



# SHUI <sup>💧</sup>BED AND BREAKFAST

NAME: QIHUA SHENG  
ADVISER: JEFF FAMA

GRADUATE THESIS  
DREXEL UNIVERSITY  
2019-2020



**LOCAL MATERIALS,  
LOCAL KNOWLEDGE,  
CULTURAL VIBRANCY.**

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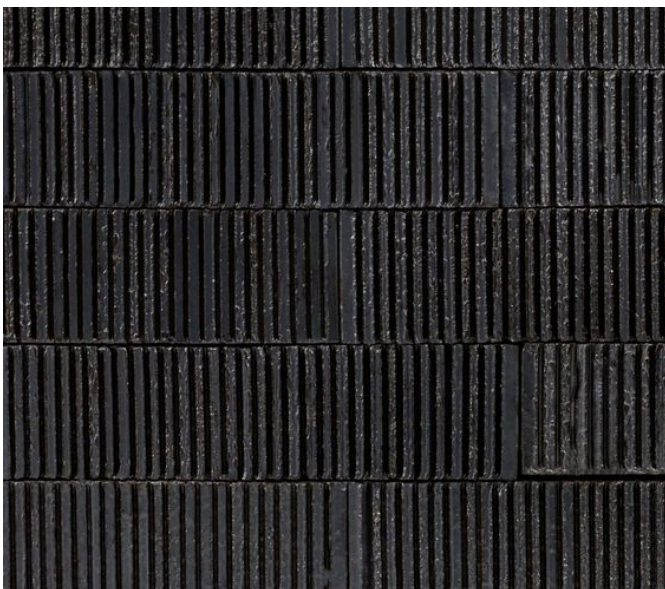
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# **EXECUTIVE SUMMARY**

**Design is rooted in place. It is affected by geography and adapts to different natural conditions. Regional characteristics have historically been reflected in site selection, building form, building materials, craftsmanship, color and decorative elements. This thesis will explore traditional Chinese architecture, its relationship to nature, and ways in which contemporary design can express continuity with the past.**

# LITERATURE REVIEW

## Introduction

Vernacular architecture is characterized by the use of local materials and knowledge, usually without the supervision of professional architects. Vernacular buildings are typically simple and practical, whether residential houses or built for other purposes<sup>1</sup>. Unfortunately, there has been a growing disregard for traditional building techniques around the world due to modern construction technology quickly spreading a “loss of identity and cultural vibrancy”<sup>2</sup>, through what Architectural Review recently described as “a global pandemic of generic buildings<sup>3</sup>.” People have come to see steel, concrete and glass as architecture of high quality, whereas vernacular methods including adobe, reed and peat moss are often associated with underdevelopment<sup>4</sup>. Ironically, these local methods are far more sustainable and contextually aware than much contemporary architecture seen today, despite ongoing talks and debates about the importance of sustainability<sup>5</sup>. As a result of these trends, a tremendous amount of architectural and cultural knowledge is being lost<sup>6</sup>.

## Architecture and Cultural Identity

In recent years, the issue of cultural identity has played a pivotal role in contemporary architecture, creating unique and local places within a competitive global environment<sup>7</sup>.

Several natural and human factors contribute to defining “identity” such as place (region, geography, topography, and climate), people (society, community), and culture (traditions, customs, language, religion, and artifacts)<sup>8</sup>. Culture, as a human product, is profoundly related to a place or region where natural environment has a great impact on people. Place describes the complex interplay of climatological, biological, geological, and topographical features that create the differences we see around us. Place identity defines who people are and defends people from settings that threaten who they are or want to be. The identity of a place can be seen as part of one’s self-identity derived from everyday experiences of places and the built environment. The sense of place identity is related to the meaning of that place to someone as “...place makes memories cohere in complex ways”<sup>9</sup>.

Culture is one of the major factors that defines identity at a large scale and through time. Vibhavari Jani, in her edited book *Diversity in Design: Perspectives from the Non-Western World*, suggests that culture refers to: "... distinctive way of life that represents values, customs, and norms of a group of people who pass these traditional values from one generation to the next.<sup>10</sup>" Expand on this,, How does culture relate to architecture/design? One example, comparing Western architecture with Chinese buildings, suggests that in making a place to live, Chinese first spread a parasol to throw a shadow on the earth, and in the pale light of the shadow we put together a house. There are of course roofs on Western houses too, but they are less to keep off the sun than to keep off the wind and the dew; it is apparent they are built to create as few shadows as possible and to expose the interior to as much light as possible<sup>11</sup>.

Architecture, vernacular in particular, is a product of people, place, and culture; it is a facet of identity. In this way, vernacular architecture can be seen as essential to a vibrant society.

## **Vernacular Architecture**

Vernacular architecture can be defined as unpretentious, simple, indigenous, traditional structures made of local materials and following well-tried forms and types<sup>12</sup>. Vernacular architecture can be thought of as the built environment (city, architecture, and interior spaces) created based on a society needs<sup>13</sup>. It is built in accordance with the natural environment (geography, topography, site, climate, local building materials, labor experience, and building techniques) fulfilling people's physical, economic, social, and cultural norms<sup>14</sup>. Vernacular architecture is a sign of identity; it is the "mirror" of nations that reflects place, time, and culture<sup>15</sup>. Architecture is built by people for people; it has developed through time and modified itself through trial and error to fulfill society's needs in harmony with the ambient environment<sup>16</sup>. In his book *Architecture without Architects*, Bernard Rudofsky commented, "There is much to learn from

architecture before it became an expert's art<sup>17</sup>."

To comprehend people's experience with ambient natural and built environments, it is important to recognize how building is part of day-to-day life practices and experiences. Due to challenges historically in transporting materials, vernacular architecture depended on local materials and skills; this dependence led to techniques that conserved resources and created unique features identifiable to each region's architecture<sup>18</sup>. Each material embedded its physical and aesthetical characteristics and dictated the architectural technology that fit material<sup>19</sup>.

Brick, for instance, as one of the most ancient and popular materials used in hot arid regions such as the Arab World, required certain technologies based on its shape, size, and durability. Most brick units' dimensions are set to fit human being's hand; this was convenient when building walls and piers while the thickness of these vertical elements varied based on its constructional location, height, and structural loads. To solve the roofing problem, builders had to create new forms in accordance with brick's physical characteristics; arch was a brilliant solution. The local materials can reflect the characteristics of the local site very well; whether it is in the adaptation to the local environment or the fusion of cultural temperament, there is good compatibility. Different from modern reinforced concrete buildings, brick architecture has more regional characteristics<sup>20</sup>.

Local materials are often used and excavated by locals and are closely related to the life and cultural traditions of local residents<sup>21</sup>. They can match the local temperament in terms of color, texture and physical characteristics<sup>22</sup>. For example, in order to respond to the ecological characteristics of the climate and the locality, the buildings of the Yi nationality use bamboo as a material to build, which is well integrated with the surrounding environment. Even some of the old building materials recycled locally can be used to design, to participate in the reconstruction to achieve the symbolic regeneration, and to enhance the



sense of fit with the venue.

## **Nature as Architect**

The concept of the structure of life and the support provided by direct experience and science provide the basis for the design and understanding of architecture. This platform is a smart way to design and build because it is neither ideologically nor personally driven. In addition, it should be contrasted with the irrationality of other plans that currently appear in architectural discourse and seem to promote it. If we seek meaning in the constructed context, we will not be able to continue using explanatory schemata that lack intellectual coherence. Important things like architecture cannot be built on an arbitrary basis. Well, it can and has been for decades, but the results have not been satisfactory. Some people would prefer an architecture that is consistent with human perception, where design decisions are based on observation and empirical validation. Above all, buildings must provide a good, healthy environment for human beings and minimize the damage to the earth's ecology.

Only when architectural theory resonates with the deep feelings and direct experience of ordinary people can it be useful to the whole human race. So-called theory cannot ignore the public but can only talk to a small elite. It cannot treat ordinary people as ignorant and posits that there is no truth in architecture. It does exist, and this fact exposes the absurdity of many contemporary architectural dispositions that try to hide behind relativistic bravado. Perhaps that is why Alexander and his understanding of architecture were marginalized by fanatic relativism, prompting Eisenman's later comment: "I think Chris unfortunately fell off the radar screen some time ago<sup>23</sup>."

We consider nature to be an all-inclusive, evolving system of which humans have substantial yet incomplete scientific and cultural knowledge. We believe terrestrial nature, i.e. 'the landscape' is best understood as simultaneously an ecosystem

and a cultural system—a recognition that urban agglomeration economies and rural processes of extraction and transport now form a planetary network.

## **New Vernacular Architecture**

New vernacular architecture draws upon the essence of a place. Though it may no longer be rooted in specific local materials or techniques, it strengthens the study of traditional local architecture, actively exploring the essential characteristics of different regions, to discover the roots of material and site<sup>24</sup>.

As part of a new vernacular approach, local materials can be developed for a variety of wonderful applications, such as bauxite, bamboo, etc., and with a little improvement, plasticity can also reach the extent of building various forms of different buildings, to withstand greater loads<sup>25</sup>. Therefore, exploring the potential and innovative application of local materials is conducive to the leap-forward breakthrough in the form of new vernacular architecture.

## **Chinese Culture and Chinese Vernacular Architecture**

Chinese culture can be understood briefly as the general term for national civilization, customs, and spirit. The definition of "culture" is often "different people have different views.". Simply put, the traditional Chinese culture is dominated by the three schools of Confucianism, Buddhism, and Taoism.

Within Chinese culture there are some specific approaches to architecture and nature that help understand the vernacular traditions.

In the history of the development of architecture in China, the thought of "harmony between man and nature" has far-reaching influence. "Unity between man and nature" not only reflects

the ancient people's perception of the world, but also emphasizes the harmony between man and nature. The ancient buildings under the influence of the "harmony of man and nature" existed mostly in the form of garden palaces, emphasizing group combination rather than individual existence. It required the harmony and unity of interior and exterior and mutual symmetry. Mountains and rivers constitute a whole, achieving visual unity. Ancient Chinese architecture under the influence of the "harmony of man and nature" has paid more attention to the unity of the axis in the overall layout, while reflecting the ancient people's awe of the world and the universe. It conveys people's yearning for aesthetics. Therefore, the influence of the idea of "Nature and human in One" on ancient architecture in China cannot be underestimated. In the traditional residential buildings in China, the front of the house is mostly empty, with sky above and ground below. The center is the axis of symmetry. Folk house architecture reflects the ideological connotation of "harmony between man and nature", emphasizing that man-made people live in harmony with nature<sup>25</sup>.

Foreign buildings are usually outside the courtyard; that is, the courtyard surrounds the house, while in Chinese architecture it is the opposite. The courtyard is inside, and the house is outside, that is, the house surrounds the courtyard. Houses, wall slabs, etc., are divided into courtyards, centered on the courtyard; or the main unit i.e., the main hall, the main hall, as the center, the secondary unit i.e., the hatchback, surrounds the main unit, a positive hatchback, and is connected by handcuffs to form a building.

Ningbo Historic Museum is good example of exploring Chinese vernacular architecture. At first glance, the stone-hewn Ningbo Historic Museum by Wang Shu can be hard to distinguish from a natural form. The museum brings Shu's philosophy of critical regionalism to an oversized proportion. With both chiseled delicacy and natural strength, its 30,000sq m rise from a rectangular base, bend and spreads in surprising lines. The result is

less like a mountain than a piece of ancient bedrock that's been left behind while the rest of the city has been forcibly carved out around it.

Like all great architecture, Wang Shu's work can transcend disputes and evolve into architecture that is rooted in its historical background, is never outdated or even world-wide. In terms of its space combination or function combination, Ningbo Museum is not fundamentally different or different from other museums. The tile wall is a traditional wall building with rich local characteristics in eastern Zhejiang. According to the elderly, it is made of traditional grass, mud, wood, stone, brick, porcelain, etc.. In spite of its imposing scale, the building encourages intimacy with its intriguing facade. Here, Shu again borrowed from Chinese tradition - literally. The museum is clad in an armadillo shell of 20 different types of grey-and-red bricks and tiles, scavenged from the remains of

farmers' homes on the site's now fallow fields. To cover the museum's 24m-high walls, which are made of concrete on a wood-and-bamboo frame, Shu guided craftsmen and builders on small mock-up experiments, and remained open to imperfections. The tile wall of the Ningbo Museum consists of tile wall, tile wall lining wall, structural cavity and internal partition wall. The tile wall is a 15cm thick reinforced concrete wall, and the tile wall and lining wall have tie bars. It is well connected with the tow beam structure as a whole, thereby ensuring the structural safety of the ultra-high tile wall. In addition, through the construction of the cavity and the arrangement of waterproof facilities, modern tiled walls have better waterproof and heat insulation functions than traditional one. From these aspects, it should be said that it reflects the traditional the protection of inheritance and rejuvenation<sup>26</sup>.

## **Conclusion**

Vernacular architecture draws upon local materials and local

knowledge to produce a built environment that is unique. It is rooted in a specific area and is affected by different geographical conditions and shows adaptation to different natural conditions. Specific regional characteristics are mainly reflected in the site selection of the building, the form of the building, the color of the building, the choice of building materials, the craftsmanship of the building, and the decoration of the building, such as the decoration of the plaque, the beam and the roof. Vernacular architecture can also reflect national ethnic customs and culture. In China, local and national culture and tradition are expressed through the vernacular approach of Wang Shu. This approach produces a vibrancy that is rooted in history and site and forward-looking in understanding form and material.

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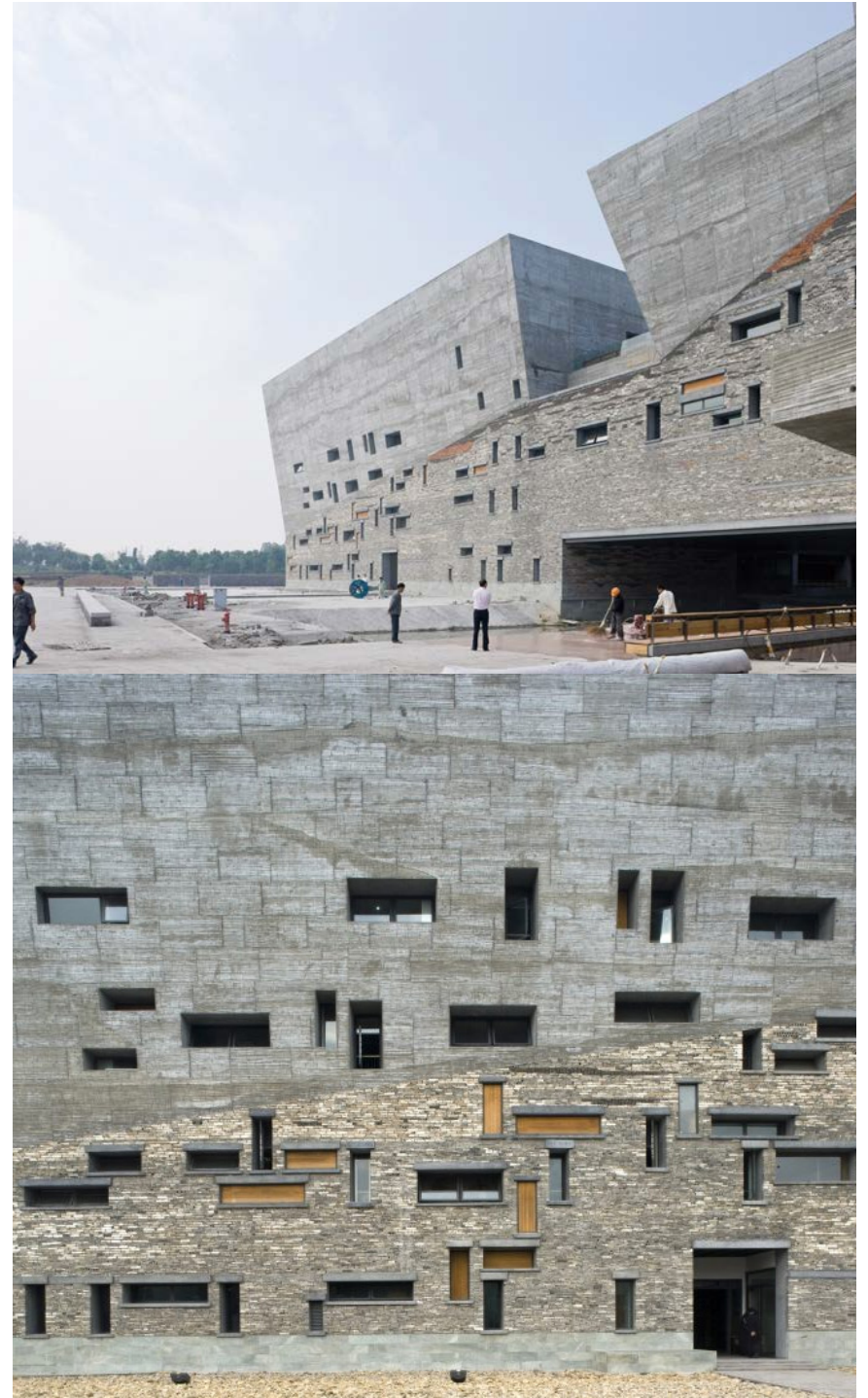
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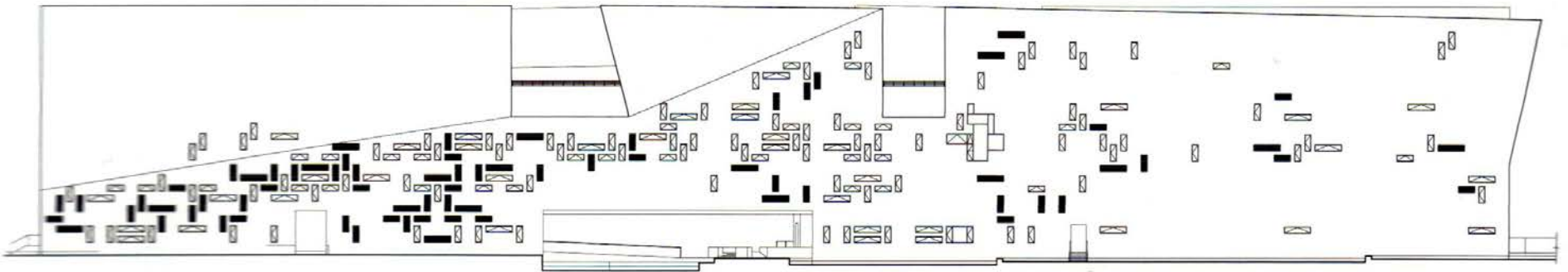
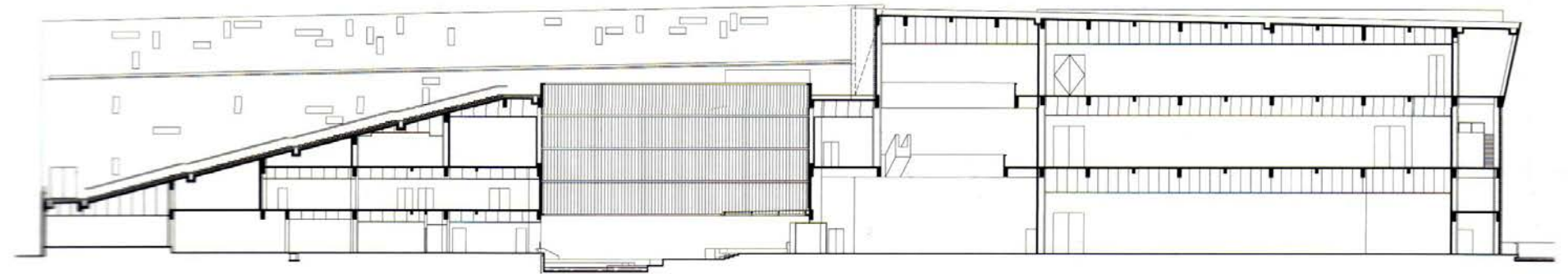
# PRECEDENT

## NINGBO HISTORY MUSEUM

Wang shu and Lu Wenyu's use of tiles has gained international recognition. The Ningbo History Museum is the best example of a building that uses clay tiles in a completely different way. Tile walls or clay brick walls here successfully link architecture to contextual elements. Originally used as a local building technique, the tiles used in the actual walls were recovered directly from the ruins of the village that once occupied the site. This not only reflects a desire to restore traditional building materials, but it also gives him the added benefit of making renewable materials available for sustainable use. Amateur studio said building a house means building it for the people who use it, which makes it quieter, or closer to nature, and more human. "Architecture is understood as an abstract concept, often separated from material reality. These treat buildings The attitude tells us why Wang Hao and Lu Wenyu are important to the choice of this material.







**SECTION DRAWING**

# CASE STUDY

## MORRIS HALL HOTEL

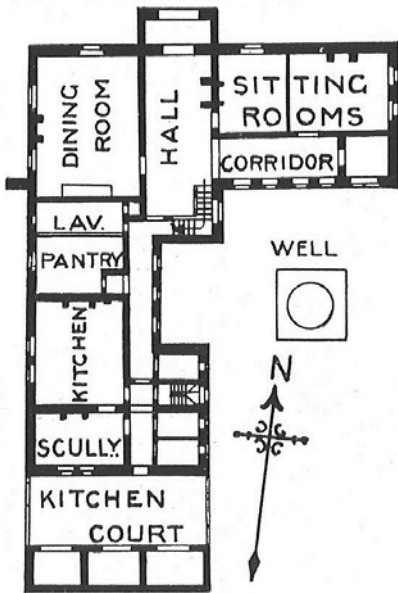
Built in 1787, the Morris House is a National Historic Landmark that has been renovated into one of Philadelphia's finest luxury boutique hotels. With an unparalleled attention to detail, the Morris House offers the coziness of a Bed & Breakfast with the elegance of top-tier hospitality.



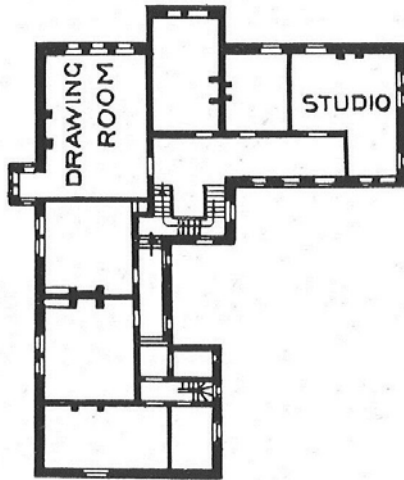
0 5 10 20 30 40 50 Feet.



### GROUND FLOOR



### FIRST FLOOR







# INTERVIEW

**Q: What do you think of Chinese architecture education?**

A: The best education is integrated into life. Designers must live before so that they can create good designs that blend into life. So I don't teach students how to do design, but I guide students to find a healthy lifestyle. Only those who understand life can distinguish the good and bad of life.

**Q: Rural practice in recent years has been very popular. What do you think of the integration of contemporary architecture and lifestyle with the rural environment?**

A: No matter what type of rural practice all are what China need most. China's construction industry as a whole is very commercialized, so to a certain extent, rural practice has become a good balance and cure medicine. I often describe myself as a "curative doctor", and I do architectural design in a curative

in rural areas. So for young architects, rural practice has more room to play, and it is worth encouraging.

**Q: What is your exploration and practice direction in the field of sustainable architecture?**

A: Material exploration is actually my core work. But this work is not limited to materials research, but to solve practical problems through materials research. After the development of the architecture of our country, from the earliest artisan craftsmanship to the profession of architects, many craftsmanship craftsmen were basically interrupted or even dying. How to combine architecture and craftsmanship under the new architect system, and let them inherit and continue, is very important consideration, otherwise all policies promoting the protection of traditional architectural culture are empty talk.

**Q: Do cities and villages have anything in common in architectural design?**

A: China's philosophy of life is actually anti-design. There is no difference between cities and villages in this regard. Architecture is a physical culture that carries lifestyles. In the past, people's thinking was urbanization as the direction, and now returning to the rural lifestyle, as long as your choice is completely possible.

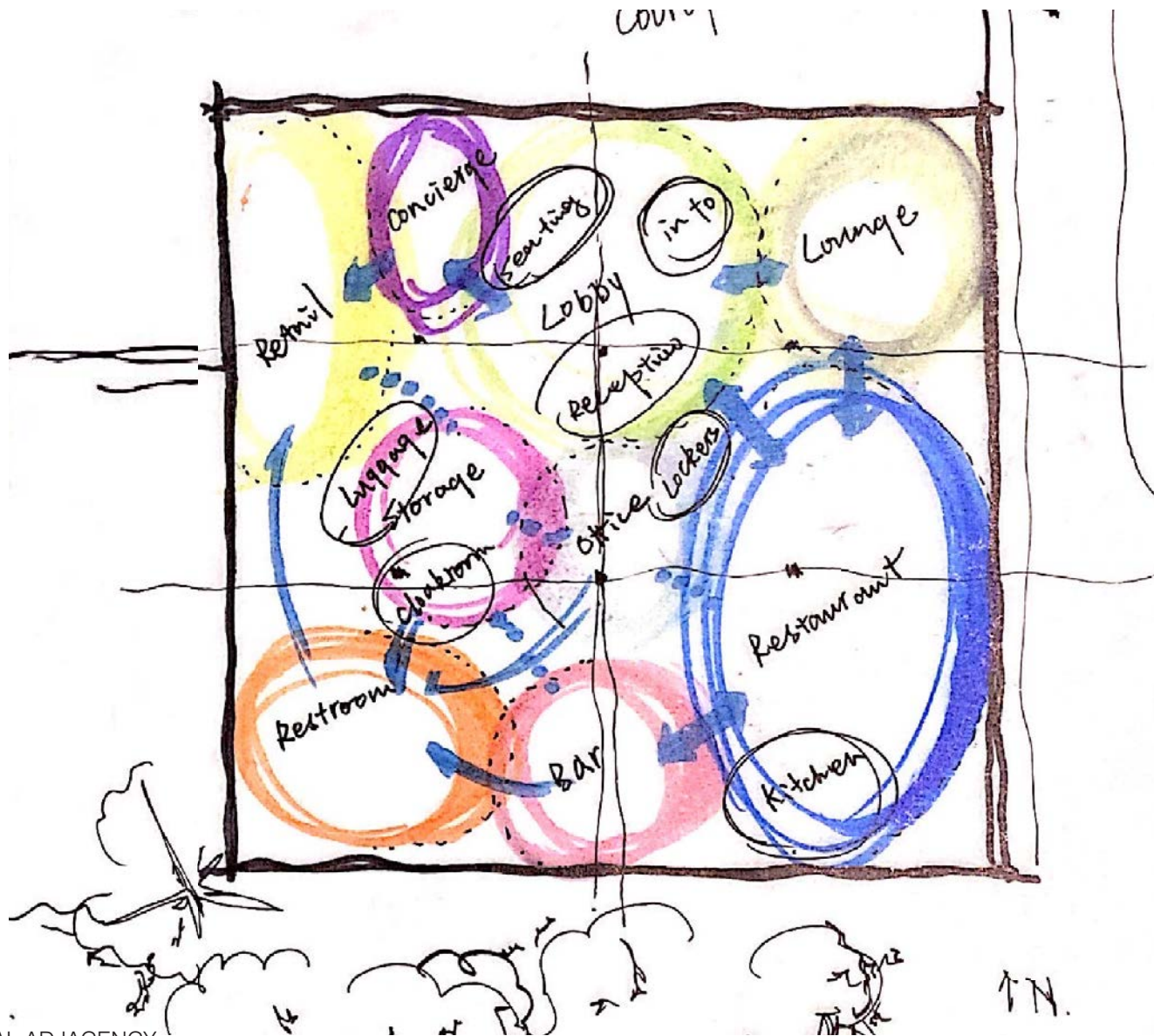
**Q: What is the key to rural construction?**

A: Village reconstruction is not just a matter of protecting traditional culture. China's rural areas are more of a balance for our urban development today. The most dangerous situation now is that the village is on the verge of collapse and shrinking. You can see that many places are almost the last generation. They are still living, and they may see their end in the next 10 years and 20 years. .

# SITE RESEARCH

	AREA	NUMBERS	PERCENTAGE	
	LOBBY/RECEPTION	800	8.0%	
	CONCIERGE	300	3.3%	
	LOADING DOCK	220	2.4%	
	BAR/LOUNGE	320	3.6%	
	BATHROOMS	220	2.4%	
	MECHANICAL ROOM	220	2.4%	
	SINGLE ROOM	269	2	3.0%
	DOUBLE ROOM	430	5	4.8%
		540	2	6.0%
	TERRACE	322	3.6%	
	LAUNDRY	220	2.4%	
	RETAIL	860	9.6%	
	STORAGE	220	2.4%	
	RESTAURANT	1076	12.0%	
	KITCHEN	540	6.0%	
		9086		

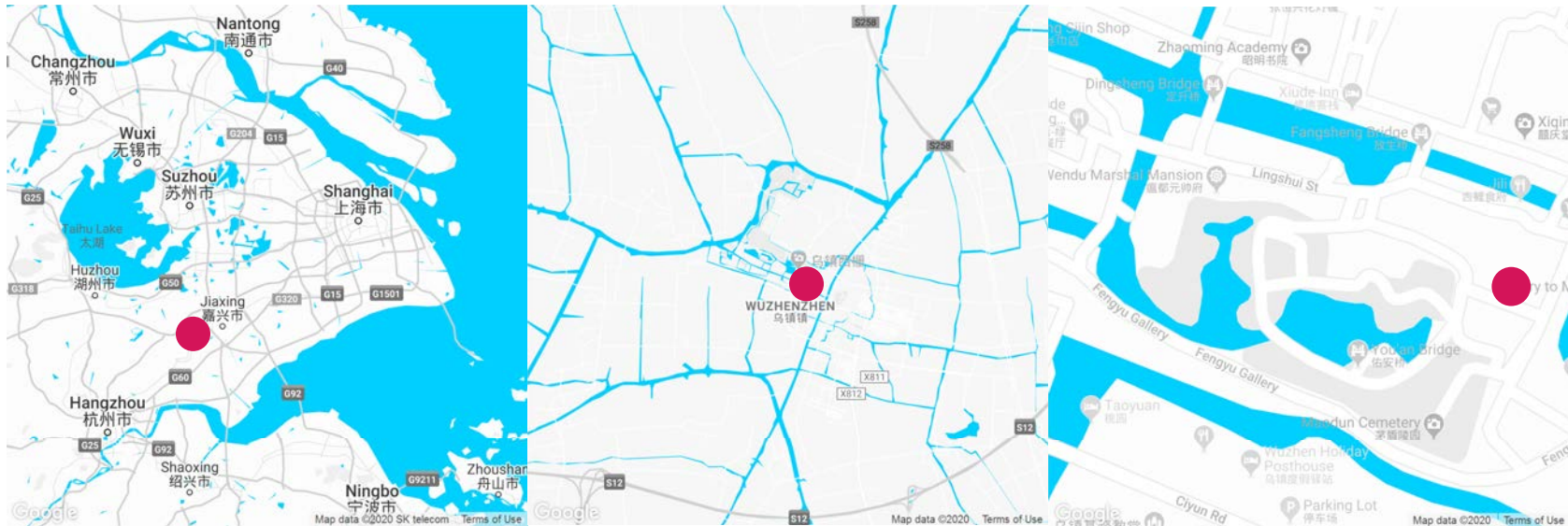




CRITICAL ADJACENCY

DESIRED ADJACENCY

# SITE ANALYSIS



## Wuzhen Water Town, China

Wuzhen is a 1300-year-old water town on the lower reaches of the Yangtze River, is a national 5A scenic area and one of China's top ten historical & cultural townspart of Tongxiang, located in the north of Zhejiang Province.

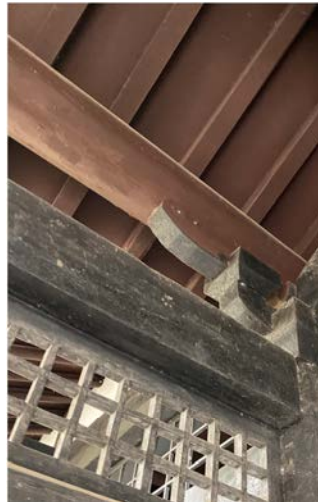
Wuzhen has been the permanent host place of the World Internet Conference since 2014.

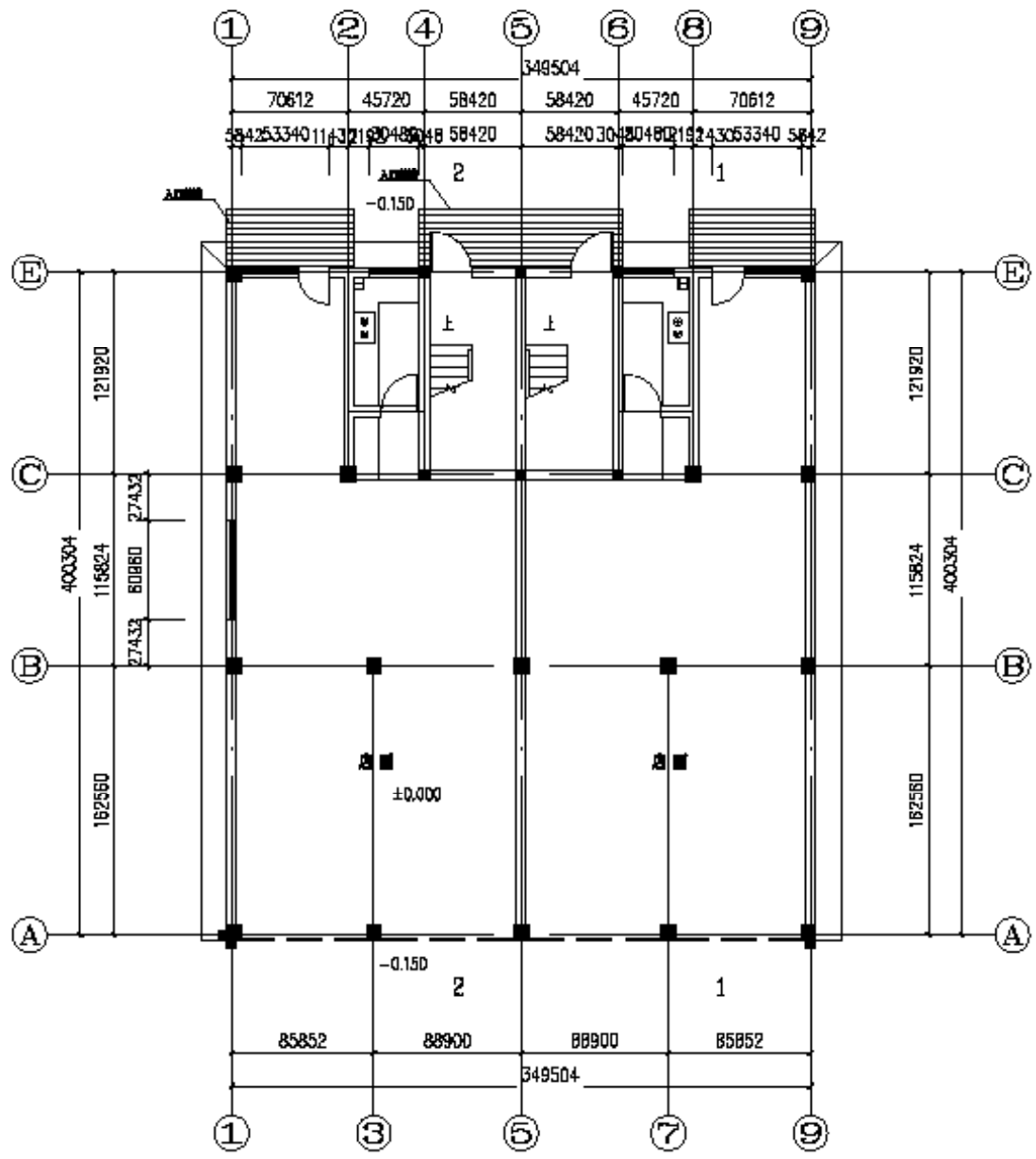
Traditional buildings remain intact today even after hundreds years of weathering.

**SITE DOCUMENTATION**



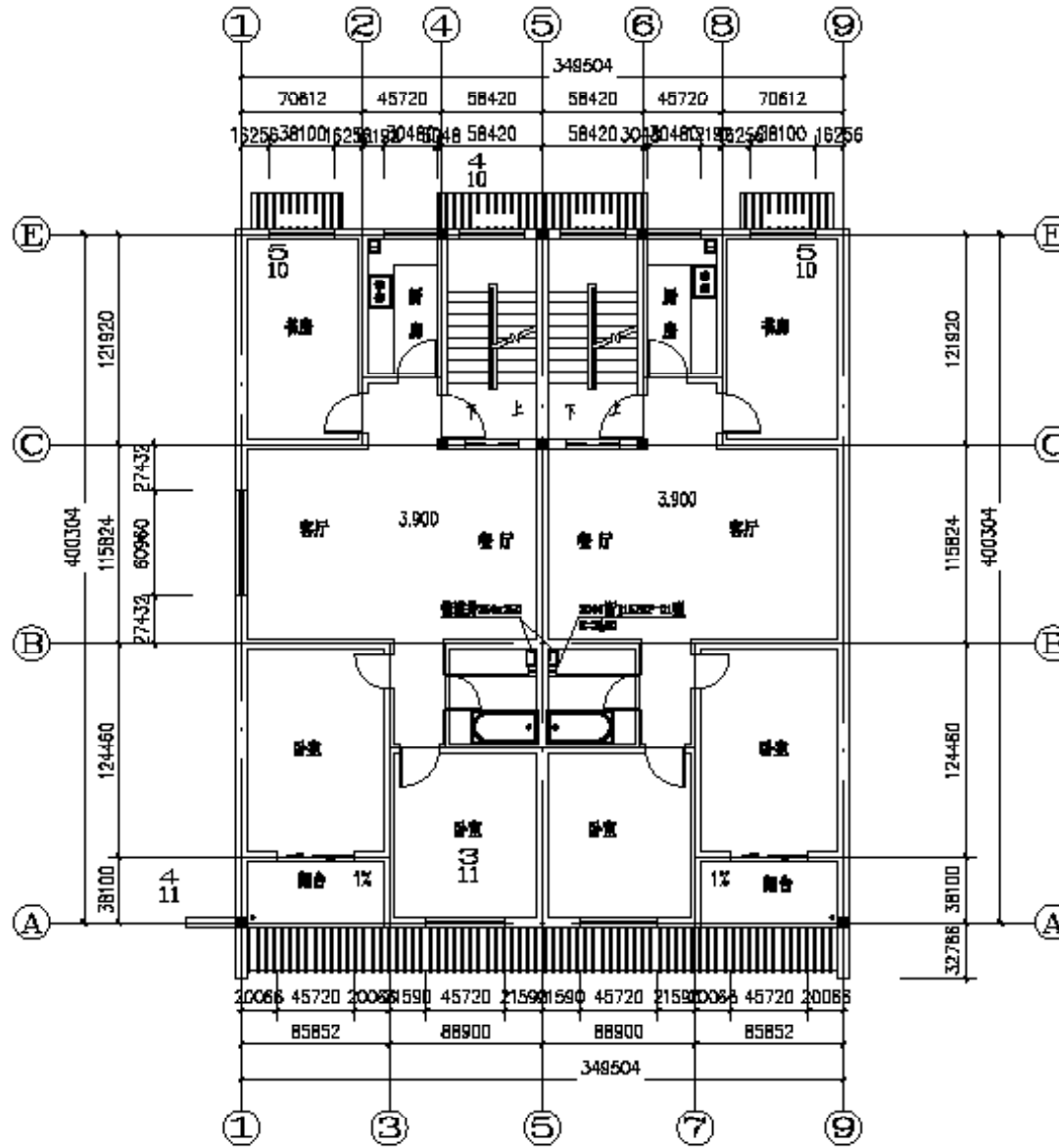
INTERIOR DETAIL





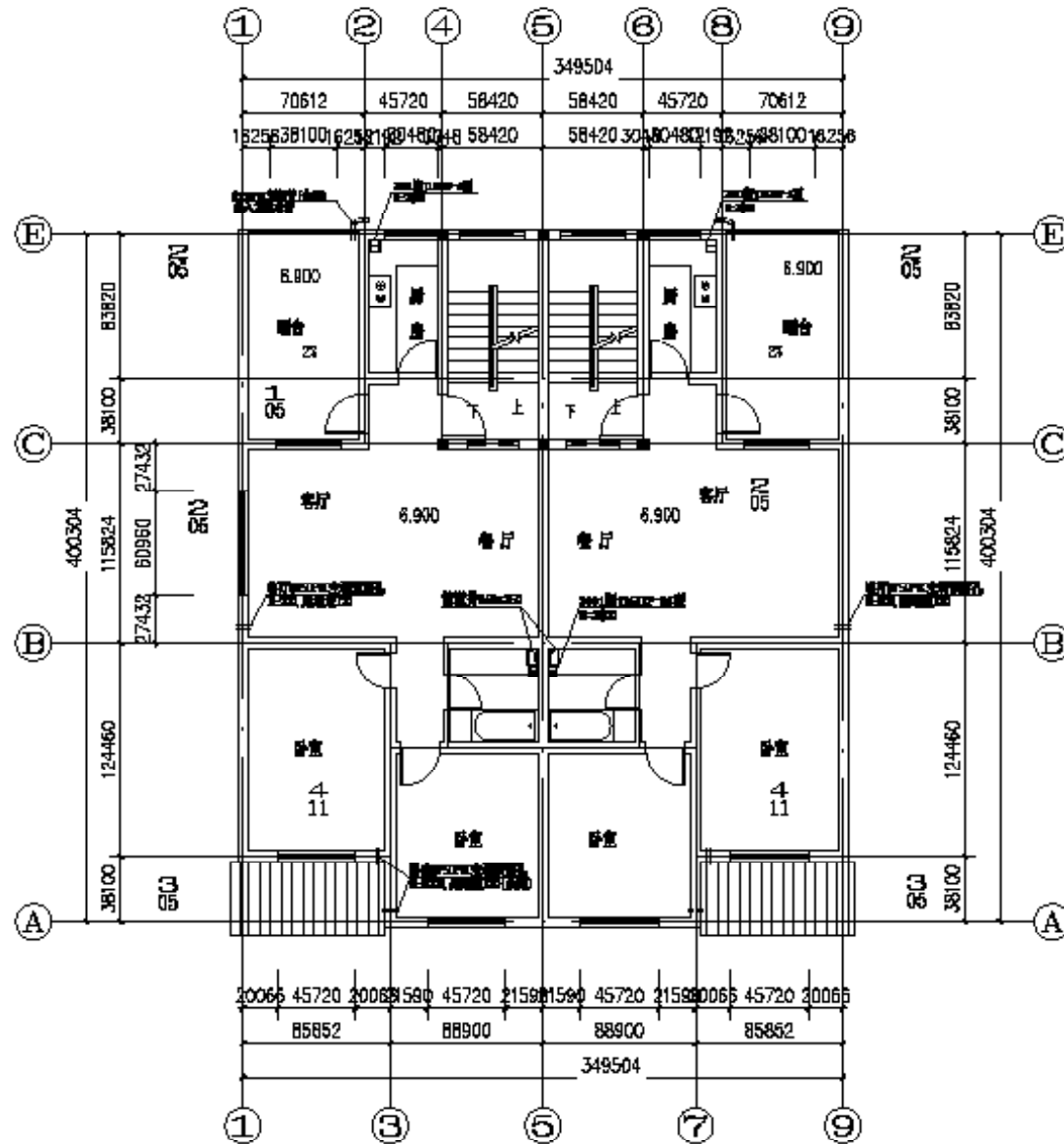
FIRST FLOOR PLAN

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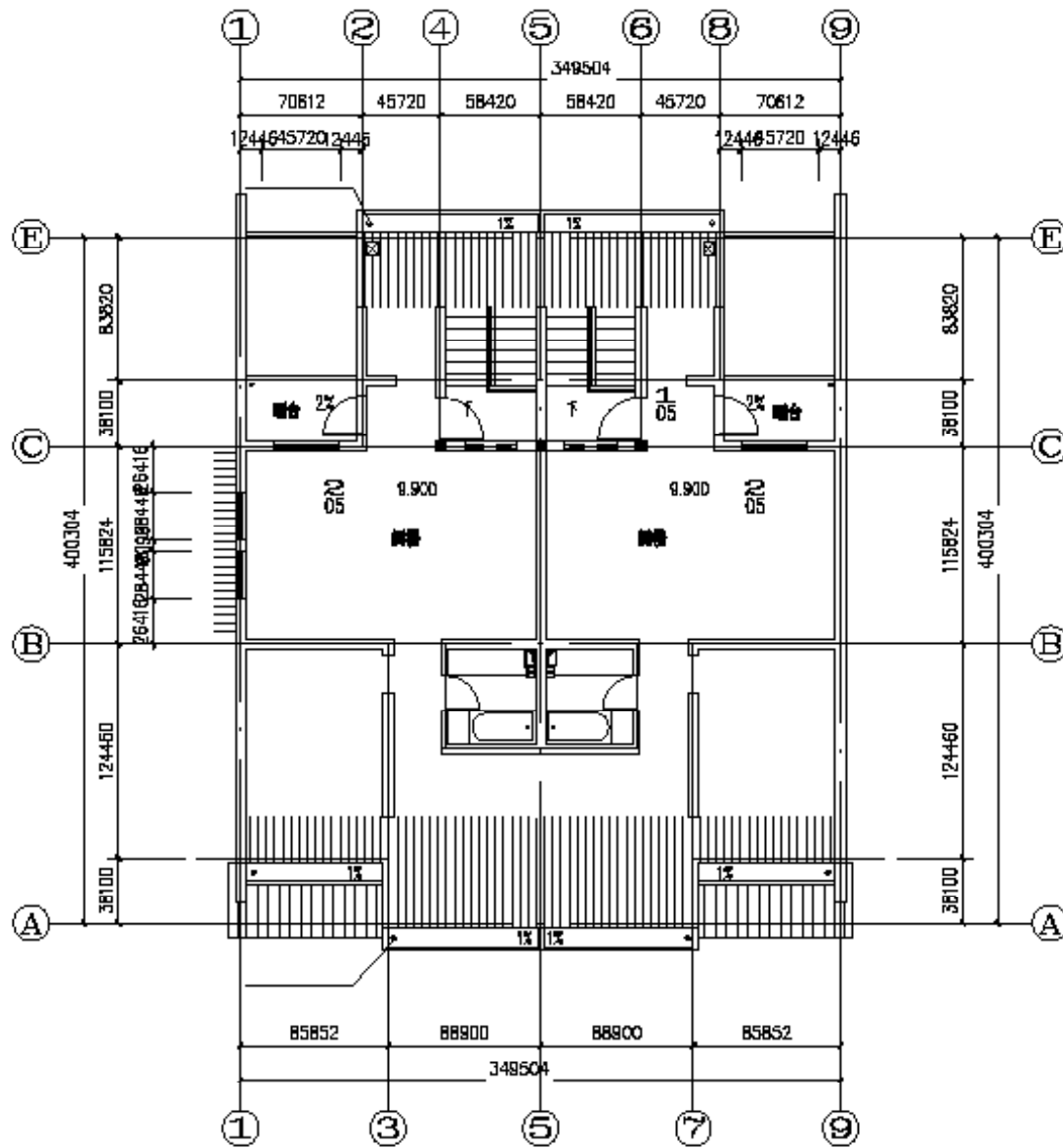


SECOND FLOOR PLAN

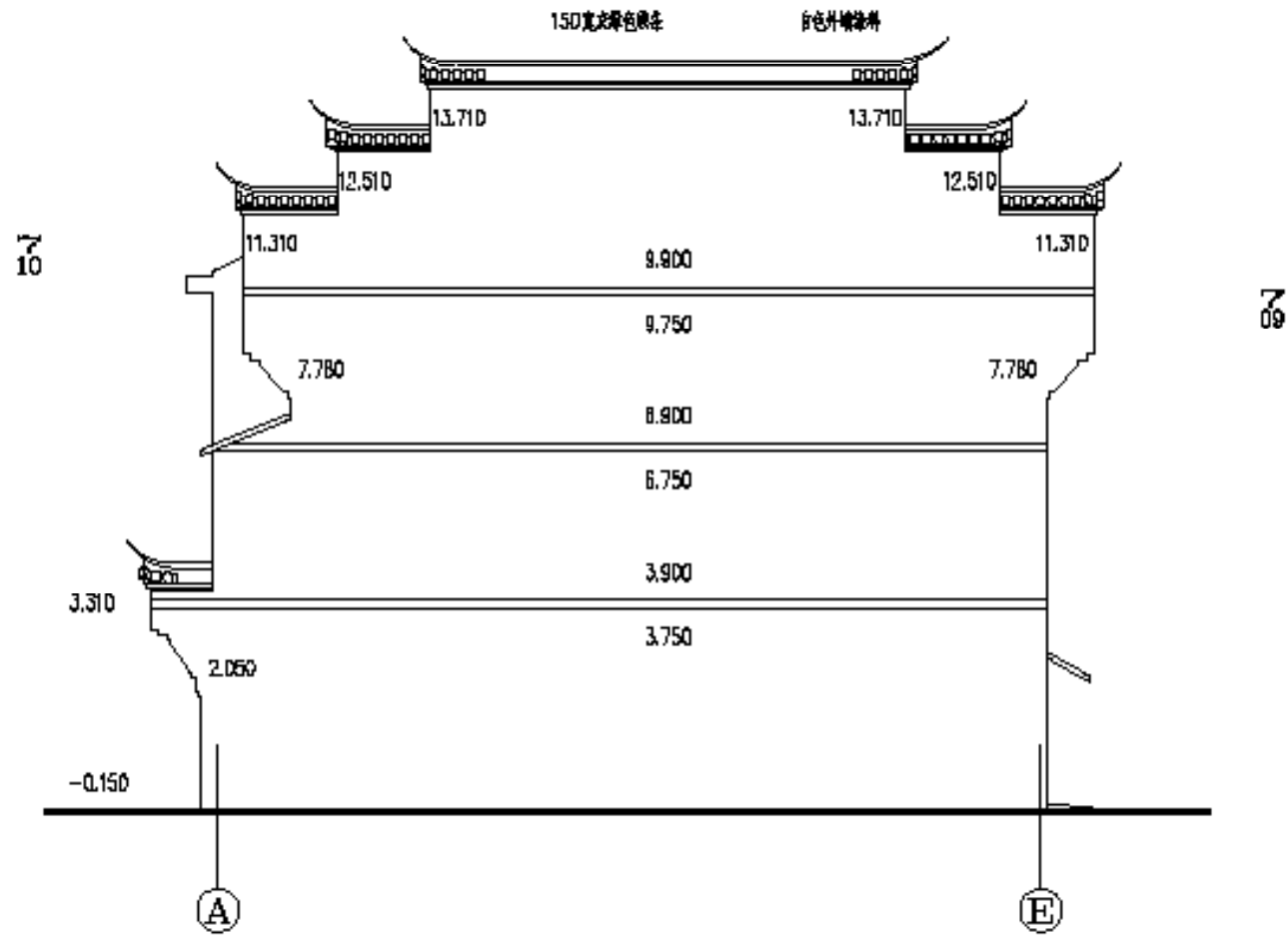




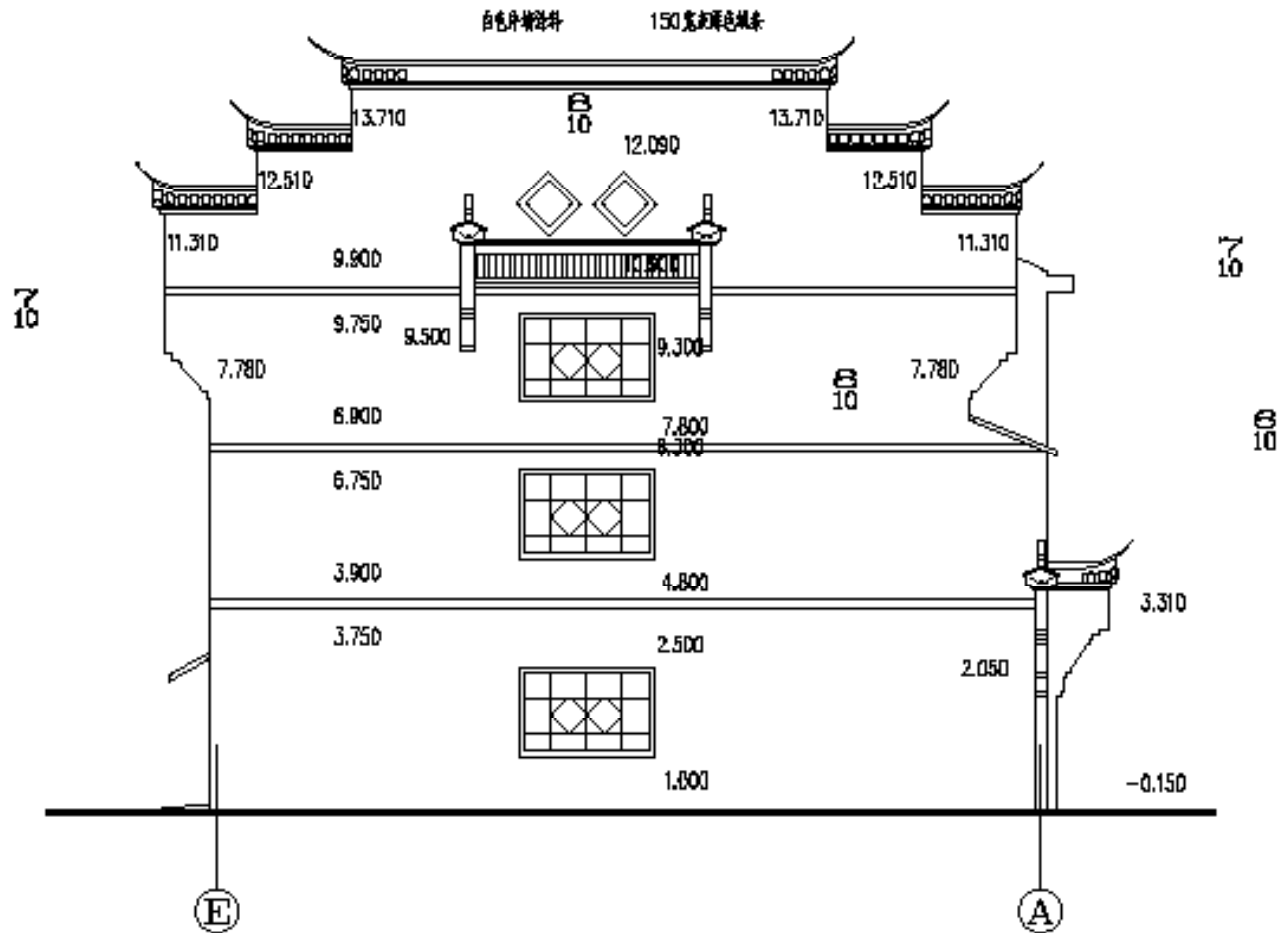
THIRD FLOOR PLAN



FOURTH FLOOR PLAN



EAST ELEVATION



WEST ELEVATION

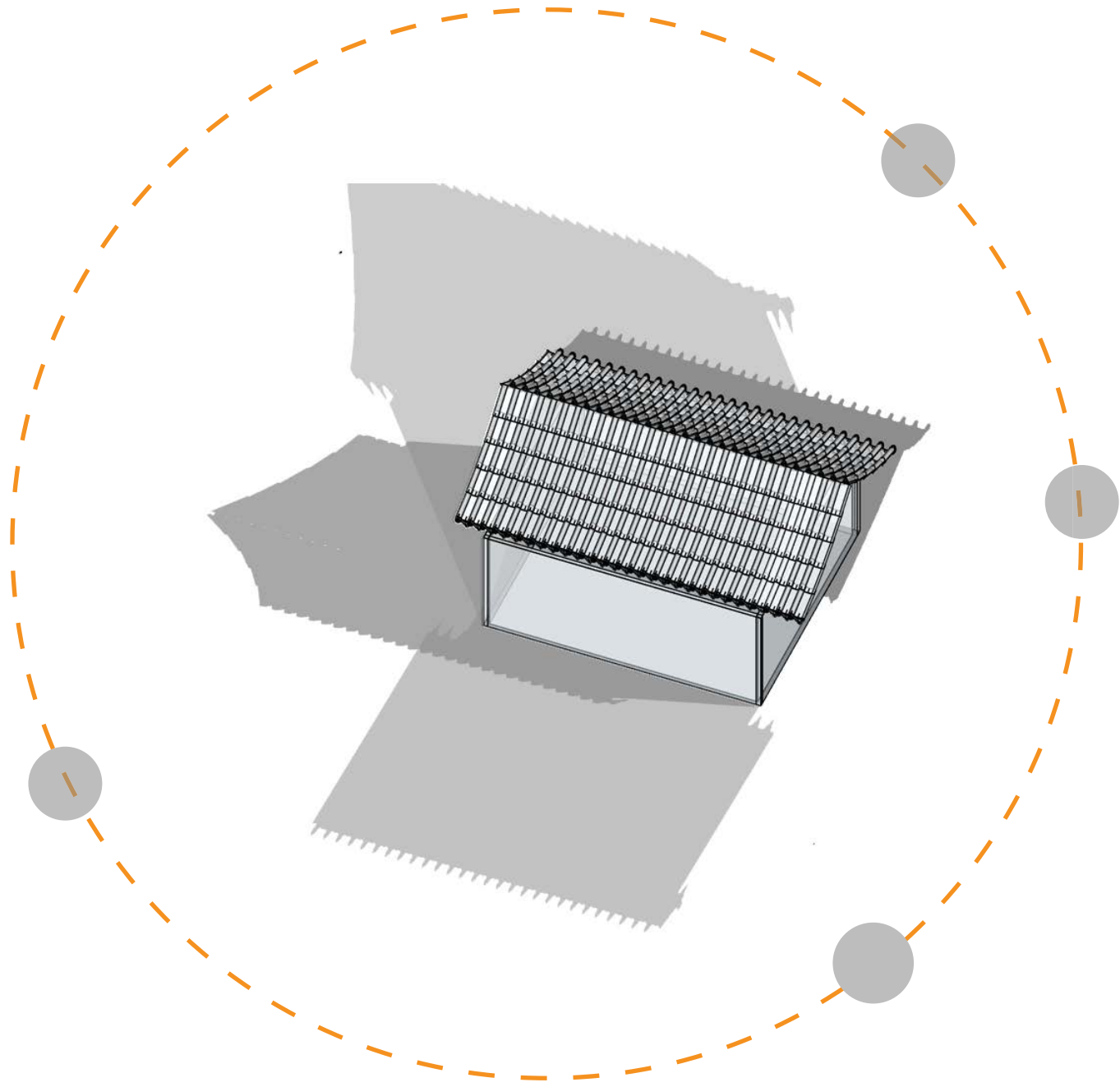


**ADJACENCY DIAGRAM**

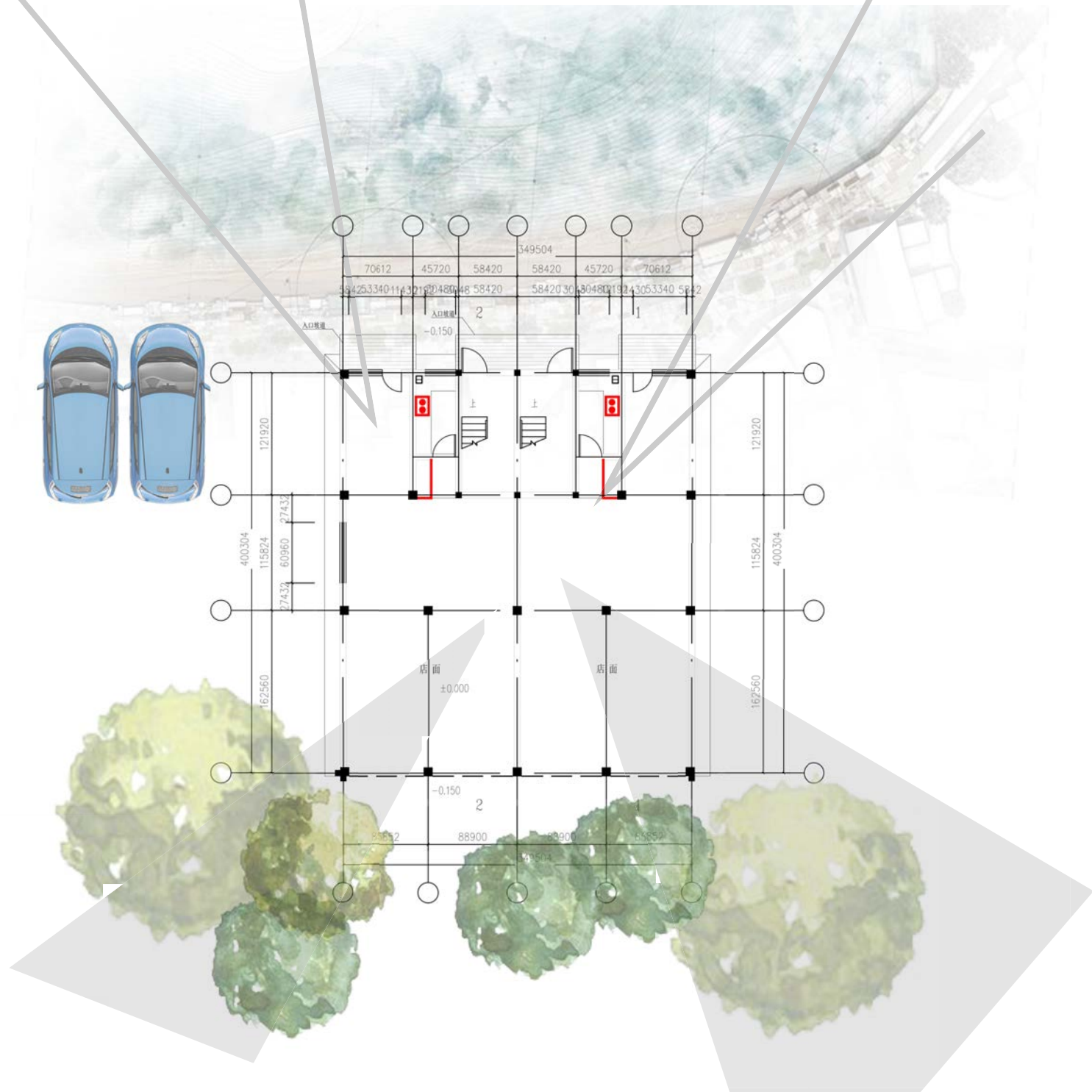
MAIN ROAD

- TOURIST ATTRACTION
- RECREATION
- RESTAURANT
- MARKET
- SITE

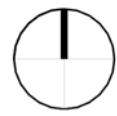




SUN STUDY



VIEW STUDY



# DESIGN DEVELOPMENT





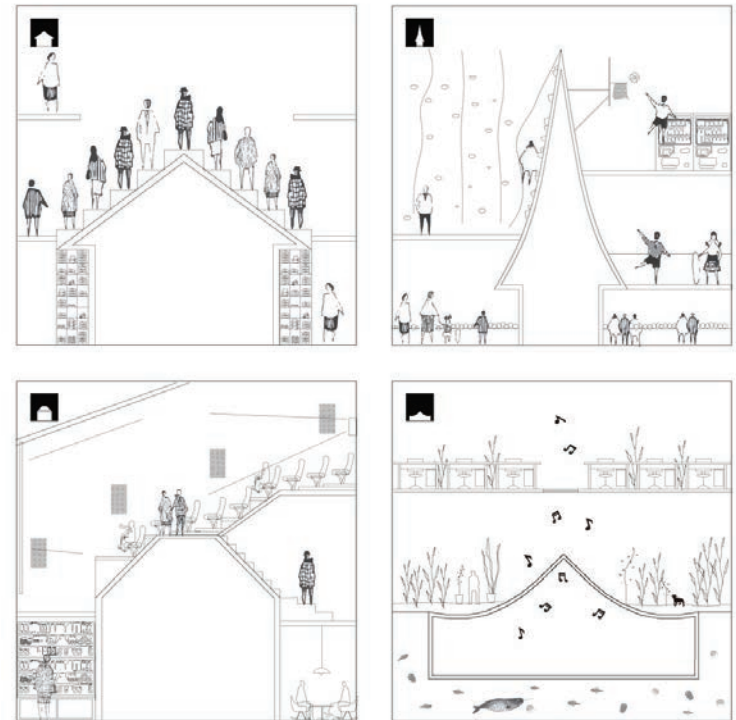
## DESIGN PRINCIPLE

-Locality is the bottom line of vernacular building renovation

Before the reconstruction of rural buildings is started, the only principle to be adhered to is to preserve the locality and authenticity of the buildings.

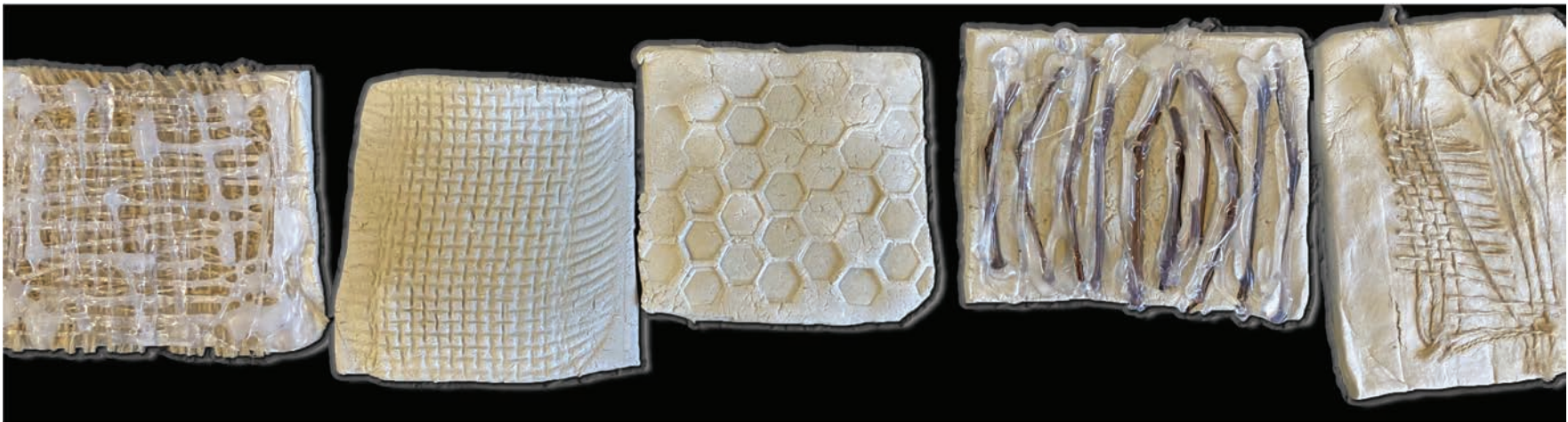
-Seeking a balance between tradition and innovation

In the process of rural building renovation, we must pay attention to retaining the human environment, village spirit, architectural language, values, and production and lifestyle that have been deposited in the village over the years—restore the original texture.





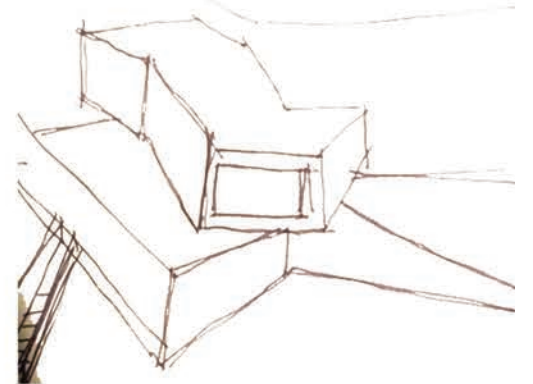
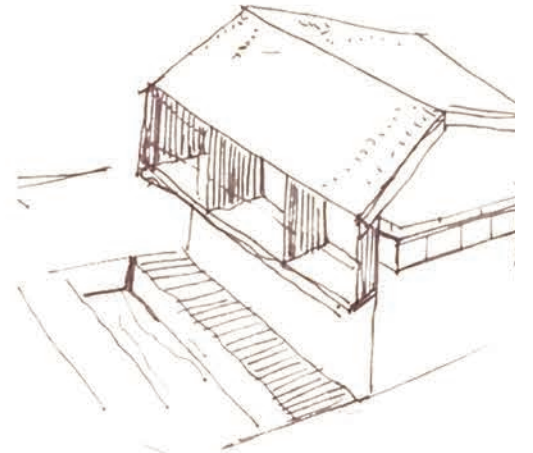
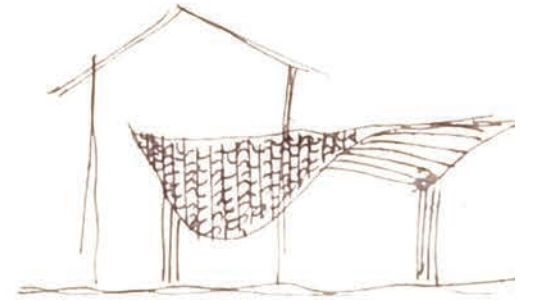
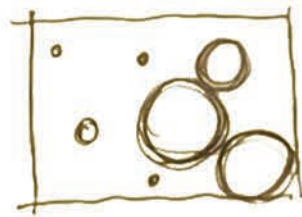
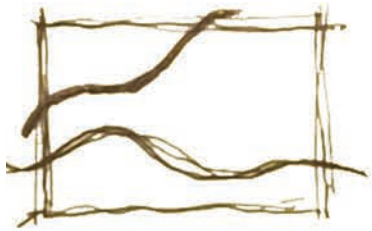
INSPIRATION BOARD



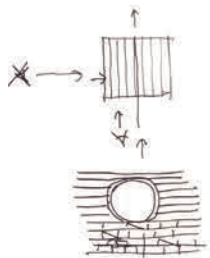
MATERIAL INVESTIGATION

# MATERIAL PALETTE



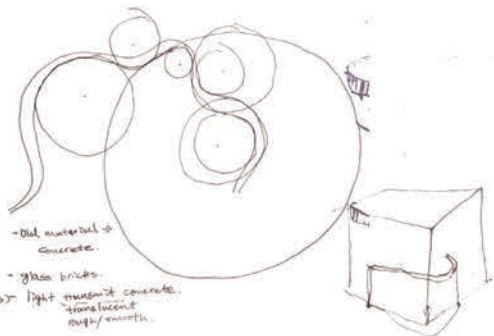


## SKETCHES & PROCESS DRAWING

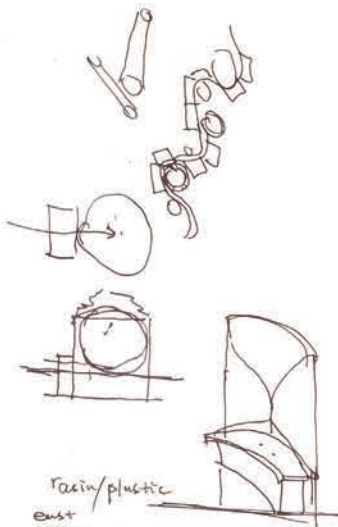
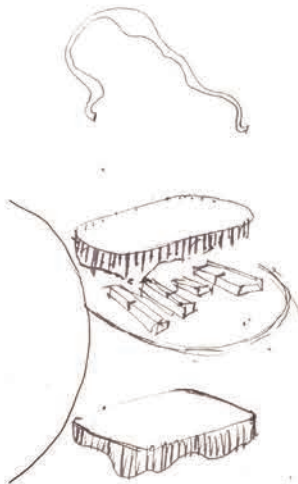


Next Tuesday  
11:30pm

- plans (+ floors)



- Old material → concrete.  
- glass bricks  
- light translucent rough/smooth.



resin/plastic  
east  
gallery

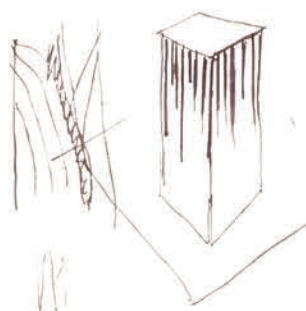
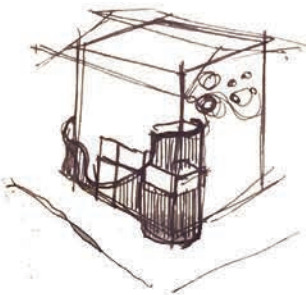
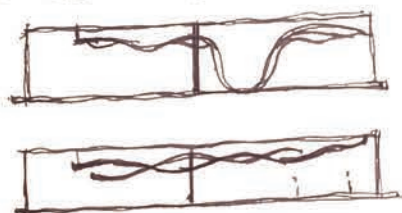
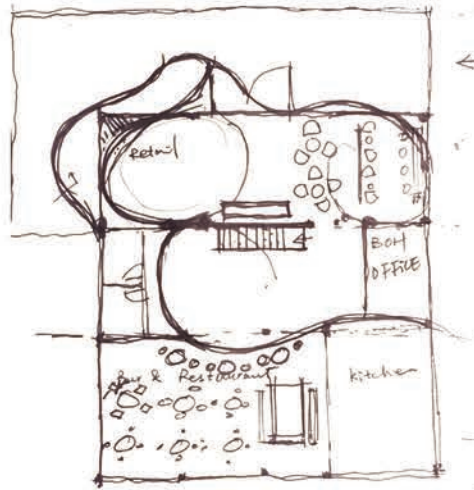
Wu Zhen  
• Paolo Portoghesi  
Finned

return brut: waven table



watery (material / liquid)

outside of a interior space.  
more than this



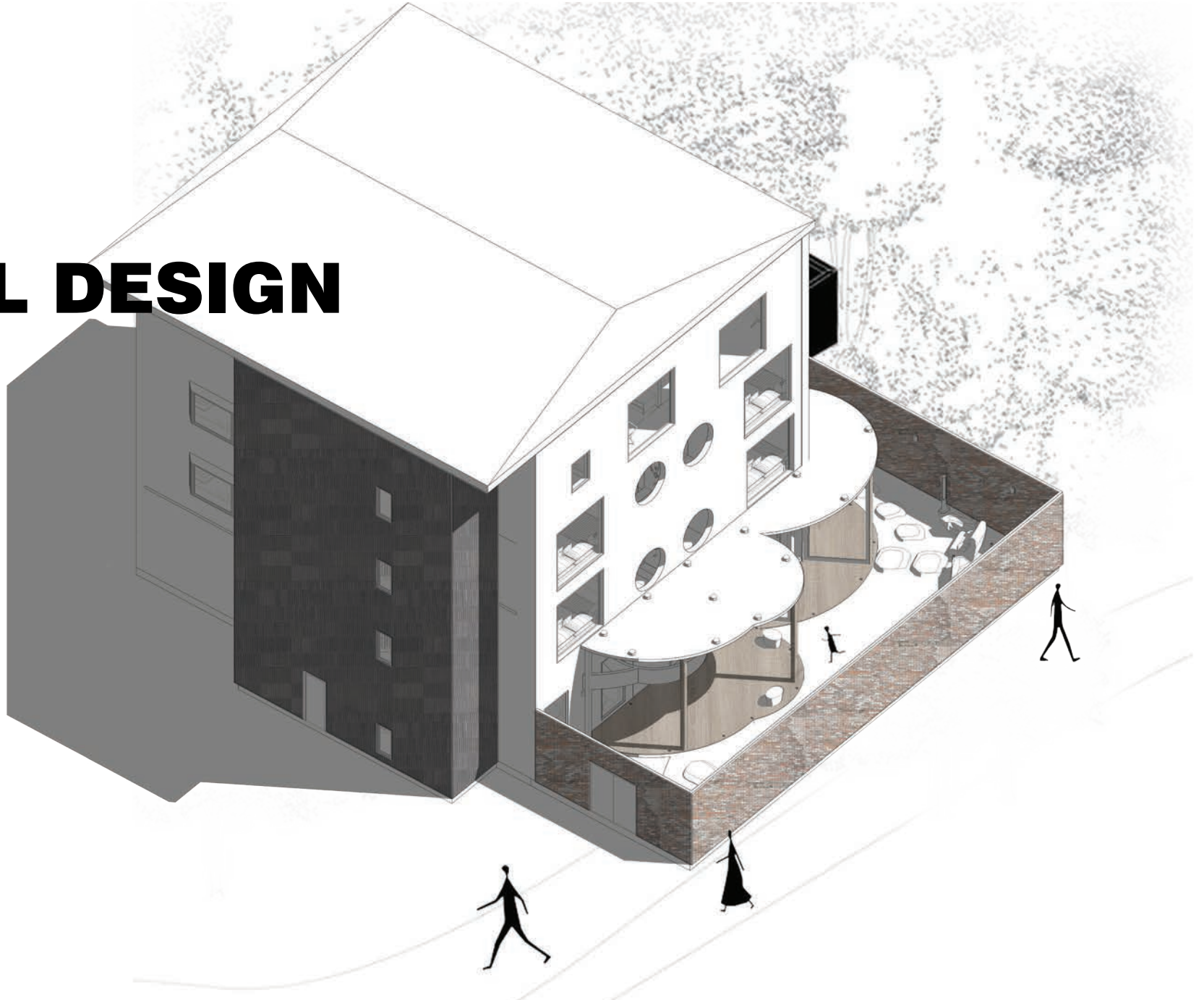
face - 10

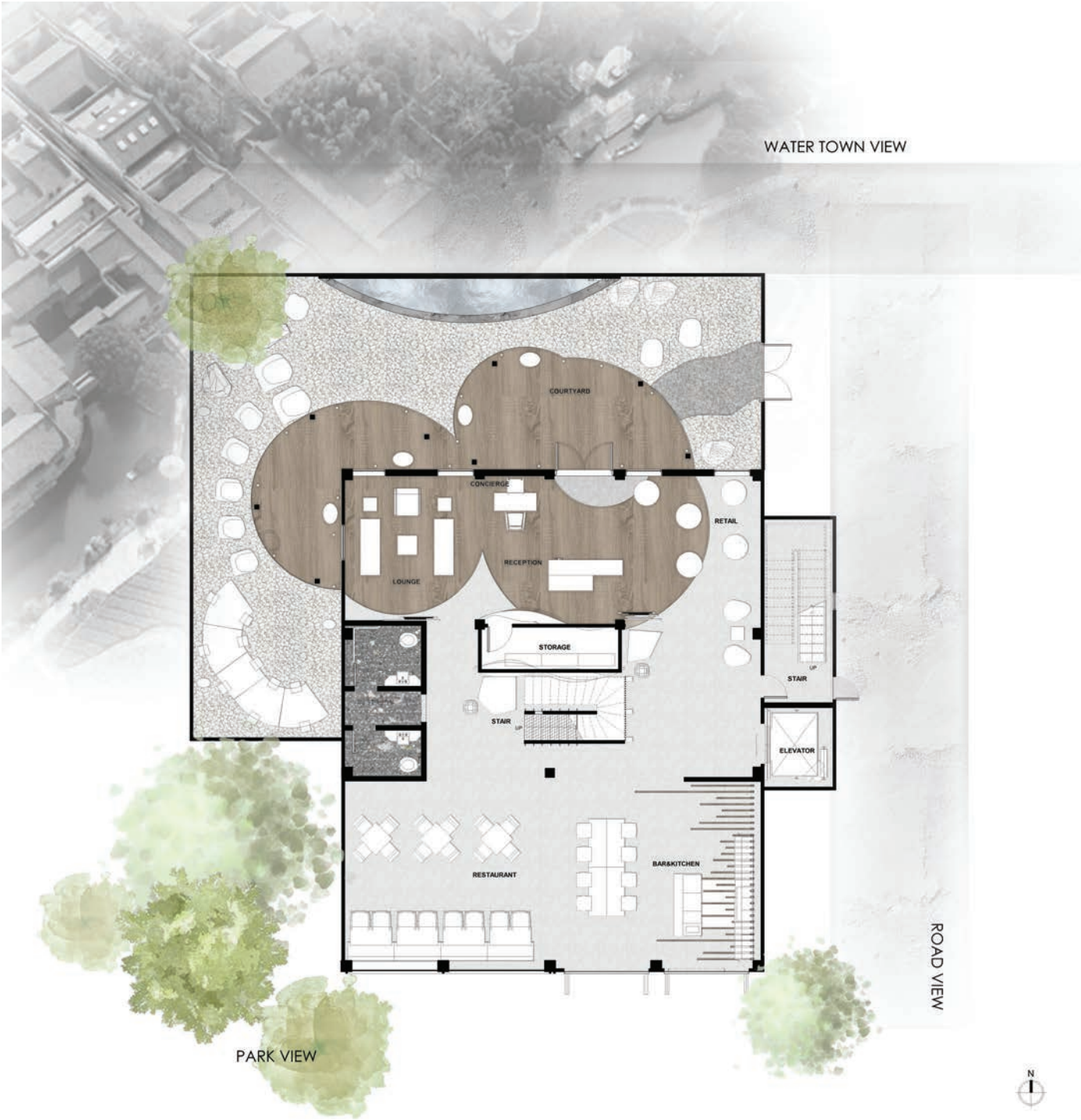
Mirroring  
Waving  
layering

wheel



# FINAL DESIGN





FIRST FLOOR PLAN





Twist table



Oppo chair



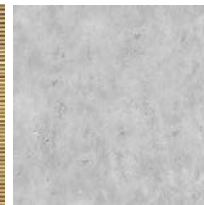
Mesh sofa



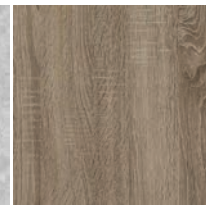
Mono light barstool



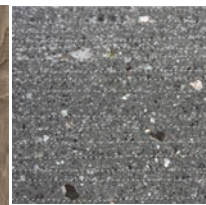
CEILING



FLOORING



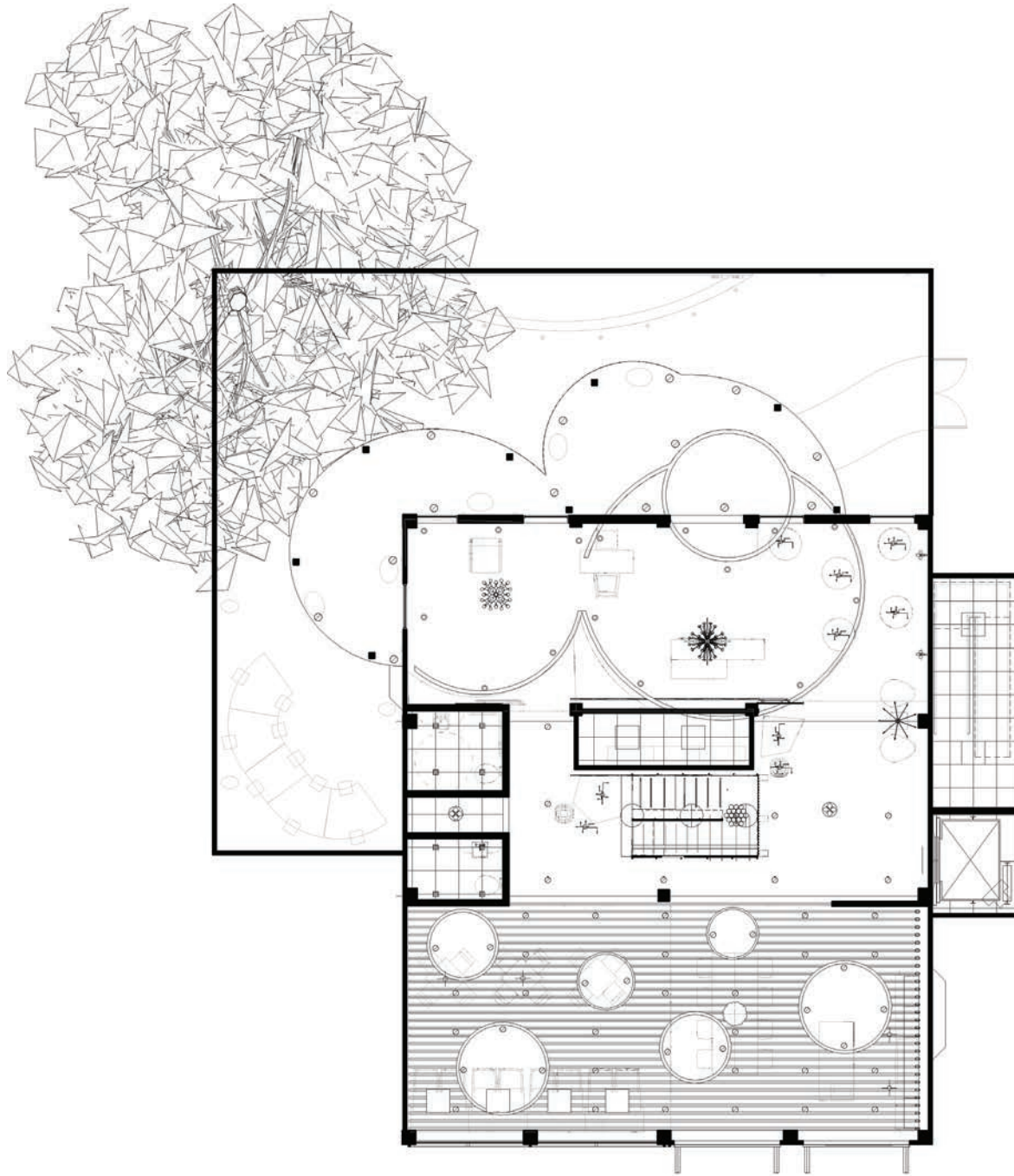
WALLS



FLOORING



COURTYARD  
FLOORING



FIRST FLOOR RCP PLAN



Mara chandelier



Modernrail wall



Aerial 40 chandelier



Orbel round pendant



RECEPTION





COURTYARD NIGHT VIEW



LOBBY



RESTAURANT





CORRIDOR



SECOND FLOOR PLAN



Rainshower



Honken



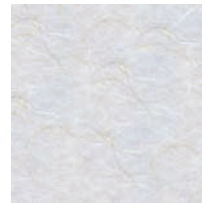
Nett lounge chair



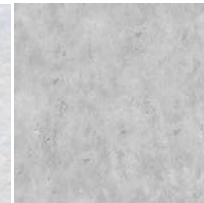
Galleria



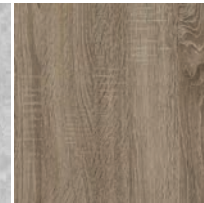
Upholstered bed



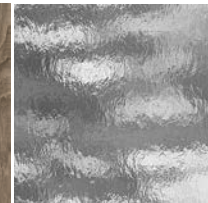
HALLWAY  
WALLS



FLOORING



WALLS



GLASS WALL



BATHROOM  
FLOORING



SECOND FLOOR  
RCP PLAN



Modernrail chandelier 2



Syrma pendant



Orbel ceiling



Finch square finish mount



HALLWAY



BATHROOM



THIRD FLOOR PLAN





Lollipop stand



Bong table



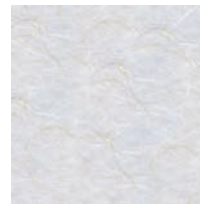
Wall-mounted sink



Ciane floating shelf



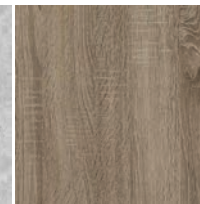
Honken chair



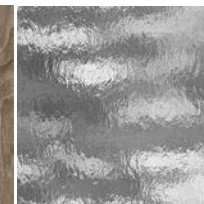
HALLWAY  
WALLS



FLOORING



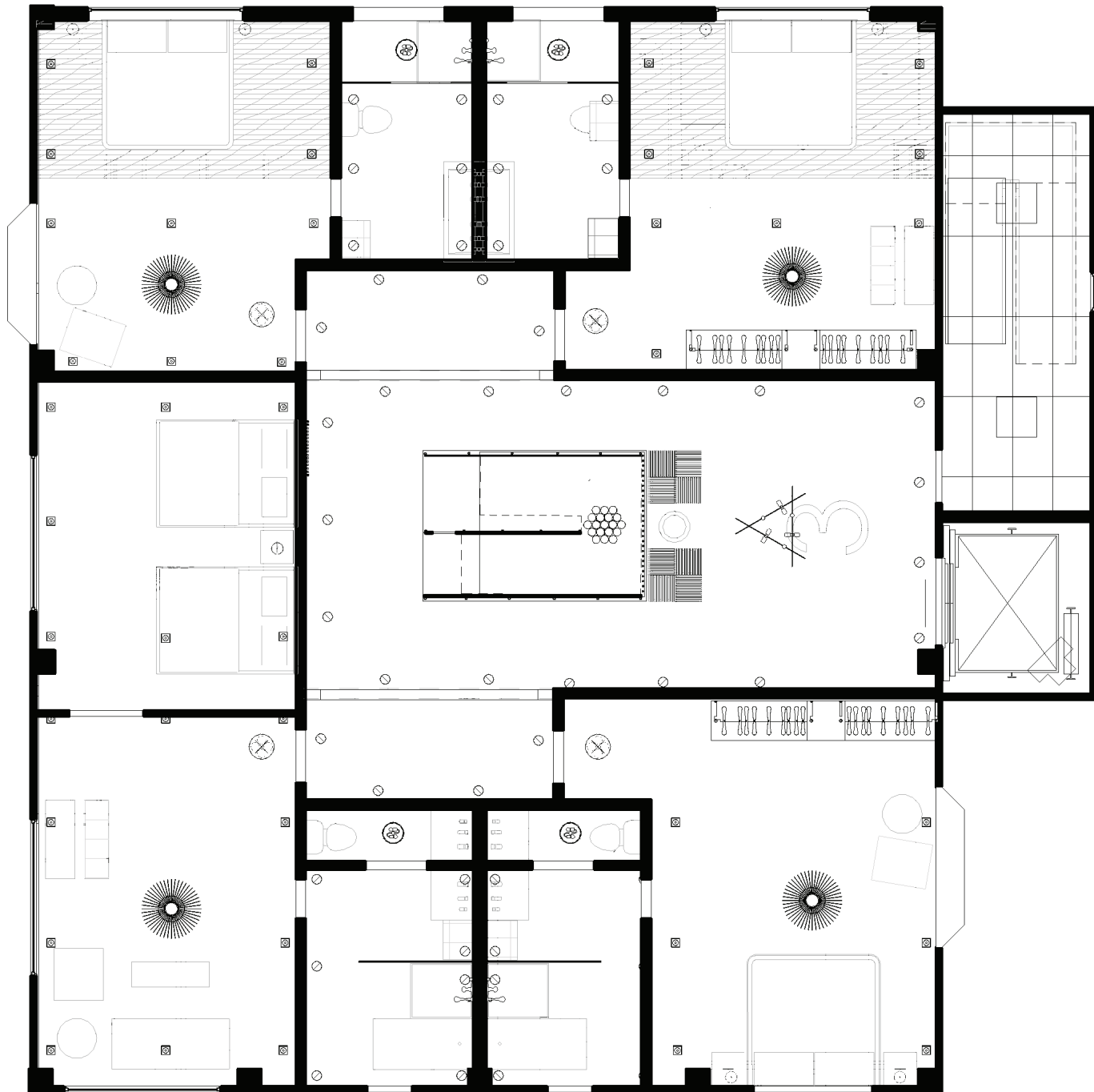
WALLS



GLASS WALL



BATHROOM  
FLOORING



THIRD FLOOR  
RCP PLAN



Sedona pendant



Crossblend flush



Flush mount



Flush mount



FOURTH FLOOR PLAN



Mopsy table



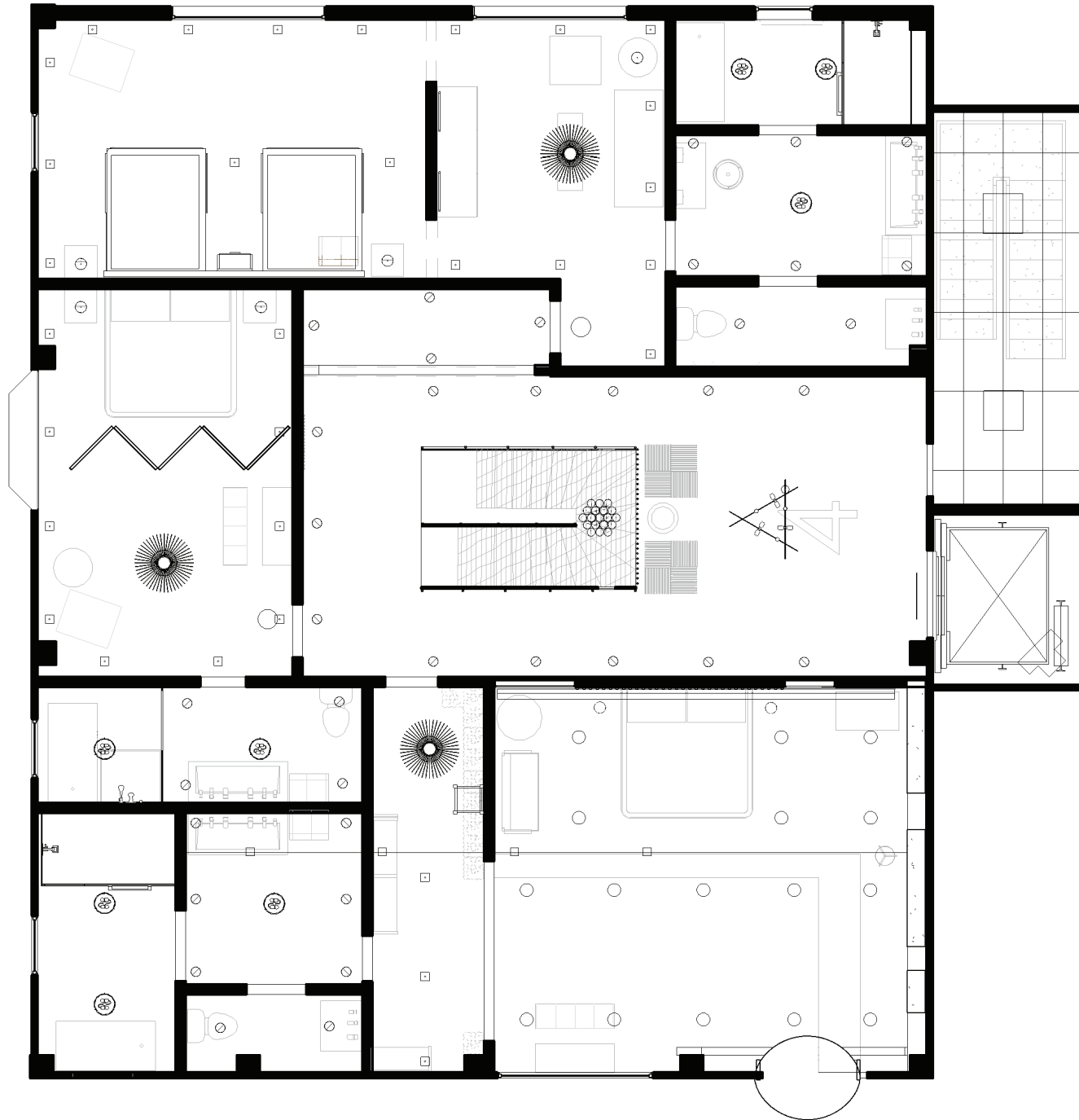
Cap table



Facile sofa



Joe stool



FOURTH FLOOR  
RCP PLAN



Light chandelier



Milley wall



Fluid square small flush mount



Glyde undercabinet

GUESTROOM



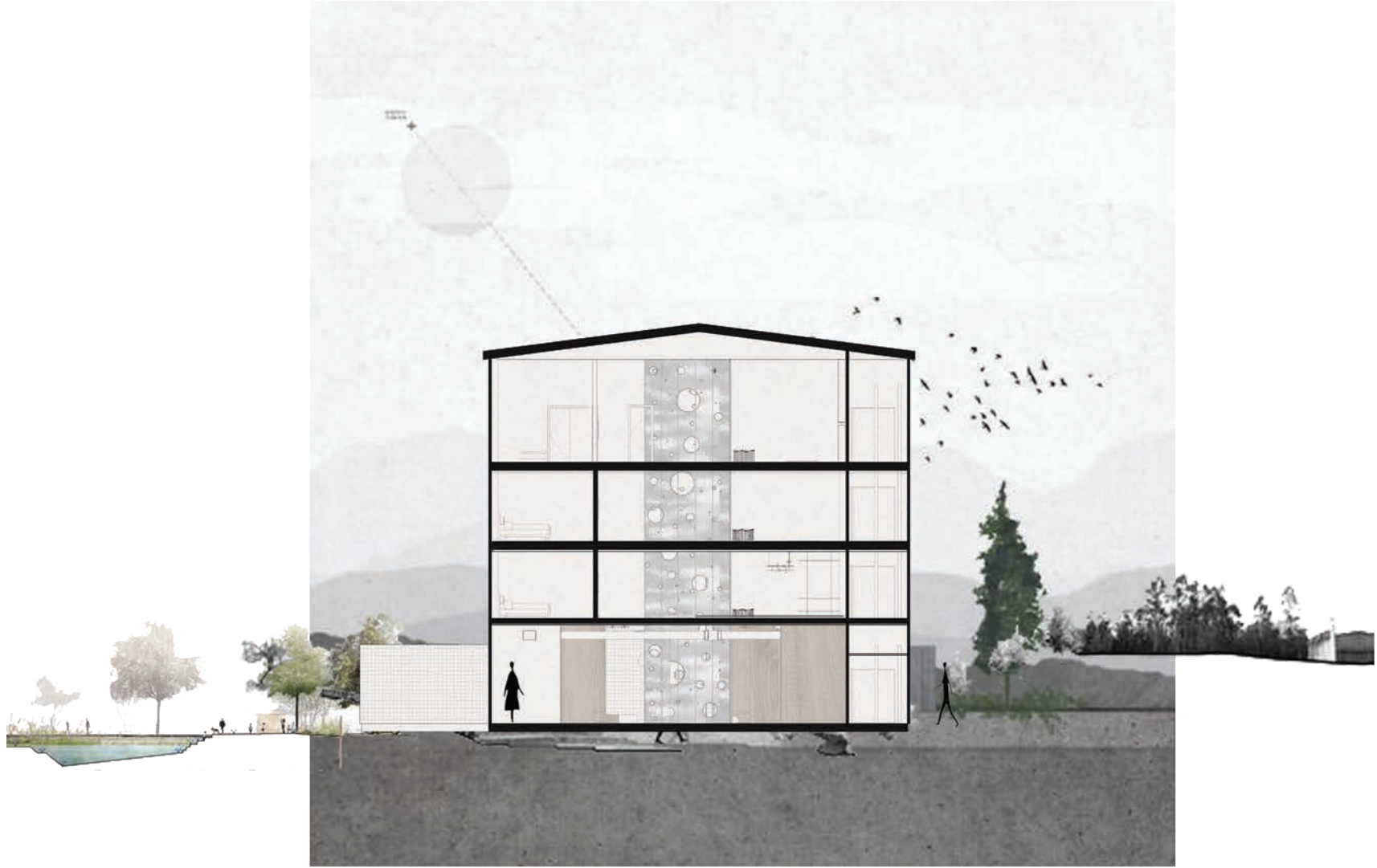




GUESTROOM NIGHT VIEW





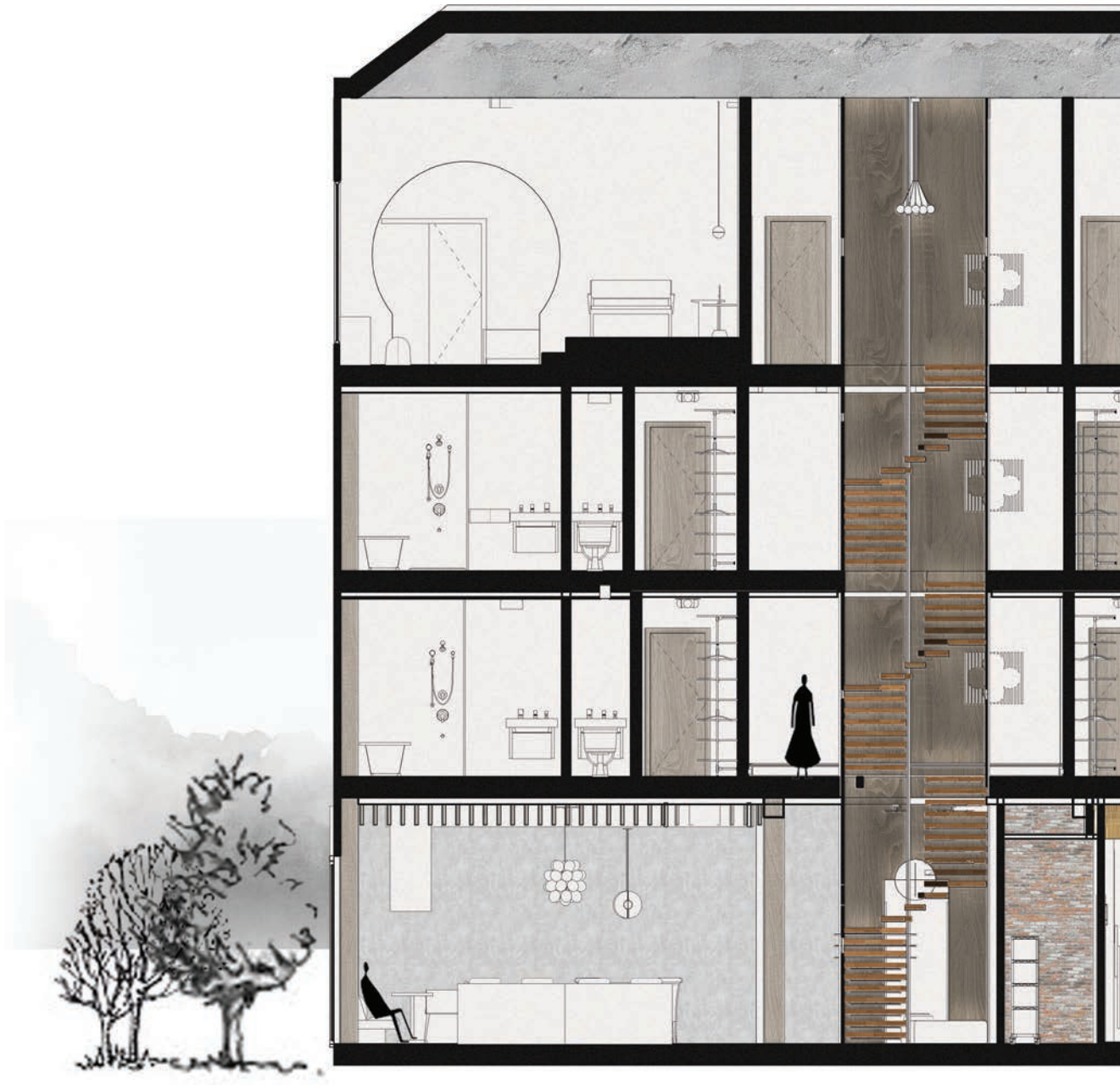


SECTION



ELEVATION

SECTION





# DETAIL ANALYSIS

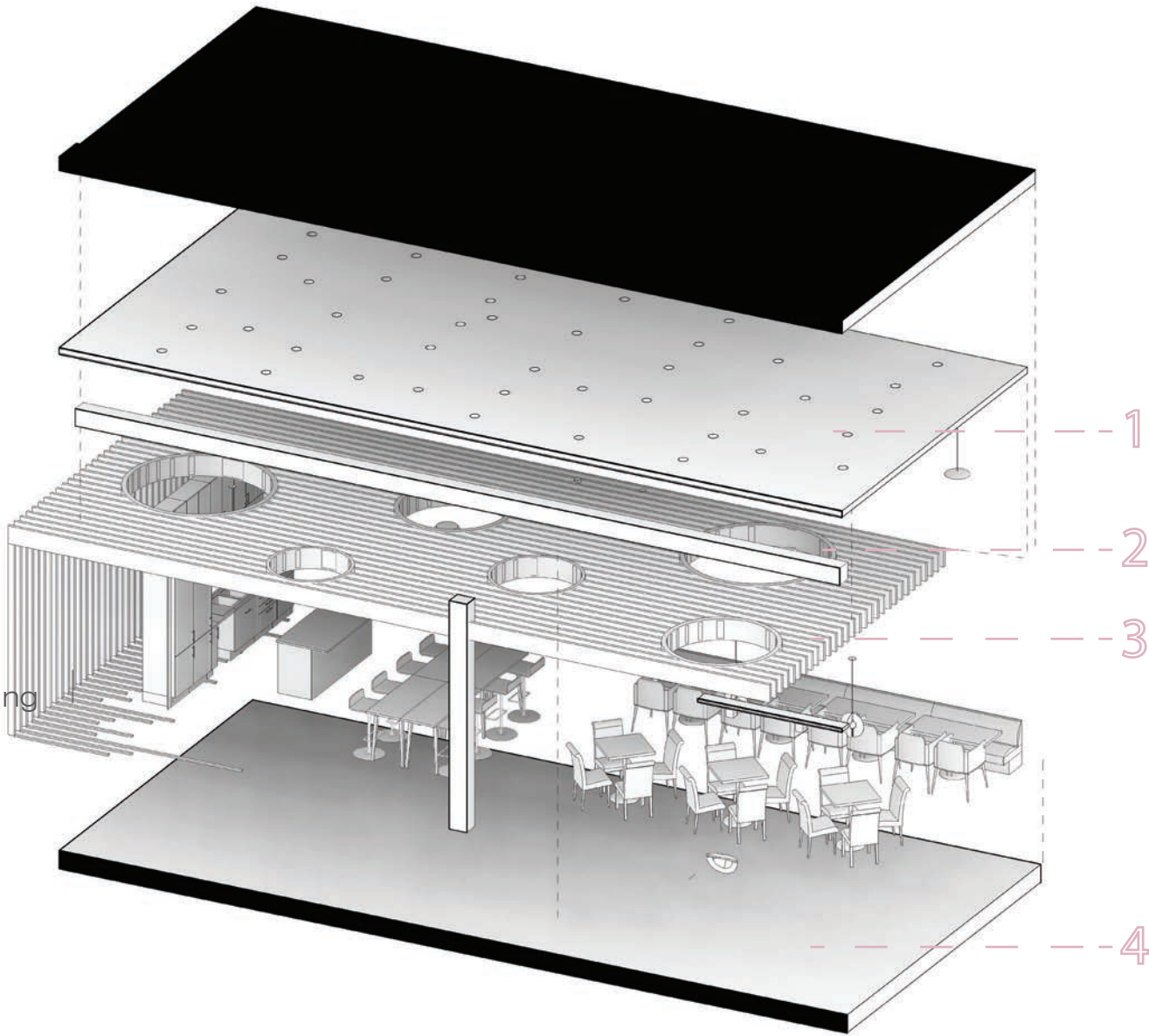


1 Plaster white ceiling

2 Steel ceiling circle edge

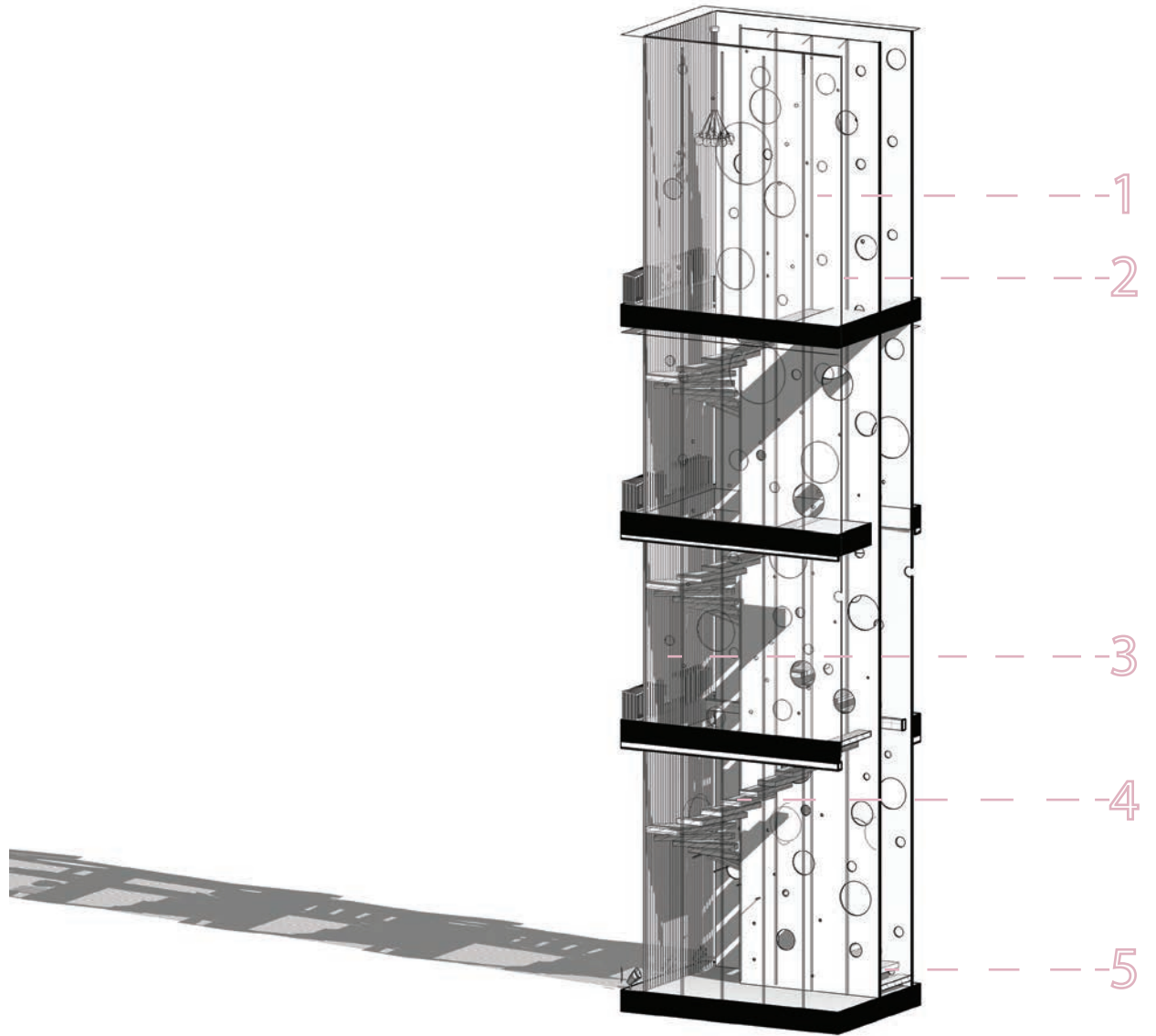
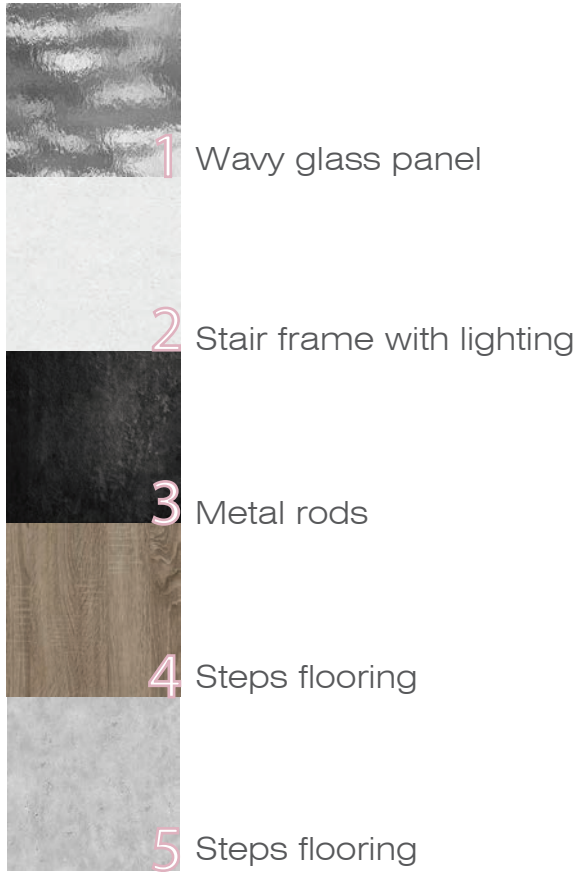
3 Oak wood wall and flooring

4 Light concrete flooring



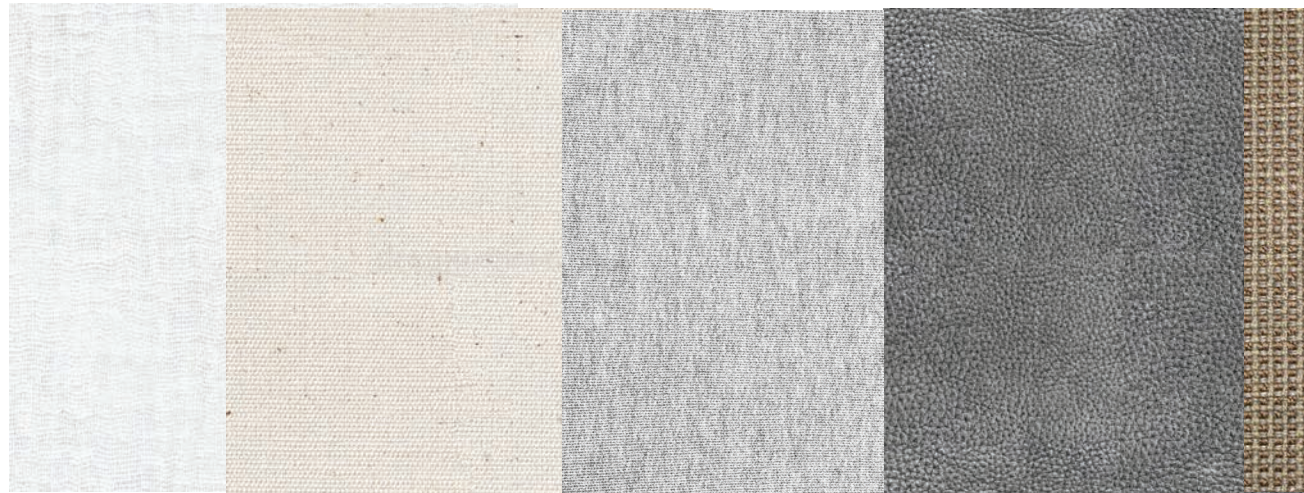
RESTAURANT CEILING DETAIL





FLOATING STAIR DETAIL

## **UPHOLSTERY MATERIAL**





**It is a simple matter to change everything to modern after it is completely destroyed, but that way also robs you of your chance to learn historical traditions.**

Thanks to William and Jeff for their guidance and care in the thesis project.

