An Architecture of Belonging

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Master of Architecture In Architecture

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KEYWORDS: Placelessness, Rammed earth, Fireplace, Roof, Plan, Village, Tradition, Reinterpretation,

As the placeless globalization is accelerating around the world and especially in China, places that have strong ties to the particularities of a locale are desirable destinations to escape the generic monotony of placeless urbanization.

The thesis here stipulates that even in a placeless globalization, opportunities exist to understand, interpret and celebrate local cultural phenomena. While many formal architectural artifacts may have outgrown their purpose and no longer have direct relevance today, a number of desires, customs and rituals persist as desirable conditions to be supported by architectural space.

The thesis proposes to seek out an architecture, that embraces and reinterprets targeted aspects of the built form of traditional elements with modern means.

Abstract

This thesis discusses possibilities to reinterpret the vernacular. Specifically, the sense of identity generated by the architecture traditions in Western China can be attributed to shape and construction of the roof, organization in plan, the central fire place, and a protected courtyard all enclosed by rammed earth.

Reinterpretations of those elements in modern forms propose a continuity of culture and identity.

General Audience Abstract

and James R. Jones.

I would also like to express my gratitude to all the professors in the program who participated in my education as an architect.

the this Covid-19 pandemic period.

I also want to extend my sincerest thank to my family. Without whose help and support made it possible to pursue my dream to study architecture in United States.

Acknowledgment

Appreciation is due to my committee chair, Heinrich Schnoedt for his patient and instructive guidance of the past months, and committee member David Dugas

I am also indebted to all the friends who accompanied and supported me during

Introduction

Traditional Dwelling Study

Case Studies

·Fuyang Cultural Village, Wang Shu ·Libraries Avant-Grade, Chenjiapu Civilian Bookstore, Zhang Lei Concrete House in Caviano, Wespi de Meuron Romeo architects ·Around Fireplace, Ruetemple

Site and Place ·Location ·Traditional Spatial Organizations ·Principle Organization in Plan

Plan Sections ·Facade

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In "Towards a Critical Regionalism: ," Kenneth Frampton argues,

While strategy of Critical Regionalism as out lined above addresses itself mainly to the maintenance of an expressive density and resonance in an architecture of resistance (a cultural density which under today's conditions could be said to be potentially liberative in and of itself since it opens the user to manifold experiences), the provision of a place-form is equally essential to critical practice, inasmuch as a resistant architecture, in an institutional sense, is necessarily dependent on a clearly defined domain....(25)

Despite the critical importance of topography and light, the primary principle of architectural autonomy resides in the tectonic rather than the scenographic: that is to say, this autonomy is embodied in the revealed ligaments of the construction and in the way in which the syntactical form of the structure explicitly resists the action of gravity....(27)

Rapid urbanization in past three decades leads to uniformity. Especially in China, the rapid pace of development consumed traditional villages, with irreparable demolition. Particularly in Western China, the traditional suburban and rural areas are losing their identity at a rapid rate.

The current form of architecture is indicative of the urban quality of life, more indifferent and less compassionate.

While many avenues of searching and preserving qualities of the locale are possible, in this thesis four typological elements of the western Chinese village are identified as primary candidates for reinterpretation: the traditional plan, the iconic roof form, and the traditional large fire place, the courtyard.

The new construction technologies of rammed earth, as the primary material of enclosure seek to connect the past to the present.

Introduction

In "Towards a Critical Regionalism: Six Points for an Architecture of Resistance

Traditional Dwelling Study: the typological basic elements to approach my proposal

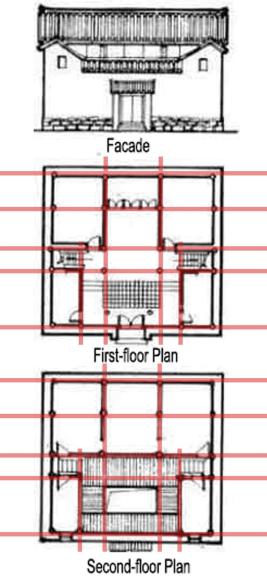
· The Seal-Shaped Dwelling Plan

The Seal-Shaped dwelling plan is typically oriented north-south. Its name is derived from the ancient Asian square-shaped seals.

A structural grid divides the building into northern and southern parts. The two parts offer space to organize the staircase and courtyard in the center of the building.

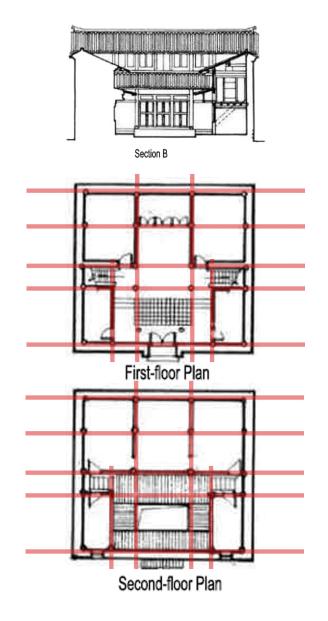


The Seal-Shaped dwelling [1]



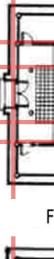
The Seal-Shaped dwelling's plan & facade [2]

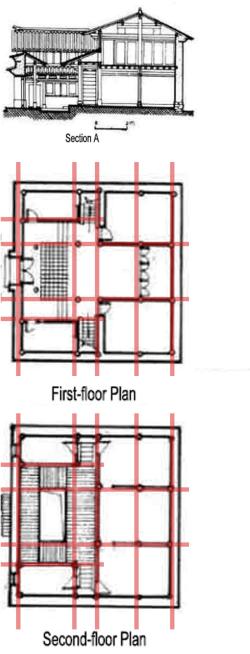
The traditional Seal-Shaped dwelling is constructed with a wood column-beam system and external walls of rammed earth.



The Seal-Shaped dwelling's plan & section [3]







The Seal-Shaped dwelling's plan & section [3]

The roof typically consists of the traditional Chinese "Sun -Mao/Tenon and "Mortise" system.

·Roof

The traditional dwelling in Yunnan province has four pitch roofs. The larger one is located to the north. The two smaller ones are located to the sides. The smallest one is located to the south. The roof constellation effectively collects rainwater.

·Courtyard

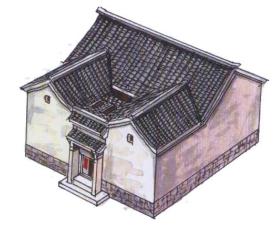
The enclosed courtyard which is surrounded by rammed earth walls, combined with its orientation generates shade in the summer and its thermal mass helps to preserve heat in the winter.



The Seal-Shaped dwelling in the village [4]



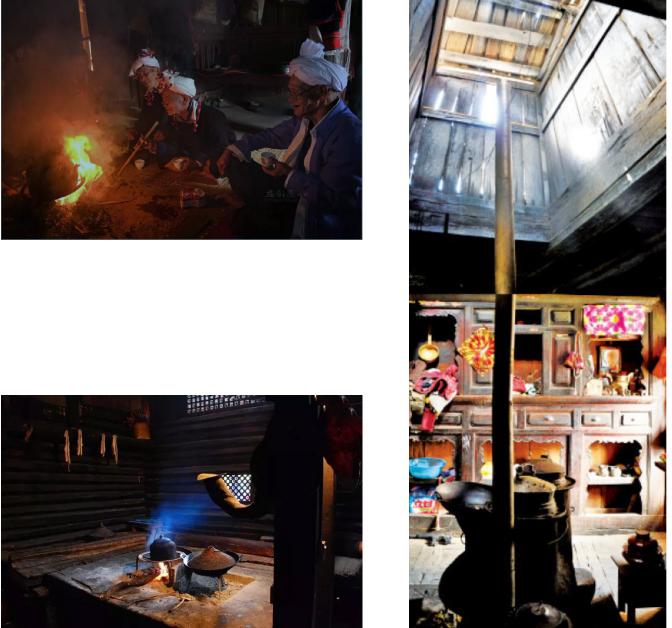
The Seal-Shaped dwelling sketch [5]

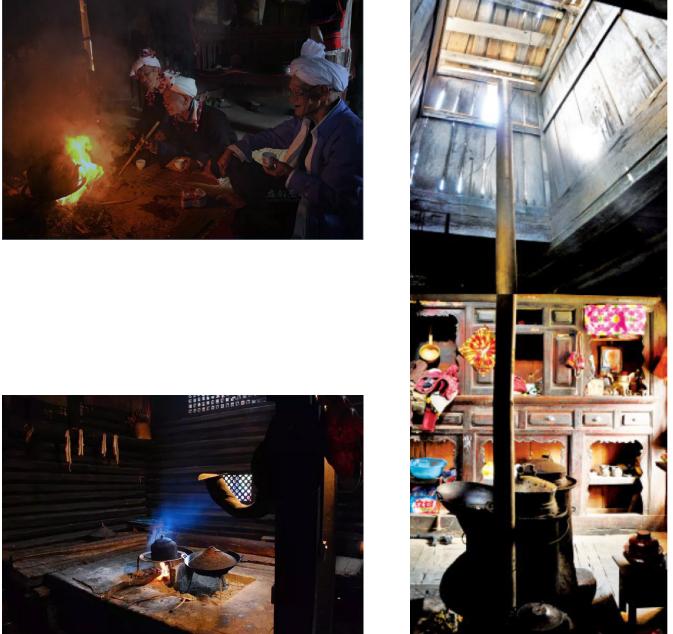


The Seal-Shaped dwelling's pitch roof [6]

· Fireplace

The fireplace has been an essential architectural element in the traditional building. It is the place where the family members gather, perhaps best denoted as a place of contemplation.



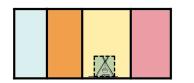


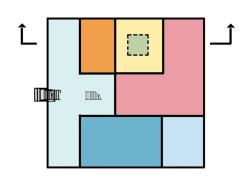
The fireplace in tradional dwelling [7]

Case Studies

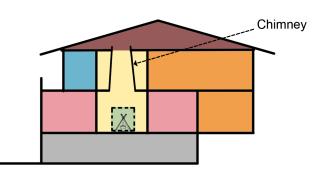
·Fuyang Cultural Village, Wang Shu

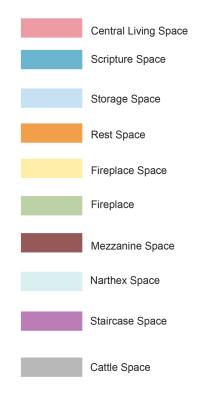
Flreplace location in a plan diagram of the Zang traditional wood block dwelling in Yunnan Province.

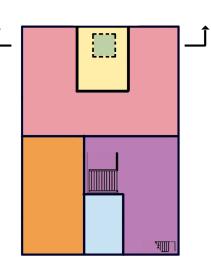




Fireplace organzization in section diagram of the traditional dwelling.







Flreplace location in a plan diagram of the Yi traditional rammed earth dwelling in Yunnan Province.



Fuyang Cultural Village's airview [8]

Fuyang Cultural Village is located in Zhejiang Province, China. This village reconstruction by architect Wang Shu was conducted under the "new countryside construction" proposal by the Chinese government in 2005.



Wang Shu's interpretation of traditional openings in wood, plaster and masonry facades.[9]

Houses in village are made with a range of different materials and construction techniques. Most of them are instrumental in defining the existing village character. Wang Shu operated with Jiangnan residential typology, and associated construction methods. He reinterpreted elevation, construction, opening form and roof construction. In a series of individual house to form an ensemble that resonated with the existing village.



Traditional wood window opening frame set into a rammed earth wall [9]



Wang Shu's interpretation of traditional openings in wood, plaster and masonry facades. [9]







Plaster, stone and brick often appear together in Jiangnan residential dwelling. Wang Shu's facades embraces but reinterprets the traditions to evoke a sense of belonging.



Wang Shu's interpretation of traditional openings in wood, plaster and masonry facades.[9]

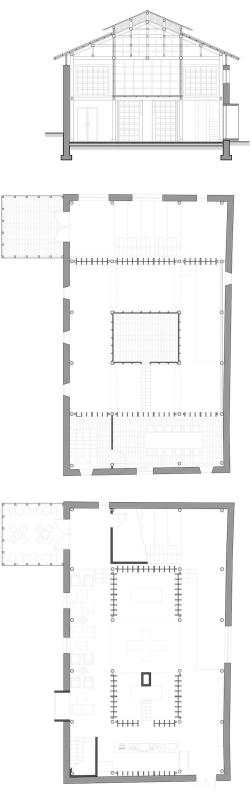
·Libraries Avant-Garde, Chenjiapu Civilian Bookstore, Zhang Lei



Chenjiapu Civilian Bookstore in the village [11]



Rammed earth external wall [12]



Chenjiapu Civilian Bookstore's section & plans [13]

·Concrete House in Caviano, Wespi de Meuron Romeo architects



Meditation space in bookstore [14]



Traditional Chinese "Sun-Mao Tenon and Mortise" system in bookstore [15]

Also in Zhejiang Province, architect Zhang Lei sought to interpret regional characteristics for this project. Rammed earth is used as external wall and the traditional Chinese "Sun-Mao Tenon and Mortise" system is used to assemble the roof. Some of what traditionally would be wood columns are replaced by steel columns. In the central part, an internal public meditation space becomes a focus to for building.





The modern fireplace interact with the courtyard and walkway [16]

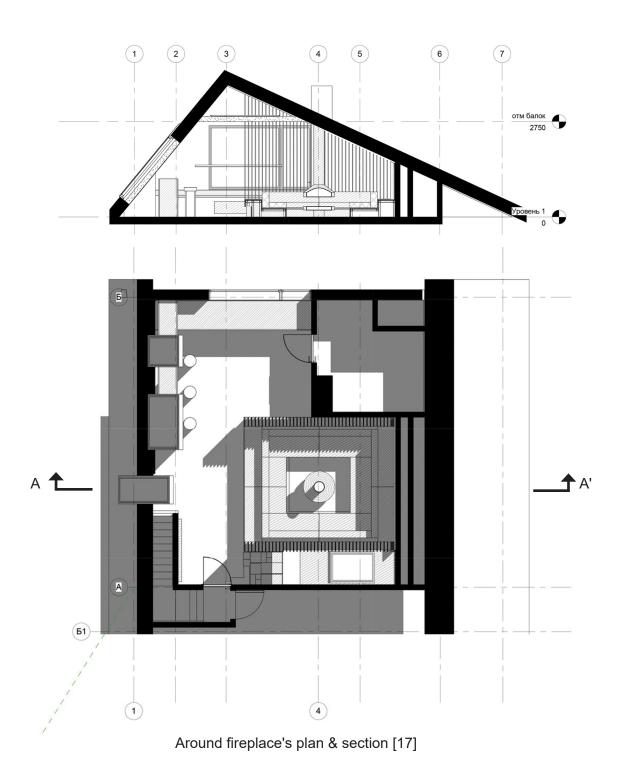






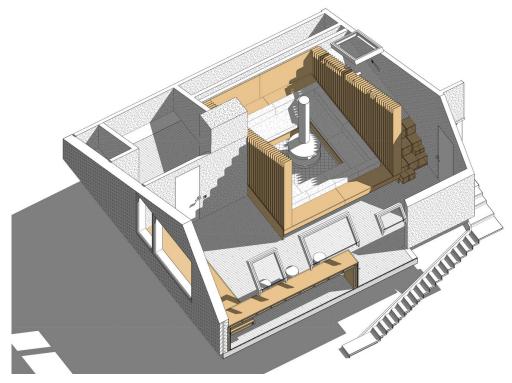
In this project, the fireplace is set into a concrete block. It is delicately positioned to interact with the courtyard and walkway.







The fireplace is clearly positioned in the central part of the building. Around the fireplace, a wooden deck invites to sit together around the 360-degree open fire pit. The arrangement here is close to the traditional fireplace in the seal-shaped dwelling.



Around Fireplace's axonometric [19]

Fireplace room arrangement [18]

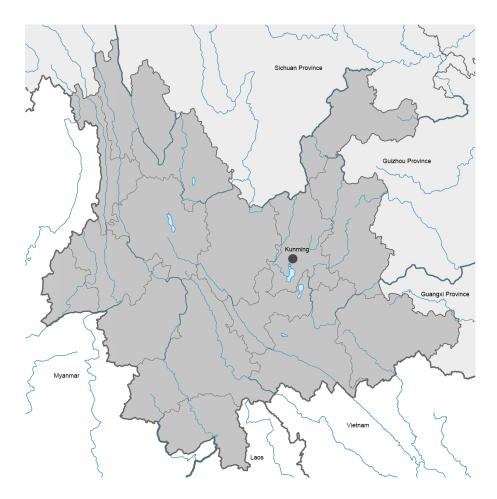
Site and Place

·Location



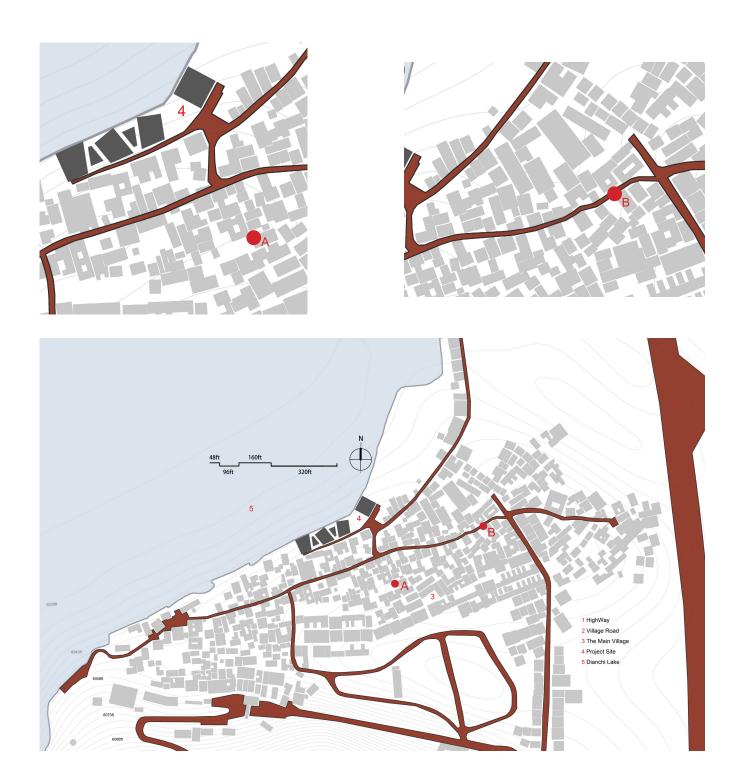
The project site in Yunnan province, borders three Southeast Asian countries. The local culture here is somehow influenced by the three countries and some indigenous minorities which together forms the current culture of South- West China.

The weather here is temperate and mild.





Dianchi lake is a large plateau lake to the south of Kunming City. Haiyan village is one of the villages around lake to the east.



The project site is located in Kunming City, along the Dianchi Lake in Yunnan province. The next city can be reached by car within 30 minutes. Most buildings of the village are old traditional dwellings facing the problem of decay and demolition.

Dianchi lake is to the west of the village, often offers a beautiful sunset. The relatively moderate climate here gives Kunming the nickname of Spring City.

·The Village

badly decayed or in need of repair.







Many of the traditional Seal-Shaped dwellings are made of rammed earth. Many of them are

Traditional wood window opening.

·The Lake

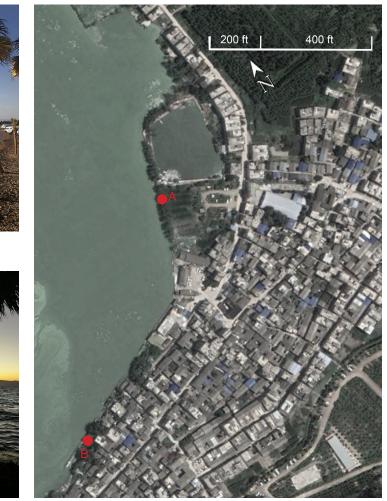
A long lakeshore allows for a number of recreational opportunities.

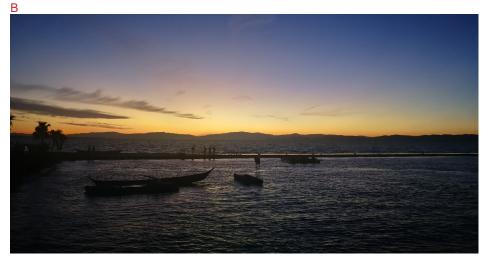


Plam tree on the lakeshore [20]



Activity on the lakeshore [21]

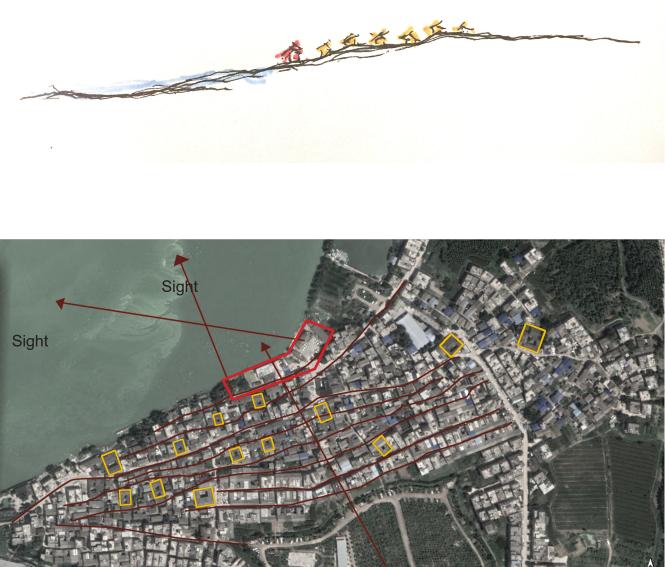




Sunset towards the lake [22]

· Traditional Spatial Organizations

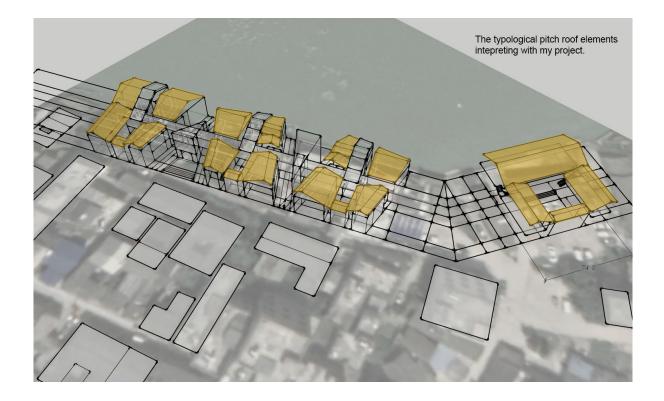




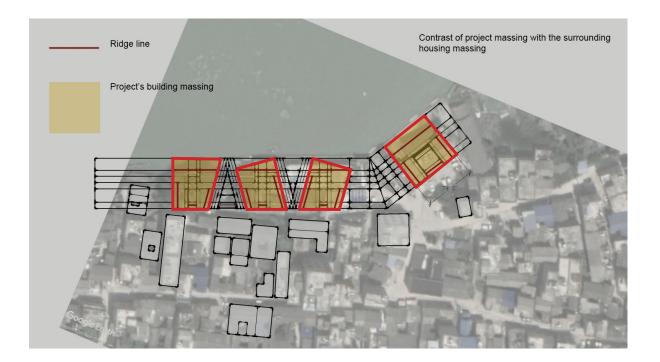
Topography direction

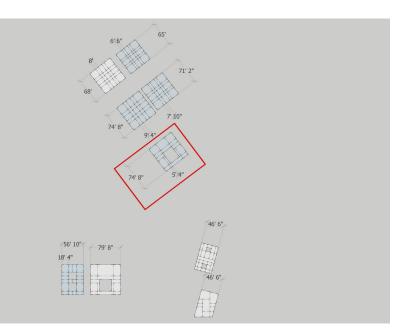
Traditional Seal-Shaped dwellings in the village vary somewhat in dimensions and massing. The dimension of a typical large seal-shaped dwelling is around 75' by 75'. Some of them use a rectangular footprint of around 37.5' by 75'. The dimensions of smaller dwellings range around 65' to 70'.

· Principle Organization in Plan

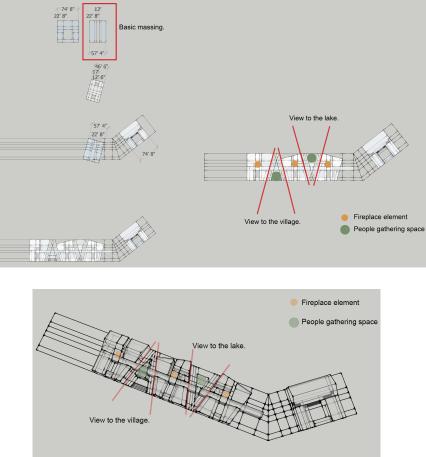


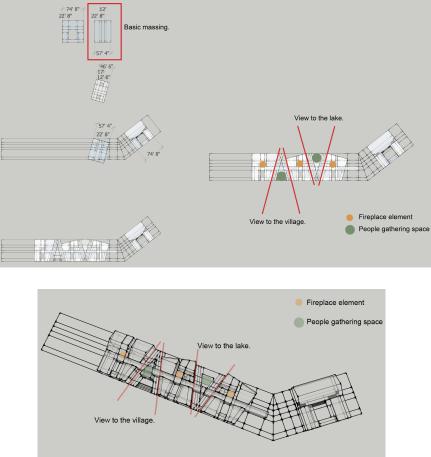
To avoid a large single building in the small scale village, the program is spread over smaller scale individual buildings, slightly larger than the traditional local dwelling.

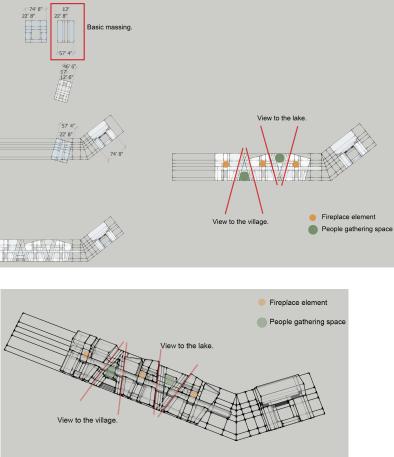




larger part which houses commercial activities.

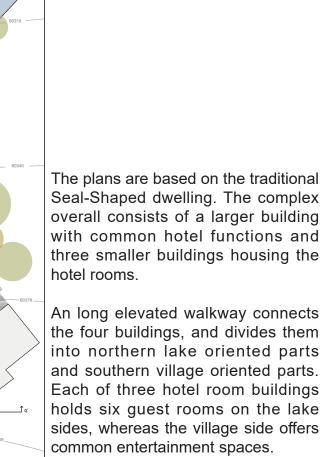






74'-8" is chosen as the basic grid dimension derived from the traditional dwelling. The basic massing is divided into two parts. Courtyard and fireplace are positioned based on their traditional locations. The relatively large hotel complex is broken into three more private hotel rooms structures and a





Ground Floor Plan



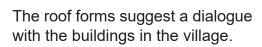
The plan layout is following the basic traditional dwelling with some changes.

The wedge-shape spatial openings offer a more permeable connection to the lake.

Each individual building has its own entrance.

Second Floor Plan

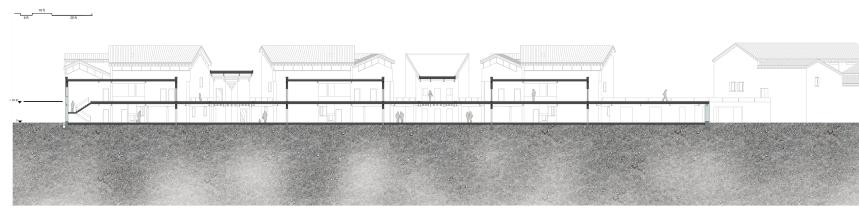


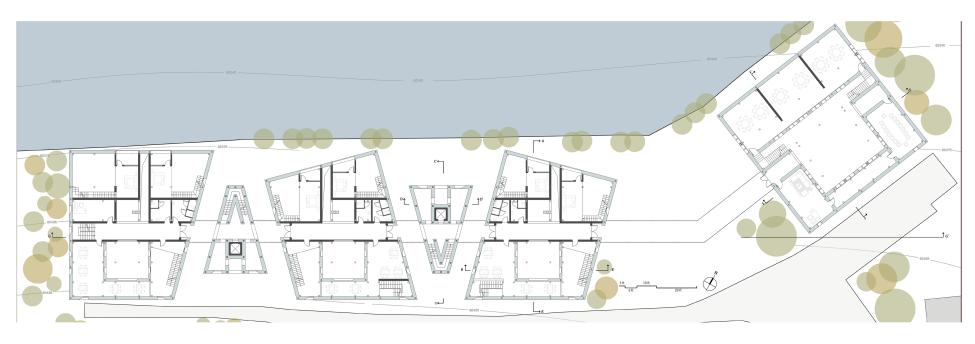


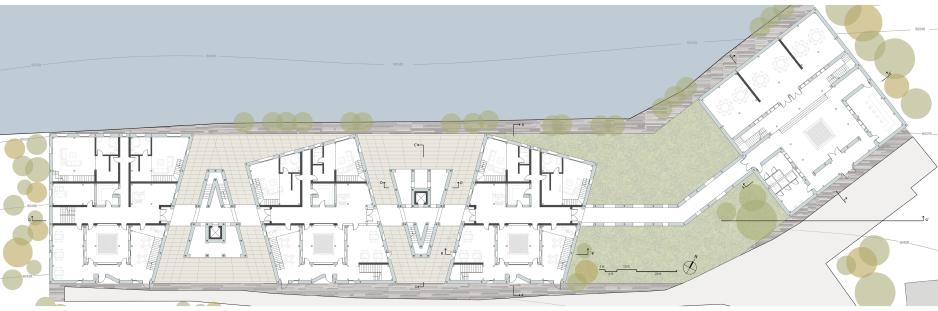


1 c'

•Sections Section GG'







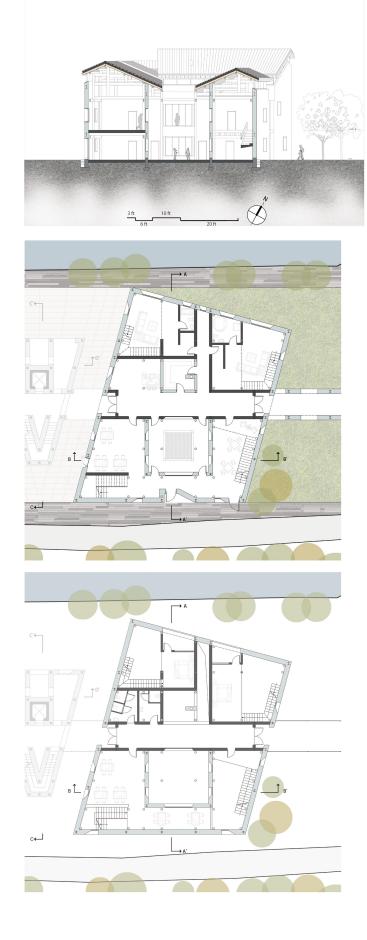


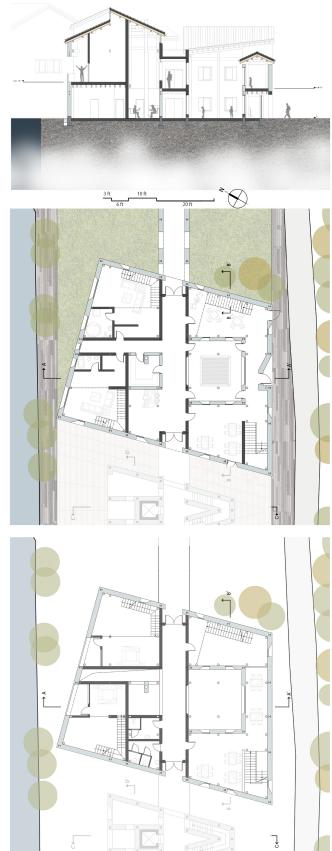


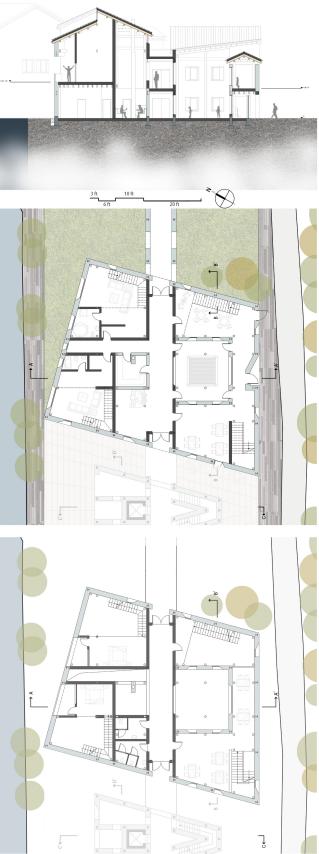
The long elevated walkway divides the buildings into two parts, one parts housing hotel rooms to the north, and one serving as entertainment area to the south.

Section BB'

Section AA'

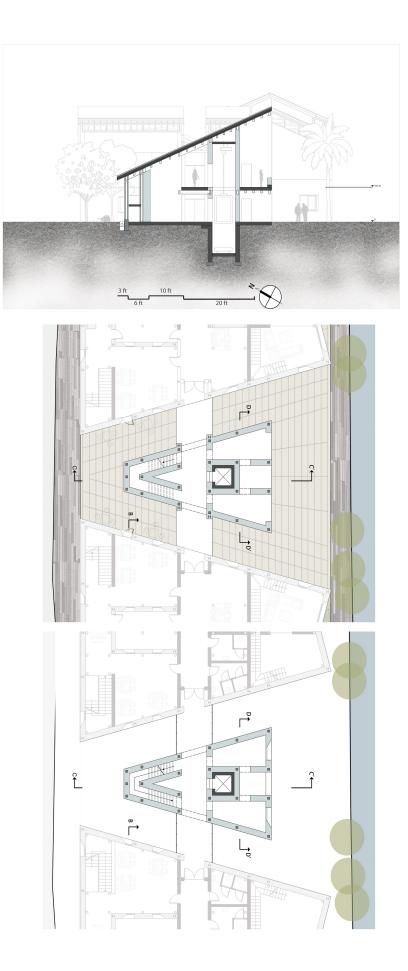


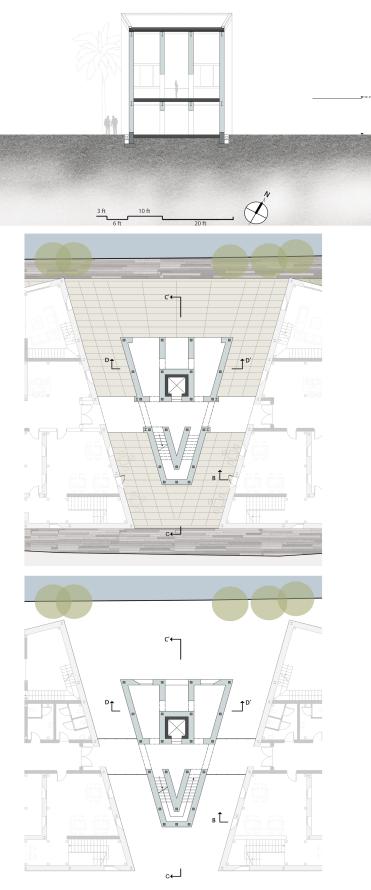


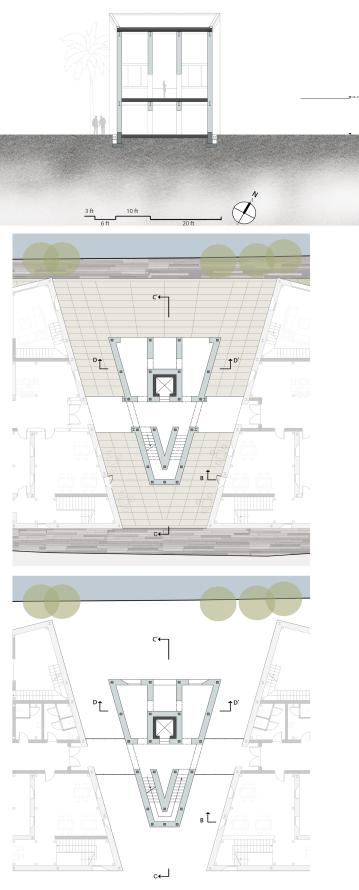




·Section DD'

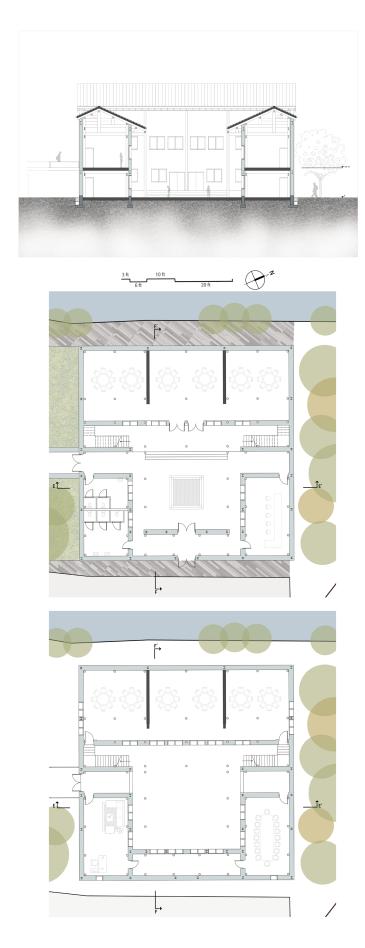


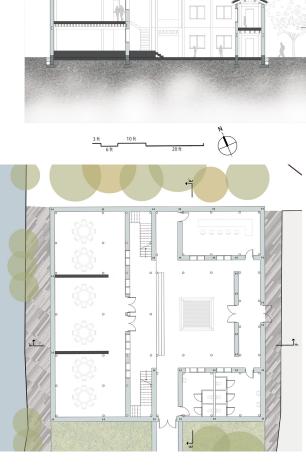


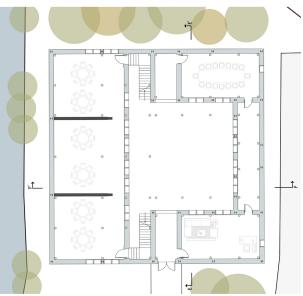


Section EE'

Section FF'









·Facades



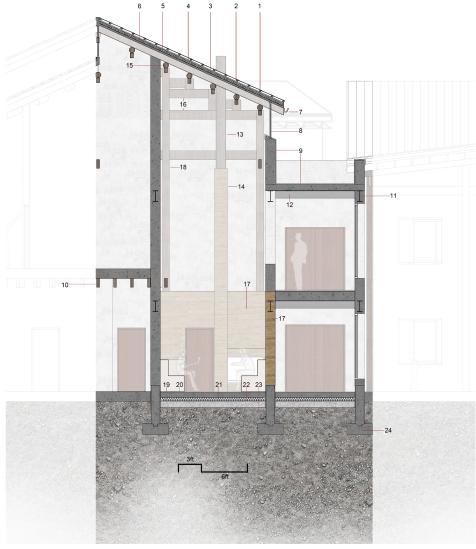
To the south, punched openings are set into the rammed earth wall. The aperture echoes the traditional window form but is constructed of with a steel frame.



To the north, the openings are larger than the traditional windows to offer a great view toward the lake.

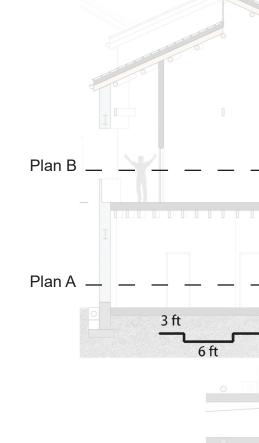
The Fireplace Repositioned

11



1 Grey tile roof 2 Node 3 2 inches Wood board supporting 4 Vapour barrier 5 5 inches insulation 6 4 inches concrete slab 7 Gutter 8 Double Glazing Window 9 Damp-proofing Layer 10 Wood beam 11 Steel Girder 12 Steel Beam 13 Steel Chimney 14 Chimney Support 15 Wood roof beam 16 Wood beam 17 14 inches Rammed earth wal 18 Wood column 19 1 inche floor 20 Concrete floor slab 21 Insulation 22 Damp-proofing Layer 23 Gravel 24 Concrete footing



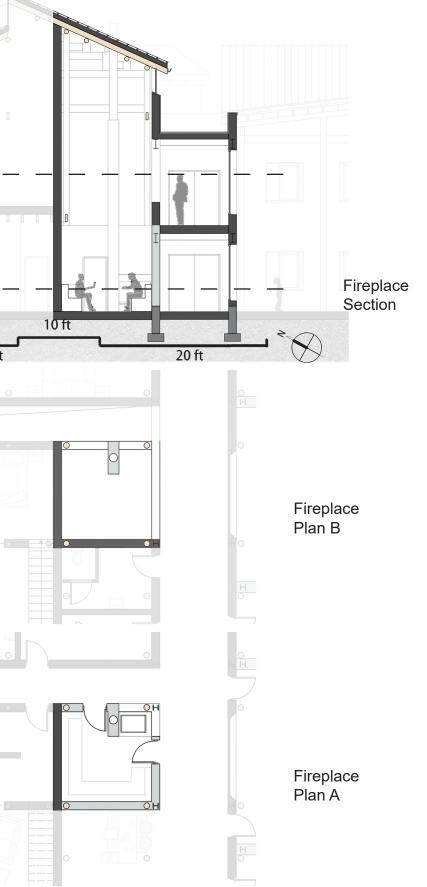


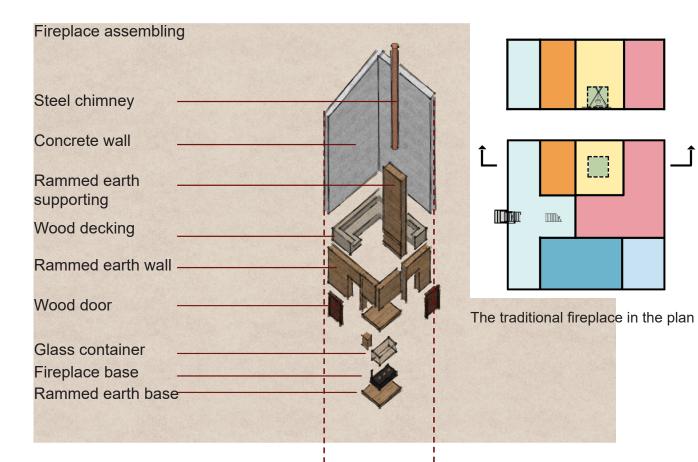
·Plan:

The fireplace is positioned in the central part of each of the three hotel room buildings in similar to the traditional dwelling.

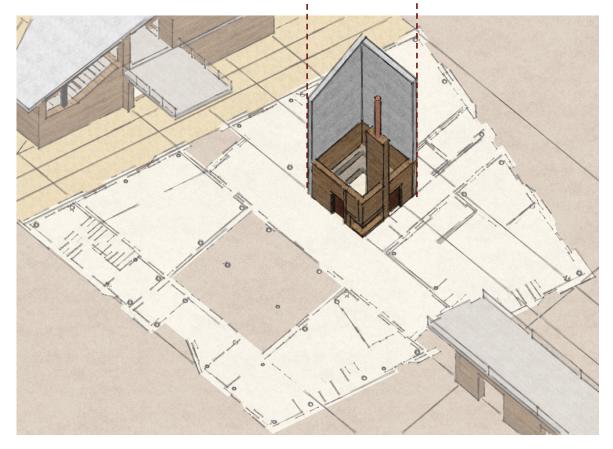
Three sides of the fire place room are enclosed by a 10.5' tall rammed earth wall which is reinforced internally steel scaffolding.

44





In plan, the fire place is positioned in the center.



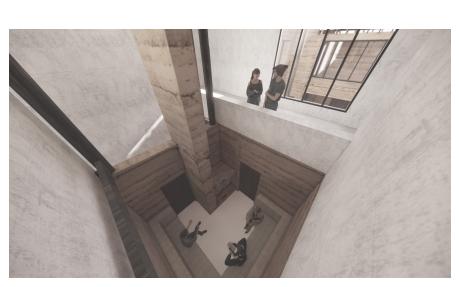
·Verticality:

[X]

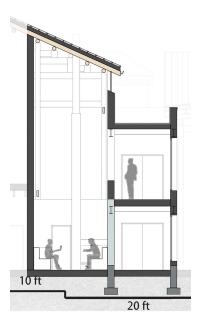
The verticality of the traditional fireplace room is retained but opened toward a mezzanine level.

In the context of a modern hotel, the vertical fireplace room is offered as a social space for the both guests on the ground floor and visitors on the second floor's passage.





Bird's eye perspective toward the fire place.



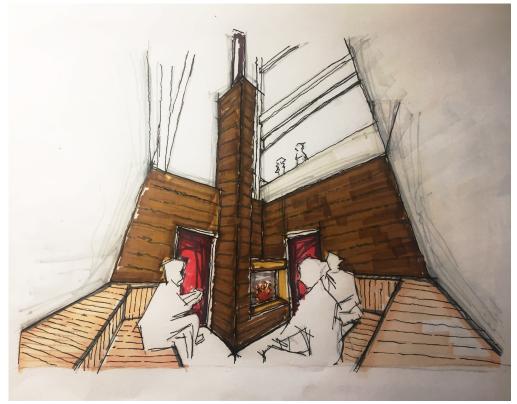
Fireplace Section



The traditional fireplace [7]

·Ambience:

Rammed earth walls which envelope the room on three sides serve as reminder of material traditions. The bench offers people opportunity to sit together.

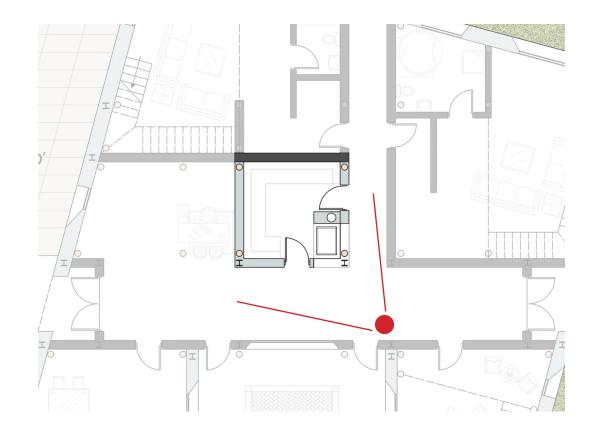


In the fireplace

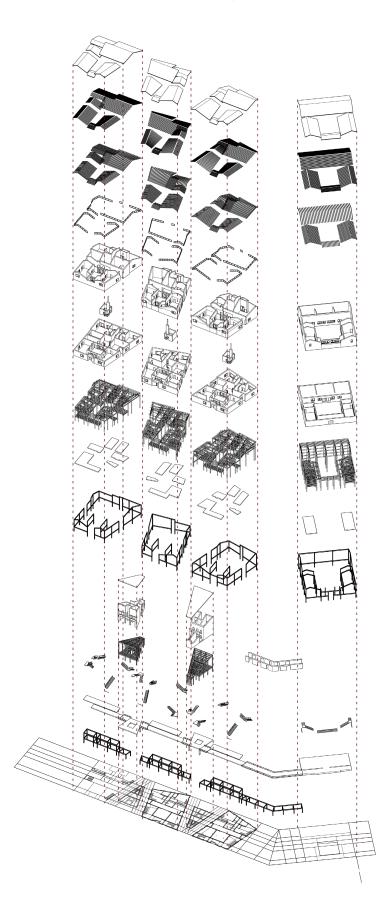


 \cdot A New Transparency The glass-enveloped fire pit is inserted into the rammed earth wall allowing the flames to be seen from both inside the fire place room and from the outside adjoining hallway.





•Structure & Construction Layer



Grey tile roof

Wood roof construction

Clerestory

Second floor enclosure

First floor floor enclosure

Wood skeleton

Concrete Slabs

Steel framing

RRC roof slab

Observation building enclosure

Steel framing

Stairs

Corridor concrete slabs

Steel framing

Gird line

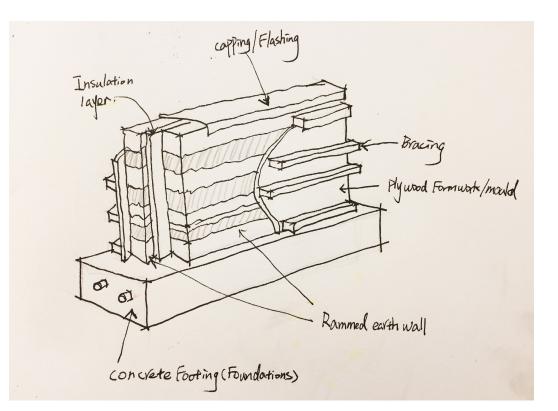
·Structure & Construction

The structure is divided into three major parts:

and column frames. The internal walls are built with concrete.

·Rammed Earth Formworks

The external rammed earth wall is 20" thick. Workers can obtain rammed earth on site with the current rammed earth wall building technique by the plywood formworks.

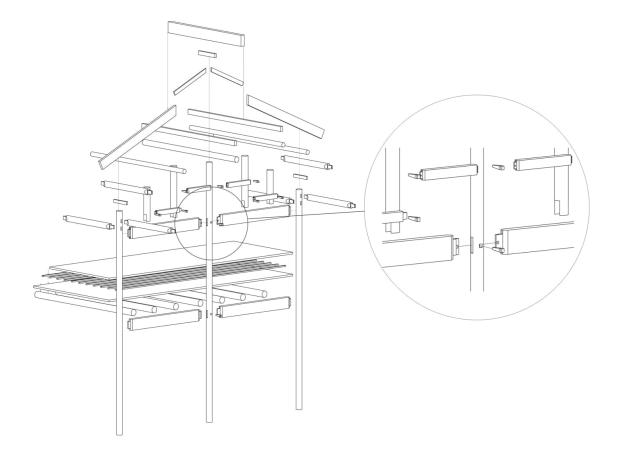


- The concrete floor slab of building and the roof sheathing are supported by the wood beam
- Steel frames are inserted into the external rammed earth walls to strengthen the structure.
- The elevated walkway in the middle is constructed with the concrete and steel framing.

Roof as an Iconic Tradition

·Roof Assembly

In order to recall notions of the traditional dwelling, the traditional Chinese "Sun – Mao/ Tenon and Mortise" assembling system serves as the basis for the roof construction. The dialog of stacked beams and columns operates a formal reminder of long construction traditions.







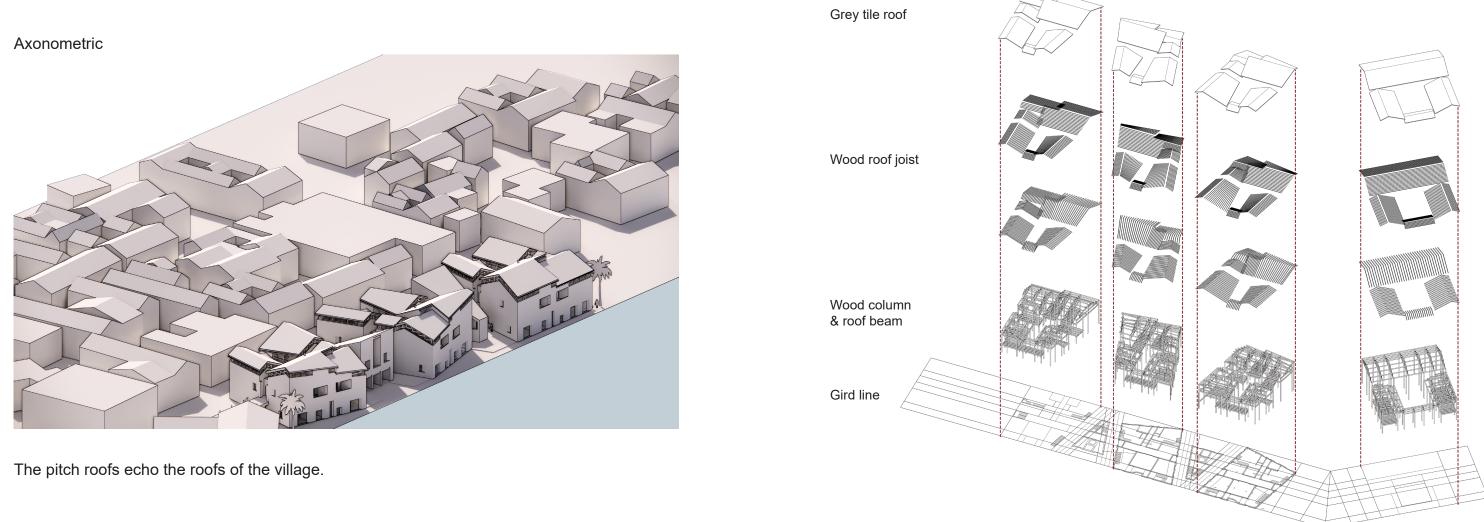
The proposed roofscape in the village's context.



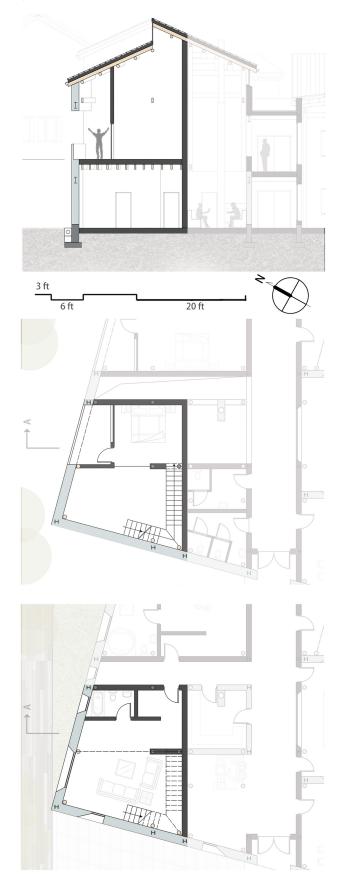
to complement the existing scale.



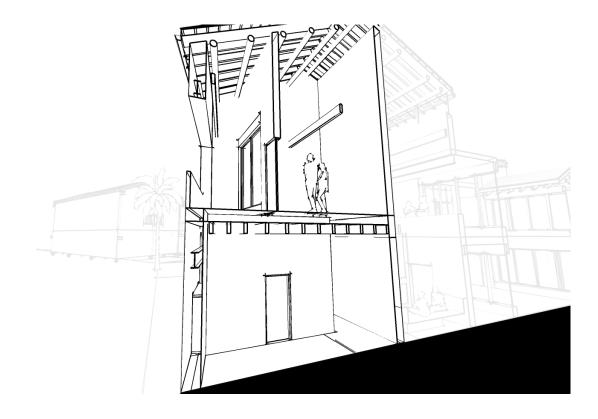
The proposed roofs are a little higher than the roofs of village but still modest enough



·Hotel (Guest Rooms)



Room A



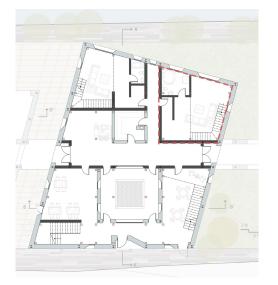
Both guest rooms are facing towards the lake. The interior walls are made of concrete while the external walls are constructed of rammed earth. The window openings offer full view of the lake. Each room has a own balcony on the second floor.



Interior perspective of a guest room with upper level gallery.

Room B

·Cafe & Entertainment Area



Room B Rendering





Most southern parts are constructed with rammed earth. The combination of wood skeleton and rammed earth walls are hinting a vernacular architectural story.

The northern, lake-oriented hotel rooms.









In the southern parts of the hotel room buildings, the wood column and beam structure system are exposed. The steel frames are inserted into the rammed earth wall as reinforcement but is not visible.



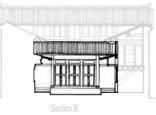
IV Courtyard

The traditional dwelling's courtyard is a small rectangle. It is surrounded by three individual rooms with pitch roofs. Parts of the wood columns are exposed. The courtyards may serve as an open-air restaurant and playground for the residents.

The courtyard is open and access to the three rooms of the dwelling.

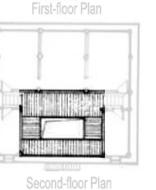


The traditional dwelling's courtyard [23]



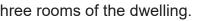
DIMIN

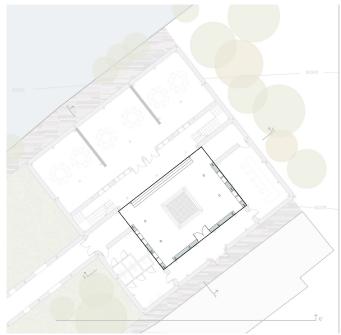
Courtyard of the restaurant to the east. This courtyard is based on the traditional courtyard with an open entrance. An adjoining restaurant offers a prime view to the lake.



The courtyard's plan & section in traditional Seal-Shaped dwelling. [24]

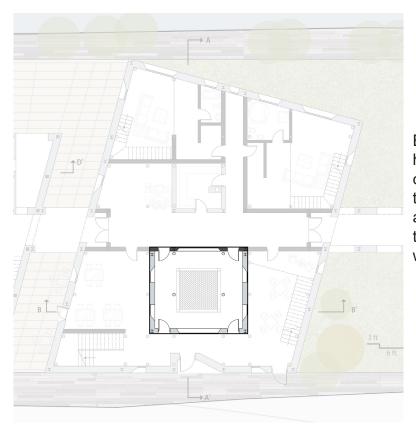






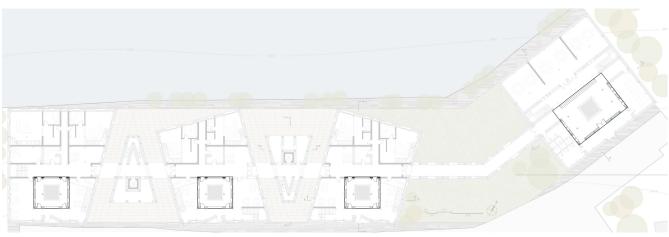


Courtyard of the three individual buildings

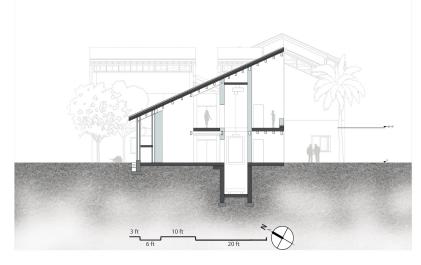


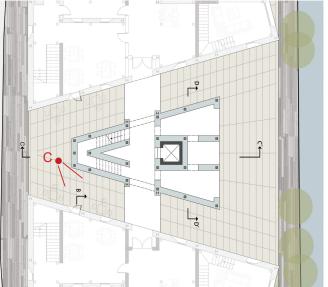
Each of the three hotel room buildings have their own small courtyard. The courtyard interior is also visible from the elevated walkway. Courtyards and the private fireplace room are two spaces that invite the association with the traditional dwellings.

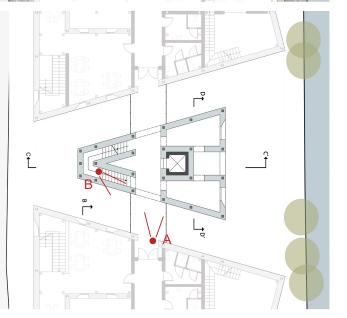




·Elevated Walkway & Connecting Building







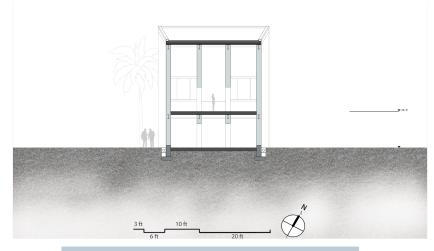
Connecting Building A

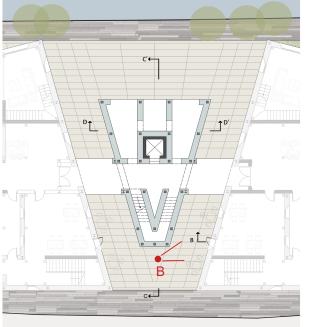


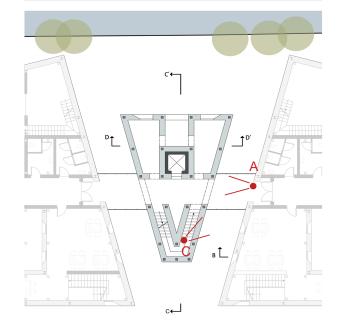
The connecting building A is facing north, and offers a view towards the lake. The wedgeshape defines an increased permeability between lake and village. Along the elevated walkway, both lake and village have a constant presence.

A



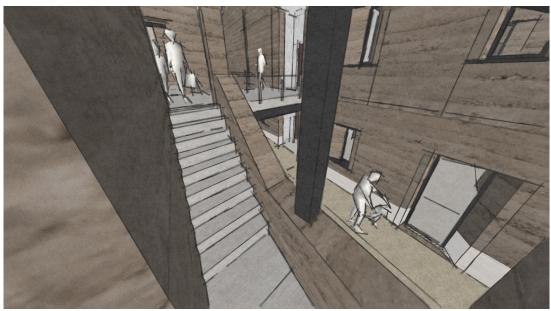




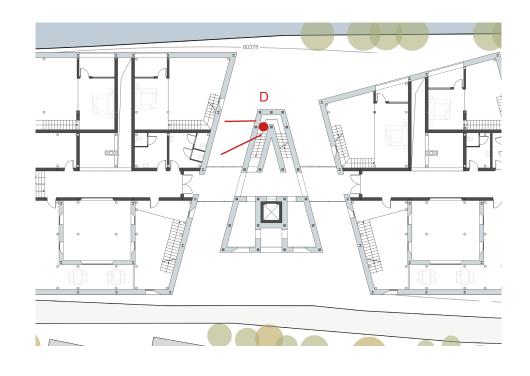




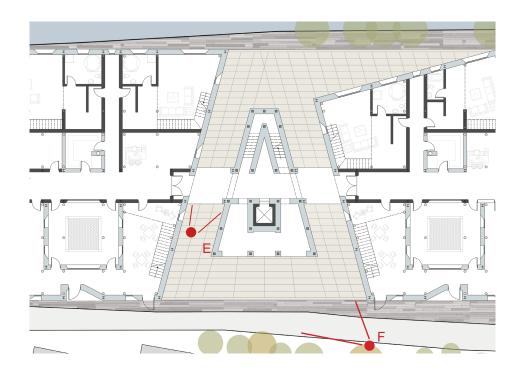
С

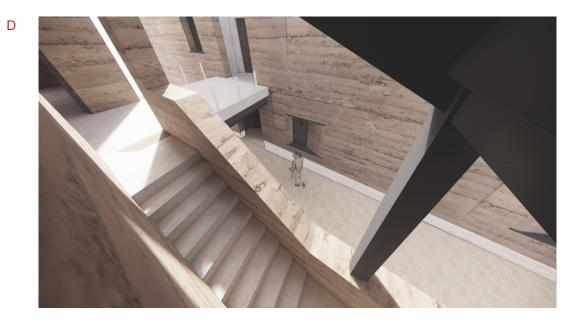


The connecting building B is facing to south, with a view towards the village. Each of the two building have staircases and elevators to access the long corridor on the second floor.



Connecting Building B





Е





belonging to a place and its culture. scenographic presences.

Conclusion

An architecture which reinterprets the fireplace, roof, courtyard and the plan of the traditional south-west China dwelling is an attempt the offer a

The rammed earth with a new building technique is an additional measure that strengthen the belonging. Although the program calls for a relatively large volume, the division into four scaled buildings seeks to come closer to the urban fabric of the village. Overall, the architecture seeks to frame both the lake and the texture of the village as the most important

Photographs in "Traditional Dwelling Study: the typological basic elements to approach my proposal" [1] "The Seal-Shaped dwelling". Image from https://kknews.cc/zh-sg/home/265egav.html [2] "The Seal-Shaped dwelling's plan & facade", Image from https://kknews.cc/zh-sg/home/265egay. html

[3] "The Seal-Shaped dwelling's plan & section", Image from https://kknews.cc/zh-sg/home/265egay. html

[4] "The Seal-Shaped dwelling in the village", Image from https://www.sohu.com/ a/290933147 99896974

[5] "The Seal-Shaped dwelling sketch", Image from https://i.17gg.com/article/hochcdlpv_p4.html [6] "The Seal-Shaped dwelling's pitch roof", Image from https://jingdianwangwen.blogspot. com/2018/07/blog-post 709.html

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Photographs in "Case Studies"

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[18] "Fireplace room arrangement". Image from https://www.archdaily.com/551144/around-fireplaceruetemple

[19] "Around fireplace's axonometric", Image from https://www.archdaily.com/551144/around-fireplaceruetemple

Photographs in "Site and Place"

[20] "Palm tree on the lakeshore", Image from https://www.mafengwo.cn/i/11402714.html [21] "Activity on the lakeshore", Image from https://www.mafengwo.cn/i/11402714.html [22] "Sunset towards the lake", Image from https://www.mafengwo.cn/i/11402714.html

Photographs in "IV Courtyard"

[23] "The traditional dwelling's courtyard", Image from https://www.sohu.com/a/320210597 99935361 [24] "The courtyard's plan & section in traditional Seal-Shaped dwelling", Image from https://kknews. cc/zh-sg/home/265eqay.html

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