

**+ Analyzing  
The Impact of  
Vernacular TULOOU  
On Collective Housing  
By URBANUS**

General Assessment

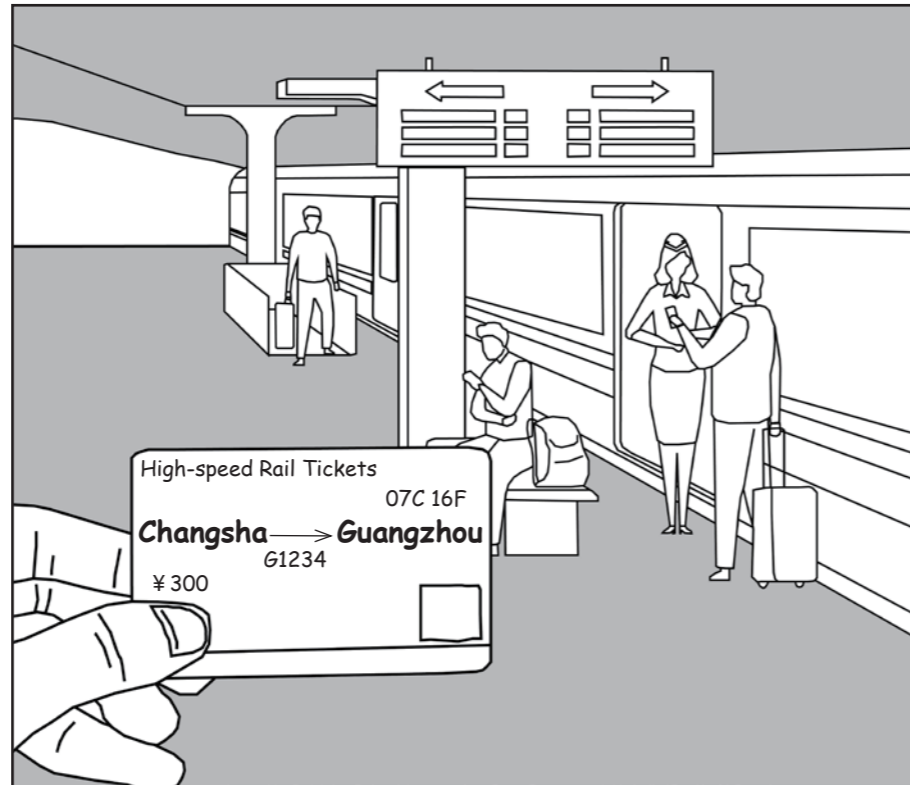


- Yi Chen  
- Deyang Fu  
- Farhang Alipour



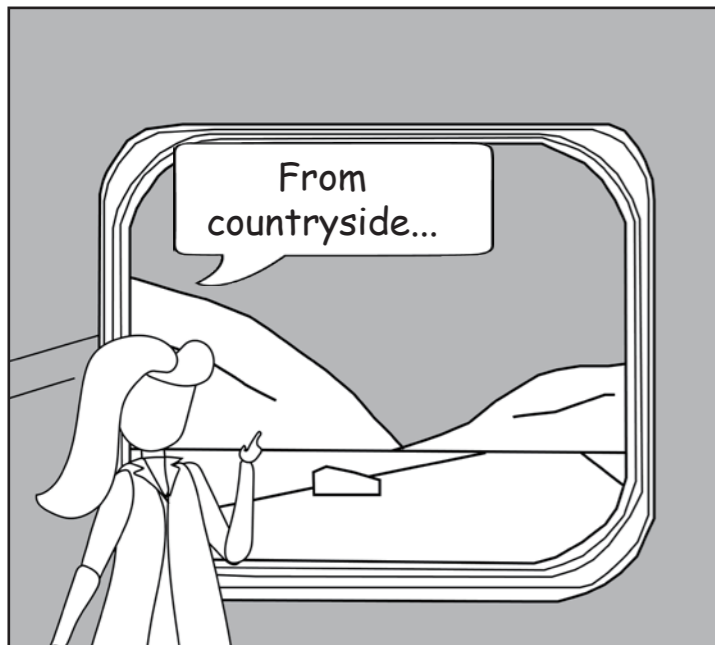
# PART 1

My name is Lisa and I'm leaving my hometown to work in the city!



High-speed Rail Tickets  
07C 16F  
Changsha → Guangzhou  
G1234  
¥ 300

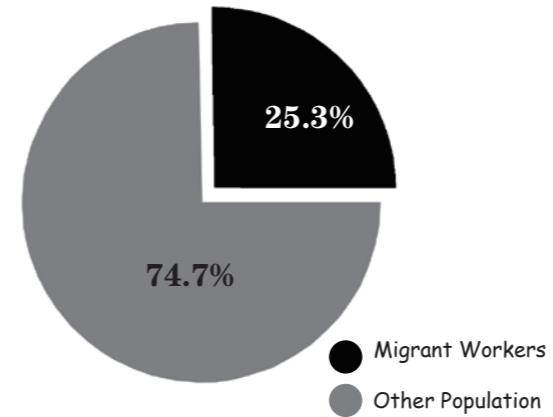
From countryside...



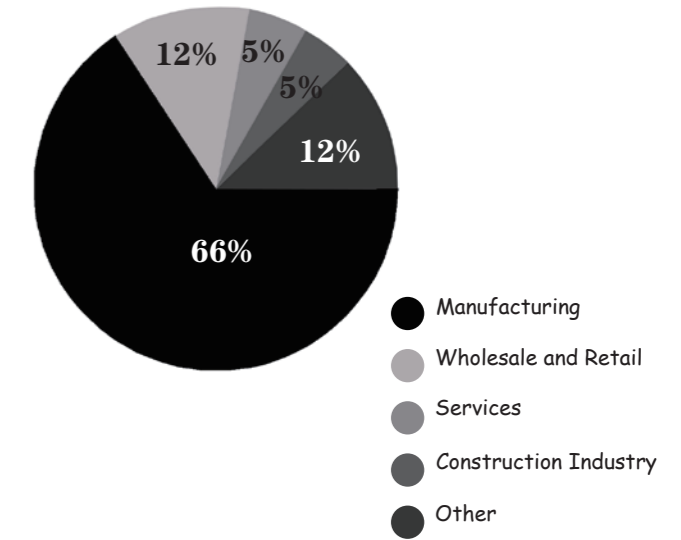
To city...



Proportion of Migrant Workers Guangdong Province



Occupation of Migrant Workers Guangdong Province



In the past 30 years, more than **400 million** people have moved from the countryside to cities. They are the people at the bottom of the pyramid that keeps the city going.



1

1978

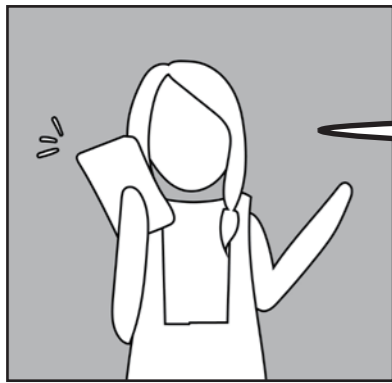
Reform and Opening Up

2

Migrant Workers Go to Cities

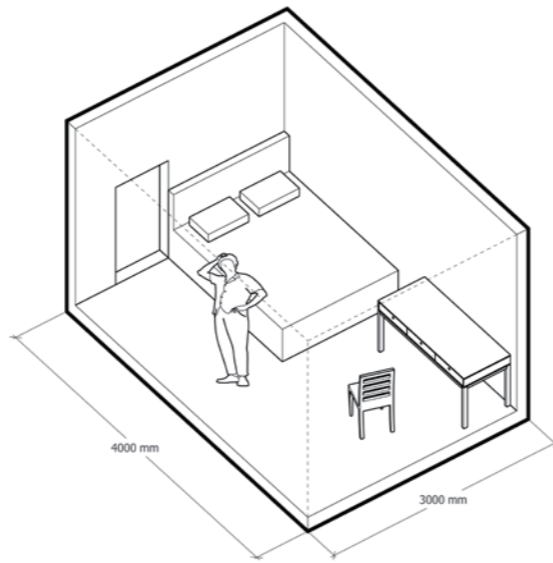
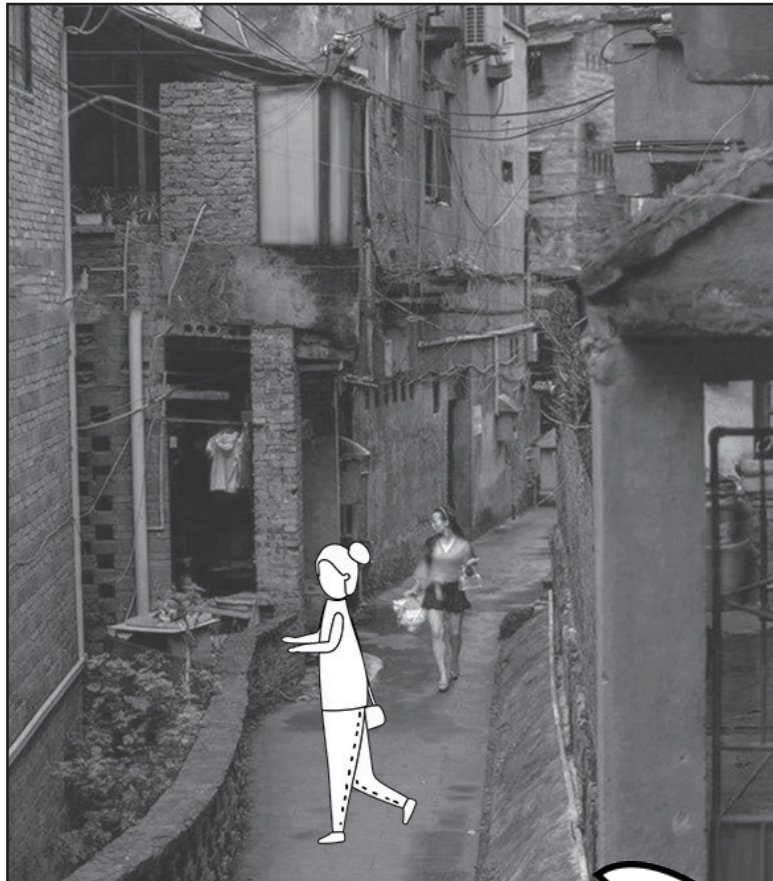
3

NOW  
Urbanization



Migrant workers mainly live in **urban villages** and **factory dormitories**.

### 1. Urban Villages



¥ 800

12m<sup>2</sup>

★☆☆☆☆

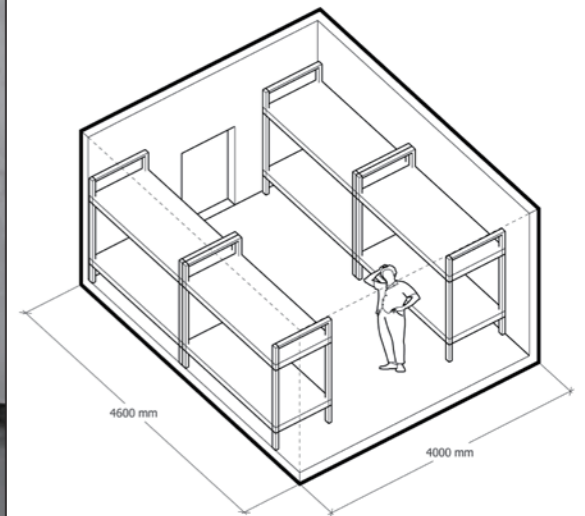
★☆☆☆☆

1 person

6.9%

In a village in the city, the houses are very dense. Although I could have my own room, the lighting and ventilation of the house were poor. It's very depressing.

### 2. Factory Dormitory



¥ 300

20m<sup>2</sup>

★☆☆☆☆

★☆☆☆☆

6 people

5.8%

In factory dormitories, the rent is also cheaper, although there is better light and ventilation. But I have to share a room with others. I have no privacy of my own.

**+CULTURAL AND SOCIAL CONTEXT**

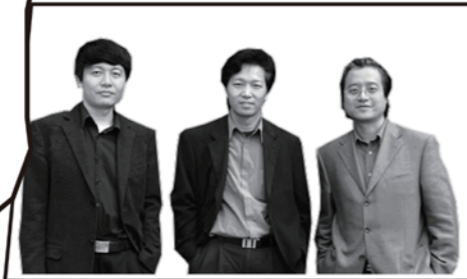


Since the beginning of the millennium, the architects of the globe have not only brought their cutting-edge designs to China, but also drew the whole world's attention to what can be built in China. Many domestic architects are opposed to the fact that some well-known foreign architects have taken advantage of China's eagerness to build dazzling modern cityscapes, thus some have become the advocates to call to rediscover the traditional Chinese architecture.

The Hakka people built fortified earthen houses to defend themselves against fierce animals and thieves. The layout of their Tulou followed the Chinese dwelling tradition of "closed outside, open inside" concept: an enclosed wall with living quarters around the peripheral and a common courtyard at the center. These round earthen houses captured the architects' fascination with its underlying design philosophy.

Resulting from extensive research into the ancient heritage and the social dynamics of current urbanisation trends in China, the urban Tulou has been seen as a unique experiment in low-income housing and the transformation of vernacular dwelling to suit contemporary living environments. "By introducing a 'new Tulou' to modern cities and by careful experimentation of form and economy, one can transcend conventional urban design".

# Affordable House for Low-income People!!



**URBANUS**  
ARCHITECTURE & DESIGN  
都市实践

vanke 万科

# NEWSPAPER

## URBANUS

TULOUCOLLECTIVE HOUSING  
Category: Residential  
Principal Architect: Liu Xiaoli, Meng Yan



In 2008, the Shenzhen based firm URBANUS designed an affordable housing complex with 245 apartments, deriving the form from the traditional Tulou typology. Unlike the original Tulou building, the URBANUS building provides residents with more privacy by giving them each their own apartments on a single level, instead of splitting up the rooms of a typical home into multiple levels as is the case in vernacular Tulou. However, the URBANUS building follows the communal objectives of the Tulou by incorporating a variety of other public functions into the building, including retail space, a gym, library, and other gathering spaces. URBANUS has taken the collective qualities of the Tulou and updated them to a contemporary context, where the line between public and private space is more sharply drawn. It will be interesting to also test out some of the more unconventional combinations of public and private space as seen in the original Tulou typology.

# Tulou Collective Housing

# NEWSPAPER



Liu Xiaodu

URBANUS Urban Practice is a founding partner and lead architect.

In 1999, Together with Meng Yan and Wang Hui, Liu Founded URBANUS Urban Practice and developed it into one of China's most internationally influential architectural teams. Liu Xiao is a builder of urban practice operation mode and is in charge of the company's overall operation. Liu is a graduate of Tsinghua University and the University of Miami. He once taught in the School of Architecture, Tsinghua University. He has been a visiting professor of architectural design at The University of Hong Kong, Tsinghua University, Venice Architectural University, etc.

Meng Yan

URBANUS Urban Practice is a founding partner and lead architect.

Meng Yan is a registered architect in New York State, USA. He has a BACHELOR's and a master's degree in architecture from Tsinghua University and a master's degree in architecture from the University of Miami. Meng has been a visiting professor at Syracuse University of New York and the School of Architecture at the University of Hong Kong. Meng Yan is the chief curator of the 7th Shenzhen/Hong Kong Biennial architecture Exhibition (Shenzhen) in 2017 and the Shenzhen Case Pavilion at the 2010 Shanghai World Expo.

Wang Hui

URBANUS Urban Practice is a founding partner and lead architect.

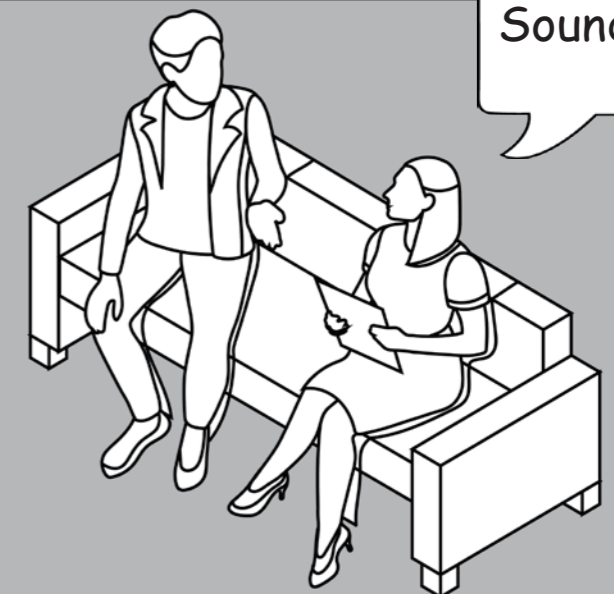
In 1999, He co-founded URBANUS Urban Practice with Liu Xiaodu and Meng Yan. After the company's early work in Shenzhen, Wang took charge of the Beijing Company's operation in 2003 and participated in many urban and architectural design projects in the Beijing-Tianjin-Tang And Yangtze River Delta regions. Wang Hui is a registered architect in New York State, USA. He has a BACHELOR's and a master's degree in architecture from Tsinghua University and a master's degree in architecture from the University of Miami.

## URBANUS Architects

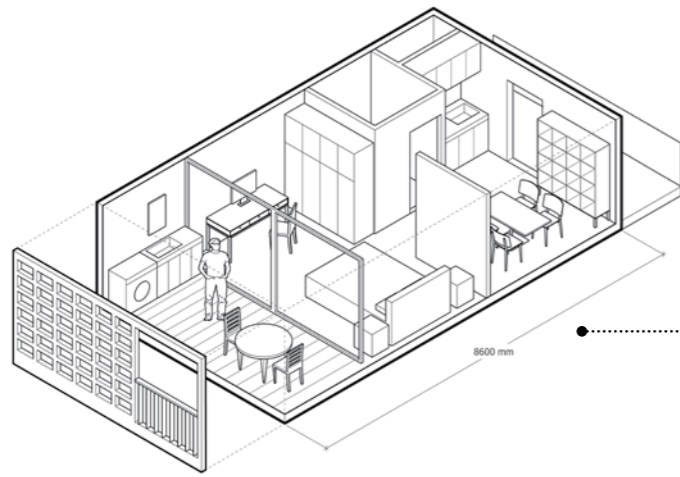


Look Nice!










Welcome to Tulou Collective Housing !  
I can tell you about the houses we rent.

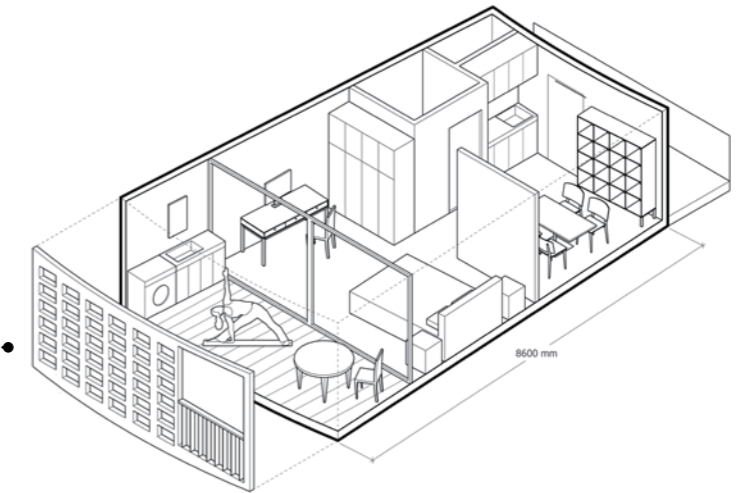


Sounds Good!












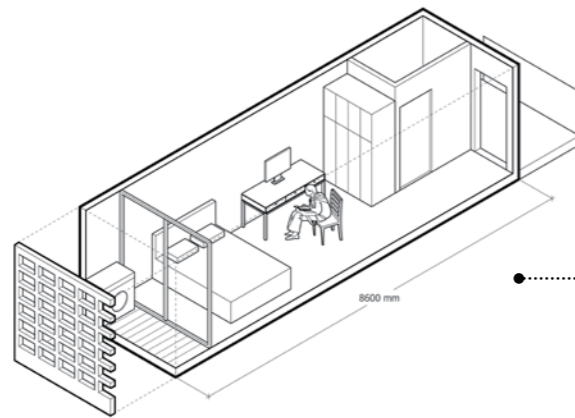
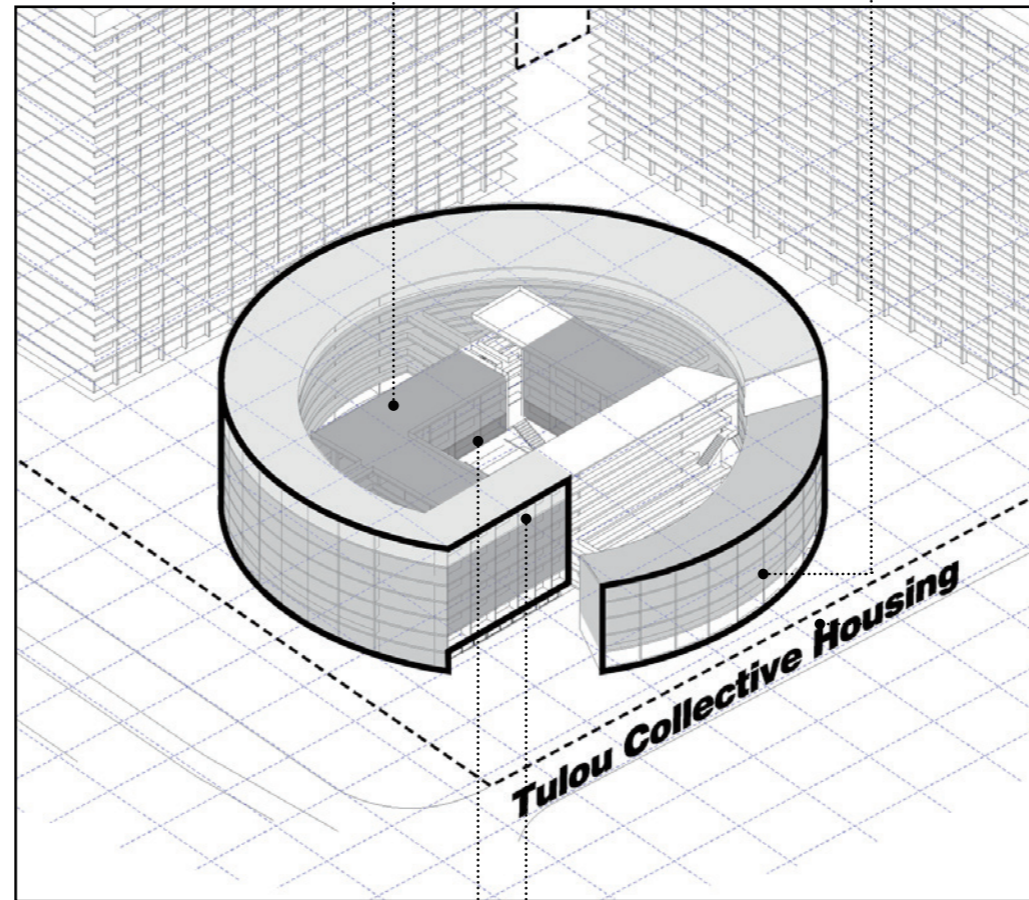
Type A One-bedroom (Rectangle plan)

¥ 1200/Month  21.6%  
 40M<sup>2</sup>      
 1-2    










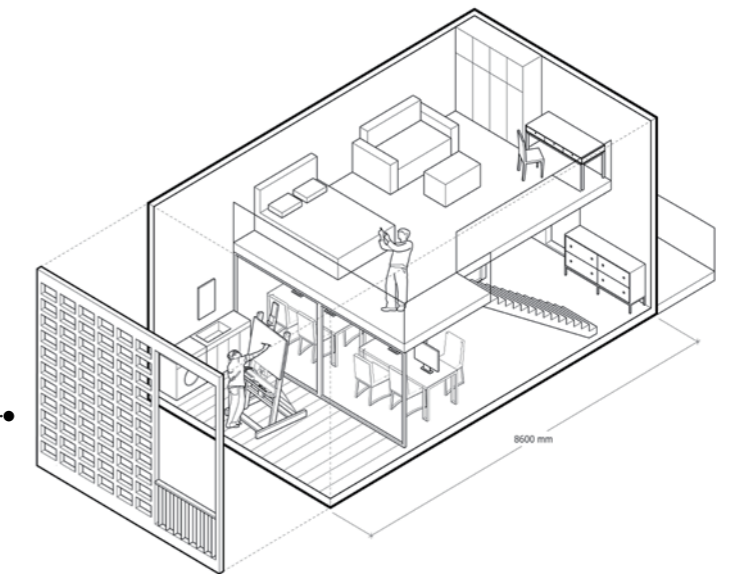
Type B One-bedroom (Sector plan)

¥ 1200/Month  23%  
 40M<sup>2</sup>      
 1-2    














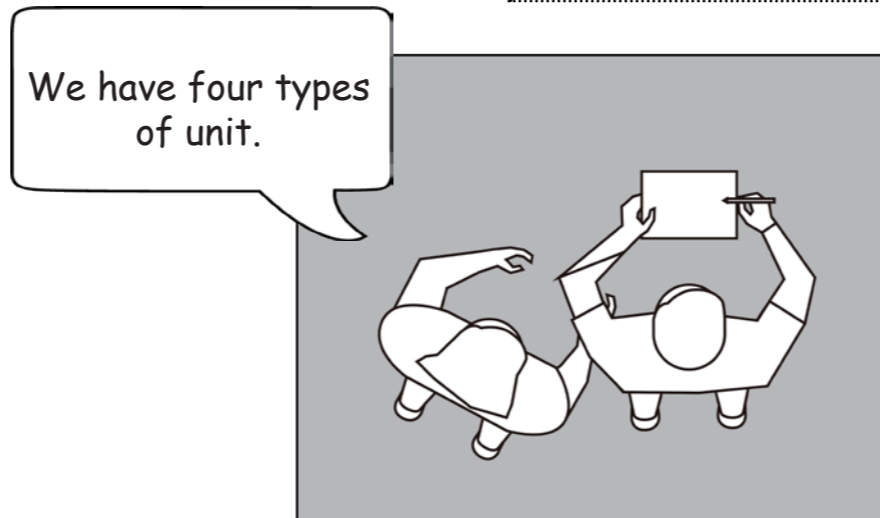
Type C Single Room

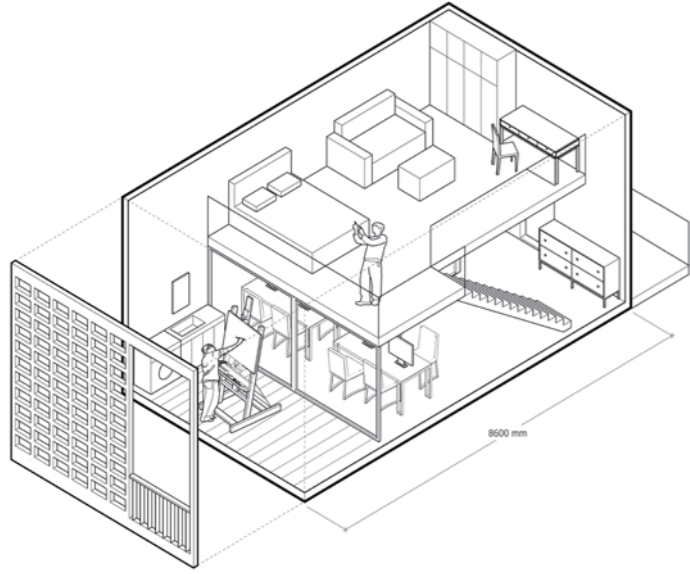
¥ 600/Month  14.5%  
 21M<sup>2</sup>     
 1   



Type D LOFT

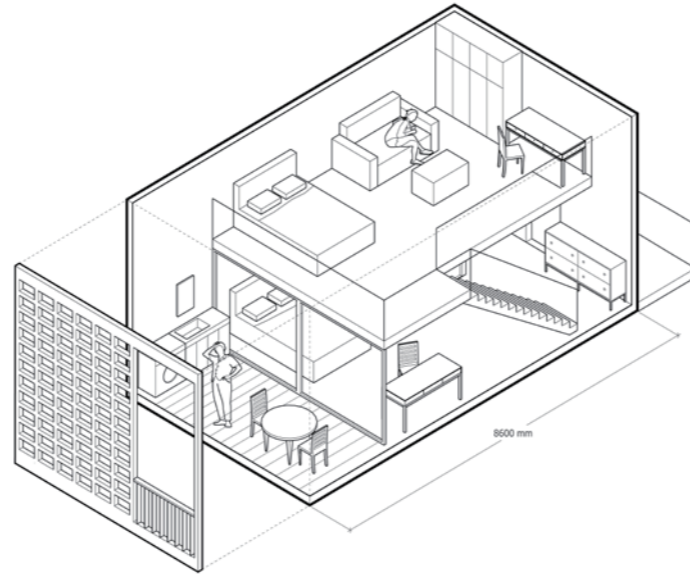
¥ 1600/Month  19.7%  
 68M<sup>2</sup>       
 1-2     





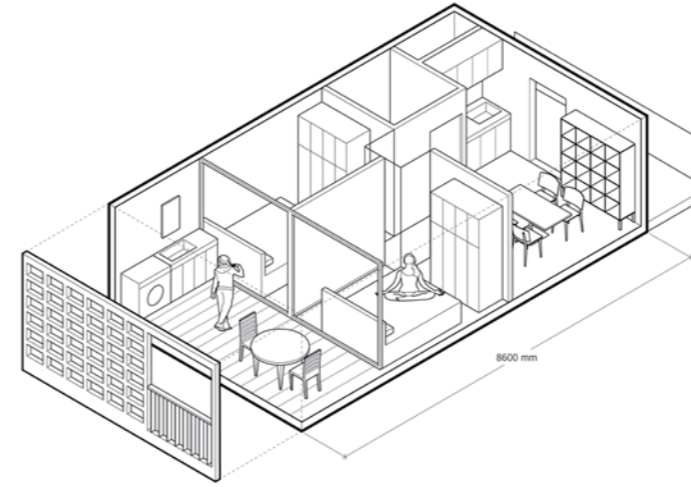
Type D-1 LOFT

¥ 1600/Month 19.7%  
 68M<sup>2</sup>  
 1-2  
 Restroom Sofa Desk Balcony Kitchen



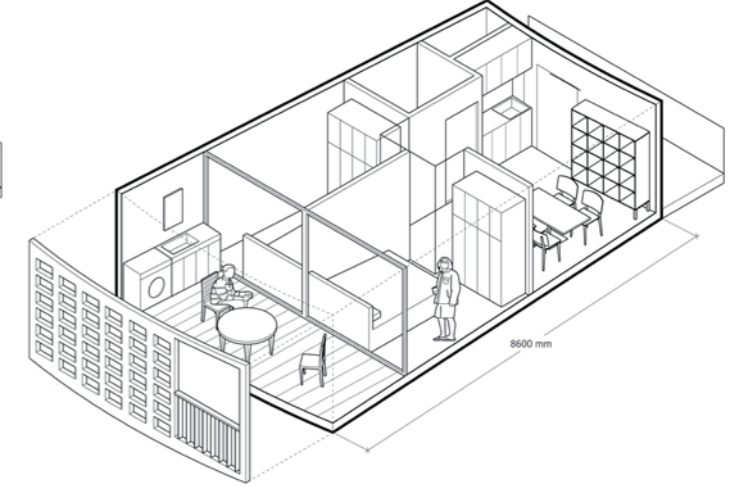
Type D-2 LOFT (Joint Rent)

¥ 1600/Month 19.7%  
 68M<sup>2</sup>  
 2  
 Restroom Sofa Desk Balcony Kitchen



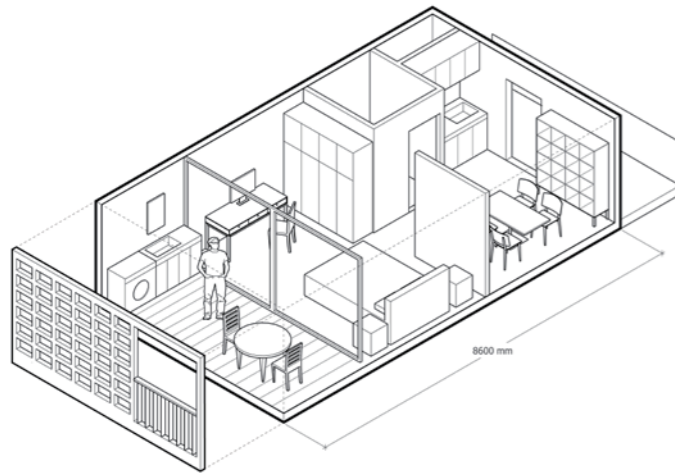
Type A-2 Two-bedroom (Rectangle plan)

¥ 1200/Month 21.6%  
 40M<sup>2</sup>  
 2-4  
 Restroom Balcony Kitchen



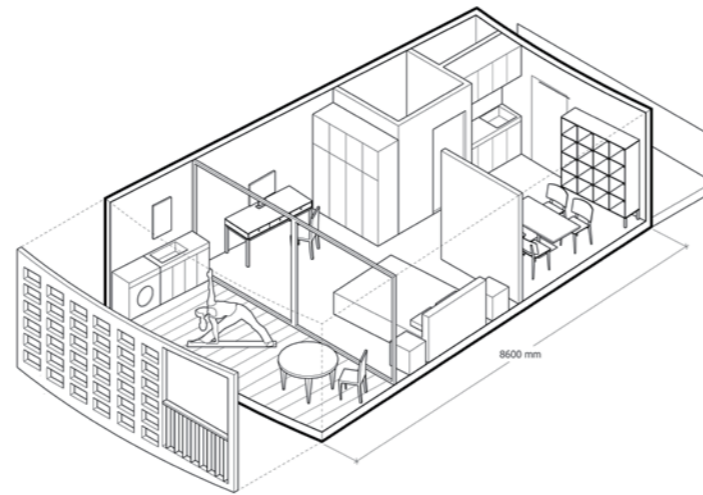
Type B-2 Two-bedroom (Sector plan)

¥ 1200/Month 23%  
 40M<sup>2</sup>  
 2-4  
 Restroom Balcony Kitchen



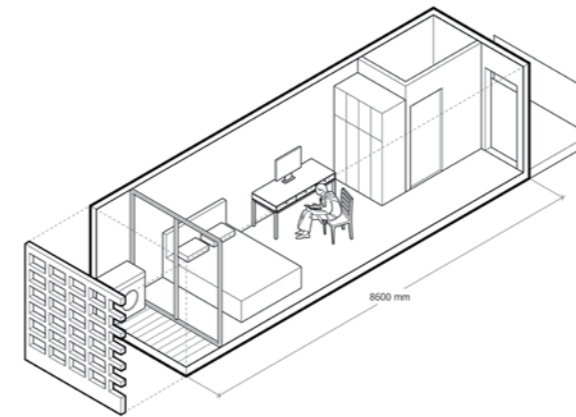
Type A-1 One-bedroom (Rectangle plan)

¥ 1200/Month 21.6%  
 40M<sup>2</sup>  
 1-2  
 Restroom Desk Balcony Kitchen



Type B-1 One-bedroom (Sector plan)

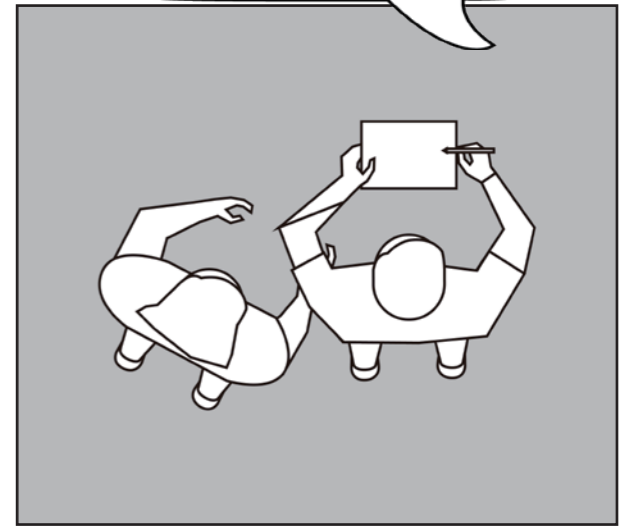
¥ 1200/Month 23%  
 40M<sup>2</sup>  
 1-2  
 Restroom Desk Balcony Kitchen



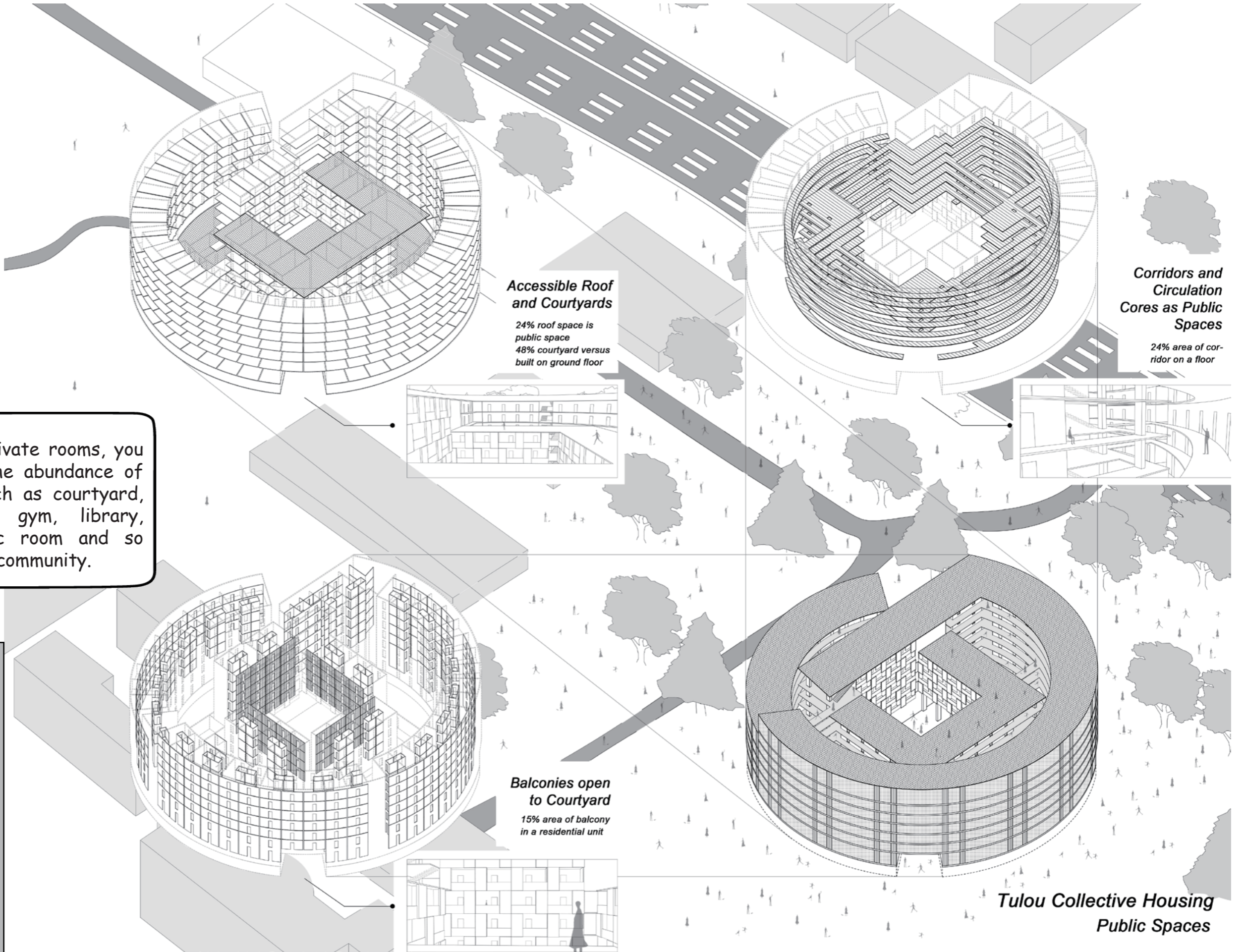
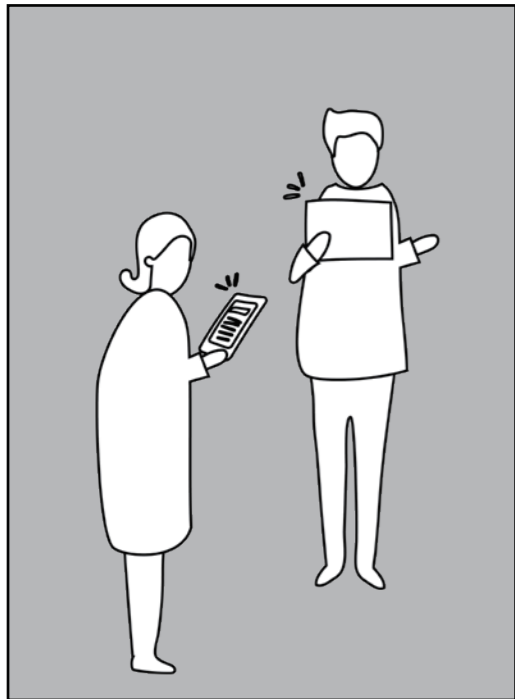
Type C Single Room

¥ 600/Month 14.5%  
 21M<sup>2</sup>  
 1  
 Restroom Desk Balcony

Each type of them have different layouts.



In addition to private rooms, you can also enjoy the abundance of public Spaces. Such as courtyard, computer room, gym, library, restaurant, music room and so on. This is a warm community.



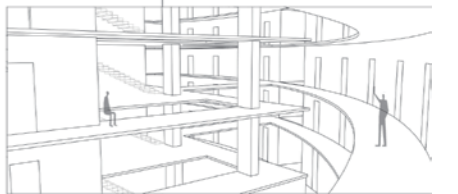
**Accessible Roof and Courtyards**

24% roof space is public space  
48% courtyard versus built on ground floor



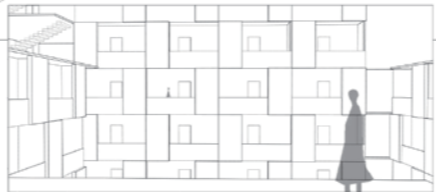
**Corridors and Circulation Cores as Public Spaces**

24% area of corridor on a floor



**Balconies open to Courtyard**

15% area of balcony in a residential unit

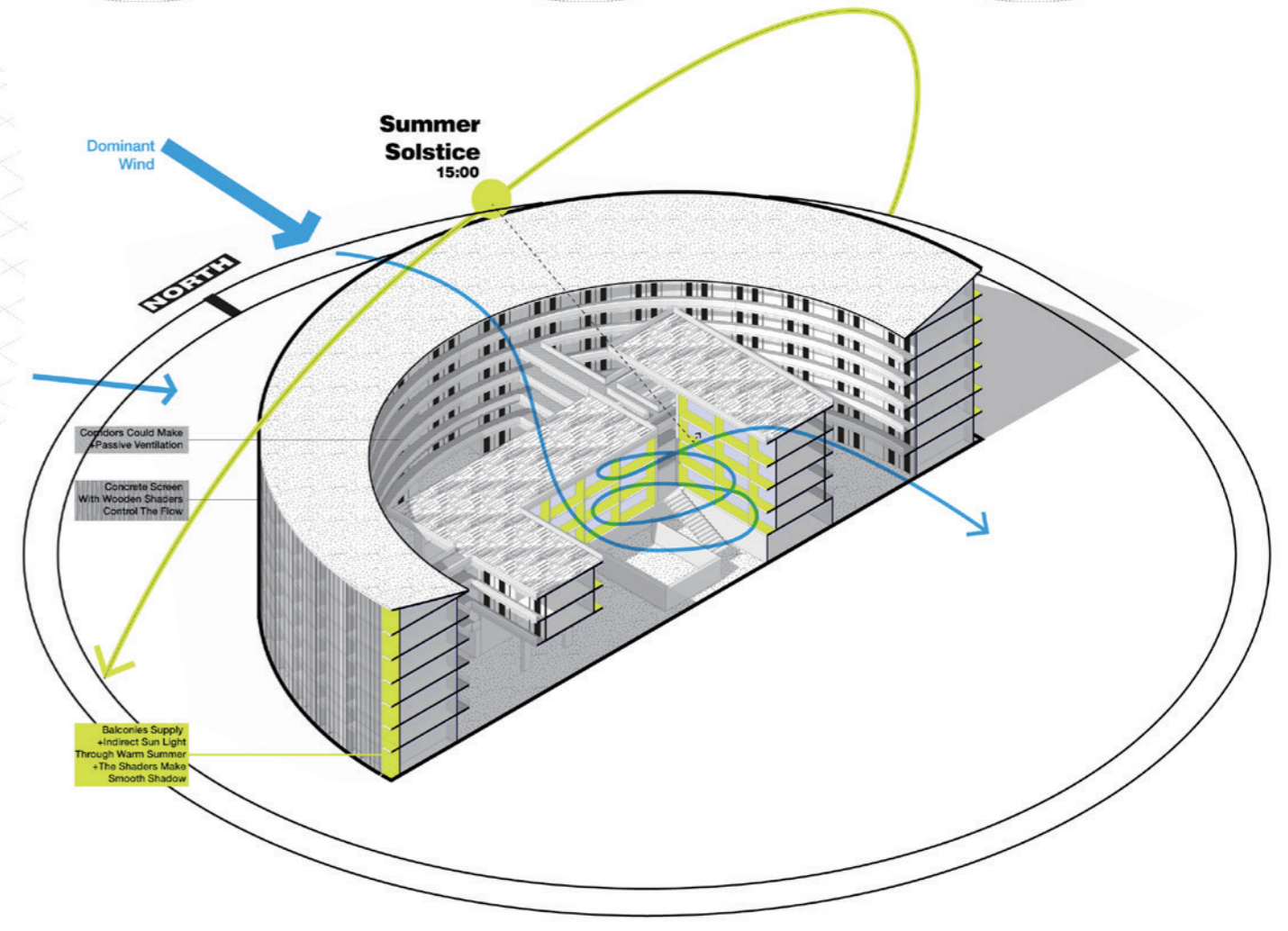
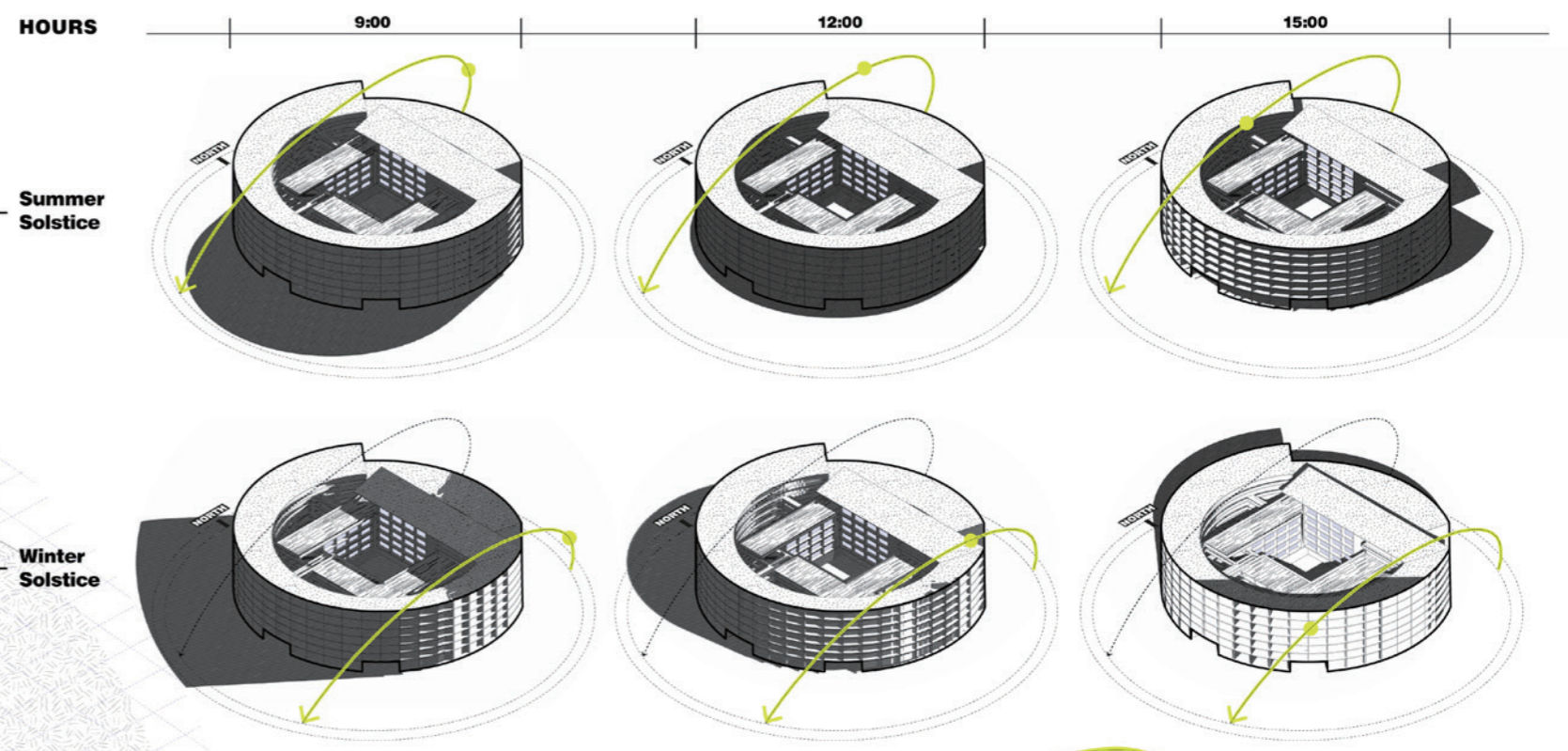
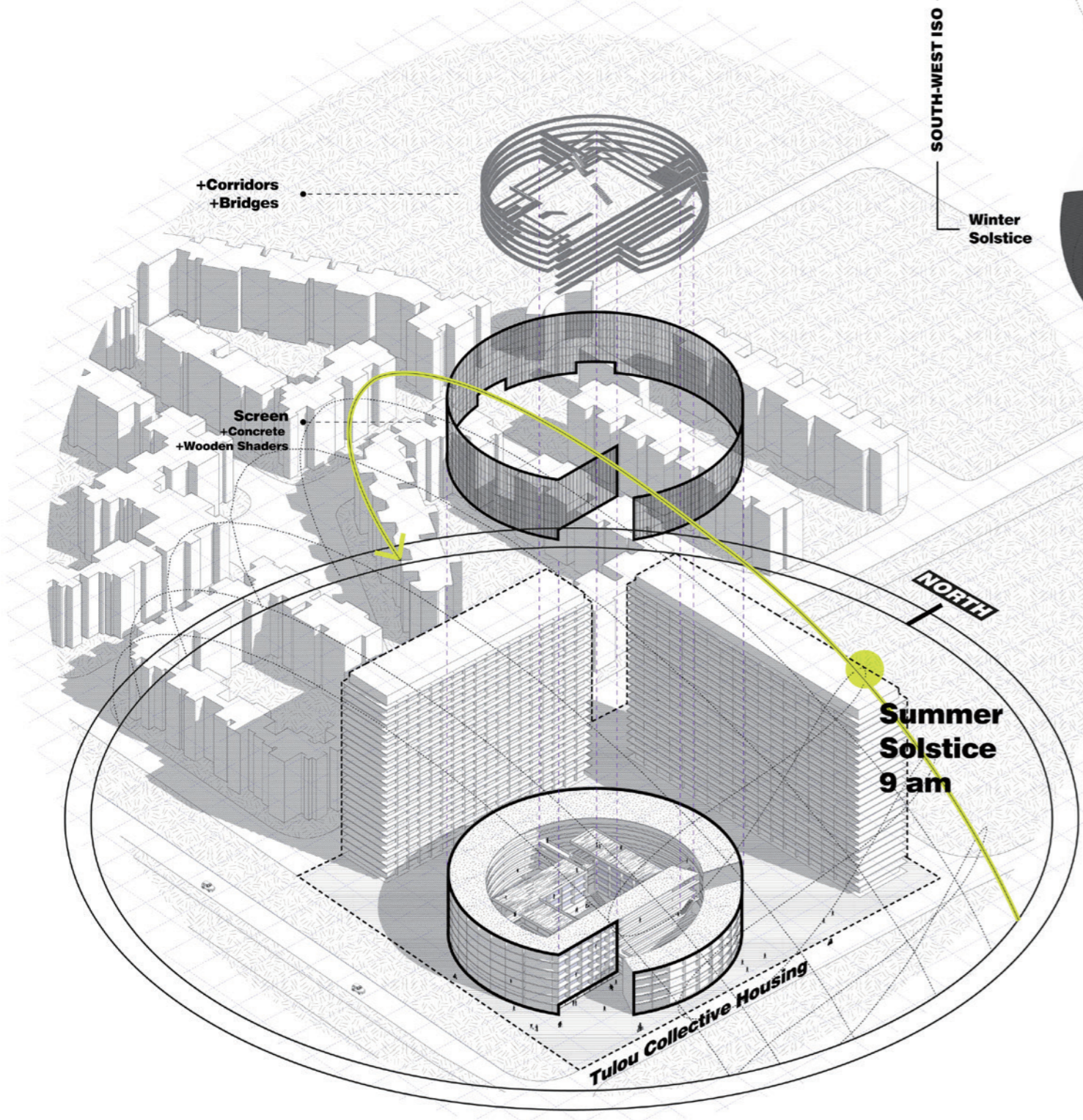


**Tulou Collective Housing  
Public Spaces**



And also good at lighting and ventilation.

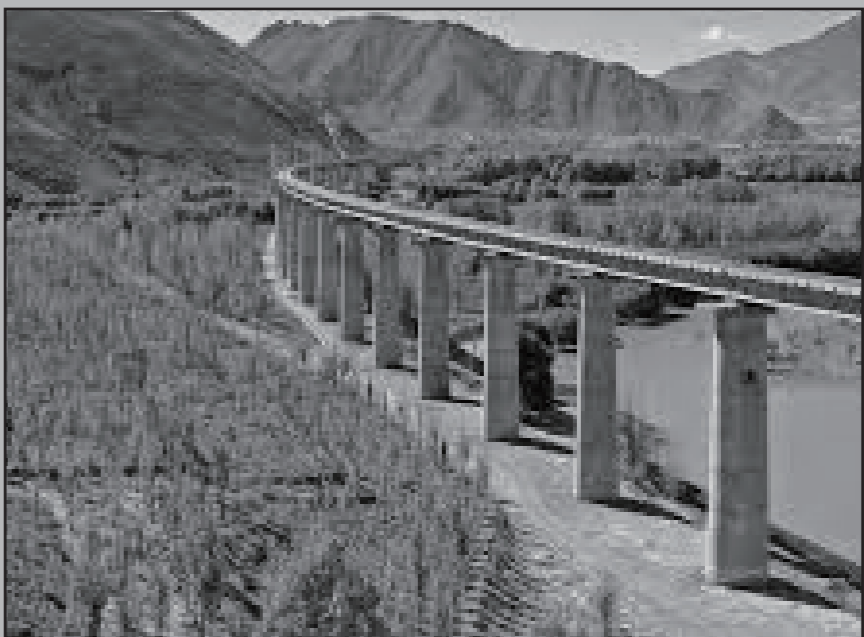
**+TULOU COLLECTIVE HOUSING**  
 NANHAI-GUANGDONG



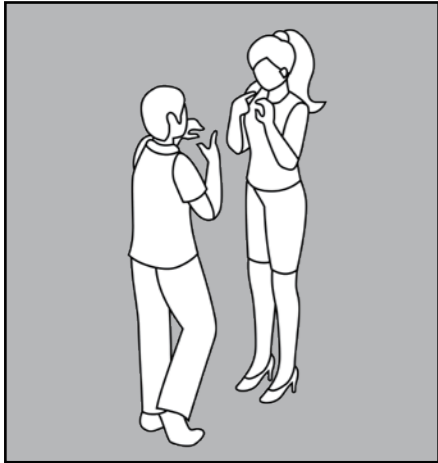
Why are the houses here so good, but the rent is so cheap?



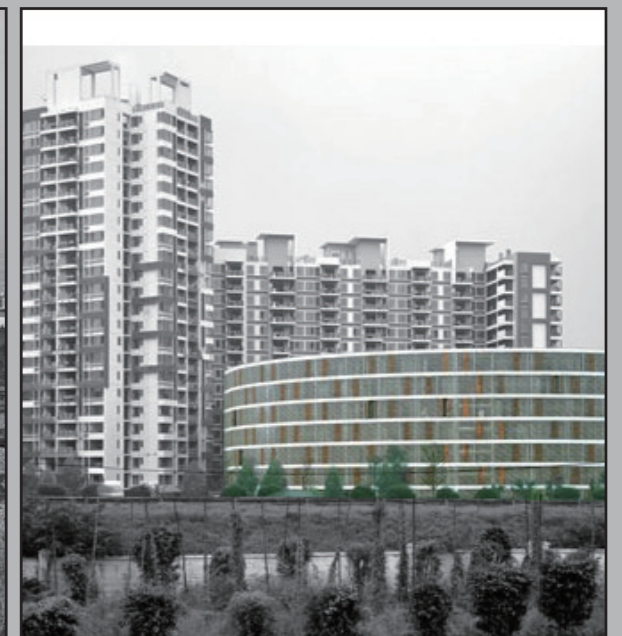
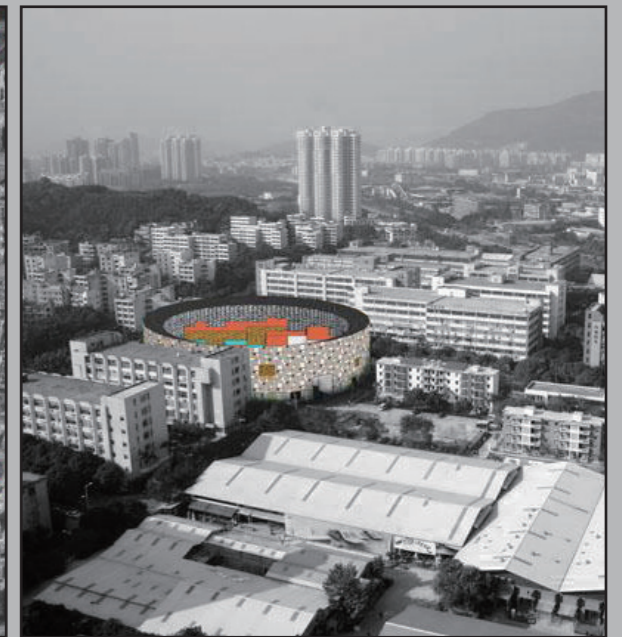
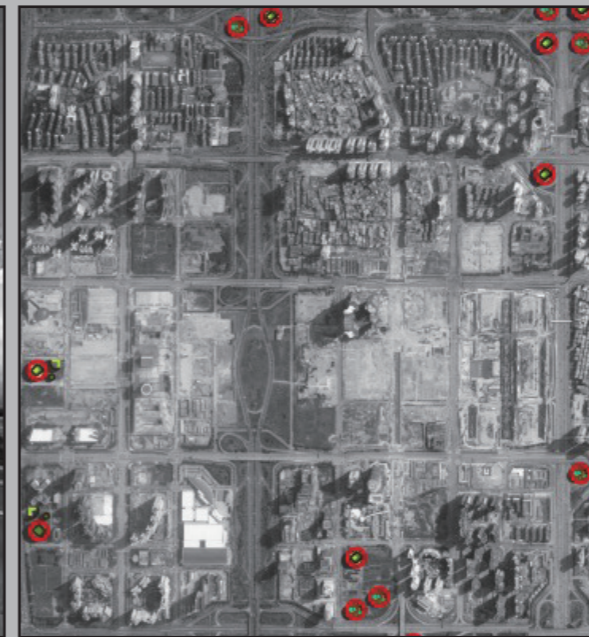
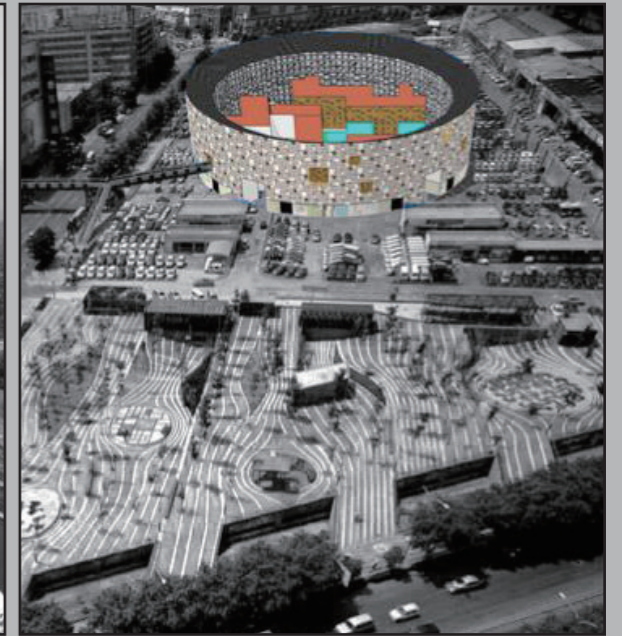
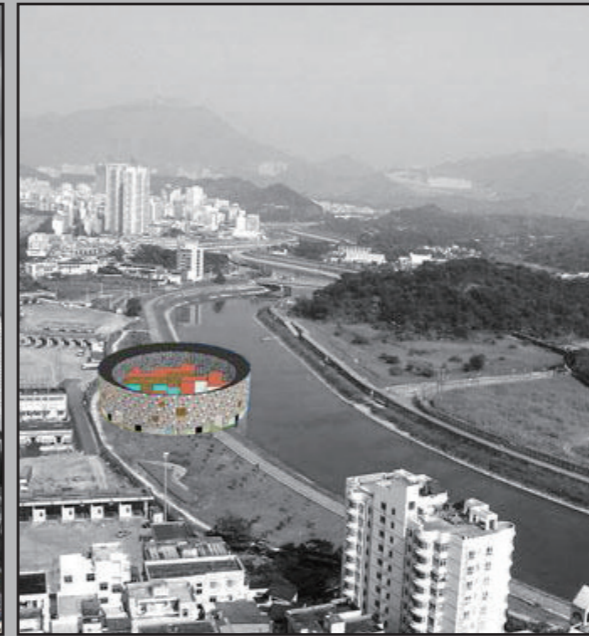
Because there is a lot of land in the city that is difficult to develop for housing. Such as land near viaducts, highways, railways. And land close to factories, waste water trenches.



What about the Tulou collective housing in Guangzhou?

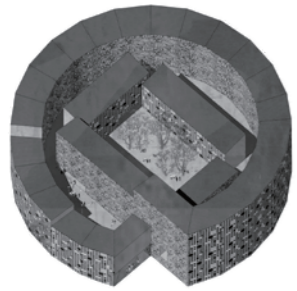


This is the starting point for architects. The price of the land is very low. Even if it is good for the city to develop the land, the government will subsidize it accordingly. All this makes low-cost housing possible.





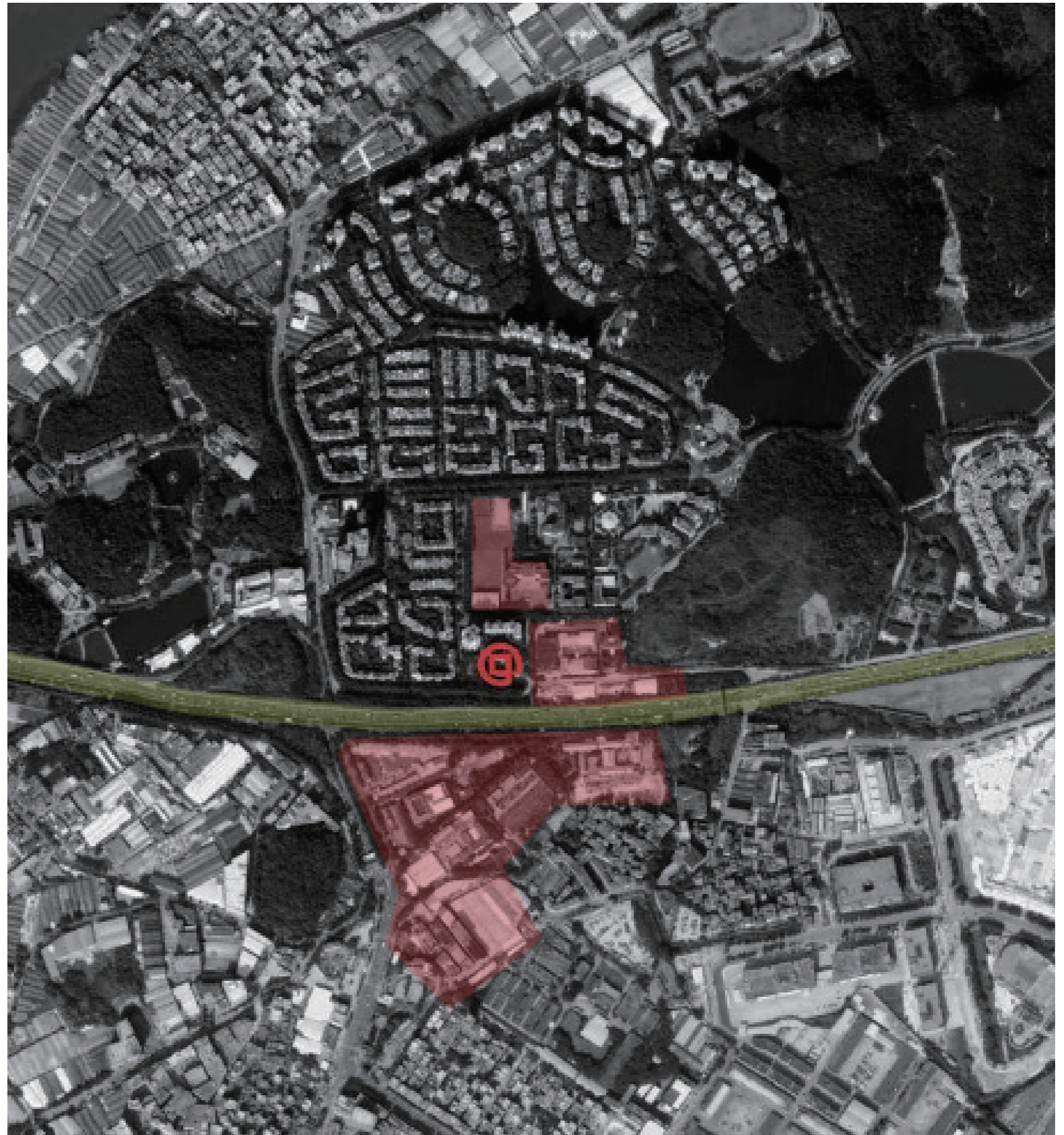
**¥ 15.4 million**  
(1/3 of the total price )



**¥ 3000 / m<sup>2</sup>**

**TOTAL** **¥ 46.24 million**  
(in 2008)

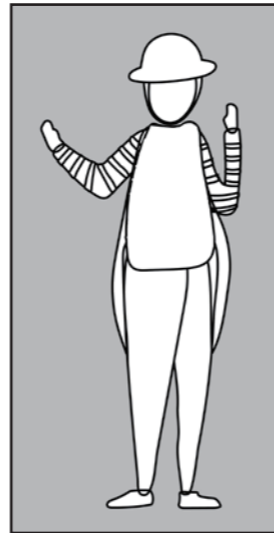
This is the first completed Tulou Collective Housing. It is located in Nanhai, Guangdong Province. Highways and factories surround the area. In 2005, Vanke bought the hard-to-develop land at a lower price.





The rent is so cheap! How about utilities and property management fees? Do I need to pay it?

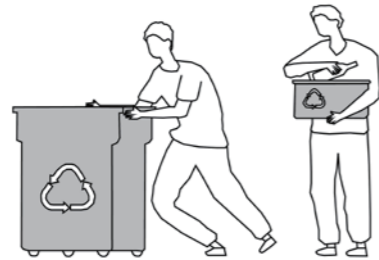
You need to pay the utilities. But the property fee is free. It's a system of tenant autonomy. Tenants can do volunteer work to offset the rent. This includes **cleaning, green maintenance and garbage collection.**



### Volunteer Work



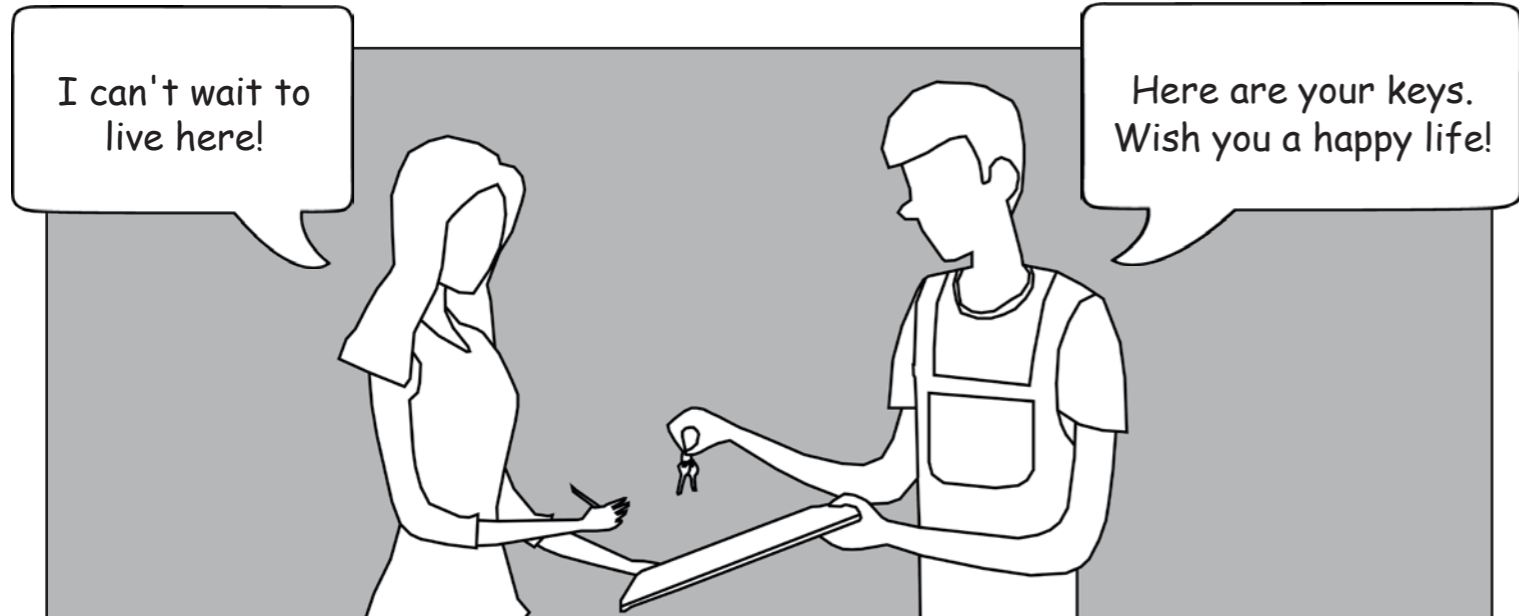
-Cleaning



-Garbage Collection

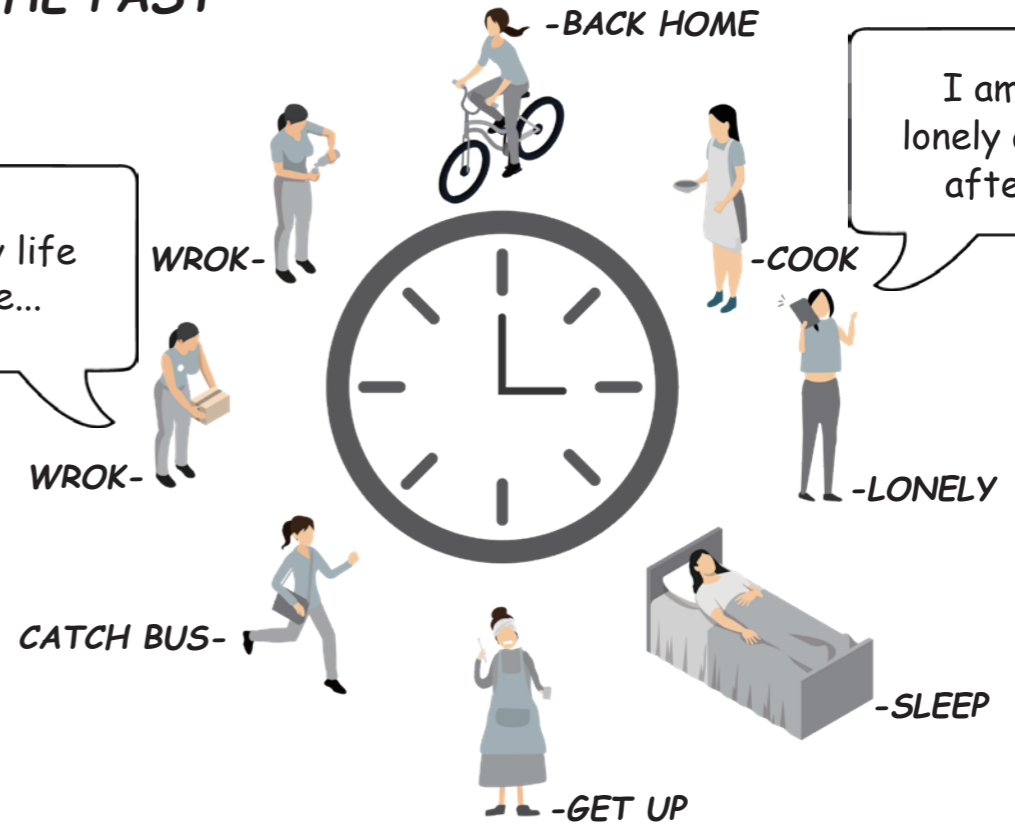


-Green Maintenance



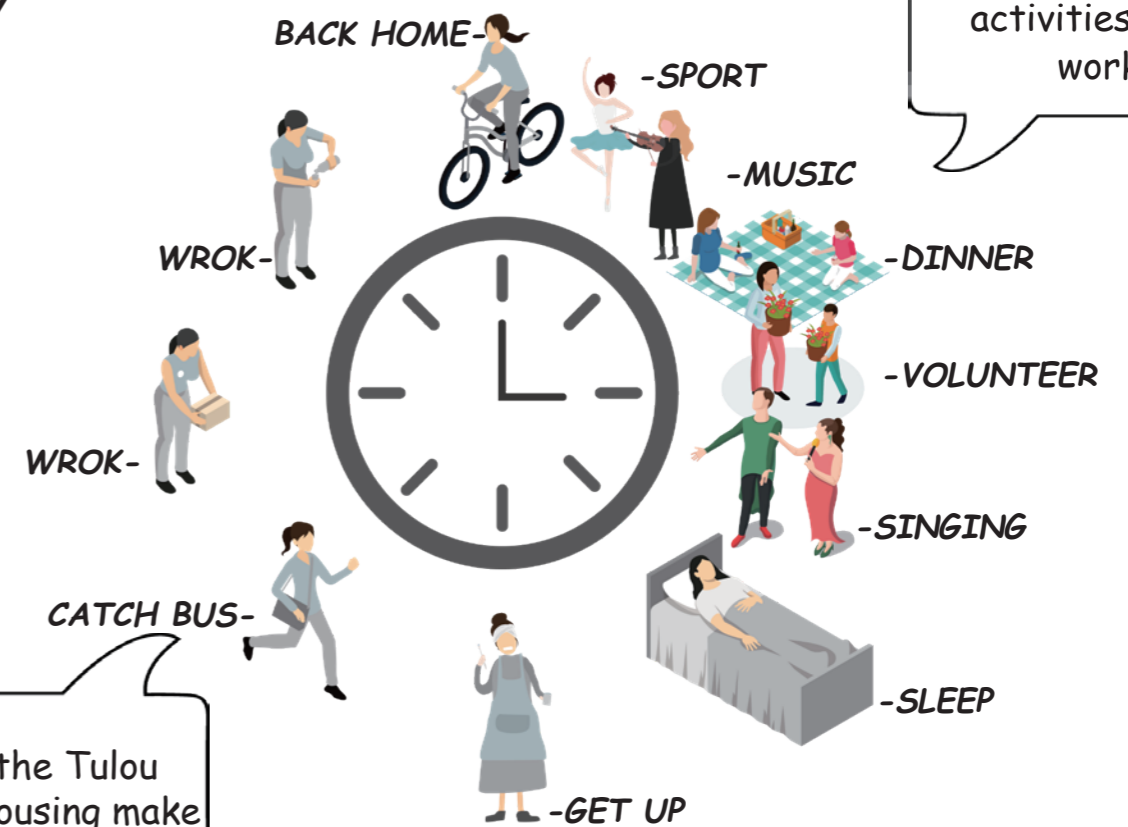
### IN THE PAST

My daily life before...



### NOW

But now, the Tulou Collective housing make my life colorful...

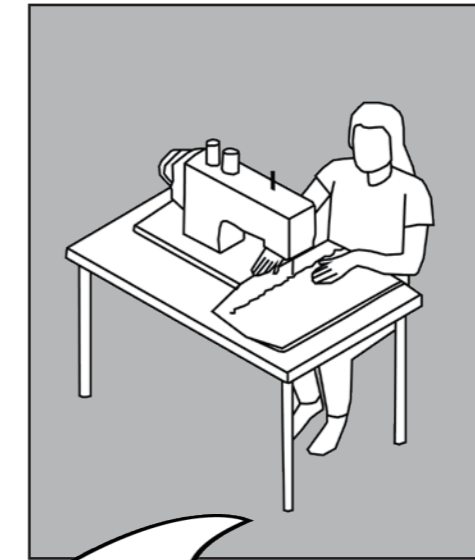




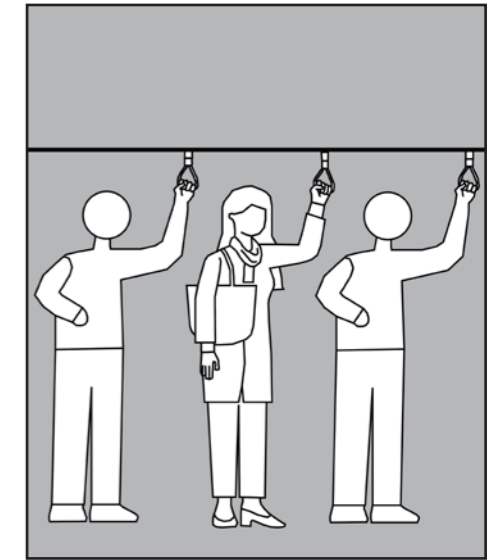
-Go To Work



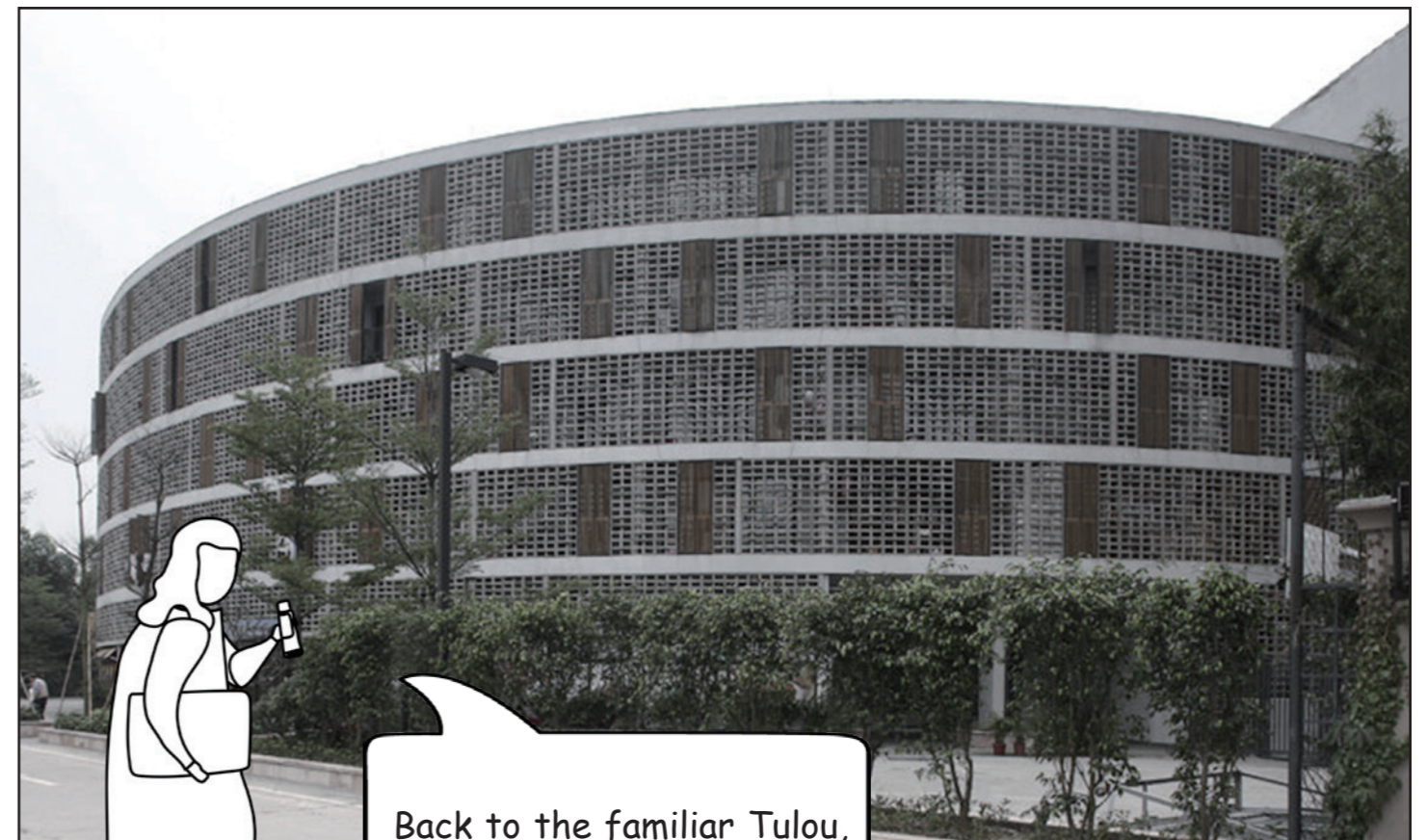
-Work

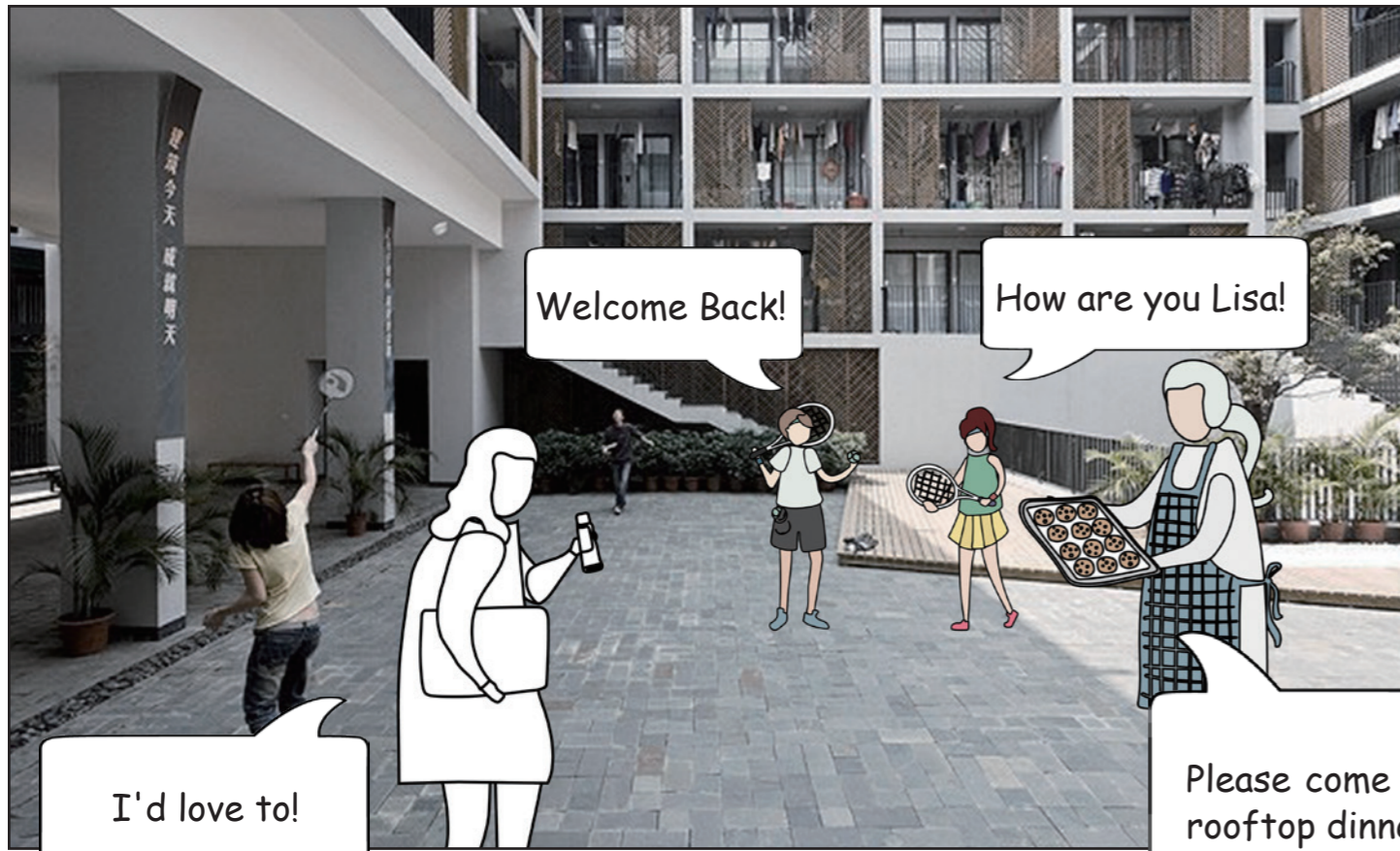


-Back Home



I take the bus to work and work like a machine. No one CARES about me all day. I feel depressed.

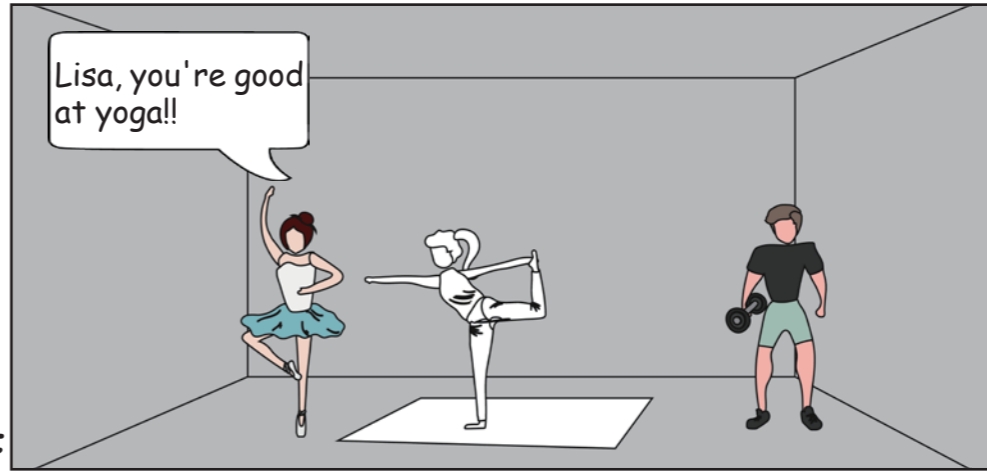




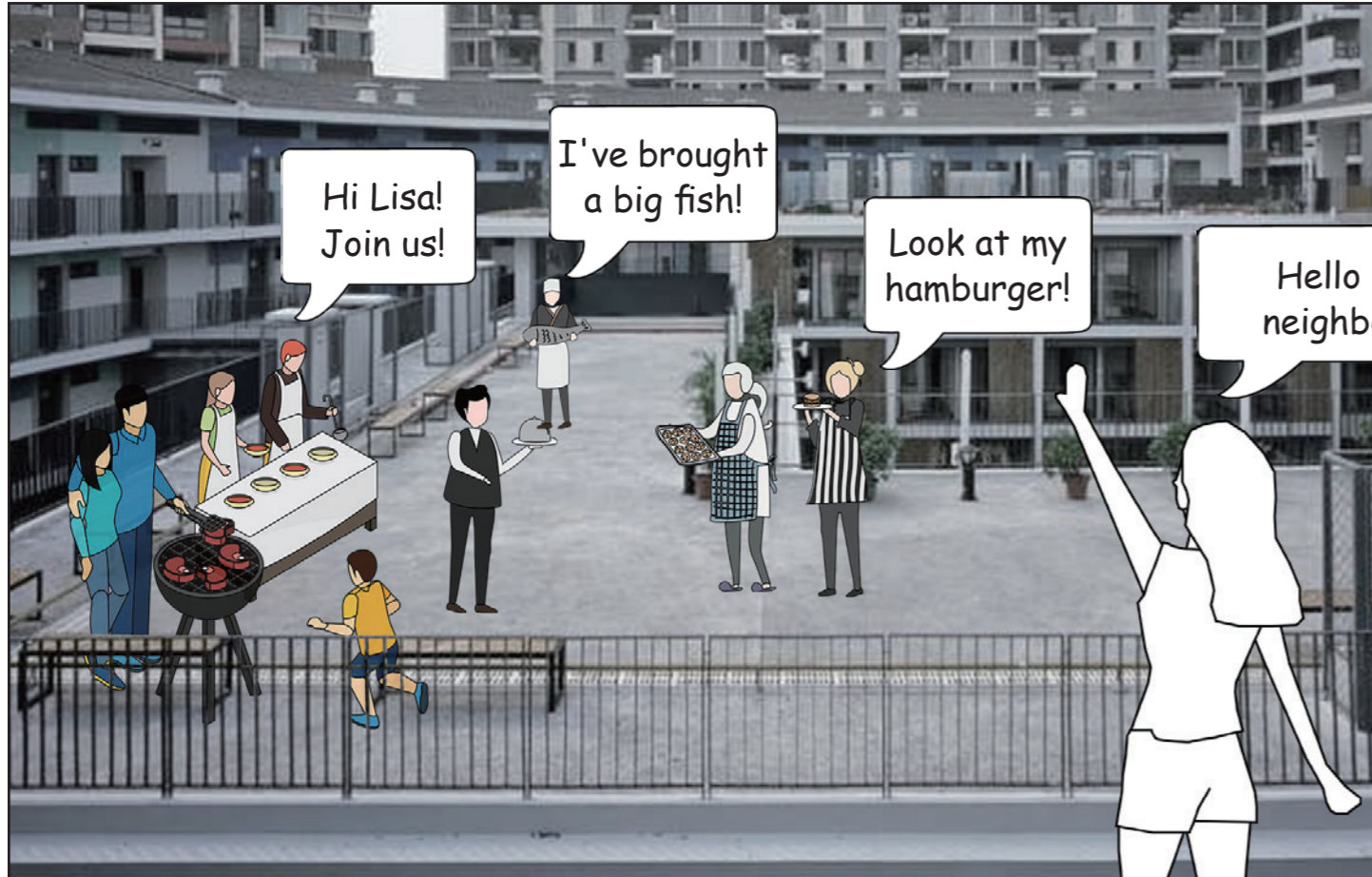
After dinner, I often take part in different activities in the public space.



-Music



-Sport

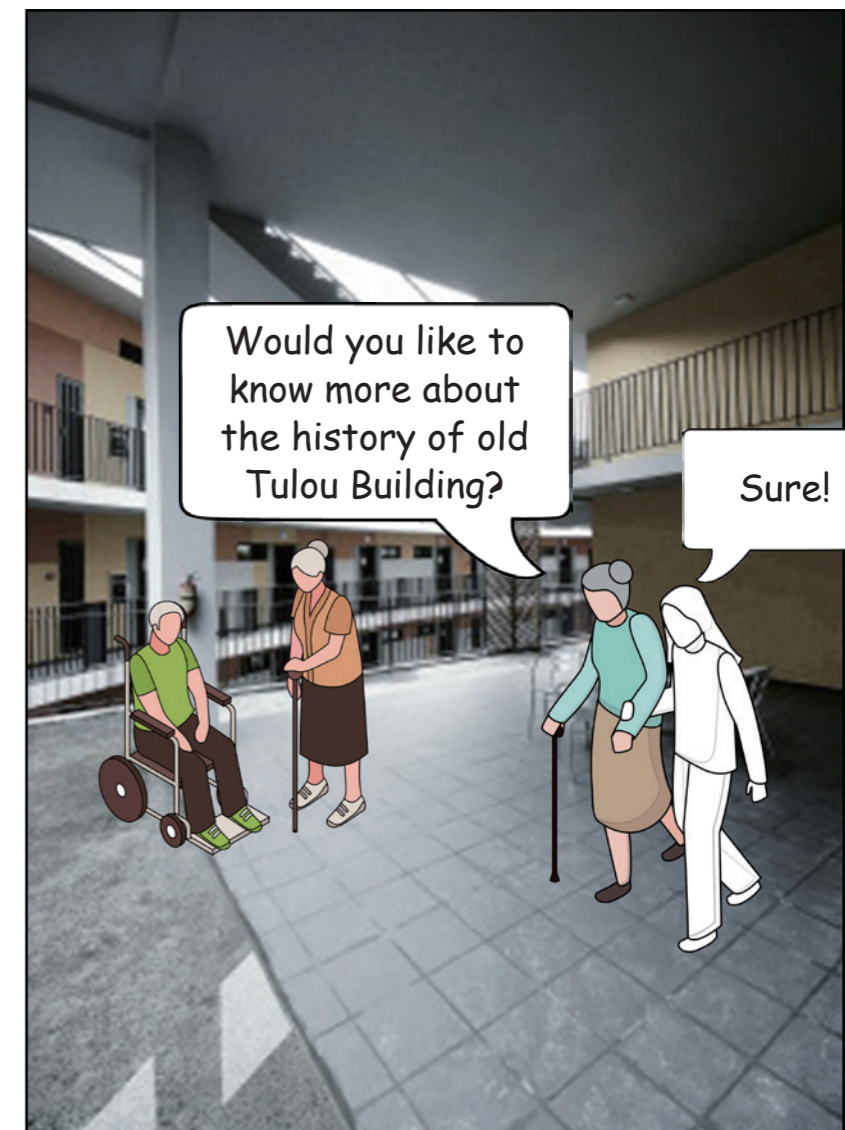


-Art



-Volunteer

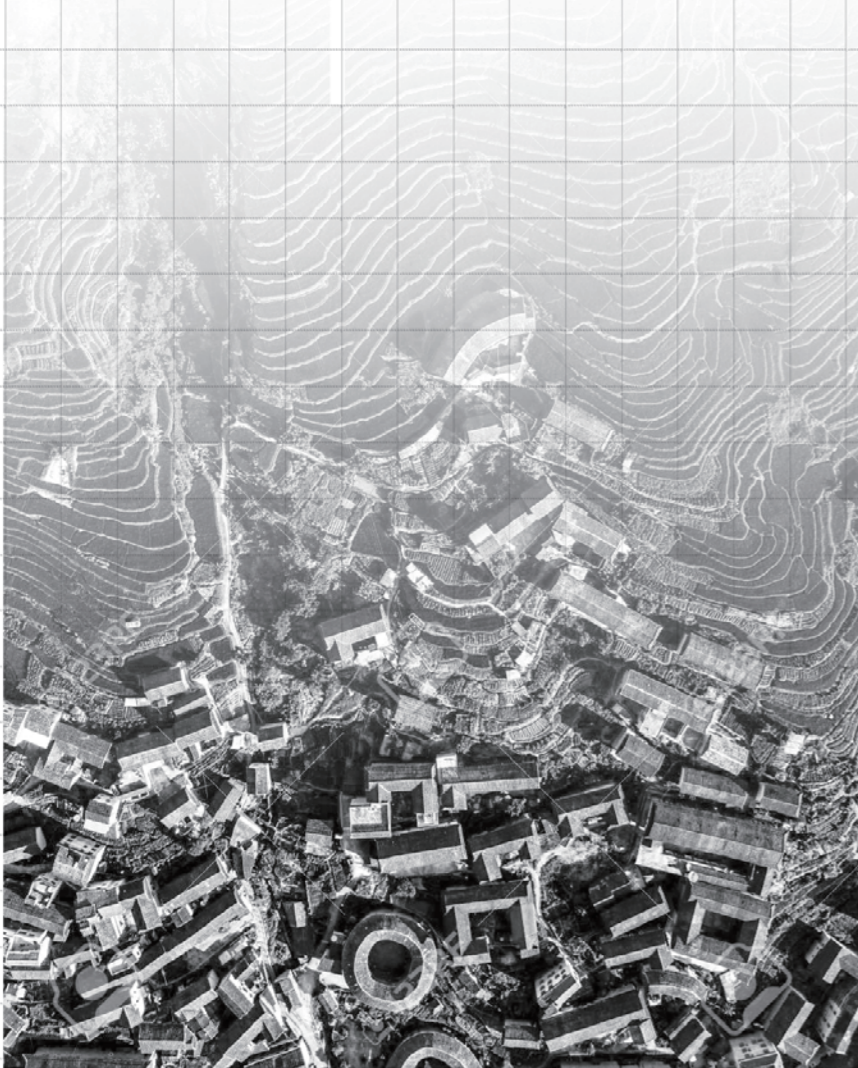
# PART 3





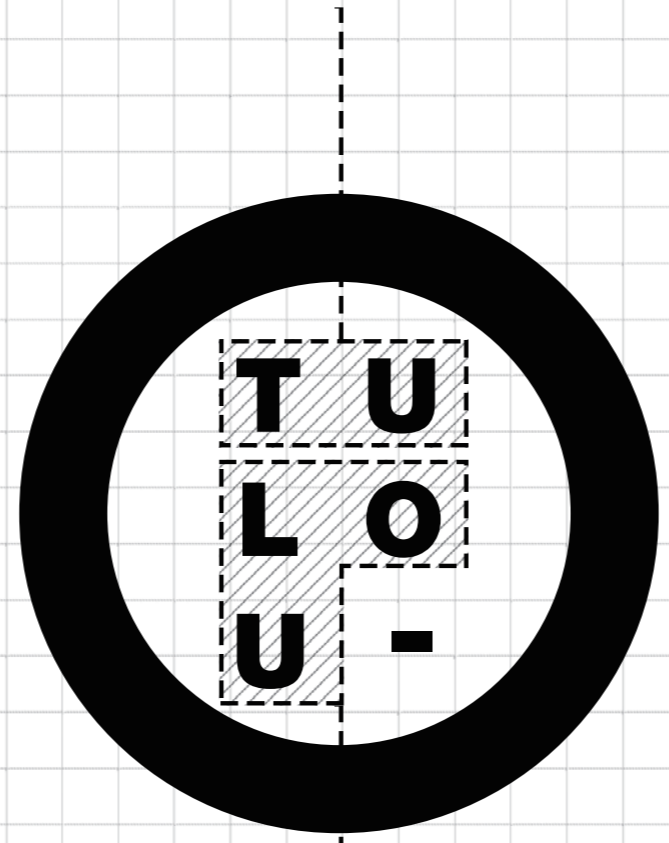
# WHAT IS TULOU

The tulou (earth buildings) are square or circular clan houses built by the Hakka (guest people) from the North who settled in Fujian and Guangdong. The tulou was a fortification, with outer walls of stamped clay up to 1.5 metres thick and 18 metres high, an iron-clad portal, weapon slits under the eaves of the large overhanging roof, and a connecting gallery for rapid defensive manoeuvres. Inside, the living quarters are built of wood over three to four floors. The ground floor is for cooking, eating, socializing, and working. Bedrooms and stores are on the upper floors. In the typical central courtyard is a well, mill, threshing floor and an ancestral hall. The compact tulou can contain several dozen to a hundred families, with up to 250 small uniform rooms. The rooms of a tulou are shared among its occupants in such a way that a single family unit use two or three rooms on each floor, in a vertical segment of the building. The circular tulou was perhaps the last stage of a long development, starting with more complex forms which evolved into simpler rectangles and finally taking on the circular form. The circular form is efficient – producing more usable space from less material – relative to the square plan. And according to popular superstition, the absence of corners discourages evil spirits.



**MADE of**  
**+SOIL**  
**+RAW MATERIALS**  
**+RAMMED EARTH METHOD**

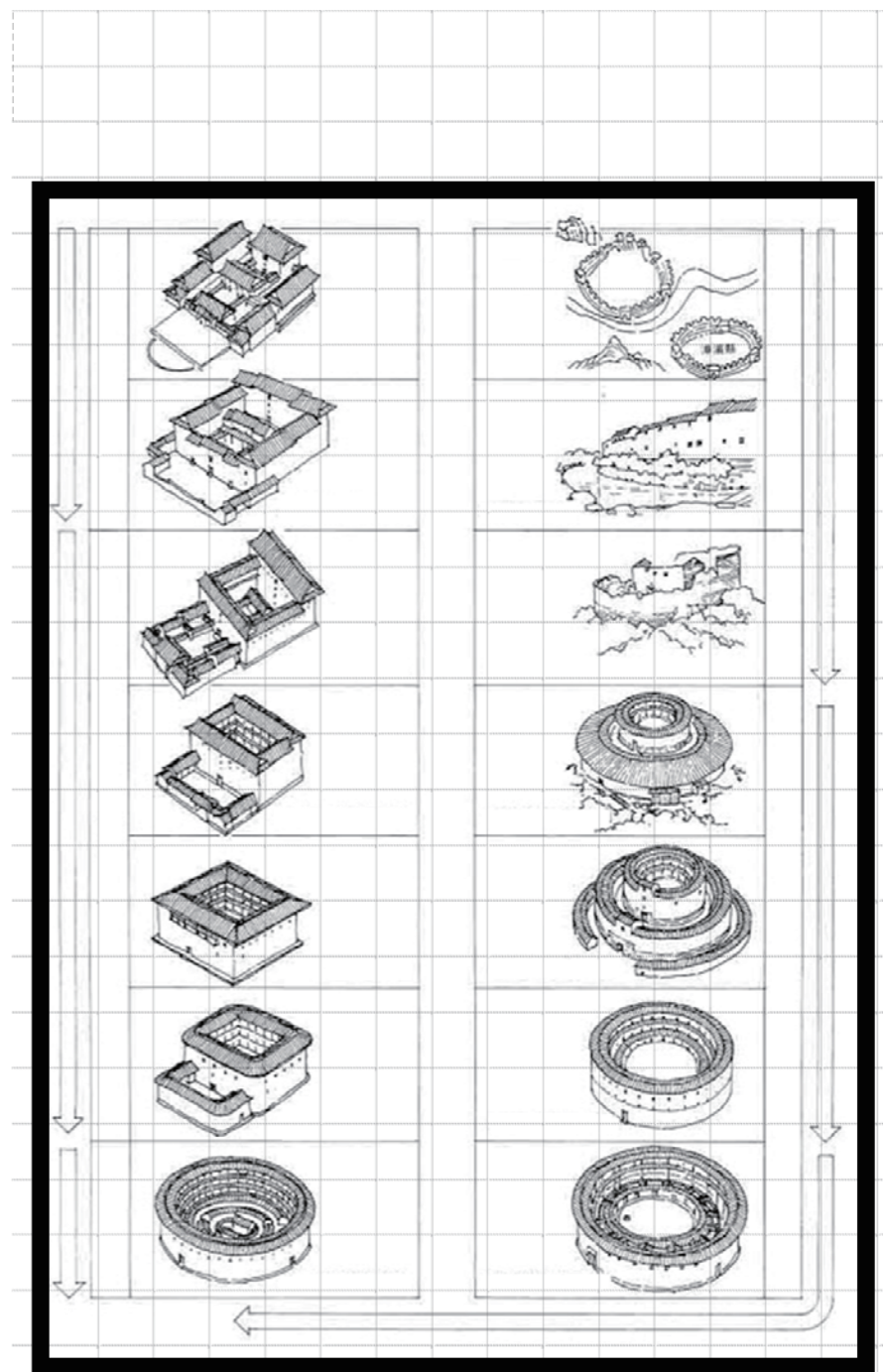
TU = EARTH



LOU = BUILDING

**+CIRCULAR**  
**+RECTANGULAR**  
**FORTIFIED**  
**ENCLOSED**

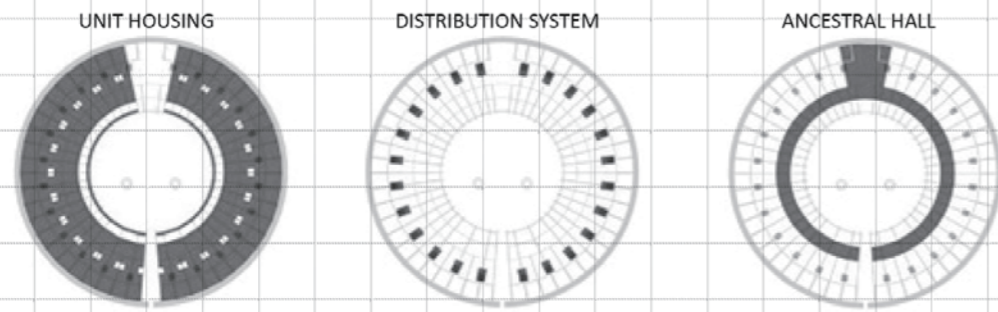
Tulou are Hakka buildings, mainly in Fujian Province. My old home is there.



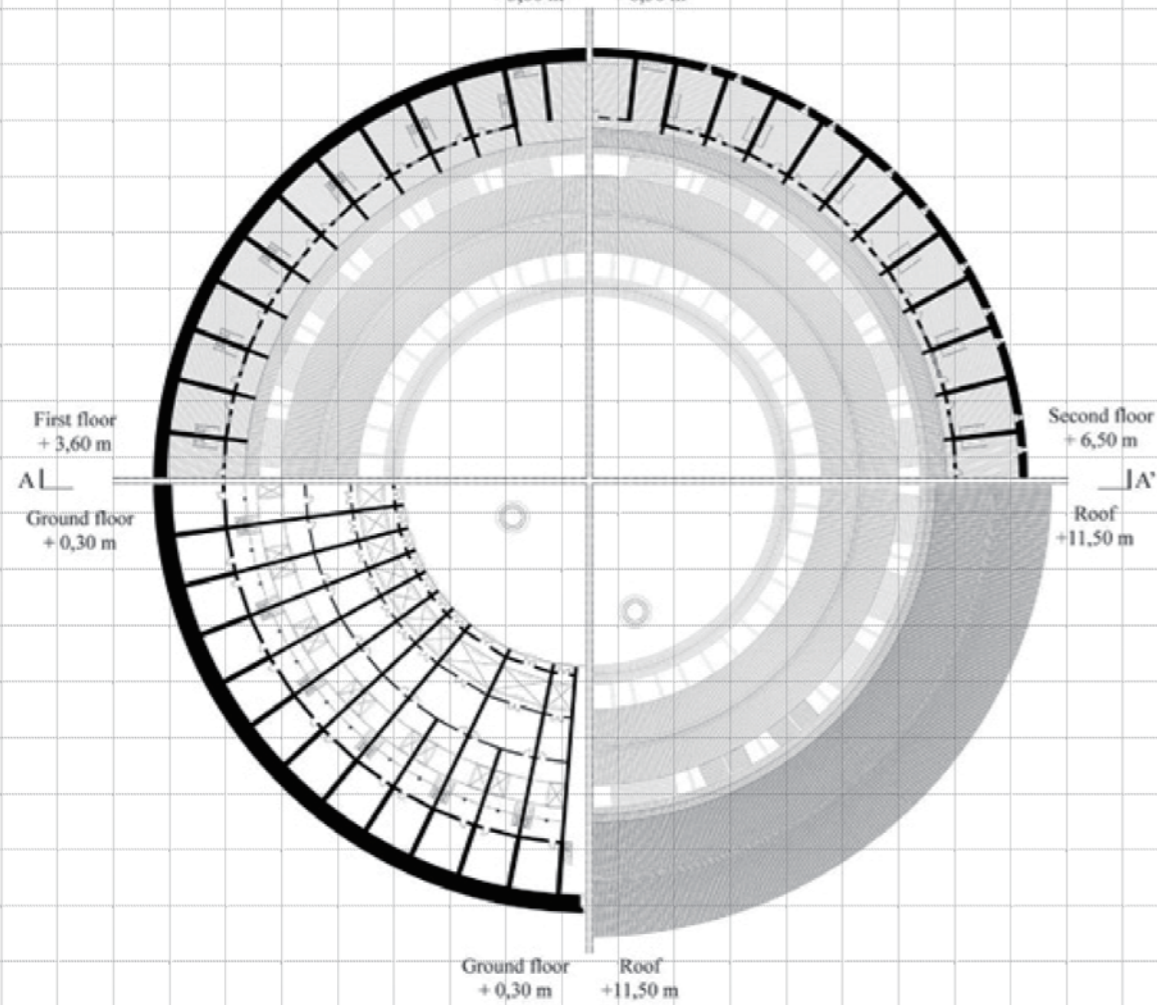
# TULOUS TYPOLOGY

# +SPATIAL ARRANGEMENT

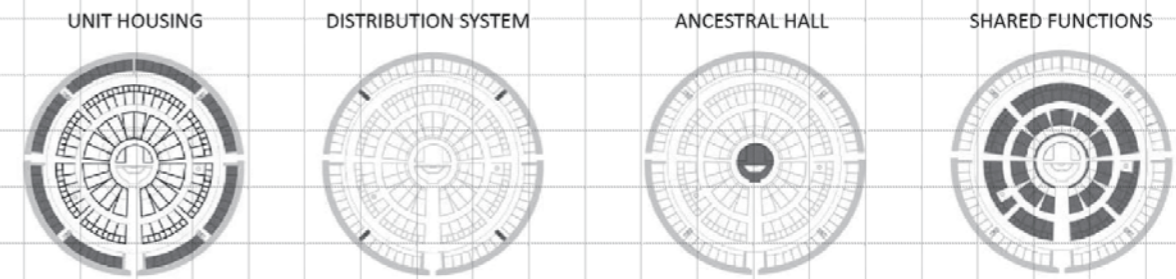
## + MINNAN TULOOU, UNIT TYPE



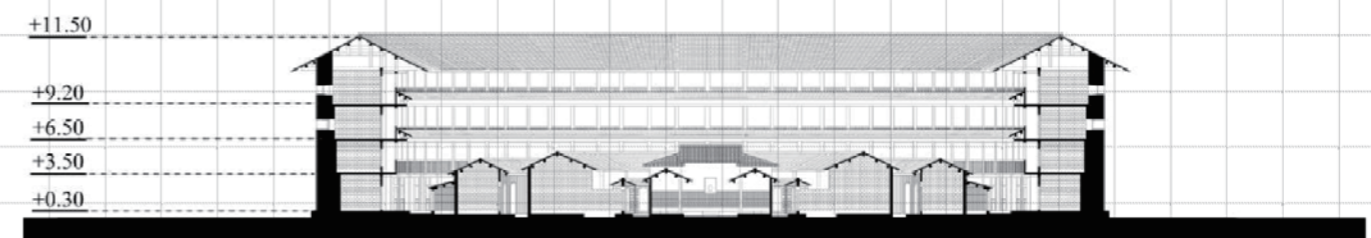
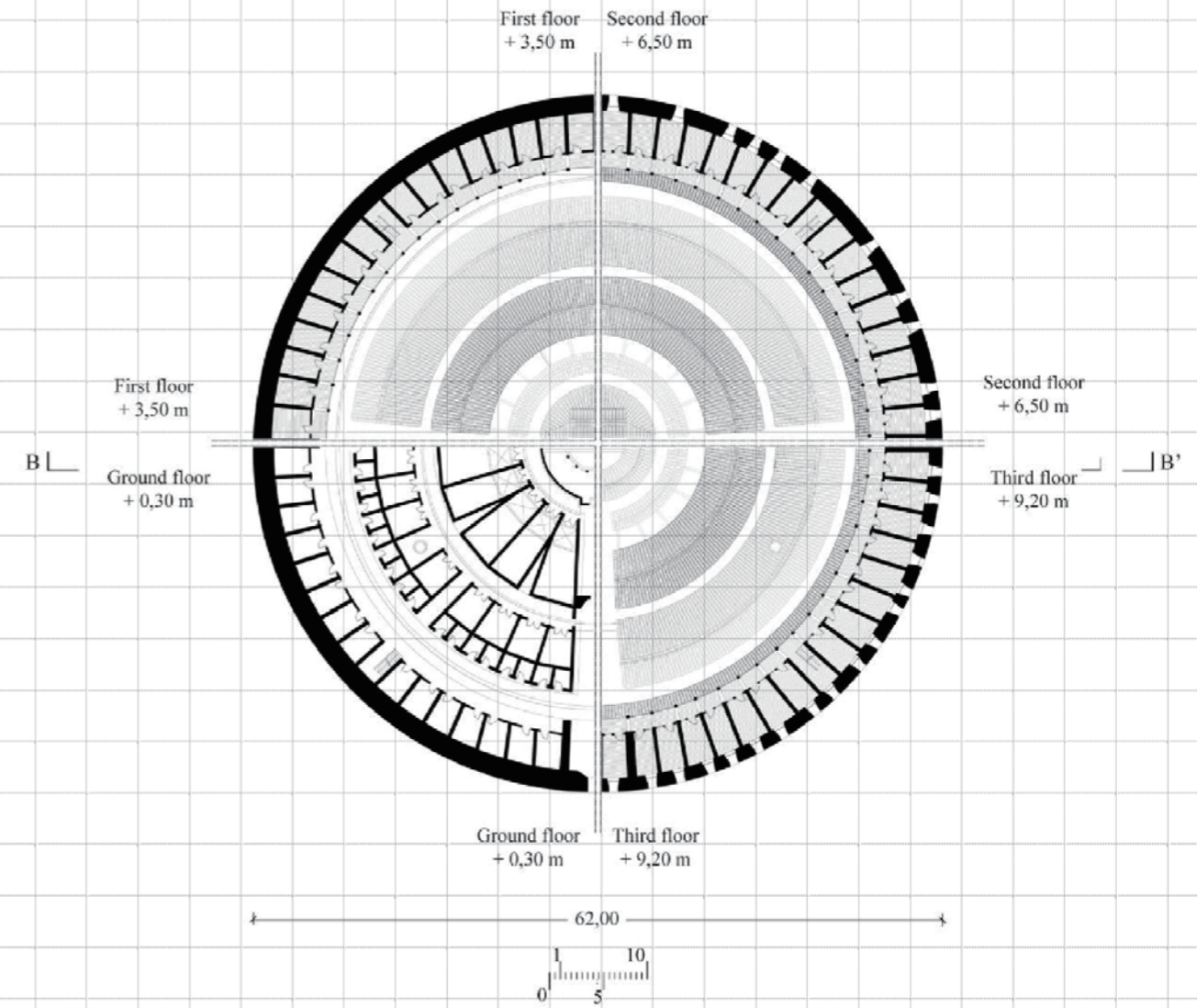
First floor +3,60 m  
Second floor +6,50 m



## + HAKKA TULOOU, GALLERY TYPE

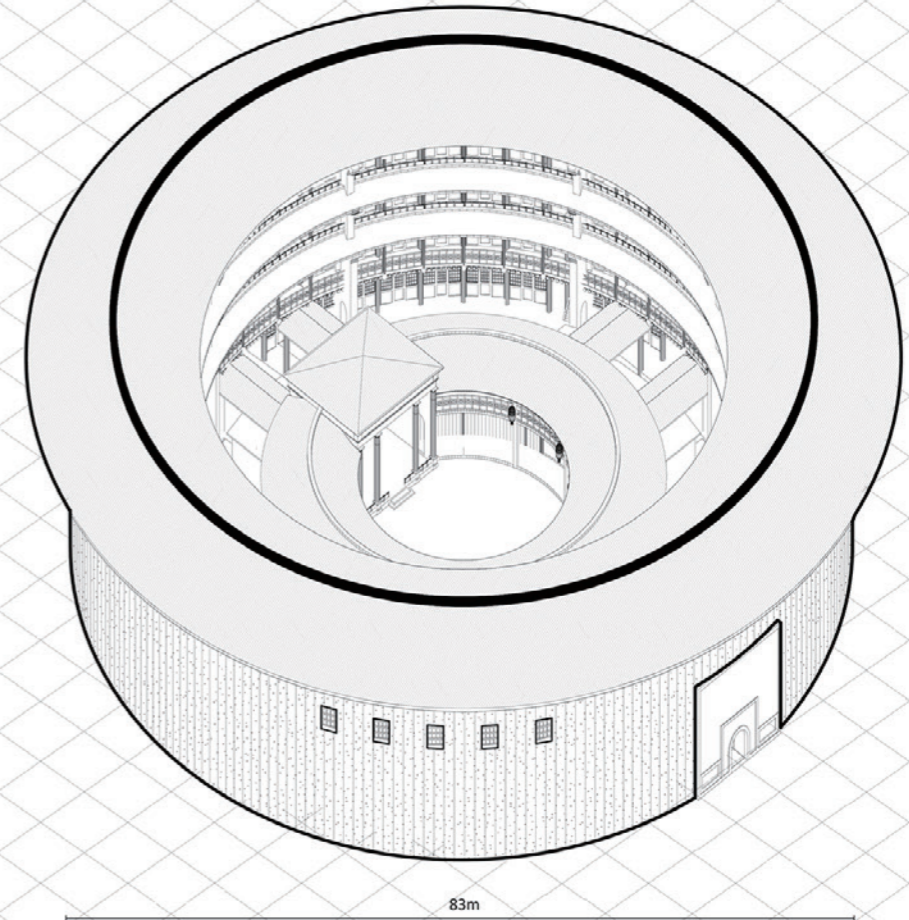
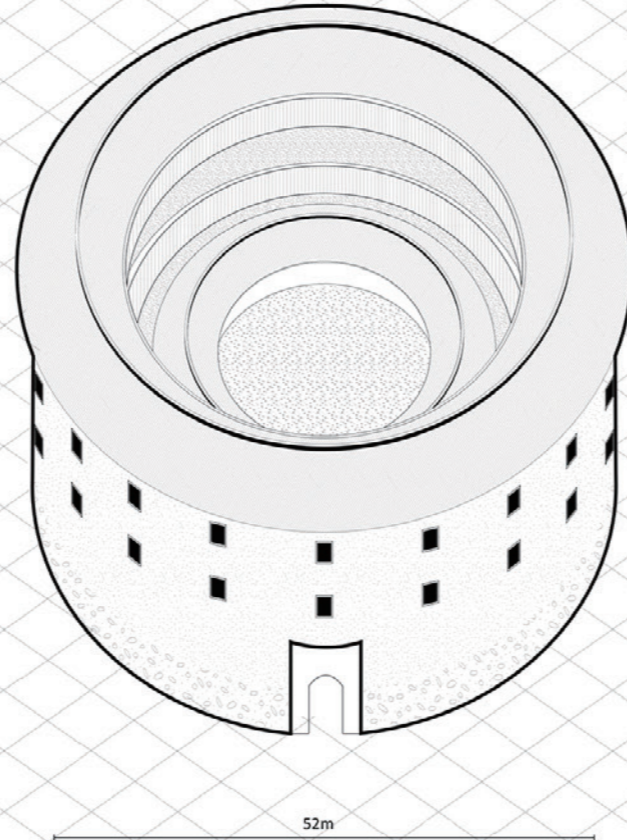
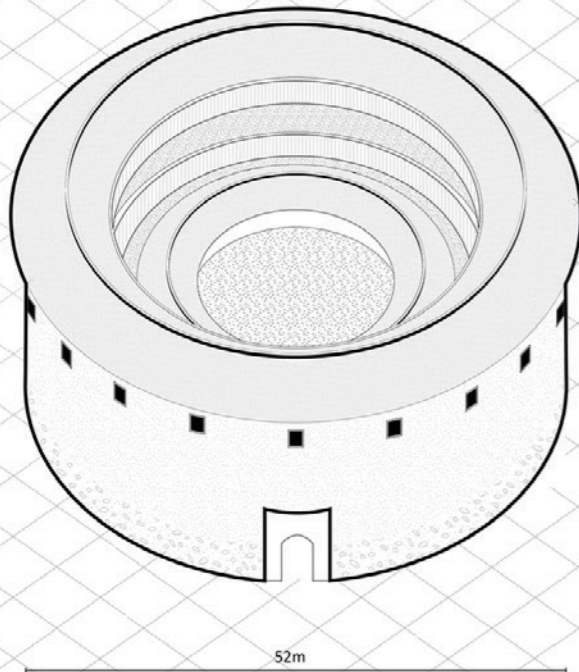


First floor +3,50 m  
Second floor +6,50 m



T U  
L O  
U -  
CIRCULAR  
TYPOLOGY

Different types of  
Tulou...



# +MATERIALS AND BUILDING TECHNIQUES

## **The foundation**

is of large rounded stones from the local river, filled out with smaller stone. In this frost-free region the foundation's function is purely to support the weight of the building.

## **The base**

normally 60-90 centimetres high, is also of large stones, the largest of which are placed at the core of the wall. Both sides are plastered with clay.

## **The outer wall**

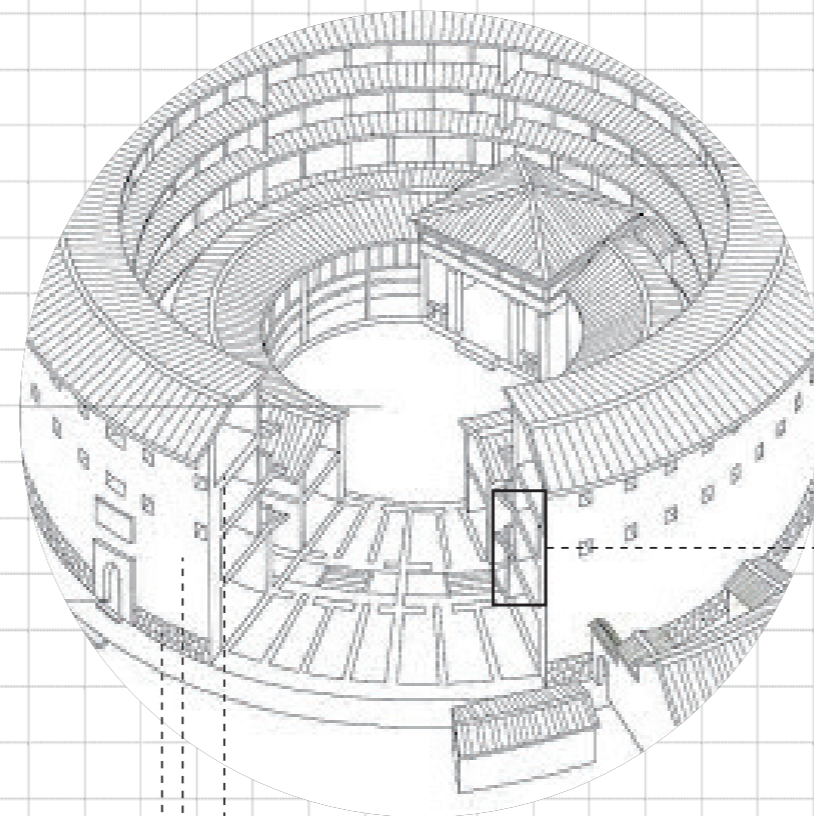
The terre pisé technique, labour-intensive but cheap, is widespread in China. The erection of such high walls requires fine sedimentary mud from the rice fields, the very same mud that makes for a rich and productive agriculture.

The stamping is carried out with the use of a wooden frame, 2 metres long, which is used as a mould. This is filled with suitable type of mud, or a mixture of earth, sand and lime called sanhetu, then pounded with a stone or a thick staff.

Maximum strength is obtained if each layer is allowed to dry slowly and completely before the next layer is applied. The wall is further strengthened if allowed to dry gradually, before the next layer is built on top. The wall is reinforced with splitbamboo canes or, in the case of corners, L-shaped cedar branches. The outer wall leans inward to counteract the outward forces and in the case of the circular tulou aids the support of the cantilevered wooden construction.

The pressure also increases the wall's resistance to erosion. (Ole Vanggaard, personal communication, 1999). In the past all the tulou in the locality were whitewashed. (John Lagerwey, personal communication, 1997).

This protected the facade against rain, and also reflected solar heat, helping to reduce overheating, a useful effect in the south Chinese summer. I saw very few completely whitewashed buildings. Whitewash was applied only to the window frames.



**+STONE**

**+RAMMED EARTH  
+ SANHETU**

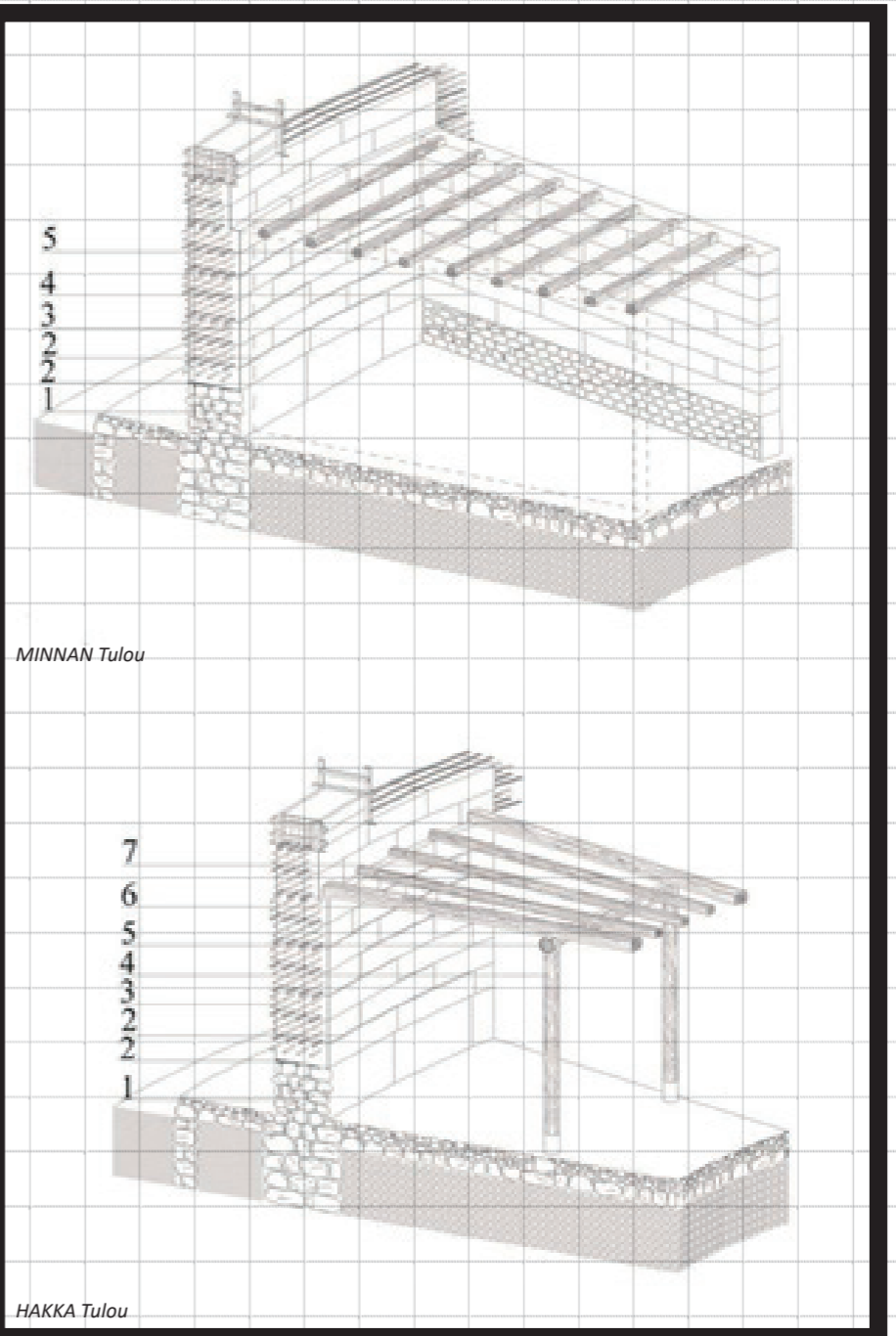
**composed of silt, sand and clay**

**+WOOD**

The original Tulou used very simple material and construction.



## **CONSTRUCTIVE SYSTEMS**





Long ago, my ancestors migrated from the north to the south.



Jin Dynasty  
307—312

During the Jin Dynasty, with the continuous wars in the North, a large number of people from the central China moved south, most of them to Fujian Province

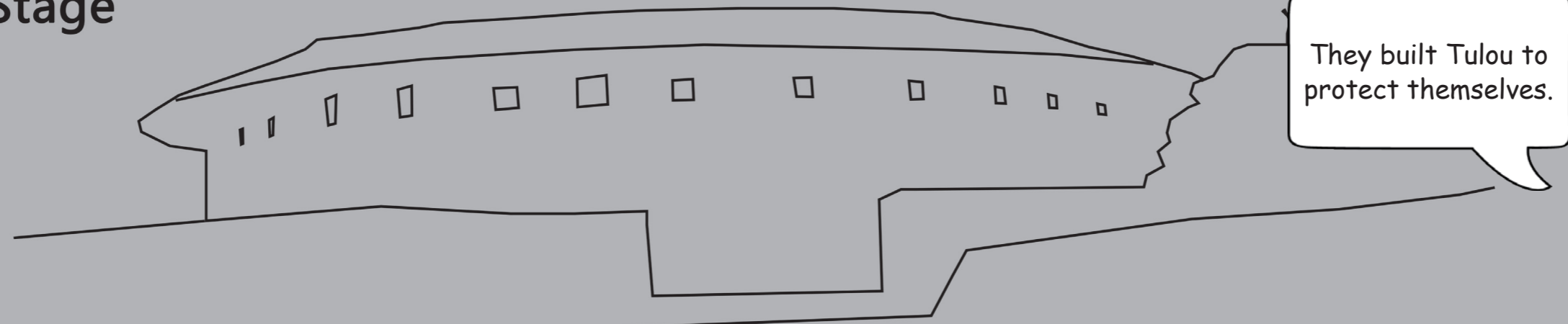
Tang Dynasty  
7-8 century

At the end of Tang Dynasty, in order to avoid the war, the people of central China once again moved to the south on a large scale

Song Dynasty  
1127-1279

During the Song Dynasty, many people moved to the south, bringing in the language and culture and integrating with the local culture, forming the Hakka people system represented by Hakka dialect

# Development Stage



They built Tulou to protect themselves.



**Song Dynasty**  
11 century

In coastal and mountainous areas of Fujian, bandits and thieves are frequently attacked, and the form of tulou in Fujian, integrating defense and residence, has been widely adopted

**Yuan Dynasty**  
14 century

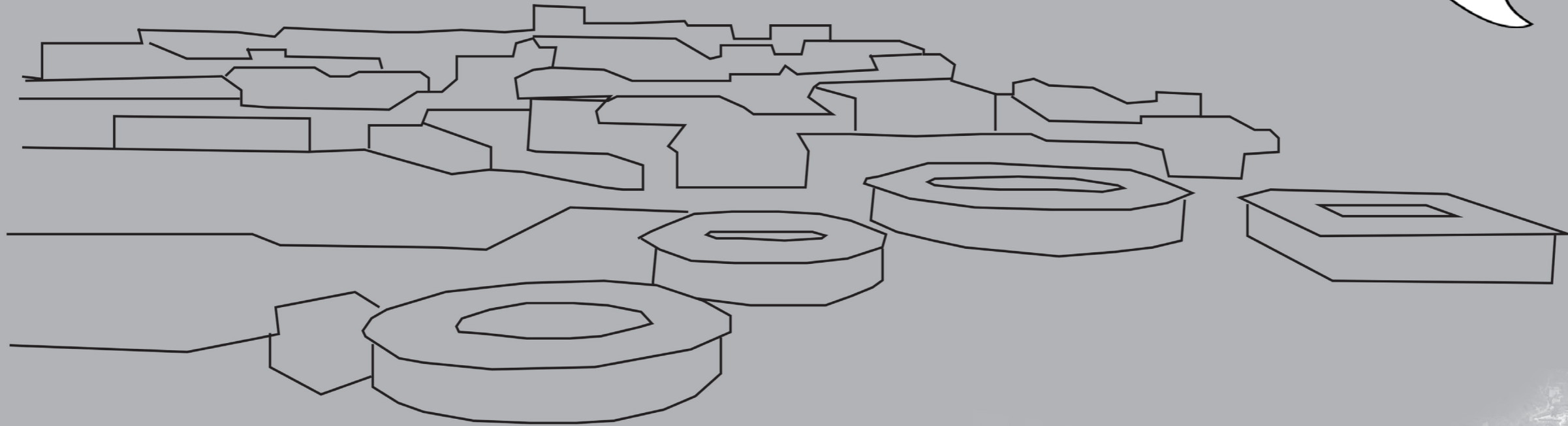
With the development of Fujian, the hakka people and the local people's economy and culture blend with each other, and the distribution of tulou basically coincides with that of the Hakka people

**Ming Dynasty**  
17 century

The architectural form of tulou is gradually becoming more and more refined, and its functions are also developing towards diversification

# Mature Stage

Then the development appeared in the world famous tulou form.



Ming Dynasty  
17 century

With the development of the economy and the improvement of the understanding of the ecological environment, the residents have more requirements on the housing

Qing Dynasty  
19 century

In order to make hundreds of people live together and live safely, the architectural forms become more sophisticated, and the functions become more diversified. Villages with tulou as the main body appear

The republic of China  
20 century

The influence of overseas culture was reflected to a certain extent in tulou, the architectural form and decoration combining Chinese and Western appeared. Tulou in Fujian reached its heyday

The Original Tulou is a building used by Hakka to defend themselves against wild beasts and enemies. So the **outside** is closed.



-Close Outside

The new Tulou's outer walls mask the disadvantages of helping to insulate users from chaos and noise.



-Close Outside

The inside of the Tulou is open. The functions including living, storage, shops, bazaars, sacrifices and public entertainment.



-Open Inside

And the interior of the new Tulou is open in an intimate and comfortable environment for activities and communication.



-Open Inside





Living here always reminds me of what it was like to live in a real Tulou in my hometown before...I love here.

-END