Master's graduation design
Four senses elderly home
Life under city wall

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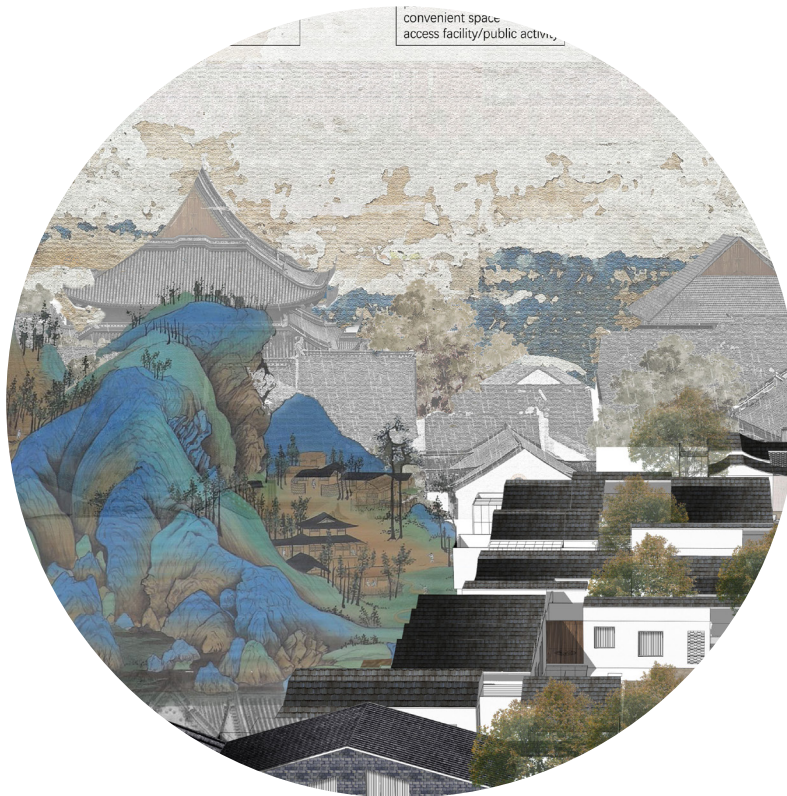
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Corso di Laurea Magistrale in   ARCHITETTURA PER IL PROGETTO SOSTENIBILE

Abstract:

With the increase of age, the physiological ability of the elderly are declining. The disability limit their activity type and space, the lack of care makes them always feel lonely, and the disconnection from society makes them lack of entertainment. In order to solve the problems, my design starts from a concept called four senses, by increase their senses of vision, hearing, touch and emotion to expand their feelings and experience of world, so that they could have a better daily life.

Also,the project is located under city wall which is a famous historical heritage.This place not only shows the history, but also records the memory of life. This is a place full of street culture. A variety of activities meet here and lead to an uncertain results. The boundaries of spaces are blurred here, while new ways of communication are generated here. These diverse relationships help the elderly to find new meaning of their daily lives.

Key Words:

Elderly Home/Historical Area/Happy Pension/Four Senses Feelings

CONTENT

Fig.1 Eldery are chatting happily
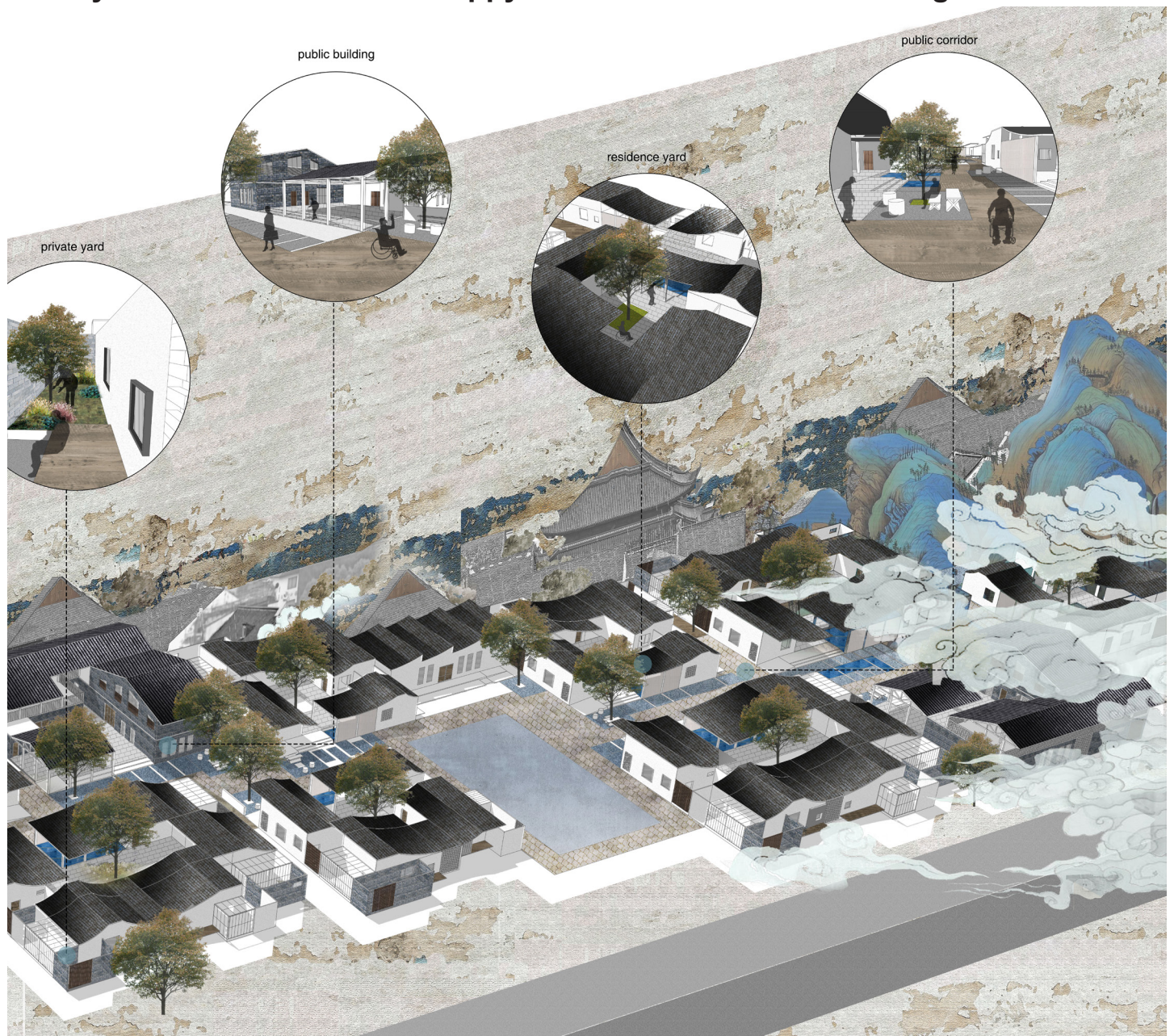
Part one

1.Background of design

1.1 Pension status of China society

1.2 Status of Pension Institution in China

1.3 Economy model for pension

1.1Pension status of China society

1.1.1Elderly population and status

According to demographic data, China is access to an aging society from 1999 to 2017, It is estimated that by 2050, the number of elderly people in China will reach a peak of 487 million, accounting for 34.9% of the total population. According to national statistics, at the end of 2017, there were 158.31 million elderly people aged over 65 in China, accounting for 11.4% of the total population. By the end of 2018, the total population of the China was 1.39billion, 5.3 million increase over the end of the previous year, of which the number of people aged over 65 was 8.27million, 11.9 percentage of the total population. The situation of aging in China has become more serious. (NBS,2017,2018)

At the same time, The overall health status of the elderly in China is not optimistic: first, more than 180 million elderly people suffer from chronic diseases, and the proportion of people with one or more chronic diseases is 75%; about 40 million disabled and partially disabled elderly.Second, China's Life expectancy is 77 years in 2018, but healthy life expectancy is only 68.7 years. This shows that the elderly in China have a high proportion to have illnesses. When they get old, they will spend a long time with illness and a low quality of life.(Wang,2019)
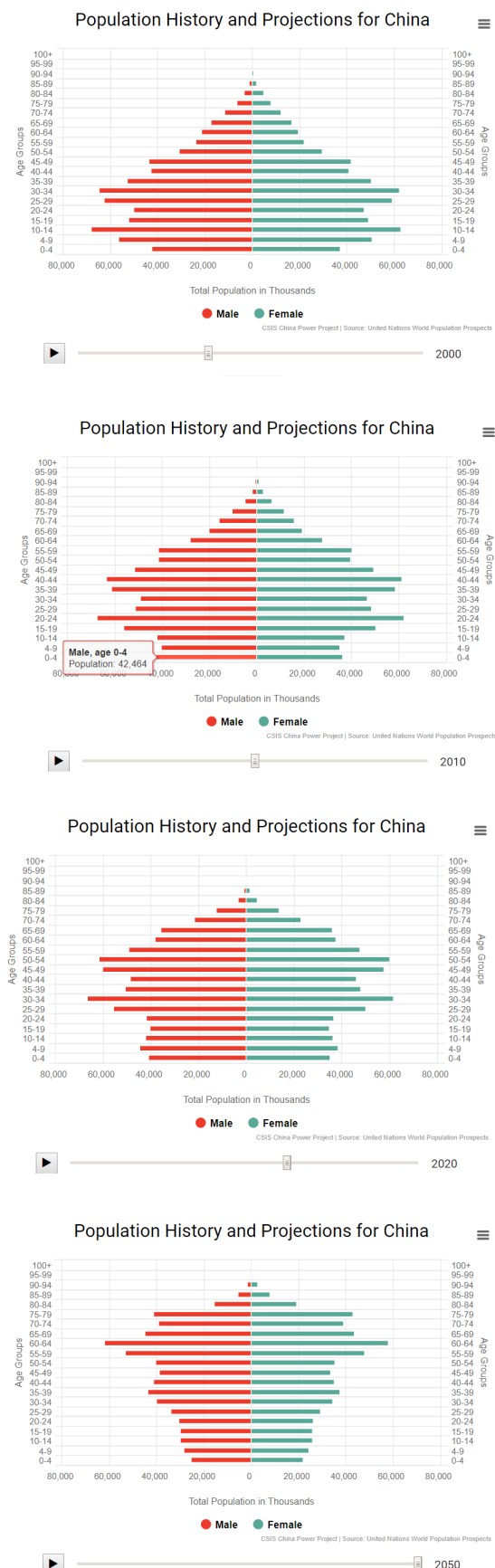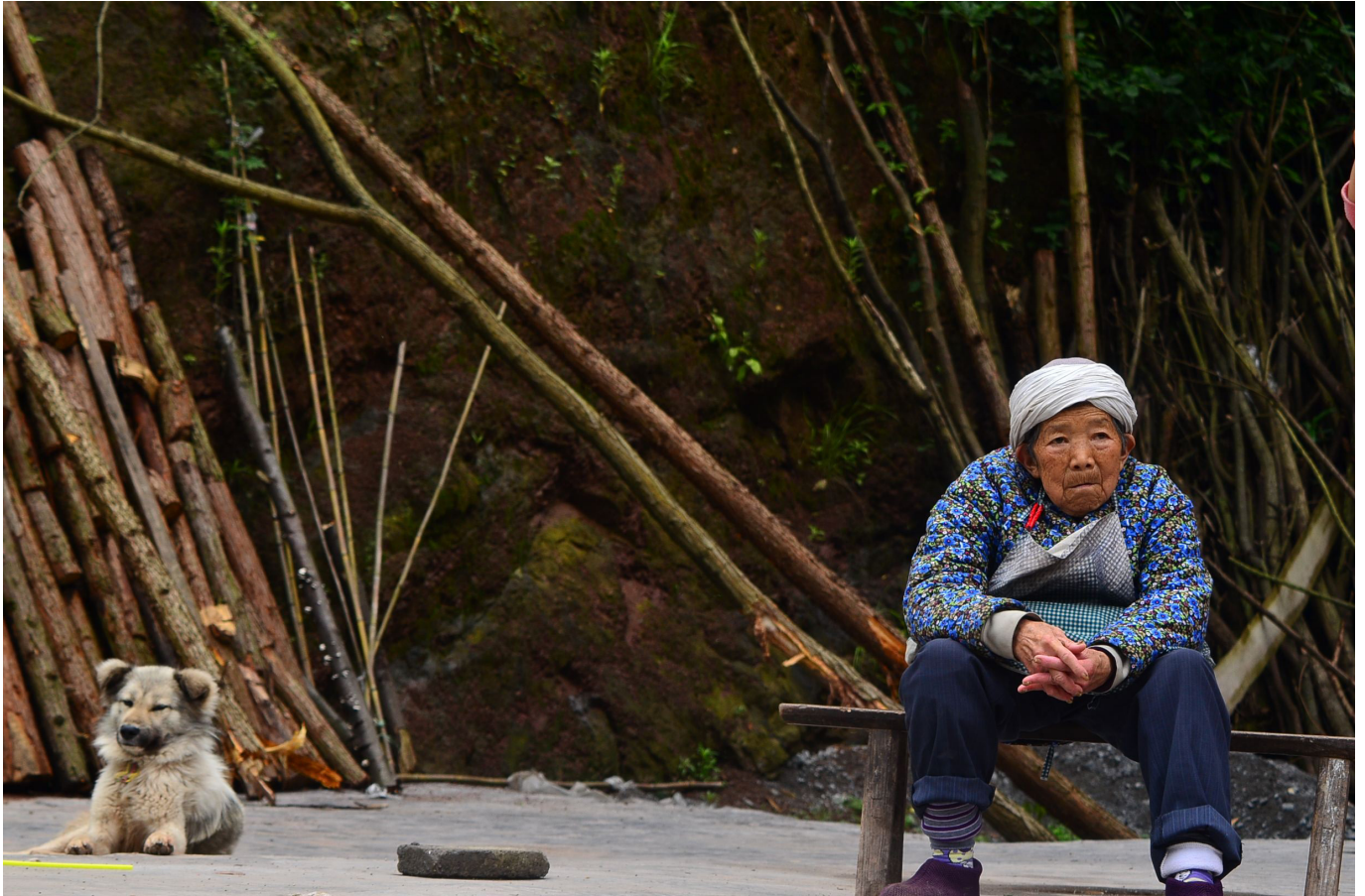

Fig.2-5

2

Fig.3

1.1.2Urban and rural differences

First, the rural elderly have poor economic conditions and are always working. For a long time, rural elderly have no pensions, and the government's monthly subsidy of about 100RMB can't afford daily life. The main source of income for rural elderly is farming or planting, and support from children.Second, the rural people in the ordinary life are old but without enough help and care.Third, the rural elderly lacked spiritual comfort and emotional satisfaction. Many children go out to work for a long time and don't go home anymore. The old people feel lonely.Most of the old-age care institutions are mainly concentrated in cities, so the institutions of rural areas is insufficient, also the cost can not be afforded.At the same time, the elderly also have the difficulty of communication in the language after they come to city,strangers and strange environments, unable to communicate,

making them feel very uncomfortable. Also unable to enjoy the benefits of the local government. In the face of unfamiliar cities, the loneliness,helplessness and inconvenience give them a lot of pressure.

1.1.3 Interview with the elderly

Yan Xiuying

from Xiaoji Village, Huaiyuan County, Anhui Province. The old man lived in a poor house covered with weeds. The house was dark and damp.The rain intrusion from the roof and soaks the earth wall. There is no furniture or even a light bulb. When talking of three sons, two daughters, the old man is crying, the children are all married and don't want come back.

Grandma Li,from Beijing.

In the past two years, I feel that I can't do a lot of things. I often have to rely on the hourly workers to help me. She is worring about the future life. She doesn't want to go to the nursing home because she is worried about the high expenses of the nursing home. Now the medicine cost has already occupied most of her retirement salary. However, as her body is not as good as before, her ability is gradually weakened. It seems to be the most realistic and most helpless choice to go to the nursing home.

Mr. Zhang does not want to leave home. The community stations around him can only provide day care. Home-based services, basically is the hourly service, do not provide all-day care.However going to the old-age care institution, the low-price institutions are not good enough which children will be worry about that,but the good public nursing homes are hard to find,the perfect private nursing institutions are far more expensive than the family's economy ability.(CCTV,2016)

Fig.4

养老中国

十集大型电视纪录片

aging problem in China

西湖发浩歌，诗情画意两如何。

老山容淡，山到秋深红更多。

出品人 张东志 导演 杨国建

Fig.5

1.1.4 Document Analysis
Chinese elderly people's willingness of pension model ——Analysis based on 2014 China Longitudinal Aging Social Survey

In the rural areas, most parents no matter how many children they have showing a great expectation of staying together with their children, nearly 45.8% of them hope to live with their children. 19.3% want to live alone. But in urban areas the number of elderly hoping to stay in the care institutions is increasing. For example, in Beijing the proportion of non-disabled elderly and disabled elderly that want to live in institutions is 27.53% and 10.50%. Even for the rural elderly who have strong family concept, their willingness of pension also going to show a difference. For example,also 11.7% of rural elderly have the willingness to have institutional pension services.

In comparison, the proportion of rural elderly who intend to live in their children's homes is 30.5%,which is higher than that of urban elderly. Relatively,the proportion of rural elderly who choose to live in care institutions is significantly lower than that of urban elderly.(Shen,2017)

表2 分城乡不同类型老年人养老居住的打算　　　　　　　%

变量		城市老年人			农村老年人		
		自己家	子女家	养老机构	自己家	子女家	养老机构
总体		74.2	19.1	6.6	68.8	30.5	1.5
性别	男	77.4	17.0	5.6	71.2	27.8	1.0
	女	67.4	25.4	7.2	60.9	38.1	1.0
年龄	60—69	73.4	18.4	8.2	72.6	26.0	1.4
	70—79	71.0	23.5	5.5	63.1	36.2	0.7
	80+	70.5	26.1	3.4	50.6	49.2	0.2
健康自评	健康	73.6	20.5	5.9	67.3	31.6	1.1
	一般	71.8	20.3	7.9	64.9	34.5	0.6
	不健康	69.5	25.1	5.4	65.2	33.7	1.1
起居照料	需要	69.9	25.5	4.6	52.2	46.6	1.2
	不需要	72.3	21.1	6.6	67.1	31.9	1.0
婚姻状况	有配偶	76.9	16.2	6.9	73.3	25.6	1.1
	无配偶	62.6	31.7	5.7	53.9	45.3	0.8
经济收入	较低收入	66.7	30.0	3.3	66.4	32.6	1.0
	中等收入	79.7	11.0	9.3	74.8	22.8	2.4
	较高收入	79.1	8.2	12.7	76.2	22.8	1.0
家庭类型	非空巢	65.1	29.7	5.2	57.7	41.6	0.7
	空巢	80.4	11.6	8.0	76.5	22.1	1.4

数据来源：2014年中国老年社会追踪调查 （CLASS）。

Fig.7

表3 城市和农村老年人期望的照料提供者　　　　　　　%

变量		城市老年人				农村老年人			
		政府	子女	自己或配偶	三者共担	政府	子女	自己或配偶	三者共担
总体		13.5	39.3	26.1	21.1	9.4	58.7	15.4	16.5
性别	男	15.7	36.9	25.3	22.1	8.9	60.2	13.6	17.3
	女	12.1	45.7	20.6	21.6	7.1	69.2	11.1	12.6
年龄	60—69	14.9	36.5	25.2	23.4	8.7	60.2	15.4	15.7
	70—79	13.1	43.9	22.5	20.5	7.8	67.0	10.0	15.2
	80+	11.6	52.3	16.4	19.7	6.0	75.4	7.0	11.6
健康状况	健康	12.6	41.8	24.5	21.1	7.3	65.6	12.4	14.7
	一般	14.7	37.8	22.9	24.6	6.8	64.8	12.9	15.5
	不健康	14.7	46.6	19.3	19.4	9.4	63.9	11.9	14.8
起居照料	需要	13.8	52.1	14.7	19.4	7.7	68.8	8.3	15.2
	不需要	13.7	40.7	23.5	22.1	8.0	64.3	12.7	15.0
婚姻	有配偶	14.7	35.1	27.1	23.1	8.2	60.7	15.0	16.1
	无配偶	11.8	54.8	14.0	19.4	7.5	71.5	7.9	13.1
经济收入	较低收入	12.0	52.2	16.3	19.5	8.2	64.1	12.3	15.4
	中等收入	15.5	31.4	29.2	23.9	9.9	53.9	20.5	15.7
	较高收入	16.5	20.5	31.4	31.6	8.7	56.5	21.7	13.1
家庭类型	非空巢	12.3	47.9	18.5	21.3	6.6	68.6	9.5	15.3
	空巢	15.5	34.2	27.9	22.4	9.6	60.0	15.9	14.5

数据来源：2014年中国老年社会追踪调查 （CLASS）。

Fig.8

表1 自变量的基本描述　　　　　　　%

变量		城市老年人	农村老年人	总体老年人
性别 (N = 11510)	男	47.5	48.8	48.0
	女	52.5	51.2	52.0
年龄 (N = 11507)	60—69岁	49.9	51.4	50.5
	70—79岁	32.5	31.9	32.3
	80岁及以上	17.6	16.7	17.2
健康自评 (N = 11264)	健康	45.6	37.7	42.4
	一般	32.4	25.0	29.4
	不健康	22.0	37.3	28.2
起居照料 (N = 11456)	需要	7.8	8.3	8.0
	不需要	92.2	91.7	92.0
经济收入 (N = 11404)	低收入	42.4	91.5	61.2
	中等收入	50.9	7.9	34.4
	高收入	6.7	0.6	4.4
教育程度 (N = 11507)	小学及以下	51.3	85.9	65.1
	初高中	39.2	13.6	29.0
	大专及以上	9.5	0.5	5.9
婚姻状况 (N = 11499)	有配偶	66.8	61.8	64.8
	无配偶	33.2	38.2	35.2
子女数 (N = 10150)	(均值)	2.9	3.6	3.2
家庭类型 (N = 11510)	非空巢	54.1	56.3	55.0
	空巢	45.9	43.7	45.0
家人是否愿意其去养老院 (N = 4806)	愿意	16.3	11.5	14.9
	不愿意	34.0	44.5	37.0
	不知道	49.7	44.0	48.1
社区有无托老所／日间照料中心 (N = 11316)	有	28.4	5.0	19.0
	没有	71.7	95.0	81.0
社区有无养老院／敬老院 (N = 11230)	有	22.0	10.4	17.3
	没有	78.0	89.6	82.7

数据来源：2014年中国老年社会追踪调查 （CLASS）。

Fig.6

表4 城市和农村老年人养老居住打算的多分类Logit回归分析

变量	城市老年人				农村老年人			
	子女家/自己家		养老机构/自己家		子女家/自己家		养老机构/自己家	
	B	EXP(β)	B	EXP(β)	B	EXP(β)	B	EXP(β)
截距	-2.447		-1.681		-1.677		0.670	
个体因素								
性别 (女)	-0.318	0.728**	-0.505	0.603****	-0.098	0.906	-0.413	0.661
年龄 (80岁及以上)								
60—69岁	0.187	1.206	0.343	1.410	-0.208	0.813	0.419	1.521
70—79岁	0.203	1.225	0.142	1.152	-0.115	0.892	0.301	1.352
健康自评 (不健康)								
健康	-0.361	0.697**	-0.161	0.851	0.047	1.048	0.220	1.246
一般	-0.281	0.755	0.086	1.090	-0.081	1.084	-0.277	0.758
照料需求 (不需要)	0.144	1.155	-0.22	0.803	0.096	1.101	0.114	1.121
受教育程度 (大专及以上)								
小学及以下	1.606	4.982****	-0.726	0.484****	0.506	1.659	-2.126	0.119*
初中和高中	0.936	2.551***	0.09	1.094	0.434	1.544	-1.448	0.235
经济收入	-0.04	0.961	0.042	1.043	-0.043	0.958*	-0.102	0.903
家庭因素								
婚姻 (无配偶)	-0.526	0.591****	-0.263	0.768*	-0.761	0.467****	-0.139	0.870
子女数	0.012	1.012	-0.012	0.988	0.194	1.214****	-0.347	0.707**
家庭类型 (空巢)								
非空巢	0.786	2.197****	-0.052	0.949	0.708	2.029****	-0.167	0.846
家人是否支持住养老机构 (不知道)								
支持	0.209	1.232	1.395	4.034****	0.043	1.044	1.799	6.042****
不支持	0.345	1.412**	-0.564	0.569***	0.081	1.084	-0.339	0.713
社区因素								
社区有无照料中心 (无)	-0.285	0.752*	0.259	1.296*	-0.127	0.881	-0.607	0.545
社区有无养老院 (无)	-0.027	0.974	-0.215	0.807	0.503	1.654***	-0.054	0.948
-2 Log Likelihood	3233.65				1260.90			
Chi-Square	420.08				147.62			

数据来源：2014年中国老年社会追踪调查 （CLASS）。
注：1. 括号内为参照类；2. *p < 0.1, **p < 0.05, ***p < 0.01, ****p < 0.001。

Fig.9

The problems found in this survey are:

In 2020, China's pension ratio is going to reduce to 5:1, which means that every five people in China will take the responsibility of one elderly person.And in 2050, it will reach 2:1.This has led many families to become the 421 family situation. This will make more "hamburger people" feel powerless and helpless in the lives of "supporting the elderly" and "raise the small".

China's aging population shows a trend of rapid growth and high disability rate. In addition, Chinese are always become old but without rich first.Also a large number of new elderly populations are mostly have only one child, making the pension conditions and related institutions development more urgent to be improved.

The possible solutions in this field are:

1. Birth control leads to serious burden condition of pension (4-2-1 family structure).

2. Traditional family concepts making elderly more likely to rely on their children (rural elderly).

3. The old-age care institution is inadequate or unsatisfaction.

4. Old without rich first situation making elderly have no money to afford their lives.

Fig.10

1.2 Status of Pension Institution in China

1.2.1General Information

In July 2015, the China Aging Research Center released the "Research Report on the Development of Chinese Aged Agencies", stating that during the "Twelfth Five-Year Plan" period（2011-2015）, under the strong promotion of the government, the number of beds of national pension institutions increased from more than 2.3 million to more than 6 million, with an average of 30 beds per 1,000 elderly people. Even so, there is still a shortage of beds and regional imbalances of the old-age care institutions.(Ministry of Civil Affairs, PRC)

Many newly built nursing homes are located in the suburbs, and the elderly are more willing to support their lives near their homes. They are reluctant to go to the remote places where their relatives are far away.

While Some old-age care institutions are excessively advanced, and the target are always high-income elderly groups, making most of the low or middle income families have

In recent years, the number of elderly care institutions in China has grown rapidly, from 41,000 in 2011 to 155,000 in 2017, It is expected that China's elderly care institutions will reach 170,000 in 2018. However, at present, the scale of China's elderly care institutions is generally small. Although the number of institutions has grown rapidly, the number of beds has grown relatively slowly. The number of beds in elderly care institutions in China rose from 4.937 million in 2013 to 7.463 million in 2018.With the aging speed accelerating, and the insufficient in the number of beds in elderly care institutions in China is gradually expanding. In 2018, as the population of elderly above 65 is 166 million, the insufficient number of the beds in pension institutions in China is obvious.（Chyxx.com,2019）

2005-2017 number of beds in elderly institution(Millions)
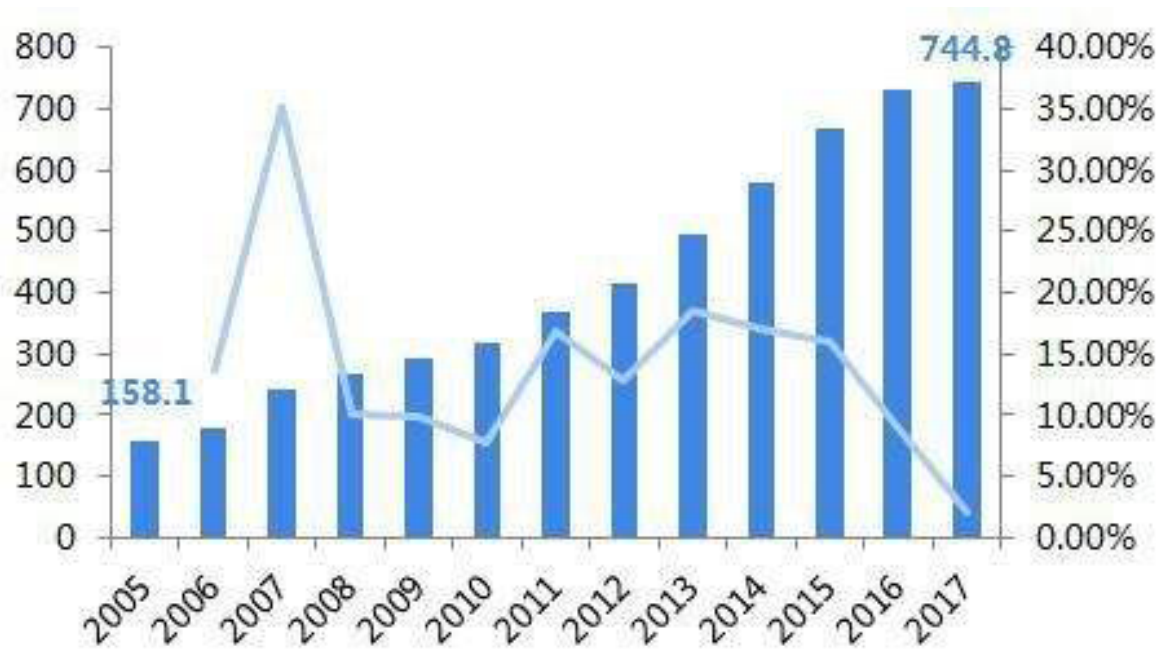
Fig.11

1.2.2 Document Analysis

Investigation and Analysis of Living Conditions and Satisfaction of Old People in Beijing Social Care Homes

Conditions of the elderly

The survey results show that the average age of the elderly is 78.8 years old, of which 39.4% are between 70-79 years old and 48.4% are 80 years old or older. The 55.4% elderly has two or more diseases, and more than a quarter of people have three or more diseases. Up to 36.8% of the elderly suffer from high blood pressure. 30.8% of the elderly have heart disease, the proportion of elderly people with cerebral thrombosis is 20.5%, eye disease is 17.4%, and arthritis is 14%. The survey results show that the elderly are generally in difficulty in taking a bath, going upstairs, going out and shopping individually.

The economic situation of the elderly

The survey results show that for some elderly people, the pension salary can only pay for monthly cost of institution. In addition, 17.4% of the elderly have no work, and most of their expenses are paid by their children. 57.8% of the elderly think that their savings or pensions cannot pay the expenses of the old-age institutions.In other words, more than half of the elderly believe that their income is not enough to cover the cost. In fact, the income level of the elderly limits their choice of their pension mode.

Insufficient of staff and service

The lack of well-trained staffs, high-quality and stable service are a common problem in old-age institutions. Low wages and high intensity is one of the reason, which directly affects the life quality of the elderly.

Social activities and entertainment

The survey found that only 13.5% of the elderly believe that "old-age institution can organize enough social activities and entertainment activities", 16.1% of the elderly believe that "the activities organized by the old-

age institutions can meet the needs and interests of the elderly".First of all, due to physical factors, the elderly do not have too much demand for activities.Secondly, the nursing home lacks professional staffs who are expert at designing activities for the elderly, which resulting in boring activities and difficult to meet the needs and interests of the elderly.In addition, due to the shortage of staff in most nursing homes, staff members have little free time to organize activities for the elderly, resulting in boring life for the elderly.

Community pension institution

In the survey, many elderly people went to nursing homes because of the lack of suitable community care services. The lack of community care services and home-based care services has increased the demand of public institutions, which has increased the cost of family and social pensions.

Psychological care

The survey found that many elderly people hope that the staff could have more time to chat and communicate with them. But in fact, due to the heavy nursing work, communication with the elderly is often igonred. The data shows that only 24.1% of the elderly believe that the staff will have patient to help them when their mood is bad. 34.5% of the elderly feel be igonred. For this part of the elderly, lack of timely care will further affect their emotional and physical condition.At the same time, many elderly people say that when they encounter problems or feel bored in their daily lives, many elderly people will be comforted by chatting with friends. Therefore, the nursing home also needs to arrange activities as much as possible to keep the family and the elderly in contact, and arrange activities in the hospital to promote communication between the residents. (Ding,2017)

Findings from the analysis:

1. Many elderly people who are in nursing homes have different types of illness and can be roughly divided into inconvenience (eye disease, arthritis), mental illness (Alzheimer's disease), physical illness. .

2. Insufficient of nursing staff and funds.

3. There are activities, but the activities are lack of participation, and the preferences of the elderly are not considered.

4. Strong desire to communicate.

5.Lack of community care services, community seivices can let elderly enjoy good care without leaving home, and at the same time reducing the burden on young people.

1.3 Pension model and policy in city of China

1.3.1 Pension model in city

There are three modes of pension insurance system in China, which can be summarized as public pensions, corporate pensions, and individual pensions.

These three models are commonly used in the world.

The first pillar: the public mandatory pension by law,this is the basic pension insurance, also known as the national basic pension insurance.It is an endowment insurance system that is enforced by the national government to meet the basic needs of the majority retirees. Its coverage is for all employees of town enterprises.China's current basic mandatory insurance adopts a management mode of "combining accounts and accounts", requiring insured units and individuals to pay 20% and 8% of the total wages. Those who reach the retirement age in the year can receive pensions. The basic pension will be paid 15% if paid 15 years, and will be increased by one percentage point for each additional payment year in the future. The base of the calculation is the average of the monthly average salary of the employees in the previous year and the average monthly salary of the indexed individuals; the personal account pension is divided by the personal account storage amount divided by the number of months of payment, and the number of months is calculated according to the urban population when the employee retirees. The average life expectancy, my retirement age, interest and other factors are calculated. For the Chinese people in accordance with the principle of reasonable connection, smooth transition, etc., on the basis of the basic pension and personal account pension, and then issued a transitional pension, the elderly are still based on the past social contribution to the social pooling part of the enterprise to solve . Basic pension insurance can be called the first level and the highest level in the multi-level pension insurance

system. At the end of the "11th Five-Year Plan" period, the country's basic pension insurance for employees reached 256.73 million.

The second pillar: the pension paid by individuals together of corporate, which is called enterprise supplementary pension insurance:Aiming at improving the living standards of employees after retirement and making important supplements to the national basic mandatory insurance. It is decided by the enterprise. The enterprise annuity is market-oriented and managed, and a fully accumulated personal account is established. The proportion of the payment of enterprise annuity, does not exceed 1/12 of the total salary, which is about 8.33%; the unit contribution and individual contribution do not exceed 1/6 of the total salary, which is about 16.66%. By the end of 2010, there were 37,100 enterprises that established enterprise annuity plans with a total of 13.35 million employees and 280.9 billion yuan of accumulated funds.

The third pillar: personal pension savings plan: employee personal pension insurance is a supplementary for other insurance that employees voluntarily participate.Individual employees shall pay individual pension insurance according to their own wages and incomes.Individual savings pension insurance can be implemented in connection with corporate supplementary pension insurance to promote and enhance the enthusiasm of employees.

(baike.baidu.com 养老保险)

1.3.2 Pension model and policy in rural area of China

The pension especially implement in the rural area called the new rural social pension insurance.

The new rural social pension insurance is a guarantee system for ensuring the basic living of the rural residents. It establishes a combination model of individual contributions, collective subsidies, and government subsidies. This pension insurance system are organized by the government and are an important part of the national social security system.

Problems

1. Pension coverage is still narrow

In recent years, the coverage of China's pension insurance has been continuously expanded. Among them, state-owned enterprises have basically achieved full coverage. The coverage rate of urban enterprises is 75.39%, but other economic types of enterprises are only 17%. There are also many foreign-invested enterprises and private enterprises don't have pension insurance. By the end of 2010, the number of people participating in urban basic pension insurance was 257 million (including more than 30 million rural workers), and the number of farmers participating in the new rural pension insurance was 103 million. In this way, the total number of people participating in various pension insurances is 360 million, accounting for only 36.7% of the total population over the age of 20 in that year. That is to say, the coverage of pension insurance nationwide is only about 30%. Such coverage is obviously unable to guarantee social security, and it is not suitable for the needs of China's economic and social development. Especially how to ensure quantity and quality need to be practiced. For example, due to the excessive burden of insurance payment, the situation that employees who have already been insured in various places is more likely to quit.

2. The imbalance of pension distribution

the richer places will have more people and more pension as they have more developed economy, while the less developed places will have less pension and become poorer.this can be a vicious circle.

(baike.baidu.com 养老保险制度）

Findings from the background analysis:

Questions rising from the analysis are:

1. Birth control leads to a serious burden of society.

2. Traditional ideas lead to poor personal independence.

3.Old without rich first, the income not meet the needs of the elderly.

4.Community pension institutions are seriously insufficient.

5.Seniors' activities in nursing homes and communities do not take into account the needs of elderly and do not attract the interest of older persons. Or it is not convenient for the elderly to participate.

6.Many elderly people who are in nursing homes have different types of illness. Design should consider dealing with different physical conditions of the elderly.

7.Elderly in the countryside has no sense of belonging after come to the city.

8.The lack of communication and hobbies among the elderly leads to mental stress and lonely feelings.

9. Lack of social participation in the pension and the elderly don't get enough attention.

10.The national pension mode is simple, the psychological demands of the elderly and work demands of the children are difficult to get balance.

Solutions for the analysis are:

1.Promote Communication between different groups and generation to eliminate loneliness.

2.Use sustainable technologies and materials to minimize investment.

3.The design target is supposed to be a community old-age home assisted with recuperation care.

4.Forming variety spatial types such as wait-and-see space or retreat space, providing opportunities for elderly to choose their perference activities, but not forcing them to participate.

5.Multi-space design should be considered to deal with different physical conditions of the elderly.

6.Try to apply rural elements into contemporary space when doing the design.

7.Increase communication space and set up public spaces that are suitable with the habits of the elderly.

8.All society participate and try to open to public.

9.Try to design the space as a moulder for future popularize and application.

Fig.12 Lonely elderly stay in the countryside

Part two
2.Characteristics and needs of the elderly
2.1 The physical and physiological Characteristics of the elderly
2.2 The physiological characteristics of the elderly

2.1 The physical characteristics of the elderly

The physical characteristics of the elderly are:Sensory deterioration: visual decline, no visual ability or low visual ability

Loss of the ability to recognize the environment, easy to bump.Lose the sense of direction, easy to get lost in the complicated environment.
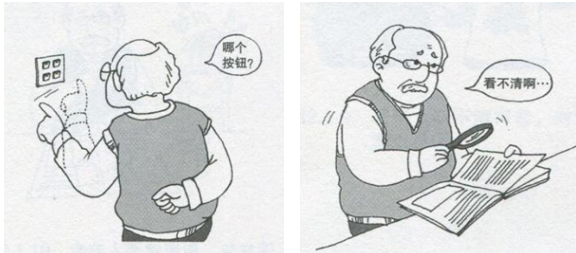
Fig13-15.Sensory deterioration:hard to hear voice

Sensory degeneration: tactile, taste, and olfactory decline

Easy to bump and hurt, and cannot be conscious of it in time after injury which will delay treatment;Easy to eat food that out of date.Difficult to detect the harmful gases, such as gas flameout or leakage which will lead to poisoning

Fig16.Sensory degeneration:can't detect harmful gases

Nervous system degeneration

Have difficult to judge the environment with similar landscape, and lack judgment on direction, location and space.Have difficult to move, needs to rely on wheelchair; losing self-care ability so that will requires special care.
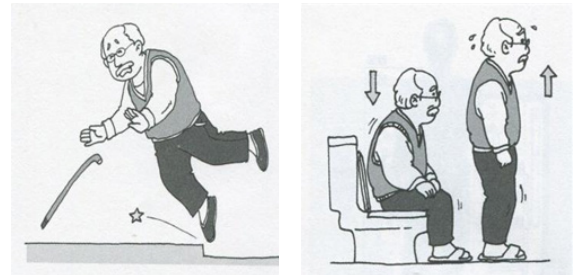
Fig17.Mobility system degradation:easy to bump

Mobility system degradation

Hard to go up and downstairs; easy to be stumbled by differenct heights; Difficult in use toilet and wear shoes, and also difficult to stand up when using the toilet or shower.
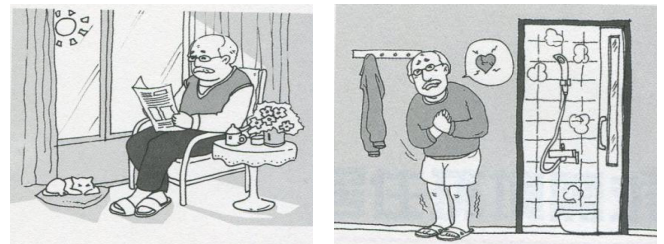
Fig.18.Immune system degeneration:like warm and sunlight

Immune system degradation

Poor body condition, dislike space without sunlight and natural ventilation; can not adapt to the quick change of temperature.

Suffering from illness, have high requirements to the surrounding environment; general residential facilities will let them feel inconvenient and uncomfortable.

2.2 The physiological characteristics of the elderly

2.2.1 Psychological characteristics

The key point of life changed, the social communication narrow, the pace of life slow down, the knowledge and skills become out of date, and the role play in society become weakened.

• Psychological characteristics of the elderly:

Feeling of nervous, loneliness, inferiority, anxiety,and depression

• Psychological needs of the elderly:

Improve their sense of security, enhance their sense of belonging, create a sense of community and comfort, also protect their privacy.

kids are all busy
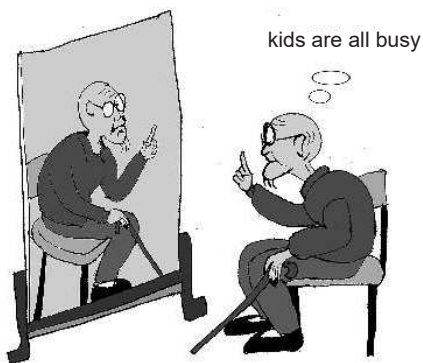
Fig.19.lonely elderly

2.2.2 Investigation and Analysis of the Psychic and Spiritual Life of Urban Old People —— Taking Jiangsu Province as an example

The survey time was from July 20 to 30, 2009. The survey object was elderly residents aged above 60 years old and lived in Jiangsu for a long time. The composition of age, gender, culture, occupation, etc. suppose to have a good representation. There were 930 questionnaires and 905 valid questionnaires. The effective questionnaire recollect rate was 97.3%.

Questionnaire

1) Are you satisfied with your current life?

The survey results show that 84.6% of the elderly are satisfied with their current life and 7.2% are not satisfied.

2) Are you actively communicate with people？

The survey shows that 82.2% of the elderly often communicate with people around them. At the same time, there are differences among different age.84.5% of the elderly in the lower age prefer to communicate with others. 81.6% of the elderly in the middle age often communicate with others, and the proportion of oldest people who like to communicate with others falls to 57.5%. The proportion of active communication with people decreases with age, which is closely related to the influence of health level and the decline in feeling, memory and thinking ability. In general, younger and older women are more prefer to communicate with others.

3) As you get older, do you feel that everything around you is getting worse?

The survey shows that 21.0% of the elderly have this feeling, and the proportion of elderly in the young, middle-aged, and senior age is 19.4%.21.6% and 37%.

4) Do you often feel lonely?

lonely survey items show that the proportion of loneliness and loneliness is 23.9%.

5) Do you often feel anxious?

The survey shows that 20.5% of the elderly have this feeling. The results also show that there is no significant difference between gender and age.

Cultural Entertainment

The survey results show that the highest proportion of entertainment is watching TV, which is (87.8%), followed by reading newspapers (38.3%), chatting with friends/walking relatives (32.0%), playing chess/carding (24.1%). Listening to radio (17.0%), planting flowers and plants (16.3%), shopping (12.2%), cultural activities (9.3%), travel (6.2%), etc., never participated is 2.3%.

Community Activity

The results of the study showed that 54.5% of the 885 elderly people expressed their willingness to participate in some social activities, and 17.5% of the elderly worked part-time after retirement. The interviews were informed that the reasons for not participating in social activities are: they have worked hard for most of their lives, and should be relax after retirement. (Yang,2011)

Findings from research:

1. Elderly do not think as our common imagination that they are pessimistic about the future. Although high age makes their life quality become poorer, most elderly people still maintain a positive attitude towards life.

2. Elederly prefer quiet indoor and outdoor activities. The highest proportion of elderly choose television as their main entertainment activity may be not entirely due to personal wishes but due to the inconvenience or the lack of accessibility.

3. At the same time, not all elderly are as passionate about social activities as we imagined, such as volunteers work or senior universities. They may just need a quiet atmosphere and a close friend. So maybe some older people want to participate but have no chance, but also some elderly people choose not to participate, we need to provide them with option and guidance, but it is them to decide.

2.2.3 Research progress on the psychological problems of left and empty-nest elderly people in China

"Empty nesters" are generally considered to be groups of older people living separately from their children. Most of them are described in urban areas.

"left-behind elderly people" are also considered to describe both urban and rural elderly living separately from their children. Refers to all kinds of elderly people living separately from their children or having no children.

In many literatures that discuss the

psychological problems of empty nesters, one thing that has been repeatedly mentioned is "loneness". In fact, loneliness is common psychological problem of the elderly. A survey completed by the China Center for Aging Science shows that 35.1% of the elderly in rural areas often feel lonely. When the elderly were classified as non-empty nesters and empty nesters, the Unsatisfactory number of the empty nesters accounted for 45.8%, while the non-empty nesters accounted for only 18.8%.

Anxiety

At present, most of the literature in China regards depression as a biggest psychological problem for empty nesters. in fact, the most common psychological problem in the elderly is anxiety. Lin Yuli investigated the 115 empty-nest elderly people in Beijing using the Self-rating Anxiety Scale (SAS) and the Geriatric Depression Scale (GDS).The results showed that 82.7% of elderly patients who are empty nests had anxiety symptoms and 28.3% had depressive symptoms. The main factors causing the anxiety symptoms are physical diseases and poor economic condition.

Depression

Among the psychological problems of empty nesters, the depression problem is serious. Which has a greater harm to the mental health of empty nesters.

We surveyed 328 elderly people with empty nests in the urban area of Cangzhou City. The rate of depressive symptoms was 23.8%, and the rate of mild depression in empty nesters was higher than severe depression.

Negative Emotion

In daily life, positive emotions help to promote physical and mental health, while negative emotions are on the opposite side. Although the emotion of the elderly who stayed in alone may not be as pessimistic as people expected, negative emotions, if not timely relief, will become an important factor leading to more serious psychological problems.(Nie,2011)

Method

Due to the high prevalence of empty nesters, surveys have indicated that deep community care should be conducted for the physical health of the elderly population. Physical exercise has a positive health effect on the empty nesters. The establishment of a community care agency has a positive effect on the health for left-behind elderly.Empty nesters can overcome from those kind of psychological problem by developing interest and hobbies to drive their attentions, expand the communication to increase social network, and actively take physical health care to improve the quality of life.

Findings from research:

1. The elderly should get rid of the influence of Chinese traditional culture concept and establish a more independent personality. 2. Old people can actively seek their own interests and hobbies, thus diverting attention and relieving mental stress.

3. Children and society should give more attention and love to the elderly.

Space for elderly considering of their behaviors and needs

Home-like treatment environment:

1. Give a home-like space with natural and outdoor landscape , not only the scale of the institution.

2. Create a warm, reassuring environment by using a variety of colors and textures that are familiar and cheerful.

3. Provide a variety of spatial experiences for each resident, including access to the garden and general outdoor activities.

4. Enhance the privacy of a traditional house and the surroundings, promote the personalization space.

5. Encourage residents easy to find, identify and use their own personal space.

6. Provide higher lighting levels than ordinary residential.

Nursing home design:

7. Improve staff efficiency by minimizing the distance between frequently used spaces.

8. Even Minimal staff can easily take care of patients with reasonable sight design.

Facility design can help control odor by:

9. There are sufficient, easy find toilets in key locations near the space where residents gathered.

10. Properly refine small space such as door frames, window frames and veneer transitions to avoid gaps and seams that are difficult to clean.

11. Adequate and appropriate space for housekeeping.

12. Effective ventilation.

Pay attention to pathfinding:

13. Use multiple tips such as architectural elements, colors, textures, patterns and artwork to help residents understand where they are, what their destination is and how to get and return.

14. Identify frequently used destination spaces by architectural features and landmarks that can be seen from a distance, as well as symbols, signs, artwork and elements such as fish tanks, bird cages or green plants.

15. Use simple letters and clear contrasts in signs.

16. Only clearly identify rooms that are frequently used by residents.

Accessibility functions should:

17. Design should ensure that all people in wheelchairs can easily use, including storage spaces and operable windows.

18. Equip handrails in all suitable places.

19 If a resident's bedroom must be located on more than one floor, public space must be allocated between these floors, not centralized.

Designs to address nursing home safety issues include:

20. Use non-reflective and non-slip floors to avoid falling.

21. Access to hazardous spaces should be chontroled.

22. Exits and entrance should be designed to avoid residents getting lost or injured.

(Rohde,2012)

Fig.20 Green space in the elderly home

Part three

3.Space analysis and case study of elderly homes

3.1 Space system for the daily care center

3.2 Case study(space)

3.3 Case study (management system)

3.1 Space system for the daily care center

3.1.1 Arrival and departure behavior system

Arrival refers to the transition from the home to the day care center, and the departure refers to the transition from the day care center to the home. Both arrival and departure affect the mood and experience of the elderly throughout the day.Participants should be given an easy transition in time and space, making them feel at ease, comfort and a sense of belonging.

Welcome entrance

A welcome entrance can convey a sense of belonging. Reduce the anxiety and irritability of participants. Everyday the beginning and end experience will create a long-lasting impression, so it need to be as enjoyable as possible, provide participants with a safe transfer, a soft transition and support functional independence, such as people and vehicles are separated.A canopy or porch,easy to identify entrance, double door, etc.

Transition space

The transition space provides a buffer area between the reception hall and the inside space. It can be a corridor or a hall. This can separate sight line between the activity space and entrance and exit area, reduce the disturb caused by people's interactions, and reduce the possibility of dementia patients leaving the house.
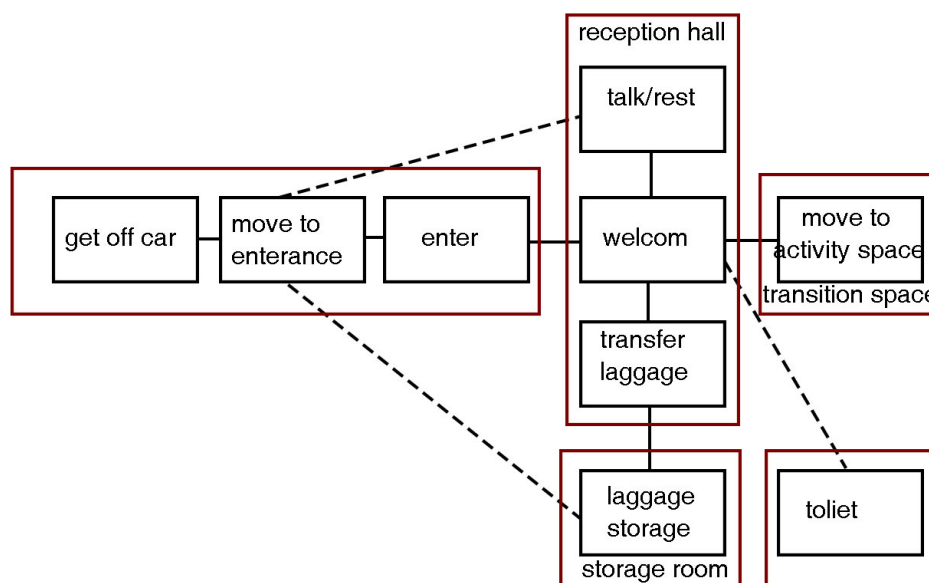
Fig.21.Arrival and departure behavior system

3.1.2 Walking and exploring behavioral system

The experience of walking and exploring includes: self-restraint, sense of direction, safety and security,privacy, social interaction. The increase of self-restraint ability depends in particular on the range of activities that participants can perform. So try to maximize the range of walking and exploring.

Meaningful destination

Meaningful destinations such as social spaces, rest spaces, entertainment spaces, etc. They have changed the experience of walking, from untargeted roaming to targeted exploration; providing opportunities for spontaneous active; and making "cognitive behavior" to have a desirable destination.

Eliminate environmental barriers

This spatial mode will increase the participants independently walking range. Maximize the sense of direction and self-control of the participants; increase safety. Reduce the chance of falling,

it can also reduce the burden on the staff, including space for outdoor parking and gardens. It will enable elderly to find their way and use these spaces smoothly. It can increase the guide information of various feelings such as hearing and touch; and enhance visual and spatial accessibility.Such as the design of semi-enclosed open space.

Private space

Providing a clear level of spaces from public to private, making it easier for people with dementia to feel the environment and anticipate their role, choosing the right social or private activity.
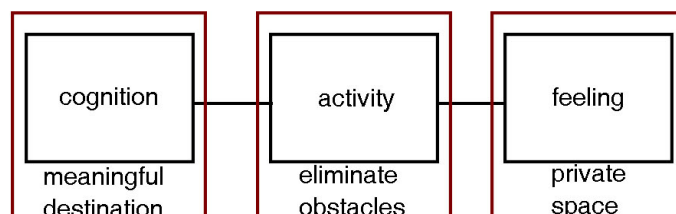
Fig.22.Walking and exploring behavioral system

3.1.3 Behavioral system of daily communication activities

The first two behavioral systems focus on physical activity. And daily communication activities pay more attention to thinking, psychological and spiritual activities. It is an extremely important part of the day care center's service program. The experience of daily communication activities includes: high-quality sensory stimulation,support for functional independence; meaningful activities; continuity of self-cognition; social interaction. Environmental information provides sensory stimulation. If the environmental information is not clear, the participants' self-restraint can become confusing and stressful. So the environmental information should be familiar and clear. High quality sensory stimulation provide clear place memory.

The behavior of different group is different, including: 1) individual, private activities; 2) interpersonal communication activities; 3) small group activities; 4) large group activities . Different activities could have contact by the sightline. Enable participants to choose the activities that suit them.(Hu,2014)

Personal activity

Providing familiar and meaningful personal activities ("normalized" behaviors), including folding clothes, washing dishes, caring for plants and animals, cooking, reading newspapers can maintaining the ability of the participants' body and enhancing self-recognition. can also build a sense of self-identity. Provide opportunities

for social communication. The Daily Care Center can let them practice the life skills that participants used to master, so that they can play similar social roles. This is a "occupational therapy" in medicine and can also partially relieve the pressure on nursing staff. The personal activity area is preferably open, and the staff can observe the situation of the elderly and provide timely assistance in the adjacent space.

Diverse and connected activity space

It is better to provide different types and levels of stimulation and offer a variety of activity options.

Participants can be categorized according to their needs and abilities, and different activities can be offered in different activity spaces at the same time to maximize their abilities. Improve their sense of self-control. Different types of spaces should be interconnected with outdoor space. It should also has access to an outdoor garden.

Combination of small activity spaces

Set up multiple small spaces, usually used for small group activities (such as chess, chat, etc.); occasional used for big activities (such as festival evenings, health talks) flexible separation can be moved when needed. Combine small activity areas to a big one.
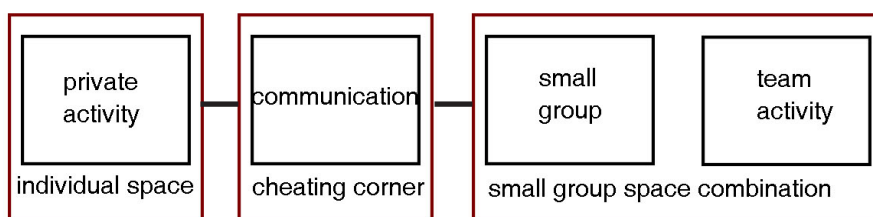
Fig.23.Behavioral system of daily communication activities

3.1.4.Cooking and dining behavior system

The kitchen is also a place to provide "occupational therapy", giving participants a sense of self-identity, housework can also exercise and maintain their body functions. In addition, the restaurant is also an important social place, even if a participant is passively enjoying the company of others.(Hu,2014)

Public kitchen

Participants in the public kitchen can have a visual connection with the nearby activity space to enhance the functional independence and self-confidence; co-cooking activities can also promote social communication. The dining tables can also be flexibly combined to

suit different needs; due to mutual interference and stimulation, the number of people in a dining space should not be too large, and different types of dining spaces can be provided;participants can choose where to sit, and who to sits with to increase their independence and freedom.

Cafe/tea room

The coffee shop or tea room provides informal communication. It can reduce nervous and anxiety and is also a "refuge" for participants outside of other activities. It can be placed between a public space and a more private space as a buffer area to slow transitions and improve adaptability and continuity.
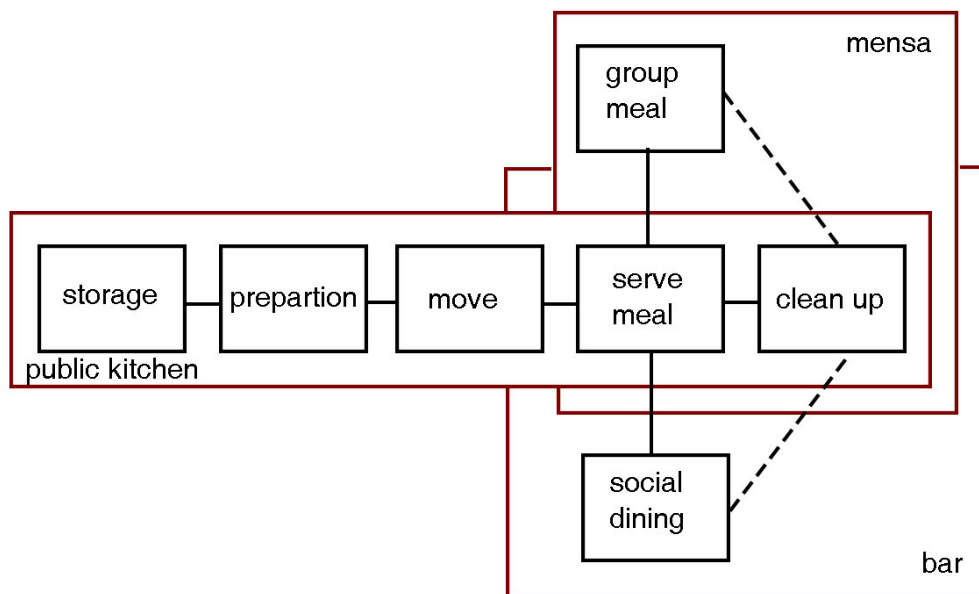
Fig.24.Cooking and dining behavior system

3.1.5 Outdoor activity system

Modern medical research shows that the interaction of participants with nature enables them to recover from stress and improve their sense of health. Therefore, people pay more and more attention to "medical garden"and rehabilitation landscape. The experience of outdoor activities includes: self-restraint; social communication;sense of direction and safety.(Hu,2014)

Progressive transition

Older people have poorer adaptability. Therefore, the process from indoors to outdoor exposure should be a gradual transition, from a completely obscured interior to a semi-occluded veranda or flower stand (blocking part of the light) to a semi-exposed tree (shade and wind), and then To the fully exposed outdoor.

Medical garden

Different scenes and activities can be provided in the garden for private or group communication activities,providing options; the garden space should be rich in layers, use landmark scenes to enhance the sense of direction; some special scenes also have treatment function, the visual and hearing of the water curtain has a calming effect.
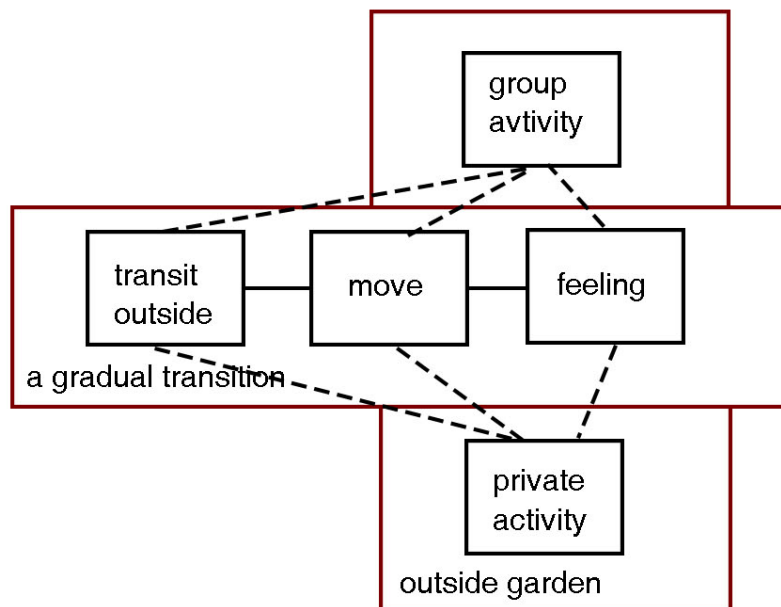
Fig.25.Outdoor activity system

3.1.6 Personal care-the behavioral system of the toilet

The experience of the toilet is: self-control; privacy; support for functional independence ,safety and security.(Hu,2014)

Everywhere bathroom

The walking path from every space to the bathroom should be clear and convenient, accessible and identifiable;Access to the toilet directly from outdoor spaces (such as medical gardens) will bring greater convenience to participants.

Humanized toilet

A range of different types of toilets are needed: individual use, one-person assisted, two-person assisted, etc.This helps participants and staffs increase their efficiency.

Fig.26.Personal care-the behavioral system of the toilet
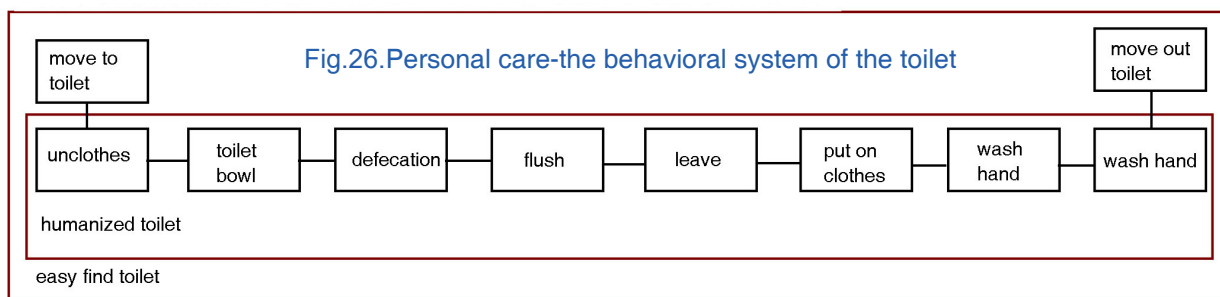
3.1.7 Personal care - bathing behavior system

Bathing should be as comfortable as possible in a private environment. Smoothly proceed. Provide a variety of sensory experiences. Such as warm sunshine, comfortable temperature, soft music and so on.(Hu,2014)

Combination of personal care activities

Integrate personal care activities such as beauty, haircuts, and spa treatments. It is convenient for participants and improves the work efficiency of nursing staff; these nursing spaces should be public to private, such as the barbershop is semi-public and the rest room is semi-private.

Fig.27.Personal care - bathing behavior system
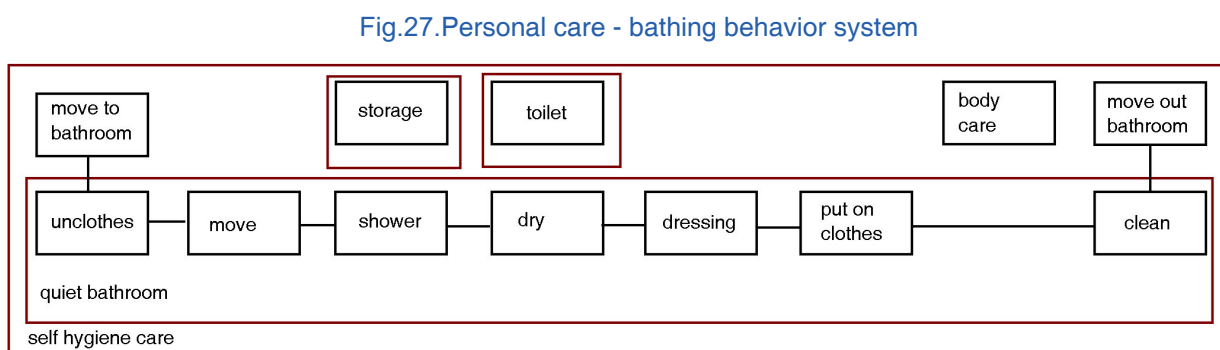
3.1.8 Physical and health support system

This combination produces four types of behavior, passive group activities are unlikely to occur, so there are three behaviors: 1) active group activities, such as rehabilitation training. Ball sports, etc.2) procative personal activities, such as rehabilitation therapy, occupational therapy, etc.3) passive personal activities, such as taking or injecting drugs, physical examination, massage therapy, etc.(Hu,2014)

Health rehabilitation space

Due to the different needs of privacy, a large public space should be provided for group rehabilitation training,which includes storage space; and multiple small private spaces are available for individual activities (eg clinic,massage room, injection room). It can also divide large space into small space.

3.1.9 Findings from pervious analysis

This thesis proposes eight user's behavior systems, including five behavioral systems related to the lives of the elderly and three behavioral systems related to the physical and health of the elderly. Each behavioral system includes its sub-behavior; 22 spatial patterns drive from behavioral system are linked to each other, forming a space system for the daily care center and affecting the user experience in the place.
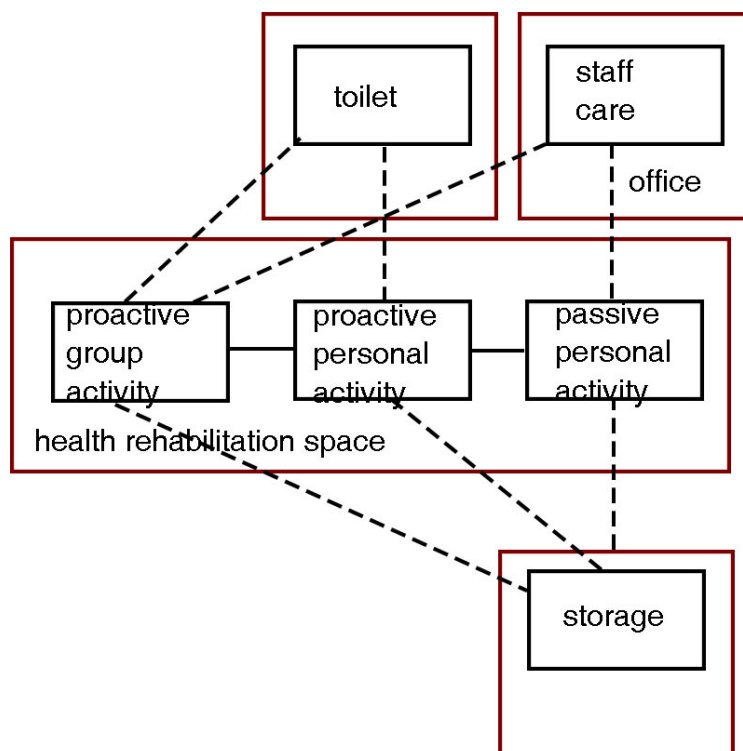
Fig.28.Physical and health support system

3.2 Case study of elderly facilities abroad

United organization

3.2.1 Kaze No Machi Miyabira in Japan

the client hopes that this facility can be a wooden warmly house which family and the surrounding residents can visit casually. There are many promenades, alleys and gardens opened to public inside this site.

There are 5 areas in the whole building for the nursing home, 2 areas for day care, and 1 area for the management of the nursing home. In order to enable employees to move easily between buildings, the designer designed the central administration building in the center of the building. In addition, the dining area is located on the north side, and it is very convenient to bring food in.(Archdaily.com)

Fig.30.Unit plan

In this building, the space used by the elderly is the largest. Combine three composable units into one unit. It can accommodate 10 people. Each composable unit is composed of a small living room surrounding three or four guest rooms. In addition, taking into account the need for night care, every two units are connected to the reception desk and kitchen and bathroom space. In addition, each private room is also divided into two areas, bedrooms of 9 square meters and 6 square meters of multifunctional areas. According to the living habits of the surrounding residents, the bedrooms were named "secret rooms" and the multi-purpose rooms were named "spaces between rooms."

Based on the traditional method of dividing the bedroom space. As a result, the privacy of the inner room has been improved, and at the same time, an open activity space has been created, which keeps the elderly's life able to communicate with the outside world sufficiently. In addition, the feature of this project is that if the small partitions between the rooms are open, each small unit can become a nursing environment composed of many beds, so that our staff can see the situation in each room.

Fig.31.Inner flexible space

3.2.2 Santalita elderly care center,Spain

The elderly center should be an ideal place to live and visit. There should be a unique atmosphere for the residents to enjoy their time. Moreover, the center of the elderly should not be built like a hospital, there must be no corridors, and there should be no building boundaries. The Santa Rita Elderly Center is only one floor. All the rooms in the interior have direct roads to the garden. Even if there is a "corridor", it is a straight road direct to the public space. The purpose of this is to ensure the overall accessibility of the center , the psychological security of the residents, and respect for the privacy of the residents, but also for the convenience of tourists.It is a flowing space: some internal activities can inspire the feeling of the residents, and reduce the confusing and boring feeling as other general elderly center.

Fig.33.Courtyard space

3.3 Case study of elderly facilities in foreign country (management system)

3.3.1 Japanese Sumida Medical Home Project

Background of the project

Full-pay system (requires the elderly to pay the full amount)The property is a leased property with a lease term of 30 years.

Site area: 1859m2

Building area: 3655m2

Total number of households: 76 households (including 6 households for the husband and wife living together)

Check-in threshold: self-care elderly and care-required elderly

Occupancy rate: 90%

Customer characteristics

The average age is more than 80 years old, mainly single elderly, the ratio of male to female is 3:7.60% of the elderly are from the 5 km within the object or with children work or live around.The elderly are supported by the economy and care from children.

Revenue method

One-time living fee + monthly fee: According to the difference of one-time living fee payment, the monthly feeamount will change accordingly. The monthly fee includes management fees, rental fees and meals.

The price is for 75 years old or older. If the age is lower than 75, the one-time fee price and the return period will be adjusted accordingly.

The additional fee for the nursing service: the Sumida Project is included in the nursing care insurance. After the elderly are assessed here, the government will pay the 90% of the cost of the care service fee for elderly .

Other fees: medical expenses, daily necessities, and other services will be additional charges.(360doc.com)

3.3.2 SECOM

Revenue method

Living fee: one-time payment or monthly payment within one year (price is higher than one-time payment)

Monthly fee: The monthly fee including two parts, one part is the combination of management fee and meal fee, and the other part is the self-pay part of the insurance.

Additional costs: medical expenses, daily necessities, utility fees and other services.

Operational points

Site selection: an area with a large number of wealthy and a high income elderly.

Development cycle: After obtaining the land, it is expected to complete the design and construction in one year, start sales in the first three months before the opening, and complete the full rent process in 1-2 years.

Management method: group management, 61 households are divided into 5 groups. It is easy for the elderly and staff to get acquainted with each other and achieve the best care.

Management structure: The ratio of service personnel to the elderly is 1:1.5, of which 50% are qualified formal employees, aged 20-30, 50% are temporary employees, aged 40-50. The service staff is working in four shifts and covers 24 hours. Among the formal employees, there are one manger, three nurses, two food managers. one garden manager, one health manager, and one administrative staff. Service concept: To help the elderly with as many staff as possible, and to ensure the privacy and dignity of their lives. Understand the differences preferences of each elderly and provide services that suit their preferences, including diet and bathing habits. Treat the elderly with the attitude of treating their loved ones.(360doc.com)

Findings from the Space analysis and case study of elderly homes:

1. The space is mainly grouped as a small community to create a family atmosphere.

2. Ensure accessibility and give full attention to barrier-free design.

3. Avoid duplicative and complex paths, using color, logo, and landscape to achieve a simple and identifiable spatial environment.

4. Make different types of living space, designing a variety of different living units for different living group. Such as single elderly room/old couples room/family room /friends room/staff help room.to meet the psycho and physiological needs of the elderly.

5. Given humanistic care, creating unique spaces for elderly who have trouble in mobility, visual decline, hearing decline or dementia.

6. Comfortable and healthy external environment, ensure indoor sun lighting and ventilation.

7. Focus on openness of those facilities in older to promote society participation.

8. Recyclable operating and management system.
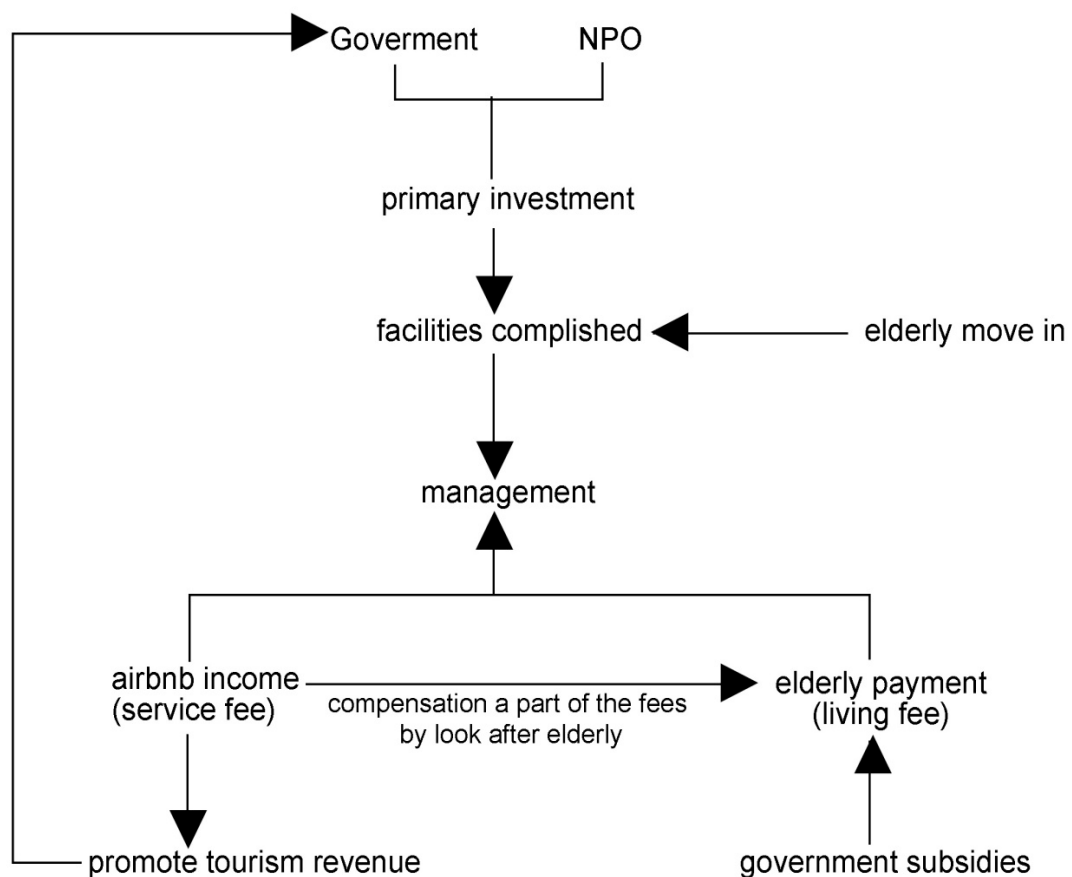
Fig.36.Beautiful scenary on the city wall

Part four
4.Project location
4.1 Xi'an City Introduction
4.2 City wall of Xi'an
4.3 Surrounding facilities
4.4 Why here?Meaningful life under city wall

4.1Xi'an city introduction

Xi'an is the capital of Shaanxi Province, the ancient capital of 13th Dynasty. The total area is 10,752 square kilometers, and the registered population at the end of 2018 is 10,037,000.

Xi'an is one of the best tourist destinations in China and one of the main cities in China. Xi'an is also an important national science and education center.

(baike.baidu.com 西安)

陕西
Shaanxi
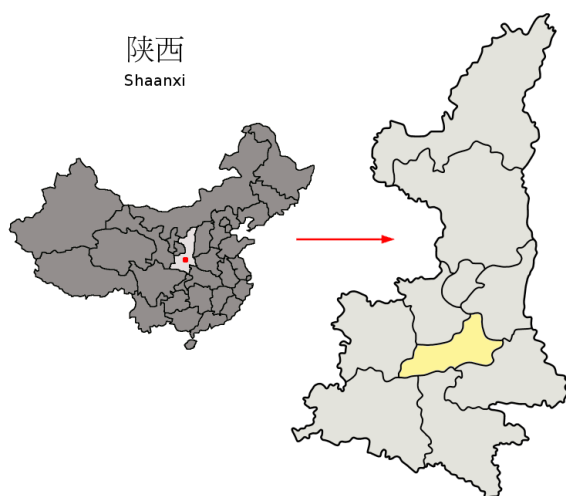
Fig.37

Tourism:

According to statistics in 2017, Xi'an received 18,093,140 domestic and foreign tourists, 20.5% increase over the previous year; total tourism revenue was 163.33 billion yuan, increasing of 34.6%. The income of the homestay in Shaanxi Province exceeded 40 million,The overall rank is13th in the country.

(Sohu.com-1)
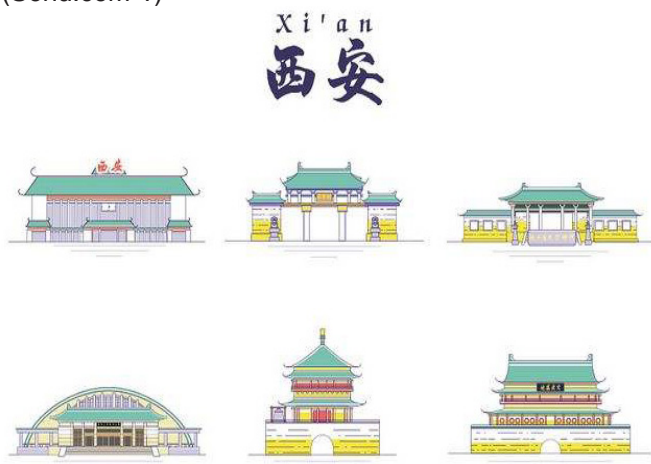
Fig.38

Climate:

Winter is cold, small wind, foggy, less rain and snow. Spring is warm, dry, and windy.Summer is hot and rainy, sometimes have thunderstorms and winds. Autumn is cool, the temperature starts to decrease.

The average annual temperature is 13. 0 ° C ~ 13. 7 ° C, the coldest January average temperature is-1. 2 ° C ~ 0. 0 ° C, the hottest July average temperature is 26. 3 ° C ~ 26. 6 ° C. The annual precipitation is522. 4~ 719. 5 mm, increasing from north to south. July and September are two peak periods of obviousprecipitation. The annual sunshine hours are 1646. 1~ 2114. 9 hours, the dominant winds of urban area in Xi'an is northeast.

(baike.baidu.com 西安)

Xi'an temperature and percipitation
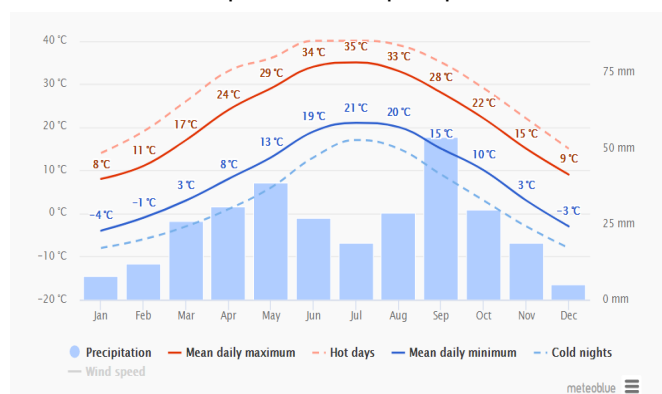
Fig.39

Xi'an wind rose

Fig.40

History of Xi'an

Zhou Dynasty
Qin Dynasty
Han, Wei, Jin and Northern Dynasties
Sui and Tang Dynasties
Song and Yuan Dynasties
Ming and Qing Dynasties

XIANYANG

Wei River

CHANG'AN

JIANZHANG PALACE

CHANGLE PALACE

WEIYANG PALACE

DAMING PALACE

EPANG PALACE

JINGZHAO

XI'AN

HAOJING

FENG JING

DAXING, CHANG'AN, XIJING
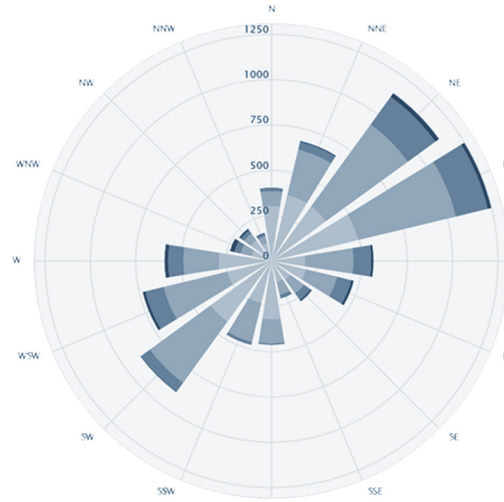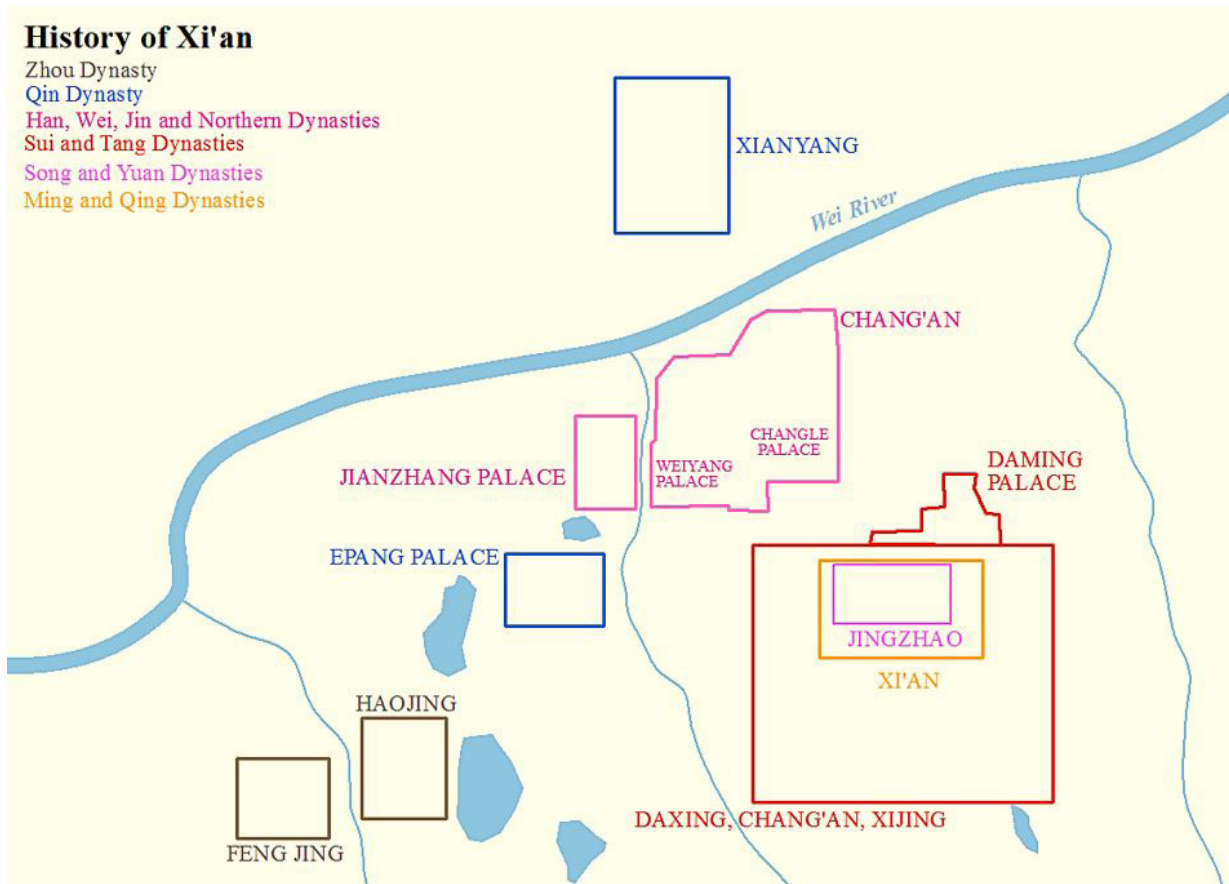
Fig.41.History map of Xi'an

History:

Chang'an is the ancient name of Xi'an, the first capital city in history of China. Zhou Dynasty made capital here. The name Chang'an , meaning "long-term peace and order".

Chang'an is the ancient capital of the thirteen dynasties. It is the capital of the thirteenth Dynasty in Chinese history. It has the greatest influence of Chinese civilization and the cradle of the Chinese nation,with a permanent population of 185,000 during the peak period of the Tang Dynasty(AD618-AD907). As the capital and political, economic and cultural center of China for more than 1000 years, it is known as the Museum of Natural History area and a famous international tourist destination city.The influence of Chang'an culture is far-reaching, because the Zhou(BC1046—BC771), Qin(BC221—BC207), Han(BC202—AD220), Sui and Tang(AD618—AD907) dynasties, were the strongest and leading a chief period in ancient China.

(Baike.baidu.com 唐朝)
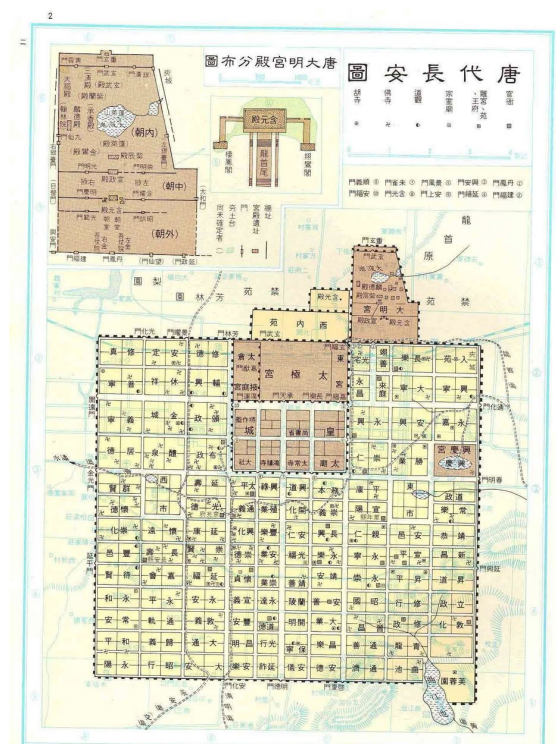
Fig.42.Map of Tang dynasty(AD618-AD907)

36

4.2 City wall of Xi'an

The Xi'an City Wall, also known as the Xi'an Ming City Wall, is the largest and most complete ancient city wall in China. The Xi'an City Wall includes the Xi'an Tang City Wall and the Xi'an Ming City Wall, but generally refers to the Xi'an Ming City Wall. It was built under the rule of the Hongwu Emperor Zhu Yuanzhang as a military defense system

The Xi'an Ming City Wall is located in the central area of Xi'an, Shaanxi Province. The wall is 12 meters high, the top width is 12-14 meters, and the bottom width is 15-18 meters. The outline is a closed rectangle with a circumference of 13.74 kilometers. People are usually called the ancient city.The famous Bell and Drum Tower in Xi'an is located in the center of the ancient city. The wall encloses an area of about 14 square kilometres. (5.4 sq mi)(Wikipedia.org)

For the construction of buildings in the area, the building density shall not exceed 40%, the floor area ratio shall not exceed 2.0, and the green rate shall not be less than 25%. By 2020, The population within the city wall is controlled at around 300,000 people, Accounted for 3% of the city's total population, And divided into 16 Lifang, gradually adjusting land use inside the city wall, including increasing green space, open space, and reducing building height and density.
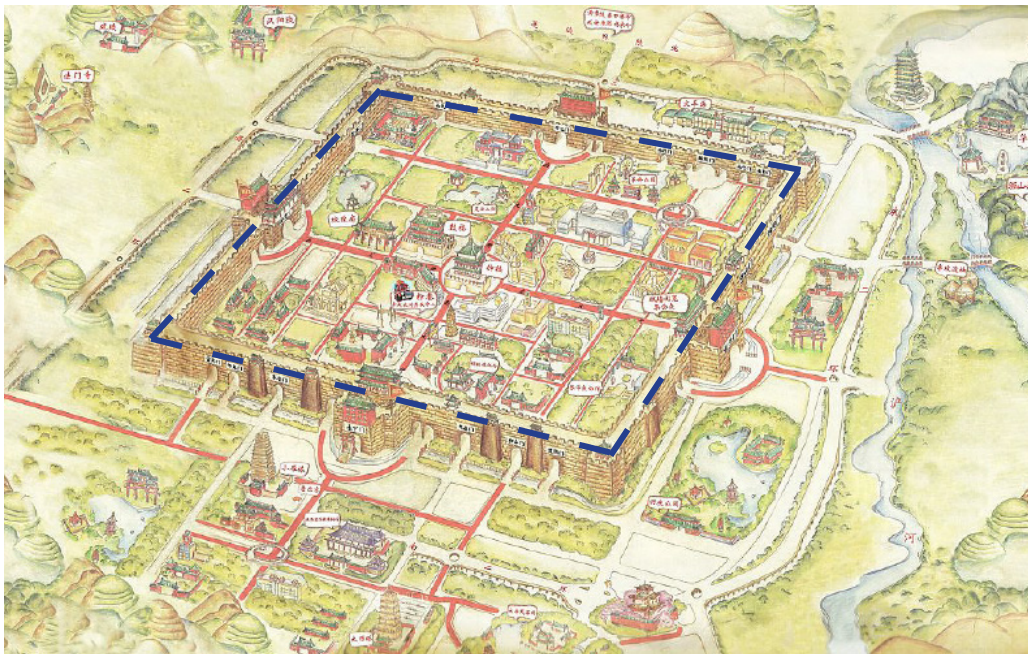
Fig.43.Hand drawing of city wall

4.3.1Surrounding facilities——hospital

center

site

Fig.44

children's hospital
6.4km——18min car/36min bus

XI'AN No.1 hospital
2.8km——40min walk/17min car

XI'AN center hospital
3.5km——50min walk/13min car

SHANNXI No.2 hospital
900m——13min walk
5min car

XI'AN No.4 hospital
1.2km——18min walk/6min car

Fig.45-49

4.3.2 Surrounding facilities——school
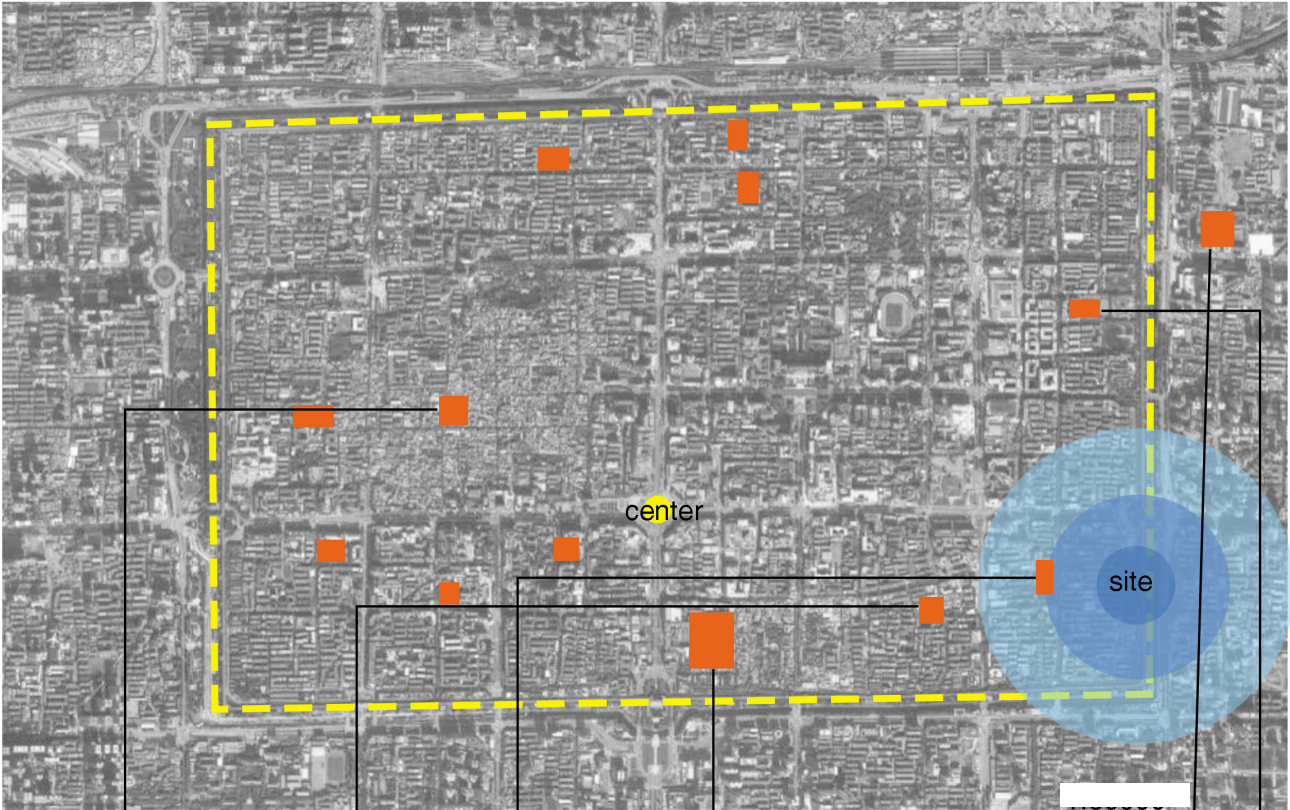
XI'AN No.8 middle school
1.2km——18min walk
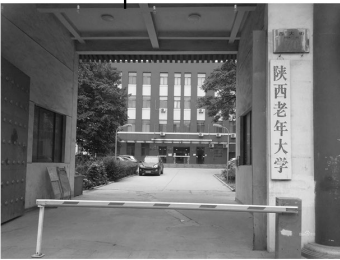
Shannxi Elderly University
3..2km——14min car

XI'AN No.26 middle school
450m—— 7min walk
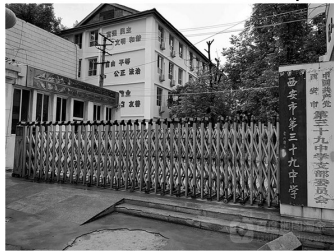
XI'AN No.39 middle school

WenLi College

XI'AN No.43 middle school
1.9km——29min walk/8min car

Fig.50-55

4.3.3 Surrounding facilities——tourist spots&historical heritage

center

site

YongXingFang
1.2km——18min/8min car

BeiLin museum
1.9km——28min walk
8min car

DongYue temple
690m——10min walk

XI'AN incident museum
530m——8min walk

ShuYuanMen street
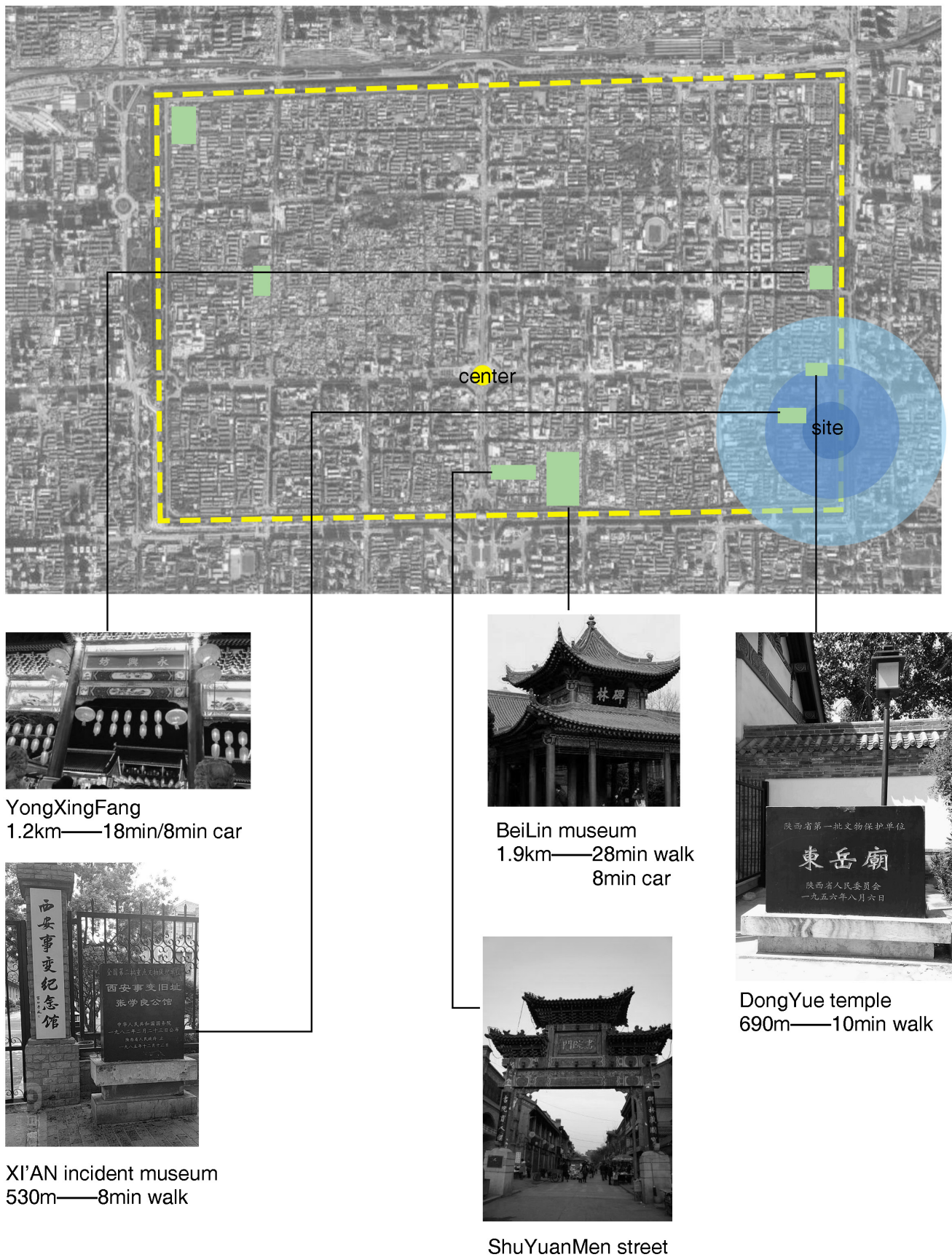
Fig.56-60

4.3.4 Surrounding facilities——commerce

center

site
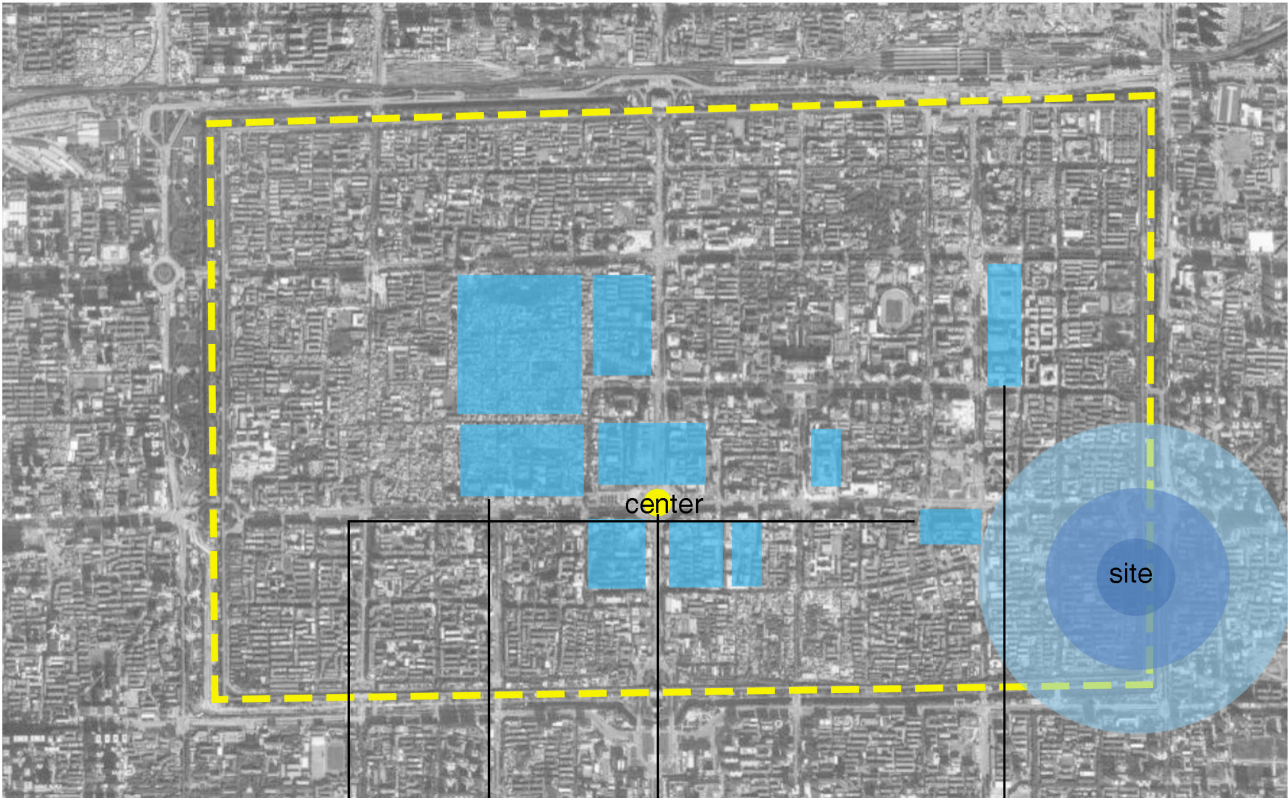
HuiMin Street
3.4km——12min walk

Minsun mall
1.8km——28min walk/7min car

WanDa Square
1.1km——16min walk/6min car

Bell Tower
3.1km——47min walk/9 min car

Fig.61-64

4.3.5 Surrounding facilities——transportation and road
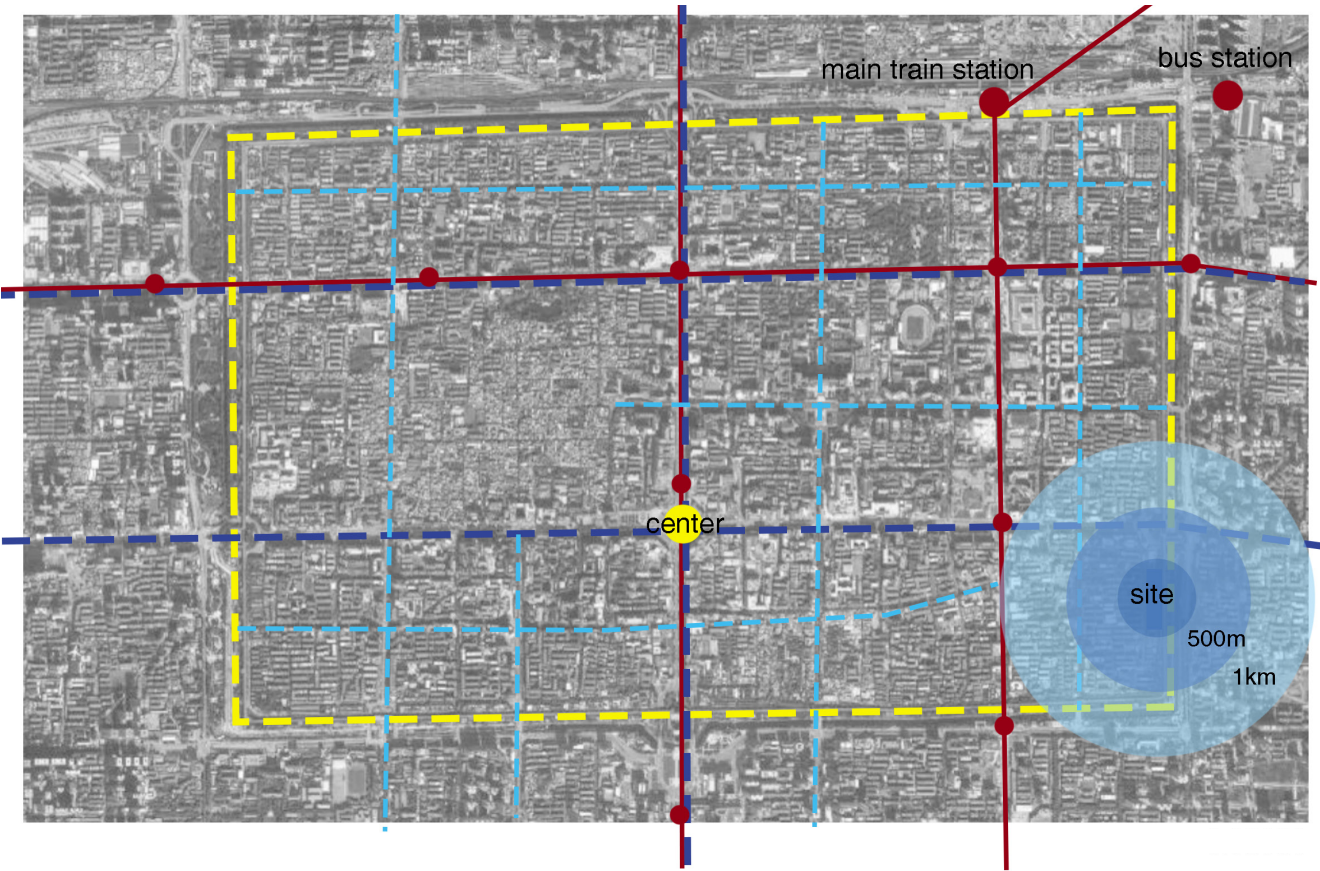
city center
3km——47min walk/14min car

nearest metro station
1.1km ——17min walk /6min car

Train Station

3.4km——
51min walk
11min car
42min bus

Bus Station

3.2km——
44min walk
10min car
38min bus

- - - - - city wall

———— metro line

- - - - - main road
about 40-60m

- - - - - sub road
about 20-30m

● metro station

Fig.65-66

center

around city park

Around Site

● gate

historical heritage

north bus station

historical heritage

west bus station

main train station

● bus station

center

park

park

historical heritage

1:100000
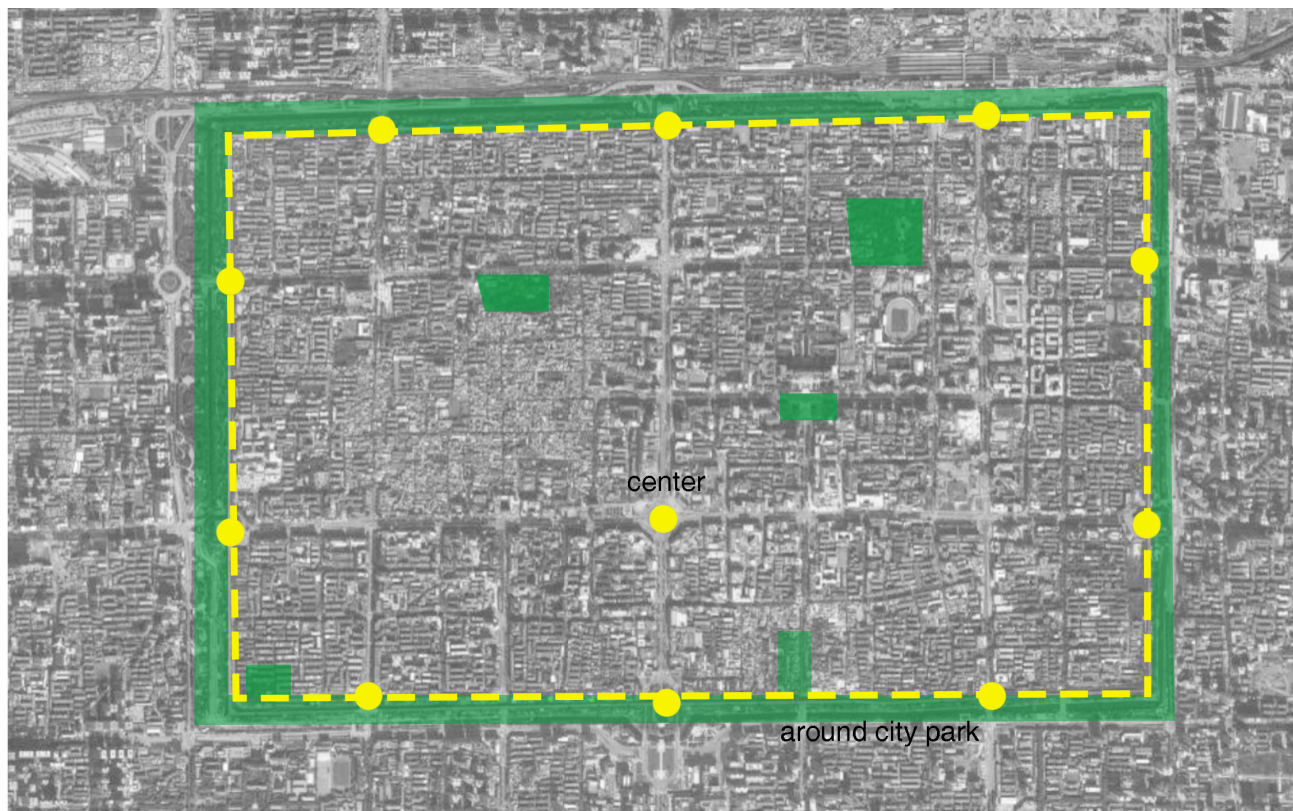
● university   ● important transportation station   ● wall gate   ■ park&historical heritage
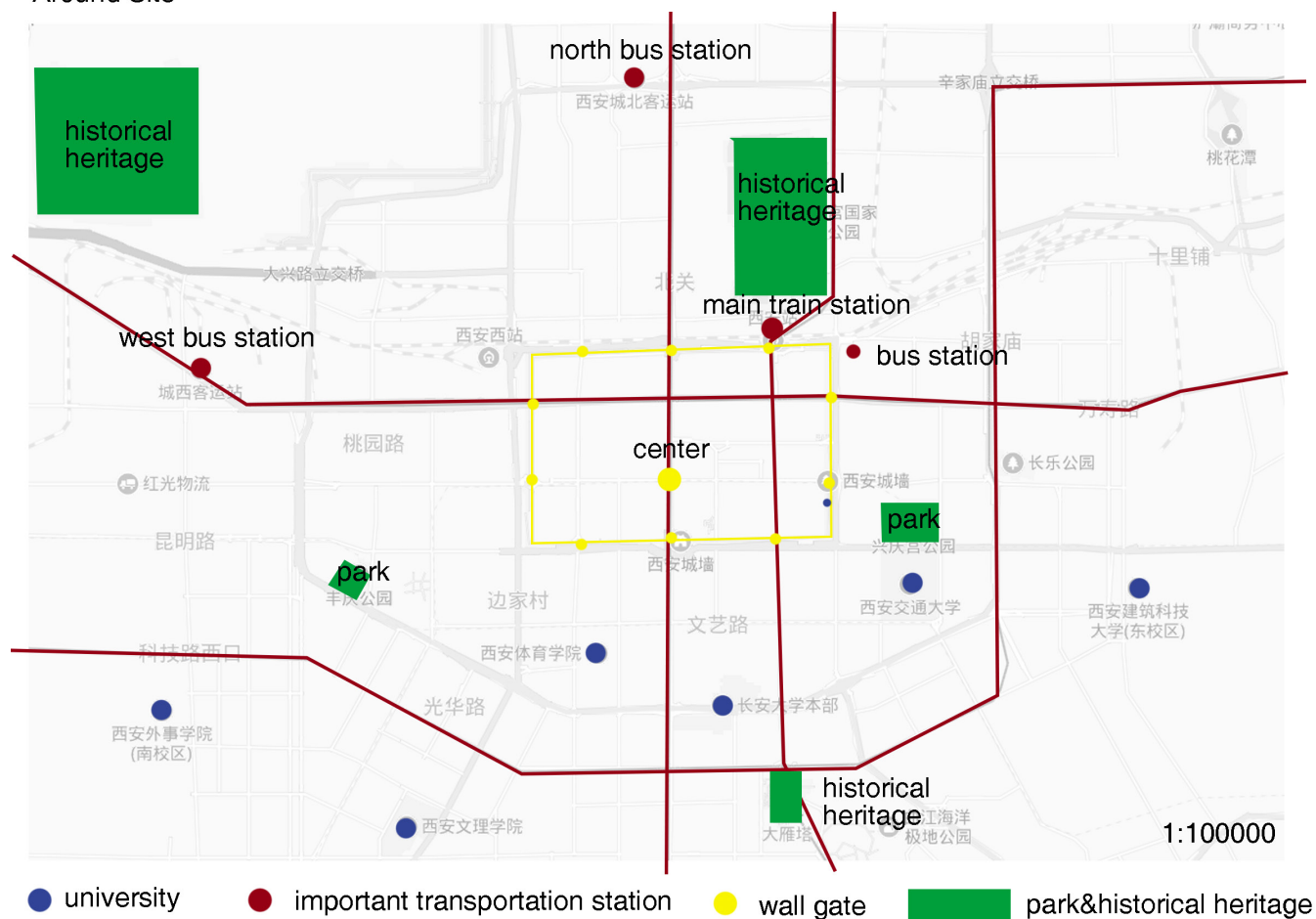
4.3.8 Surrounding facilities——functions distribution

Fig.68

commerce	school	government
hospital	tourist spot	gym
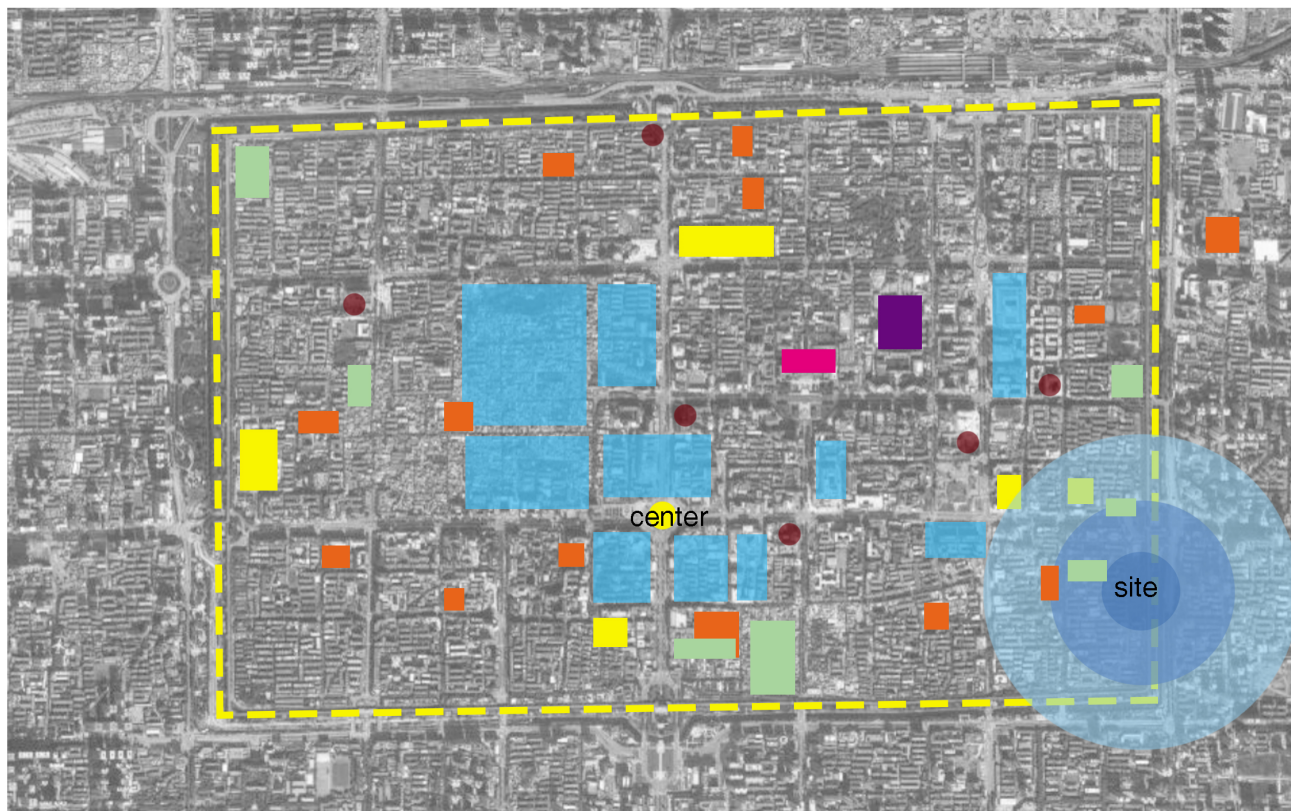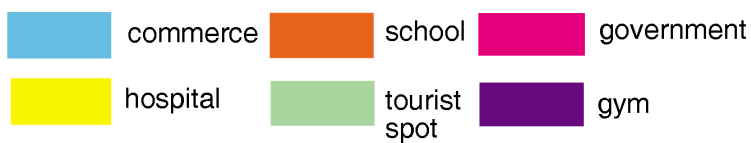
It can be seen from the above map that the service facilities around the site are abundant, There are tourist attractions, schools and other public facilities within walking,and there are also subway stations and large hospitals within a distance of about 1 km. The facilities can provide the daily needs of the elderly. Close to tourist attractions can attract tourists to rent, while the quiet location can guarantee the elderly have a comfortable rest environment.

4.4 Why here?Meaningful life under city wall

Keywords:

lights and shadows

memories

travel

peaceful life

When young people are busy in the office building, the life under the wall is lazy and comfortable. At this moment, here becomes the stage of the old Xi'an, all the daily life you can imagine will be found under this square city, slowly happening.People are taking a walk, squatting, playing chess, pulling erhu(an instrument), meeting old friends, and screaming Qinqiang(a kind of traditional music). The sun shines through the leaves falling on the bustling pedestrians, leaving a mottled light spot. This is the unique relax lifestyle of Xi'an.
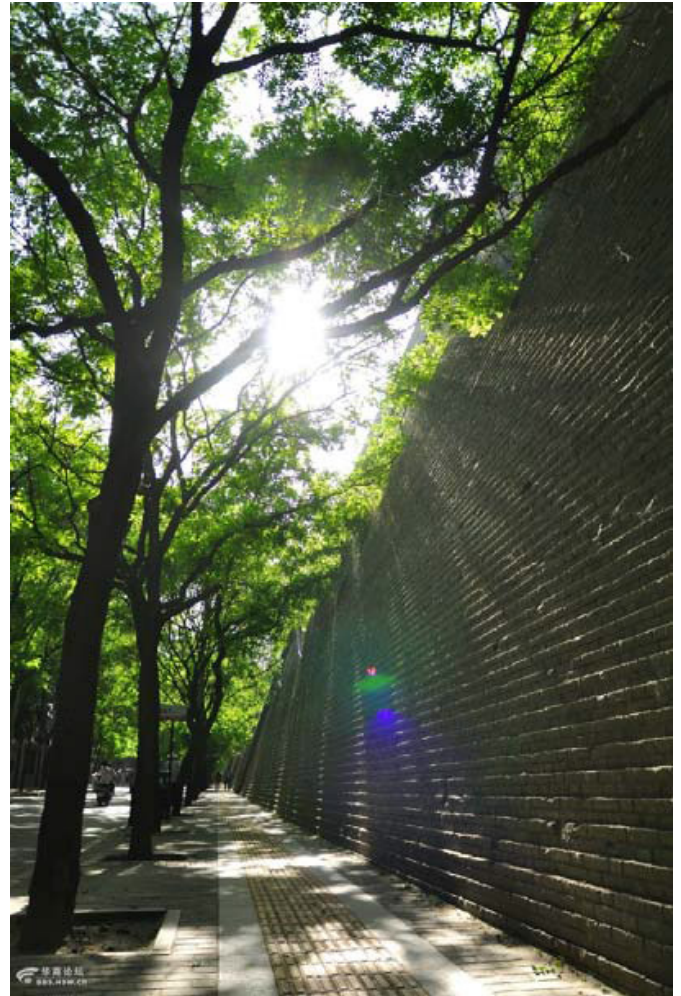
Fig.69.Peaceful road under city wall

Dawn

The early morning birding party is the beginning of the daily life of the elderly. The beauty of life is sometimes so simple. It lies in the songs of birds. It is the chat between old friends about the rice and oil.(Sohu.com-2)

Fig.70.birding party

In addition to Tai Chi, the crowds doing morning exercises can be seen everywhere in the early morning under city walls. This ancient city is healthy and full of vitality.

Fig.71.exercising

Art comes from life. Under the wall, there are always old people who are practicing words. They are not masters of calligraphy, but each movement is exactly like the master of calligraphy.
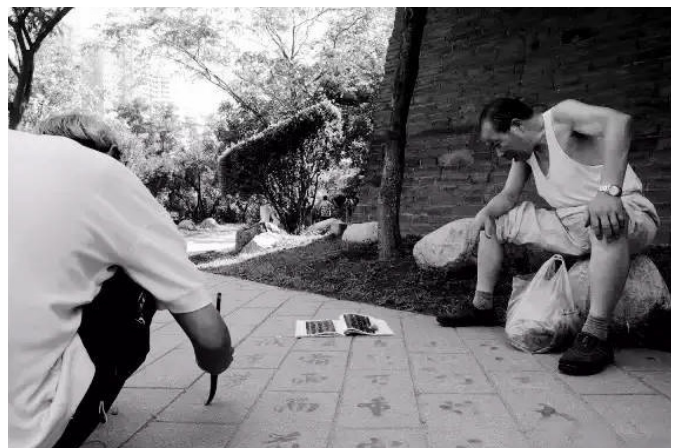
Fig.72.practing calligraphy

Afternoon

The gate of the city wall is like a natural big speaker, which is a good place for singers to practice. Today's normal singer, maybe tomorrow's famous star.

Fig.73.showing talent

Every hot summer, the foot of city wall has become the best summer resort. On Sunday under the shade,a game between the two generations may become a precious memory in their lifetime.

Fig.74.playing chess

Mr. Zhu comes from Yangzhou has been barbering around the moat outside the Jianguo Gate.no matter men or women, he only charges 5 yuan. He said that he don't want to make money, you just need something to do.

Fig.75.barbering

At dusk

In the summer, the Ring City Park is full of energy in the evening, the elderly come to exercise, and the parents take children to breath fresh air.

Fig.76.parents with babys

In the evening, sitting in the roots of the city wall, the elderly are often take about family things, the topic is generally their children or their grandchildren.

Fig.77.gossiping

After school, the children came to the table tennis table under the city wall, playing table tennis happily, enjoying the leisure time after class, while doing the exercising .

Fig.78.sporting

When night falls, the real nightlife begins.

After the dinner, no matter with familiar people or unfamiliar people, elderly always come together under wall to play their own shows. so every day they have their own joy.

Fig.79.play Qinqiang

At the same time, the aunts are dancing in a small square under the wall, all of them have a skillfully pace,followed smoothly with the cheerful music.

Fig.80.square dancing

Night running, this is one of the most popular sports activities of young people now. After work, put on running shoes and sportswear, releasing pressure and sweat.

Fig.81.night running

Morning market

The morning market at the under city wall, full of warm feelings of the life.

Located in the Shuncheng Lane from the west side of Xiaonan Gate to east side of HanguangGate, The daily life of many people around the city starts from the morning market which has been hold about 8 years. the crowd of people, the shouting for selling goods. full of energy.Although there are crowds on both sides of the road, it is not chaotic. The hawkers' screams for selling, and the aunts who buy food are talking with each other. On the one side is an ancient city wall has thousands of history, and the other side is a warm pictures shows hundreds of scenarios of

daily life.When the reporter picks apples at the fruit store, the enthusiastic aunt told him which one is delicious.

Aunt Zhang has lived here for more than 40 years. Every day after retirement, she started from this convenient morning market. She told reporters that "every day it is not only to buy food in the morning market ,but it is more like a way to live with the neighbors. In the morning, I practiced in the city park. In recent years, I walked along the moat for a while. The spirit will become very good! Also the facilities are perfect, which really provides us with a good activity area."(Sohu.com-3)

Findings from project location surveys:

Xi'an City Wall not only shows the history, but also records the memory of life.

This is a place full of local culture. A variety of activities meet here and lead to an uncertain results. The boundaries of spaces are blurred here, while new ways of communication are generated here. These diverse relationships help the elderly to enrich their daily lives. It even help everyone to have a peaceful place for their body and mind.

Also,the city wall of Xi'an is also a very famous tourist attraction, which has museums and parks around.Many young people come here to enjoy the relax lives and feel the ancient atmosphere under city wall. The new elderly care center can consider to have some rooms renting for them.than use this rental income to support the daily expenses of the elderly. In this way, it can release the economic pressure of the elderly and achieve a new type of sustainable economic model,also different households can make the communication more diversity and the daily life more abundant.

Fig.83.Temporary public space for Malta Festival Poznań 2017

Part five

5.Design strategies

5.1 Concept Generation
5.2 Concept References
5.3 Main Concept

5.1 Concept generation

5.1.1Guideline

Questions:

Disabled movement

Degeneration of five senses

Psychological and physiological diseases.

Solution:expand the senses

Concept:four senses

Four senses: emotion, touch, sound, view.

View(light and shadow): refers to the things eyes can see, including shape and space， long, square, flat, round and other color and direction.

(Tree Shadow Wall Shadow People Shadow)

Sound (Natural): refers to voice ears can hear, including high, low, long, short and all kinds of voice.

(Rain sounds   Wind sounds Footsteps)

Touch (texture): refers to the touch fingers can feel, including hot or cold, soft or hard, and all kinds of feelings.

(Cool water Smooth plant   Warm sunlight   Rough material)

Emotion (space): sense of respect, nobility, security, comfort, and pleasure.

Disabled movement
Degeneration of five senses
Psychological and
physiological diseases.

Solution:expand the senses
Concept：four senses

view — sound

touch — emotion
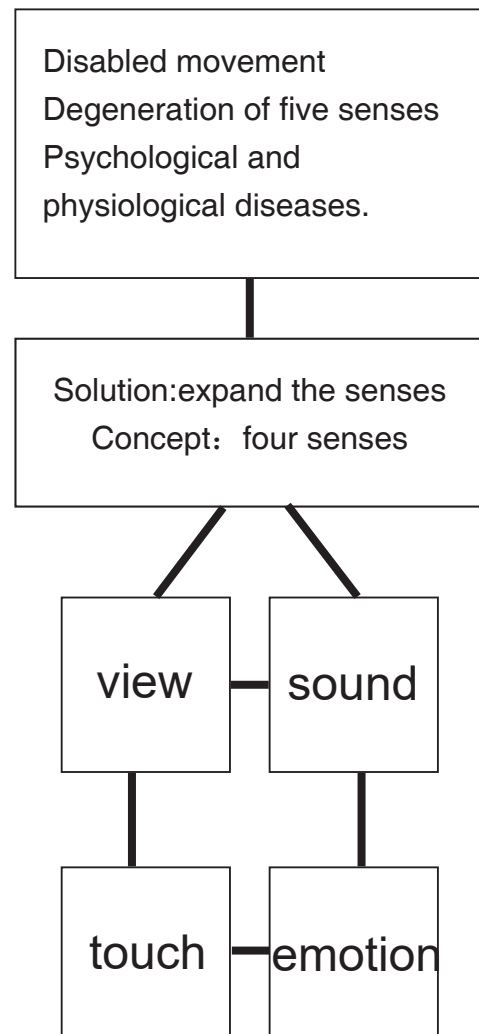
5.2 Concept reference

5.2.1 Experience the five senses of residence

Whether it is sunny or rainy, the dormers of the house can reflect the scenery of outside, feel the gentle wind, listen to the sound of the green trees swing, this is a house that can convey the natural changes.

Using real wood as the materials of the building, people living inside can touch the texture of wood like feeling the nature.(hp.co.jp)
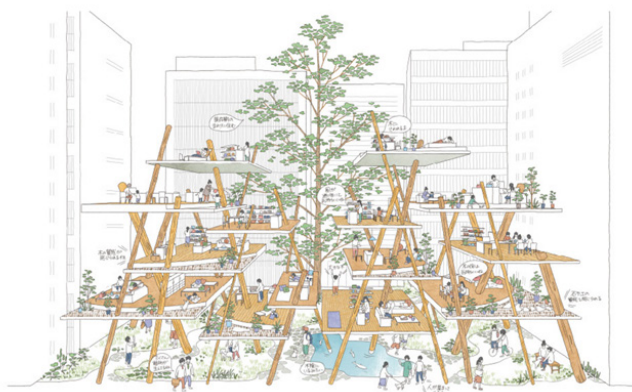
5.2.2 Example——Light

Zhuo zheng garden

The natural light changing with seasons give the building space various emotions and meanings.The twists and turns of the corridor gives different feeling of light,making the space rich of experience.

Fig.84

Fig.86

Fig.85

Fig.87

54

5.2.3 Example——Light [18]

Chapel of St. Ignatius -Steven Holl

Everything is almost perfectly show Hall's original idea: "Place an empty bottle on a stone box." In every space area, each bottle provides two kinds of light resources from their angles, forms and colors.One light sources is directly passed through the bottle on the floor and the walls, and the other light sources is reflected by the color covered wall, alternating with the artificial light, giving us the dramatic power of light in space.
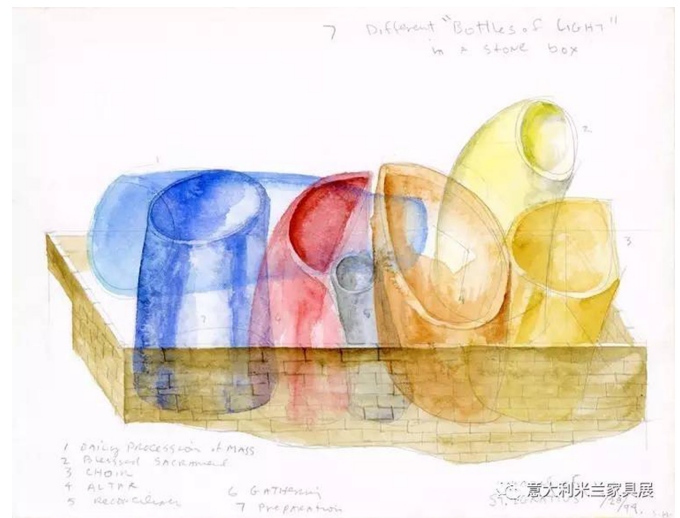
Fig.89
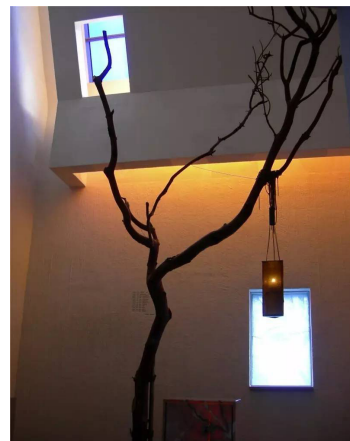
Fig.90

Fig.91

Fig.92

Fig.93

Simmons-hall-Steven Holl

Holl's design solution was that the building would metaphorically work as a sponge. It would be a porous structure that would soak up light through a series of large openings that would cut into the building so that light would filter through in section. while circulating air up.

55

5.2.4 Example——Material

CO2 Pavilion for the beijing design week 2018

the transparent screen works as transition zone between the chaotic urban surrounding and the intimate atmosphere of the patio.

Fig.94

Fig.95

Fig.96

Atelier Starzak Strebicki

The transformation of public and semi-private spaces. Simple scaffolding structures and semi-transparent fabric enclosed the space.

5.2.5 Example——Soundscape

Most of these sounds are white noise, like white color, which can help a person fall asleep.Can help relax .Coupled with some bird songs green of trees and the fragrance of the woods, people can feel really comfortable.

Fig.100.rain hits leaves

Fig.97.rain hits leaves
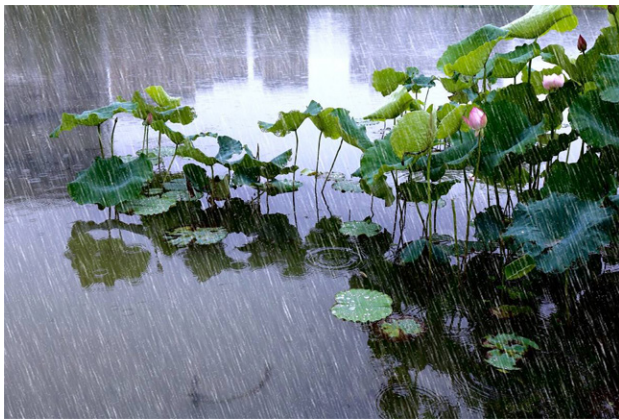
Fig.98.water sound

Fig.101.rain hits tile

Fig.99.leaves swing

Fig.102.birds singing

5.3 Main Concept

Space
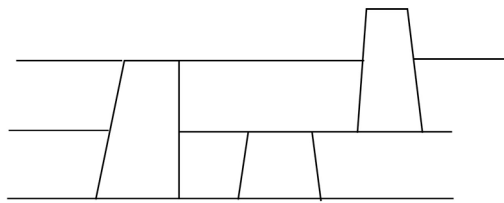
Connect with city wall

brick shape hole
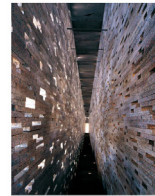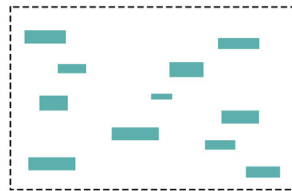
section comparison

void   solid

View

rain shadow

water

water shadow

water reflect

people shadow

shadow reflect

wind shadow

cloth wave
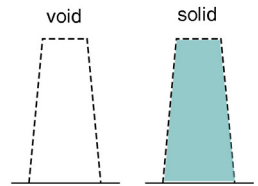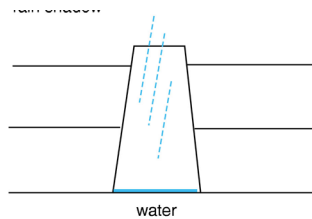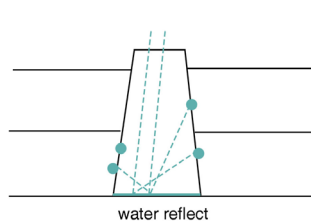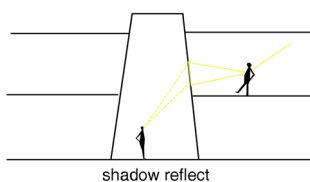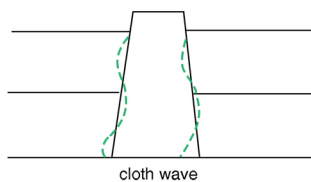
Vision, sound and touch together creat a rich spatial experience, making their lives no longer alone and anxious.

Sound

water sound

water echo

wind sound

cloth noise
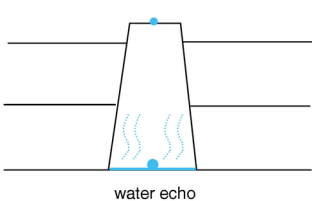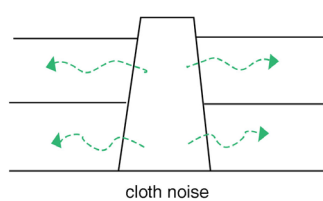
Material

1.Cloth
light transmission
breathability
economic
soft

2.Brick
rugged
rough
regular
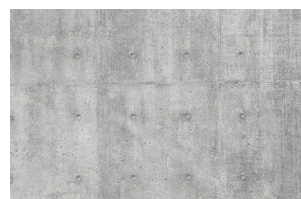
3.concrete
smooth
cold

4.Bauxite
rough
warm
irregular
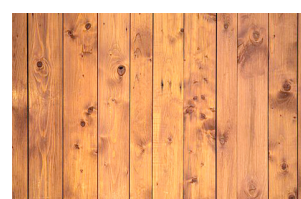
5.wood
warm
smooth
ermeability

Part six

6.Design drawings

6.1 Plot information

6.2 Rendering

6.3 Masterplan

6.4 Functions

6.5 Sustainable strategies

6.6 Plan-section-elevation

Plot Information

🏛 heritage 🌲 park 🏥 hospital 🎓 school 🏢 apartment buildings 🏬 market 🏢 office building

Main Road

City Center

Main Road

1km

500m

PROJECT
SITE
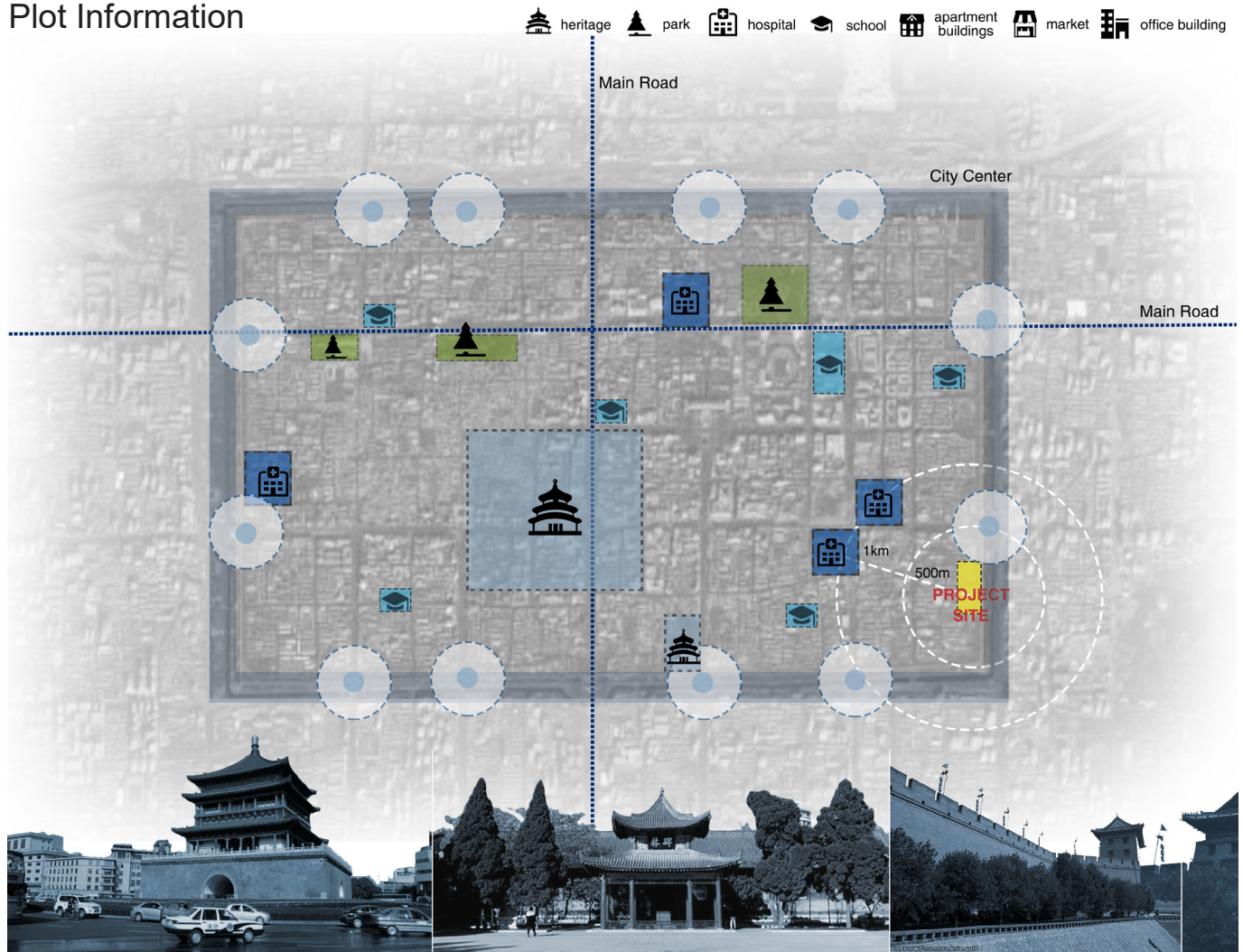
Plot Transportation

Location

XI'AN CITY

MAIN DISTRICT

SITE
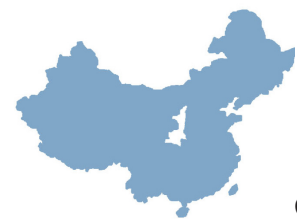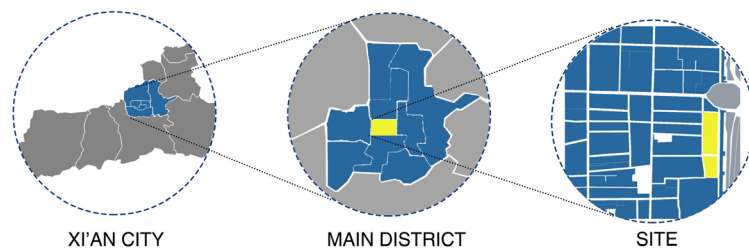
China

Xi'an is composed of seven urban areas. The center urban area is within city wall, which is the longest-developement and most prosperous area in Xi'an city. The base is located on the southeast side within the city wall,inside town center.

Transchortation

bus station

train station

centre city

site

metro line   main road   main road

metro station   main road   metro line
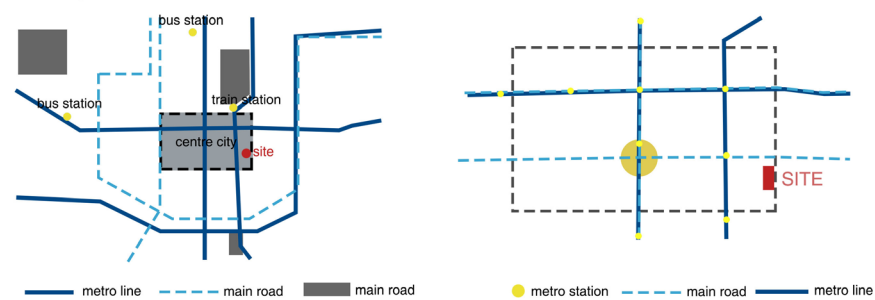
SITE

Shannxi

The site is close to the city wall and enjoys the beautiful view of it. The transportation is very convenient, there are subway stations and bus stations within 1000 meters.

Xi'an

Users Analysis

- metro
- bus
- taxi

Site Mobility

- school
- hospital
- market
- hotel
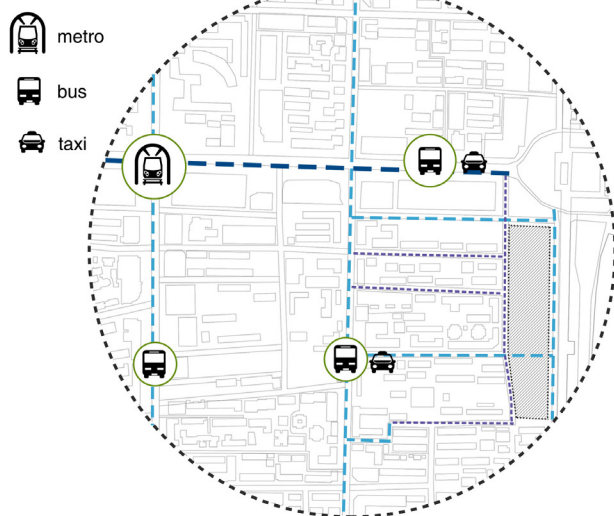
Site Facilities
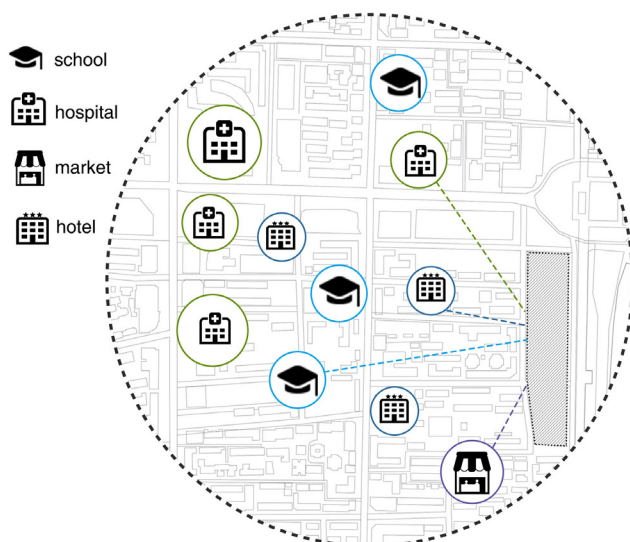
- apartment buildings
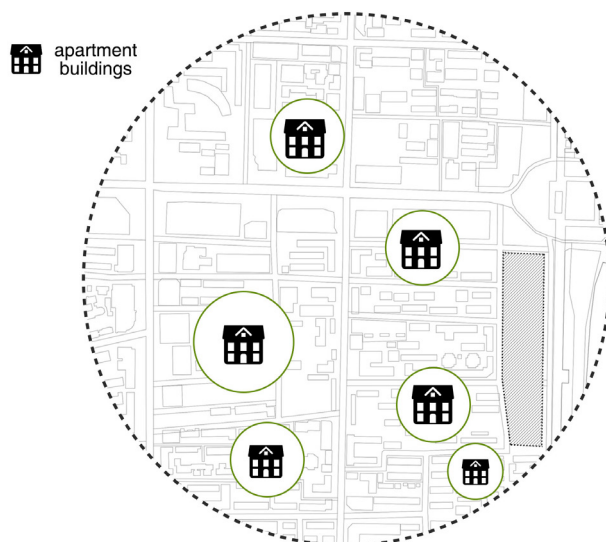
Site Community

Users Analysis

tourists

workers

students

commuter

elderly
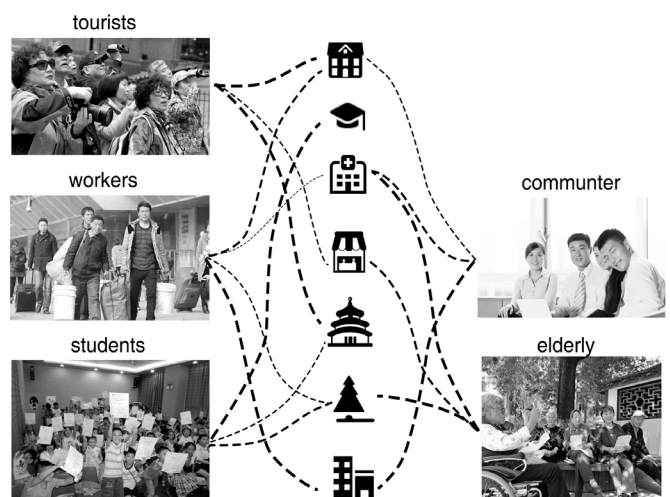
Divided the possible users into five groups.Different group have different demand for public space.And the width of line shows the importance of demand.

Activities Under the Wall

Main Rendering

Design Concept

With the increase of age, the physiological ability of the elderly is declining. The disability limits their activity type and space, the lack of care makes them often feel lonely, and the disconnection from society makes them lack of entertainment. In order to solve the problems, my design starts from a concept called *four senses*, by increasing their senses of vision, hearing, touch and emotion to expand their feelings and experience of world, so that they could have a better daily life.

Also, the project is located under city wall in order to satisfy their habits of having activities in a meaningful place. In this way, they can easily adapt to the new life without feeling anxious.

The building has mainly one floor to facilitate the activities of the elderly, and each room has a private yard to meet their needs for outdoor activities.

phenomenon	questions	answers
increase elderly population	less mobility	enrich experience
lack of pension insititution	degeneration of senses	peaceful environment
	physiological diseases	convenient space
	mental diseases	access facility/public activity
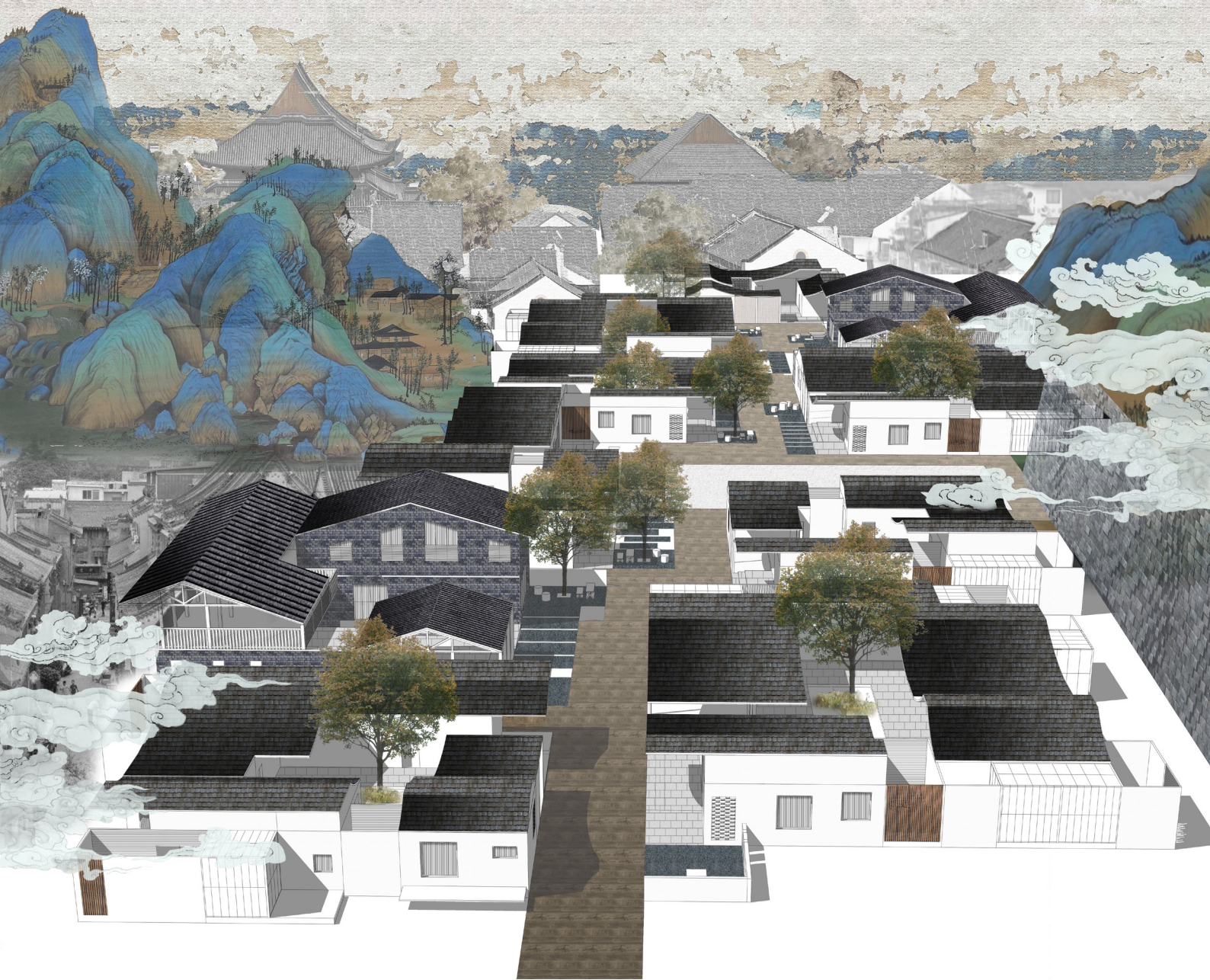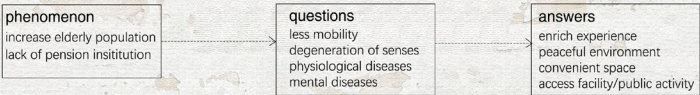
Masterplan 1:1500

surface of plot:32215 ㎡

building density(ground surface/plot surface):25％

building ratio(all floor surfaces/plot surface):0.27

green rate of the plot area:60.2％

maximum height:7.2m

entrance

parking

main entrance

entrance

entrance

N

63

Four senses

VIEW	SOUND	TOUCH

people shadow

Elderly with mobility dis-abled can see the shadow around them.So they won't feel lonely.

bird sound

The elderly's birds with wild birds in the natural singing songs together.

wooden
wooden gives a warm feeling.

water shadow

Water reflects the sunlight to show light spot on the curtain.
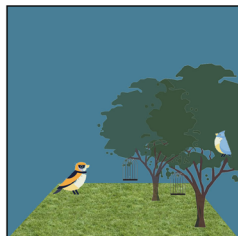
water sound

When water being blown by the wind the sound echoes into everywhere.

sand
sand gives a rough feeling.

tree shadow

Shadows of trees showing on the curtain to create a peaceful atmosphere.
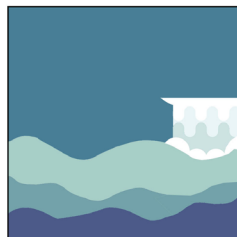
leaf sound

The rubbing sound of leaves blown by the wind
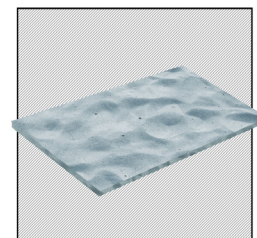
cloth
cloth brings a warm and friendly feeling.

rain shadow

Shadows of rain reflect on the cloth like a water cur-tain,make the space much interesting.

wind sound

The wind blows the cloth, bringing sandy frictional sounds.

brick
brick brings a cold,hard and historical feeling.
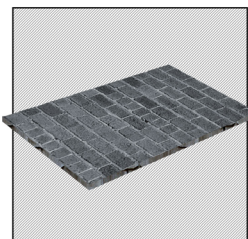
Functions
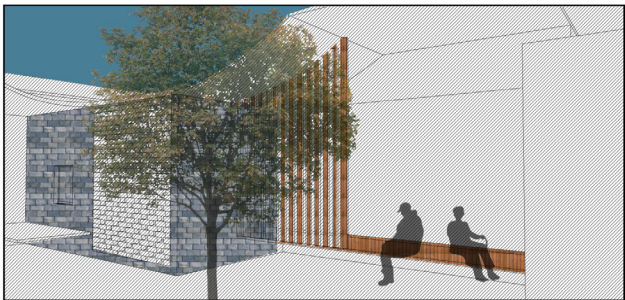
private space
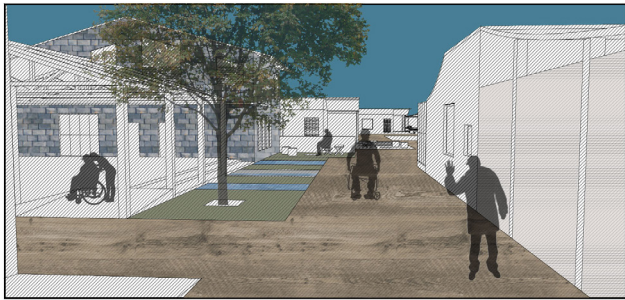
half-open space
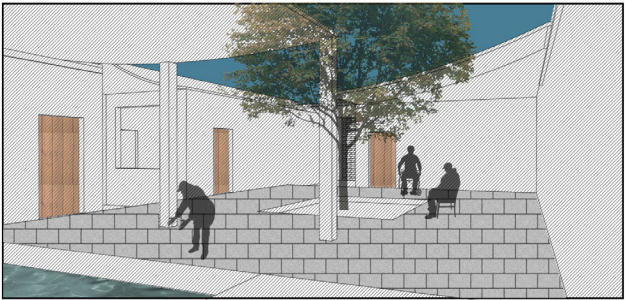
enclosed space

open space

Functions
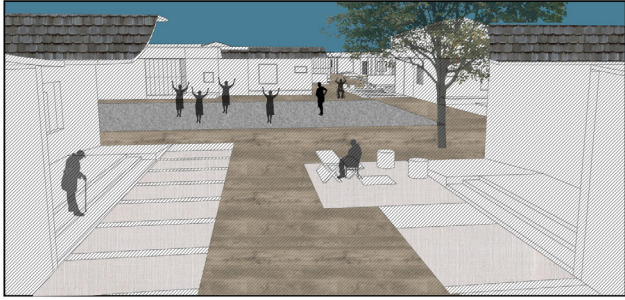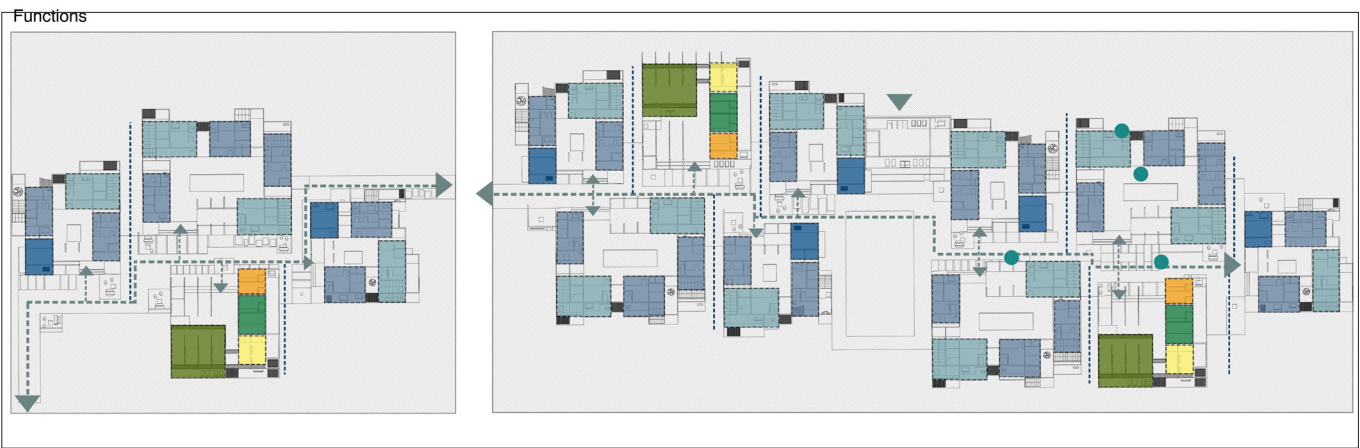
Legend

double room	single room	reading room	canteen	main road
				(only for walking road)
entertainment room	therapy room	massage room	secondary road	

Sustainable Strategies

Water Collection

Plants collect rainwater by ecological filters, waterscapes collect water through natural storage, combined with permeable pavement and eaves water collect system, to collect rainwater into the bottom reservoir of buildings for daily use.

Greenhouse-winter
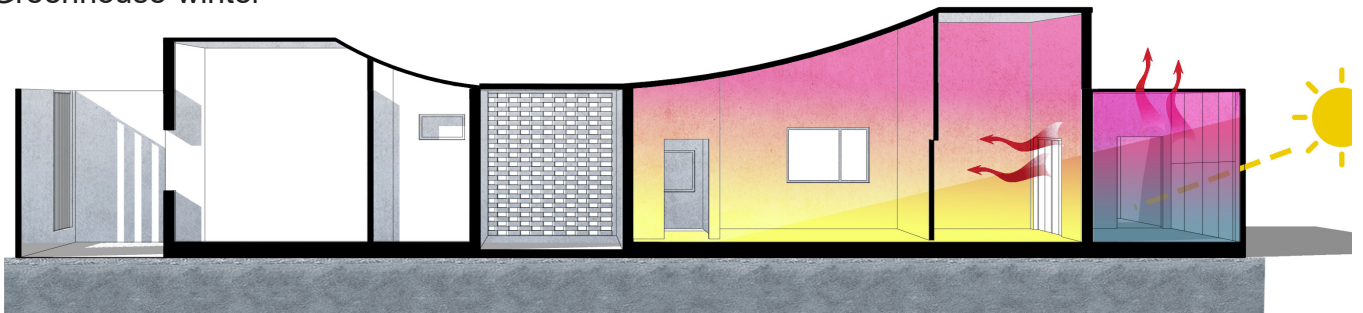
Close the windows of the greenhouse in winter to make it a big greenhouse. With the sun heating the air inside house to form a good insulating layer in older to raise the temperature inside the room.

Greenhouse-summer
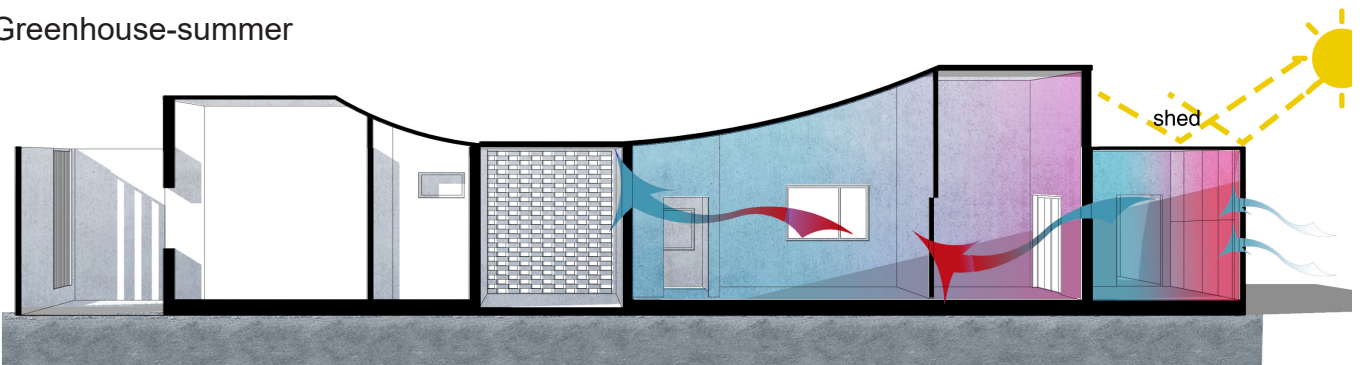
Open the windows of the greenhouse in summer to let it have natural ventilation. With the outside cool wind blow through the room to bring in the cold air and bring out the hot air,making the inner space comfortable.the roof of greenhouse can also block sunlight by curtain.

Traditional Material
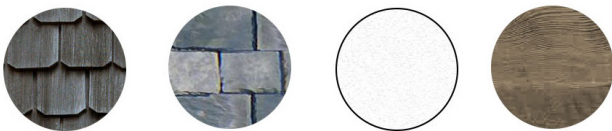
Traditional Chinese architecture is dominated by simple black and white colors. The strong contrast between black tiles and white walls is not only the initial inspiration for traditional Chinese wash painting, but also form a simple and unique cultural image.

I try to extract material and color elements from traditional buildings and apply them to the project. So the project can adapt to the historical and cultural atmosphere in the city wall area and can create a harmonious contemporary architecture.

Color

Configuration

Each residential units are organized by several rooms with courtyards,form a semi-private space for neighborhood communication. The roof is evolved from the traditional sloping roof. The curve of which forms a comfortable skyline under the city wall. The extended eaves of roof can provide in-between communication space while shading the sun and rain.

abat-vent

eave

enclose

private yard
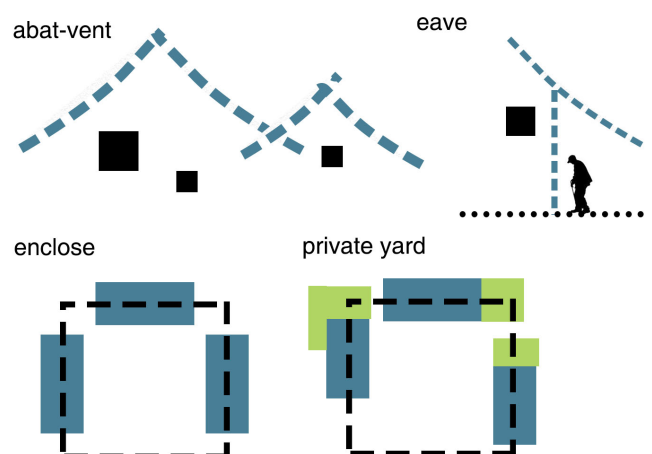
Ground Floor Plan 1:400

Ground Floor Plan 1:250

0m   5m   15m
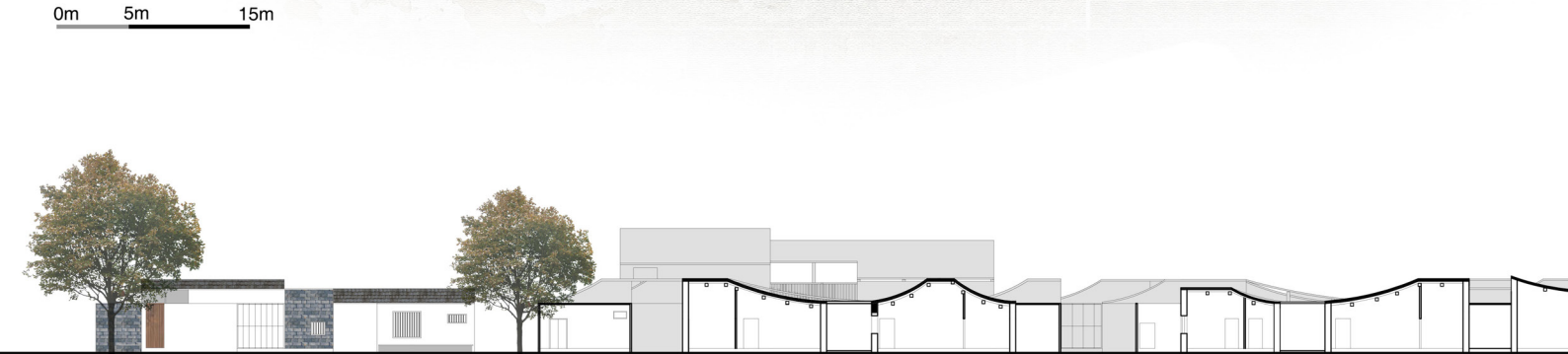
1-1Section 1:250

West Facade 1:250

up

0.00

main entrance

up

0.00

1

4.40
3.30
0.30
0.00

4.40
3.30
0.00
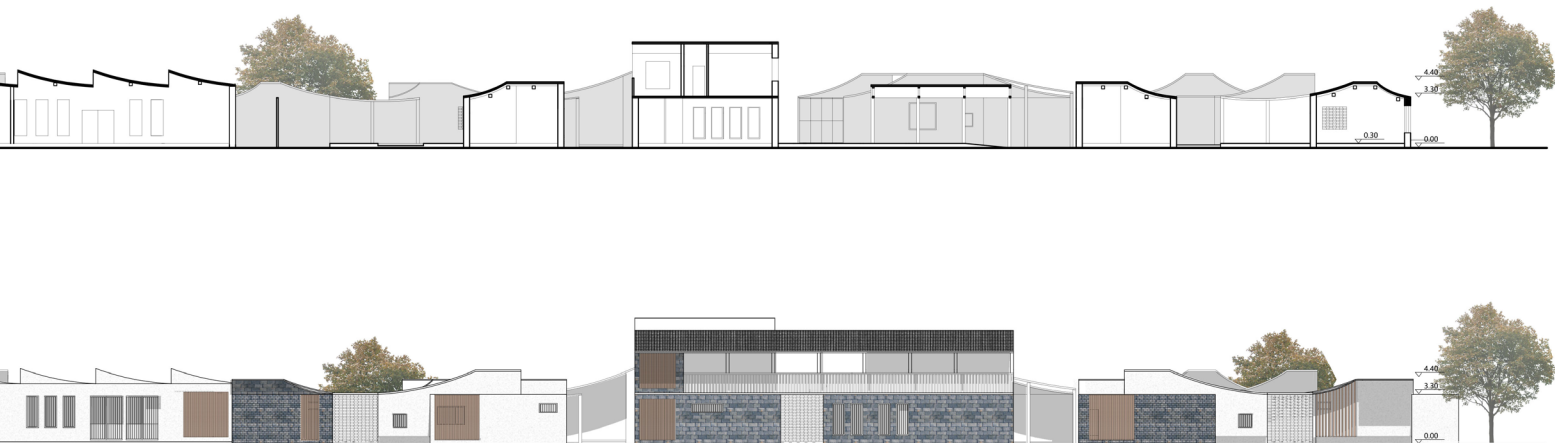
Four senses elderly home

Life under city wall

Through the bird view, showing the layout and spatial relationship of the building.it is combined by several different units linked by a wooden road in the middle. Also, through some mall perspective pictures to show important spaces inside the building as well as how people use them.

public buildi

entrance of residence

private yard

ng

residence yard

public corridor

Public Unit Plan 1:200

Dimensions: 2100, 6000, 9000, 6000, 920, 3000, 3000, 9000, 6000, 310, 2430, 400, 380, 1200, 420, ±0.000, up, 900, 300, 900, 2100

2-2 Section 1:200

7.20
5.70
3.10
0.30

A

platform | office | office | office | office

spa room | recovery room | canteen

72

Detail Section A 1:50

black tile
30 mm wooden panel
30 mm mortar sheeting
10 mm synthetic PVC
80 mm insulation layer
180 mm concrete roof

50 mm tatami floor
15 mm wooden panel floor
50 mm equipment layer
100 mm insulation layer
240 mm concrete foundation

Detail Section B 1:50

5(30mm mortar
50 mm insulation panel
200 mm concrete wall
30 mm cement mortar
120 mm black brick

1-1 Section 1:200

B

6.10

3.10

0.30

office

library

recovery
room

lobby

therapy
room

Elevation

east facade 1:200

west facade 1:200

north facade 1:200

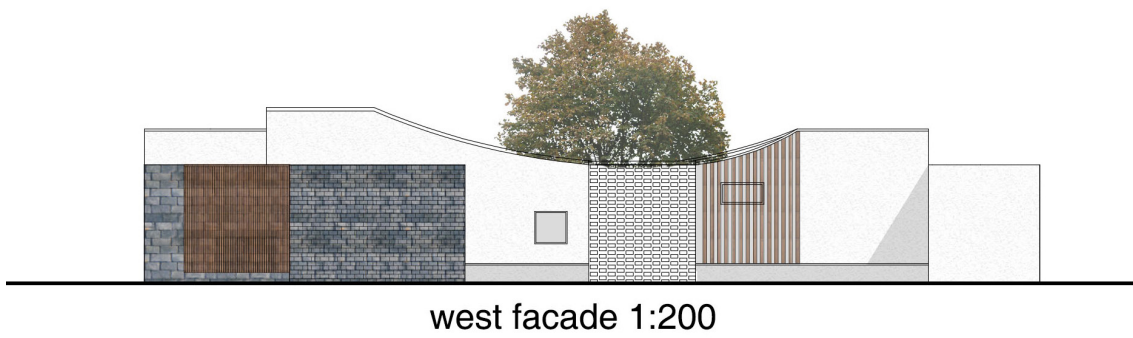south facade 1:200

Residence Unit Plan 1:200

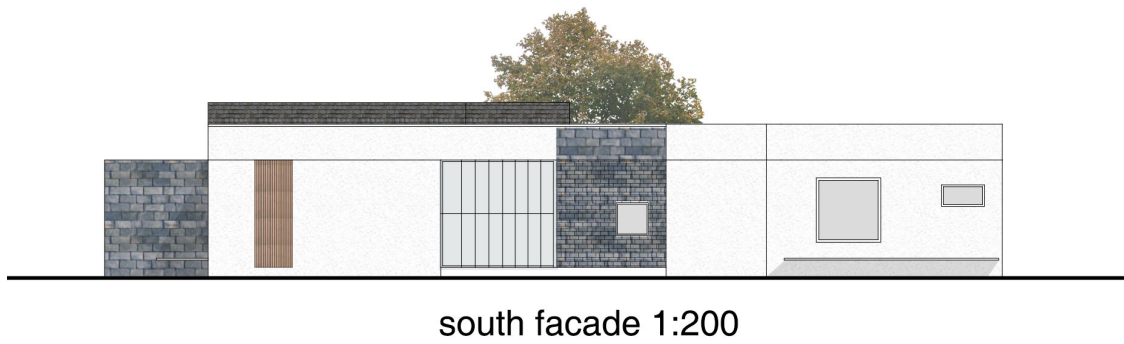## 1-1 Section

kitchen | living room | bedroom

2-2 Section

bedroom | bedroom | living room

Elevation

east facade 1:200

south facade 1:200

west facade 1:200

north facade 1:200

Detail Section A 1:50

15mm white mortar layer
200mm black brick
50mm insulation panel
120mm black brick
10mm white mortar layer

Detail Section B 1:50

1

50mm tatami floor
15mm wooden panel floor
50mm equipment layer
100mm insulation layer
240mm concrete foundation

Roof Detail 1:10

black tile
30mm wooden frame
30mm cement mortar sheeting
10mm synthetic water proof
80mm insulation layer
50mm plywood roof

Layer Explode

black tile

30mm wooden frame
30mm cement mortar sheeting
10mm synthetic water proof
80mm insulation layer

50mm plywood roof
10mm wooden frame

ditch
water pipe
50mm tatami floor
15mm wooden panel floor
80mm equipment layer
100mm insulation layer
240mm concrete foundation

15mm white mortar layer
200mm black brick
50mm insulation panel
120mm black brick
10mm white mortar layer

Annex

Standard of nursing home and day care centre in China (space type/function/area/target)

社会福利机构和设施类型　　　　　　　　　　表1

类型	规范名称	设施常用名称	服务对象	对象特征
养老类	老年养护院	社会福利院、敬老院、养护院、荣军院	三无人员	无亲属、无收入、无劳动能力
			失能老人	完全丧失日常生活自理能力，含失智
			荣誉军人	伤残且无工作能力的退伍军人
	老年人公寓	老年公寓、养老公寓、老人院	半失能老人	部分丧失日常生活自理能力
			自理老人	可自我照料、但身边无亲属子女，或子女不能时时陪伴，或欲独立生活
	日间照料中心	日间照料中心、日间服务中心、老年活动中心、托老所	半失能老人	部分丧失日常生活自理能力
			自理老人	可自我照料、但身边无亲属子女，或子女不能时时陪伴，或欲独立生活
	居家养老	适老化改造住宅、老年人住宅见第二分册老年人住宅部分	自理老人	半失能、需半护理；或依靠工具器械可自主活动，不愿离开原有居所
未成年人类	儿童福利院	儿童福利院、孤儿学校、孤儿院	孤儿、弃儿	被遗弃、拐卖等无家庭、无亲属、无领养，多有肢体、知觉残疾或智力发育不全
	救助管理站	救助管理站（未成年人救助中心）	流浪儿童	有家不回、异地流浪、乞讨等，部分为肢体、知觉残疾或智力发育不全
精神障碍类	精神卫生社会福利机构	民政精神卫生中心	长期精神疾病患者	无法治愈且困扰其家庭，或危害社会者
伤残康复类	福利康复中心	康复中心、伤残就业培训中心	残障人士	依据国家评定标准确定的各类各级伤残标准
庇护援助类	救助管理站	救助管理站（未成年人救助中心、家庭暴力救助中心）	被拐骗妇女性	多有认知水平低下、或智力发育不全
			家暴对象	家庭暴力受害者，常羞于公开
			临时受困人员	遗失钱物、走失、寻亲寻友不着、打工未果等

需求类型　　　　　　　　　　表2

类型	居住对象	服务范围	起居	交往	服务	管理	医疗
独立型	自理老人	少许的帮助和必要的监护	强	强	弱	弱	弱
服务型	半失能老人	日常生活所需的各项服务	强	中	中	中	中
护理型	失能老人	全天的监护及全面的帮助和照料	弱	弱	强	强	强

老年人类型划分　　　　　　　　　　表4

类型	行为特征
自理老人	不依赖他人及工具设备，日常生活起居行为均可自主完成
半失能老人	日常生活起居行为需要借助设备或有时需要他人帮助完成，又称借助老人
失能老人	各项日常生活起居行为均需要他人帮助完成，又称介乎老人（含失智老人）

养老建筑类型　　　　　　　　　　表5

类型	常用名称	名称	主要功能内容	服务对象
机构养老	社会福利院、养护院、敬老院、养老院、老人院、荣军院	老年养护院	全(半)护理老人房、少量自理老人房、功能用房、公共活动区、医疗康复、休闲康乐、后勤等用房	失能老人
				半失能老人
	老年公寓、养老社区	老年人公寓	自理老人房、少量全(半)护理老人房、功能用房、公共活动区、医疗康复、休闲康乐、后勤等用房	半失能老人
				自理老人
社区养老	日间照料中心，托老所，老年活动中心	社区养老	为半护理老人提供生活服务、保健康复、娱乐及辅助用房	半失能老人
				自理老人
居家养老	养老住宅普通住宅	居家养老	普通住宅设计中考虑无障碍设计，使其适合老人在家中养老生活	半失能老人
				自理老人

Social welfare institutions and facility types

name	elderly apartment (residence)	day care centre (no residence)
aim	self care elderly half disabled elderly	self care elderly half disabled elderly

definition
half disabled elderly-
loss of self-care ability in daily life,No need for full-day care, but need some specific help,such as cooking,washing...

self care elderly-
can live independently, but children are not accompany with them, or have no children.want to live with same generation.

different needs

type	living people	service type
Independent service	self care elderly	a little help and necessary care
service	half disabled elderly	help for every objects of daily life

living	communication	require service	mange	medical help
high	high	weak	weak	weak
high	medium	medium	medium	medium

type and behavioral characteristics

self care elderly
no need to rely on others and equipments, daily life can be completed independently.

half disabled elderly
some activities needs help from others or equipments.

disabled elderly
all the acticitvies of daily life need to rely on others,immobility.

building type
nursing home with daily care

function
Public activity area
Leisure and entertainment space
Health rehabilitation space
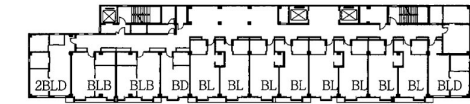elderly room with nursing
elderly room independent

service object
self care elderly and half disabled elderly

北京市石景山区京原路7号养老院居住单元的套型组合　　表1

套型	空间构成	套内面积（m²）
BD型	一间卧室、一间厨房、一间卫生间、一间餐厅	40~45
BL型	一间卧室、一间起居室、一间厨房、一间卫生间	50~55
BLD型	一间卧室、一间起居室、一间厨房、一间卫生间、一间餐厅	60~70
2BLD型	两间卧室、一间起居室、一间厨房、一间卫生间	75~85

a 标准层平面图

b BL户型放大图

c 2BLD户型放大图
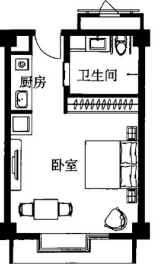
d B户型放大图
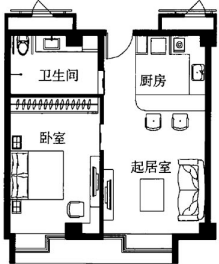
e BLD户型放大图

1️⃣ 北京市石景山区京原路7号养老院

1. 老年人公寓依据规模的不同可分为小型、中型、大型、特大型，见表1。

规模分类教参指标　　　　　　　　　　　　　　　　表1

规模	小型	中型	大型	特大型
人数	50人以下	51~150人	151~200人	201人以上
人均用地标准	80~100m²	90~100m²	95~105m²	100~110m²

注：以上数据参考《老年人居住建筑设计标准》GB/T 50340-2003。

The scale and type of elderly nursing home

	number of people	㎡ per person
small	under50	80-100 ㎡
medium	51-150	90-100 ㎡
big	151-200	95-105 ㎡
super big	above 201	100-110 ㎡

type B
bedroom/kitchen/bathroom　　　　　　　30-35 ㎡
type BD
bedroom/kitchen/bathroom/dining room　40-45 ㎡
type BL
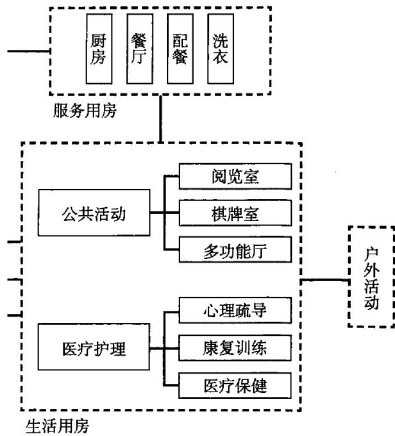bedroom/kitchen/bathroom/living room　50-55 ㎡
type BLD
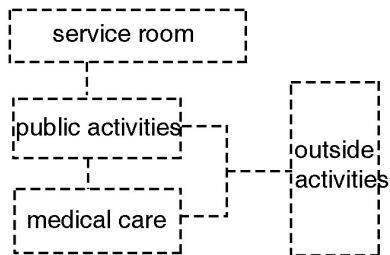bedroom/kitchen/bathroom/living room/dining room　60-70 ㎡
type 2BLD
two bedrooms/kitchen/bathroom/living room/　75-85 ㎡

老年人居住建筑配套服务设施用房配置标准参考指标　　表4

用房		项目	设置标准
餐厅		餐位数	总床位数的60%~70%
		每座使用面积	2m²/人
医疗保健用房		医务、药品室	20~30m²
		观察、理疗室	总床位数的1%~2%
		康复保健室	40~60m²
服务用房	半公共	公用厨房	6~8m²
		公用卫生间	总床位的1%
		公用洗衣房	15~20m²
		公用浴室	总床位数的10%
	公共	售货、餐饮、理发	100床以上设置
		银行、邮电代理	200床以上设置
		来客用房	总床位数的4%~5%
		开水房、储藏间	10m²/层
休闲用房		多功能厅	可与餐厅合并设置
		健身、娱乐、阅览教室	1m²/人

注：以上数据参考《老年人居住建筑设计标准》GB/T 50340-2003。

function and area scale

number of seats in kitchen	60%-70% of total beds
medical care room	20-30 ㎡
rehabilitation room	40-60 ㎡
public kitchen space	6-8 ㎡
public laundry space	15-20 ㎡
public bathing space	10% of total beds
guest room	4% of total beds
storage room	10 ㎡/floor
gym and entertainment room	1 ㎡/person

service room

public activities

medical care

outside activities

Bibliography

Pictures:

Fig.1:http://image.baidu.com/search/index?ct=201326592&z=2&tn=baiduimage&ipn=r&word=%E8%80%81%E5%B9%B4%E4%BA%BA&pn=0&istype=2&ie=utf-8&oe=utf-8&cl=2&lm=-1&st=-1&fr=&fmq=1575534068195_R&ic=&se=&sme=&width=0&height=0&face=0&hd=&latest=&copyright=

Fig.2-5: https://www.populationpyramid.net/china/2019/

Fig.3:http://image.baidu.com/search/detail?ct=503316480&z=2

Fig.4:http://image.baidu.com/search/detail?ct=503316480&z=3

Fig.5:http://image.baidu.com/search/detail?ct=503316480&z=3&tn=baiduimagedetail&ipn=d&word=%E5%85%BB%E8%80%81%E4%B8%AD%E5%9B%BD&step_word=&ie=utf-8&in=&cl=2&lm=-1&st=-1&hd=&latest=&copyright=&cs=3182672878,3620589920&os=1262039824,2868286809&simid=3365182424,251466352&pn=0&rn=1&di=1210&ln=550&fr=&fmq=1575534547843_R&fm=result&ic=&s=undefined&se=&sme=&tab=0&width=0&height=0&face=undefined&is=0,0&istype=2&ist=&jit=&bdtype=0&spn=0&pi=0&gsm=0&objurl=http%3A%2F%2Fi.gtimg.cn%2Fqqlive%2Fimg%2Fjpgcache%2Ffiles%2Fqqvideo%2Ff%2Ff5k9rkj2ds0sufw.jpg&rpstart=0&rpnum=0&adpicid=0&force=undefined&ctd=1575534558057^3_1519X706%1

Fig.6-9:2014 China Longitudinal Aging Social Survey

Fig.10:http://image.baidu.com/search/detail?ct=503316480&z=2&ipn=d&word=421家庭模式

Fig.11:Ministry of Civil Affairs, PRC.online address:http://www.mca.gov.cn/article/sj/tjjb/sysj/

Fig.12:http://image.baidu.com/search/detail?ct=503316480&z=3

Fig.13-19:https://wenku.baidu.com/view/da73ba05f4335a8102d276a20029bd64783e62ee.html

Fig.20:https://image.baidu.com/search/index?ct=201326592&cl=2&st=-1&lm=-1&nc=1&ie=utf-8&tn=baiduimage&ipn=r&rps=1&pv=&fm=rs2&word=%E5%9B%BD%E5%A4%96%E9%AB%98%E7%AB%AF%E5%85%BB%E8%80%81%E9%99%A2&oriquery=%E9%AB%98%E7%AB%AF%E5%85%BB%E8%80%81%E9%99%A2&ofr=%E9%AB%98%E7%AB%AF%E5%85%BB%E8%80%81%E9%99%A2&sensitive=0

Fig.29-31:https://www.archdaily.cn/cn/770452/kaze-no-machi-miyabira-susumu-uno-can-plus-met-architects

Fig.34-35:http://www.360doc.com/content/15/0501/22/20107689_467348752.shtml

Fig.36:http://image.baidu.com/search/detail?ct=503316480&z=3

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Fig.44:Google map-Xi'an

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Fig.56-60:Baidu Map Street View-historical heritage

Fig.61-64:Baidu Map Street View-commerce building

Fig.65-66:Baidu Map Street View-station

Fig.69:https://image.baidu.com/search/index?tn=baiduimage&ipn=r&ct=201326592&cl=2&lm=-1&st=-1&fm=result&fr=&sf=1&fmq=1575540382278_R&pv=&ic=&nc=1&z=&hd=&latest=&copyright=&se=1&showtab=0&fb=0&width=&height=&face=0&istype=2&ie=utf-8&sid=&word= 西安城墙树影

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Fig.83:https://www.gooood.cn/temporary-public-space-for-malta-festival-poznan-2017-by-atelier-starzak-strebicki.htm?lang=en

Fig.84-85:https://www.hhp.co.jp/services/living/ls2025/vision/#sec03

Fig.86-87:https://image.baidu.com/search/index?tn=baiduimage&ct=201326592&lm=-1&cl=2&ie=gb18030&word=%D7%BE%D5%FE%D4%B0&fr=ala&ala=1&alatpl=adress&pos=0&hs=2&xthttps=111111

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