Master Thesis Design

Ganzhou Urban Regeneration

Cultural Space Integration and Reconstruction of Ciyun Pagoda Area

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Contents

Abstract

Ganzhou has a history of more than two thousand years since it was built. It is one of the famous historical and cultural cities in China, and it is also a representative of the southern city of the Song Dynasty. As one of the traditional streets and alleys, the Nanshi Street area has the pattern of the streets and lanes of the Song Dynasty, and the dwellings of the Ming and Qing Dynasty along the street. Also, Nanshi Street is next to the Ciyun Pagoda. This thesis aims to deal with the relationship between the new space needed for modern development and the protected building through adaptive design, so as to promote urban regeneration.

First of all, by reviewing the historical evolution and spatial characteristics of Ganzhou City, the old city can be understood as a whole, and the Feng Shui axis can also be analyzed. Secondly, this thesis researches the entire Nanshi Street district, especially the protected buildings in it, and it analyzes the morphological and typological structures. The quality evaluation of other buildings on the site was also carried out. Third, using SWOT analysis as a method to reorganize and summarize, in order to form a strategy to guide the design. Fourth, after studying the spatial sequence of the Confucian Temple in the site and the courtyard space of the traditional dwellings on Nanshi Street, concepts can be extracted from them to complete the design.

As a result, the design uses spatial evolution and urban context as clues to drive an adaptive design that fully activates the space in front of Ciyun Pagoda and the space behind Nanshi Street. The new space not only meets the needs of modern life, but also inherits the local cultural characteristics, avoiding the homogeneity of the regeneration of the old city.

Keywords

Ganzhou, Nanshi Street, Ciyun Pagoda, morphological and typological structures, urban regeneration

01
GANZHOU
The City on the Back of Turtle

To regenerate Ganzhou, understanding its geographical conditions and historical origin is a very important foundation. Therefore, as the first chapter, it is necessary to introduce the basic situation of the entire Ganzhou city. First of all, the location analysis of Ganzhou City can show its geographic location in China and various connections with surrounding areas. This is the reason why Ganzhou can gather population and develop into a city. Secondly, understanding the historical evolution, especially the Song Dynasty, can clarify the development process and historical context of the Old Town of Ganzhou, and then discover its development rules and connections with the present. Thirdly, sorting out and analyzing various resources in the old city can be used as clues and principles for urban renovation. According to the unique resources of Ganzhou City, it will help to form unique urban characteristics and avoid homogeneity with other old cities. Finally, focus on Fushougou, an underground drainage system that has affected Ganzhou for thousands of years, which is the most significant difference from other cities.

Ganzhou: Song Dynasty City Representative

Ganzhou location and geographical analysis

Ganzhou is a famous cultural city with a history of more than 2000 years. In history, it flourished in the Song Dynasty. Although it was not the capital, it was one of the 36 big cities in the Song Dynasty.[1]

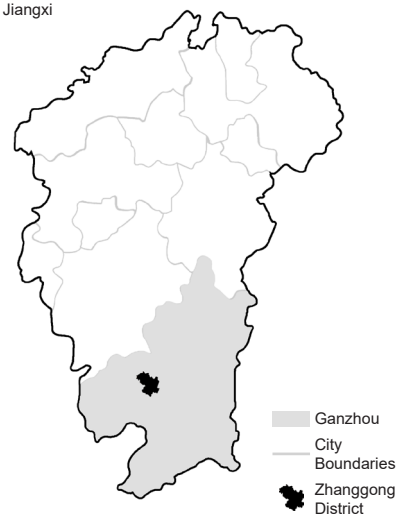
Ganzhou City, located in the south of Jiangxi Province, is the largest prefecture-level administrative region in Jiangxi Province. Ganzhou city has jurisdiction over three municipal districts, Namely Ganxian District, Zhanggong District and Nankang District, 13 counties, including Dayu, Shangyu, Chongyi, Xinfeng, Dingnan, Jeonnan, Anyuan, Ningdu, Yudu, Xingguo, Huichang, Shicheng and Xunwu, and two county-level cities, Ruijin and Longnan, with a total of 18 county-level administrative districts. The city is dominated by mountains and hills, accounting for 80.98% of the total area. With a total area of 39,363 square kilometers and the population of 8588,700. [2]

Ganzhou is a waterfront city in Jiangxi province with the most preserved cultural relics, especially in the Song Dynasty, and has the reputation of "Jiangnan Song City". It is the first stop for Hakka ancestors to move south to the Central Plains. It is the birthplace of Hakka people and one of the main settlements of Hakka people. The city's Hakka population accounts for more than 95%, known as the "Cradle of Hakka". There are still more than 600 hakka houses, known as the "Ancient Rome of the East". [3]

Ganzhou City is a subtropical monsoon climate, the annual average temperature of 19.4 degree. The average annual precipitation is 1461.2 mm, mainly concentrated in spring and summer. [2]

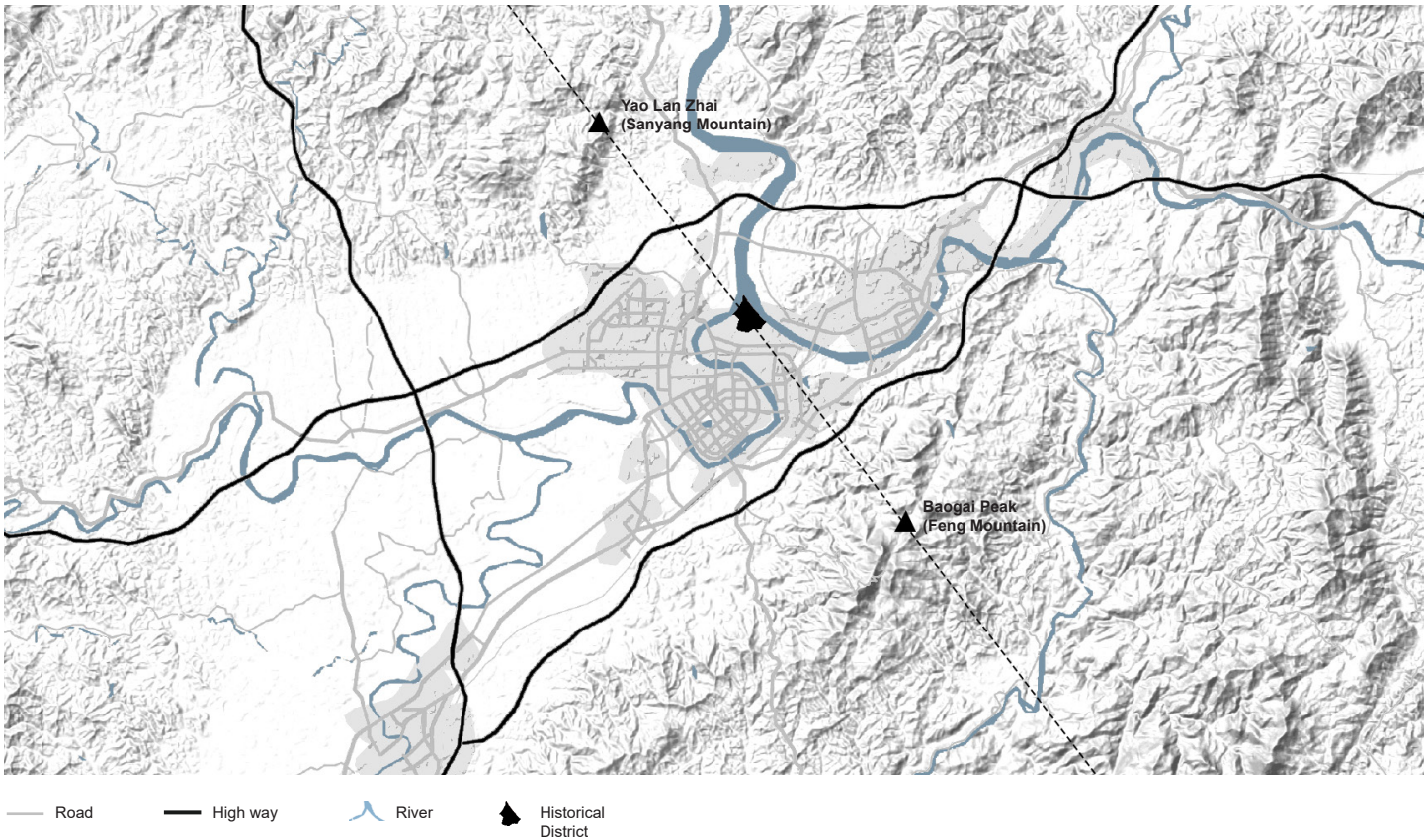
China

Jiangxi



Zhanggong District

1. World map_China location
(source:drawn by authors)
2. Jinagxi Province map_Ganzhou location
(source:drawn by authors)
3. Zhanggong District_Historical District
location
(source:drawn by authors)



Ganzhou City is surrounded by mountains, and fault basins run through Ganzhou City, mainly mountains, hills and basins. The hilly area is 24053 square kilometers, accounting for 61% of the total land area of Ganzhou City; The total mountainous area of Ganzhou City is 8620 square kilometers, accounting for 21.89% of the total land area of Ganzhou City; There are 50 red soil basins of different sizes, covering an area of 6706 square kilometers, accounting for 17% of the total land area of Ganzhou City. Ganzhou City is surrounded by Wuyi Mountain, Yushan Mountain, Zhuguang mountain, Jiulian Mountain and Dayu mountain in Nanling.

4. Ganzhou Terrain map
(source: drawn by authors)

Many mountains and their remaining veins extend meandering to the middle and North, forming the terrain of high around, low in the middle, high in the South and low in the north. Ganzhou has an average altitude of 300 ~ 500 meters, with 450 peaks above 1000 meters. Dingguo village, Qiyun mountain, at the junction of Chongyi, Shangyou and three counties in Guidong, Hunan Province, is the highest at an altitude of 2061 meters, and Zhangwu village, Hujiang Town, Ganxian County, is the lowest at an altitude of 82 meters.

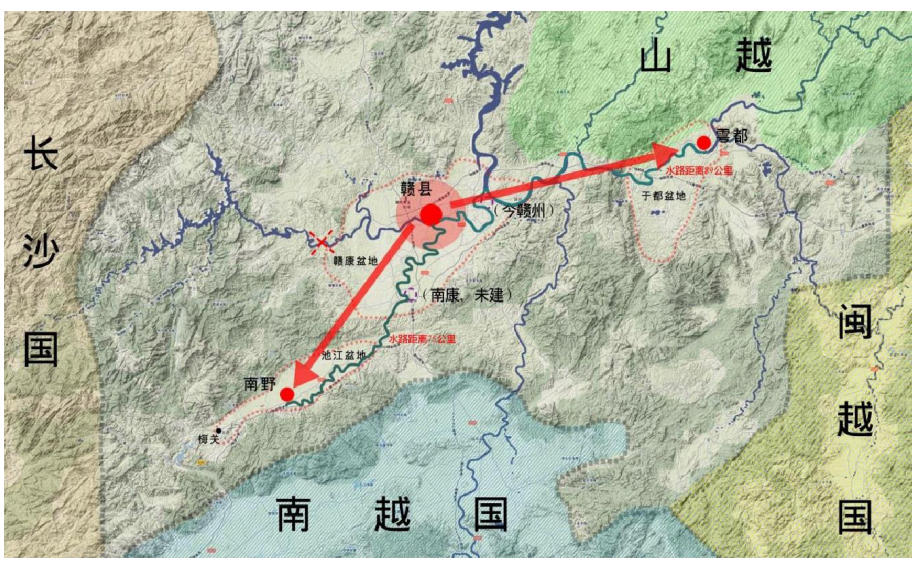
Ganzhou City is surrounded by undulating mountains. The terrain is high around, low in the middle, high in the South and low in the north. The water system converges to the center Zhanggong District in a radial shape. Gannan mountainous area has become the birthplace of Ganjiang River and one of the sources of the East River of the Pearl River. More than a thousand tributaries converge into 9 larger tributaries: Shangyou River, zhangshui River, Meijiang river, Qinjiang River, Mianjiang River, Xiangjiang River, Lianjiang River, Pingjiang River and Taojiang river. Among them, Shangyou River and zhangshui River converge into Zhangjiang River; The remaining 7 tributaries converge into Gongjiang River; The two Zhanggong rivers meet in Zhanggong district to form the Ganjiang River, which flows into Poyang Lake in the north and belongs to the Ganjiang River system of the Yangtze River Basin. [4]

Ganzhou City is located in the upper reaches of Ganjiang River. It is an area with rainstorm and flood as the main natural disasters. The flood season is from April to September every year, and the flood season is from May to June. Spring and autumn floods also occur from time to time. [5]

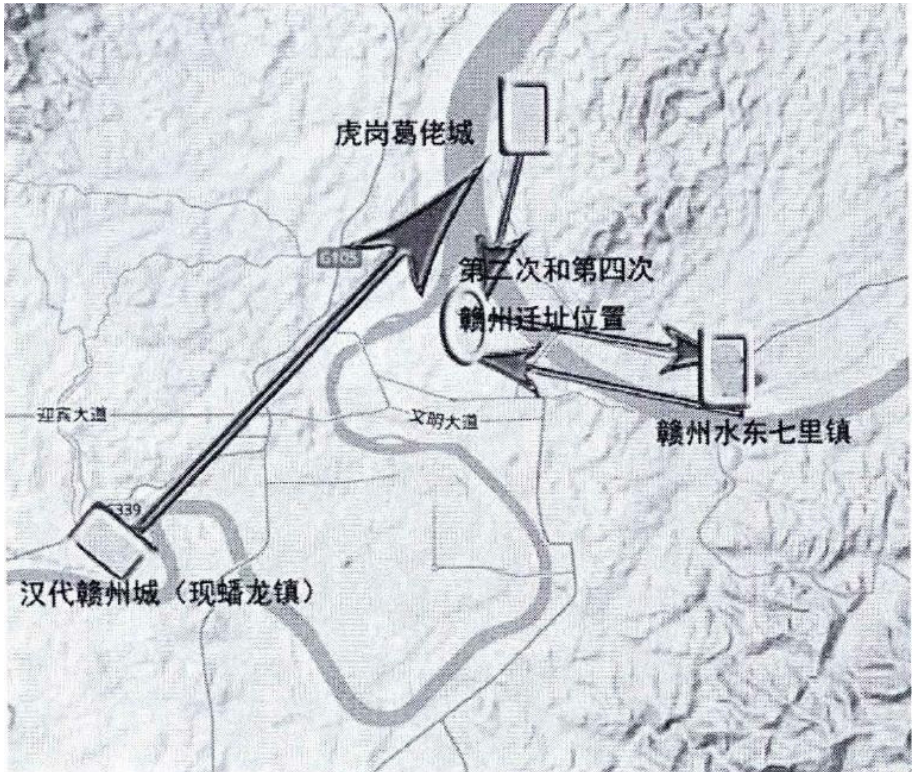
The historical evolution of Ganzhou City

Ganzhou is a famous cultural city established in the early years of the Western Han Dynasty with a history of more than two thousand years. In this section, the historical evolution of Ganzhou from ancient times to the present is described according to historical ages.

In the sixth year of Emperor Han Gaozu (201 BC), in order to defend against Zhao Tuo, King of Nanyue, and to deter Shanyue and Changsha Kingdom, Gan County was established in the upper reaches of Ganjiang River to provide support for Nanye and Yudu counties. This was the beginning of the establishment of an administrative system in Ganzhou, which played a very important role in the unification of the country.[6]



5.Location map of Gan county in the early Han Dynasty (201BC)
(source:Yunjiang Wu, 'The Development and Spatial Morphology Evolution of the Ancient City of Ganzhou' (PhD diss. , South China University of Technology, 2016), 34.)



The first relocation of Gan County occurred in the last year of Taikang in the Western Jin Dynasty. Hangan County was flooded, and the city site was moved to Hugang Gelao City. At the same time, this was also the period when the Western Jin Kingdom defeated the Wu Kingdom and moved to the southern mountainous area to rule deeply. Although after 490 years of development, Gan County in the Western Jin Dynasty is still a town dominated by military and political functions, and its driving force is the need for governance. For the Western Jin Dynasty, Gan County was a stronghold for its expansion of military and political rule. It was both a mountain city and a border city.[7]

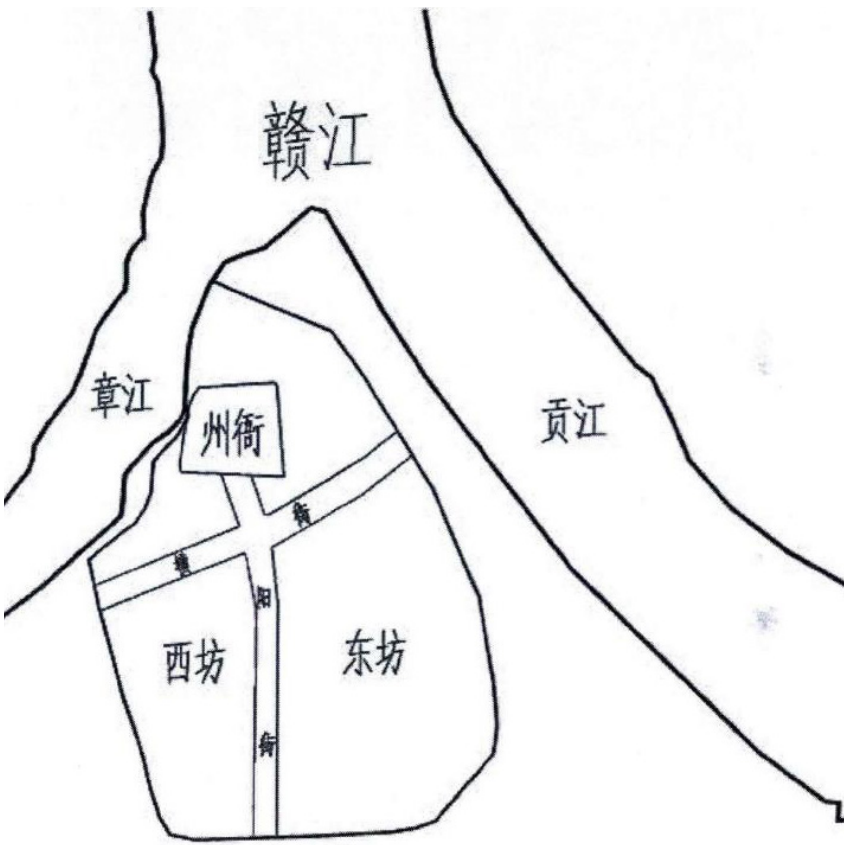
6.Schematic diagram of the four changes of Ganzhou City site (201BC-552AD)
(source:Peng Ye, 'Study on Urban Space Construction in Ganzhou' (PhD diss. , Wuhan University, 2012), 106.)

Only 62 years later, in the fifth year of Yonghe in the Eastern Jin Dynasty (349AD), Gan County moved again. This time the site was finally selected between Zhanggong and Two Rivers, where Ganzhou is now located. The population and economic status of southern Jiangxi rose sharply after the Jin Dynasty, which is an obvious trend. The location of Hugang is narrow and there is no room for development, so it cannot adapt to the development of Gan County.[8] This is the beginning of Ganzhou City becoming the political, economic and cultural center of southern Jiangxi.[9]

In February of the sixth year of Yixi in the Eastern Jin Dynasty, Lu Xun and Xu Daofu conquered Gan County, and the city was destroyed by war. After the suppression of the rebellion, Gan County moved to Qili Town, southeast of Gongjiang River. This was the third migration of Gan County. Obviously, being located in Qili Town does not realize the maximum value of the city of Gan County. After 141 years, some military strategists finally realized its military strategic value and relocated Jianggan County between Zhangjiang and Gongjiang as the base for the Northern Expedition.[10]

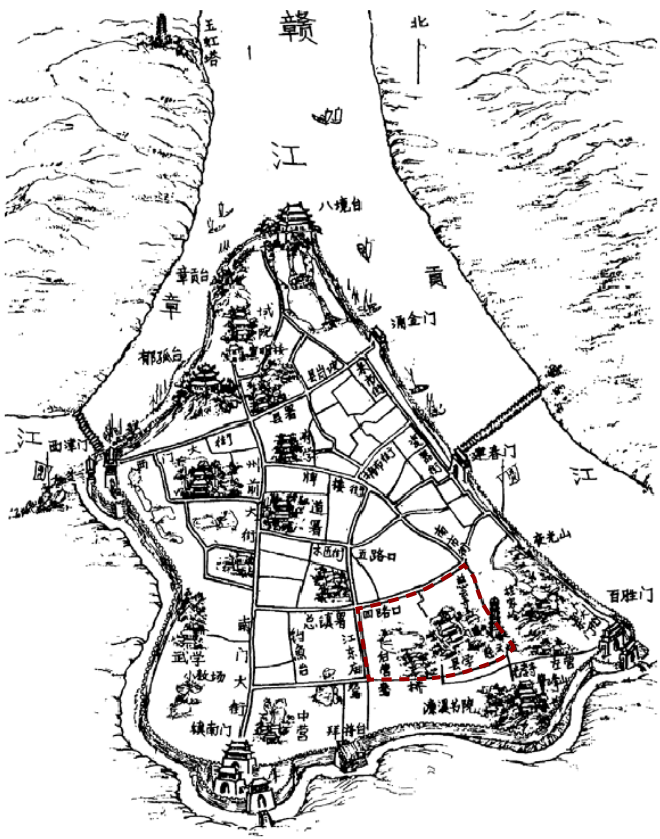
In May of the first year of Liang Chengsheng (552AD), Chen Baxian expedition to the north and set off from the Ganjiang River to the north. In the same year, he relocated to Gan County between Zhangjiang and Gongjiang. During the Northern Expedition, the military strategic advantage of Gan County played a key role, and its material supply capacity cannot be underestimated. Since then, Ganzhou has never moved as the military, political, and economic center of the region. The city of Ganzhou has entered a period of development.[11]

The northernmost part of Ganzhou in the Tang Dynasty had high terrain, where the government offices of the past dynasties were located. The government office sits north facing south and controls the entire city. In front of the government office, there is a cross street formed by an east-west avenue and a north-south avenue. The east-west avenue connects Zhangjiang and Gongjiang from the road, while the north-south avenue leads directly to the south gate from the government office. And divide the city into two parts, east and west.[12]



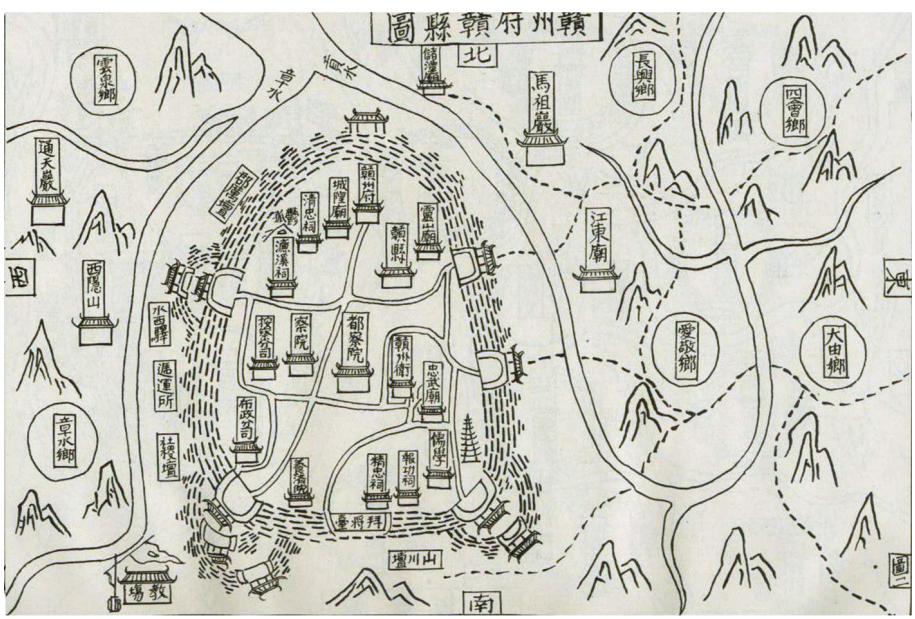
7.Map of Ganzhou City in Tang Dynasty (552AD-902AD)
(source:Zhenfei Han, 'The Historical Changes of Ganzhou City', *Relics Form South*, no. 4(2001): 78.)

Since the Northern Song Dynasty, Ganzhou City has planned to carry out large-scale urban construction. First, on the basis of the expansion of Lu Guangchou, an urban road system has been initially completed. It is composed of six streets, and its location and orientation have never changed. It has gone through the Yuan, Ming and Qing Dynasties, and the Republic of China until today. The second is to demarcate several major functional areas of the city according to the natural environment and traffic conditions. The third is the construction of a series of urban infrastructure including the construction of the brick city, the excavation of sewers, the erection of pontoons, the creation of the Bajing Platform, the Ciyun Pagoda and other cultural landscapes.[13]



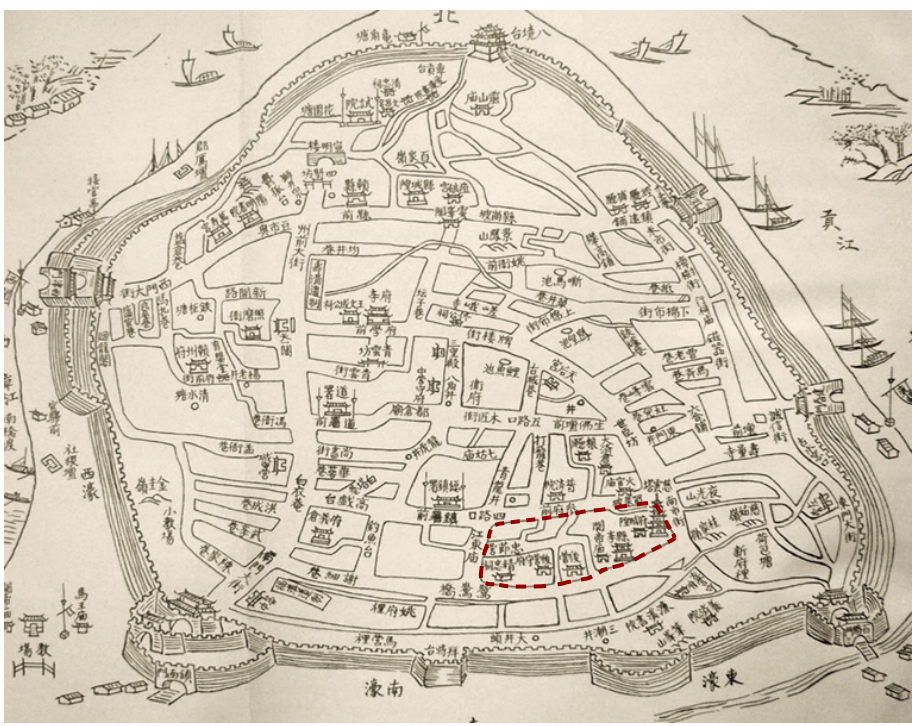
8.Recasting of Ganzhou in Song Dynasty (960AD-1279AD)
(source:Yang Wang, 'Study on the Protection and Renewal of Yaoyaqian Historical and Cultural Blocks of the Ancient City of Ganzhou'(Master diss. , Beijing University of Civil Engineering and Architecture, 2018), 28.)

The urban street system and functional zoning of Ganzhou in the Ming Dynasty were further developed and improved on the basis of the Song Dynasty. The main street has expanded from six streets in the Song Dynasty to nine streets, with the addition of Washi Street, Mishi Street and Nanshi Street. During the Jiajing period of the Ming Dynasty, there were 24 alleys in Ganzhou City. The traffic system of the streets and lanes in the city was more perfect than that in the Song Dynasty.[14]



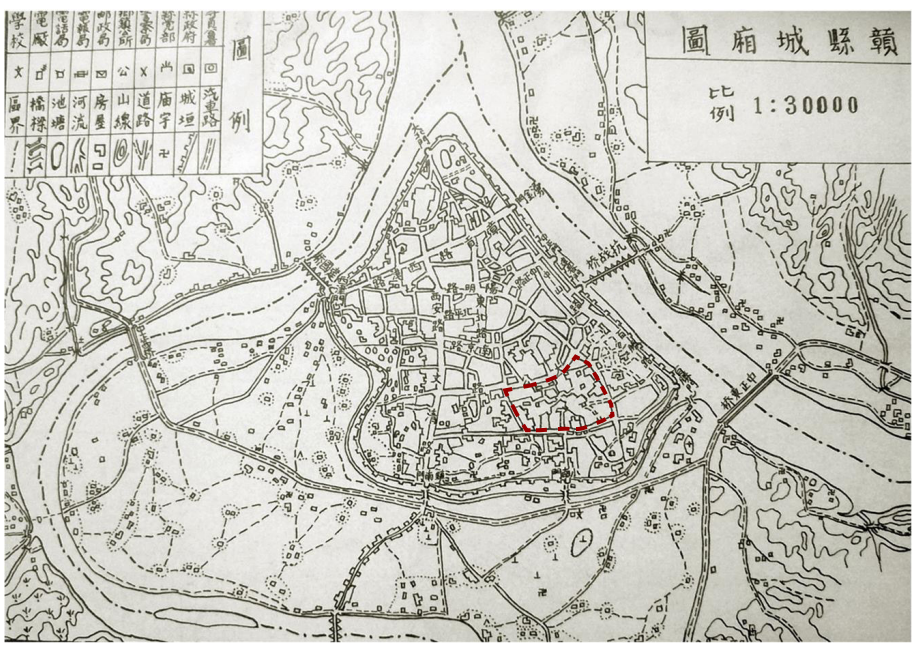
9.Map of Ganzhou during the Jiajing period of the Ming Dynasty (1536)
(source:(Ming Dynasty) Tianxi Dong, *Selected Publications of Ming Dynasty Local Chronicles in Tianyi Pavilion Collection: Jiajing Ganzhou Fuzhi* (Jiangxi Province)(Shanghai: Shanghai Ancient Books Bookstore, 1981), 17-18.)

In the Qing Dynasty, the number of main streets in the city has increased from nine in the Ming Dynasty to 36, and the number of laneways has increased to 72. The road network in the whole city takes the Heng Street from Yongjin Gate to Xijin Gate in the east-west direction and the Yang Street connecting the government office and the south gate in the north-south direction as the main skeletons. Other alleys and streets are filled with the main roads. The road network of streets and lanes conforms to the characteristics of the terrain, straight or curved, or high or low, with distinct levels. The north of Heng Street is dominated by administrative agencies and the road network is relatively sparse, while the south of Heng Street is dominated by commerce and residence.[15]



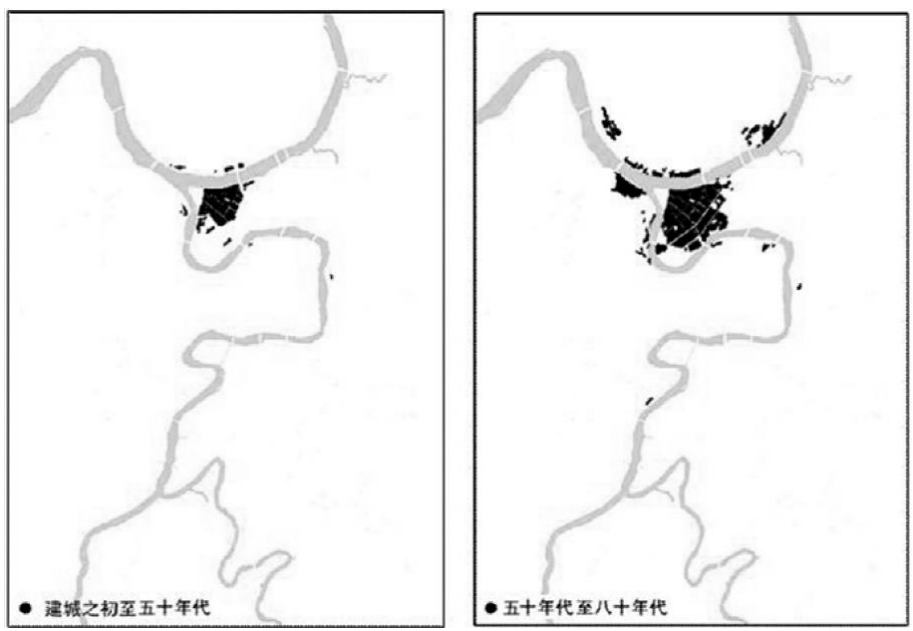
10.Map of Ganzhou during the Tongzhi period of the Qing Dynasty (1874)
(source:(Qing Dynasty) Ying Wei, Qiguang Lu, and Zhong Yinhong, *Tongzhi Ganzhou Fuzhi* (1) (Nanjing: Jiangsu Ancient Books Publishing House, 1996), 30.)

In the period of the Republic of China, the blocks of Ganzhou City began to break through the restrictions of the city wall and developed beyond the Song Dynasty city area, forming two blocks. One is from Zhennan Gate to Nanhe Floating Bridge, forming Dongyangshan Road. Second, the Dongjiao Road block extending from Baishengmen was formed due to the establishment of the bus station and Gongjiang Bridge outside Baishengmen.[16]



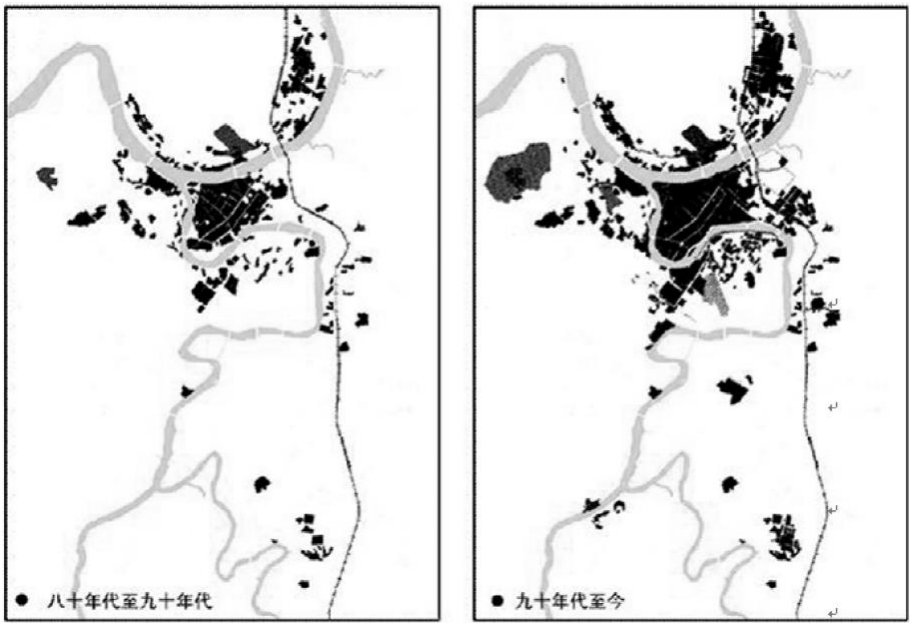
11.City and countryside map of Ganzhou (1946)
(source:(Republic of China) Ganxian County Chronicle Bureau, ed., *Ganxian New Chronicle Draft*(1946), 227.)

After the liberation, the construction of Ganzhou's new urban area has developed rapidly. First, in the 1950s, the east-west Hongqi Avenue was opened to the south of the Song Dynasty urban area, and then new urban areas were built along both sides of the avenue. By 1994, the Civilization Avenue parallel to Hongqi Avenue was opened to the south of Hongqi Avenue. The urban area of Ganzhou City has been expanded to 19 square kilometers. The opening of the Beijing-Kowloon Railway has brought new opportunities for Ganzhou's urban development. The first is the development and construction of Zhanbei District, which has expanded Ganzhou City to the south by 5 square kilometers. Then, the urban construction of Ganzhou City broke through the Zhangjiang Loop and entered to the south of the Zhangjiang River. By 2010, the urban area of Ganzhou City will reach 50 square kilometers, thereby entering the ranks of big cities.[17]



12.The evolution process of Ganzhou urban spatial form (1950s-2012)
(source:Shan Zhong, 'The Evolution of Ganzhou Urban Spatial Form and Its Influencing Factors', *Science & Technology Information*, no. 35(2012): 244.)

Looking at the development history of Ganzhou City, we can summarize some rules. First, due to the influence of geographical environmental factors, Ganzhou City must choose to build a city between Zhangjiang and Gongjiang. Second, since the water system of southern Jiangxi is a centripetal water system centered on Ganzhou City, Ganzhou City must become the central city of southern Jiangxi. Third, in the long feudal society, the Song Dynasty was the most glorious period in the history of Ganzhou City, so Ganzhou City in the Ming and Qing Dynasties must be perfected and inherited on the basis of Song City. Fourth, due to the restrictions of Zhangjiang and Gongjiang, the development of Ganzhou City can only be a historical process that continues to the south.[18]



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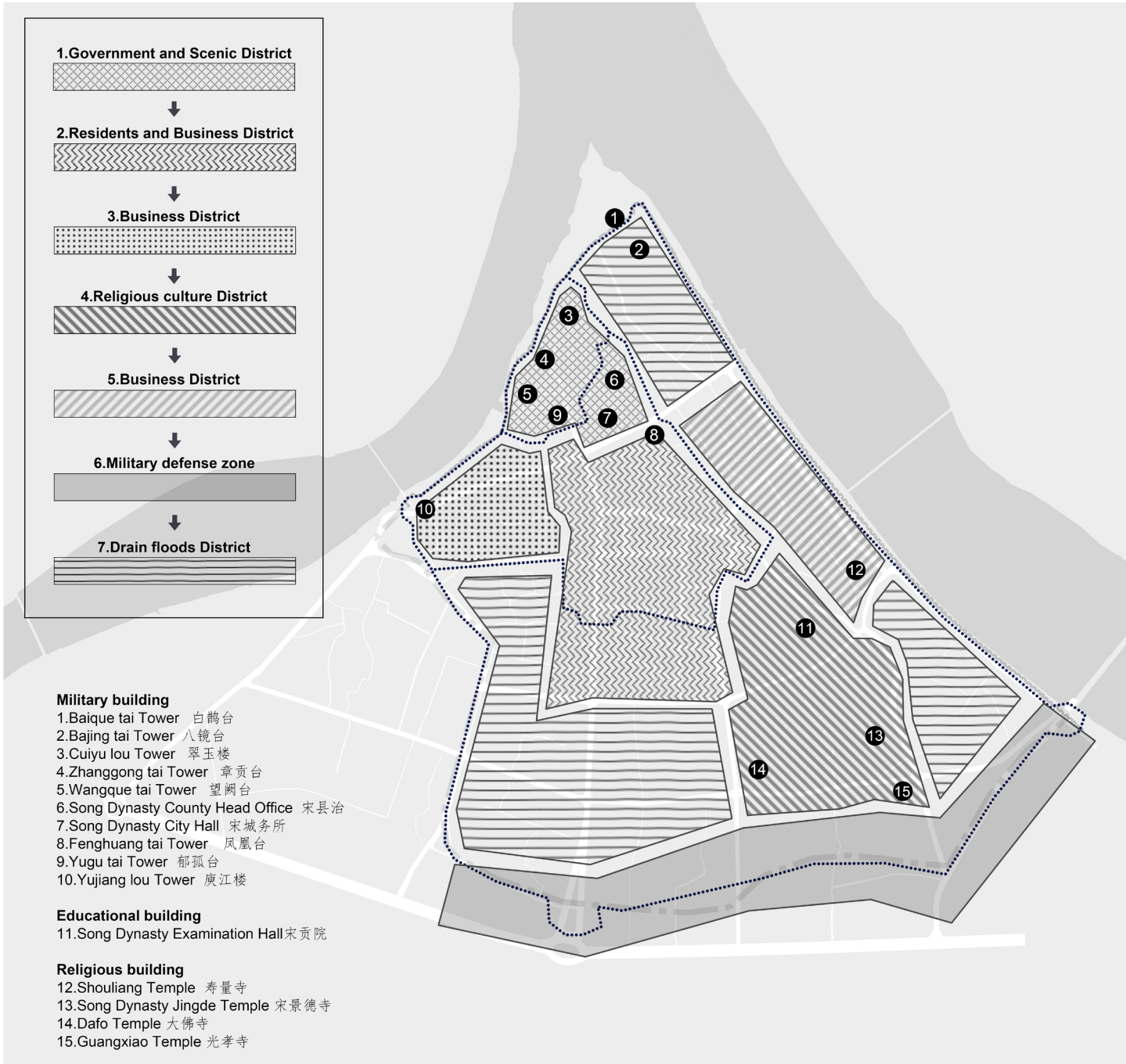


Military building
1.Baique tai Tower 白鹊台
2.Bajing tai Tower 八镜台
3.Cuiyu lou Tower 翠玉楼
4.Zhanggong tai Tower 章贡台
5.Wangque tai Tower 望阙台
6.Song Dynasty County Head Office 宋县治
7.Song Dynasty City Hall 宋城务所
8.Fenghuang tai Tower 凤凰台
9.Yugu tai Tower 郁孤台
10.Yujiang lou Tower 庾江楼

Educational building
11.Song Dynasty Examination Hall宋贡院

Religious building
12.Shouliang Temple 寿量寺
13.Song Dynasty Jingde Temple 宋景德寺
14.Dafo Temple 大佛寺
15.Guangxiao Temple 光孝寺

Ganzhou city development in song Dynasty

After Chen Baxian's relocation and Lu Guangqiu's expansion, Ganzhou gradually turned from a former military town into a prosperous commercial city during the Tang and Song dynasties.

Compared with song City, the earth city of GaoYan and Chen Baxian were boring. The earth city of GaoYan was a fortress built on a high hill. Simple walls, platforms and barracks were the main components of the city architecture, and generals and sergeants were the main population.Chen baxian's earth city is also serious.Although the urban area has been expanded to include two commercial areas and many residents and merchants, the military and government areas, which account for nearly one third of the urban area, are obviously of high importance.[19]

Compared with the former, the city life of Ganzhou in song Dynasty was rich and full of vitality.In the early period of the Northern Song Dynasty, Ganzhou acted as a cargo transfer station, and commerce and service industry became the mainstream of urban economy.A constant stream of merchants and cargo ships brought plenty of jobs and money to the city.[20]

In addition to commerce, the cultural and educational industry is also a new thing. There are prefectural schools, county schools, Confucian temples and examination academies run by the government.There are also private academies, social studies. These buildings are no longer in the north of the high hills, but in the beautiful landscape of the southeast of the city.

The development of religious culture in song Dynasty was particularly prosperous, and the influence of religion even exceeded that of the government.The religious and cultural buildings of song Dynasty are not only numerous, but also surprisingly large in scale.There are Jingde Temple, Big Buddha Temple, Guangxiao Temple, Fengle Temple, Xiangfu Guan, Jingde Guan, Tianqing Guan, Tianwang Temple and so

14.Song Dynasty Ganzhou development and zoning map
(source: according to 'The Development and Spatial Morphology Evolution of the Ancient City of Ganzhou',Yunjiang Wu,2016, drawn by authors)

on.Among them, Gyeongdeoksa temple plays an extremely prominent role in religious architecture. A temple has more than 2,600 rooms and 10,000 Buddha statues, which is larger than the official government in the north of the city.[21]

Since the Song Dynasty, the traces of ganzhou's military administration gradually faded away, and the new urban function replaced the military administration.For example, Wangque Terrace, Bajing Terrace, Zhanggong Terrace, Baique Terrace, Yu Jiang Lou and Zaogai Lou were all newly built government buildings in the Song Dynasty.The location of these buildings is important and should be considered for military defense, but because of the rarity of war, the function of the building is more inclined to view the scenery.

Ganzhou city development in different stages, leading urban development incentive is different.

In the period of Gao Yan, the advantage of military security was the dominant factor.Gaoyan earth city occupies an absolute dominant position, with high location and safe water source. Chen Baxian earth city actually expanded toward the arable land in the south, and both commerce and residence developed during this period.During the economic boom period of the Song Dynasty, the urban landscape resources in this period also attracted attention as economic development stimulated the rise of cultural industries and the urban population tended to be gentrified.

At this time, a large number of religious buildings were built in the southeastern part of the city with the best feng shui and scenery.Then, transportation, commercial resources become the dominant factor.[22] As pontoon Bridges and docks were built to the east of the city, merchants and workers settled nearby.

Photographic survey of cultural resources

As a city with a long history, Ganzhou has very rich cultural resources, that is, cultural heritage preserved in different historical periods. These resources not only have great cultural value, but also great economic benefits, which promotes the revival of the old city. By drawing a location map and matching with photographic survey, it can clearly show the reality of the local cultural resources and give people a preliminary impression. Concrete image information is easier to understand and remember.

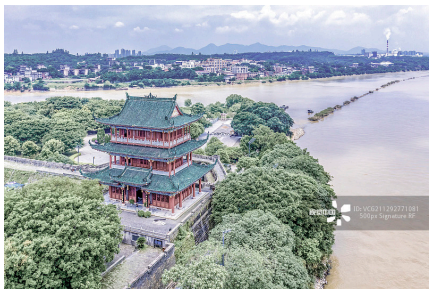
15.Location map of cultural resources (source: according to 'Ganzhou Preservation Plan 2010', Shanghai Tongji Institute of Urban Planning and Design, 2010, drawn by authors)

cultural relic
Ancient pontoon bridge
Fushou Gou Ditch
The Six Streets of the City in Song Dynasty
City Wall Ruins
City wall
River

1-1 Bajing pavilion

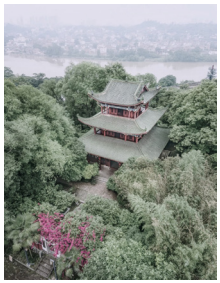
2-2 Yugu pavilion

1-2 Bajing pavilion



2-3 Yugu pavilion

2-1 Yugu pavilion



3 Baijiang pavilion

16.Location map of cultural resources (source: according to ‘Ganzhou Preservation Plan 2010’, Shanghai Tongji Institute of Urban Planning and Design, 2010, drawn by authors)
17.Photos of cultural resources (source:‘Ganzhou guji’, Baidu, accessed March 25, 2021, https://image.baidu.com.)

4-1 Song Dynasty ancient city wall

6 Fushougou drainage system

cultural relic
Ancient pontoon bridge
Fushou Gou Ditch
The Six Streets of the City in Song Dynasty
City Wall Ruins
City wall
River

4-2 Song Dynasty ancient city wall

7-1 Ancient pontoon bridge

5 Song Dynasty ancient city wall

7-2 Ancient pontoon bridge

18.Location map of cultural resources (source: according to ‘Ganzhou Preservation Plan 2010’, Shanghai Tongji Institute of Urban Planning and Design, 2010, drawn by authors)
19.Photos of cultural resources (source:‘Ganzhou guji’, Baidu, accessed March 25, 2021, https://image.baidu.com.)

cultural relic
Ancient pontoon bridge
Fushou Gou Ditch
The Six Streets of the City in Song Dynasty
City Wall Ruins
City wall
River

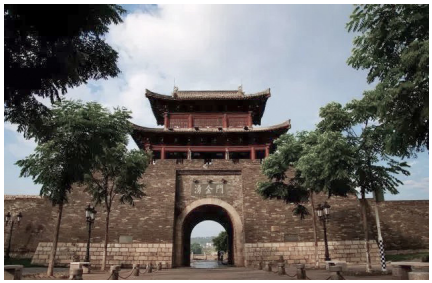
8-1 Xijin gate

10-1 Jianchun gate

8-2 Xijin gate

10-2 Jianchun gate

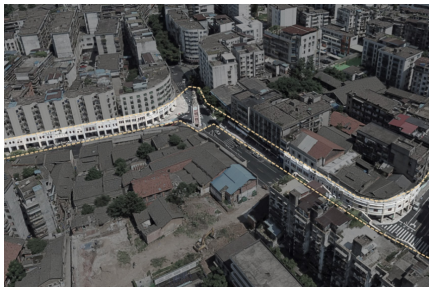
9 Yongjin gate



11 Qingshui pond-General Yang Tinglin's martvrdom

20.Location map of cultural resources (source: according to 'Ganzhou Preservation Plan 2010', Shanghai Tongji Institute of Urban Planning and Design, 2010, drawn by authors)
21.Photos of cultural resources (source:'Ganzhou guji', Baidu, accessed March 25, 2021, https://image.baidu.com.)

12-1 Ganzhou arcade



13-1 Wei family courtyard

cultural relic
Ancient pontoon bridge
Fushou Gou Ditch
The Six Streets of the City in Song Dynasty
City Wall Ruins
City wall
River

12-2 Ganzhou arcade

13-1 Wei family courtyard

22.Location map of cultural resources (source: according to ‘Ganzhou Preservation Plan 2010’, Shanghai Tongji Institute of Urban Planning and Design, 2010, drawn by authors)
23.Photos of cultural resources (source:‘Ganzhou guji’, Baidu, accessed March 25, 2021, https://image.baidu.com.)

cultural relic
Ancient pontoon bridge
Fushou Gou Ditch
The Six Streets of the City in Song Dynasty
City Wall Ruins
City wall
River

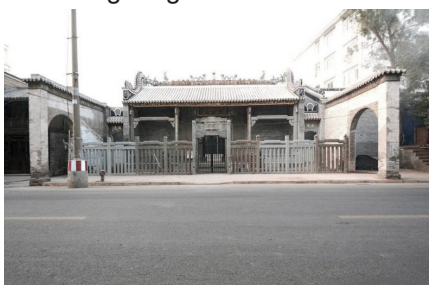
14-1 Jiang Jingguo's former residence

16-1 Army gate tower

14-2 Jiang Jingguo's former residence

16-2 Army gate tower

15 Guangdong hall



17 Dongyuan ancient well

24.Location map of cultural resources (source: according to 'Ganzhou Preservation Plan 2010', Shanghai Tongji Institute of Urban Planning and Design, 2010, drawn by authors)
25.Photos of cultural resources (source:'Ganzhou guji', Baidu, accessed March 25, 2021, https://image.baidu.com.)

18 Liu family ancestral hall

20-2 South gate of Ganzhou park

19 Standard clock tower

21 Catholic church

20-1 Ganzhou park

22 Shouliang temple

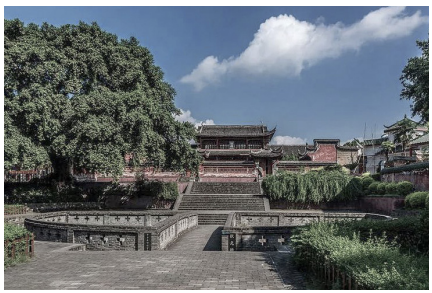
26.Location map of cultural resources (source: according to ‘Ganzhou Preservation Plan 2010’, Shanghai Tongji Institute of Urban Planning and Design, 2010, drawn by authors)
27.Photos of cultural resources (source:‘Ganzhou guji’, Baidu, accessed March 25, 2021, https://image.baidu.com.)

cultural relic
Ancient pontoon bridge
Fushou Gou Ditch
The Six Streets of the City in Song Dynasty
City Wall Ruins
City wall
River

23 Yiwulu

25 Ciyun pagoda

24-1 Wen temple



26 Wu temple

24-2 Wen temple

27 Guangxiao Temple

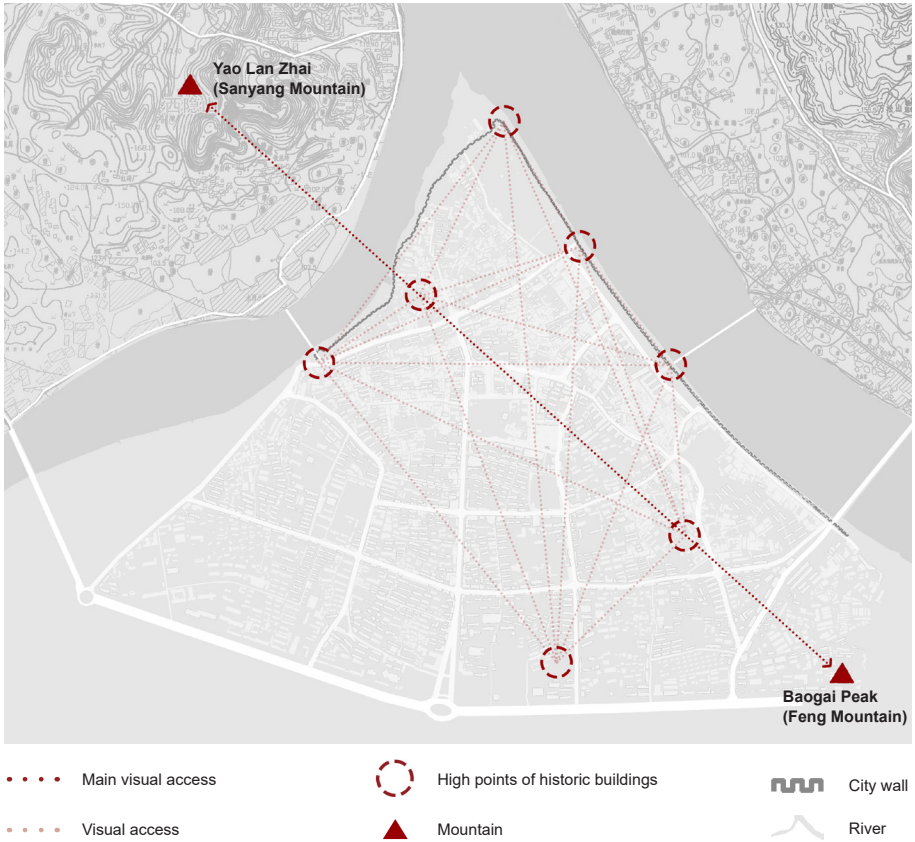
28.Location map of cultural resources (source: according to ‘Ganzhou Preservation Plan 2010’, Shanghai Tongji Institute of Urban Planning and Design, 2010, drawn by authors)
29.Photos of cultural resources (source:‘Ganzhou guji’, Baidu, accessed March 25, 2021, https://image.baidu.com.)

The map shows symbolic constructions in the old town of Ganzhou. It reveals that cultural relic and historic preservation zone are mainly located at northeast side of the town. Additionally, part of the Fushou Gou Ditch is located around the design site, which could be taking into consideration in future design.

30. Symbolic construction
(source: according to 'Ganzhou Preservation Plan 2010', Shanghai Tongji Institute of Urban Planning and Design, 2010, drawn by authors)

This map shows the relationship between local residential population density and public greenery. There is very limited greenery in old town, and most of them are situated in a low population density area. It means that there is a big demand of greenery from residents.

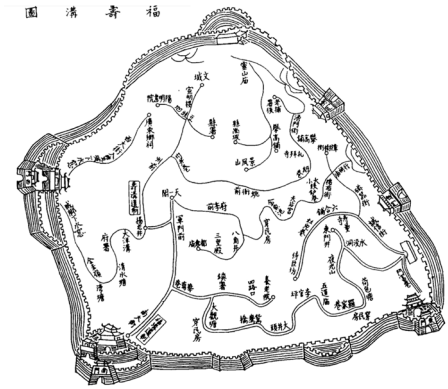
31. Population density & public greenery (source: according to 'Ganzhou Preservation Plan 2010', Shanghai Tongji Institute of Urban Planning and Design, 2010, drawn by authors)



Through data investigation, Fengshan mountain proved to be a Fengshui mountain in Ganzhou. So that is the reason why all central axis of the Confucian Temple, Shouliang Temple, Yugutai, and Bajingtai in Ganzhou City were all facing Baogai Peak, the main peak of Fengshan Mountain. This rule points out the direction for future architecture and urban design.

32. Satellite map
(source: 'Ganzhou Fengshui mountain', Meiri Toutiao, accessed July 8, 2021, https://kknews.cc/geomantic/65qb86q.html.)
33. Visual access
(source:drawn by authors)

Fushou Gou Ditch: Millennium Underground Drainage System



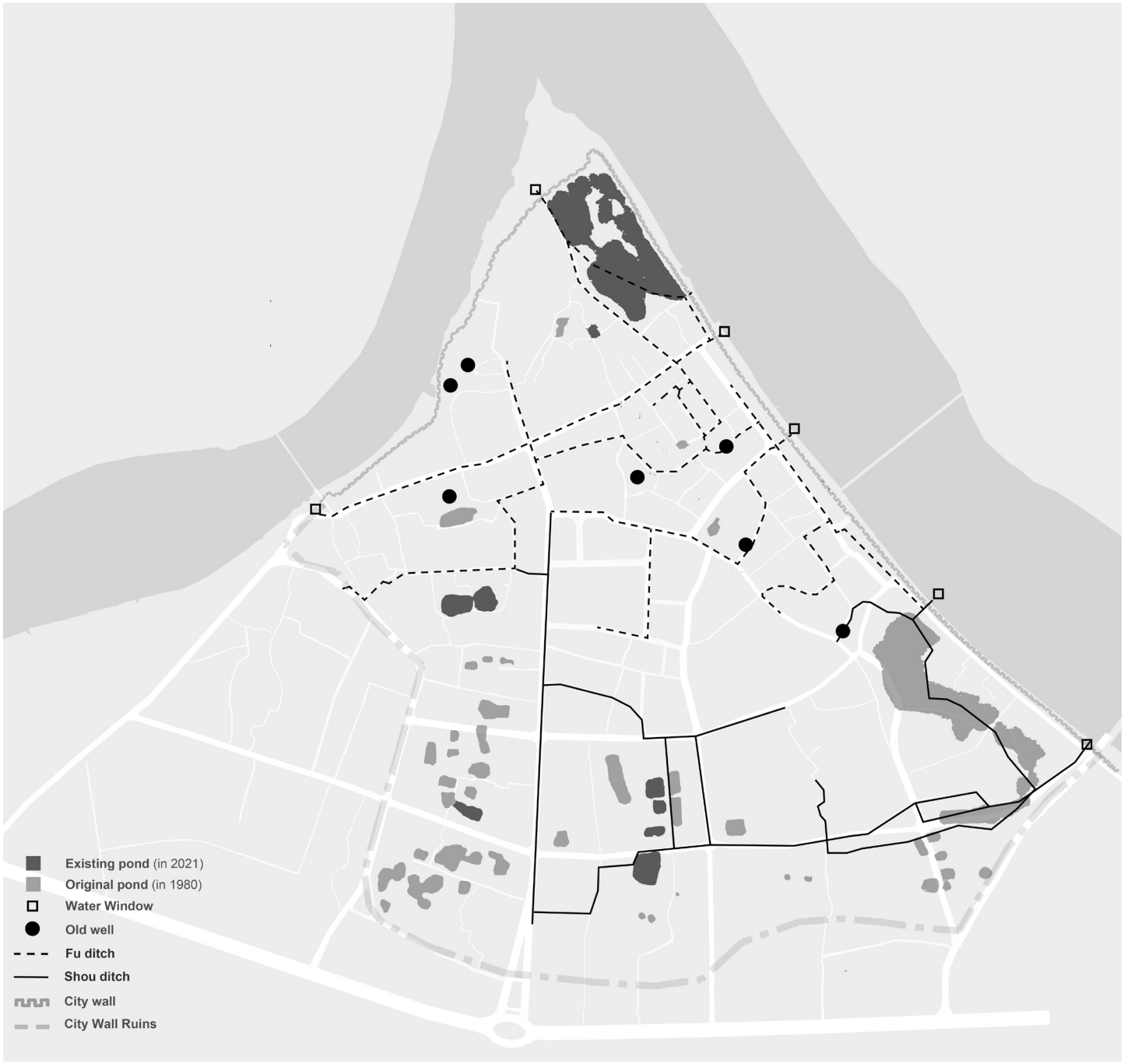
34.Map of Fushou Ditch in Qing Dynasty (1872) (source:(Qing Dynasty) Wei, Ying, Qiguang Lu, and Zhong Yinhong. *Tongzhi Ganzhou Fuzhi* (1). Nanjing: Jiangsu Ancient Books Publishing House, 1996.)
35.Seal character "Fu" and "Shou"
(source: 'Seal character Fu and Shou',Baidu, accessed March 27, 2021, https://image.baidu.com/
36.Fushou Ditch and pond distribution map
(source: according to 'The Development and Spatial Morphology Evolution of the Ancient City of Ganzhou',Yunjiang Wu,2016, drawn by authors)

Ganzhou city has a unique urban form. Ganjiang River is formed by the confluence of Zhangjiang river and Gongjiang River at the northern end of Ganzhou city. As the two rivers surround the city, floods occur frequently in rainy season, which is also the main reason that restricts the urban development of Ganzhou in a certain period of time.

At present, Ganzhou has been able to effectively control the flood damage to the city. There are three main strategies.The first strategy is to rely on the topography. Ganzhou's ancient city is shaped like the back of a turtle, high in the middle and low on all sides. When there is heavy rainfall, the rain can flow from the city to the Gan River along the topography.

The second strategy is that in the Song Dynasty, the government transformed all the original earth walls into brick walls. Iron was melted and poured into the joints of bricks to reinforce the walls. Since then, the walls have been able to resist not only enemies but also floods.

The third strategy is to build Fushou Ditch.Fushou Ditch built in the northern song dynasty period, the project was presided over by the water conservancy expert Liu Yi, is a rare maturity and precision of the ancient city drainage system, Fushou Ditch according to street layout and the topography characteristic, adopt the principle of zoning drainage, built two drainage trunk road system, because the two Ditch shape is like a seal character "Fu" "Shou" two words, so the name "Fushou Ditch". [23]Ganzhou Fushou Ditch, which can be called a miracle in the history of urban water conservancy engineering, is still in play after more than 900 years, creating the legend of "no flood for thousands of years" in Ganzhou.


Existing pond (in 2021)
Original pond (in 1980)
Water Window
Old well
Fu ditch
Shou ditch
City wall
City Wall Ruins

37.Speculative map of Fushou Ditch in Qing Dynasty (1872)
(source: drawn by authors)
38.Speculative map of Fushou Ditch in the 1990s
(source: drawn by authors)

The reason why Fushou Ditch can make Ganzhou, which is surrounded by water on three sides, avoid urban waterlogging, benefits from its own perfect operation mechanism, which is mainly reflected in the following aspects:

1) Clever combination of terrain and street layout.

One of the main features of Fushou Ditch is to make use of the height difference of natural terrain, according to the street layout and terrain characteristics, with the method of natural flow, so that the city rainwater, sewage discharge into the river.The streets of the residential area have a coin-shaped water outlet, which can be diverted to collect rainwater into the Fushou ditch. The washbasin and well in residents' homes are also connected to fushou Ditch.

2) Reasonable material and section structure.

The section of Fushou Ditch is rectangular, with brick and stone structure, which can resist long-term rain, sewage soaking and corrosion, making the drainage channel after thousands of

years without silting and collapse, ensuring that fushou ditch can run normally for a long time.

3) Regulation and storage of ponds.

There are dozens of ponds in Ganzhou City, which are connected with fushou Ditch.In the event of a rainstorm, the pond can regulate the flow of rainwater to reduce sewer overflow;When the river refills, these ponds become natural reservoirs.

(4) scientifically designed water Windows.

According to the principle of hydraulics, Fushou ditch in all outlets set water window, the principle of water window is very simple, when the river water level is lower than the water window, that is, through the sewer water window flushing drainage;When the river water level is higher than the water window, the water window is closed from the outside by river water impulse to prevent back irrigation.[24]

After the liberation of Ganzhou old city changes quite a lot, most of the FuShou ditch is far from its original appearance, part of the Fushou ditch has been unable to use.

39.Map of Fushou Ditch in the 1990s
(source: *Urban Construction of Ganzhou City*,1990)
40.Comparison of underground Fushou Ditch system with above ground street system
(source: drawn by authors)
41.Photos of Fushou Ditch
(source:'Study on the Construction of Drainage System of Historical City in Perspective of Urban Safety:Case Study of Fushou Ditch',Han Gaofeng, and Yirong Huang. *ModWern Urban Research*, no. 12(2013): 73.)

Notes

[1] Zhenfei Han, ‘The Historical Changes of Ganzhou City’, *Relics Form South*, no. 4(2001): 77.
[2] ‘Ganzhou: prefecture-level city under the jurisdiction of Jiangxi Province’, Baidu Baike, Accessed November 11, 2021, https://baike.baidu.com/item/%E8%B5%A3%E5%B7%9E/142839?fr=aladdin#reference-[129]-20244236-wrap.
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[6] Yunjiang Wu, ‘The Development and Spatial Morphology Evolution of the Ancient City of Ganzhou’ (PhD diss. , South China University of Technology, 2016), 31-36.
[7] Yunjiang Wu, ‘The Development and Spatial Morphology Evolution of the Ancient City of Ganzhou’ (PhD diss. , South China University of Technology, 2016), 39-44.
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[9] Zhenfei Han, ‘The Historical Changes of Ganzhou City’, *Relics Form South*, no. 4(2001): 77.
[10] Yunjiang Wu, ‘The Development and Spatial Morphology Evolution of the Ancient City of Ganzhou’ (PhD diss. , South China University of Technology, 2016), 50-51.
[11] Yunjiang Wu, ‘The Development and Spatial Morphology Evolution of the Ancient City of Ganzhou’ (PhD diss. , South

China University of Technology, 2016), 51-52.
[12] Zhenfei Han, ‘The Historical Changes of Ganzhou City’, *Relics Form South*, no. 4(2001): 77.
[13] Zhenfei Han, ‘The Historical Changes of Ganzhou City’, *Relics Form South*, no. 4(2001): 77-78.
[14] Peng Ye, ‘Study on Urban Space Construction in Ganzhou’ (PhD diss. , Wuhan University, 2012), 164.
[15] Peng Ye, ‘Study on Urban Space Construction in Ganzhou’ (PhD diss. , Wuhan University, 2012), 170.
[16] Zhenfei Han, ‘The Historical Changes of Ganzhou City’, *Relics Form South*, no. 4(2001): 78-79.
[17] Zhenfei Han, ‘The Historical Changes of Ganzhou City’, *Relics Form South*, no. 4(2001): 79.
[18] Zhenfei Han, ‘The Historical Changes of Ganzhou City’, *Relics Form South*, no. 4(2001): 79.
[19] Yunjiang Wu, ‘The Development and Spatial Morphology Evolution of the Ancient City of Ganzhou’ (PhD diss. , South China University of Technology, 2016), 143.
[20] Yunjiang Wu, ‘The Development and Spatial Morphology Evolution of the Ancient City of Ganzhou’ (PhD diss. , South China University of Technology, 2016), 144.
[21] Yunjiang Wu, ‘The Development and Spatial Morphology Evolution of the Ancient City of Ganzhou’ (PhD diss. , South China University of Technology, 2016), 146-147.
[22] Yunjiang Wu, ‘The Development and Spatial Morphology Evolution of the Ancient City of Ganzhou’ (PhD diss. , South China University of Technology, 2016), 151.
[23] Gaofeng Han, and Yirong Huang, ‘Study on the Construction of Drainage System of Historical City in Perspective of Urban Safety:Case Study of Fushou Ditch’, *Modern Urban Research*, no. 12(2013): 73.
[24] Gaofeng Han, and Yirong Huang, ‘Study on the Construction of Drainage System of Historical City in Perspective of Urban Safety:Case Study of Fushou Ditch’, *Modern Urban Research*, no. 12(2013): 74-75.

02

EXPLORING
THE NANSHI STREET DISTRICT
Wen Temple, Ciyun Pagoda and Nanshi Street

Nanshi Street is one of the main streets in the ancient city of Ganzhou and needs to be preserved. At the same time, in order to maintain the vitality of this area, some renovation to adapt to modern life is also necessary. After conducting a field survey of Nanshi Street, some preliminary analysis of the status quo, such as function and mobility, can be drawn. These drawings are helpful for understanding the site. Secondly, the existing non-protected buildings also need to be classified and quality evaluated, which is the foundation for intervention methods. Morphology, as the code of urban form, requires deeper comparison and analysis to be interpreted. It can also be used to reflect the existing unreasonable forms in the site and become the rule of how to repair it. Finally, the history and typology of Confucian Temple, Wu Temple, Ciyun Pagoda and Nanshi Street traditional dwellings need to be studied and analyzed. Because these cultural symbols and traditional dwellings are the real core of the composition, driving the strategy and design of regional regeneration.

Urban Form: Preliminary Analysis, Morphological and Typological Structures

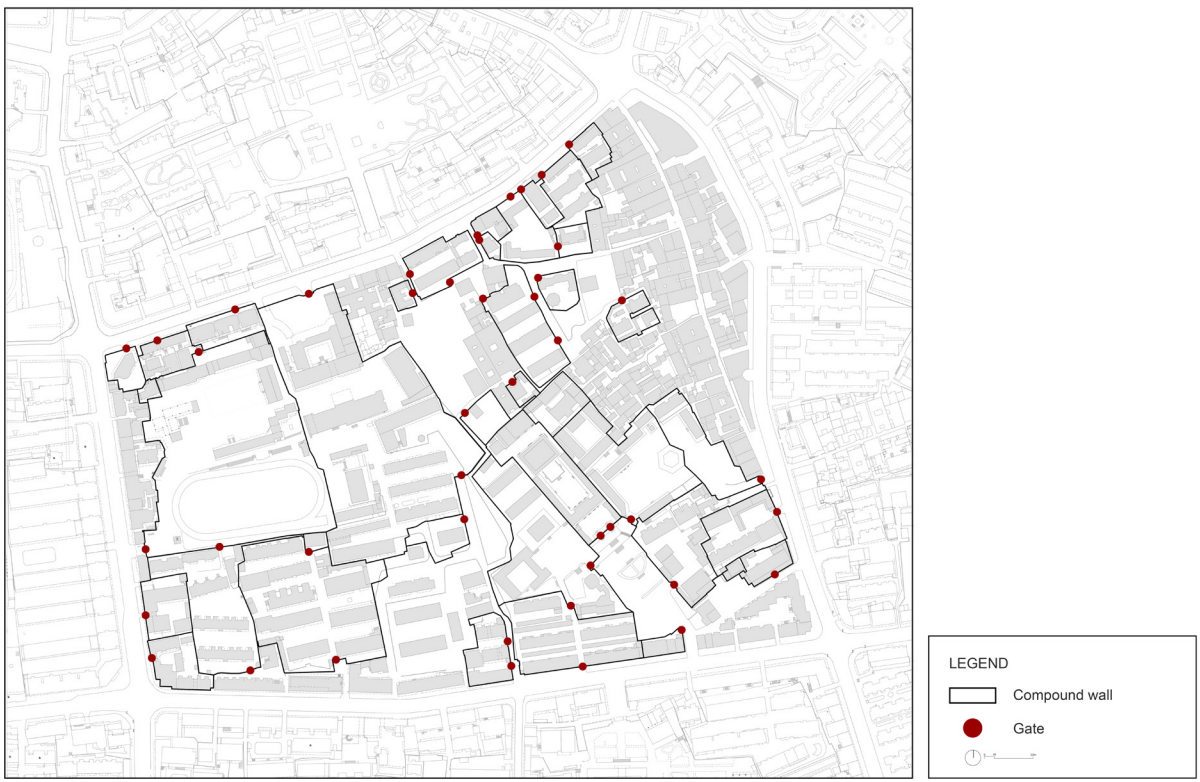
After the planning and development of Ganzhou city in different periods of many dynasties, it gradually formed the present urban pattern.Our project focuses on Nanshi Street and the area around the Pagoda.Through field survey and data research, we analyzed and studied the project plot in detail from the aspects of urban function, architectural group, transportation and road network, urban public space and so on.

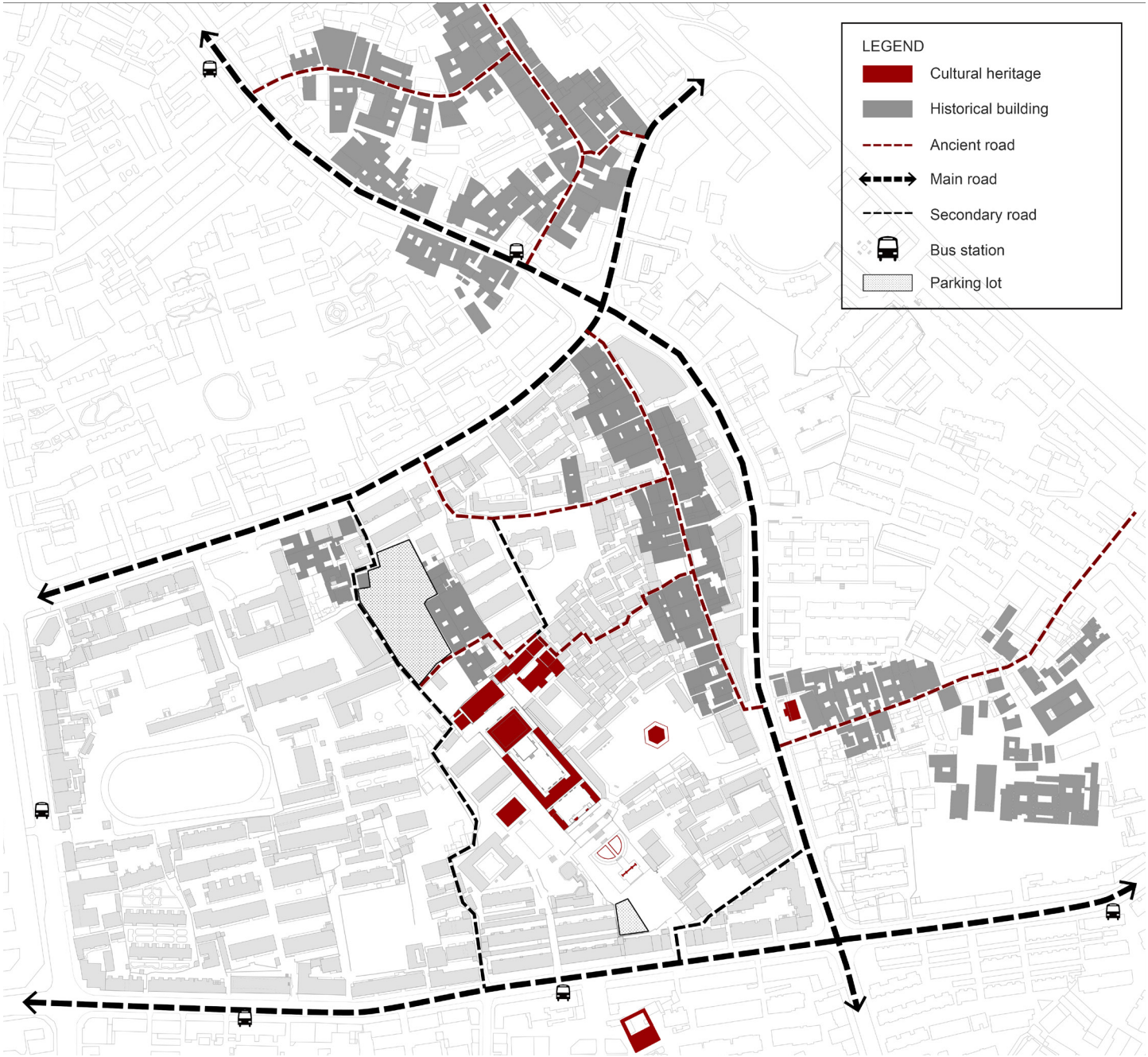
1) Urban function analysis

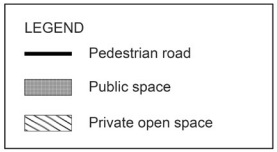
The project plot was first developed in the Song Dynasty,

during which the communication and development of cultural and religious industries were highly emphasized.The area was considered to have the best feng shui and scenery, so many temples were built there. Ciyun Temple and Ciyun Pagoda were built during this period. During the Qing Dynasty, the worship of Confucius grew, so the county school was moved to the nearby Ciyun Pagoda, which is today's Confucian Temple.At the same time, many rich merchants also settled near the pagoda, forming the present Nanshi Street. In the Republic of China and recent years, Confucian temples and pagodas enriched the cultural atmosphere of this area, and many schools were gradually built nearby. At present, the main functional components of the site are historical and cultural buildings, schools and residential buildings, as well as supporting commercial and medical buildings.

1.Urban function analysis
(source: drawn by authors)
2.Architectural compound analysis
(source: drawn by authors)




LEGEND
Cultural heritage
Historical building
Ancient road
Main road
Secondary road
Bus station
Parking lot



(2) Architectural compound analysis

In the process of field survey, we found that buildings of various periods remained in this area, from the Pagoda of the Song Dynasty to the Confucian temple and hakka dwellings of the Qing Dynasty, from the bungalows of the Republic of China to the modern multi-storey buildings, all cluttered and crowded in this area. Due to the rapid urban development and population explosion in China in 1970s, a large number of modern buildings were erected without any rules after this period, and buildings of each period had their own compound. We marked the compounds to make it easier to distinguish buildings of different periods and different functions.

(3) Road network structure

To understand the accessibility of the area we analyzed the

3.Road network structure
(source: drawn by authors)
4.Urban public space analysis and photos of public spaces
(source: drawn by authors, photo taken by the author)

transpotation and network.Urban arterial roads connect the walking paths within the site and are accessible to all buildings, except for some enclosed compounds. However, it can be found from the analysis diagram that these pedestrian roads are disordered and narrow, which need to be further organized. Nanshi Street is obscured by a row of modern buildings, making it hard to see the Qing dynasty street from the main street. Although the two entrances of Nan Shi Street are very narrow, they can be connected to two other historic districts, namely Zhaoer street block and Ciguling Block respectively.

(4) Urban public space analysis

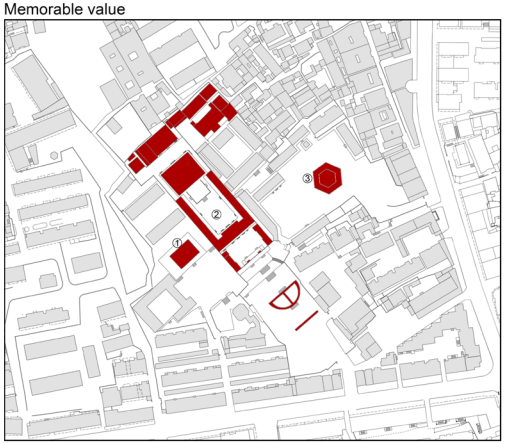
In order to comfirm the possibility of site reconstruction, we analyzed the public space in the site. The public space is divided into two parts, one is the public green space or square in the current site, and the other is the private open space in compound.These Spaces are all connected to pedestrian roads, can bring the possibility of future renovation.

Building quality analysis

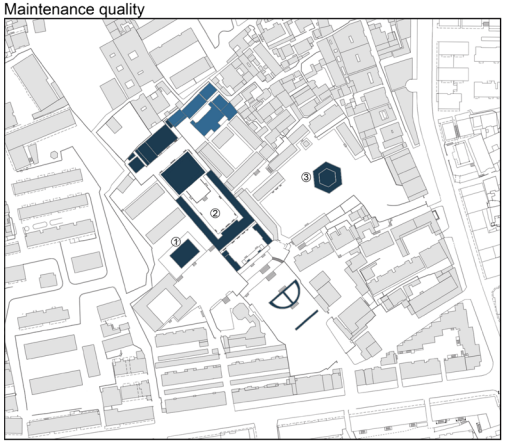
The site contains buildings from various periods, which vary in building quality. We divided the buildings into two groups, old buildings and modern buildings, and further subdivided them by era or function. The subdivided buildings were evaluated according to certain criteria. Old buildings are evaluated for their memorable value and maintenance quality, while modern buildings are evaluated for their contribution to the city and maintenance quality.

Through a build-by-building evaluation, we expect to learn more about the existing condition of the building. Also the evaluation results can provide guidance for the future renovation strategy.

Memorable value



Maintenance quality



Old building --cultural heritage

Period: Song dynasty(1023-1050)

Type: Temple / tower

Function: Temple / Pogoda

Material: Timber structure / brick

Floor: Temple is 1-2 floors, pagoda is about 47m high

Memorable value

- **Key cultural relic architecture** From a historical, artistic or scientific point of view, buildings have outstanding and universal value
- **Cultural relic architecture** The buildings can reflect historical culture and local characteristics and recognized by the government that have high conservation value.
- **Historical building** The buildings can reflect historical culture and local characteristics and recognized by the government that have certain conservation value.
- **Architecture with traditional feature** Old buildings with certain historical features, but not recognized by the government that have certain conservation value
- **Other building** Old buildings have no historical and cultural features and no conservation value

Maintenance quality

- **Great quality** The building can be used, the structure is stable, the main components are complete, the interior and exterior decoration is intact
- **Good quality** The building can be used, the structure is stable, the main components are relatively complete, the interior and exterior decoration is dilapidated
- **General quality** The building can be used, the structure is stable, the main components are missing and dilapidated
- **Poor quality** The building can not be used, the structure is unstable

1 | MV:Song dynasty military temple, has a high historical and artistic value
MQ:The structure is stable, the main components are complete, the interior and exterior decoration is intact

2 | MV:Song dynasty school, national protection building, has a high historical and artistic value
MQ:The structure is stable, the main components are complete, the interior and exterior decoration is intact

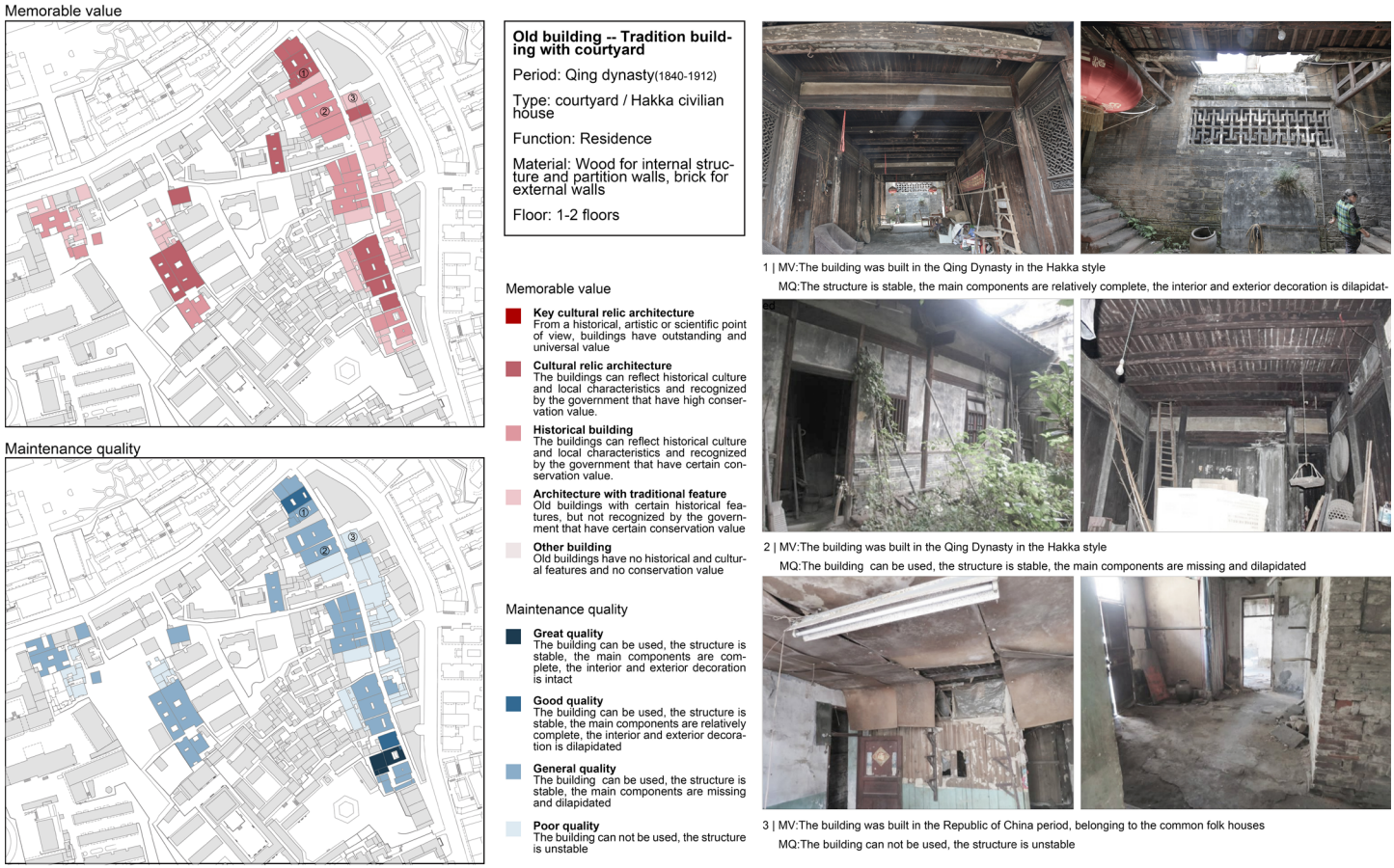
3 | MV:Song dynasty pogoda, has a high historical and artistic value
MQ:Parts of the wooden structure were destroyed after the fire,The blue brick structure is still intact

(1) Old building -- Cultural heritage

Memorial value: The pagoda were built in the Song Dynasty, while the Confucian temple and the Wu Temple were built in the Qing Dynasty. These buildings have high historical significance and aesthetic value.

Maintenance quality: The pagoda was burned to the wooden cloister during the Qing Dynasty, leaving only the brick structure, while the current wooden part is modern restored.Most of Confucian Temple buildings are well preserved, the wooden structure and decoration are relatively intact, but Wanren wall and Pan pond are all restored by modern times.

5.Building quality analysis diagram of old building cultural heritage
a.memorable value of cultural heritage
(source: drawn by authors)
b.maintenance quality of cultural heritage
(source: drawn by authors)
c-h.photos of cultural heritage
(source: photo taken by the author)

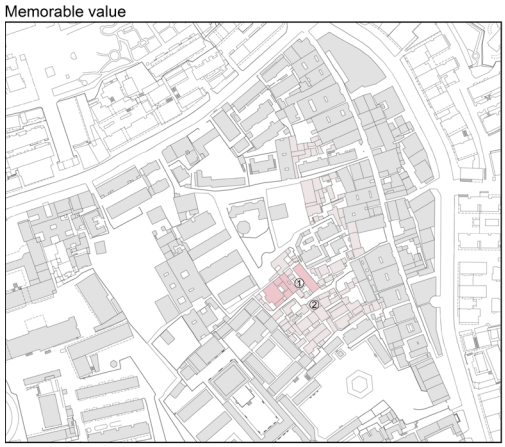


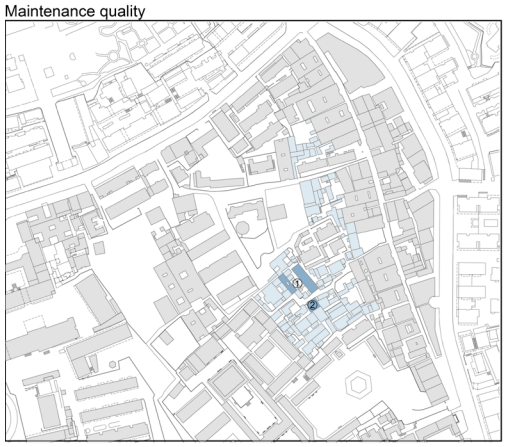
6.Building quality analysis diagram of traditional building with courtyard
a.memorable value of traditional building with courtyard
(source: drawn by authors)
b.maintenance quality of traditional building with courtyard
(source: drawn by authors)
c-h.photos of traditional building with courtyard
(source: photos taken by the author)

(2)Old building -- traditional building with courtyard

Memorial value: Traditional courtyard buildings are mostly located in Nanshi Street, which are the dwellings of rich merchants in qing Dynasty, with typical Hakka architectural characteristics.

Maintenance quality: The degree of maintenance quality of buildings varies. Most buildings are unusable due to its long history. A few have been well preserved and are still in use, rarely have retained their structure and decoration, such as Yiwulu.





Old building -- Ordinary folk building

Period: the Republic of China (1912-1949)

Type: courtyard / single building

Function: Residence

Material: Mainly use brick

Floor: 1-2 floors

Memorable value

- **Key cultural relic architecture** From a historical, artistic or scientific point of view, buildings have outstanding and universal value
- **Cultural relic architecture** The buildings can reflect historical culture and local characteristics and recognized by the government that have high conservation value.
- **Historical building** The buildings can reflect historical culture and local characteristics and recognized by the government that have certain conservation value.
- **Architecture with traditional feature** Old buildings with certain historical features, but not recognized by the government that have certain conservation value
- **Other building** Old buildings have no historical and cultural features and no conservation value

Maintenance quality

- **Great quality** The building can be used, the structure is stable, the main components are complete, the interior and exterior decoration is intact
- **Good quality** The building can be used, the structure is stable, the main components are relatively complete, the interior and exterior decoration is dilapidated
- **General quality** The building can be used, the structure is stable, the main components are missing and dilapidated
- **Poor quality** The building can not be used, the structure is unstable

1 | MV:The building was built in the Republic of China period, belonging to the common folk houses
MQ:The building can not be used, the structure is unstable

2 | MV:The building was built in modern times, belonging to the common folk houses
MQ:The building can be used, the structure is stable, the main components are missing and dilapidated

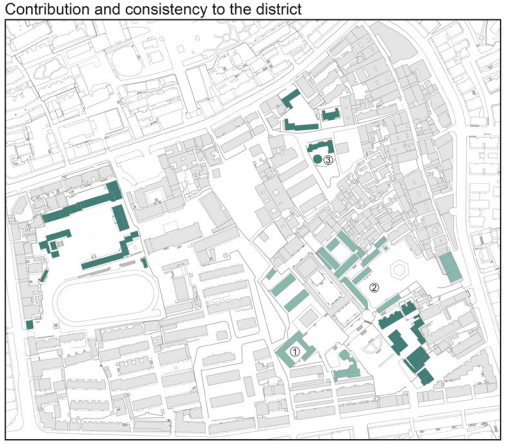
(3) Old building -- Ordinary folk building

Memorial value: These residential buildings were built in the Period of the Republic of China and adopt the common sloped roof style instead of the traditional Hakka style, which has low memorial value.

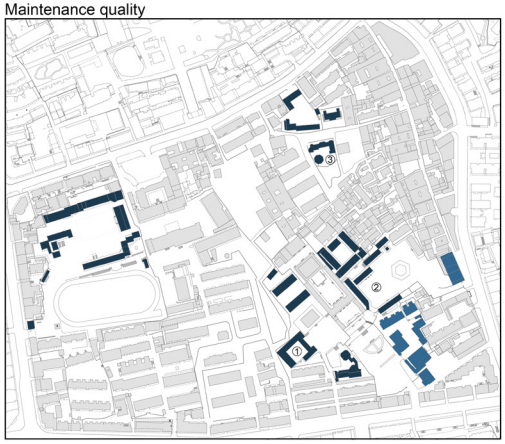
Quality of maintenance: the building is built of brick and tile, which was originally of poor construction quality. At present, there are still a few people living here, and the overall maintenance quality is poor.

7.Building quality analysis diagram of ordinary folk building
a.memorable value of ordinary folk building (source: drawn by authors)
b.maintenance quality of ordinary folk building (source: drawn by authors)
c-f.photos of ordinary folk building (source: photos taken by the author)

Contribution and consistency to the district



Maintenance quality



Modern architecture -- School

Type: Linear building / Enclosed building

Function: Education

Material: Mainly use brick

Floor: 1-3 floors

Contribution and consistency to the district

- **Great contribution and consistency** The building has useful functions and can well serve the site, and the building location is reasonable
- **Good contribution and consistency** The building function is universal and can serve the site, and the building location is reasonable
- **General contribution and consistency** The building function is universal and can serve the site, and the building location is unreasonable
- **Poor contribution and consistency** The building function is useless and the building location is unreasonable

Maintenance quality

- **Great quality** The building can be used, the structure is stable, the main components are complete, the interior and exterior decoration is intact
- **Good quality** The building can be used, the structure is stable, the main components are relatively complete, the interior and exterior decoration is dilapidated
- **General quality** The building can be used, the structure is stable, the main components are missing and dilapidated
- **Poor quality** The building can not be used, the structure is unstable

1 | CC:Education buildings, school buildings are very close to the heritage and cause bad effects
MQ:Modern building, the building is relatively new

2 | CC:Education buildings, school buildings are very close to the heritage and cause bad effects
MQ:Modern building, the building is relatively new

3 | CC:Community kindergarten, close to the community and serve the community residents
MQ:Modern building, the building is relatively new

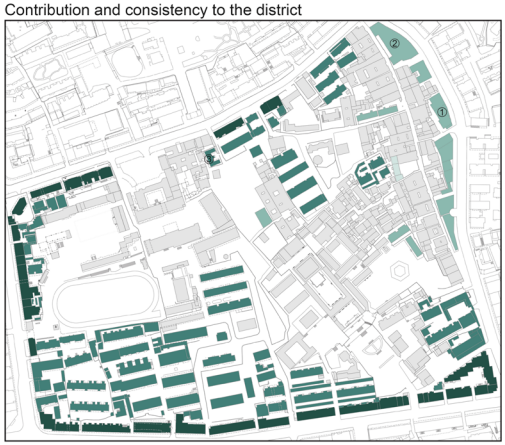
(4) New building -- School

Contribution to the city: The school brings vitality and culture atmosphere to the whole area. But some schools are too close to historic buildings, which will cause damage to them.

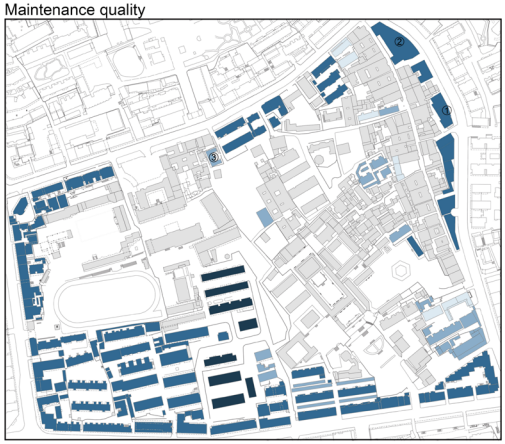
Maintenance quality: The schools are all modern building and relatively new.

8.Building quality analysis diagram of school
a.contribution to the city of school
(source: drawn by authors)
b.maintenance quality of school
(source: drawn by authors)
c-h.photos of school
(source: photos taken by the author)

Contribution and consistency to the district



Maintenance quality



Modern architecture -- Community

Type: Linear building / Enclosed building

Function: Residence / commerce

Material: Mainly use brick

Floor: 3-6 floors

Contribution and consistency to the district

- **Great contribution and consistency** The building has useful functions and can well serve the site, and the building location is reasonable
- **Good contribution and consistency** The building function is universal and can serve the site, and the building location is reasonable
- **General contribution and consistency** The building function is universal and can serve the site, and the building location is unreasonable
- **Poor contribution and consistency** The building function is useless and the building location is unreasonable

Maintenance quality

- **Great quality** The building can be used, the structure is stable, the main components are complete, the interior and exterior decoration is intact
- **Good quality** The building can be used, the structure is stable, the main components are relatively complete, the interior and exterior decoration is dilapidated
- **General quality** The building can be used, the structure is stable, the main components are missing and dilapidated
- **Poor quality** The building can not be used, the structure is unstable

1 | CC:Commercial and residential buildings, close to the historic street but with a negative impact
MQ:Antique modern building, the building is relatively new

2 | CC:Commercial and residential buildings, close to the historic street but with a negative impact
MQ:Antique modern building, the building is relatively new

3 | CC:Residential building
MQ:Modern building, the structure is stable, the main components are relatively complete, the interior and exterior decoration is dilapidated

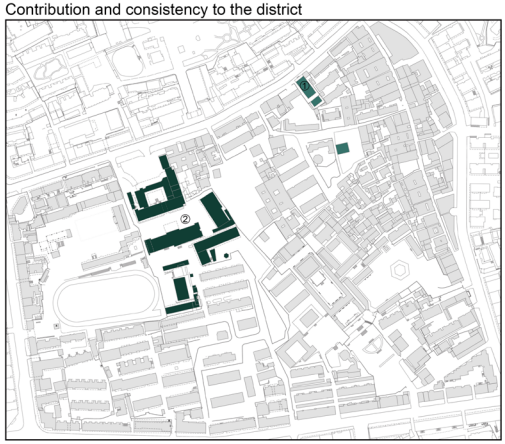
(5) New building -- Community

Contribution to the city: The community provides vitality to the site, and the ground floor of these residential buildings are all commercial functions that provide convenience to the city. However, some residential buildings near Nanshi Street obscure people access to Nanshi Street, which has a negative impact.

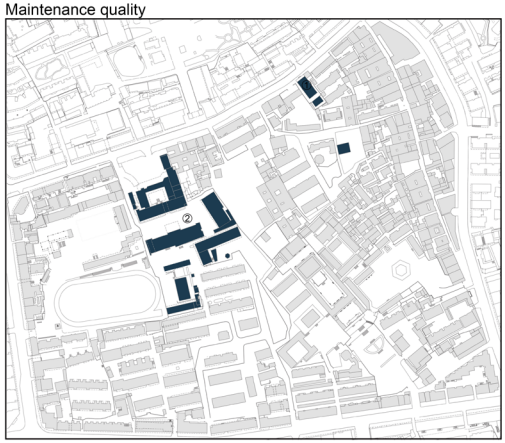
Maintenance quality: Some of residential buildings are new, some are more than 50 years old and still usable, but the decaying appearance of the buildings affects the appearance of the city.

9.Building quality analysis diagram of community
a.contribution to the city of community
(source: drawn by authors)
b.maintenance quality of community
(source: drawn by authors)
c-h.photos of community
(source: photos taken by the author)

Contribution and consistency to the district



Maintenance quality



Modern architecture -- Public building

Type: Linear building / Enclosed building

Function: Hospital / community center / church

Material: Mainly use brick

Floor: 3-7 floors

Contribution and consistency to the district

- **Great contribution and consistency** The building has useful functions and can well serve the site, and the building location is reasonable
- **Good contribution and consistency** The building function is universal and can serve the site, and the building location is reasonable
- **General contribution and consistency** The building function is universal and can serve the site, and the building location is unreasonable
- **Poor contribution and consistency** The building function is useless and the building location is unreasonable

Maintenance quality

- **Great quality** The building can be used, the structure is stable, the main components are complete, the interior and exterior decoration is intact
- **Good quality** The building can be used, the structure is stable, the main components are relatively complete, the interior and exterior decoration is dilapidated
- **General quality** The building can be used, the structure is stable, the main components are missing and dilapidated
- **Poor quality** The building can not be used, the structure is unstable

1 | CC:Unique function, close to the street
MQ:Modern building, the building is relatively new

2 | CC:Medical building, providing services for nearby residents, in a reasonable location
MQ:Modern building, the building is relatively new

10.Building quality analysis diagram of public building
a.contribution to the city of public building (source: drawn by authors)
b.maintenance quality of public building (source: drawn by authors)
c-h.photos of public building (source: photos taken by the author)

(6) New building -- public building

Contribution to the city: These public buildings include hospitals, churches and so on, providing more convenience and possibilities for the site.

Maintenance quality: These buildings are all modern building and relatively new.

Morphological structures 1965

In order to truly and accurately study the original morphology of the Nanshi street district in Ganzhou, we chose the satellite image of 1965 as the basis. The year 1965 was chosen because before the reform and opening up, the development of the city had not proceeded rapidly, and the morphology of this block was still relatively well-preserved.

Map analysis shows the growth traces of buildings in this neighborhood. The rule for generating this morphology is that the building faces the main street and then expands toward the center. The buildings along both sides of Nanshi Street are fishbone-shaped. Compared with the natural organic growth of dwellings, the Feng Shui orientation of Confucian Temple, Wu Temple, Primary School and Ciyun Pagoda is more obvious and strict.

11.Morphological structures in 1965
(source:drawn by authors)
12.Site map in 1965
a.satellite image in 1965
(source:'Ganzhou satellite map', USGS, accessed May 25, 2021, http://earthexplorer.usgs.gov.)
b. Extract structure in 1965
(source:drawn by authors)

Morphological structures 2021

From the satellite image of 2021, it can be seen that the morphology of this area has been very different. In particular, the western part of the block has basically become a strip of multi-storey houses. In order to get more light, the direction has also changed to north-south. This trend has also begun to occur along the main street on the east part. The morphology of Wu Temple, Confucian Temple and Nanshi Street has not changed much.

This situation has led to morphological confusion, the old natural and organic morphology is intertwined with the dull and boring new morphology. Even the new morphology is covering the old one. Obviously, this does not conform to the original development rules of the old city, and it also exposes the problems in the urban design.

13.Morphological structures 2021
(source:drawn by authors)
14Site map in 2021
a.satellite image in 2021
(source:'Ganzhou satellite map', Goole Earth, accessed May 25, 2021, https://earth.google.com/web/.)
b. Extract structure in 2021
(source:drawn by authors)

Morphological structures comparison

The change can be clearly seen by overlapping the morphology of the two periods. The places where the red and blue dashed lines intersect are inconsistent. They are mainly reflected in the western part and near the main street. By comparing the newly built multi-storey houses with the traditional dwellings in Nanshi Street, it can be seen that with the rapid development of society, people's living needs and lifestyles have changed, which in turn changed the morphology of the city. But directly establishing new rules rather than inheriting old ones will cause morphological confusion and lose the characteristics of the city. Through such morphological analysis, the rules of the city can be deciphered, and the problems that cause confusion can also be easily seen. These provide guidance for rewriting urban strata.

15.Morphological structures comparison
(source:drawn by authors)


2021 morphology
1965 morphology

16.Historical evolution of Ganzhou Confucian Temple
a: Ganzhou county school map of Qing dynasty
(source: 'Ganzhou Confucian Temple', Zhenfei Han, *Cultural Relics*, no. 10(1992))
b: Map of Ciyun temple and Wen temple in Qing Dynasty
(source: 'Ganzhou Confucian Temple', Zhenfei Han, *Cultural Relics*, no. 10(1992))
c: Photo of the Ganzhou Confucian Temple
(source: photos taken by the author)

Cultural Relics: Wen Temple, Ciyun Pagoda

Ganzhou Confucian Temple, also known as Ganxian County School, is located in the southeast of the old city of Ganzhou, Jiangxi Province, and on the north side of Houde Road. It is the largest and best preserved ancient county Confucian Temple in Jiangxi Province.

As an important part of Traditional Chinese culture, Confucianism is as important as the worship of heaven, earth and ancestors.Confucian architecture is an important carrier of

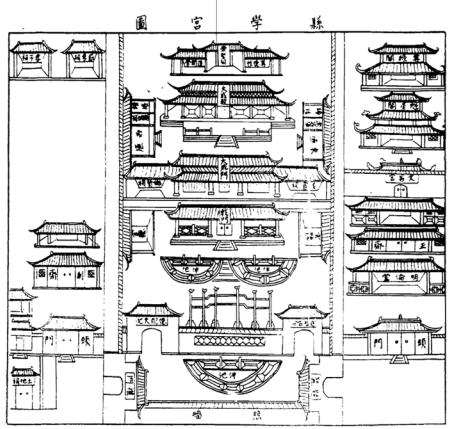
1050 — Ganzhou Confucian Temple, also known as Ganxian County In the Qing Dynasty, was first built in 1050, the Northern Song Dynasty and later moved several times. The Confucian Temple has been moved to Jingdesi, Yugutai and so on.

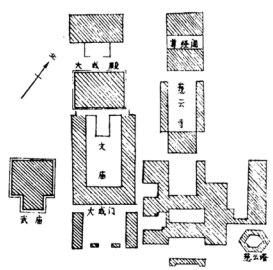
1736 — The Temple was relocated several times, the last time in 1736 ,Qing Dynasty. Most of the buildings preserved now were built during the Qing Dynasty, and are well preserved, including Dacheng Gate, Dacheng Hall, Chongsheng Shrine, Kuixing Pavilion, and Jie Xiao Temple, etc., among which Dacheng Hall is the main building of the Confucian Temple, with significant Ganzhou characteristics.

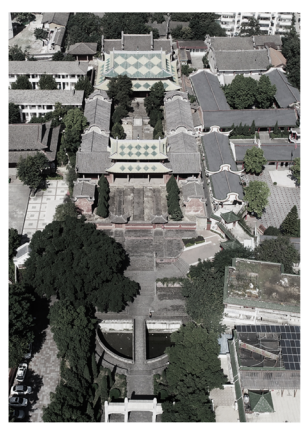
1966 — During the Cultural Revolution, the Confucian Temple was converted into a new school. Pan pond, Lingxing Gate, and Wanren wall were destroyed and transformed into school playgrounds. Because the Confucian Temple was converted into a school, it was saved from being completely demolished during the Cultural Revolution.

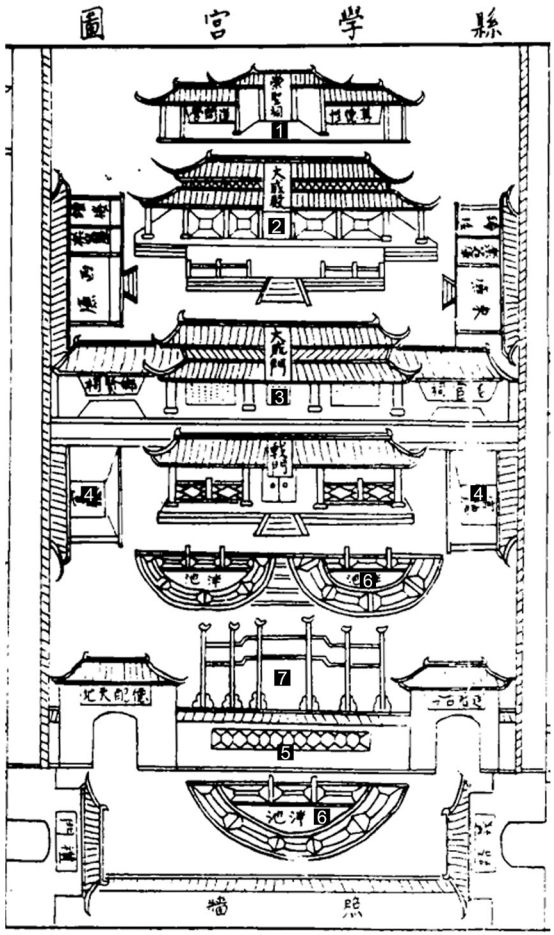
1987 — In 1987, the Confucian Temple was listed by the government as a provincial-level cultural relic protection unit.In 1989, Houde Road Primary School was moved from Confucian Temple to its present site.During repairs in May 2004, experts found the Pan pond which was landfill during the Cultural Revolution.Now Lingxing Gate, Wanren wall are newly built

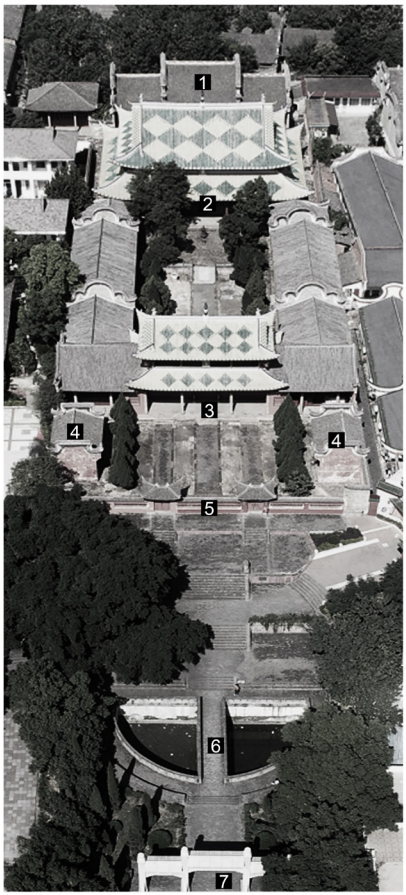
Now











1 Chongshengci 崇圣祠

2 Dacheng palace 大成殿

3 Dacheng Gate 大成门

4 DongxiWu 东西两庑

5 Wanren Wall 万仞宫墙

6 Pan Pond 泮池

7 Lingxing Gate 棂星门

the dissemination of Confucian culture, so it can be developed throughout the country and become a Chinese architectural complex with fixed rites, structures, styles and traditional sacrificial ceremonies.Confucian temple architecture reflects the political views and cultural thoughts of the rulers, and the Confucian temple system has become the foundation of traditional Chinese education.

There are many types of Confucian architecture, including Wen temples to strengthen heaven and earth, human relations and social order, and Wu temples to praise and express loyalty and

17.The composition of Confucian Temple complex
a:Ganzhou county school map of Qing dynasty (source:'Ganzhou Confucian Temple', Zhenfei Han, *Cultural Relics*, no. 10(1992))
b: Photo of the Ganzhou Confucian Temple (source: photos taken by the author)

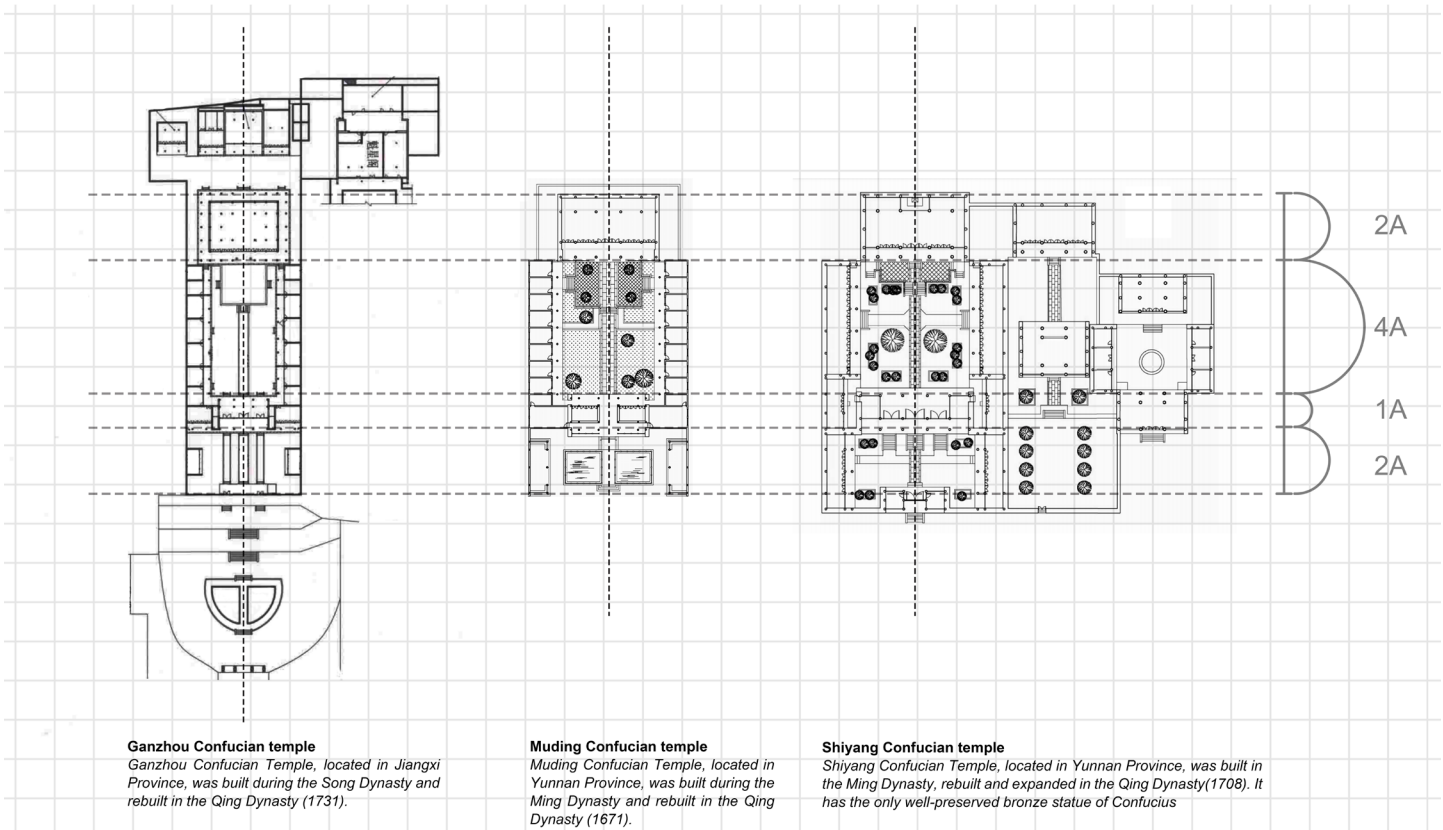
righteousness.They are all Confucian buildings with different shapes, scales, grades and characteristics, which have subtly influenced people's ideas of later generations in different spatial forms.[1]

Confucius Temple originated in 478 BC, after thousands of years of development, in the Song Dynasty gradually formed a fixed architectural system, and is still in use today.[2]General Confucian temple, sitting in the north south, in the central axis arranged in turn Wanren wall, Lingxing gate, Pan pond, Dongxi Wu, Dacheng gate, Dacheng Palace, Chongshengci and other buildings.

Chongshengci: *A place to worship the ancestors of Confucius*
Dacheng palace: *Dacheng palace is the core building of Confucian Temple - the main palace, in which there are memorial tablets and statues of Confucius, is the place where people pay homage to Confucius.*
Dacheng Gate: *Dacheng refers to mencius' praise that Confucius' learning has reached the highest level. The Dacheng Gate in the Confucian Temple is usually closed except for the ceremony, and people usually enter from both sides.*
DongxiWu: *The DongxiWu are enshrine the outstanding local literati ancestors, and can also be used as a classroom*
Wanren Wall: *The Wanren Wall is the southernmost starting point of the Confucian Temple complex*
Pan Pond: *The Pan pond is a unique form of Confucian Temple, consisting of a pond and a bridge.The new students come to school must cross the Pan pond bridge that is called entering Pan , which is a ceremony*
Lingxing Gate: *Lingxing in ancient times can refer to the sky, in front of Confucius temple to build lingxing Gate meant to pay homage to Confucius is equivalent to the heaven, is the highest respect for Confucius*

Since the Song Dynasty, a large number of Confucian temples were built. During this period, Confucian temples were generally composed of Dacheng Palace, Dacheng Gate and library pavilion.

From the Ming Dynasty, Confucian temples developed into systematic complex. The central axis connect Wanren wall,



18.Comparison of architectural proportion of Confucian Temple
a: Plan of Ganzhou Confucian Temple (source:*The Study of Historical Architecture in South Jiangxi.* Wan, Younan. Beijing: China Construction Industry Press, 2018.)
b:Plan of Muding Confucian Temple (source:*The Temple of Confucianism: Research on the Architecture of Yunnan Confucian Temple.*Yang, Dayu.Kunming: Yunnan University Press, 2015.)
c:Plan of Shiyang Confucian Temple (source:*The Temple of Confucianism: Research on the Architecture of Yunnan Confucian Temple.*Yang, Dayu.Kunming: Yunnan University Press, 2015.)

LingxingGate, Pan pond, DachengGate, DongxiWu, Dacheng Palace, Chongshengci.

The Qing Dynasty was the heyday of the development of Confucian temples. A large number of Confucian temples were built or rebuilt.[3]

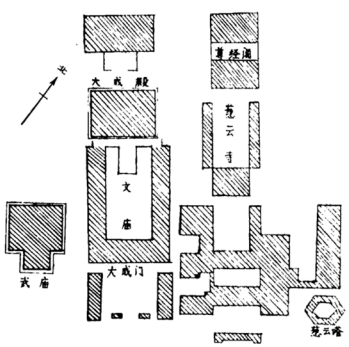
Since the Confucian Temple is a place to worship Confucius, there are strict regulations on the layout, proportion and axis of architecture. We found that some Confucian temples follow the ratio of 2:4:1:2 by conducting a horizontal comparison of the existing relatively intact Confucian temples reconstructed in the Qing Dynasty

19.Historical evolution of Ganzhou Ciyun Pagada
a: Map of Ciyun temple and pagoda in Qing Dynasty
(source:'Ganzhou Confucian Temple', Zhenfei Han, *Cultural Relics*, no. 10(1992))
b: Photo of Ciyun pagoda after fire
(source:(Republic of China) Ganxian County Chronicle Bureau, ed. *Ganxian New Chronicle Draft.* 1946.)
c: Photo of the Ciyun pagoda restoration
(source:*The Study of Historical Architecture in South Jiangxi.* Wan, Younan. Beijing: China Construction Industry Press, 2018.)

The pagoda was also used to bury and commemorate eminent monks at the earliest, and then gradually changed from the worship of eminent monks to the worship of Buddhism.
From the extant object research, Ganzhou Ciyun Pagoda was built in the Northern Song Dynasty, with typical characteristics of the Pagoda in the Song Dynasty.Ciyun pagoda is a mixed structure of brick and wood tower, the main load-bearing body is built of blue brick, eaves, floors, corridors are made of wood. The plan is hexagonal with nine layers about 42 meters high. Ciyun Pagoda was originally built around the temple, called Ciyun Temple, was destroyed in the Qing Dynasty.[4]

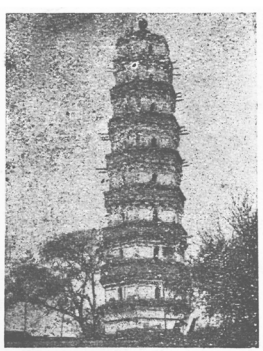
1023

The pagoda was built in 1023, song Dynasty .The pagoda was originally located in ciyun Temple, hence the name "Ciyun Pagoda".This tower originally had the function of ascending and overlooking: the wooden structure and cloister of the tower are cantilever out of the tower body, which is convenient for people to stand and walk, and can be used for visitors to climb the tower to enjoy the scenery



1906

Qing Dynasty (1906), the verandas were destroyed in a fire, leaving only the hollow brick structure of ciyun Pagoda



1957

In 1957, the People's Government of Jiangxi province listed ciyun Pagoda as one of the first provincial-level cultural relics protection units.In 2004, ganzhou city government funded the restoration of ciyun Pagoda and rebuilt the burned corridor.Ciyun Tower is now in Houde Primary School, usually not open to the public.

Now

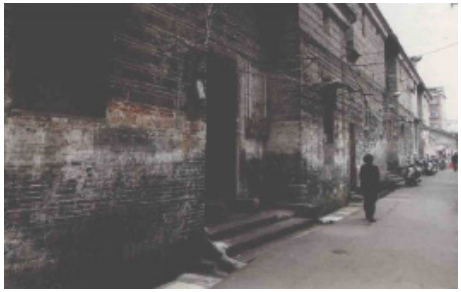
Traditional Dwelling: Nanshi Street Courtyard

The Nanshi Street Historic District is located in the east of the urban area. It is connected to the Dagong Road in the north, Ciguling in the south, Houde Road and Xinkaihaihui Road in the west, Confucian Temple and Wu Temple in the west, and Long Caitang in the east, including the main street Nanshi Street and Bean Sprouts The streets and alleys within the range of Jing, Hongcaitang, Yangpan Lane, Fuhuang Temple, Confucian Temple, Wu Temple, and Ciyun Temple Pagoda are roughly fishbone-shaped, covering an area of about 7.89 hectares. In 1994, the State Council approved Ganzhou as the third batch of historical and cultural cities. In 1997, the Ganzhou Municipal People's Government announced the Nanshi Street Historic District as a historical and cultural protection district.

The block pattern of Nanshi Street was formed in the Song Dynasty and belongs to the southern section of the Xiejie among the Sixth Street in the Song Dynasty. Through the Yuan, Ming, and Qing dynasties, the block layout has continued to this day, and it is one of the representative blocks in the old city of Ganzhou. Since then, with the decline of the traffic status of Nanshi Street, commercial culture has gradually declined, but the function and layout have not changed much, and the direction and width of Songshi Street have been maintained.

The existing buildings in the block are dominated by the Qing Dynasty, basically maintaining the historical style. Its architectural forms are mainly shops, workshops, inns, dwellings, etc. The architectural styles include Gannan Hakka architecture,Ganzhong patio architecture, Huizhou horse head wall architecture and other schools, which fully reflect the diversity of urban culture and reflect the prosperity of Ganzhou in the past.

20. Nanshi Street satellite map
(source: Apple map,accessed November 2,2021, 2021, https://duckduckgo.com/?q=Ganzhou%2C+Jiangxi&t=h_&ia=web&iaxm=maps&iax=images&strict_bbox=0&bbox=26.012688062301002%2C114.73911204541298%2C25.671026941710593%2C115.10723195458706&metatoken=0)

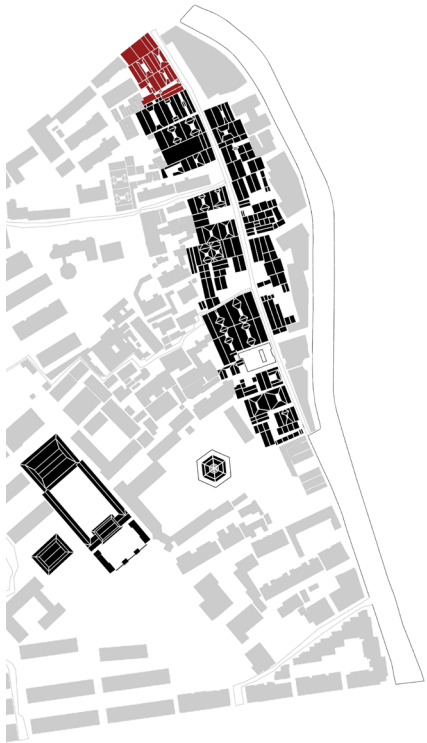


21. Nanshi Street picture
(source:*The study of Historical Architecture in South Jiangxi*, Wan Younan, (Beijing: China Construction Industry Press, 2018), 28-29.)

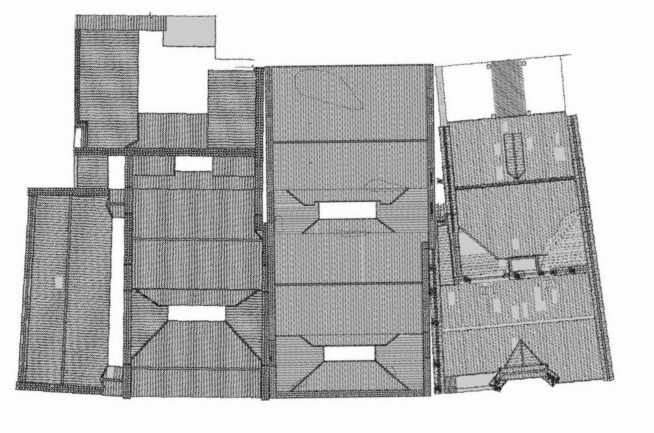
The main street of Nanshi Street was originally more than 400 meters long. In 2002, due to the reconstruction of the old city, Haihui Road was added and the existing remaining length of Nanshi Street was about 300 meters. The architectural style of the main street of Nanshi Street has one characteristic: the east is poor, the west is good, and it is well-defined, and it is often called "half-side street". Because the blocks in Nanshi are high in the west and low in the east, the houses on the west side of the street have better drainage, waterlogging prevention and sunny ventilation, while the houses on the east side appear humble and damp. Therefore, rich people choose to build houses on the west side of the street. The phenomenon of "half-side street" is commonplace in ancient and modern markets. It is lively and deserted, while the buildings are good and the buildings are poor. Ganzhou Wenqing Road has experienced this phenomenon for a long time. The representative residential buildings on Nanjie Street are mainly concentrated.

On the west side of the street, such as the residences of the Huang brothers at Nos. 30 to 34 in Nanshi Street, the "Yiwulu" Shang's residence at No. 5, and the residence at No. 10, the common features are low in the front and high in the front and the back of the house. The back of the house (there is a high-slope courtyard or garden at the back) or the front store and rear storage. In addition, there are characteristic folk scraps such as Yuanshantang, Dongshengju, etc. Due to the new construction of Haihui Road and the renovation of the old city on the east side of the street, most of the residential buildings, the houses and the environment have been destroyed. [5]

Satellite view

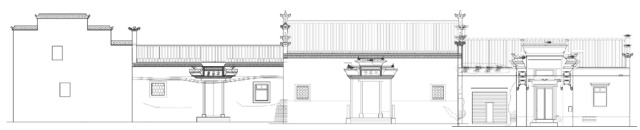


Roof plan



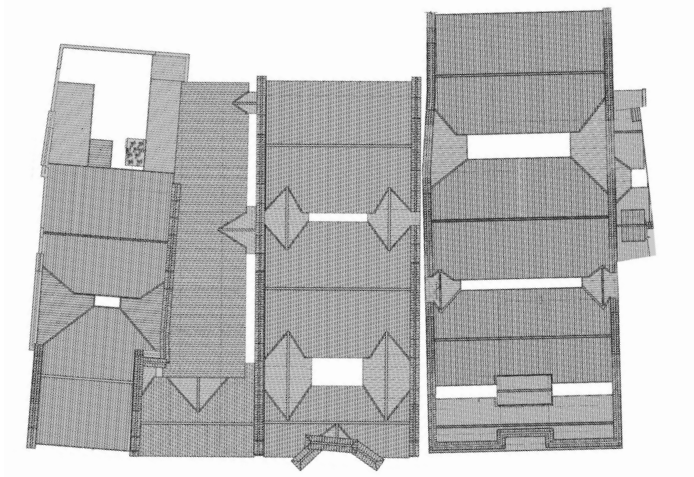
Ground floor plan

Elevation



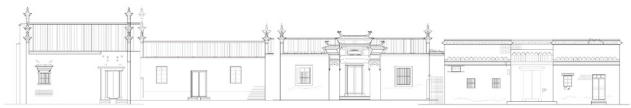
22.Aerial image
(source:'Distribution map of historic buildings in Nanshi Street', Guizhou Cultural Relics Protection and Research Center,2017)
23.Nanshi Street Roof plan
(source:'Distribution map of historic buildings in Nanshi Street', Guizhou Cultural Relics Protection and Research Center,2017)
24.Nanshi Street ground floor plan
(source:'Distribution map of historic buildings in Nanshi Street', Guizhou Cultural Relics Protection and Research Center,2017)
25.Nanshi Street Elevation
(source:'Distribution map of historic buildings in Nanshi Street', Guizhou Cultural Relics Protection and Research Center,2017)
26.Roof mophology map
(source:drawn by authors)

Satellite view



Roof plan

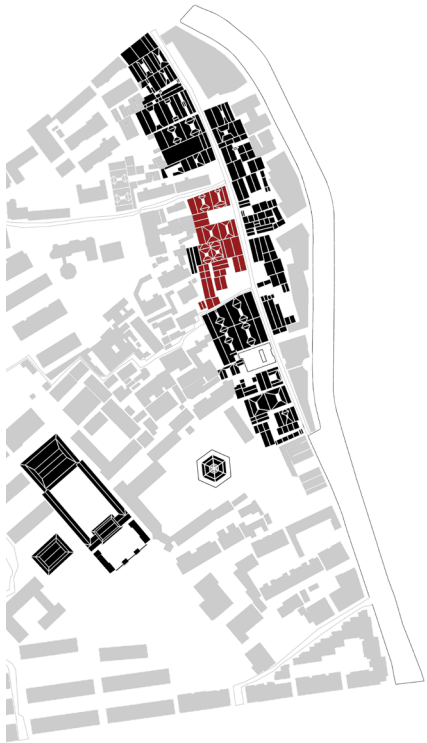
Ground floor plan



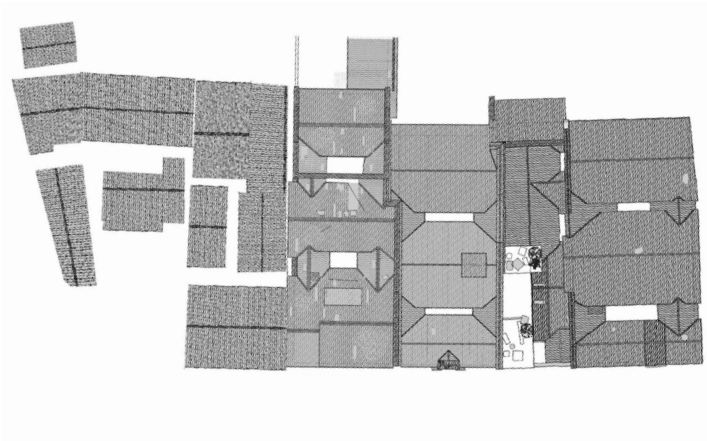
Elevation

27.Aerial image
(source:'Distribution map of historic buildings in Nanshi Street', Guizhou Cultural Relics Protection and Research Center,2017)
28.Nanshi Street Roof plan
(source:'Distribution map of historic buildings in Nanshi Street', Guizhou Cultural Relics Protection and Research Center,2017)
29.Nanshi Street ground floor plan
(source:'Distribution map of historic buildings in Nanshi Street', Guizhou Cultural Relics Protection and Research Center,2017)
30.Nanshi Street Elevation
(source:'Distribution map of historic buildings in Nanshi Street', Guizhou Cultural Relics Protection and Research Center,2017)
31.Roof mophology map
(source:drawn by authors)

Satellite view

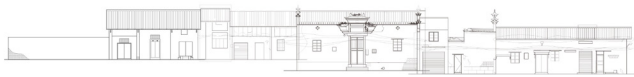


Roof plan

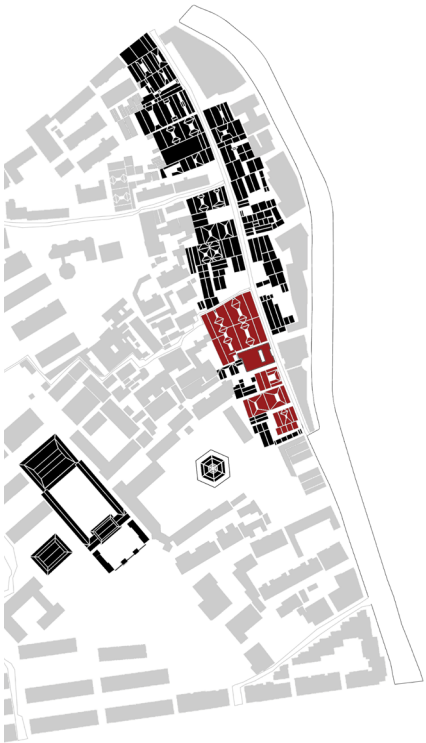


Ground floor plan

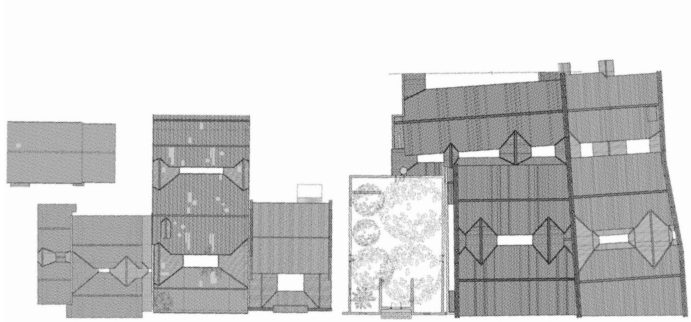
Elevation



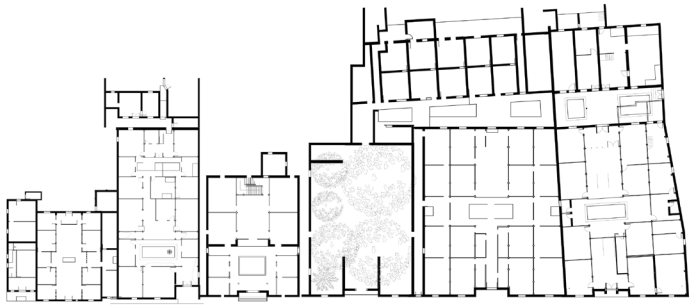
32.Aerial image
(source:'Distribution map of historic buildings in Nanshi Street', Guizhou Cultural Relics Protection and Research Center,2017)
33.Nanshi Street Roof plan
(source:'Distribution map of historic buildings in Nanshi Street', Guizhou Cultural Relics Protection and Research Center,2017)
34.Nanshi Street ground floor plan
(source:'Distribution map of historic buildings in Nanshi Street', Guizhou Cultural Relics Protection and Research Center,2017)
35.Nanshi Street Elevation
(source:'Distribution map of historic buildings in Nanshi Street', Guizhou Cultural Relics Protection and Research Center,2017)
36.Roof mophology map
(source:drawn by authors)



Satellite view



Roof plan

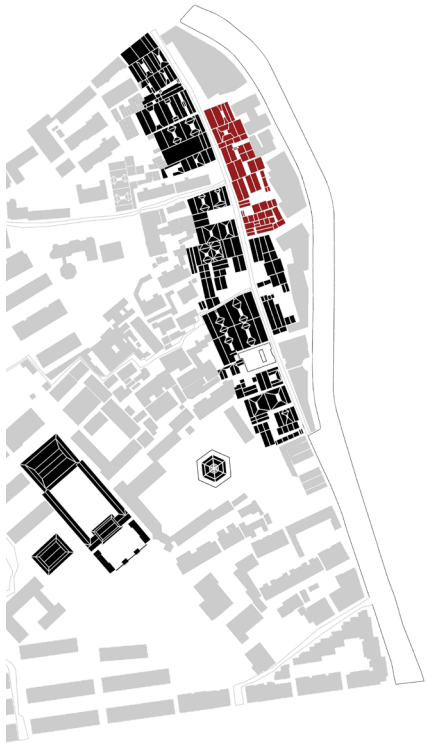


Ground floor plan

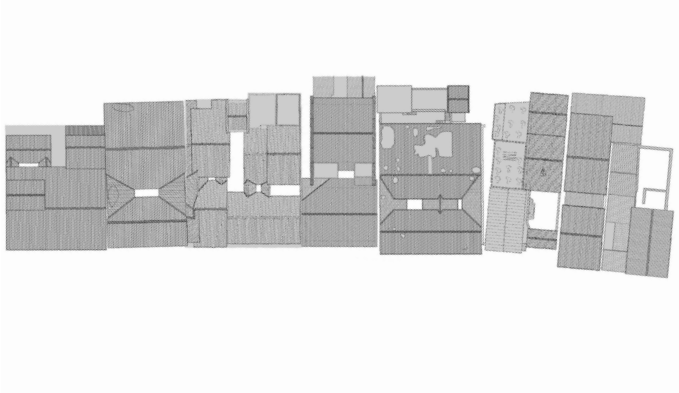
Elevation

37.Aerial image
(source:'Distribution map of historic buildings in Nanshi Street', Guizhou Cultural Relics Protection and Research Center,2017)
38.Nanshi Street Roof plan
(source:'Distribution map of historic buildings in Nanshi Street', Guizhou Cultural Relics Protection and Research Center,2017)
39.Nanshi Street ground floor plan
(source:'Distribution map of historic buildings in Nanshi Street', Guizhou Cultural Relics Protection and Research Center,2017)
40.Nanshi Street Elevation
(source:'Distribution map of historic buildings in Nanshi Street', Guizhou Cultural Relics Protection and Research Center,2017)
41.Roof mophology map
(source:drawn by authors)

Satellite view



Roof plan

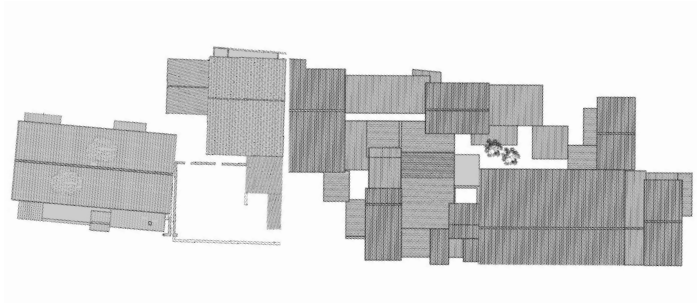


Ground floor plan

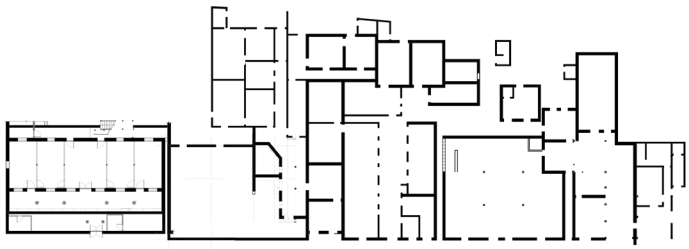
Elevation

42.Aerial image
(source:'Distribution map of historic buildings in Nanshi Street', Guizhou Cultural Relics Protection and Research Center,2017)
43.Nanshi Street Roof plan
(source:'Distribution map of historic buildings in Nanshi Street', Guizhou Cultural Relics Protection and Research Center,2017)
44.Nanshi Street ground floor plan
(source:'Distribution map of historic buildings in Nanshi Street', Guizhou Cultural Relics Protection and Research Center,2017)
45.Nanshi Street Elevation
(source:'Distribution map of historic buildings in Nanshi Street', Guizhou Cultural Relics Protection and Research Center,2017)
46.Roof mophology map
(source:drawn by authors)

Satellite view



Roof plan



Ground floor plan

Elevation

47.Aerial image
(source:'Distribution map of historic buildings in Nanshi Street', Guizhou Cultural Relics Protection and Research Center,2017)
48.Nanshi Street Roof plan
(source:'Distribution map of historic buildings in Nanshi Street', Guizhou Cultural Relics Protection and Research Center,2017)
49.Nanshi Street ground floor plan
(source:'Distribution map of historic buildings in Nanshi Street', Guizhou Cultural Relics Protection and Research Center,2017)
50.Nanshi Street Elevation
(source:'Distribution map of historic buildings in Nanshi Street', Guizhou Cultural Relics Protection and Research Center,2017)
51.Roof mophology map
(source:drawn by authors)

"Combined Hall and House" Folk House

The Hakka people in Gannan generally call the hall "hall" or "hall building", and the hall refers exclusively to the ancestral hall; a house is called a "house" and a house is called "House". The hall is the center of the house; the house on the axis with the door facing the front is called the "main house"; the house on both sides of the axis with the door facing the side is called the "horizontal house". Hakka houses range from the most common "four rooms and three rooms" to the "nine halls and eighteen wells" Hakka houses. It is composed of numerous "halls" and "rooms" or "main houses" and "horizontal houses".

Hakkas are mostly inhabited by ethnic groups. The essence of its folk house culture mainly comes from the mansion-style and courtyard-style architecture of the ancient Central Plains.

Build groups. From the simplest one with one bright and two dark three rooms, to two halls and two horizontal rooms, three halls and two horizontal halls, to a large house such as nine entrances and eighteen halls, they all reflect the characteristics of a distinct and balanced layout, regardless of the housing development. At how large it is, it always takes the main hall as the central axis and the ancestral hall as the core. It gradually extends forward and develops symmetrically. Therefore, Hakka houses have the characteristics of inheritance and random combination and expansion.

Ordinary residence

Ordinary dwellings mainly refer to dwellings with an area of less than 700 square meters. It includes four rooms with three rooms, six rooms with five rooms, one-entry two-hall type, and one-entry two halls and two horizontal types. In addition, due to the influence of terrain or economy in towns and mountainous areas, there are still some ordinary houses with front shops and back sleeping styles and slab-style houses. The former can also be called "front store and rear warehouse", that is, storefronts are set up on the street, and the homes behind the store also double as goods warehouses. Most of these houses are brick-wood structures or slab-walled wooden structures. For example, Ganzhou City’s original Jianguo Road, Yangming Road, Zhongshan Road and many other gates are made of fish-scale slab walls and arcade-style corridors; the latter are pure wooden dwellings, mostly in mountainous areas, and some are built into the form of stilts. . Typical examples are the wooden houses of Yanling Village in Shicheng, the wooden ancestral hall, and the wooden granary exposed outdoors.

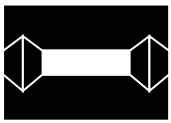
Four panels and three rooms

Four rooms and three rooms, also known as "four rooms and three plants" and "three rooms for passing." That is, three rooms with one bright and two dark, the bright room is the hall, the second room is the room, and the kitchen, toilets, stables, etc. are generally built next to the shelters or built simple houses. This kind of house is the most common and simplest dwelling in Gannan and even most Hakka areas.

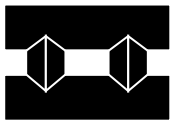
"Four fans and three rooms" can also be made into "six fans and five rooms", that is, one room is added on each side, so it is also called "five rooms", the same as the most basic form of dwellings among Hakka dwellings in Gannan. These two simple forms of dwellings are the "Nine Wells and Eighteen Halls", "Hundred Houses", and even large-scale Hakka dwellings such as the surrounding houses in southern Jiangxi, Tulou in western Fujian, and surrounding surroundings in eastern Guangdong. The most basic combined unit in a building. In other words, no matter how large the Hakka houses are, they all evolved from the two basic styles of "four doors and three rooms" and "six doors and five rooms" [5]

52.Pcture of folk house ‘Four Fans and Three Rooms’ Adobe House
(source:*The study of Historical Architecture in South Jiangxi*, Wan Younan, (Beijing: China Construction Industry Press, 2018), 59.)
53.Pcture of folk house ‘Six Fans and Five Rooms’ Adobe House
(source:*The study of Historical Architecture in South Jiangxi*, Wan Younan, (Beijing: China Construction Industry Press, 2018), 59.)

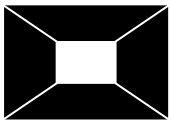
type 1



type 2



type 3



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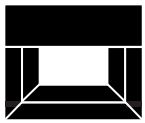

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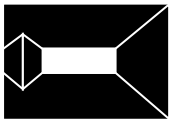

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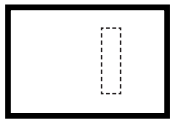


As it shows in the drawing on right, there are 6 typical types of courtyards in Nanshi Street.

54.Nanshi Street Roof plan
(source: Drawn by authors)

55.Nanshi Street ground floor plan
(source: Drawn by authors)

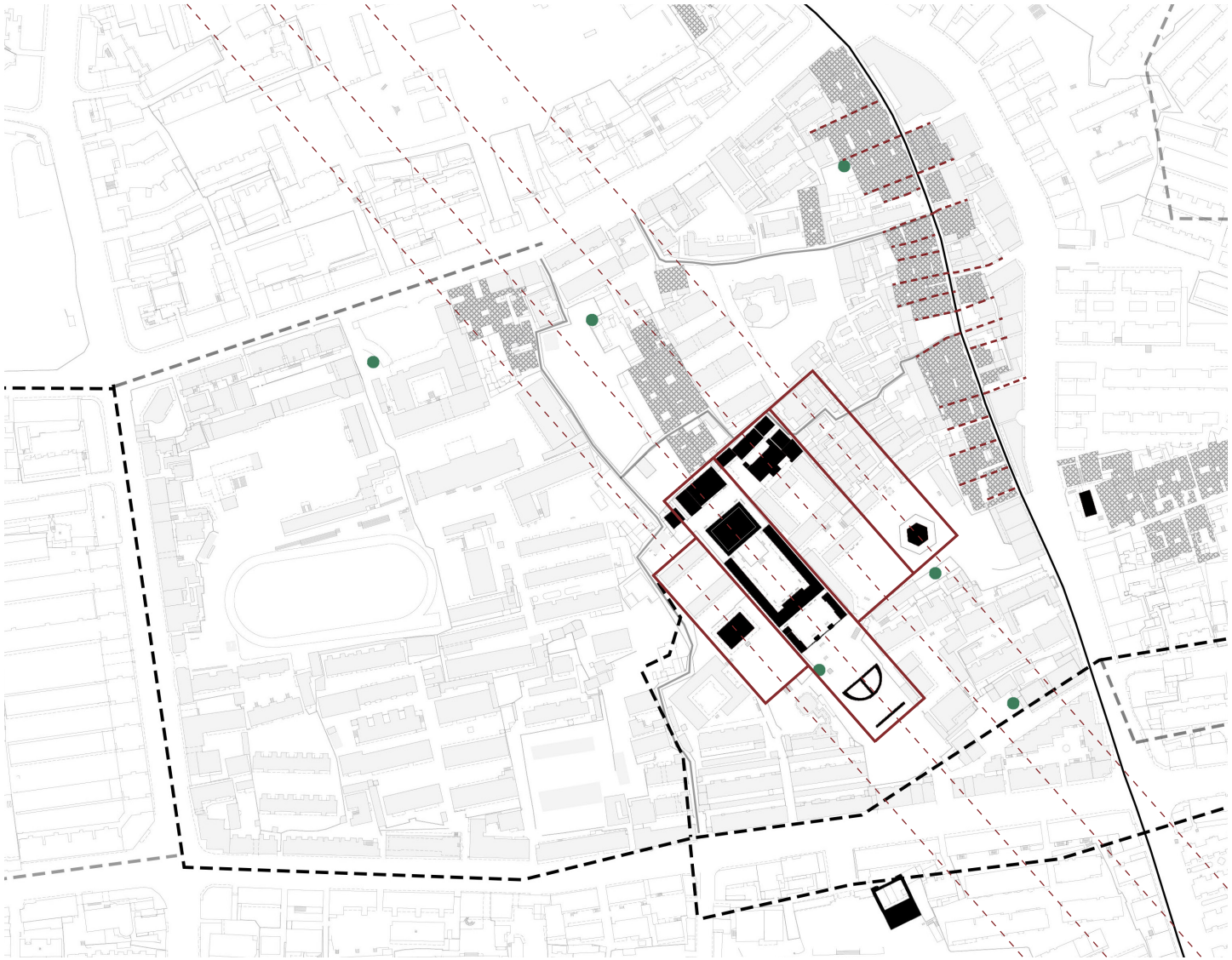
Notes

[1] Dayu Yang, *The Temple of Confucianism: Research on the Architecture of Yunnan Confucian Temple* (Kunming: Yunnan University Press, 2015), 64.
[2] Dayu Yang, *The Temple of Confucianism: Research on the Architecture of Yunnan Confucian Temple* (Kunming: Yunnan University Press, 2015), 94.
[3] Dayu Yang, *The Temple of Confucianism: Research on the Architecture of Yunnan Confucian Temple* (Kunming: Yunnan University Press, 2015), 95-97.
[4] Younan Wan, *The Study of Historical Architecture in South Jiangxi* (Beijing: China Construction Industry Press, 2018), 132-134.
[5] Younan Wan, *The Study of Historical Architecture in South Jiangxi* (Beijing: China Construction Industry Press, 2018), 28-29.

03
SEEKING
ADPTIVE DESIGN PRINCIPLES

The purpose of this chapter is to reorganize the researched information to propose the final urban and architectural design strategy. After thorough research and analysis of Ganzhou City and Nanshi Street area, the results are divided into four categories: strengths, weaknesses, opportunities, and threats. Then the SWOT analysis is generated graphically from four types of information. Using this analysis method can make a comprehensive and reasonable overall design strategy. In order to be more specific and precise, a design scope strategy is also needed, which shows how to reorganize the site and establish new connections. Finally, through the comparison between the status quo and intervention, the changes before and after can be clearly observed, and the intervention measures adopted can be reconsidered whether it is suitable.

SWOT



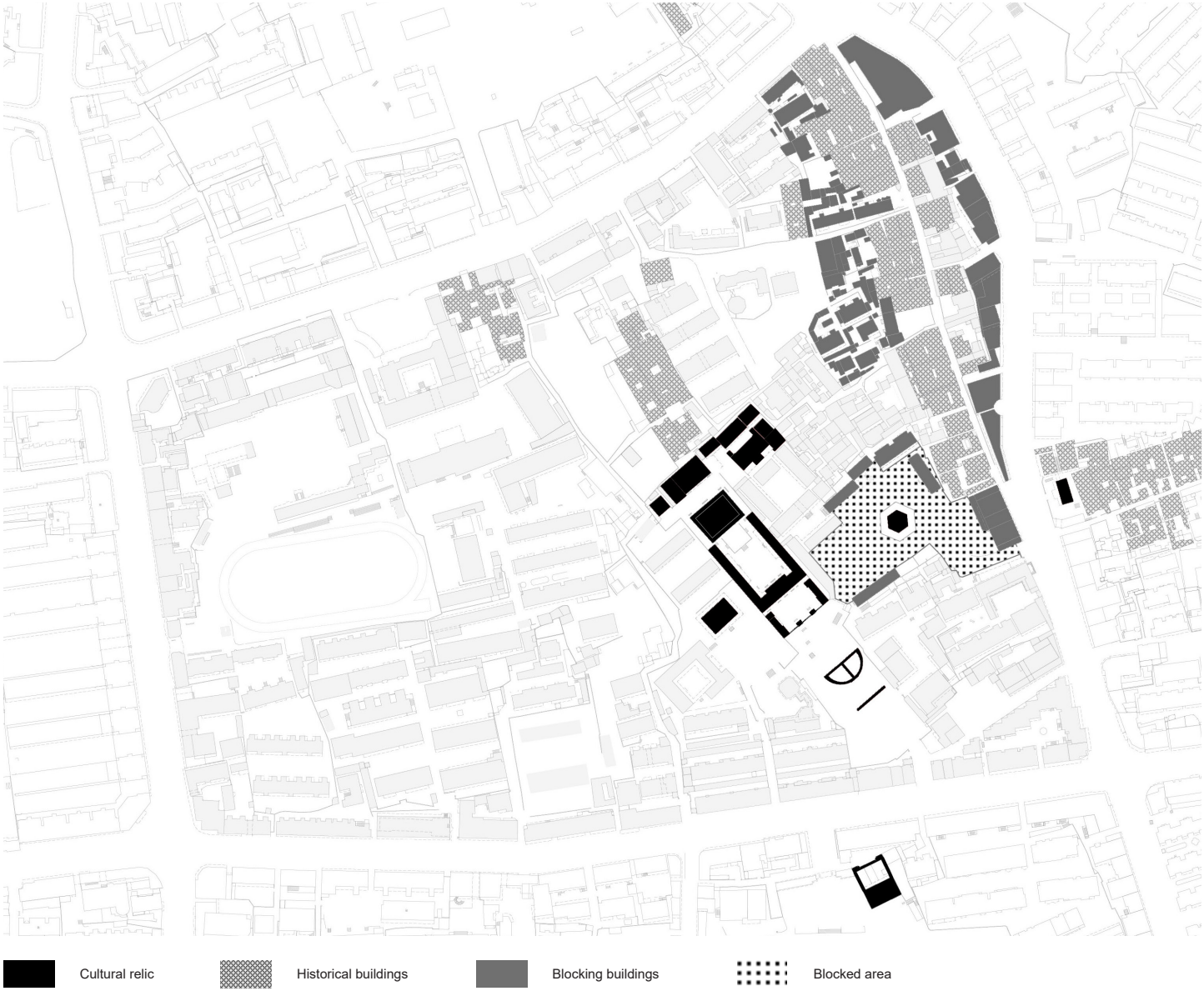
1.Strength
(source:drawn by authors)

Strength

Cultural relic & Historic buildings & Traditional featured alley_ The site area is religious cultural district, where temples are well preserved. Additonally, traditional alleys and buildings contain distinctive traditional architectural features.

Traditional morphology_ Traditional morphology in Nanshi Street has clear fishbone-shaped lane pattern.

Traditional axle_ Traditional axle is still recognizable especially from the position of temples. (facing Yugu temple and Feng mountain)



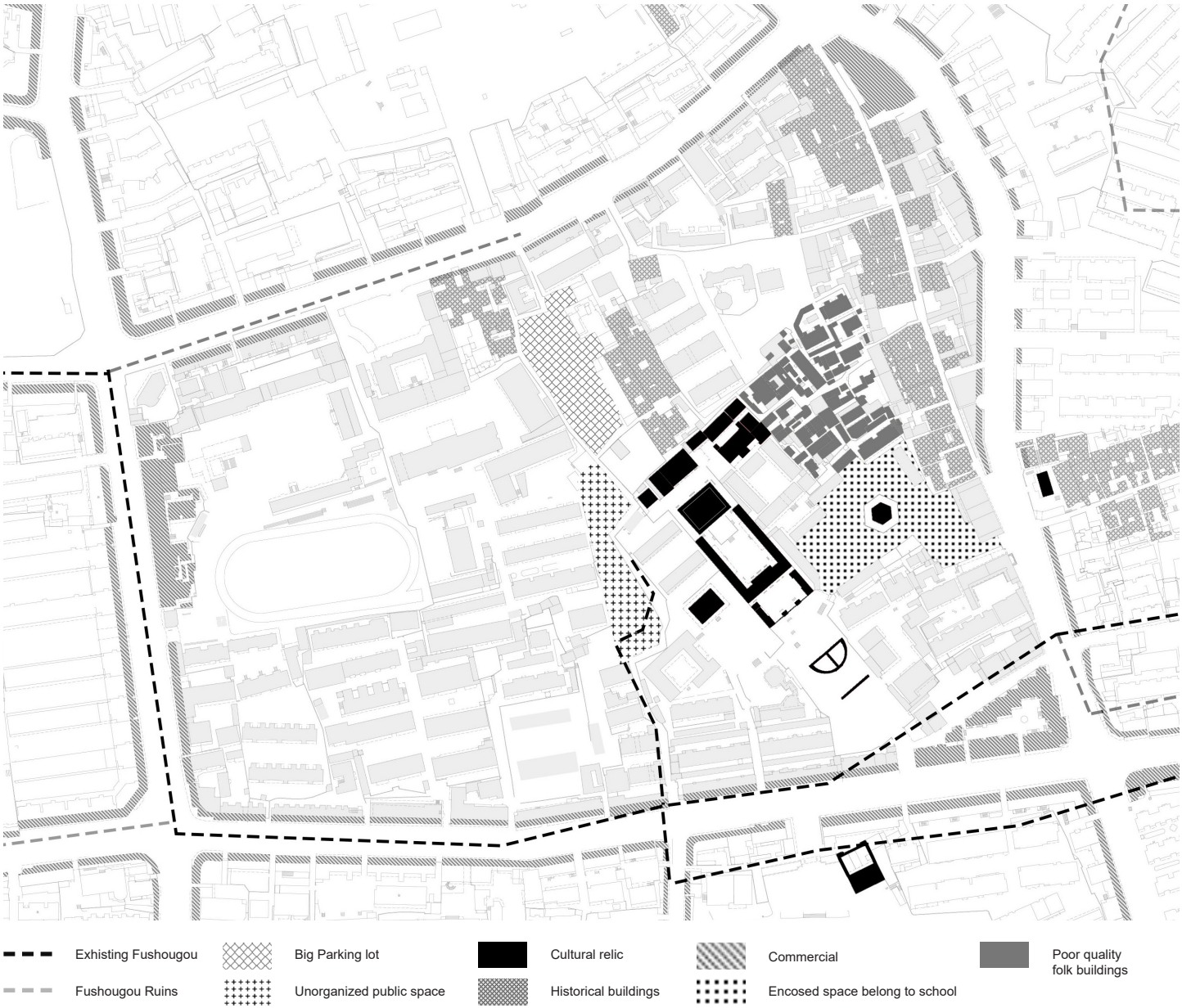
2.Weakness
(source:drawn by authors)

Weakness

Not enough open public space & green space_ Open space in site is not well organized, and also lack of public open space

Closure of traditional morphology_ Traditional morphology in Nanshi Street has clear fishbone-shaped lane pattern.However, the morphology does't spread to surrounding blocks, which is very limited

Blocking buildings & blocked area_ Dark grey buildings on the East side of the Nanshi street are modern buildings in poor design quality. Dark grey buildings on the west side of the Nanshi Street are mianly folk buildings in poor build quality. All those buidlings blok visitors to access the Nanshi street easily. Additionally, The pagoda area is blocked by walls and buildings nowadays, which is not open to visitors.



3.Opportunities
(source:drawn by authors)

Opportunities

Street commercial space_ The commercial space among the ground floor of the street is extremely common in local area. However, most of them are not well organized, and in poor condition. There is a good opportunity to better organize the street commercial space to create better sapce quality of the street.

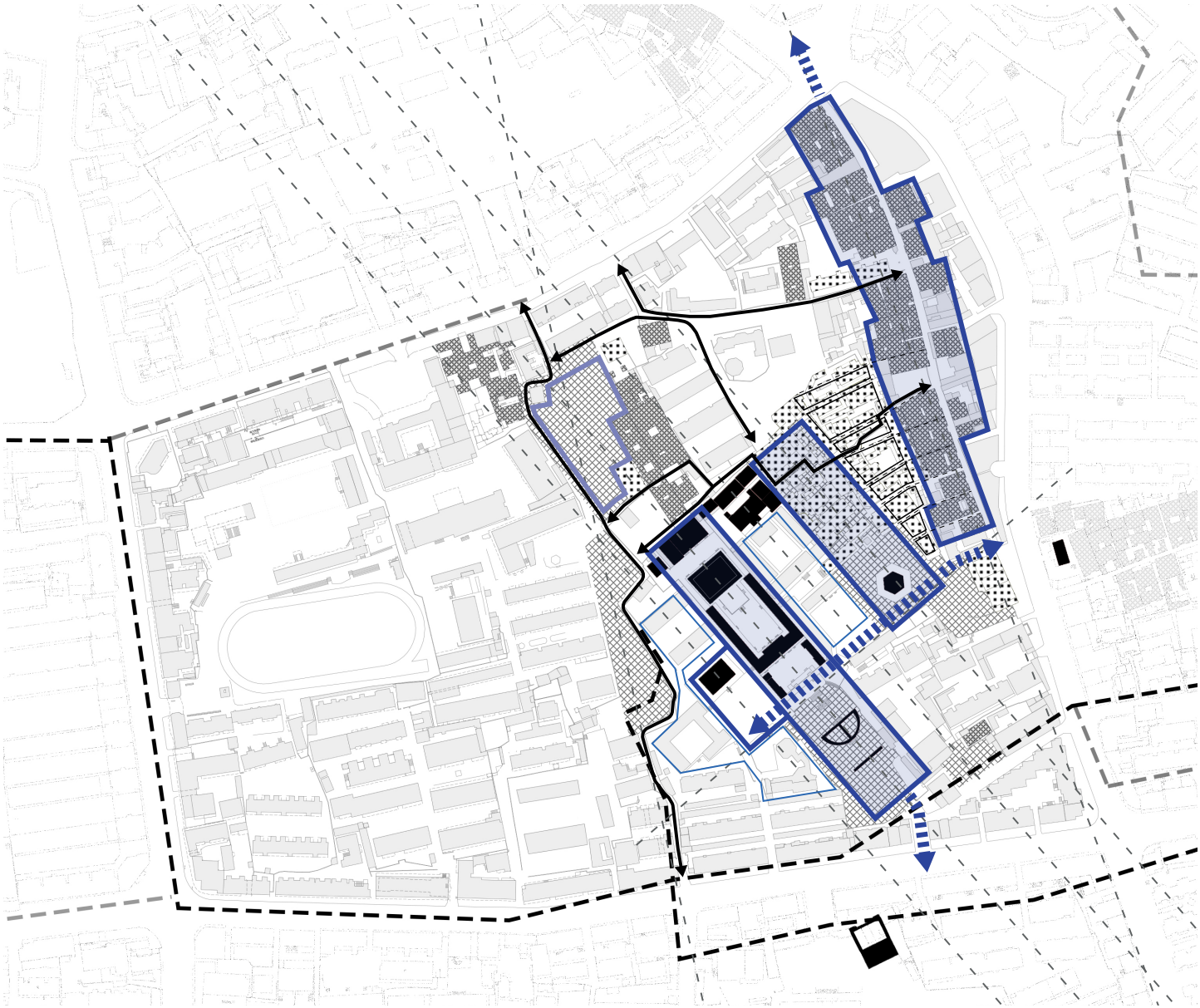
Poor quality folk buildings_ Most building in this area are old folk buildings with unstable structure and without historical and cultural features, which provides great opportunities to better reconstruct and reorganize this area.

Not well organized open public space_ Open space in this area could be better organized to benefit both local residents and tourists.

4.Threats
(source:drawn by authors)

Threats

The loose of traditional axel and building morphology_
Nowadays, modern building is growing against traditional axel and building morphology, which might leed to the loose of traditional area fabric.


Traditional axle
Primary connection
Secondary connection
Exhisting Fushougou
Fushougou Ruins
Traditional morphology
Primary architectual composition
Secondary architectual composition
School area
New design area
Open public area
Redesign area
Cultural relic
Historical buildings

Strategy

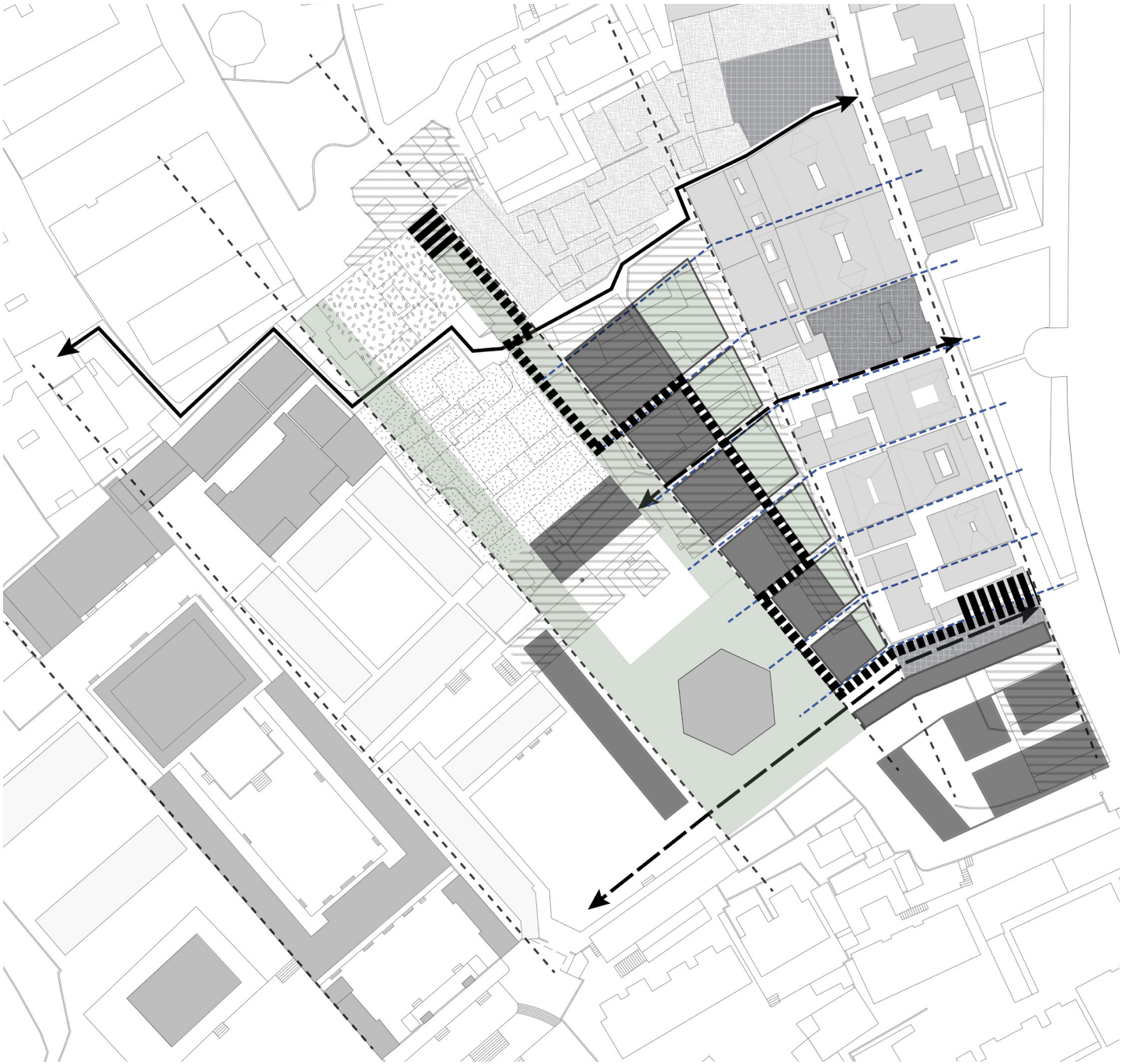
Overall strategy

The design idea is to emphasize the traditional fengshui axis in site(the central axis of the Confucian Temple), releasing the public space, and reorganized for better connecting the whole area.

Low quality buildings in the north-west of the pagoda are transferred to be an open space, which forms a public garden together with pagoda and the garden also following the traditional fengshui axis.

Three main cultural relics including Nanshi Street, Ciyun Pagoda and Confucious Temple are connected to form the main circulation. The Nanshi Street is now connecting to Ciyun Pagoda directly through a big entrance route.Visitors area able to be guided from Nanshi Street directly to the Ciyun Pagoda Garden as well as the Confucious Temple.

5.Preliminary strategy
(source:drawn by authors)



Design scope strategy

Axis emphasize urban form and divide areas

---------- Alignment

Preserve existing alley and create new connections, each alley entrance connect a small square

→ Existing alley

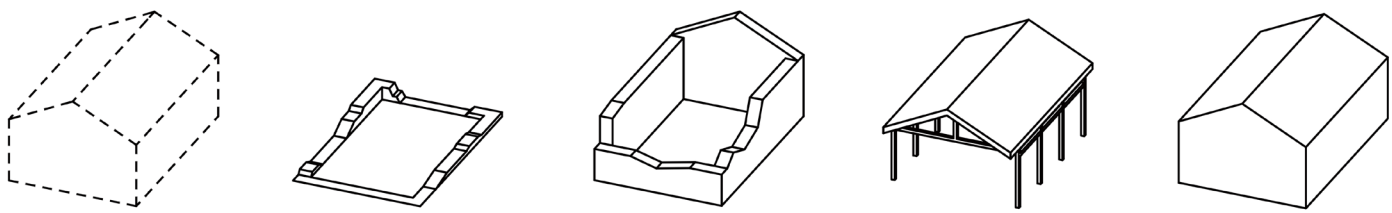
Public space

- - - → New alley

Define the boundaries of the pagoda garden with green spaces

Green space

Five ways to transform old buildings



Demolish

Keep plan

Keep wall

Keep roof and mian structure

Renovate

According to the morphology of Nanshi Street, organize the original buildings and create new buildings

---------- Nanshijie morphology

New building

Connect pagoda garden, new building and Nanshi Street with corridor

Corridor

Historical buildings

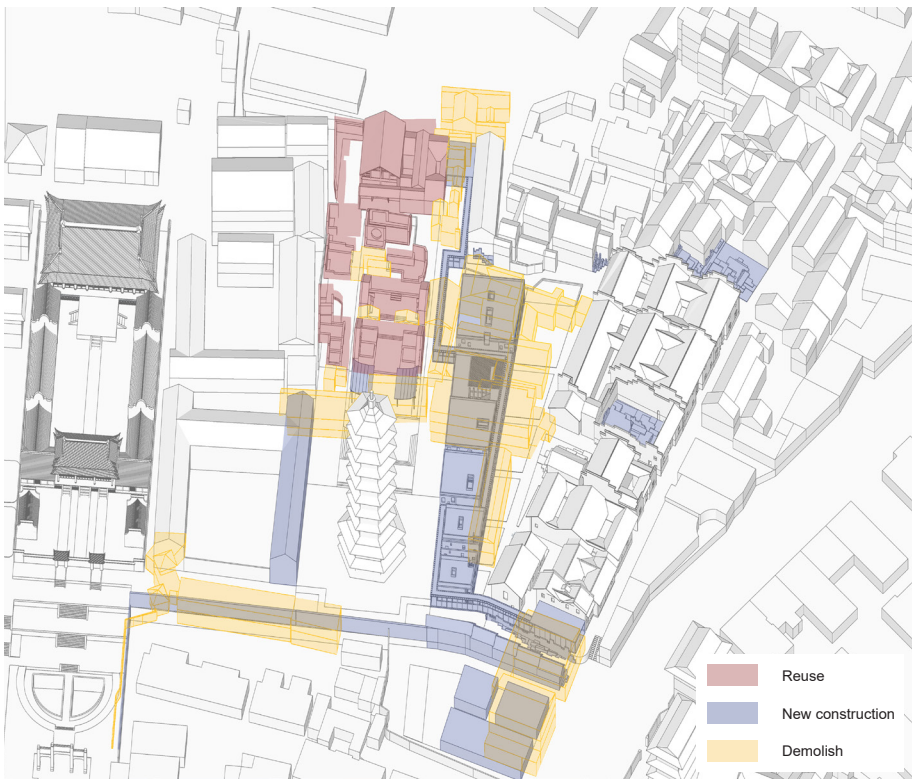
Cultural relic

School buildings

6.Design scope strategy map
(source: drawn by authors)

Comparison of status quo and intervention

The changes before and after can be seen by comparing the status quo and intervention. The intervention methods are divided into reuse, demolish and new construction.
First of all, through a comprehensive assessment of building quality and value, the buildings that met the requirements on the site were retained and remodeled.
Secondly, buildings that do not follow the morphological rules and typologically incompatible with the surrounding historical buildings will be demolished.
Finally, after sorting out the site, the newly built constructions will be used to strengthen the city's rules and insert new functions that conform to the lifestyle of modern society.



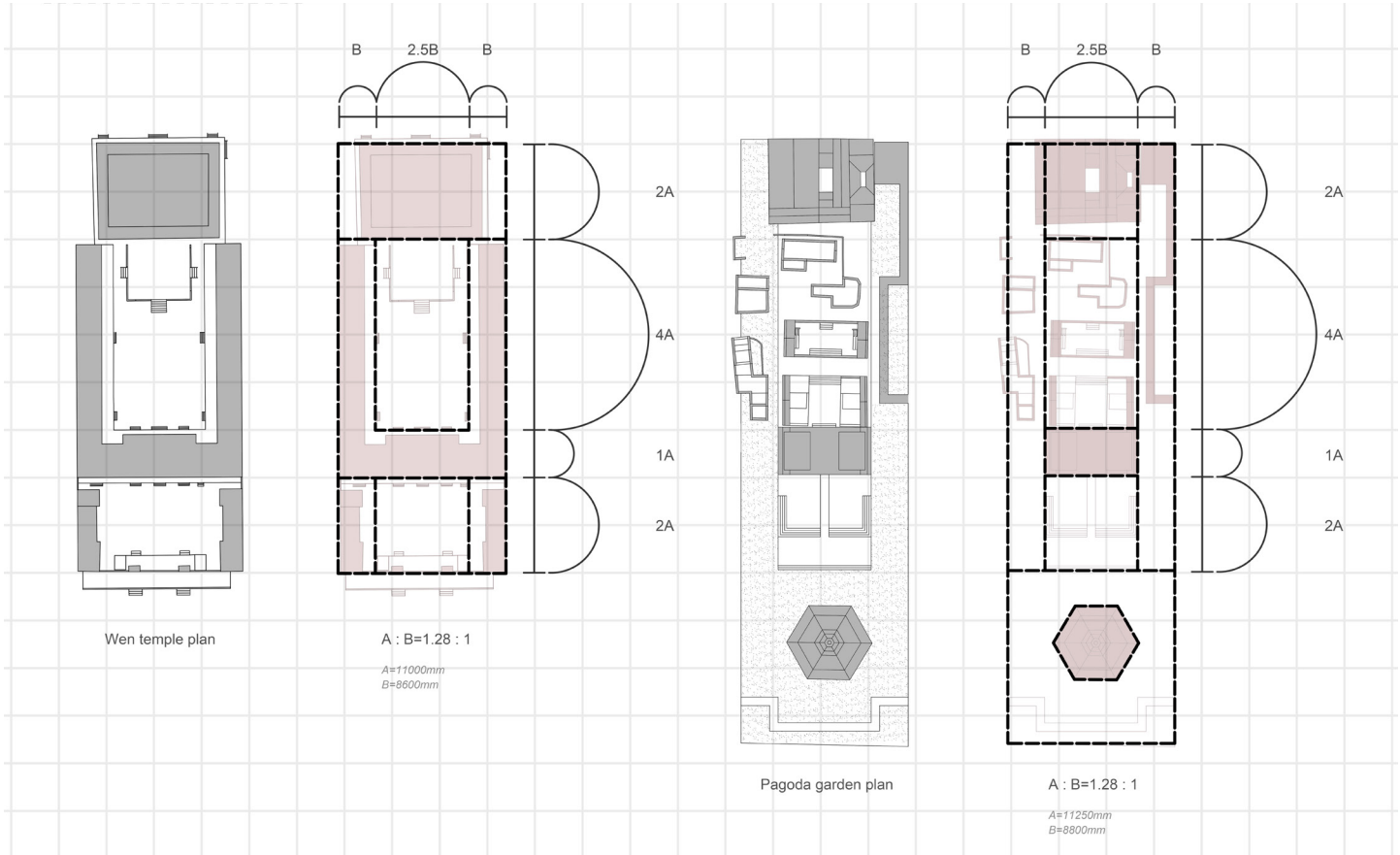
7.Comparison of status quo and intervention
(source:drawn by authors)

04

THE CIYUN PAGODA AREA DESIGN

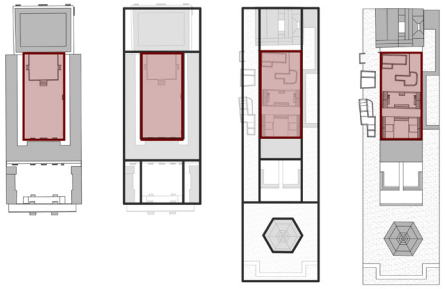
The design is mainly divided into two parts, the front garden of Ciyun Pagoda and the transition zone between the pagoda and the traditional dwellings of Nanshi Street. Firstly, the garden is connected to the Ciyun Pagoda along the Fengshui axis of Ganzhou, and also parallel to the axis of the Confucian Temple. So the composition of the garden follows the Confucian Temple and belongs to the same proportional formula. Secondly, the overall concept of the transition zone is not only influenced by the cultural symbol axis but also follows the morphology of Nanshi Street, which properly resolves the conversion of the two different forms. Thirdly, the concept of each unit in the transition zone comes from the typology of the traditional dwellings in Nanshi Street, that is, different types of courtyards. Finally, drawings such as plans and sections, as well as renderings like perspective drawings, are used to show the final design effect.

1.Masterplan of Nanshi Street district
(source: drawn by authors)



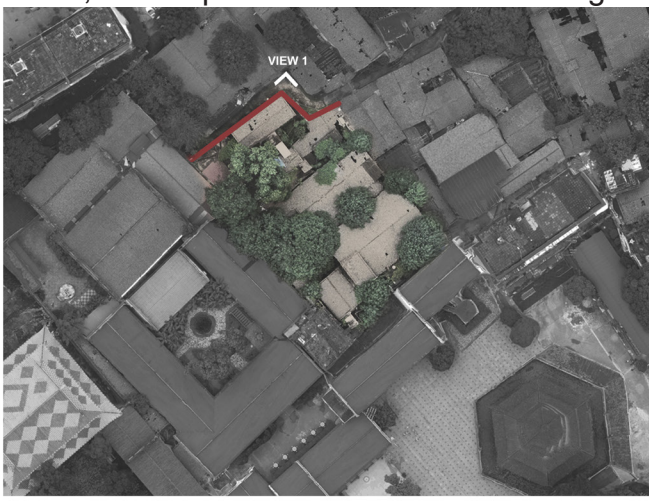
Ciyun Pagoda Garden, we wanted to design a place that could preserve the traces of history and revive the culture. There are many schools around ciyun Pagoda, and the garden will become a place for students' activities in the future, so we want to use the garden to emphasize and promote Confucius culture. The scale of the whole garden is built in accordance with the 2:4:1:2 ratio of the Confucian Temple, and buildings or landscapes are placed in corresponding positions to bring different visiting experiences and remind people to walk in a garden full of history and culture.

2.Architectural proportions of Confucian Temple and Pagoda garden
a.plan of Confucian Temple
b.architectural proportion of Confucian Temple
c.architectural proportion of Pagoda garden
d.plan of Pagoda garden
(source: drawn by authors)



Corresponding to Dacheng Palace in the Pagoda garden, there happens to be a Hakka residential building in the Republic of China era. Although this building is not built in the same era as the building in Nanshi Street, its typology is the same as that in Nanshi Street, and its wood structure is well preserved. We preserved the building a little bit and transformed it to make it a place to visit and exhibit.

In the pagoda garden, corresponding to the location of the front yard of Dacheng Palace, we keep some of the houses during

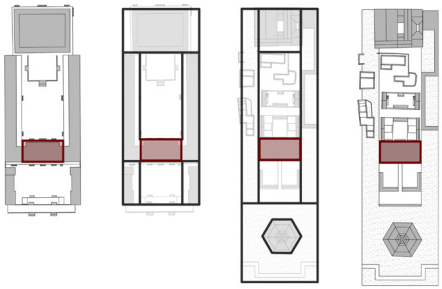


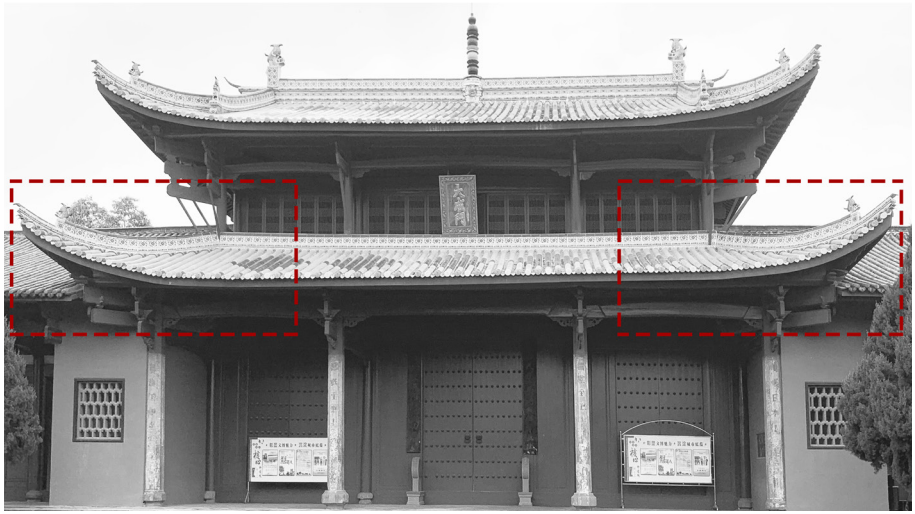
the period of the republic of China and transformed into an architectural heritage garden, because the style of these houses are very common and most of them are broken, so we will not be protected, but these houses are really existed for hundreds of years, witnessed the local people's life, So we decided to preserve only part of it and transform it into an architectural heritage garden. When people walk through it, they can imagine the life scenes of 100 years ago.

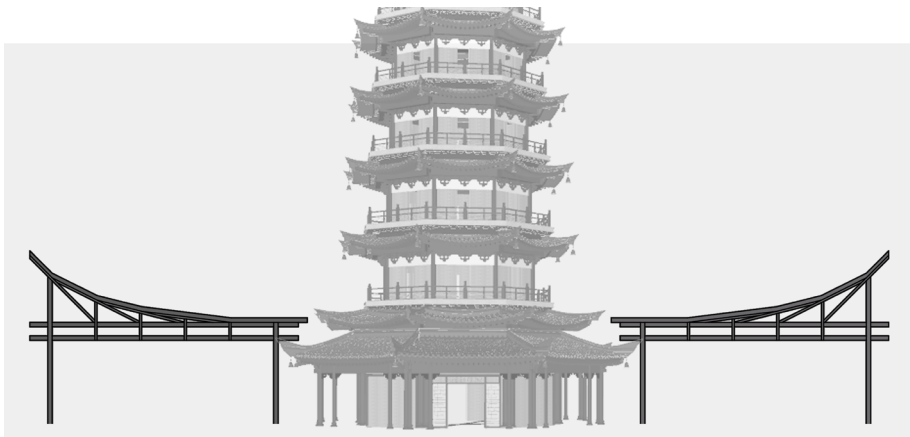
Close to the pagoda, we create a stage and audience platform where performances can be performed and traditional Chinese culture can be spread. In the garden, this position corresponds to the Dacheng Gate and Pan Pond of the Confucian Temple. The Dacheng Gate is the last gate of the Confucian Temple, and the threshold of the Dacheng Gate is very high, meaning that people who enter the Dacheng Gate to worship Confucius need to behave properly and have respect.

The shape of the roof of the stage is designed by imitating the curvature of the double eaves of Daecheng Gate. After studying the geomantic omen of the site, we found that after the Ming Dynasty, under the influence of geomantic omen "situology", the main building in the south of Ganzhou city has changed its traditional orientation of facing south to facing southeast. Baogai Peak, located southeast of Ganzhou, is the mountain facing the city and is regarded as a mountain that brings good luck to the city. In order to echo the logic of feng shui, when people look at the pagoda and Baogai Peak behind the pagoda from the garden, the shape of the stage and the pagoda forms a Chinese character of mountain.

3.Photos of residential buildings in the Republic of China
(source: photos taken by authors)





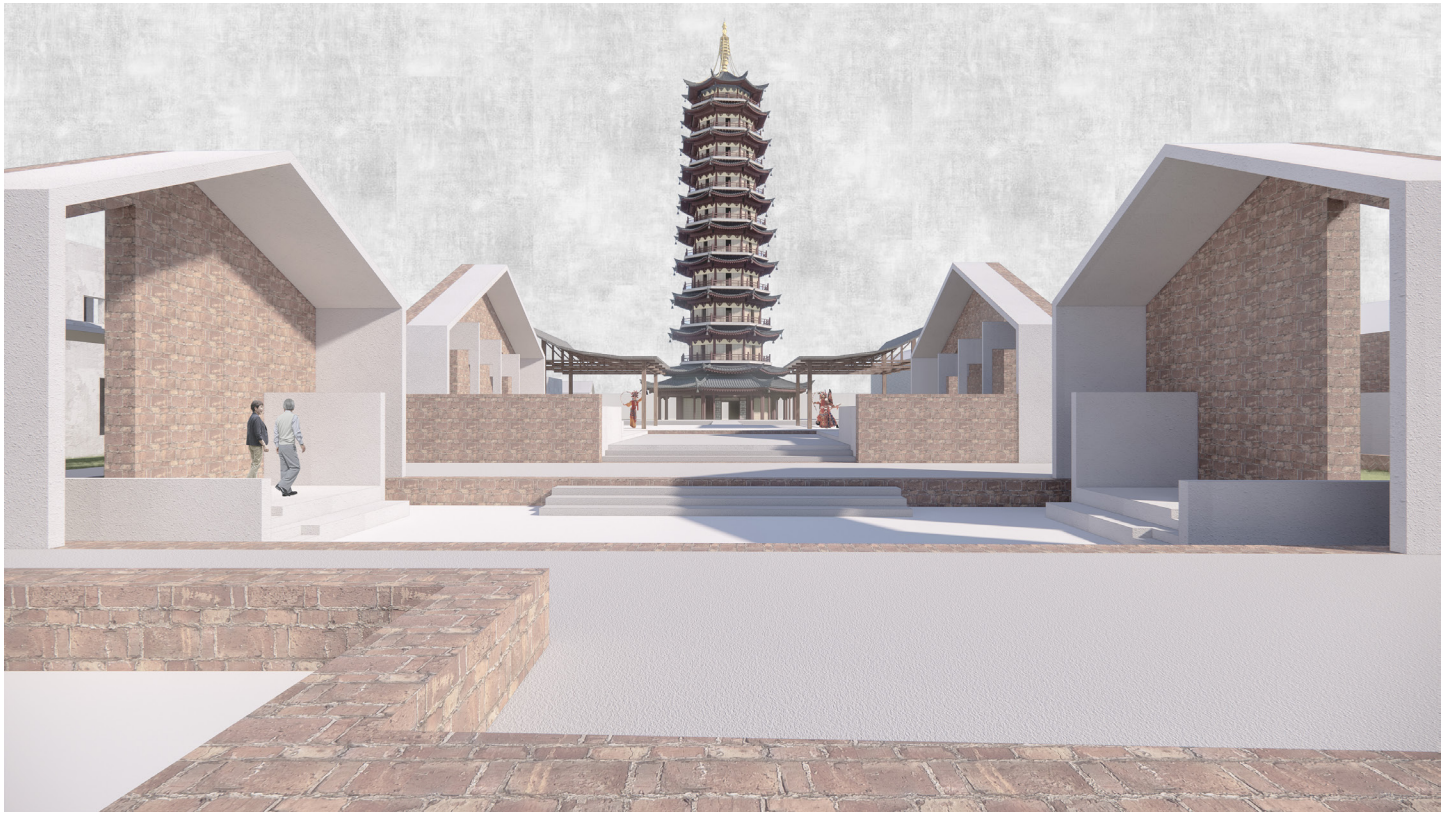


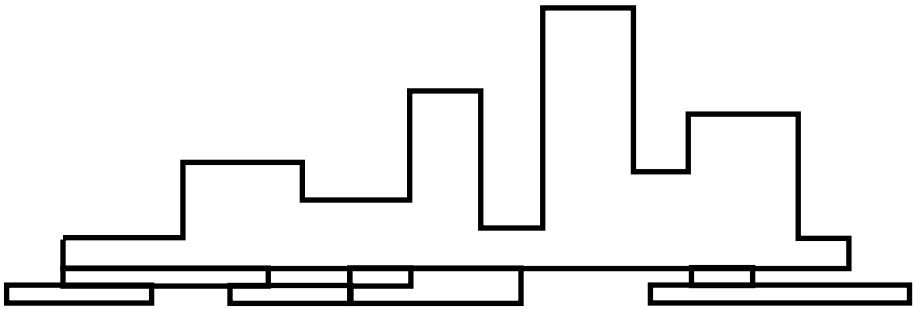
Inscriptions on oracle bones

Inscriptions on ancient bronze objects

Seal script calligraphy

4.Schematic diagram of stage roof concept
a.photo of the double eave roof of Dacheng Gate
(source: photo taken by authors)
b.stage roof and pagoda
(source: drawn by authors)
c. the Chinese character ‘mountain’ in different periods
(source: ‘Different ancient calligraphic fonts for Chinese characters ‘Shan’’,Baidu, accessed Nov,15,2021, https://image.baidu.com/)
5.View of Ciyun pagoda garden towards pagoda
(source:drawn by authors)





The inspiration comes from the rocks in traditional Chinese gardens. Rocks in the traditional gardens often vary in height and size, forming a spatial experience that is integrated with nature. Therefore, the entrance of Ciyun Pagoda Garden can also refer to this method by adapting platforms vary in height and size. This can not only provide visitors with resting places, but also guide visitors into the main space of Ciyun Pagoda Park.

6.Humble Administrator Garden
(source: 'Suzhou exquisite enjoyment',Souhu, Accessed September 12, 2021. https://m.sohu.com/n/422128354/.)
7.View of main entrance towards pagoda
(source:drawn by authors)

Transition zone design concept

It is called the transitional zone because it is located between the cultural heritage Ciyun Pagoda and traditional dwellings on Nanshi Street. Also, from a functional point of view, it is between public cultural buildings and residential buildings.

8.Transition zone concept a
(source:drawn by authors)

Based on respect for the protected buildings on both sides, retreating a certain distance is the first step adopted. In this way, the solid part in the middle and the void parts on both sides are formed.

9.Transition zone concept b
(source:drawn by authors)

The second step is to trace the morphology of the Nanshi Street area, and then merge with the rules of the Confucian Temple in the transition zone. Use this as a method to cut long solid parts. Turn it into six units adapted to the surroundings.
The same rule is also applied to the eastern void, which strengthens the morphology of Nanshi Street. Turning this part into public greenery can also solve the problem of congestion and chaos in the original space. The gap on the west side can also be used as greenery in order to adapt to the garden design of Ciyun Pagoda.

10.Transition zone concept c
(source:drawn by authors)

Thirdly, a Youlang is generated in the grid formed by the unit. The winding Youlang can be used to organize these solid and void units. At the same time, it can also guide the flow of people from different directions and districts.

11.Transition zone concept d
(source:drawn by authors)

Fourthly, main hall space was created for every unit. All hall space locates alongside the Youlang, which also create secondary space (grey color) and inner corridors (pink color) inside each unit.
The two units on the southernmost side are in a special situation, because they are small and facing the Ciyun Pagoda directly. After the halls are added, outdoor staircases are added so that visitors can go up to the rooftop directly to enjoy the great view of the Ciyun Pagoda and the entire garden.

12.Transition zone concept e
(source:drawn by authors)

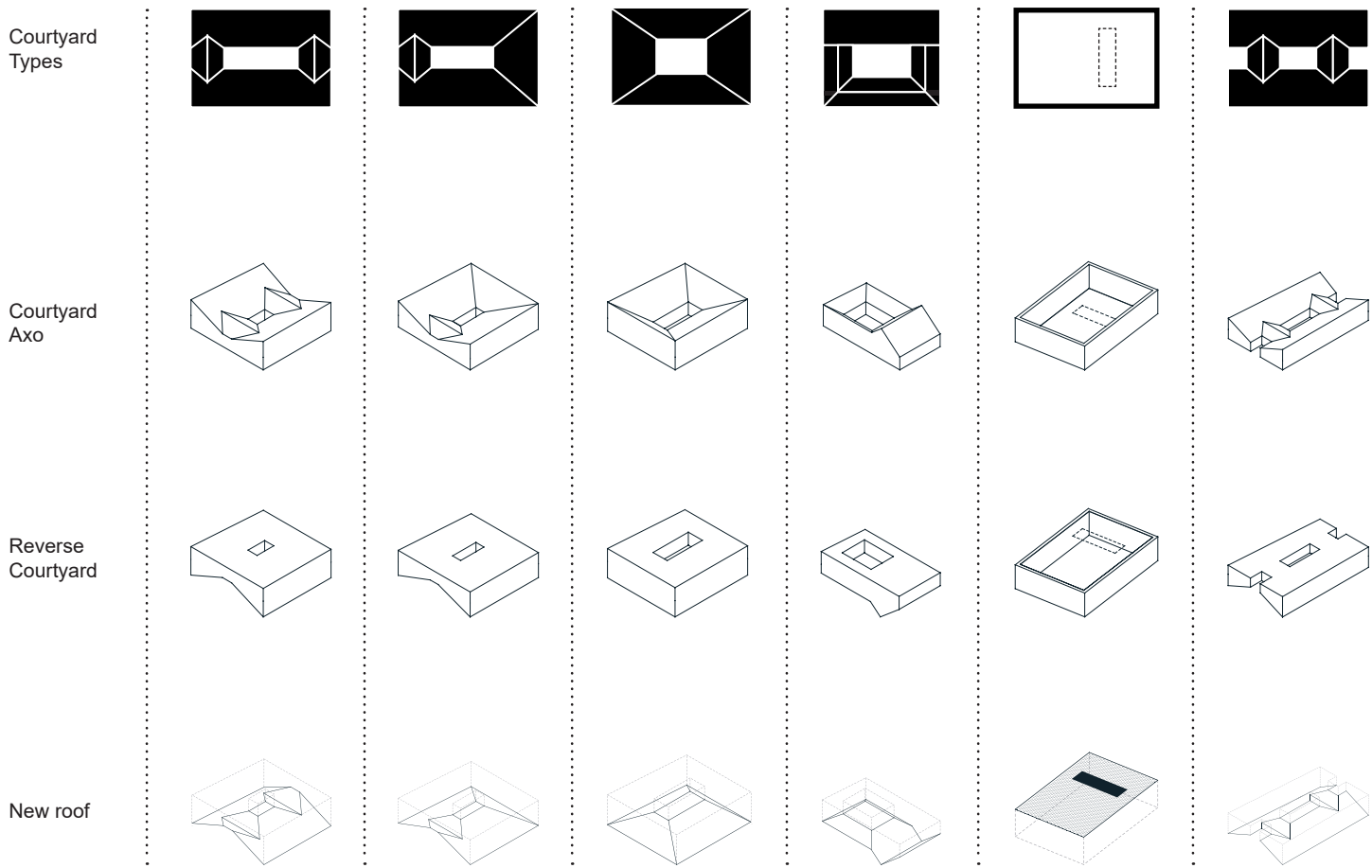
Finally, the design of the hall roof was inspired by the courtyard typology of Nanshi Street. Based on the five courtyard types derived from the previous courtyard analysis, these roof types were transformed and used on the roof of the new hall. In addition, the hall roof form of the new building also corresponds to the Nanshi Street courtyard type on the right side.
The second unit from top to bottom is a special case, because the land corresponding to Nanshi Street on the right side is damaged and is now a historic building with only four walls. In response, we designed a platform. The platform has many small holes for light transmission, providing a dim light for the hall below, symbolizing the cherishingof historical buildings.

13.Transition zone concept f
(source:drawn by authors)

14.Roof design concept
(source:drawn by authors)

Roof design concept

Six types of courtyards are kept and developed into new building groups next to Ciyun Pagoda. In this way, the new building could provide sufficient needs for moden life, as well as keeping the sense of traditional spaces.

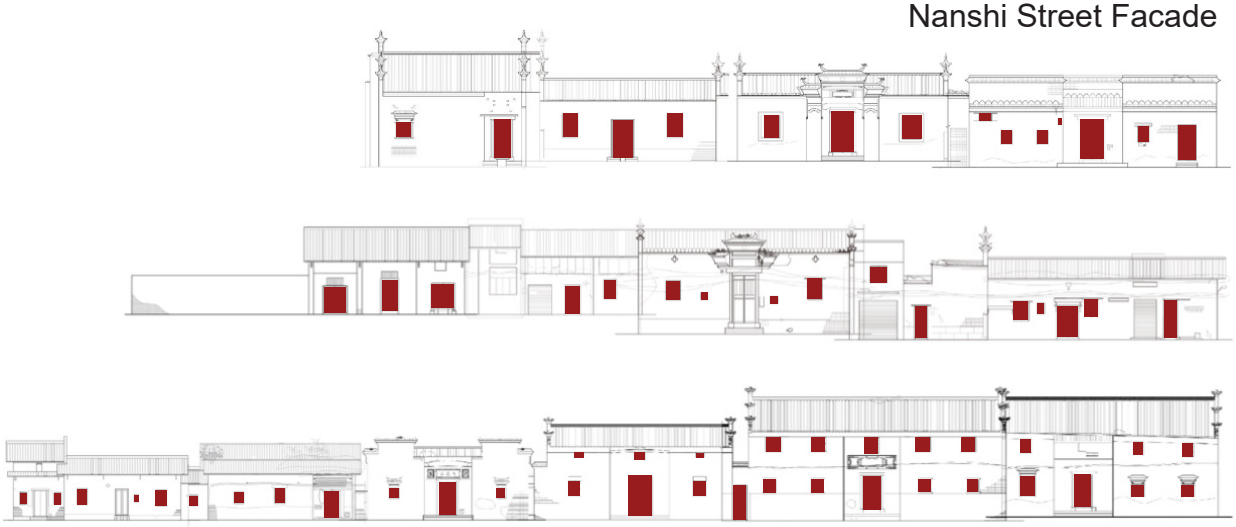


Facade design concept

15.Facade design concept
(source:drawn by authors)

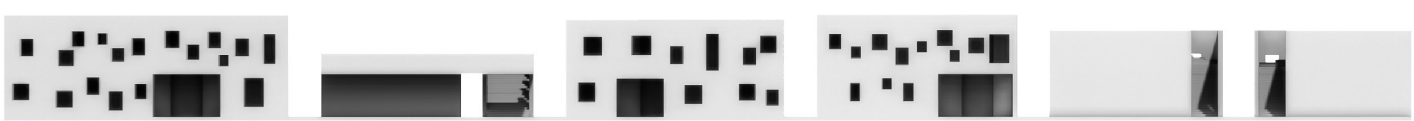
Design inspiration of the building facade comes from the doors and windows of Nanshi Street. From the facade of Nanshi Street, it could be observed that each building have different height and different door and window sizes.
The facade of the new building adopts the size and ratio of the doors and windows of Nanshi Street, forming a free architectural space that satisfies the new functional requirements, and at the same time is a tribute to the historical building in Nanshi Street.

Nanshi Street Facade

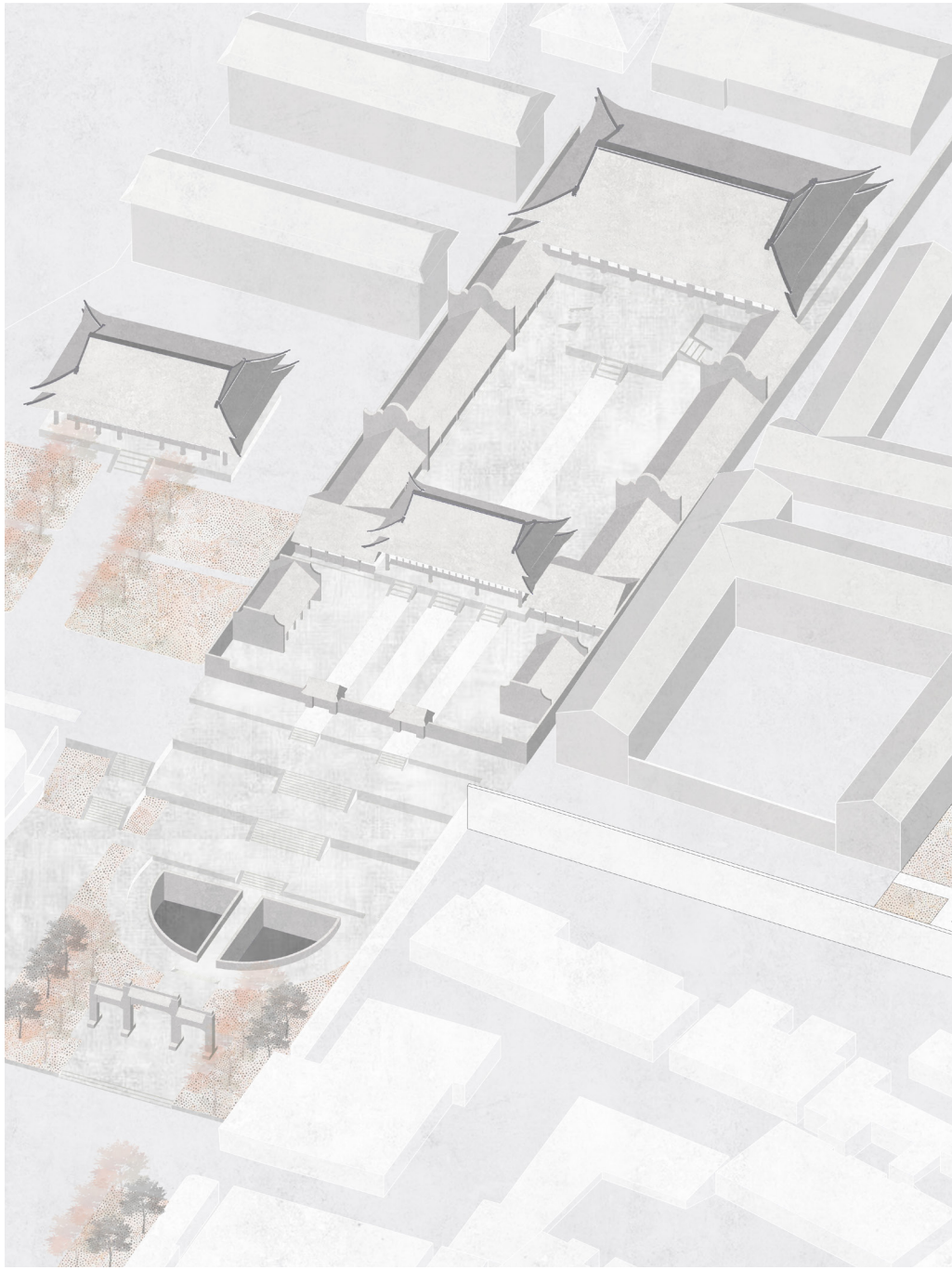


New building Facade

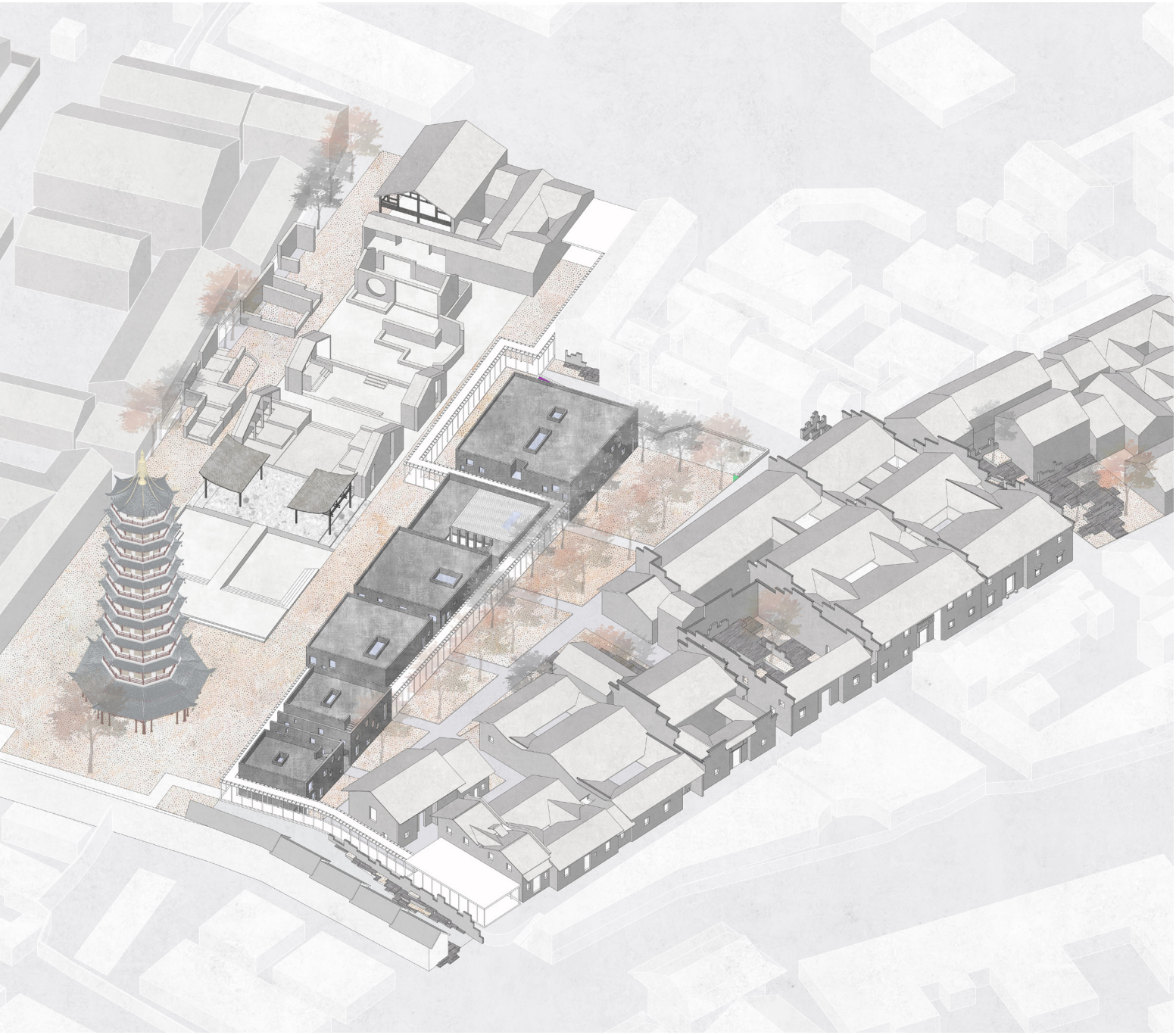
West side



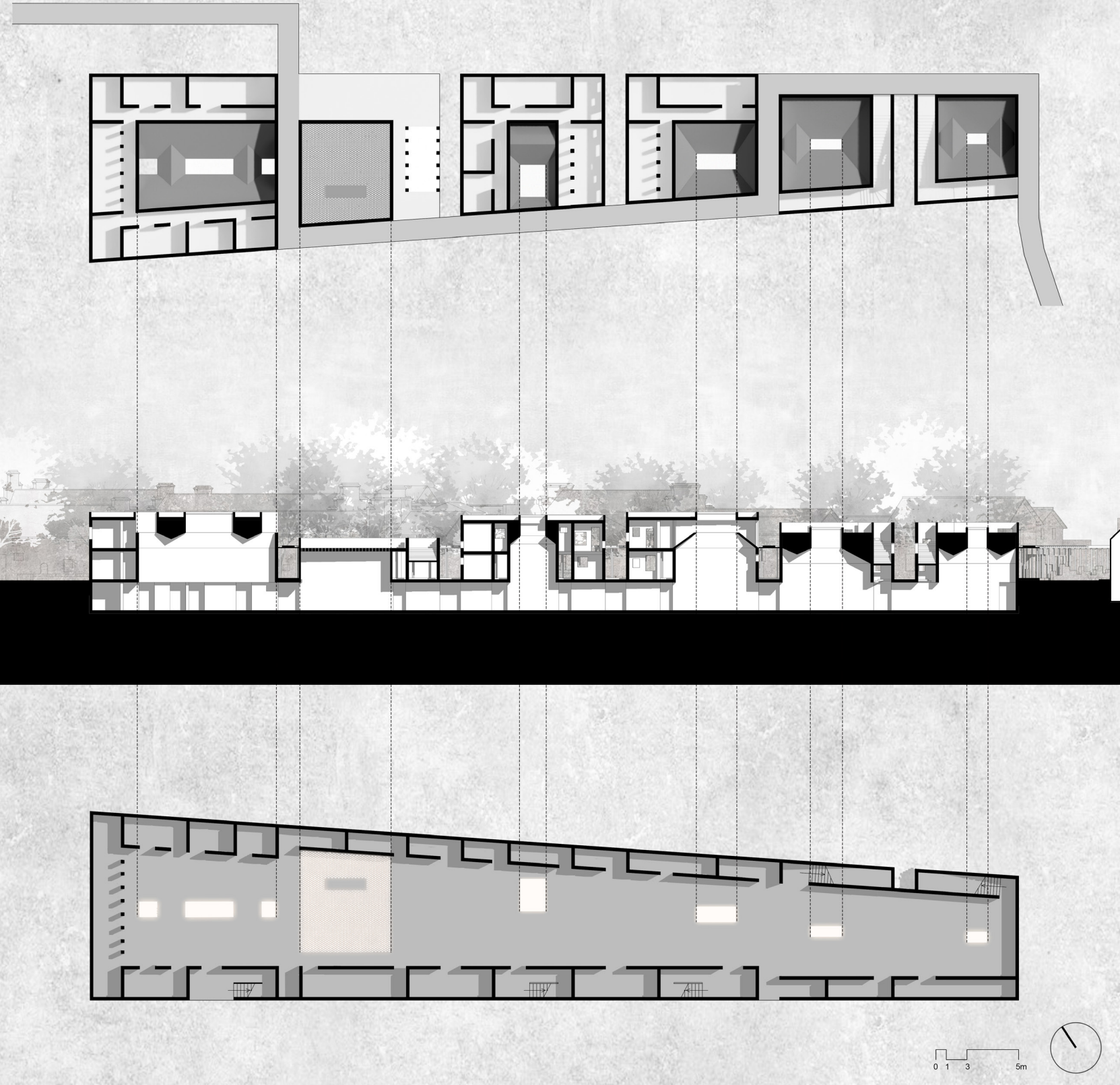
East side

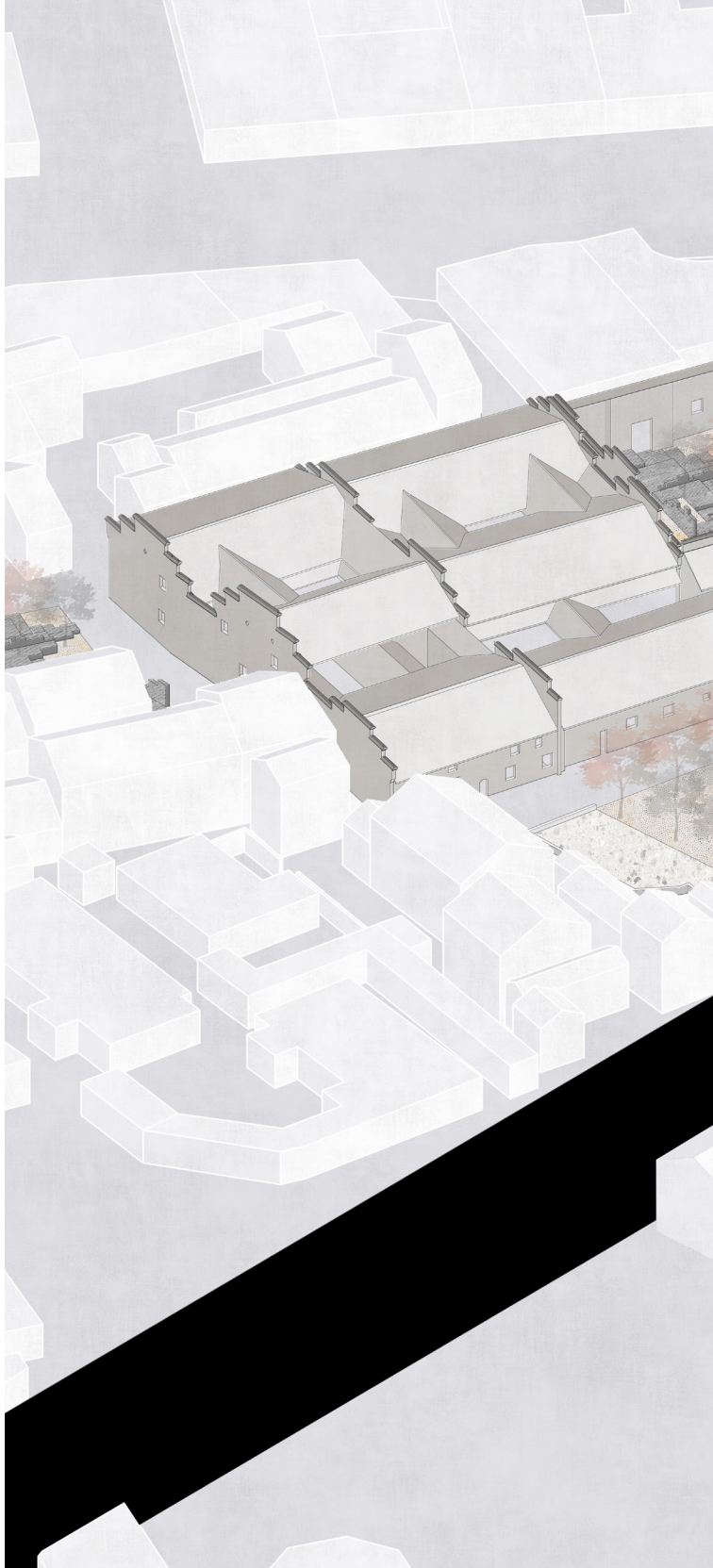


16.Axonometric drawing
(source:drawn by authors)

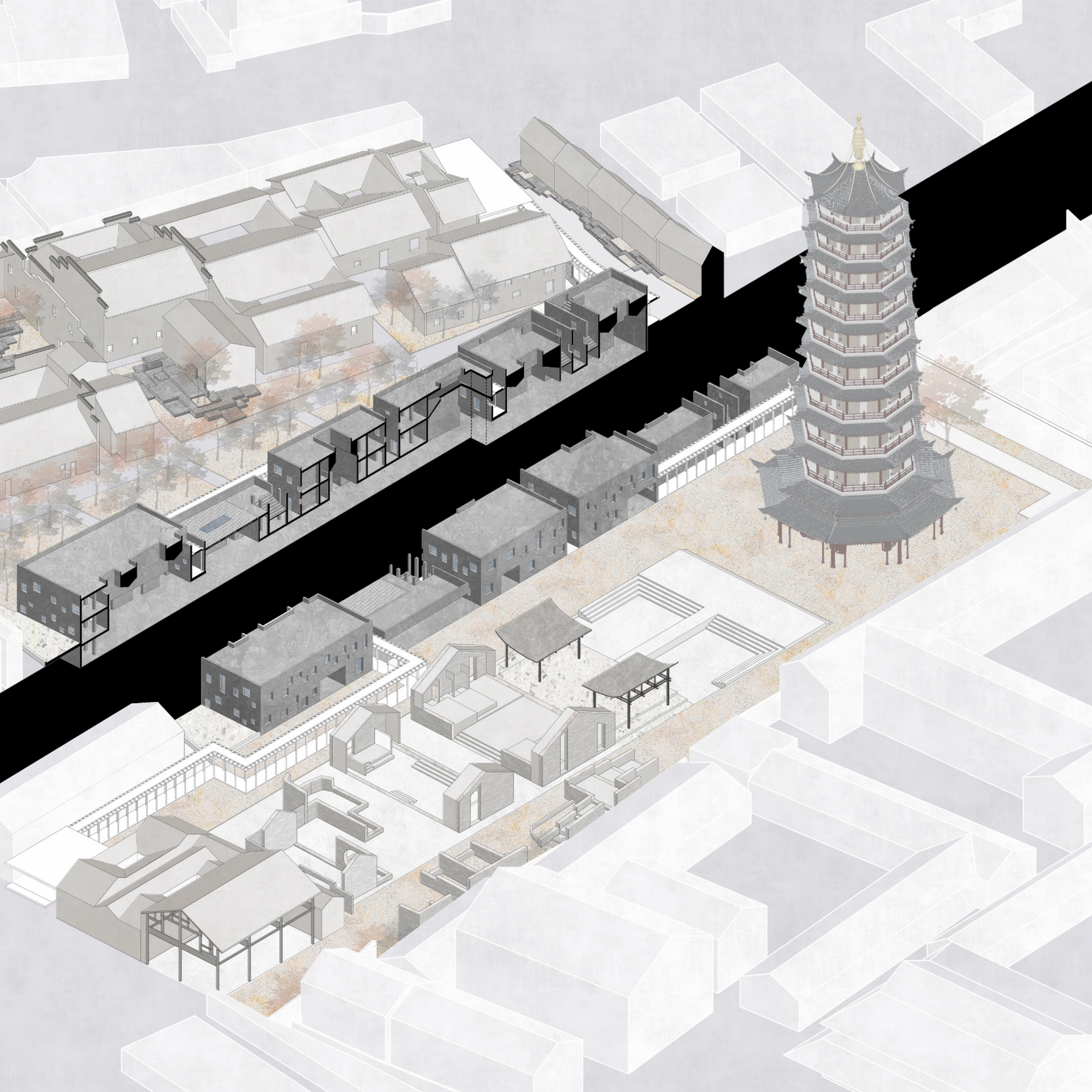



0 2 6 10m


0 1 3 5m

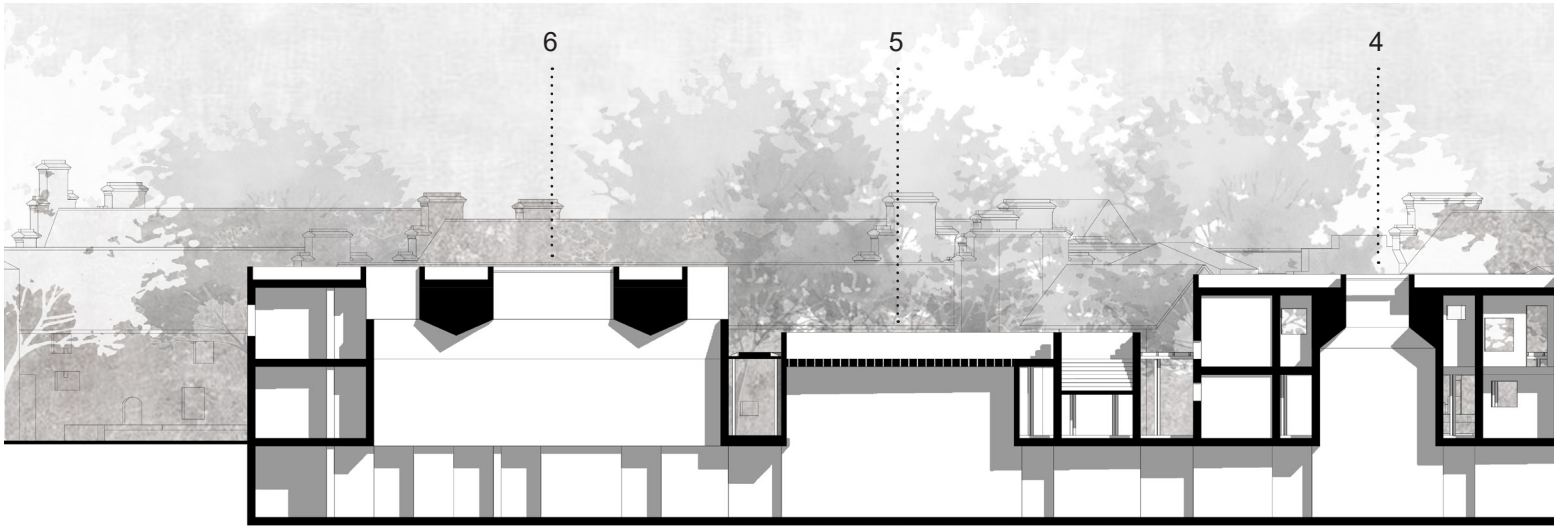


17.Site plan
(source:drawn by authors)
18.Celling plan,section plan and -1F plan
(source:drawn by authors)
19.Cutaway axonometric drawing
(source:drawn by authors)



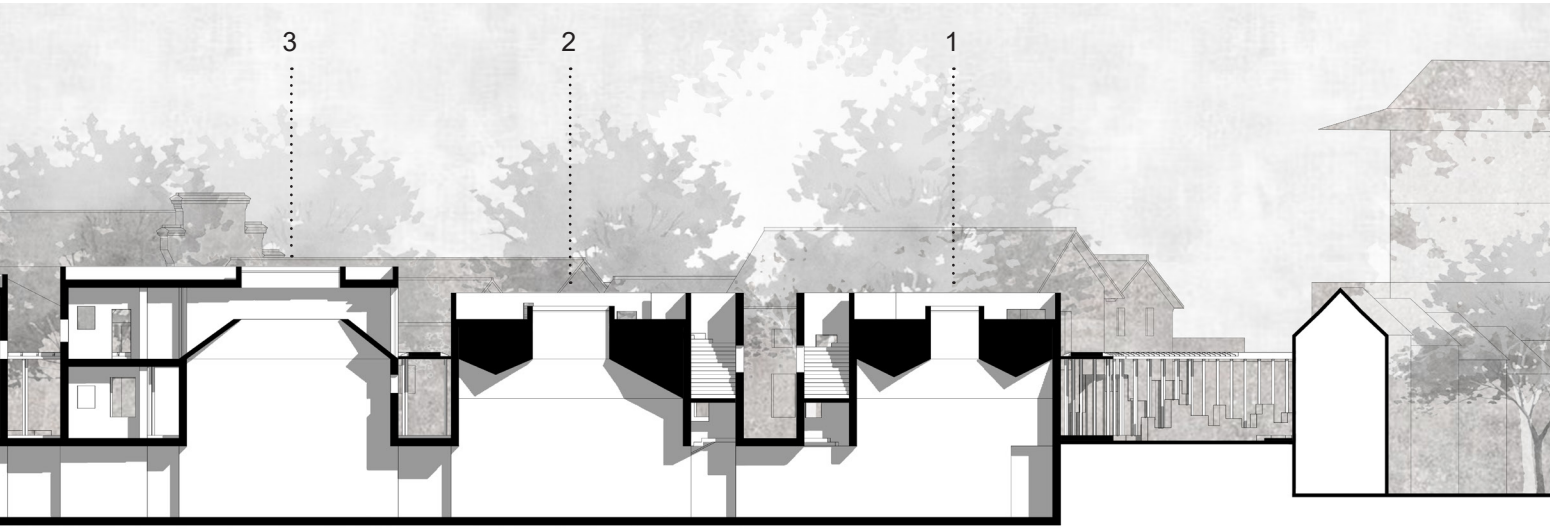
1&2

3



4

5



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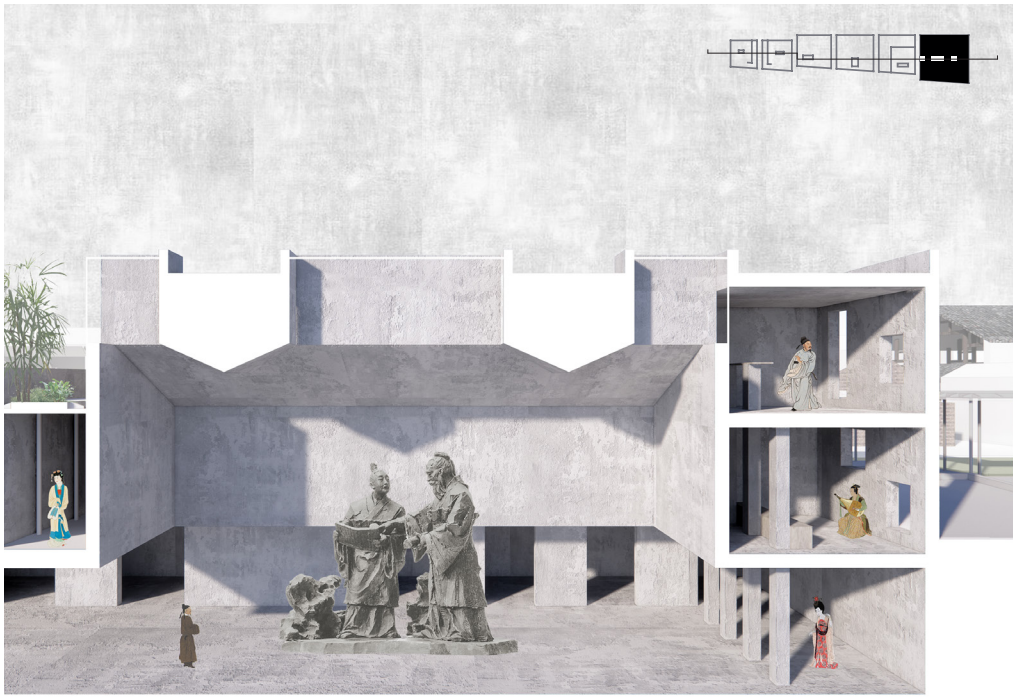

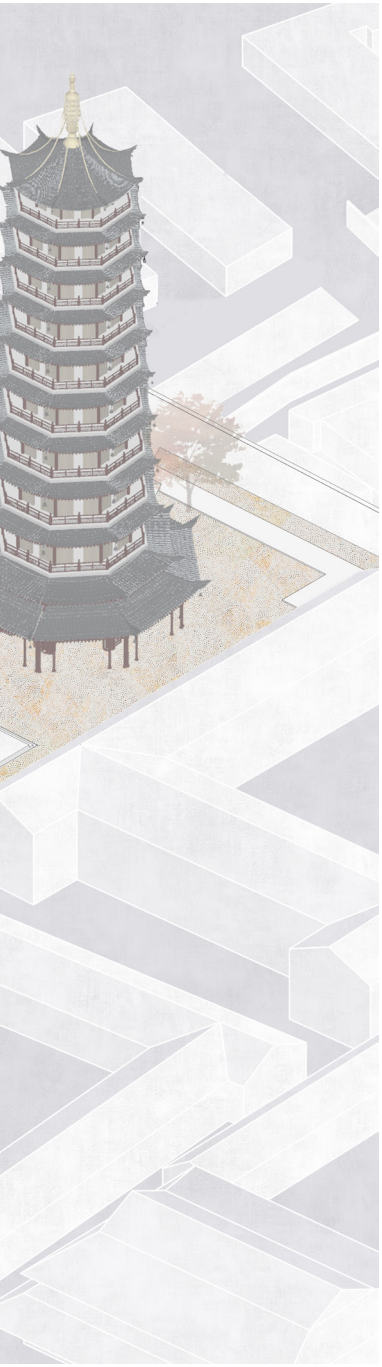

20.Cutaway perspective location map
(source:drawn by authors)
21.Cutaway perspective
a.View 1&2
b.View 3
c.View 4
d.View 5
e.View 6
(source:drawn by authors)
22.Axonometric drawing
(source:drawn by authors)

Conclusion

Ganzhou has a long history, the form of Song Dynasty city and Hakka culture, but it is not well-known in China and the world in terms of culture, which is a pity. This thesis tries to find the growth rules of Ganzhou from the spatial evolution of the old city and the urban context, so that it can continue to regenerate, rather than expand and replace without thinking.

The geographical position of Ganzhou City is excellent. It is surrounded by mountains and rivers, and also has a well-developed transportation network with other cities, so it was established as a city very early. In the long historical evolution, rich and diverse cultural resources have been preserved. Among them, the underground Fushougou drainage system is the most special, but the current research and data on Fushougou are insufficient. By linking cultural resources with natural resources, the northwest-southeast feng shui axis can be seen in many cultural buildings.

To be specific, this paper pays more attention to the Nanshi Street district. The current situation in this district is very messy, with schools, low-quality houses, and protected buildings mixed together. In addition, due to the existence of many fences and gates, the accessibility of this area is not good. After evaluating existing buildings, they are classified and treated according to their value. Low-quality buildings will not be completely demolished but will be reused to varying degrees and reorganized into a ruined garden to commemorate the era when they existed. In addition, decoding the morphology of Nanshi Street helps to rationally divide the new urban space, and analyzing the typology of the Confucian Temple, Ciyun Pagoda, and traditional residential courtyards can guide how to organize the spatial order.

SWOT analysis can systematically reorganize all the information and materials that have been obtained and show them in the

form of images, which can clearly reflect helpful and harmful conditions. According to SWOT analysis, the overall strategy is to strengthen the internal connection between Nanshi Street, the area in front of Ciyun Pagoda, Confucian Temple, and Wu Temple, then extend it to other neighborhoods. The strategy of the design scope explained in more detail how to reorganize chaotic low-quality houses in five ways, using linear green spaces and Youlang to connect various compositions and to further enhance accessibility through new alleys.

In terms of the design concept, the composition of the rectangular space in front of the Ciyun Pagoda follows the typology of the Confucian Temple and combines the reused ruins to become a garden. This increases public space to the high-density site and also carries a period of memory. The overall form of the transition zone is affected by the fishbone morphology of Nanshi Street and is divided into solid and void units, and then there are external Youlang and internal corridors connected in series. The design of each solid unit comes from the typology of the courtyard space of the traditional dwelling.

In general, the architecture and urban design are compatible with the local cultural characteristics of Ganzhou, and matched with the protected buildings in the Nanshi Street district, avoiding the homogeneity of the old city design. In the future, more considerations on materials and details are still needed to make the project more substantial. Considering the climate of Ganzhou, architectural design can be combined with green energy to achieve zero energy consumption. Fushougou drainage ditch is an important element nearby. After completing the survey and drawing, it is best to establish a digital model, and it will be considered how to establish a new relationship with the design.

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