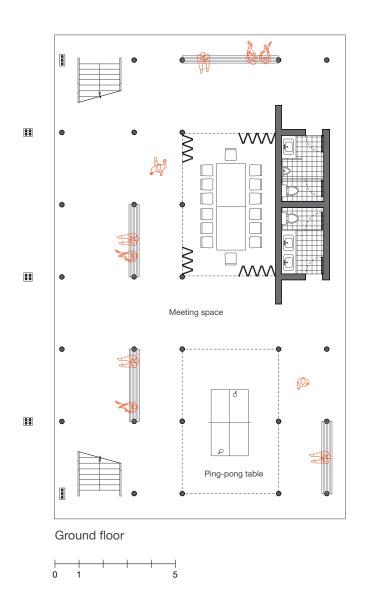


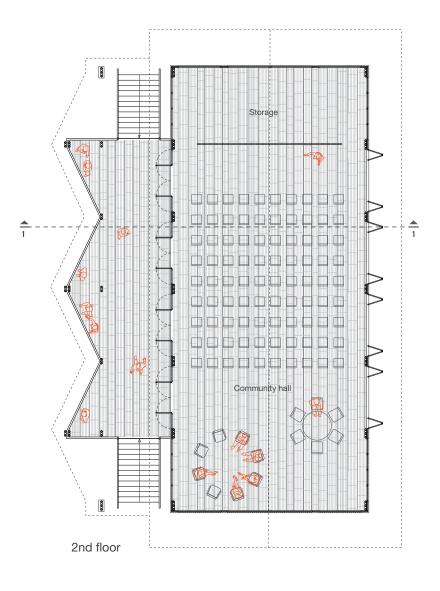
Communal house

Communal House

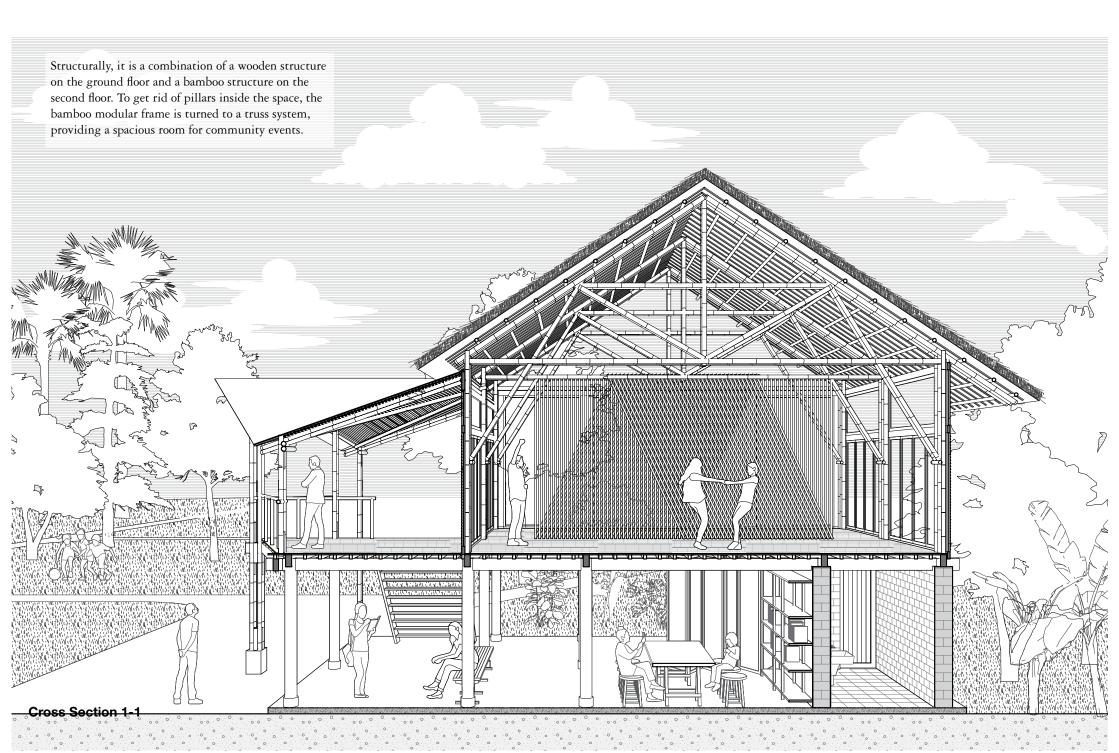
The Communal house is the main building for meetings. The ground floor is the space for spontaneous meetings with benches, a small meeting room and library, and also a ping-pong table.

The second floor is a community hall where local people can host various indoor activities and events. In the front, it is the space for mingling while waiting or just standing to watch volleyball matches.





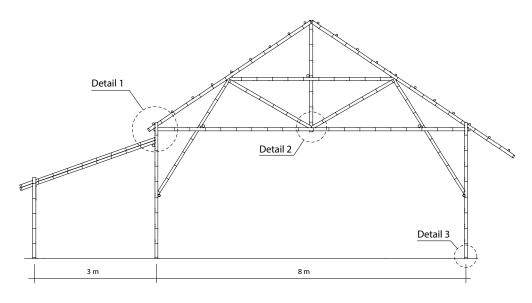
92 | Typology Communal house | 93





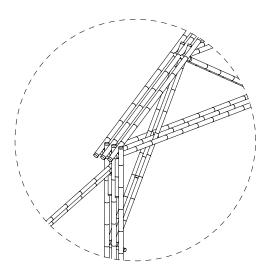




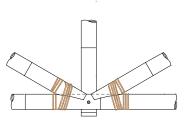


Bamboo Modular Truss

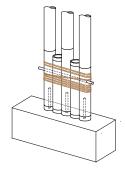
The bamboo truss is constituted by many bamboo canes which are put together by a traditional way of using wooden pins and strings.



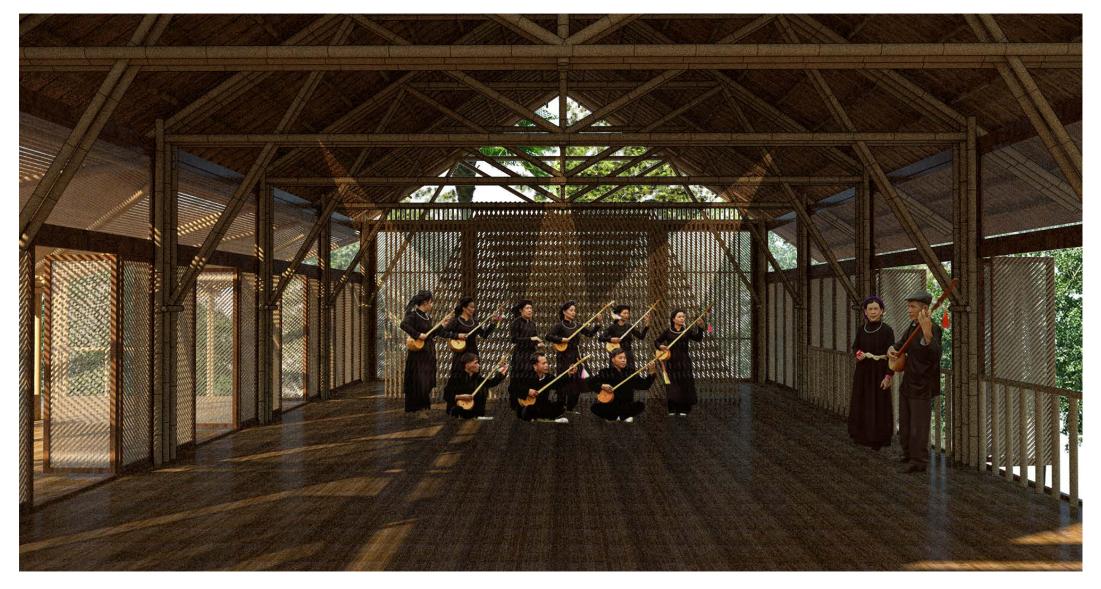




Detail 2



Detail 3



Local people performing the traditional instrument inside the communal house

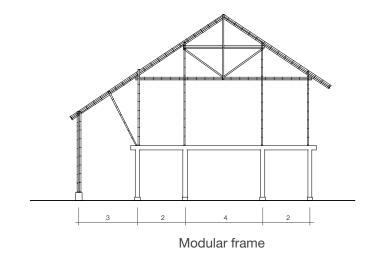


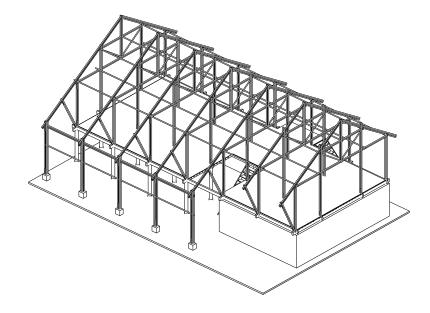
Communal house with contemporary vernacular architecture brings a new image to the village

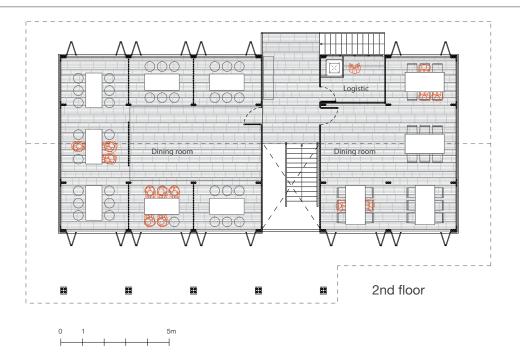


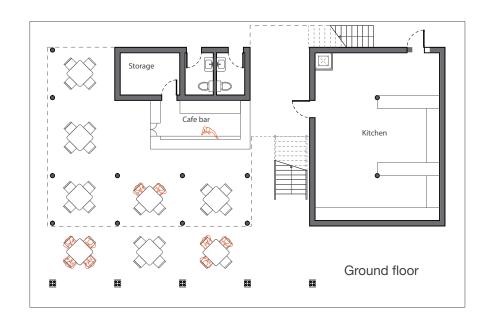
Café / Restaurant

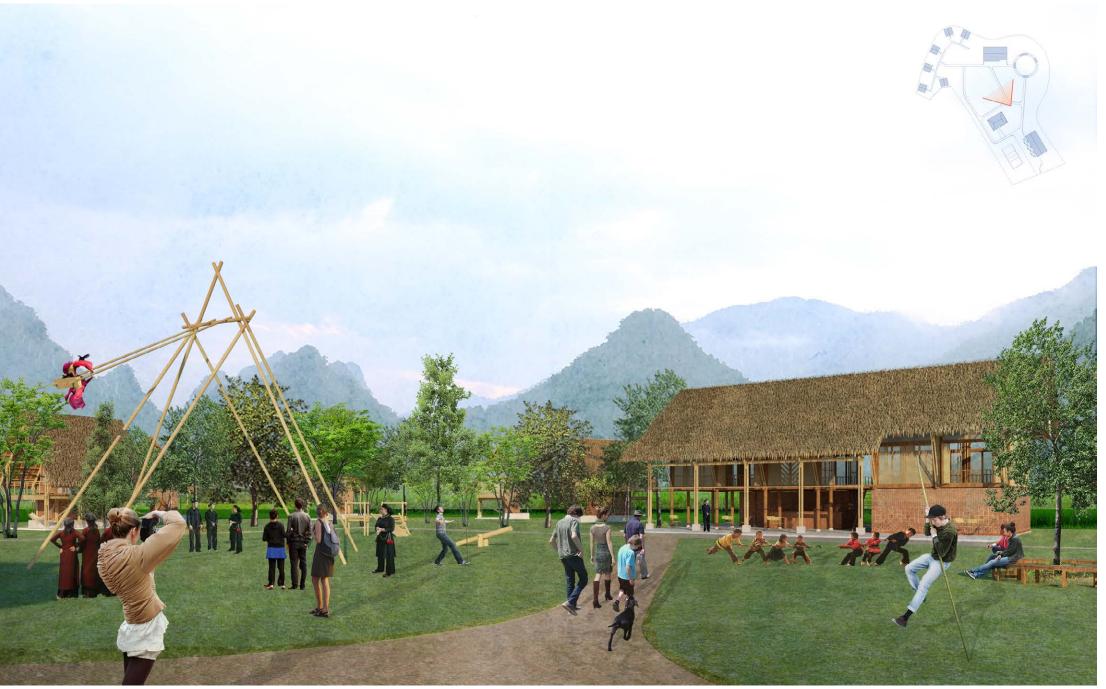
The Cafe & Restaurant is another building that is developed from the same structure principle. The frame is a combination of wood (bottom part) and bamboo (upper part). The front part of the bamboo structure is extended to create a foyer with double height, providing spacious seating space for the cafe. The upper floor is dining spaces with a whole bamboo structure and partitions, dividing space to create more intimate and private rooms.







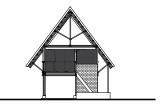




An exterior view of the Cafe & Restaurant from the folklore playground

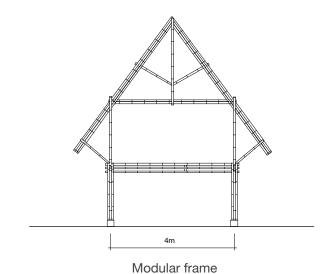


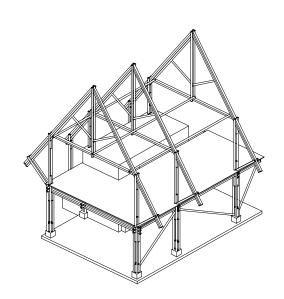
Sitting-on-the-floor dinning room in the restaurant



Bungalow

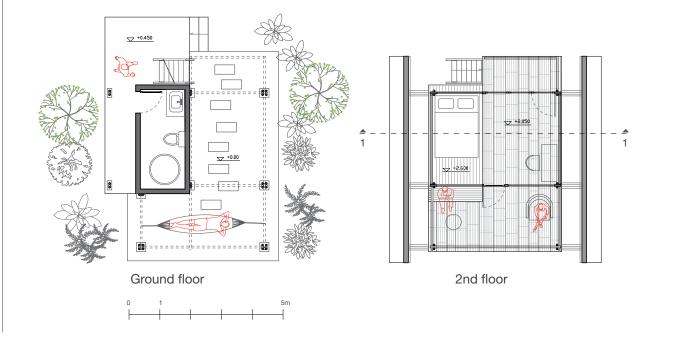
The bungalow is a small stilt structure made out of bamboo. The ground floor is a bathroom built from brick as a part of the structure and open space surrounded by nature, leaving the main floor for sleeping and relaxing spaces with an exclusive view to the stream from the balcony.





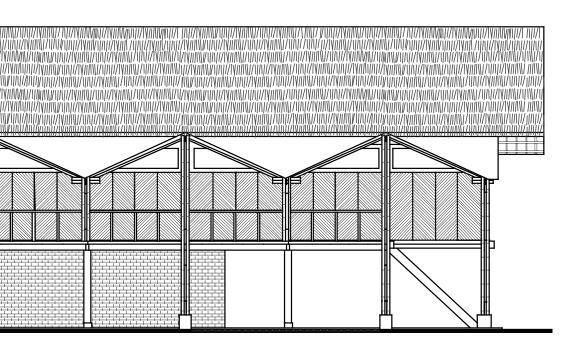


Section 1-1





Bamboo bungalows for tourist with privacy and exclusive view to the stream



Reflections

Preserving the vernacular architecture of ethnic minorities depends on many things. It depends on the policies and encouragement from local governments while indigenous people play important role in continuing their tradition. To steer to sustainable development, it required hybrid resources both from inside and outside the village. Like many architects with social responsibility have been doing, by utilizing supports from NGOs, combined with the intrinsic strength from the local community, they have helped underpriviledged communities to build their own architecture that is not alien, but respectful to the culture and environment.

Due to restrictions during the pandemic, I could not visit the site to study and document buildings directly. So during the process, I had made many assumptions about detail measurements by pictures, videos sent by the locals. By paying my admiration and interest in Tây's vernacular architecture, this thesis is an attempt to give the locals another perspective on the issue from an outsider with the hope that it will give them some guidelines, suggestions, or simply just inspire them to continue living in their traditional houses.

I believe that vernacular architecture has not got enough attention if compared to Modernism. Until the environmental crisis happening, people start looking back then realized vernacular architectures are actually real examples of sustainability. Yet there is still a lot of wisdom that we can learn from vernacular architecture that can be applied in modern design and that is also a way to counteract the homogenization in architecture around the world.

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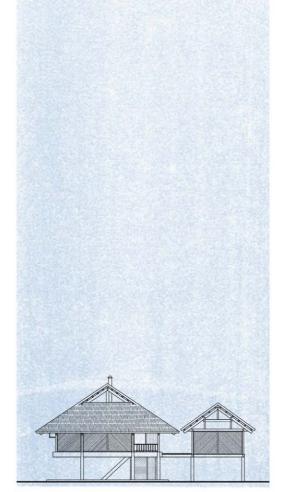
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