

Habitation in Nanjing

As Seen by an Architect and Planner through a Comparison of Two Projects in Six Years

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Introduction

I was employed in Nanjing Architecture Design and Research Office from 1985 to 1995. During this time, I designed a lot of plans and projects including housing and various kinds of public buildings. Since 1995, I have been working in Nanjing Urban Planning Bureau, an authority of the city government. I have seen, managed, supervised, chosen, evaluated and approved permits for a huge number of plans and building projects especially housing.

There were two projects in six years that I will consider in this paper. The first is a project I designed myself six years ago. The second is a new project which I reviewed just this year and chose from 5 design proposals by a professor at the Southeast University in Nanjing.

In this paper I will try to describe and analyse the experience in these two projects with respect to the **strategies, actors** and **designs**, in order to develop and propose better methods and solutions.

Problem Definition

Housing is a large problem especially in a developing country with such a huge population as China. It concerns lots of sectors that I do not expect to find all the solutions or even the best one. However, I am going to find a few insufficiencies and get some solutions for town and city families, just from the perspective of my experiences. The duty of an Architect and the Urban Planning Authority have a major role in housing, but they are not the most important authorities taking charge of housing in our city: they are the Building Authority and the Construction Committee.

Motivation for the Choice of Study

During these 5 years (1996–2000) a great reform happened in the frame of the housing policy of China, including new housing standards, new ways of acquiring housing, forms of ownership, etc. So, I think that to compare and analyse the experiences of these two projects may be interesting.

Method of Study

This report will summarize the projects but will focus on analysis, conclusions and recommendations. And after the whole eight weeks course, including lectures, discussions, excursions and reading literature, I think there may be a better understanding about what are the accomplishments and what are the insufficiencies and their solutions.

Background

Country – China

The People's Republic of China is located in the east of Asia, on the west coast of the Pacific Ocean. It is about 9.6 million km² in area, the third largest in the world. Its population was 1.295 billion (in Nov. 2000, meanwhile 1.265 billion in the Continent), the first in the world, one-fifth the population on the Earth.

China has the highest mountain in the world – Qomolangma, 8848 m high, and one of the longest rivers – Yangtze, 6397 km long.

China has a 4000 year old history and highly developed culture during ancient times. The country was so powerful it was not interested in foreign or modern technology. The Western countries became developed and strong after the Capitalist Revolution and the Industrial Revolution. The country lost the Opium War in 1840 and became backward, weak, poor and the economic development slowed. Now it is a developing country.

Between January and April 2000, the GDP was 8,940.35 billion RMB (1USD=8.3 RMB), or an 8.0% growth.

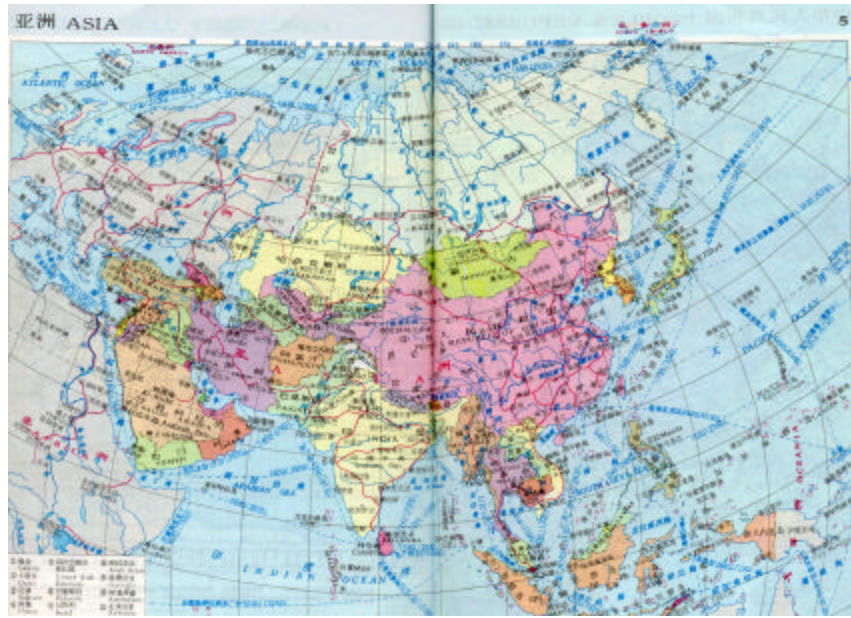


Figure 1 the location of China

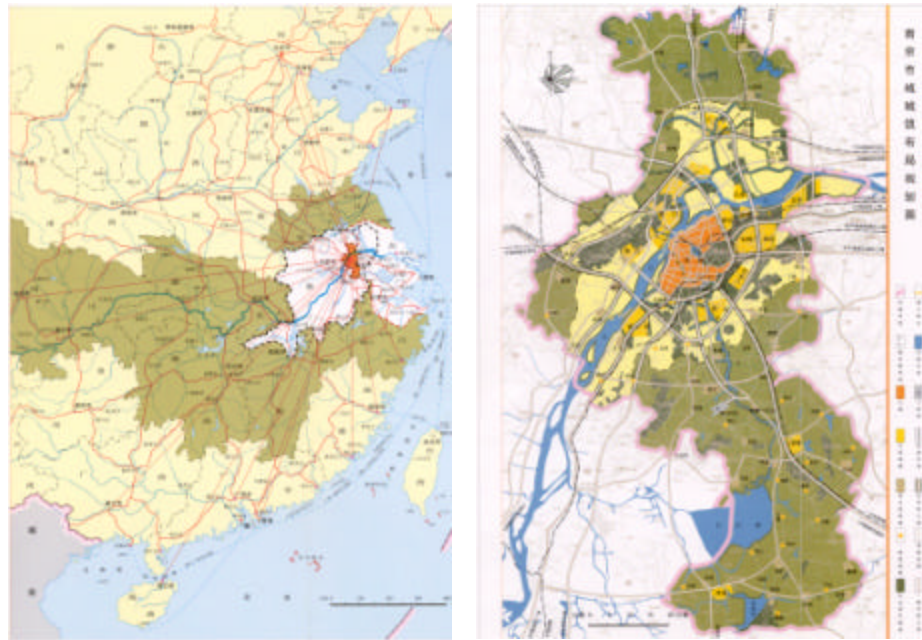


Figure 2 left: The location of Nanjing in the Yangtze Economic Zone, right: the general planning of Nanjing within its administrative boundary.

Regional – Nanjing

Nanjing is one of the four famous ancient capitals in China (the capital of Wo, Jin, The South Dynasty, S. Tang, Ming and the R. China, etc.). Today it is the provincial capital of Jiangsu, as well as an important central city in the lower reaches of the Yangtze River. It is in the economic zone of the national productivity layout, the Yangtze Delta. “As a city close to rivers and lakes, Nanjing is a comprehensive industrial base, an important communication and transportation centre and one of the four scientific research and education centres in East China. It is also the second largest business centre next to Shanghai in East China. Located on 32°03' north latitude and 118°47' east longitude, Nanjing is not far from Anhui Province as well as Zhejiang Province, with the Yangtze River winding its way across the city eastwards to the sea. Nanjing is 300 km away from Shanghai, 1,200 km from Beijing. Nanjing ranked the 5th among the 50 Comprehensively Strong Cities. Total GDP in Nanjing in 1997 was RMB 76.2 billion.

By the end of 1997 Nanjing's total population was 5.3 million, among which non-agricultural population was 2.7 million (51% of the total), agricultural 2.6 million (49%). The urban population was 1.85 million, the suburbs was 0.88 million and that in the five suburb counties was 2.57 million. There were 1.7 million households in the city. The birth rate was 8.01 (and the death rate was 5.85).

According to the classification of national economy industry, 0.77 million people were in the first industry (agriculture), 1.23 million in the second (manufacture) and 1.01 million in the third (service).¹



Figure 3: The general planning of Nanjing Urban District

¹ <http://www.jlonline.com>

To realize the goal sustainable development in the future, the Comprehensive Plan of Nanjing (1991–2010) is divided into three stages (short term, long term and distant view) and three spaces (municipality area, metropolis region and urban district).

The municipality area is the region within Nanjing's administrative boundary with an area of 6516 km². The metropolitan region includes the urban district and surrounding towns with an area of 2753 km². It is a highly urbanized area with green space between towns and convenient transportation connecting towns. The urban district is the area within the circular bypass road and the south of Yangtze River with an area of 243 km², about 2 million people.



Figure 4: Some famous landscape and new architecture, during the date in the picture the 6th Congress of Chinese Businessmen over the whole World will convene in Nanjing



Figure 5: Longjiang Residence District

Project 1 Housing in Longjiang Residence District

The first project was designed in 1995, as a part of Longjiang Residence District, for officers of the provincial government. In that year they could get a house as welfare which higher than the standard enacted several years ago. But that standard was lower than today because the living level was also lower several years ago.



Figure 6: Mendong Residence District

Project 2 Housing in Mendong Residence District

The second, designed and selected in 2001, is a plan for the redevelopment of an old city residence district. The houses will be sold on the open market, and there is a subvention for the people who lived here to help them to buy the new house, as the majority of them are lower-income people in our city. The standard is improved as well as the living level after twenty years of the Reform and Open Movement .

Strategies

In 1995 before the reform of the frame in housing policy in China, the salary did not include the money for buy a house on the market. There was not any housing market before 1985 for low -income or middle-income people in our country, since people could only get arranged housing provided by the employer as social welfare. Considering the slower growth of the national economy, and the rising of the needs of social welfare, it was too much to arrange housing in time. People had to wait and wait and accept the lower standard.

Followed the whole course of Frame Reform in China, improving of living level, the improving need of people's habitation level, and the need of propelling the improving of GDP, the central government decided to reform the housing frame, as a decree as policy, or as a law –the Premier Office Act No.23 year 1998. All the arrangement of welfare housing would be stopped in 2000, to change the admeasurement/allocation in entity dwelling building into money in Salary. The housing market had grown for nearly twenty years, and had become adult, and would be the major source of housing.

Description

The Old Standard

The standard in that period, before the reform of the frame in housing, you can see in the table.

Table 1: Old standard of dwelling units

Room	W.C	Kitchen	Dining	Bedroom	Others
Area (m ²)	2~3	3~5	6~7	7/person	

The area of bedroom and dining room is different according to the family composition. The type of units of housing in that time is usually the following:

Table 2: The old type of dwelling units

Type	Residents	Bedrooms	Bedroom Area (m ²)	Useable Area (m ²)	Unit Area (m ²)
Single	for a couple	one	14	25	35
Small	couple + a child or single older person	one and a half	21	32	45
Middle	two couples* or one couple + two children	two bedroom	28	40	55
Middle	couple + two adult children of different sex	one large, two small	28	40	55
Large	two couples + a child or a single older person	two large, one small	35	50	65
X Large	large families				

* The second couple is either on set of parents or a married child.

At the end of 1980s, many architects and professors asked to change the unit type. This means that with the same area, to decrease the area of the bedroom, to increase the area of the dining room and turn it into a living room with the function of the dining room. Its area is about 10~15 m². They asked to increase the area of the standard of the kitchen room and W.C. And these ideas were fulfilled gradually.

An Important By-law in Nanjing –Act No.176

An important reform in Nanjing on the redevelopment was enacted in 2000. When a redevelopment project happened in an old residence district, the developer company used to pay the owner of the old house by giving him a new apartment unit. The area of which was according to the owner's family composition, about 7m² per person in residence-area plus the kitchen room and W.C. The residence-area means the useable bedroom and dining room area. It was often issued 1~5years later, as the money for the replacement housing was available after most of the house for market were sold. But now, the developer company should pay the owner of the old housing the money immediately, according to the area, locality, quality of construction and any extras such as telephone and cable TV connections.

The Reform of Frame in Housing in City and Town

To help understand the comparison, it is necessary to introduce the Reform of Frame in Housing in 1996~2000. Bearing the huge press of the old system of housing as a social welfare, the central government of China decided a great reform in the housing frame, to stop welfare housing before 2000 and put housing into the open market. The first idea came from the 15th Congress of China Communist Party who called for the set up of the City and Town Habitation Development Reserve and for speeding up the Housing System Reform. Since every region has difference conditions, the premier's office instructed each province to develop a plan. The Jiangsu Provincial Government and the Nanjing City Government developed plans according to their local conditions by December 31,1998. In the transition stage, they did the following.

- 1 Set up a housing development reserve. Increase the employee's salary a part for purchasing housing. Amount of salary as the increment should be saved. As the same amount should be saved by the employer for his employee at the same time. When people purchase housing they can use the reserve saved by both the employer and themselves.
- 2 Set up a low-accrual loan for purchase housing. It can be returned in ten years.
- 3 Set up a subsidy for low-income people. If any family's income is lower than the lowest standard, and the area of his house is less than the lowest standard. He can purchase one low price house, special built with a subsidy.

- 4 Have all the welfare housing with a low rent sold to the occupant at a rebate price, according to the user's age, length of employment, duty of job, the quality and location of the house, age of the house, the family size, etc.
- 5 Set up and improve a second hand housing market.
- 6 Increase the produce of housing for market and improve the management of land and building market, consequently lowering the price.
- 7 Support the low rent housing for lowest-income family.

The summary programme of the housing system reform is the following. To change the welfare housing arrangement into money in salary by the following steps

Step 1. In 1998 encourage housing purchase by the way of

- 1 The subsidy of purchasing house deals with the length of employment. It is 0.6% for every year of employment before 1992.
- 2 The subsidy of purchasing house deal with the duty area standard, it was 16% in 1998.
- 3 A rebate if the total price of the house is paid at one time.

At the same time on the other side, increase the rent of housing.

Step 2. In 1999 abolish the rebate used in 1998, and increase the housing price step by step by decreasing the subsidy every year, while increasing the rent of house again one by one years on the other side.

Step 3. In 2000, to abolish the welfare housing arrangement in general. The majority will buy housing with money from their salary, the housing development reserve, loans for private housing and some subsidy. The rent will continue to increase to a reasonable level.

Table 3: Housing Provision Rule in Act No. 278 year 1998 in Nanjing

Family income type	Degree (RMB)	Housing provision
Lowest income	<140/month person	Low rent housing
Low or middle income		Low price housing or ordinary housing
More income	>50,000/year family	Housing over standard

Table 4: The Housing Area Standard for Duty Subsidy in Act No. 278 year 1998

Degree of duty	Area with subsidy (m ²)
Staff and common officer	75
'ke' degree, department of country officer	90
'chu' degree, country degree officer	110
'ting and ju' degree, bureau in city or province officer	135

Analysis

The first project was designed for provincial government officers. They can get a bigger housing with a higher standard. Their area of apartment units including not only all these in the old standard as table 1, but also a living room about 15-25m². But it is lower than the new standard for duty subsidy in Act No.278 year 1998.

The second project was designed in 2001. Before the assignment file, or the demand document of a design competition was issued, the Nanjing Urban Planning Bureau had made a Zoning Plan of this area in 2000, as a by-law, named Mendong District Controlling Plan in Nanjing.

After the reform of the housing policy, the standard and the unit types were changed by the market. The needs of buyers have become varied, from less than 50 m² for low-income family to over 200 m² for high-income family. And not only apartments but also villas are on sale.

About 20 years ago, people all were poor, with a low living standard and in simple, identical living modes. If there was a redevelopment to improve the building for social reasons, under the old system, people living there could get new housing that met the basic housing need at that time. The new house was better than the old one of most of people in all of quantity, quality, basic technical infrastructure and function. So people enjoyed the old order of redevelopment at that time.

As the result of the 20 years Reform and Open Movement, following the improvement in living standards in recent years, many people became richer and wanted better houses, above the standard set previously. And different people have

different incomes, different family conditions and different individuality just like the increased variation in life styles, the housing requirements are also different. According to the early changes in the housing market, the city government changed the rules for redevelopment last year. This is a significantly improved policy. It has people's acceptance and has improved the activity of housing market.

Accomplishments and Weaknesses

The experience of the Reform of Housing Frame in Town and City, in fact, is the course of giving some estate from government finance, in state owned, to citizen, in private, and then unloading the heavy burden of providing and maintaining so much estate state owned that over the ability. In this course the housing market got active; the GDP was improved by the industry of housing construction; and the most considerable accomplishment is most of the families living in town and city solved the serious shortage of housing in a long time, especially in the large cities such as Shanghai, Nanjing etc. But on the other side, some of low-income family have not got the solution of housing shortage especially those working in a slack factory state owned. The states of the difficulty in habitation are in different degrees and the requirements of solution plan are different as well. The families to which the low price housing should be provided can be divided to four kinds, by distinguishing the low-income from the middle-income families and by distinguishing those with serious difficulty finding housing from those with sub-standard housing.

Actors

The roles of **actors** in housing are so various that we have to describe and analyse all sorts of the actors one by one.

Actor 1 – The Client

The clients of the first project are the officers or the staff of the provincial government office. They got welfare housing at a low rent, of a higher standard than most of the people. It is about from 65 to 95 m². Housing was allocated according to a system. They were offered a house according to the person's duty or job, the family conditions, age and the length of employment, etc.

The clients of the second project are from the open housing market. If the owner of an old house in this district wants to buy a new house there, he can get a subsidy.

Actor 2 – The Project Manager

The project manager in the first project was the Jiangsu Province Administration Business Bureau, in charge of offering and arranging housing used by the provincial government officers and staff. It is a government authority. It has a branch office named Construction Office, as a project manager. It got the money for housing from a government budget, according to the need of their clients. It paid the architecture office, applied for the permit of city authorities concerned, paid the construction company, arranged the construction site, accepted the housing constructed and then allocated it.

The project manager in the second project is the Qinghuai District Urban and Town Construction Comprehensive Development Company, a business company belonging to the Government of Qinghuai District, one of the six urban districts in Nanjing. It operates not only under the orders of market but also under administrative directives from the District government

Actor 3 –The Authorities

In Nanjing, there are many authorities concerned with housing, e.g.:

Construction Committee, to approve the project document, to receive the fee from the developer for civil basic service investment, to issue the building permit, and to coordinate investments of service companies, like Power Support Bureau, Water Support Company, Gas Company, Telecommunication Bureau, etc.

Many developers are discontent against the fee. This fee came from the old development system people used to. As you know, before the Reform and Open movement, upon the Soviet socialism order, our government keep a low tax, low budget and a low GNP. At the beginning of opening the building market, there were not enough money to prepare the land for development, and the road and other civil

basic service. The land was sold unready and with people living there. The city government had to set up the road, bridge, power, gas and water etc. As one of the major source of the investment, the fee issued.

Although this money have the city government construct lots of civil service project important, it increase the housing cost and price in Nanjing inconsequently. **Project Plan Committee**, to approve the project document concerning the financial and budget plan.

Urban Planning Bureau, to issue ‘two permits and one book’ of construction or development project according to the Urban Planning Law, by -law, and City Planning. The ‘one book’ is the Judgement of Location about Site of Construction and Development Project. One of the ‘two permits’ is the Permit by Urban Planning about Land use for Construction and Development Project. Another is the Permit by Urban Planning about Construction and Development Projects.

The duty of the bureau before issuing the permit, includes:

- 1 To issue the Demand Document of Planning Design.
- 2 To review the plan designed by the architecture office, and to check the approval of other authorities, such as the fire-brigade, power support, water purveyance, gas support, drainage management, telecommunication, education, etc. And then:
 - If the plan does not meet the requirements of planning or other authorities, it should be modified according to the Review Judgement.
 - If the plan is suitable, the Review Judgement is issued to accept the plan and design the construction drawings.
- 3 Review the drawing and check the certificate from Construction Committee that the fee is paid for civil basic service investment. If all right, the permit should be issued.

Land Bureau, to collect the land use fee, to record the right to land use of building in the project, then to issue the Land Use Ownership Certificate of each building.

Building Bureau, to record the ownership of building in the project, to issue the Ownership Certificate of each building, and then to oversee the Housing Market.

Municipal Service Bureau, to manage basic urban services, such as roads, river sides, power support, water purveyance, gas support, drainage management, etc.

Actor 4 – The Builders

Considering the 20 years Economical Construction Reform, more and more farmers are leaving their rural land. They enter the city for jobs and to make money. Most of them find work in construction, and most employees in most of the construction companies come from the countryside, except those who build the important and high-technology buildings. They work hard, earning a low salary, resulting in lower construction costs. Because of the over-population in rural areas, the companies consisting of farmers have to face great competition. Lots of them have to invest money themselves into a project in order to get the project, and the project management always pays the cost later.

The construction companies made up of farmers have an active role in the housing market. They lower the cost of housing, but at the same time there is a need to train these new workers, because of the low quality of their product.

Actor 5 –The Designer

The Designer including the urban planner and the architect, play an important actor in habitation. Planners used to be employed by governments and big companies. They designed not only in general planning of city but also in zoning planning and some constructive detail planning just before a project design.

In front of both two projects in this paper there are constructive detail planning, even more the zoning planning. For detail seeing the next chapter-Design

Design

Description of Project 1 - Housing in Longjiang Residence District

Longjiang Residence District is in the west of Qinghuai River—parts of the city river in Nanjing, and the opposite of the old city wall—famous in the world for his size (more than 32km) and his age (in the early of Min Dynasty, about 700 hundred years old). It is in the lower land of Qinghuai Delta, about 80 Ha in area. In the middle of 1980's, there were never whole site for residence district inside the city wall and the near suburban district with better conditions of groundwork following the development of Nanjing. So the city government had to choose this delta area as the new residence site under the large press of housing shortage in Nanjing, although this area was said not suitable for building and planned as an agricultural area before.

As the first project in the West of Qinghuai River, the city government had to invest for a new bridge, roads and other basic urban services. This choice changed the land use planning so that there was not enough urban planning reserve when I received the role of project design. My architecture office had to revise the design plan so much times before the beginning of construction in 1991. In this residence district, there are one district degree community service centre and three residence zones. And the total building areas are about 800,000 m². In the centre, there are some public buildings including commercial buildings, service buildings and cultural buildings, the gymnasium, the centre of the elderly and a park over 50,000 m². In these three residence zone there are two middle schools, three grammar schools and five kindergarten. One of the three residence zones in the southeast was used for building houses for officers working in provincial government, and the total area of these houses is about 200,000 m².

Now, I'm not interested in the urban planning in this district, but will focus on the housing state in there. As an example of that time let us see one house following:

These apartments were designed according to the requirements of the Jiangsu Province Administration Business Bureau. For the middle degree officers, named 'Chu' and 'Ting', the smaller is 65 m², the bigger is 95 m². Each family can get a small room in the semi-under ground floor about 10m² for parking their bicycles and as storeroom. And two terraces both in south and north are prepared for each family.

Description of Project 2 - Housing in Mendong Residence District

Background of the Politics Requirement and the Context Venation of Culture and Nature

The Mendong district, is located in the southeast of the old Nanjing City, to the east of the famous door of Ming Dynasty City Wall—named Zhonghuamen now and Jubaomen in antiquity. Keeping a typical frame of the old city in Ming and Qing Dynasty, the indigene people of Nanjing have been living there hundreds of years. They speak the dialect of Nanjing, and are called 'the old Nanjing's men'

The area of the district from the North, the road Changle to the South, the Ming City Wall, and from the East, the road Jiangning which nearby the Ming City Wall, to the west, the Inner Qinghuai River are about 92 Ha., and 43Ha should be redeveloped. 7600 families live there. It is one of the few traditional old city districts have not been redeveloped.

For its long history, in there the famous Qinghuai River, the Castle of Zhonghuamen—a urn wall for door of Ming city wall's, and the wall itself, some old house buildings with traditional culture and some old streets in traditional style are full filled the venation of culture and nature. But for lots reasons, there were few change in half a century, it is behind the other areas in Nanjing. The function and construction are in recession. With a large population, a narrow streets and weak basic urban service, lots of the buildings are over the use time with some dangerous potentially. The problem between development and defence are more and more. The expectations of improving the condition of housing are stronger and stronger from people. As a politics requirement, the city government decide to renew or redevelop this region at once even though they have not enough money now to get a higher

goal both in environment and in economy. As the income of the majority of people living here is lower in our city, two subventions will give them when they buy the new house in this residence:

1. 500RMB for every m^2 of the old house they lived.
2. 3000RMB/per family for waiting the new house.

The Mendong District Controlling Planning in Nanjing

To actualize the General Planning in Nanjing and the District Planning, and to balance the environment protect and the economical development and the social need, according to the requirement of city government, to direct the redevelopment better, the control planning like a zoning planning was issued in 2000.

This planning including three parts: the document, the picture and the annexe, are used as a by-law in Nanjing. In the plan, we decided to divide the district into four zones:

- 1 The zone of reappearing the traditional housing style, confining the height of building lower than 9m.
- 2 The zone of style harmony, confining the height of building lower than 15m.
- 3 The zone of redevelopment, confining the height of building lower than 33m.
- 4 And the zone of renew for the facade.

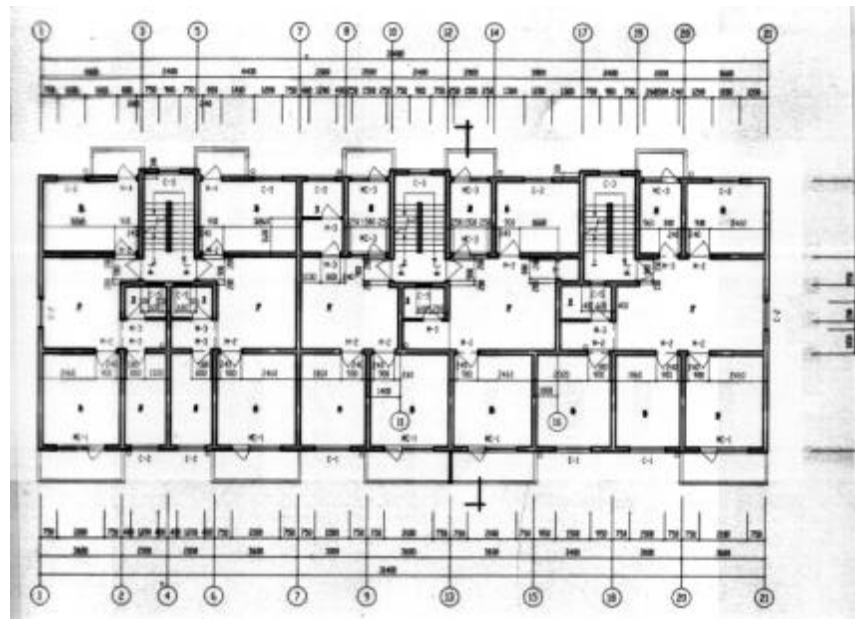
We also ruled the street style and wide, and the backward distance of building from the road. We decided that the land use should be rectified to increase the residence land and to decrease the industry land, and migrate out some population.

We emphasized the link between this region to the famous downtown-Fuzimiao (Confucian's temple) both on the road and the river as well.

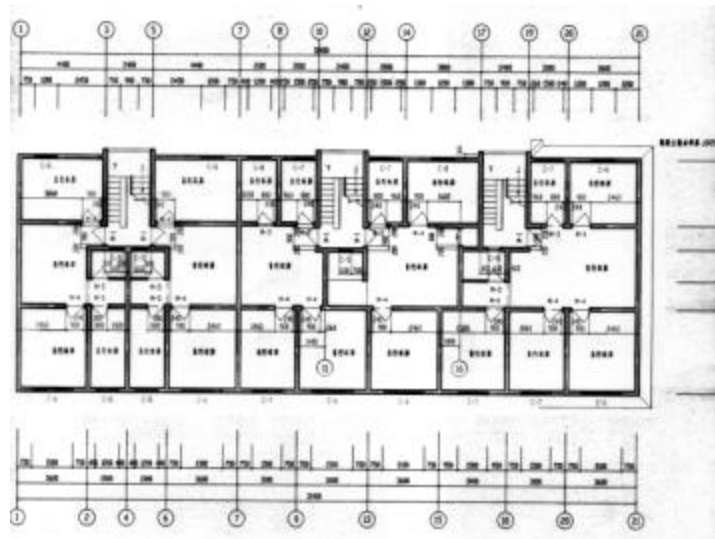
In the picture we zoned each plot of land for different use character and intension.

The area of this planning is about 69.35Ha. The major content are the following:

- 1 To restructure the land use in this region, to decrease the percentage of industry land, to intensify the function of residence, complete the community services.
- 2 To migrate out some population to improve the living situation.
- 3 To adjust the traffic net and improve the basic urban service to suitable the modern urban function and living support.
- 4 To intensify the planning control and the construction guidance of the open space along the Inner Qinghuai River and the green belt along the Ming Dynasty City Wall, in order to form a comfortable situation and landscape with context of history and culture.
- 5 To keep the feature of space form and placement conformation of the folk housing with a clear context.



ordinary floor plan



semi-under ground floor plan, a storeroom for each family

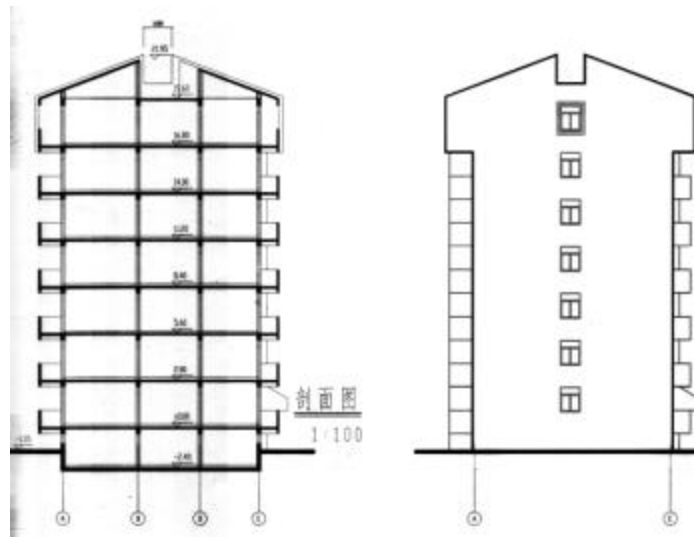


Figure 7 the floor plans, facades, and the sections of a housing in project 1.

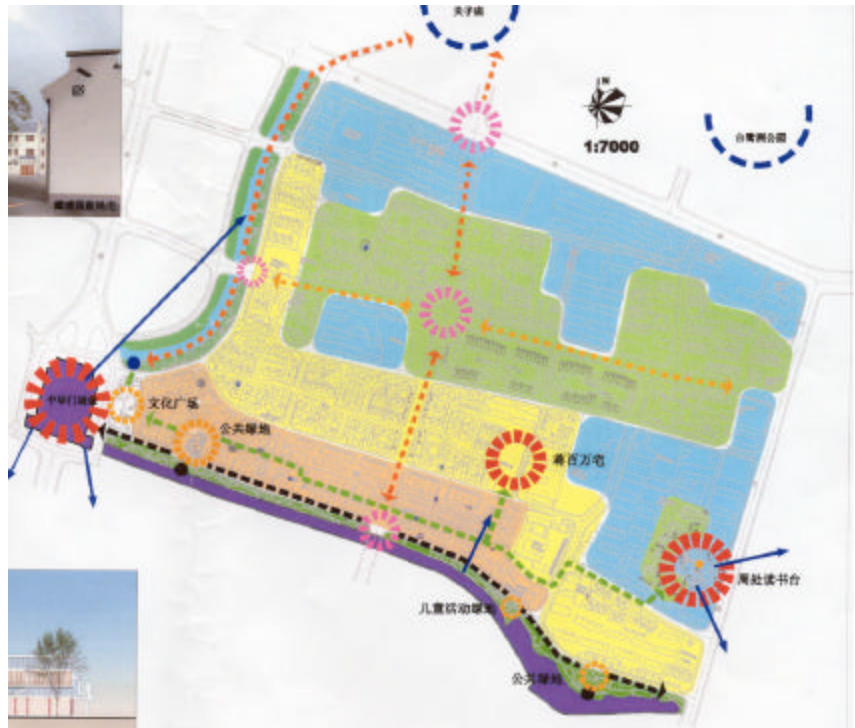
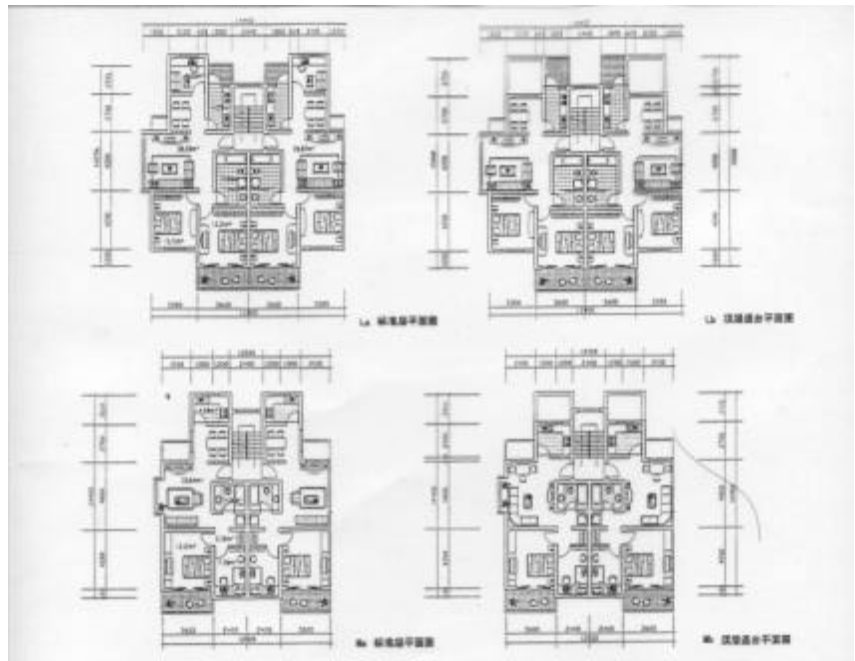
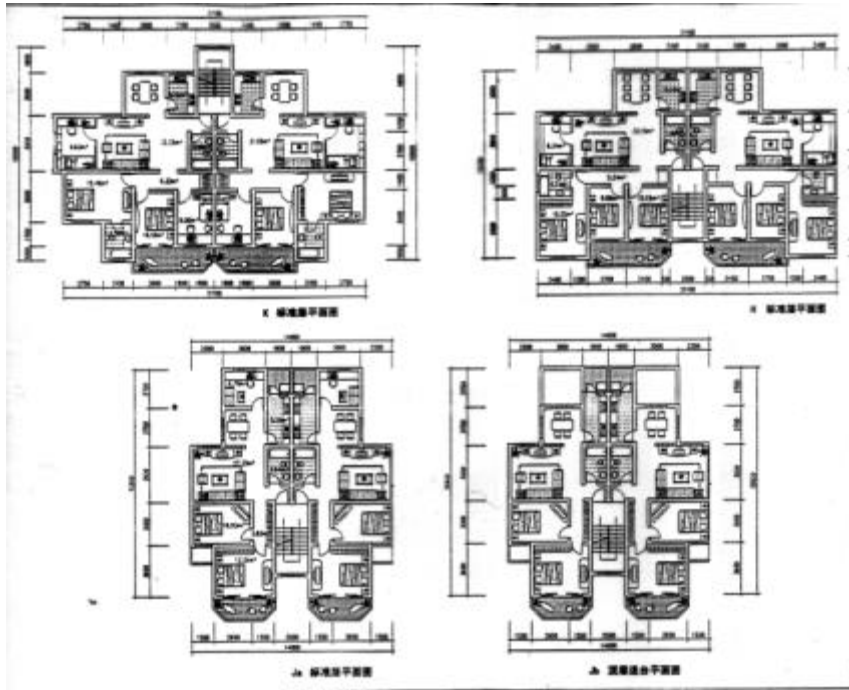


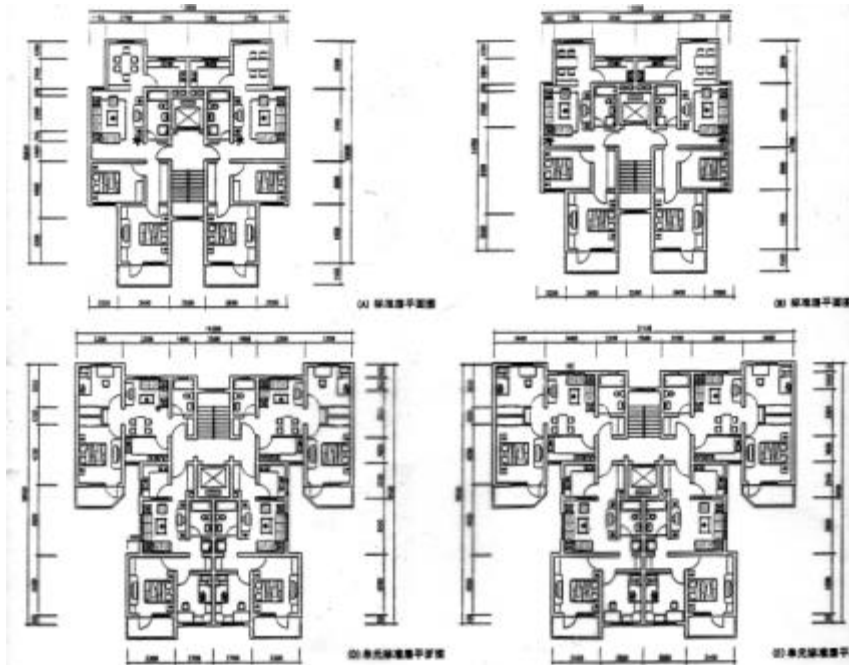
Figure 8: The four zones with different height control: the umber, 9m; the yellow, 15m; the green, 33m; the blue, renew zone



floor plan in 1 of the 'duoceng' project



floor plan in 2 of the 'duoceng' project



floor plan of high building



the facades and sections of the 'duoceng' project



the facades and sections of the high building project

Figure 9: some ordinary housing in project 2 designed under the rule of zoning planning

The Mendong Residence District Planning and Housing in It

Table 5 The total figure of the planning

Plots for redevelopment (zones of reappearing, harmony and redevelopment)	27.52Ha
Area of building	417,927 (M ²)
Area of housing building	401,316(M ²)
Building capacity Rate (Building area/Plots area)	1.52
Building density (construction area/Plots area)	29.9%
Number of family	4143

The plot site plan was designed according to the zoning planning. I'm not going to cost too much size of letter for it. I'm just interested in the housing design:

1. Type of unit: according to the principle of design following life, zone the private space from the common in family clearly and be suitable to the function of family life. Discover the functional space potential, improve the situation quality indoor by placement fitment and basic services. In order to vary the style of architecture and suit the site shape, 22 kinds of apartment unit were designed there.
2. Housing groups: following the context of traditional folk housing, create some housing groups to get some sub-independent space quiet and comfortable.
3. Style: varied in plan and facade for weakening the feeling of scale and varying the style.
4. Colour and material: the use of black roof and white wall, and some symbol of traditional style.
5. Detail, indoor and outdoor—courtyard design etc.

Table 6 Situation of apartment units in Mendong residence District Planning

No.	Area (M ²)	Useable area (M ²)	of useable (%)	Number of units
A	90.66	65.98	72.78	26
B	112.34	85.07	75.73	4
C	Ca 123.04 Cb 115.09	Ca 94.66 Cb 88.05	76.93 76.51	14
D	Da 84.06 Db 92.76	Da 64.64 Db 71.43	76.90 77.0	62
E	Ea 84.74 Eb 77.43	Ea 60.57 Eb 54.61	71.48 70.53	38
F	Fa 114.61 Fb 114.32	Fa 87.59 Fb 86.52	76.42 75.68	2
G	Ga 112.99 Gb 115.77	Ga 85.12 Gb 86.29	75.33 74.54	12
H	118.5	93.36	78.78	66
J	Ja 94.85 Jb 86.32	Ja 71.27 Jb 64.48	75.14 74.70	82
K	121.8	95.01	78.00	30
L	La 92.12 Lb 84.18	La 72.12 Lb 66.37	78.29 78.84	56
M	Ma 74.91 Mb 68.74	Ma 57.12 Mb 52.54	76.25 76.43	180
N	Na 91.85 Nb 71.92	Na 71.92 Nb 60.40	78.30 83.98	26
P	66.84	50.0	74.81	10
Q	Qa 113.58 Qb 119.13	Qa 94.88 Qb 96.65	83.54 81.13	33
R	Ra 176.5 Rb 104.88	Ra 147.02 Rb 84.88	83.30 80.93	34
S	Sa 137.3 Sb 126.34	Sa 114.8 Sb 105.18	83.61 83.25	10

Some ordinary housing are there. Two of them are suitable for the zone of style harmony, with four or five floors. The other is used in the zone of redevelopment, with eleven floors. The plan was designed according to the study of major needs in market. The areas of units varied followed:

Table 7: areas of units in Figure 9

Plan	Variety of area(M ²)	Used in the zone of
1 of 'duoceng'	68, 74, 84, 92	style harmony
2 of 'duoceng'	86, 94, 118, 122	style harmony
High building	90, 98	redevelopment

* 'duoceng' means the apartment floors from 4 to 6 in Nanjing

Analysis

By the comparison of these projects, we can find:

The first, the areas of housing increased and the condition of live increased too.

Table 8: Comparison of housing situation

Situation	Before redevelopment	Old standard	Project 1	Project 2
Area of unit (M ²)		35-65	65-95	68-122
Num of toilet	In common	1	1	1 or 2
Room with window	B. K. and some D.	B. K. and some D. and W.C	B. K. and some L. and W.C	All the rooms except the second W.C
Num of terrace	no	1	2	1 or 2
Tap Water	In common or family	Each family	Each family	Each family
Power (220V)	5A or common	5A	10A	10 or the more
gas	no	Some	Each family	Each family
Telephone interface	no	no	To the door of each family	To the door of each family

The second, we can find that the preparation of urban planning before a project design was more sufficient in project 2 than that in project 1.

And the third, the shortage of budget, and keeping the balance of social, economic and the environment, especially for those lowest-income people, are both existing in the two projects.

Conclusions and Recommendations

We have got so much success in housing. Known from the report from Nanjing Construction Committee, from 1996 to 2000, 1.55 million m² housing was built. The residence area personal increased from 8.1 m² in 1995, to 9.7 m² in 2000. And 85% people lived in unital housing till 2000. Mr. Xie, the chief of the Department of Estate in Construction Ministry, said just in Nanjing in 2001 that:

- 1 The investment in estate development is 500 billions (RMB) in 2000, and 330 inside is for housing, growth 28%
- 2 The house was sold for 295 billions (RMB), 35% growth, and 87.5% was sold to private personal purchase
- 3 Loan for housing purchase is 200 billions (RMB) in 2000, it is 74 billions (RMB) in 1999
- 4 The second-hand housing market is beginning and developed in Shanghai city
- 5 The standard of quality rose
- 6 The services after-sale developed, etc.

But there are some things that are not satisfactory, such as the programme of how to solve the house shortage of lowest-income people. It is because of the inertia of the old housing system and socialism principle. Even in the new rule of housing we cannot quantify the area of housing from buyer's income, but fix with the social degree's standard, although this standard is referred to the housing building cost in their regions.

Another one is to improve the work of budget in both the planning and the designs. Redevelopment in the old city is expensive with the preservation of the historical culture legacy and the environment requirement. If the government or someone could not put in enough money subsidy, the goal of environment should have to be decreased, and the worth of history be damaged to get the balance of money of developer. If we can bear the press of society to delay the redevelopment may be one way, in order to amass money enough. Otherwise we should have to decrease the order of environment. It is why the rule about the population in Mendong District plan had to over the by-law at last.

We must do the work better of balance the three kind of efficiency, such as the society, economy and the environment. We should find a way in the redevelopment in old city especially in that area there is lot of culture left. Means how to use the economical rule to run the redevelopment with environment protection. E.g. we can prepare some lands for development as a return to this company who is going to

redevelopment the old regions with a higher environment requirement like Mendong District.

Another work should be done is set and improve the second hand housing market. In this case we can increase the variety of the source of housing market. The owner of lower-standard house may sell out their house on the price of market, then with a little more money buy a bigger one to improve his habitation situation. By the way the old house which smaller or lower standard can be offered to the low-income people to buy or rent.

There are some successful experience in Shanghai city in this way. In 1991, when the reform of housing system was beginning in Shanghai, the problem of housing shortage is the most serious in all the cities in China. People in Shanghai used to say they have to live in the shell of shellfish. But now 2millions families, about 93%, have bought the house for themselves. For example, Mr. Zheng built the old felware housing he lived for many years by 13,000RMB in 1995 in the price with subsidy of reform of housing, and became a owner of estate. In 2000, Zheng sold this house second hand in the price of 190,000 RMB. Then he borrowed 100,000 RMB housing loan in 10 years, plus 100,000 RMB saved himself. The total cost was 390,000RMB for a new house about 106m² with living room, dining room and two bedrooms.

We should also distinguish the tax from fee regional and unnecessary, so as to decrease the cost and then the price of housing in Nanjing. Today, the price of house in Nanjing is one of these highest cities, followed Beijing, Shanghai, Guangzhou and Shenzhen. But the living level or standard are lower than these cities, not in the same level yet.

We will subdivide these families of housing shortage. At first we must solve the habitation problem of these people with serious difficulty both in income and in housing situation, before improve those only lower than the housing standard or middle-income people. We are going to build some low price housing in some sub-urban district with free tax and fee, about 1,300 RMB/ m². Now the price on average in China is about 1,951 RMB/ m². 'the Rule to Offering House to Lowest Income People in Nanjing' is going to issue in this year.

For the all of the habitation in Nanjing, there is a long march we should to go.

References

- Nanjing Urban Planning Bureau
2000 Mendong District Controlling Planning in Nanjing. Nanjing, China.
- Architecture Department of Southeast University
2001 Mendong Residence District Plan. Nanjing, China.
- Nanjing City Government
1998 Act No. 278 year 1998 in Nanjing. Nanjing, China
- Jiangsu Province Government
1998 Act No. 89 year 1998 in Jiangsu. Nanjing, China