

POLITECNICO DI TORINO

Corso di Laurea Magistrale  
in ARCHITETTURA COSTRUZIONE CITTA'

Tesi di Laurea Magistrale

**Research on Public Space Configuration and Design  
in Long-stay Apartment Buildings in China**



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A.A.2019/2020

## Abstract

With the development of economy and the acceleration of urbanization, more and more young people are moving into cities, and the rental housing market is developing rapidly. The long-stay apartment building industry is now booming in China. Its public space is very valuable for residents to share living service facilities and develop social interaction. However, there are many problems in the space configuration and design of the public space. Therefore, this paper hopes to study the public space of China's long-stay apartment buildings for the youth and find ways to configure functions and design space.

First of all, the author summarizes the driving factors, development and current situation of long-stay apartment buildings in China through data query and analysis. Through interviews, surveys and data query, the three-party relationship among residents, housekeepers and enterprises related to the space design was revealed.

Then, the author selected 31 representative long-stay apartment buildings in Beijing and conducted surveys to understand their space usage pattern and layout characteristics. The problems of space configuration and design were summarized.

Secondly, during the one-year double-degree study in Europe, the author studied the development history and current situation of long-stay apartment buildings in Europe, and investigated 5 representative projects. Their experiences in space configuration and design were summarized.

Then, the author fully analyzed the activities and demands of the three parties (residents, housekeepers and enterprises) in the public space of long-stay apartment buildings through questionnaire surveys and expert interviews and summarized their space needs.

Combining the research results mentioned above, the author puts forward the principles for the configuration of public space in long-stay apartment buildings, including basic recommendations and recommendations for subdivided groups.

Finally, this thesis puts forward the basic principles of public space design, space distribution suggestions and design key points of each functional module.

**Key words:** Long-stay apartment building; Public space; Space configuration

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## Context

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## 第1章 Chapter1 Introduction

### 1.1 Research Background

#### 1.1.1 Trend of Youth Gathering in Cities and the Great Develop Potential of Rental Housing Market in China

With the development of China's economy and the acceleration of urbanization, the number of urban youth population moving into big cities has increased rapidly. At the same time, housing prices in first-tier cities have increased year by year, making it difficult for most young people to afford, and housing problems have therefore become the primary problem facing young groups in first- and second-tier cities. A series of policies have been successively launched at the national and local levels to better promote the healthy development of the housing rental market and enable more people to live happily. With the growth of housing demand and favorable policies, real estate development companies began to gradually launch the long-stay apartment building business.

In summary, the current demand for housing rental market in China is growing, the policies are favorable, and many enterprises are entering the market. The rental housing market has good developing potential.

#### 1.1.2 Rapid Development and Immature Status of Long-Stay Apartment Market in China

The emergence of long-stay apartment buildings has solved some of the shortcomings of the traditional housing rental market. Different from traditional residential houses, the main innovation of long-stay apartment buildings is the operation mode. The runners of long-stay apartment buildings are mainly big enterprises, which guarantee the quality of housing through a standardized "leasing / acquisition - renovation - rental - operational management" process, and build a complete online platform to ensure an open and transparent information channel. In addition, long-stay apartment buildings not only provide residents with living space, but also provide a series of related services including building renovation, decoration, management and

community services. In addition, long-stay apartment buildings have a characteristic of “long-stay”, which means, residents usually have a long rental period (generally more than 6 months)

In 2010, Mofang Apartment started its business and is considered to be the first long-stay apartment building company in China. From 2019 to the present, the industry has entered a high-speed-growth period, the market has reached a status of rationality, the trend of “survival of the fittest” is highlighted, and an integrated industrial chain of housing, platforms and services has initially taken shape. At present, China has more than 1,000 enterprises involved in long-stay apartment business, operating more than 2 million apartments.



Fig 1.1 Some of the well-known long-term apartment brands in China (source: internet)

From 2018 to 2019, China's long-stay apartment market has met some difficulties in the process of rapid development, and a lot of negative news has emerged. On the one hand, due to the blind pursuit of development efficiency and profits, some enterprises have problems with building quality. On the other hand, some companies went bankrupt due to operational failures and low profitability.

The long-stay apartment building market is recognized to have great potential, but now it is unavoidable to face the fluctuations that the industry must undergo in the early stages of development.

### 1.1.3 Highlights and Pain Points of Public Space in Long-Stay Apartments

At present, long-stay apartment buildings in China can be divided into two types: decentralized and centralized. Centralized long-stay apartment buildings are usually composed of the entire building (or some floors in it) or several buildings. In addition to the individual rooms, a centralized long-stay apartment is usually equipped with public spaces, and there are full-time management personnel responsible for the apartment property management and community organizations.



Fig 1.2 Typical image of centralized long-stay apartment buildings - Goyoo apartment Minhang Park Branch (source: <https://sh.house.qq.com/a/20180201/025111.htm>)



Fig 1.3 Typical image of centralized long-stay apartment buildings - Ziroom apartment Jiangfu Branch (source: [https://www.sohu.com/a/285416230\\_100114729](https://www.sohu.com/a/285416230_100114729))

The public space of the centralized long-stay apartment building is one of the biggest strong points over traditional apartments and decentralized ones. A good public space can bring benefits to development and operational aspects. Residents may fulfill their daily demands for housework and improve the quality of life. And they also have the opportunity to participate in public activities, develop social relationship and build communities. Value-added services such as entertainment and shared offices can be provided in public spaces to meet the needs of residents. Public spaces also facilitate face-to-face communication between management staff and residents, and improve the efficiency of management and services.



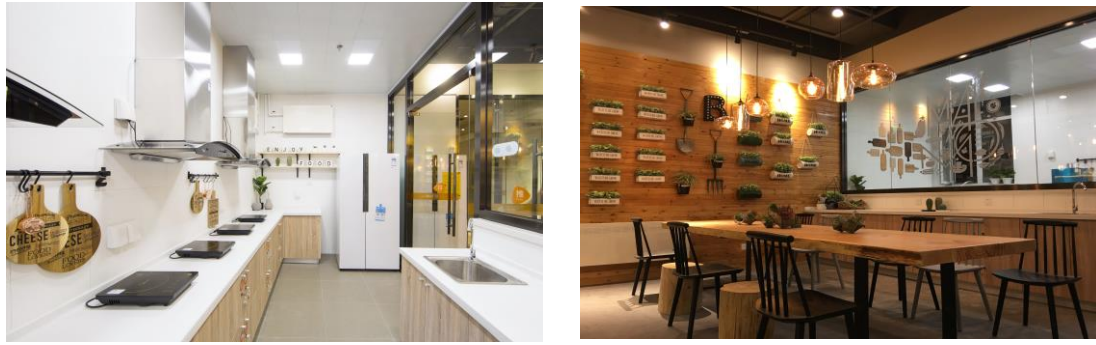


Fig 1.4 Typical public spaces in a centralized long-stay apartment project

Typically, in centralized long-stay apartment buildings, rents are higher than the surrounding personal apartments, and individual rooms are usually not large (typically 20 ~ 35 square meters). Most young people choose them because of the public spaces and the related added value, for example, community activities and management services.

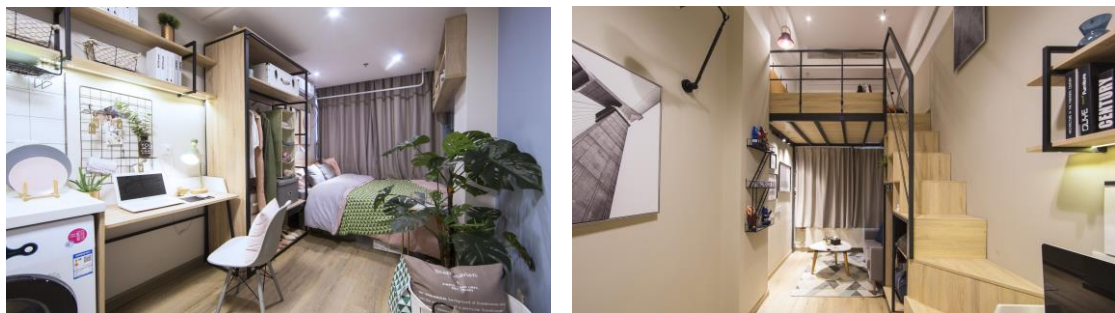


Fig 1.5 Individual rooms in centralized long-stay apartment buildings are usually not big.

Although public space is expected to bring many benefits to centralized long-stay apartment buildings, the public space is also the pain point of many projects.

From the perspective of enterprises, the benefits of public space for long-stay apartment buildings are difficult to measure. At present, the rents of most long-stay apartment buildings are only charged based on the residents' individual room conditions, and public spaces are nominally "free to use". For existing building renovation projects, the provision of public space will reduce the room area that can be used for individual rooms, resulting in a reduction in rental income. And the public space needs supporting services such as operational management, cleaning and maintenance, bringing labor costs to enterprises.

From the perspective of residents, public space is just a space. If it could not bring about active community activities, provide management services, and meet the needs of residents, the significance of public space will be greatly weakened.

#### 1.1.4 Problems in Public Space Configuration and Space Design

At present, the public space of the centralized long-stay apartment building is facing problems of space configuration and space design.

In terms of space configuration, the core issues are not clear, for example, how much space is needed for public functions and what functions should be allocated.

Enterprises usually take the following approach to decide public space configuration. They take the perspective of investment profits, strive for the largest total individual room area and number of rooms (also means the highest rental income), and the remaining spaces are used as public spaces. Such approach can maximize the expected benefits of corporate investment, but it sometimes does not comply with the needs of users, which can easily lead to insufficient functions or redundancy.

In terms of space design, companies have little in-depth understanding of space usage scenarios, which may lead to a disconnection between design and use. In addition, some of the residents feel disappointed because they find although there are a lot of spaces and facilities in the public area, for various reasons the spaces are not very useful and the usage rate is low.

### 1.2 Research Scope and Terminology

#### 1.2.1 Research Scope

The research scope is focused on centralized long-stay apartment buildings for youth groups. The space studied are the space shared by residents and the spaces used for providing services to residents.

#### 1.2.2 Research Terminology

##### ① Centralized Long-Stay Apartment Building

It refers to rental apartments with centralized property rights (usually one or more buildings, or some floors in them), public space, professional management and services, and an average rental term of more than six months.

② Youth Group

Young people aging 23~45years old, living in first- or second-tier cities, with stable source of income and no child.

③ Public Space

Public space refers to the space shared by all residents (not their individual rooms) and the space used for providing services to them by management staff, mainly including functional service space and public activity space (passage space is not included in the scope of this thesis).

More concretely, the public spaces studied in this paper mainly include the following spaces: reception area, shared laundry and drying area, shared kitchen and dining area, shared washroom, gym room, sport area, self-service facility area, soft-drink bar area, shared PC area, sofa-screen area, big-table area and private chat area.

④ Space Configuration

Space configuration refers to the process of determining the size and functional components of the space in the early stage of the design, which is, to clarify the basic design conditions such as "how much space " and "what functions".

⑤ Space Design

Space design refers to the spatial structure, distribution, scale, interface and detail design after the space configuration process.

## 1.3 Overview of Existing Research

### 1.3.1 Overview of Related Research in China

Because long-stay apartment building is a new type of residential building, the academic research in this field is still in its infancy.

There are three theses related to the research topic, Centralized Long-Stay Apartment Building Public Space Configuration and Design. HuWanzhen's "High-Density Urban Youth Apartment Public Space Design Research" studied the status of public space in Shenzhen youth apartments, summarized the status of the problem, analyzed the factors, components and elements characteristic which affect the centralized long-stay apartment public space design; By studying



five concrete cases, the general principle of public space design is summarized, and the design strategy is proposed, and the future trend of public space design is discussed.

Books with similar topics can provide references for the thesis. In the book "China House Vision 2025 ", architect Shuhei Aoyama designed the " 400 community city box". He transferred an abandoned dormitory building in Guangzhou into a shared community for single youth in city of Guangzhou and the surrounding area. 400 boxes are inserted into the building, creating intimate personal space. Outside the boxes are a variety of public service spaces, and the space between the boxes are used for public and social activities. In this way, the design explores a way to a more diversified shared community.



Fig 1.6 Isometric drawings of architect Shuhei Aoyama's design " 400 community city box" (source: <https://www.zcool.com.cn/article/ZNTUzODQ0.html?switchPage=on>)

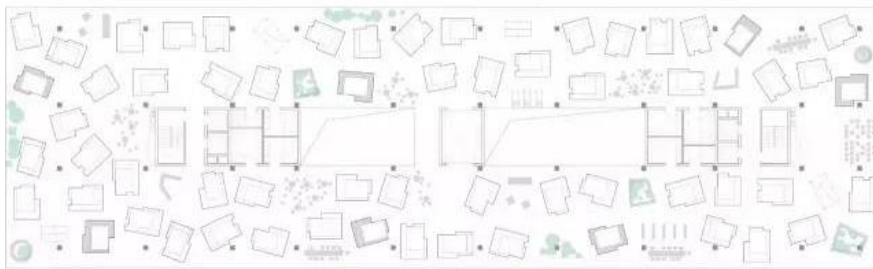


Fig 1.7 Typical plan of architect Shuhei Aoyama's design " 400 community city box" (source: [https://www.sohu.com/a/155192677\\_207433](https://www.sohu.com/a/155192677_207433))

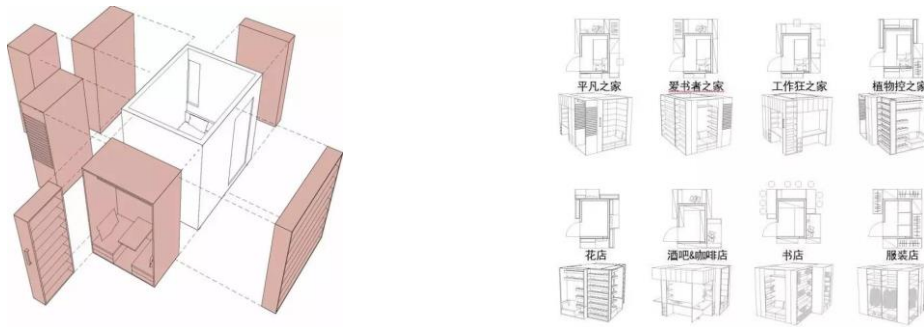


Fig 1.8 Design of box module (source: [https://www.sohu.com/a/155192677\\_207433](https://www.sohu.com/a/155192677_207433))

### 1.3.2 Overview of Related Research Abroad

#### ① Research on Architectural Theories

Jan Gehl's "Life Between Buildings" is classic in the field of urban public space design, and it also applies to the internal space design. Jan Gehl suggested that urban space can be divided into three categories: necessary activity, spontaneous activity and social activity. Necessary activities mainly include daily work and life affairs, which can occur under various conditions; Spontaneous activities only occur when people have the will to participate and have a suitable environment; Social activities refer to the activities which depend on the participation of other people in public spaces. When people hang around in the same space, social activities will be indirectly promoted.

#### ② Research on Shared Space

Shared space is a special type of space shared by cities, settlements or residents. In 1980, LiYaopei introduced the "shared space" theory which was first proposed by American architect Portman in "Portman's" Shared Space ". After that, the concept of shared space was gradually introduced into the study of living environment. In 1988, American scholars Kathryn McCamant and Charles Durrett first used the term "Co - Housing Community" to define a shared residential community in Denmark. Many countries in Europe and America have different shared living models with their own characteristics, most of which are typically represented by low-density shared living communities.

### ③ Research on Apartment Buildings

Apartment buildings that are only for renting but not for selling have a long develop history abroad. In the mid-17<sup>th</sup> century, long-stay apartments of the traditional sense appeared in Britain and France, followed by their gradual emergence in Japan, Singapore and other European countries. After World War I, architects began to focus their research on intensive youth apartments, and completed a series of apartment works. In the book "to Create 21th Century Homes: Sustainable Renewal of Urban Neighborhoods ", David Rudlin and Nicholas Falk analyzed and described the changes in architecture design brought by the new philosophy of life. Due to the small land area in Japan, intensive and sophisticated residential design is advocated, and a lot of concrete projects were constructed. In the book “Discussion on Ten Types of Houses”, Kengo Kuma studied single apartment space design and lifestyle pattern of young Japanese.

## 1.4 Research Content and Significance

### 1.4.1 Research Content

- ① The Development, Current Situation and Dilemma of China's Centralized Long-Stay Apartment Buildings for Youth
- ② The Design and Usage Status of Public Space of Long-Stay Apartment Buildings for Youth
- ③ Public Space Design Experience in Long-Stay Apartments in Europe
- ④ Space Demand of Public Space of Long-Stay Apartment Buildings for Youth
- ⑤ Suggestions on The Space Configuration of Public Spaces In Long-Stay Apartments for The Youth
- ⑥ Public Space Design Principles and Guidelines for Long-Stay Apartments

In summary, the thesis hopes to answer three basic questions about the configuration and design of the public space in centralized long-stay apartment buildings: "How big should the public space be? What public functions should be there? How should it be designed?"

### 1.4.2 Research Significance

- ① Academic significance - A new residential building type calls for new design research.
- ② Social significance - Use design to promote a win-win situation in society and meet the desire of more people to live happily.
- ③ Economic significance - Help the long-term development of the long-stay apartment building market.

## 1.5 Research Methodology

### 1.5.1 Literature Research Method

### 1.5.2 Real-State Survey Method

### 1.5.3 Questionnaire Survey Method

### 1.5.4 Expert Consultation Method

### 1.5.5 Case Study Method

## 第2章 Chapter 2 Development, Current Situation and Interest Game of Long-Stay Apartments for Youth in China

### 2.1 Development and Current Situation of Long-Stay Apartment in China

#### 2.1.1 Current Situation of The Industry

At present, long-stay apartment buildings in China's first- and second-tier cities are developing rapidly, with quick construction speed and large numbers. A survey of the six major long-stay apartment building markets in Beijing, Shanghai, Guangzhou, Shenzhen, Hangzhou and Chengdu found that till June of 2018, the total number of centralized long-stay apartment units in the above six major cities was approximately 135,000 units, and there was a trend of rapid expansion.

#### 2.1.2 Space and Operating Characteristics of Built Projects

##### ① Most of The Buildings Are Renovation Projects.

At present, with the upgrading of city industrial structure, a number of factory buildings, office buildings, hotels and dormitory buildings with acceptable quality are abandoned in first-tier cities. Compared to constructing a new building, leasing or acquiring such buildings and transforming them into a long-stay apartment building helps to save construction time and money. This is the most common way of development used by most long-stay apartment enterprises.



Fig 2.1 A bathing center is transformed into a long-stay apartment building. (source: <https://www.gooood.cn/xizhimen-port-apartment-beijing-china-by-sza.htm>)

② Comprehensive Management and Services Are Provided.

Centralized long-stay apartment projects not only provide the concrete environment in which young people live, but also provide corresponding operation and management services for residents. Usually apartments are managed by managers and housekeepers, who provide daily-life service, inquiry, maintenance, security, cleaning and other operation services.

③ Community Activities Are Abundant.

It is the core concept of most apartments to build a group identity recognized by young residents and to make the apartments a common "home" for the residents.

Community activities are very diversified. During festivals, housekeepers often organize such activities as eating dumplings, New Year's Eve party and so on. Sometimes, by introducing external commercial resources, flower arrangement, comic show, painting and other activities are also held. And the residents may invite their friends spontaneously, to have dinner together, play board games, and sing in the public space.



Fig 2.2 Community activities - dinner



Fig 2.3 Community activities - playing mobile games



#### ④ The Trend of Diversified and Subdivided Environmental Design Is Highlighted

The centralized long-stay apartment market is gradually developing, and the trend of industry diversification and subdivision has begun to emerge. Some companies subdivide environmental construction standards according to customers' rent payment capabilities.

To target different demographic characteristics, interests and occupational characteristics of residents, some distinctive long-stay apartment projects have emerged in the market. For example, the YOU + apartment, which is a "startup community", has set up shared office spaces for start-up companies that can be flexibly rented, and integrate long-stay apartment buildings with shared office space. Harbor Co-living specifically sets up a "Goddess Community" for female residents, equipped with a bigger shared kitchen, a large gym and other public space. The design style is more delicate, soft, which meets the needs of female tenants.

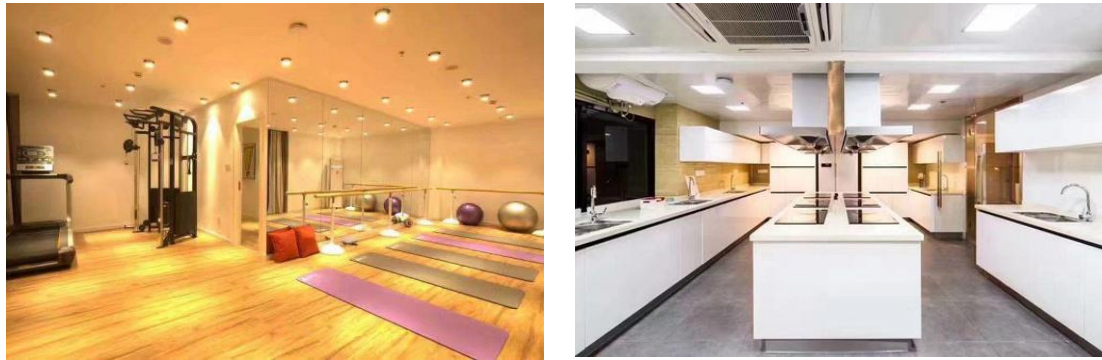


Fig 2.4 Harbor Co-living "Goddess community" (source: [http://www.sohu.com/a/122143957\\_456954](http://www.sohu.com/a/122143957_456954))

## 2.2 Game of Interest and Contradiction of Long-Stay Apartments' Stakeholders

### 2.2.1 Profit Dilemma of Long-Stay Apartments

A long-stay apartment building is a property that is held for operation, with a long project cycle and complicated business links.

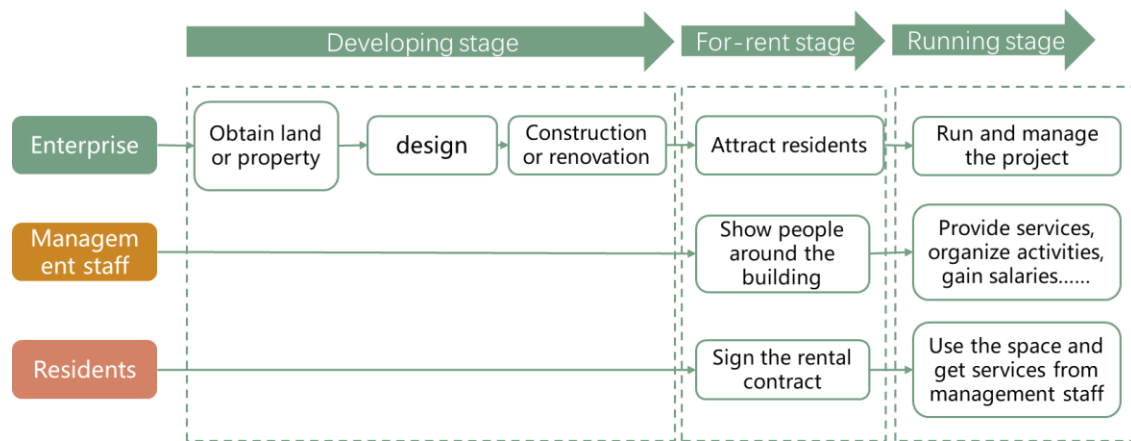


Fig 2.5 Long-stay apartment projects' typical develop and operational processes and the main process (asset-heavy mode as an example)

Due to the complexity of the development and operation process, the large capital investment, the high cost of renovation and maintenance, and the large overhead during the operation process, most enterprises face difficulties in making profits. According to the financial calculation, centralized long-stay apartments' cost recovery period is at least 2.5 years, usually 4~6 years. At present, no company has clearly declared profit. Some enterprises have even difficulties in financing. Their capital chains were broken and went bankruptcy.

In order to solve the profit dilemma of long-stay apartment buildings, we first need to clarify the stakeholders of the apartments and their expectations and demands for the space.

### 2.2.2 Three Stakeholders in Long-Stay Apartments: Residents, Management Staff, and Enterprises

Due to the business nature of long-stay apartments, in the design, attention should be paid not only to the architectural sense of "Beauty," but also to the commercial, living and working activities happening in the building. Residents, management staff and enterprises are the main users and stakeholders of centralized long-stay apartment buildings.



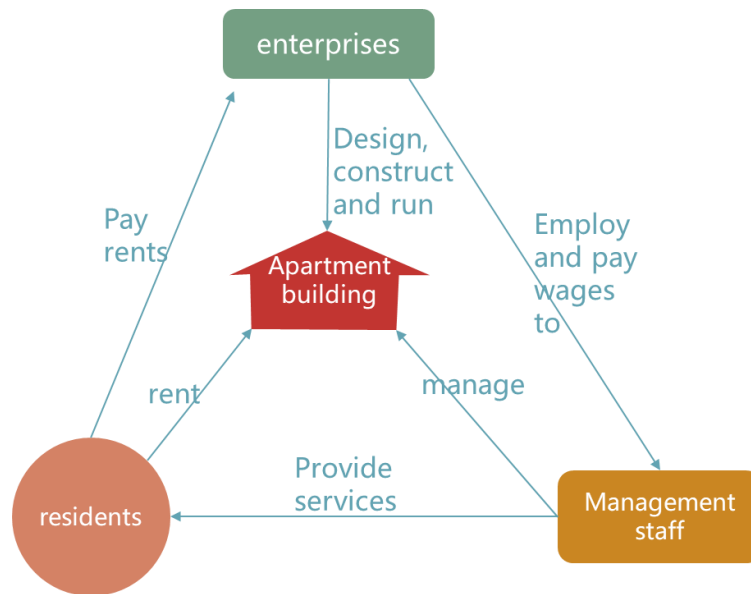


Fig 2.6 Main stakeholders of centralized long-stay apartment buildings

For different related parties, centralized long-stay apartment buildings have different roles: for residents, the apartment buildings are the object of use and their residences. For management staff, the apartment buildings are their working spaces, in which they provide operating services, organize various community activities, and receive wages as compensation. For enterprises, the apartment buildings are fixed assets and business premises.

### 2.2.3 The Game and Contradiction of the Three Parties in Space Use

Due to the different roles of residents, management staff and enterprises, they have different interests in the long-stay apartment building, and accordingly, the focus and demand for building space are also different. Focused on the public space of long-stay apartment buildings, there are also differences.

In an ideal situation, the needs of residents are "large public space, full functions, and various services", and the needs of management staff are "convenient space, easy circulation for convenient and effortless work", and the needs of enterprises are "increasing the number of individual rooms and rental income, reducing expenditures".

In a real situation, the demands of the three parties are in a state of game and balance. The market is an "invisible hand" that regulates this game to final equilibrium. Therefore, in the long-stay apartment building design, "We need to weigh the pros and cons in many ways. The design seems to be full of considerations of beauty and convenience, but in reality, there is an important consideration of value."

#### 2.2.4 Standpoint of the Thesis

This thesis discusses the centralized long-stay apartment public space configuration and design, hoping to take the three market subjects into account- residents, management staff and enterprises.

Space is a precious and scarce resource. The core reason why excellent design is precious is that it enriches the value of the space with ingenuity, meeting as much as possible the overall needs, coordinating the contradictions between the relevant stakeholders of the space, and creating a better environment and life. This is the target this research wants to pursue.

## 第3章 Chapter 3 Survey on the Public Spaces of China's Long-Stay Apartments

### 3.1 Survey Overview

To understand the current design and using situation of public spaces in long-stay apartments, especially the characteristics of space using, the contradictions and problems in the existing environment, the author conducted investigation in 31 centralized long-stay apartment buildings in Beijing, including basic research and key case research.

### 3.2 31 Basic Survey of Public Spaces in 31 Long-Stay Apartments

#### 3.2.1 Basic Survey Overview

The basic research covers the 19 long-stay apartment buildings which the author visited by herself and 12 projects visited by staff of ZhouYanmin Studio. The basic statistics of the 31 projects are as following:

Table 3.1 The list of studied projects

No.	Project name	No of rooms	Level	Total building area	Public space area	Average rent (RMB)
1	Gongxiangji-Dongsi Branch	24	High	/	/	7000
2	Harbor Co-living-Dongsi Branch	40	High	2500	100	9490
3	Harbor Co-living-Sanlitun Branch	68	High	5000	400	12160
4	More Residence-Weigongcun Branch	76	High	2900	100	10600
5	Ziroom Apartment-	76	High	2450	150	8000

	Xizhimen Branch					
6	Port Apartment-Jingsong Branch	90	Mid	3400	400	5500
7	CYPA Apartment-Guomao Branch	101	High	5400	/	9700
8	Port Apartment-Changyang Bandao Branch	104	Low	3400	121	2500
9	Harbour Co-living-Konggang Branch	113	Mid	3400	200	3500
10	Boonself Apartment-Longqi Plaza Branch	118	Low	3900	174	3600
11	Mofang Apartment-Sanyuanqiao Branch	130	Mid	2900	200	6500
12	Port Apartment-Shangqing Branch	131	Mid	5700	300	5400
13	Port Apartment-Tiantan Branch	136	Mid	5000	150	5600
14	Ziroom Apartment-Jiangfu Branch	170	Mid	67000	400	6000
15	Port Apartment-Jinyu Tixiang Branch	174	Low	6048	300	2100
16	5Lmeet-Guomao Branch	200	High	/	150	5000
17	Harbour Co-living-	200	Mid	6620	200	3300
18	Goyoo Apartment-Life Science Park Branch	205	Mid	7800	280	4300
19	Umihome-Guozhan Branch	220	Mid	/	100	3200
20	Goyoo Apartment-Botaijjiahua Branch	228	Mid	7200	300	5300
21	Boonself Apartment-Qingnianlu Branch	233	High	12000	400	5000
22	Panda Apartment-Beijing University of Technology	240	Low	7500	500	3700

	Branch					
23	You+ Community-Suzhouqiao Branch	244	Mid	10000	800	4500
24	Goyoo Apartment-Xinguozhan Branch	276	Mid	6500	330	2500
25	Port Apartment-Xizhimen Branch	300	Mid	11500	250	5500
26	Umihome-Konggang Branch	305	Mid	/	/	3000
27	Lefull Apartment-Shaoyaoju Branch	385	Low	5900	150	3700
28	Goyoo Apartment-Jiuxianqiao Branch	462	High	13636	756	6500
29	Harbor Co-living-Zongbu Jidi Branch	507	High	14700	1050	7000
30	Goyoo Apartment-Huilongguan Branch	540	Low	24000	500	4000
31	Umihome-26 <sup>th</sup> street Branch	800	Low	31040	/	3600

### 3.2.2 Space Configuration and Design Overview

#### ① Space Configuration

##### a Public Space Area

The space area data of 27 cases among the 31 studied cases was obtained. The graph below shows that the public space area of long-stay apartment ranges from 100 to 400 sqm, most of which from 100 to 200 sqm.

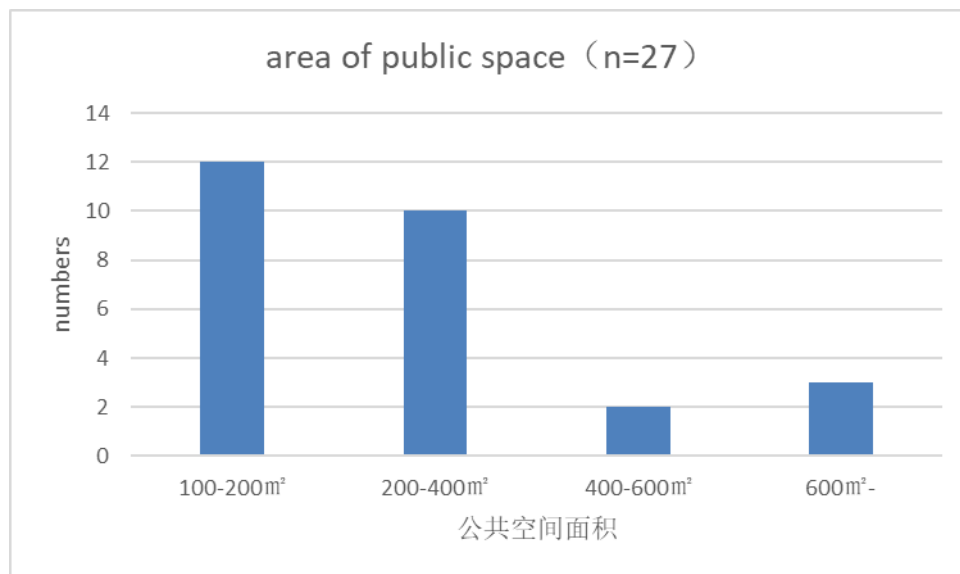


Fig 3.1 The area of public spaces

By analyzing the area of public space and total building area, we can draw a trend: the larger the total building area of the project, the larger the area of public space.

#### b Function Configuration

In the investigation cases, the public space of the long-stay apartment building can be divided into three categories according to the main activities happening there: housework and daily routine, entertainment, and specialties.

Table 3.2 Classification of public spaces (according to activity type)

Housework and daily routine	reception area, shared laundry and drying area, shared kitchen and dining area, shared washroom, gym, self-service facility area, soft-drink bar area
Entertainment	sofa-screen area, leisure and office area, private chat area, sport area, PC area
Specialties	independent office area, exhibition area, organic vegetable growing area, small supermarket, etc.

The functional configuration of the 31 cases are as below.

There are reception areas in 30 of the 31 studied cases, which is the highest proportion. In addition, 21~28 of the studied cases are equipped with private chat area, self-service facility area, gym, sofa-screen area, shared kitchen and dining area, shared washroom, leisure and office area.

The cases equipped with soft-drink bar area, shared laundry and drying area, independent office area and PC area have the lowest proportion (less than 10 of the 31 cases).

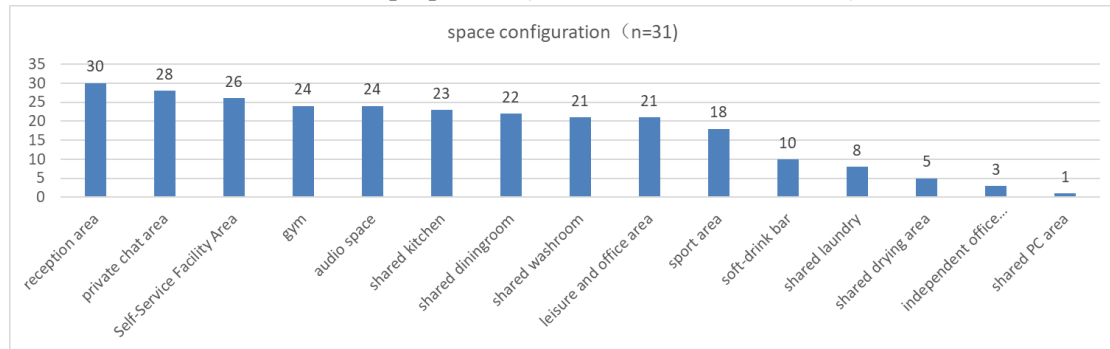


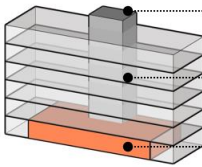
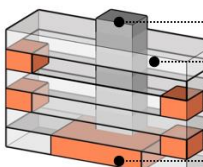
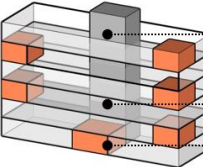
Fig 3.2 Space configuration of the studied 31 cases

## ② Space Design

### a Space Structure

According to the degree of dispersion, the public space in a long-stay apartment building can be divided into three space structures: centralized, centralized-dispersed, and decentralized.

Table. 3.3 Three types of public space structure

centralized	centralized-dispersed	decentralized
 <p>Lift and stairs</p> <p>Individual rooms</p> <p>Public space</p>	 <p>Lift and stairs</p> <p>Individual rooms</p> <p>Public space</p>	 <p>Lift and stairs</p> <p>Individual rooms</p> <p>Public space</p>

In the 31 research cases, most of the public spaces (26) have centralized structure. 5 of them have centralized-dispersed structure, 2 of them use the structure of one public area for each 2 floors because there are too many floors. No large centralized-dispersed cases have been seen in the 31 domestic research cases.

### b Spatial Form

Since most of the long-stay apartment buildings are transformed from existing buildings, the spatial form of public spaces is often constrained by existing buildings. The spatial form of the 31 cases studied are mainly flat-floor type, which means removing the original building walls and transforming it into a large public space.

In addition, some public spaces have more interesting spatial forms, such as the atrium-type and the double-floor type. The Qingnian Road branch of Boonself Apartment was originally a building with a courtyard in the middle, during the renovation, the courtyard was covered with a glass roof and became an indoor atrium. And the surrounding rooms can directly overlook the activities occurring in the atrium, which makes it a visual core of the apartment building. In the Yanjingli project, there is a big-stair space which joins two floors together, creating an interesting space and strengthen the sense of space connecting, creating an opportunity and space for the communication.

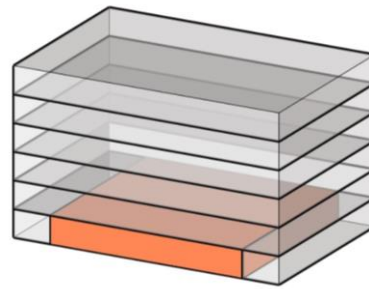


Fig. 3.3 Flat-floor public space

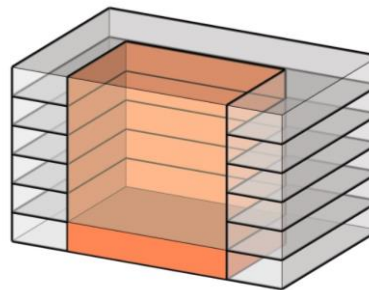
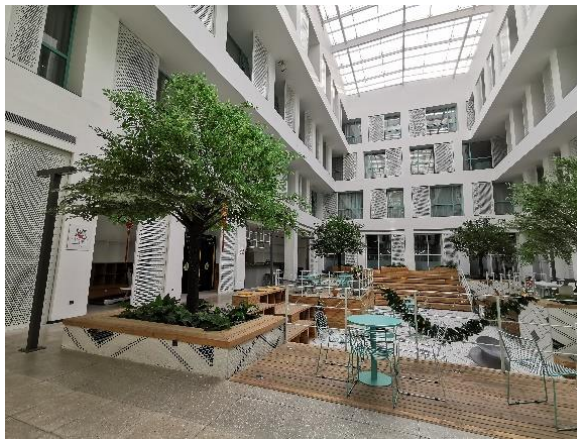


Fig 3.4 Atrium-type public space

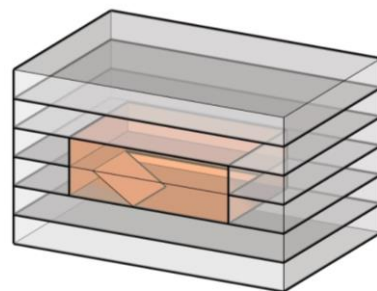




Fig. 3.5 Double-floor-type public space (source: <http://www.archina.com/index.php?g=works&m=index&a=show&id=180>)

### 3.2.3 Characteristics of the Use of Space

#### ① Family-Like

Compared with traditional residences, the long-stay apartment has changed the boundary of the spatial sequence of "private - semi-private - semi-public - public" in the living space and social space, bringing us a change of living mode.

For long-stay apartment buildings, the "small individual room + big public space" mode has brought about a reorganization of the spatial sequence: the publicization of residential spaces and the privatization of communities and urban spaces. The public space of the long-stay apartment holds the activities originally happening in residences, communities and cities, so the public space in long-stay apartment buildings has become an enlarged version of the "family living room".



Fig 3.6 Residents' typical behavior in public spaces and individual rooms

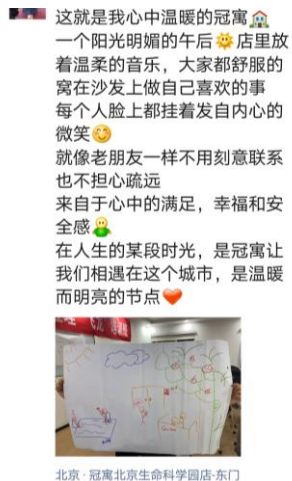


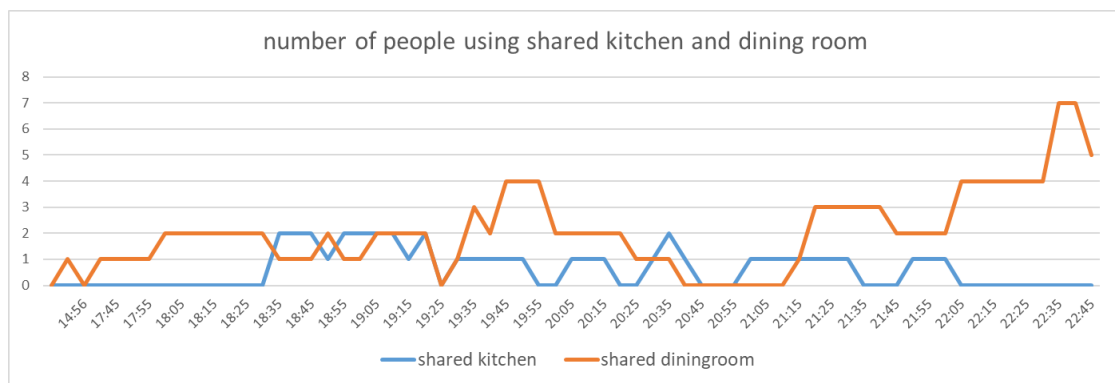
Fig 3.7 A housekeeper's description of the ideal apartment life



Fig 3.8 Public space's warm home-like atmosphere during evening time

## ② Unevenness of Users Along Different Period of the Day

It's found in the survey that, the number of users in public space varies from time to time. On weekdays the number is significantly less than that on weekends, and that in the morning and afternoon is significantly less than that during the noon and evening, and at night the number reaches the peak when the activities in public space are most active. The following figure shows the number of people using shared kitchen and dining-room on April 24<sup>th</sup> (Tuesday), 2018 in Goyoo Apartment Jiuxianqiao branch.



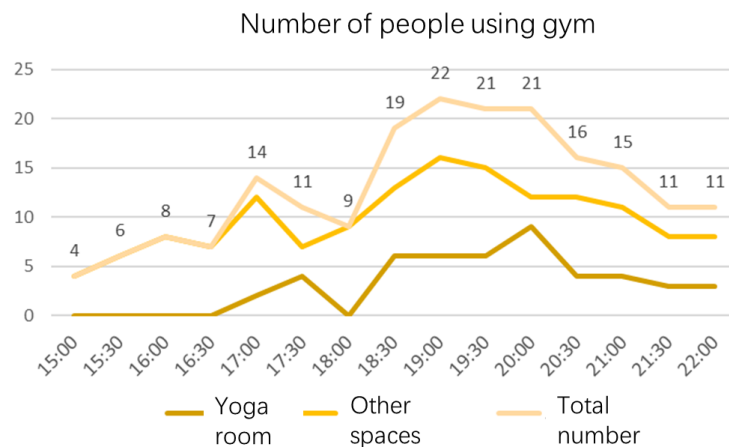


Fig 3.10 The number of people in the gym

The number of people in the public space varies from time to time, and there are significant usage peaks and valleys, and this phenomenon has a lot to do with the high proportion of white-collar workers in the apartment building.

### ③ Different Time, Different Use

In the survey, the author found that the public space of many long-stay apartments has the typical characteristics of "different time, different use". The same space, by simply changing the type and location of furniture, can be used for different activities at different time as needed. For example, the following is an example of different time, different use mode of sofa-screen area in a long-stay apartment building.



Fig 3.11 Sofa-screen area with no person in it



Fig 3.12 Movie watching activities



Fig 3.13 Lecture activities



Fig 3.14 Board game activities

The emergence of "different time, different use" use mode has two reasons: the first is the contradiction between the scarcity of space and diversity of activities, and the second is the unevenness of users at different time mentioned above. Currently long-stay apartments public spaces are generally less than 400 square meters, which are very small, and the services and activities residents want to have in it are diversified, various, and constantly changing. Usually the public space needs to hold dozens of functions. In this case, if the area of public space is large enough, it could be possible to be equipped with an audio-visual room, a roadshow room and a board game room, etc. However, due to the unevenness in time pattern described above, there are few people using public space during the day time on weekdays, which is likely to cause idle space and waste of resources.

### 3.2.4 Problems of Space Configuration and Design

The existing problems of long-stay apartment buildings public space can be divided into two levels: space configuration and space design. Space configuration level refers to the area size and function selection. Space design level mainly refers to the distribution, structure, layout, scale and other details.

#### ① Problems of Configuration

##### a Insufficient and Redundancy of Space



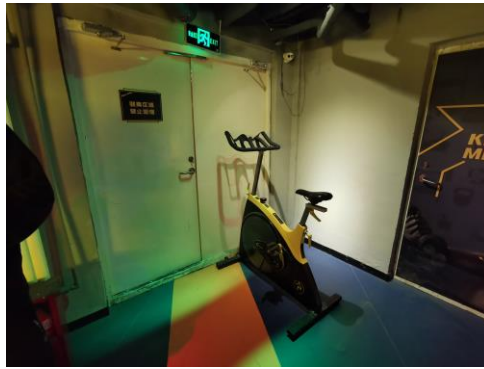


Fig 3.15 Due to lack of space, fitness equipment is placed in front of the fire safety door.

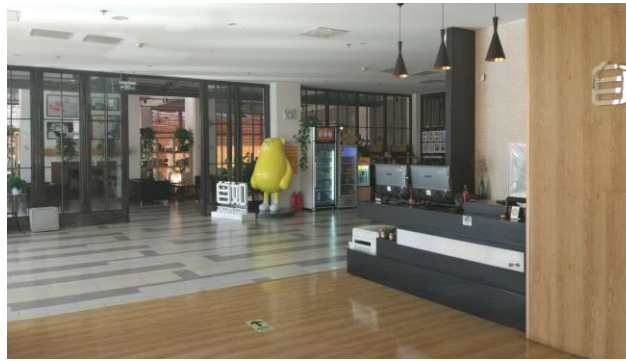


Fig 3.16 Oversized lobby space seems empty.

#### b The Function Does Not Meet the Operation and Usage Needs

In the investigation, the author found that some of the functions of public space did not meet the operational and usage requirements, the utilization rate was low, and some of the more necessary spaces were not equipped.

For example, in two projects with soft-drink bar area, the soft-drink bar both failed to put into use and were in an idle state, as shown below.

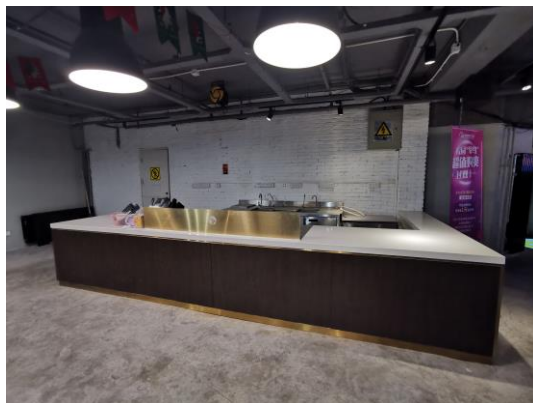


Fig 3.17 An abandoned water bar space in a long-stay apartment project



Fig 3.18 A water bar space to be opened in a long-stay apartment project

The water bar space in the two apartments failed to operate effectively for the same reason: this type of space requires specific operating personnel, but the soft-drink bar opened to residents can bring about only little and unstable revenue, resulting in insufficient income. In long-stay apartment buildings, spaces out of operation are relatively easy to be abandoned.

At the same time, some very necessary spaces were not considered in the design. All apartments provide basic services of collecting express packages for residents, but some apartments are not equipped with storage spaces. In some cases, shelves were used for storage, or the packages were just piled on the ground, making the environment neither tidy nor easy to manage.



Fig 3.19 Window view blocked by temporary express cabinet at the expense of good vision



Fig 3.20 Express packages are piled up messily on the ground near the reception desk

## ② Problems in Space Design

### a Defective Space Layout

Spatial layout problems can be divided into two categories: single space location problems and adjacent spaces layout problems.

In public spaces, kitchens, gyms and other spaces require ventilation, so there are specific requirements for the location of the space. In the YOU + community, the gym is located in the basement. There is no window, and the fresh air can only be taken in by an air-conditioner. Therefore, it is extremely hot and smelly in summer.

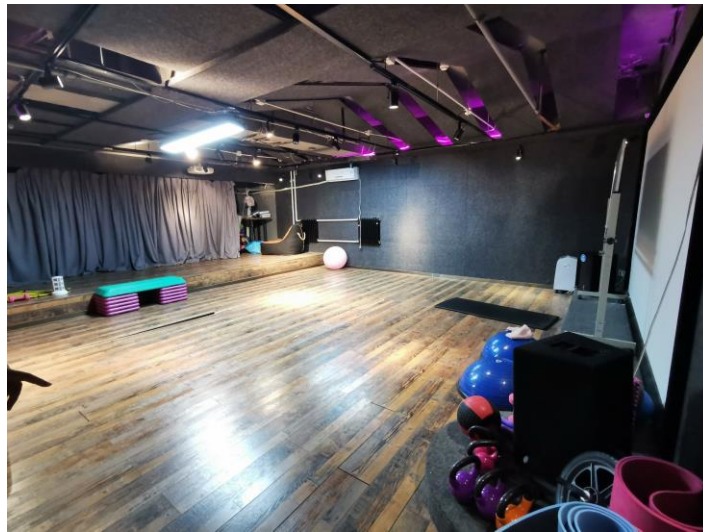


Fig 3.21 Located in the basement, the ventilation of the gym is terrible.

The layout problem of adjacent spaces is also a common problem. Some spaces have problems of mutual interference during use. The pool table shown below (left picture) is adjacent to the audio space, which is prone to conflicts in use: when someone is watching movie, a quiet, low-illumination environment is required, while playing billiards will make a sound and requires a bright environment, so it is difficult to use the two spaces at the same time. The picture below(right) shows a design which sets the leisure and entertainment space near the residents' individual rooms. If the residents make sounds during social activities, it's easy to affect the residents nearby.

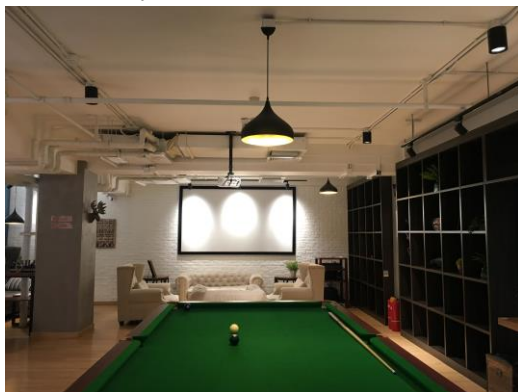


Fig 3.22 When people use the pool table and the audio-visual space at the same time, it's easy to interfere with each other when in use.

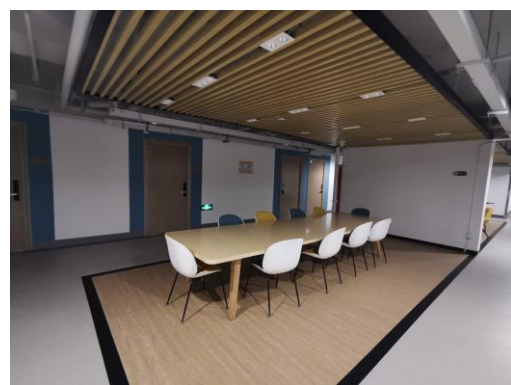


Fig 3.23 when residents use open space, it's easy to disturb residents in rooms nearby

## b Circulation and Sight Problems



Housekeepers' management and services are very important in project operation. Long-stay apartment buildings usually adopt a "low staff ratio" strategy, so very few housekeepers need to manage and take care of a big project. In some projects, the housekeepers' main office space-the reception desk and the public space are blocked by walls and there is no good sight, which makes it difficult for the housekeeper to keep an eye on the activities in the public space conveniently. The housekeeper often needs to move around to check everything, which increases the difficulty and workload to manage the public space.

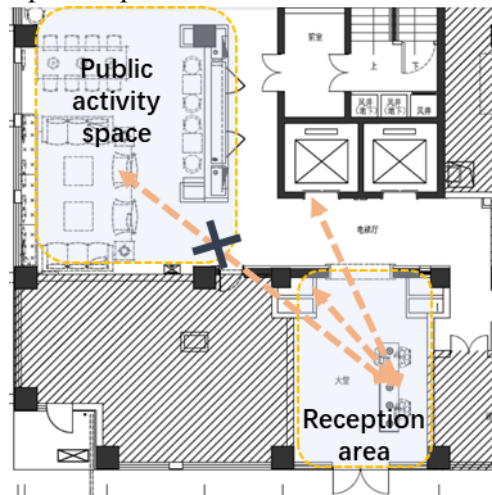


Fig 3.24 Housekeepers cannot observe what's happening in the public space from the reception desk.

### c Spatial Scale Is Inappropriate

Appropriate spatial scale is the basic element of architectural design. However, in some projects, inappropriate spatial scale leads to problems in spatial atmosphere.



Fig 3.25 Too big spatial scale in public space brings about the feeling of emptiness and public building.





Fig 3.26 The space in shared kitchen is too narrow for several users operating at the same time

#### d Insufficient Space Flexibility

Dividing space into small rooms and accurately defining the functions of each room is a common practice in the design of public space in long-stay apartment buildings. However, in use, such spaces are usually too small and closed because of their small size. The activities expected in the design usually do not happen here, and the room cannot be used for other purposes due to spatial restrictions.



Fig 3.27 Small board game room's usage rate is low

#### e Insufficient Detailed Design

Lack of fine design considerations is a more common problem, mainly including: a lack of storage space, inappropriate interface material, inappropriate design and selection of furniture and building component and so on.



Fig 3.28 The empty space under the table is filled with personal belongings of the residents.



Fig 3.29 In the shared kitchen there's no place for residents to accommodate the chopping blocks.

The selection and design of furniture and building component is a more common problem happening in public spaces.



Fig 3.30 Dark-color and heavy sofa and coffee table do not meet the preferences of young people.



Fig 3.31 Bulky sofa brings about inconvenience for moving

### 3.3 Case Study – Goyoo Apartment in Beijing

#### 3.3.1 Project Overview



Fig 3.32 Exterior of the building

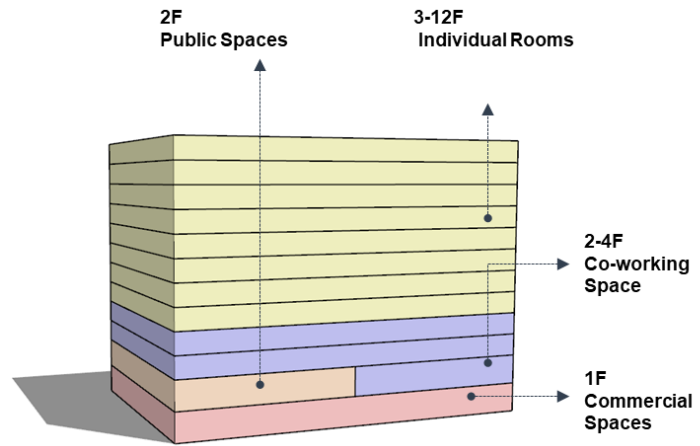


Fig 3.33 Vertical functional areas

The basic information of the project is shown in the table below:

Table 3.4 Goyoo Apartment Jiuxianqiao Branch's basic information

Name		Goyoo Apartment Jiuxianqiao Branch
Brief	Location	Jiuxianqiao, Chaoyang District, Beijing, China
	Opening time	October, 2017
	Renovaton information	renovation project of a dormitory building
Construction scale	Land area	1800 sqm
	Total floor area	13,636 sqm for long-stay arpartment
	Floors	12 floors
	No. of residents	500
	No. of individual rooms	462
	Area of each individual	20~25 sqm

	room	
Management	Management staff	3 housekeepers, 3 intern, 10 security and cleaning and other support staff, 1 maintenance worker 123101

The total area of public space is 756 sqm, accounting for about 5.5% of the total area of the apartment (13,636sqm), with reception service area, shared kitchen, shared dining room, gym, audio-visual room, leisure and office area, reception area, open audio-visual area, sports area and public washroom. There are also some value-added service facilities, including doll-pick machines, snack beverage machine, and shared lockers.

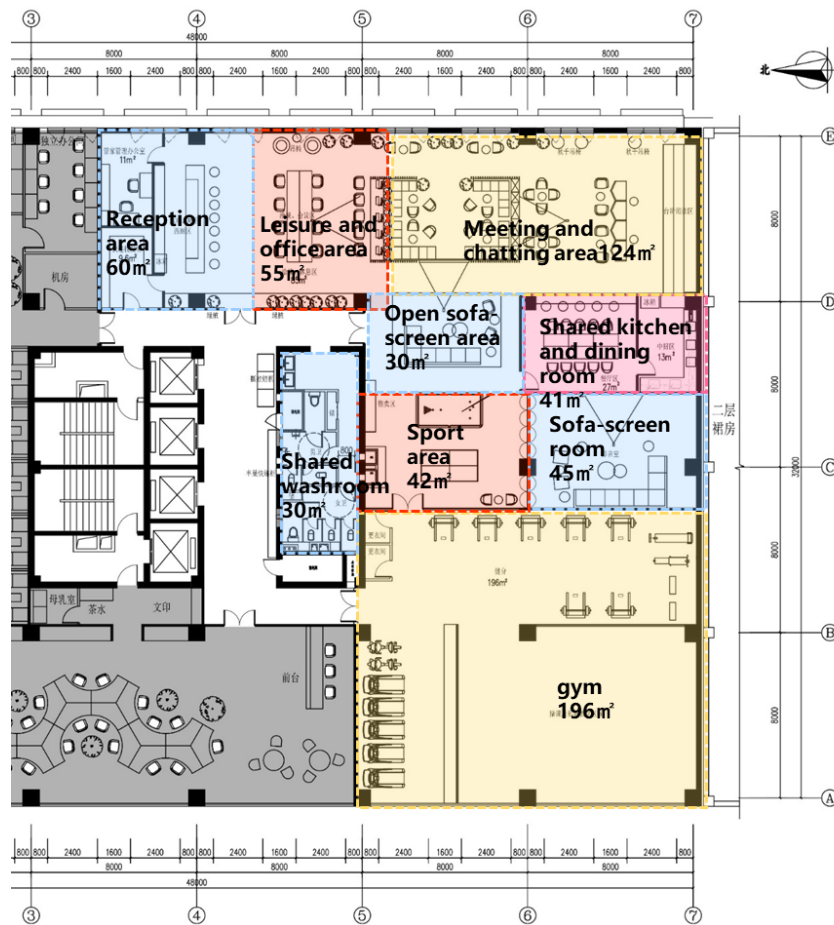


Fig. 3.34 Plan of the public space



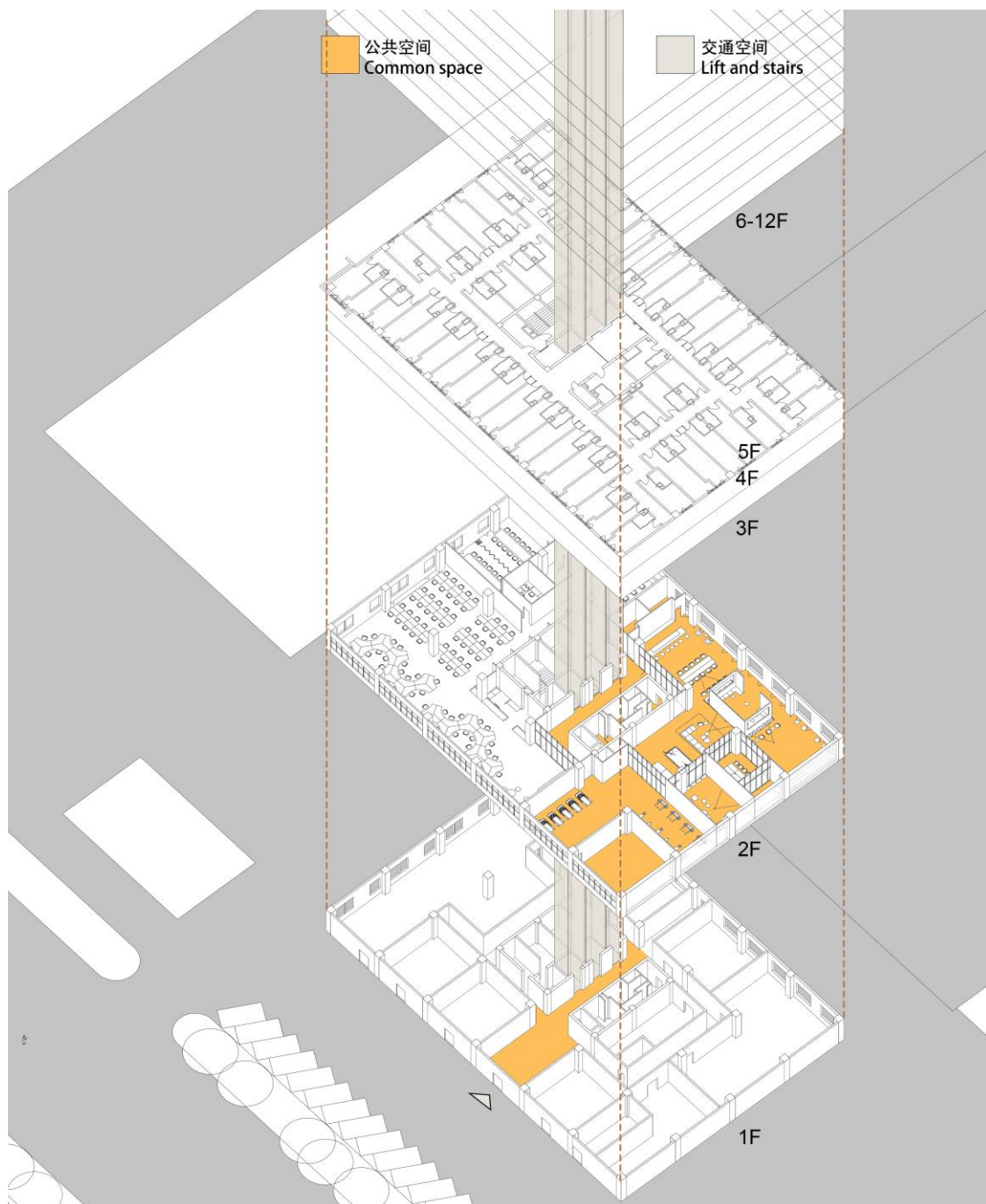


Fig. 3.35 Isometric drawing

### 3.3.2 Project Space Features

#### ① The Atmosphere of The Space Is Open, Transparent and Warm.

The public space area of this project is large (756 sqm) and has a centralized structure. The main spaces are interconnected.



Fig 3.36 space atmosphere is more open and transparent

## ② Functions Are Abundant and Circulation Is Convenient

The supporting space of the reception area is relatively complete.

Behind the reception desk, there is an express package room and an housekeepers' office. The location of the express package room is close to the main entrance of the public space, which is convenient for the courier and the housekeeper. On the other side of the reception desk, there is an housekeepers' office, which has the functions of office, storage and rest, providing convenience for operation management. In this way, the housekeepers' workflow is relatively short, which is convenient for improving efficiency.

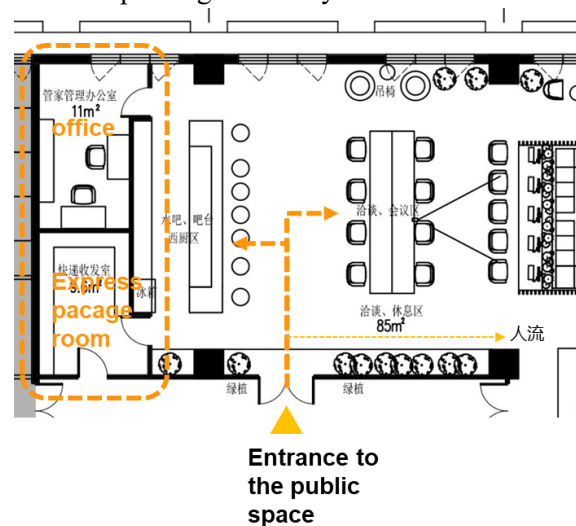


Fig 3.37 Near the reception desk there is an express package room and an office room.



Fig 3.38 Reception Desk

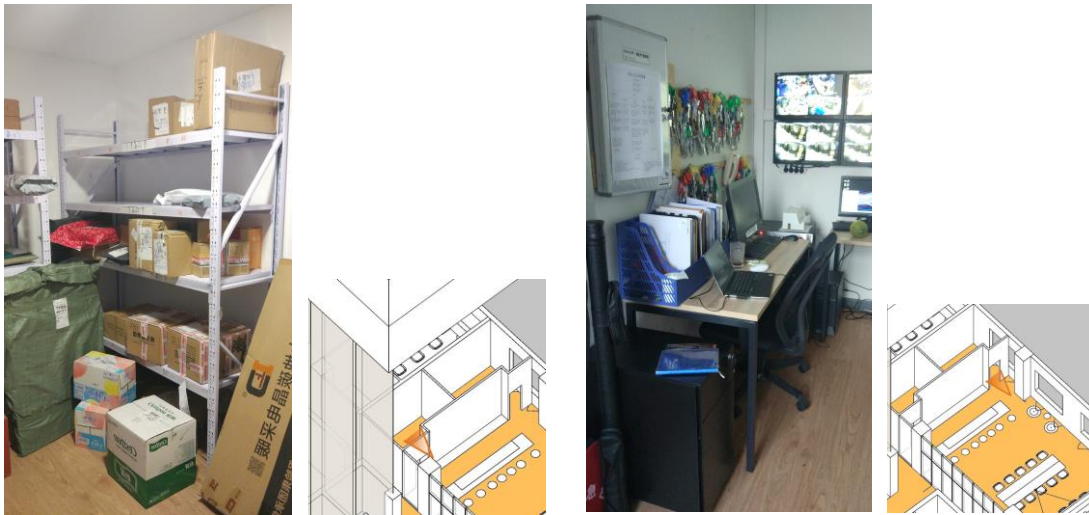


Fig 3.39 Express package room

Fig 3.40 Housekeepers' Office

### ③ Both Public and Private Spaces Are Available

Due to the small size of individual room space, some of the residents want some public space in a quiet, private, and secret corner for himself or private conversations with friends. In the picture below, the project uses the space near the window to set swing chairs, hanging ball chairs and small coffee tables, etc., creating a private and quiet micro environment.



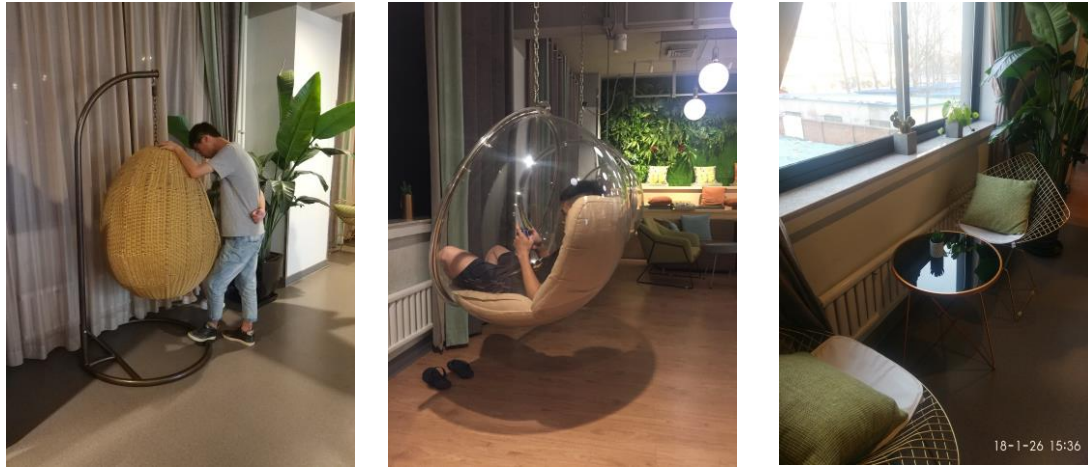


Fig 3.41 Private chat spaces

In addition, in each functional space, the project also uses furniture to create different sense of scale in public and private spaces.

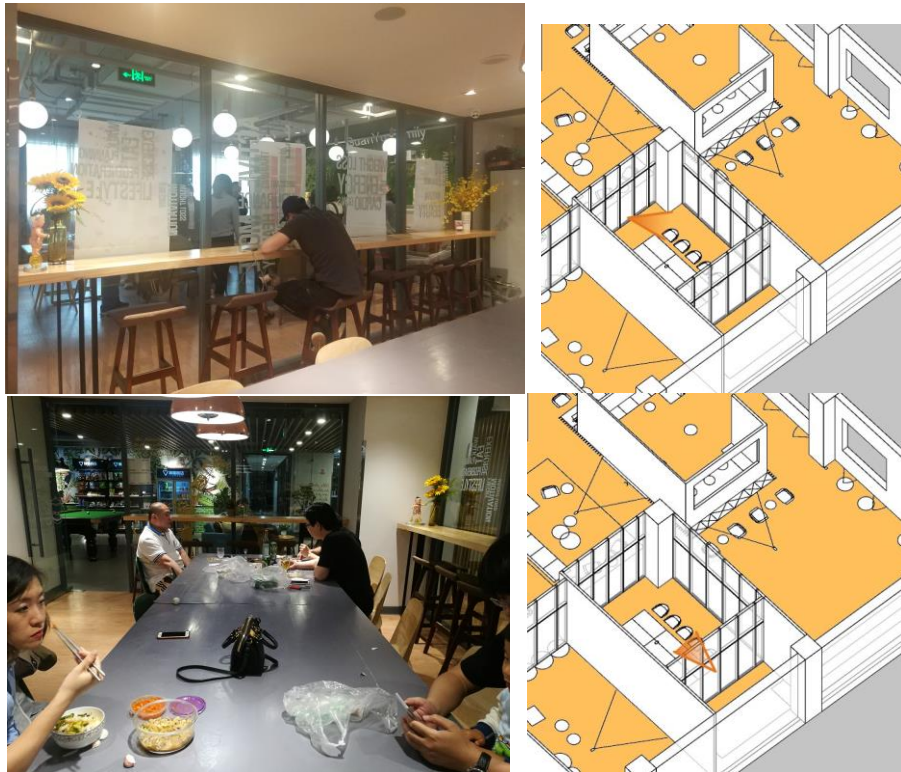


Fig 3. 42 There are big square tables and bar tables in the shared dining room, creating different atmosphere for different users.

#### ④ The Gym Has Complete Functions and Open to Public

There's a 200 sqm gym in the project, which is run by professional fitness company. In addition to servicing the residents in the apartment, the gym is also open to public, creating



additional income for the project. The gym is well equipped with anaerobic equipment area, aerobic equipment area, yoga area and dressing room. The utilization rate of the gym in this project is relatively high.

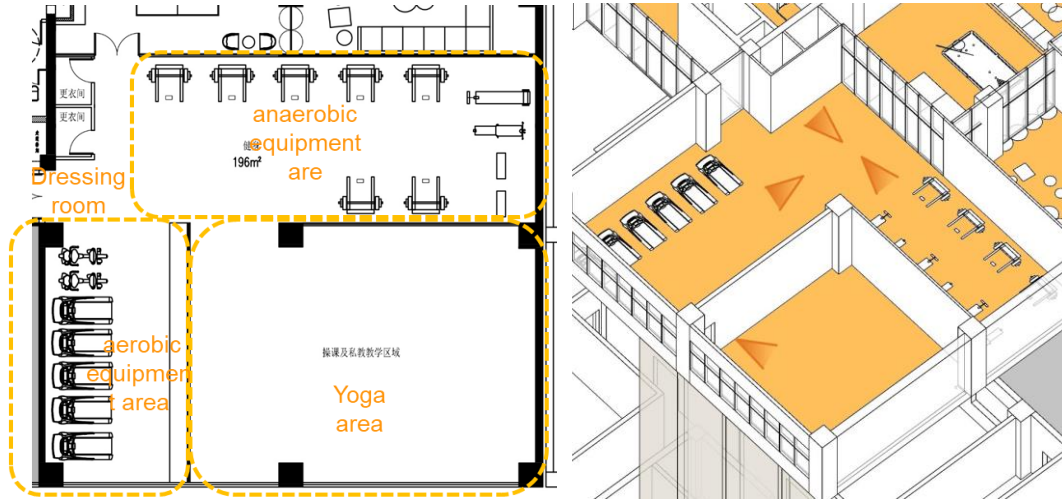


Fig 3.43 Plan of the gym



Fig 3.44 Anaerobic equipment area

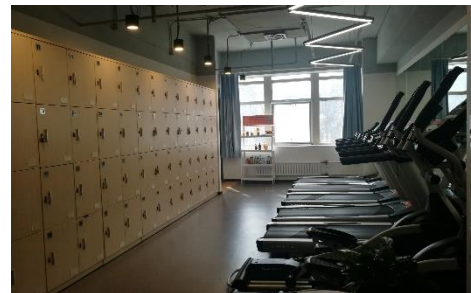


Fig 3.45 Aerobic equipment area



Fig 3.46 Yoga area

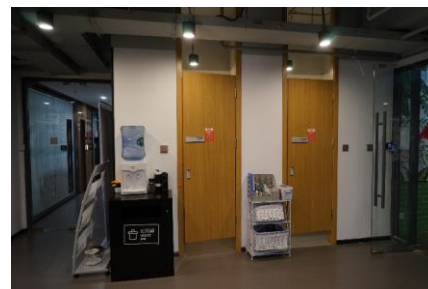


Fig 3.47 Dressing rooms

### 3.3.3 Problems of Space Configuration and Design

#### ① Insufficient Space Flexibility

The flexibility of some spaces is lacking, and it is not possible to adjust the space usage and expand the area when needed. The leisure-office area and the staircase area are two typical examples.

The leisure-office area is in the middle of T-shaped open area (shown in yellow color in the picture below). It is a fixed wooden box surrounded by wooden gratings. Due to this design, the large T-shape space is divided into 3 small spaces (show in blue color), each able to accommodate about 20 people, unable to accommodate big activities.

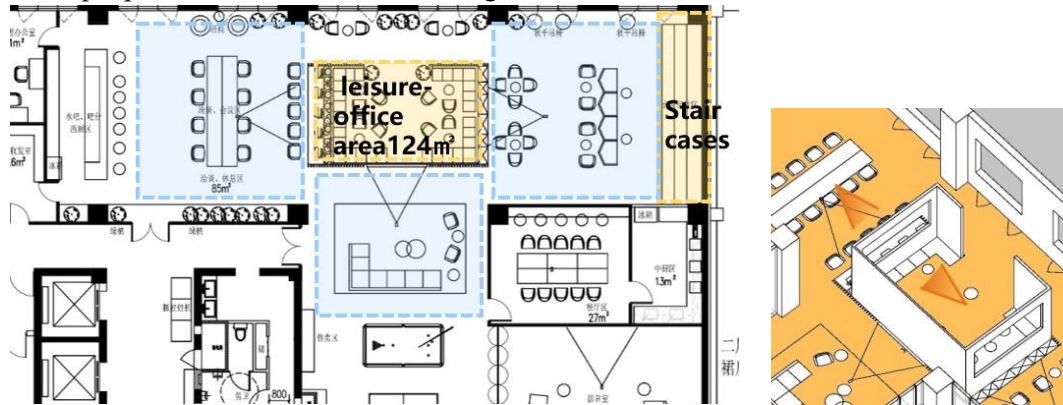


Fig 3.48 Leisure-office area occupies the central part of the T-shape open area



Fig 3.49 Wooden gratings enclose the leisure-office area.



Fig 3.50 Inner space of the leisure-office area

In this project, there is a "staircase theme wall" area. Stairs and theme walls have very beautiful and rich levels of visual effects. They can be used as beautiful background walls when residents shoot videos or take pictures. However, according to the residents and housekeepers,

the space utilization rate is low because few activities need this space. Because the staircases are rigid, they cannot be moved and the space cannot be used for other purposes.

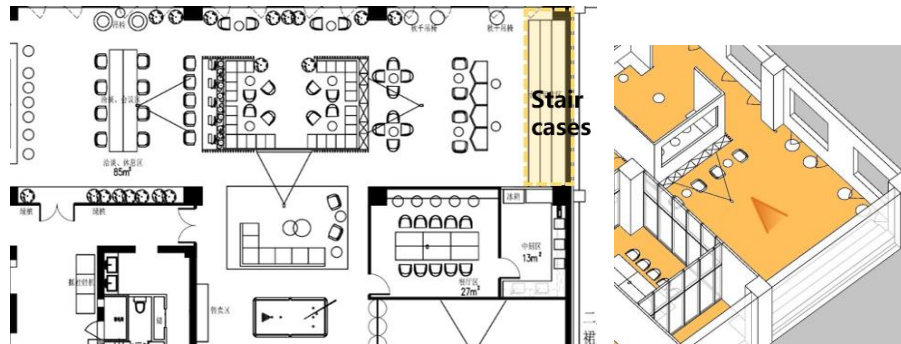


Fig 3.51 staircase- theme wall area



Fig 3.52 the area has very good visual effects.

(source:

[https://bj.iguanyu.com/zf\\_0\\_000001/1/98](https://bj.iguanyu.com/zf_0_000001/1/98))



Fig 3.53 But the utilization rate is low.

## ② The Circulation Is A Little Mixed, Making It Difficult for Management And Security.

There are 3 main entrances in the public space of the project, and the circulation is somehow mixed. In addition to apartment residents, social members of the gym can also access public spaces. So many people can use the public space, entering it from different entrances, leading to a mixed circulation.



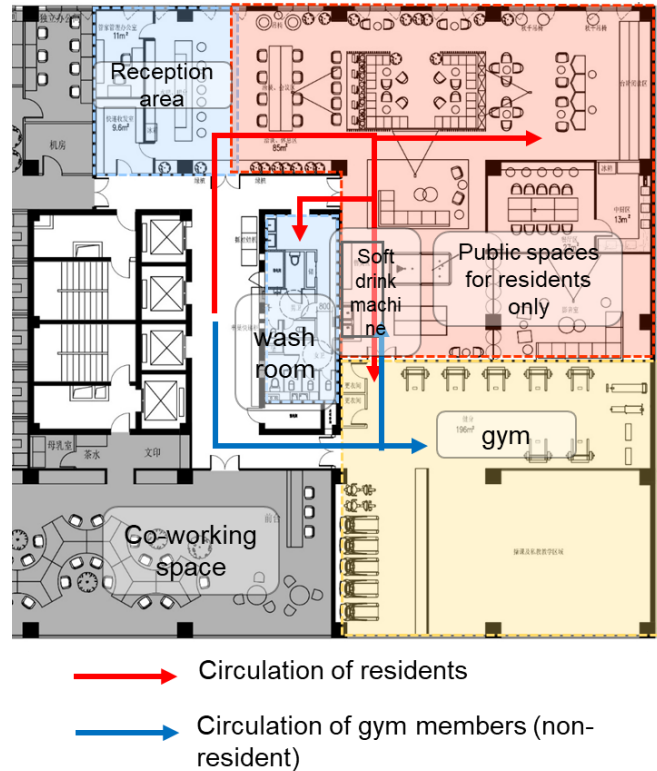


Fig 3.54 Main circulation lines in the public space

### ③ Detailed Design Is Not Fully Considered

Although the public space area of the project is larger than other projects, the space is still tense due to the large number of residents and the complete function configuration. In its design, some spaces have unreasonable dimensions.

For example, in the sport area there is a pool table and a table tennis table, but there's not enough space between them. When they are both in use, the users may bump into each other.

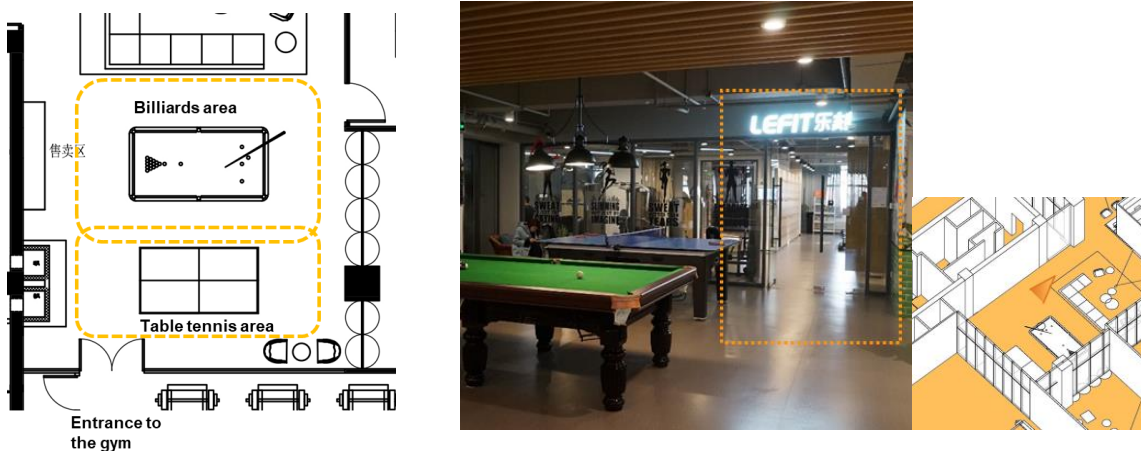


Fig 3.55 The area needed for billiard and table tennis activities overlaps. Fig 3.56 the space needed for table tennis overlaps the entrance to the gym.

In addition, the lack of storage space has also brought some problems to the use of space.



Fig 3.57 Users put their clothes on a nearby couch while playing billiards.



Fig 3.58 Private rice cooker occupied the table in the shared kitchen.

### 3.4 Comprehensive Analysis

At present, in China there's a number of long-stay apartment buildings for youth groups. Their public spaces have their own characteristics, and they have some similarities in terms of space configuration and use. In addition, in the survey, it was found that there are many design and use problems in the design of such projects. The reasons for these design problems are various.

First of all, the development of long-stay apartment buildings in China is not long, and it is still in its infancy. Real estate companies and designers are relatively inexperienced.

Secondly, in the development and design of the long-stay apartment project, the operation management team is hardly involved. Almost no operational managers involve in or provide advice for the development and design process. Designers seldom take into the needs of project management and operation into consideration, but are more focused on only aesthetic perspective.

In addition, most architects and interior designers lack the experience of living in a long-stay apartment, and they do not have enough knowledge and understanding of the daily scenarios, activities, and psychology of the young people living in these projects.

Therefore, in the following research, the author will focus on fully considering the space requirements of residents, management staff and enterprises, to gain a deep understanding of the use patterns and use scenarios of public spaces in long-stay apartment buildings, and summarize the common features in space use to promote further research.

## 第4章 Chapter 4 Survey on the Public Spaces in Long-Stay Apartments in Europe

### 4.1 History and Current Situation of Long-Stay Apartments in Europe

#### 4.1.1 Development and History

Europe has a long history of apartment development.

Since the mid-17th century, the architectural form of "a room" represented by apartment has been popular in Britain and France. At that time, they mainly referred to "collective high-density houses". Although they are far from modern long-stay apartment buildings, this intensive and compact form of residence has become a typical representative of modern European society. After the World War I, the economic crisis swept across Europe. Architects from various countries began to study the design of small apartment living spaces for youth, and completed a series of works with characteristics of the times

During the World War II, a large number of houses were destroyed. In the process of post-war reconstruction, the construction of residences is the top priority. Also, after World War II, there was an era of modern architectural thought booming. Many architects integrated the postwar modernist architectural concept into apartment building projects. For example, in 1952-1960 Le Corbusier finished 5 "ideal living unit dwellings" in France and Germany. After the 1970s, with the construction of apartment buildings, housing shortage in Europe was basically resolved. At this time, the drawbacks caused by the huge apartment building began to attract people's attention. Due to the excessively large scale, some residential communities have problems such as indifferent neighborhood relations and poor environmental quality, which has caused people to rethink the true meaning of ideal residences. In a highly industrialized society, people want to escape from the pressure of busy work and too-closed family life in their living environment, and have a better community environment and neighborhood interpersonal relationship. Northern Europe calls this type of living "a cooperative living model". In this kind of mode, the residents share a common kitchen, meeting rooms, game rooms, public rooms, workshops and outdoor spaces such as children's play area and leisure spaces.

In the late 1970s, in the UK and Northern European countries, governments' efforts to regulate dwelling construction were reduced and people were encouraged to purchase or building houses by themselves, which further opened up the real estate market. Till today, the European housing market is equally divided into three parts: private-owned houses, apartments (marketable rental housing) and welfare houses.

#### 4.1.2 Current Develop Situation

Compared to China, the number of people who rent houses in Europe is much bigger. In addition to white-collar workers, students and blue-collar workers are also the main people who rent apartments. In recent years, residential buildings similar to China's long-stay apartment buildings for youth groups have begun to appear in the core megacities of Europe, such as London and Paris. These apartments are often located in the city center and are operated by professional companies. This type of project takes full account of market needs. They often have a high level of architectural design and provides high-level management and services, attracting business people and families with no children.



Fig 4.1 Collective Old Oak Apartment Building in London

(source:

<http://www.plparchitecture.com/the-collective-old-oak.html>)



Fig 4.2 Public space in Collective Old Oak Apartment Building

(source: <http://www.plparchitecture.com/the-collective-old-oak.html>)

Currently in Europe the buildings similar to the long-stay apartment buildings in China are still not very popular. Nonetheless, there are a lot of high-quality college student communities in Europe. In order to solve the university students' housing problems, in Europe there are many long-stay apartments targeting at them. Due to the high degree of marketization and the positioning of "comprehensive living service facility", the design and construction quality of

student apartments in Europe are high. In addition to the individual rooms, the apartments are also equipped with shared public spaces for students, such as shared kitchens, dining rooms, laundry rooms, study rooms, gyms, etc. And there are also management staff, cleaning, and security personnel who provide management services. In this way, they have a lot of similarities with the long-stay apartment buildings in China. Therefore, studying European students' apartment buildings also has a strong reference value for this research.

## 4.2 Basic Survey on the Design and Use of Public Spaces in Typical European Apartments

### 4.2.1 Survey Overview of Public Spaces in 5 Apartments Buildings

In order to understand and learn from the long-stay apartments in Europe, the author did investigation in 5 apartment buildings in Italy, France and Denmark, including 1 ordinary apartment building and 4 university student apartment buildings. The basic information of the five apartment buildings is shown in the table below.

Table 4.1 Research Project Overview

No	Project name	Location	Total number of rooms	Nature of operation	Total area	Public space area	Proportion of public space
1	Verdi Campus Verdi	Torino, Italy	183	public	8500	600	7.06%
2	Campus Sanpaolo	Torino, Italy	274	private	16000	1660	10.38%
3	Campus Borsellino	Torino, Italy	360	public	20000	2000	10.00%
4	Tietgen Dormitory IT	Copenhagen, Denmark	360	public	26800	2300	8.58%
5	Unite d'Habitation Marseille	Marseille, France	337	/	60200	2300	3.82%



## 4.2.2 Space Configuration and Design Overview

### ① Space Configuration

#### a Public Space Area

Among the 5 European long-stay apartment building cases, public space area ranges from 600 to 2300 sqm, compared to the 100 ~ 400 sqm range in China cases. This phenomenon is related to the larger total construction area of the research project (distributed between 8,500 and 60,000 sqm).

#### b Function Configuration

In the five cases, the main functions of public space include housework and daily routine, entertainment and leisure spaces. The 5 apartments all have courtyards or roof terraces. In addition, according to their main customers, there are also some value-added spaces, for example study rooms and exhibition spaces in the four student apartment buildings. And in the largest case Unite d'Habitation Marseille there are restaurants, hotels, offices, shops and other independent commercial spaces.

### ② Space design

#### a Space Structure

Unlike the public space structure of long-stay apartment in China, the long-stay apartment in Europe generally adopts the "concentration + dispersion" public space structure. In 4 student communities, generally there is a centralized big public space with laundry room, gym, bar, leisure and office space, audio-visual area, private secret meeting areas, study rooms and other functions on the first floor or in the basement. Besides, shared dining room and kitchen are set on each floor or in each architectural group. In Unite d'Habitation Marseille there are commercial streets (including hotels, restaurants, shops, offices and other commercial spaces) on the 7th and 8th floor, in the middle of the apartment. In addition, there is a kindergarten on the top floor of the apartment, and a gym on the roof terrace.

#### b Spatial Form

The five cases adopt flat-floor spatial mode, interspersed with atriums. For example, in Unite d'Habitation Marseille there is a 2-story high public space, and between the 7th and 8th floors there is a large staircase that connects the 2 floors.

### 4.3 Key Case Analysis of Public Space in Long-Stay Apartments in Europe

#### 4.3.1 Unite d'Habitation, Marseille

##### ① Project Overview

Unite d'Habitation is located in Marseille, the second largest city in France. It is about 20-minute drive (5.2km) from the center of Marseille. The project is close to the city arterial road.



Fig 4.3 Location of the project



Fig 4.4 Surrounding environment

Table 4.2 Basic information of Unite d'Habitation, Marseille

Unite d'Habitation, Marseille	
location	280 Boulevard Michelet, 13008 Marseille, France
Opening time	1952
Building type	Super Condo Residence, World Heritage
Designer	Le Corbusier
Total surface area	60192 m <sup>2</sup>
Floors	18
Unit type	23 types of unit, suitable for various people from bachelor to 8-child families; a total of 337 rooms, which can accommodate a total population of about 1200 people.

Residents	<p>Early times: National civil servants, re-settlers</p> <p>Currently: descendants of early residents, middle class, freelancers</p>
-----------	--

Le Corbusier had an urban planning point of view, hoping using this project to explore the basic unit of modern city. Unite d'Habitation is therefore a miniature version of "Utopia", equipped with rich and perfect public spaces. In Le Corbusier's imagination, the public space has 2 purposes: the first is to meet the residents' shopping and life service requirements, and the second is to be used as a meeting place for residents. Le Corbusier considered public space in the apartment as "a perfect place to take a walk and chat". Residents can host a variety of activities here, including religious events, birthday celebrations, cultural events including exhibitions, and personal communication meetings.

The public spaces of Unite d'Habitation, Marseille are mainly on the 7th, 8th, top and roof floors of the apartments. According to the planning, spaces such as laundry rooms, hotels, restaurants, bakeries, non-staple food shops, pharmacies, post offices, etc. are set up on the 7th and 8th floors, creating a "commercial street". There is a kindergarten on the top floor, with a gym and roof terrace on the roof.

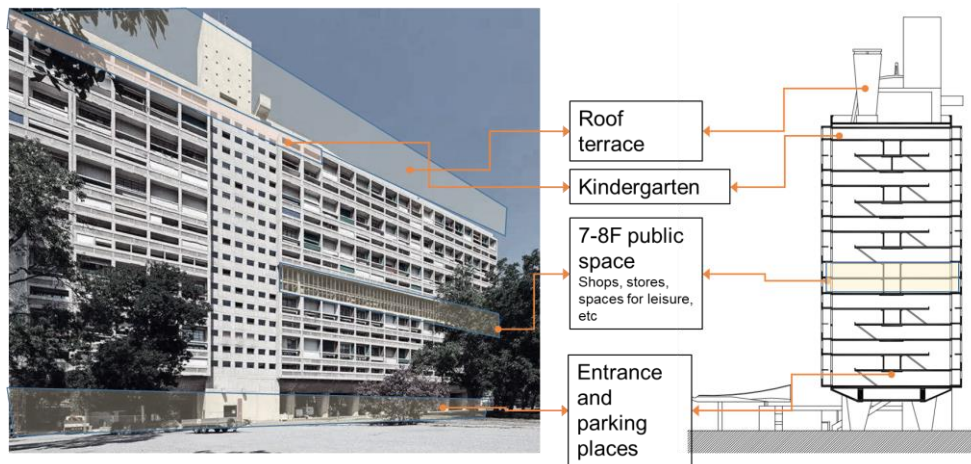


Fig 4.5 Major public space distribution (source: the internet)

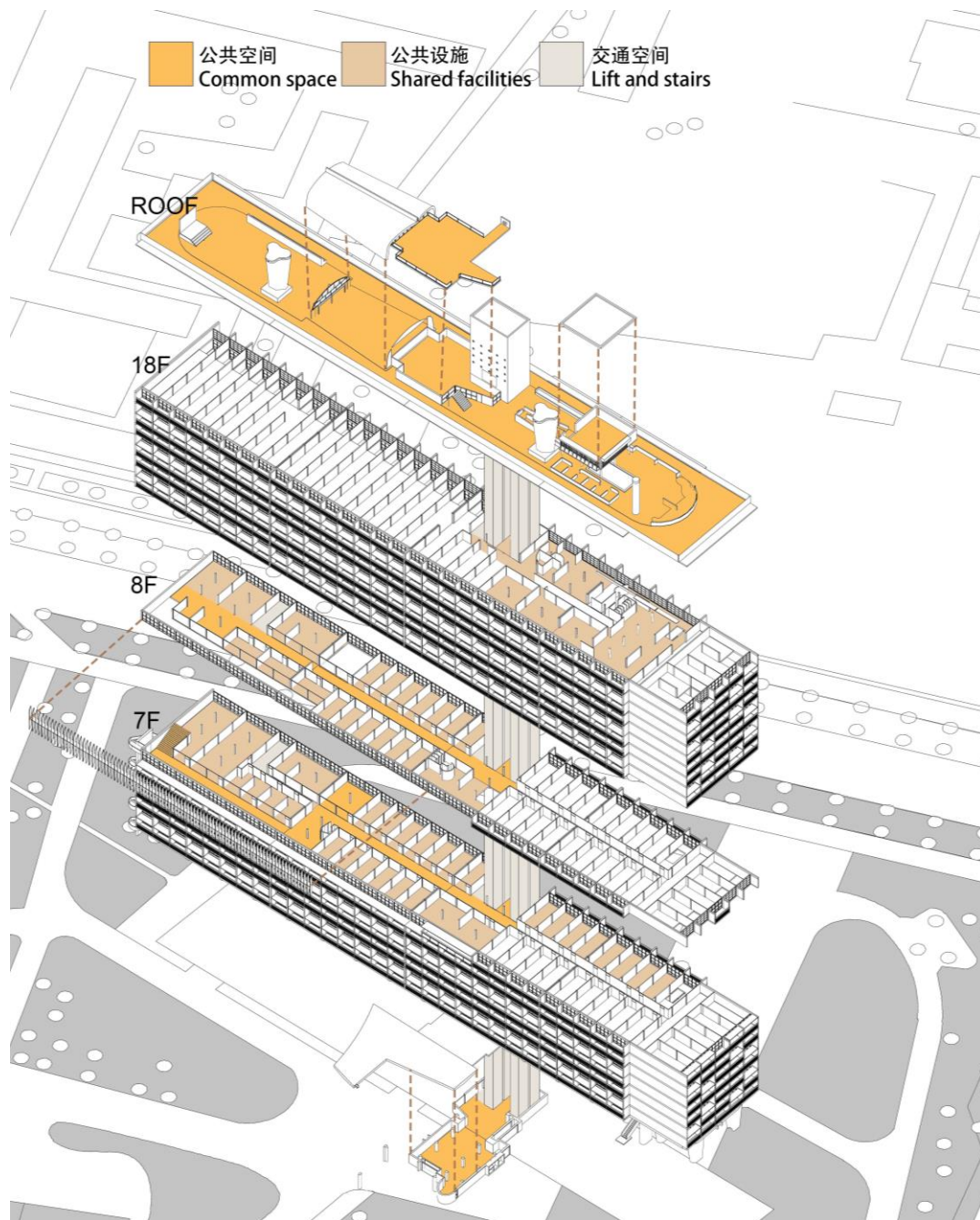


Fig 4.6 Public space isometric drawings

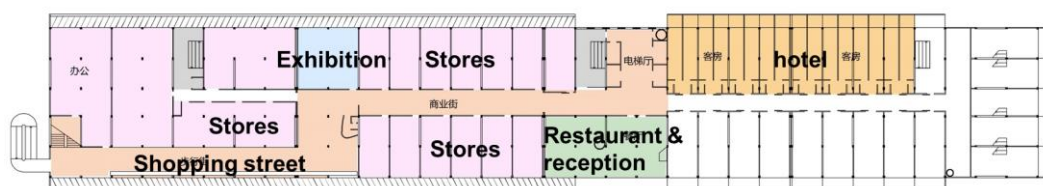


Fig 4.7 7<sup>th</sup> floor plan

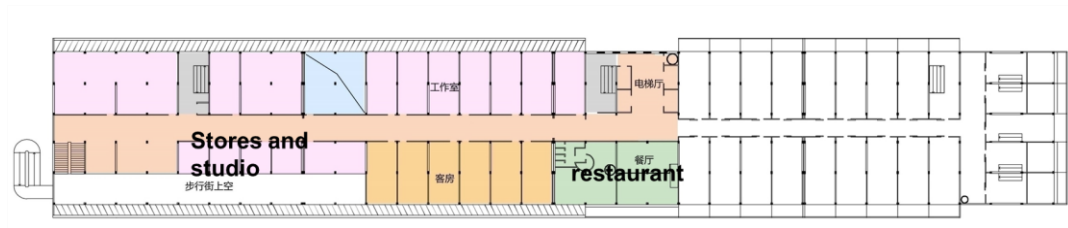


Fig 4.8 8<sup>th</sup> floor plan

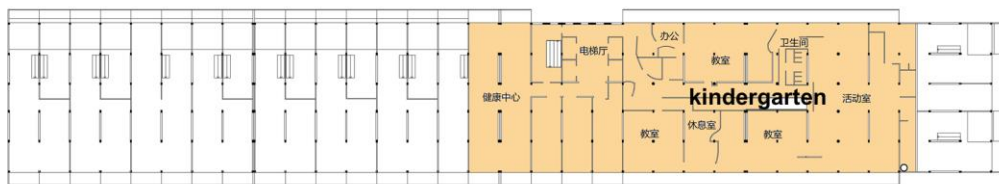


Fig 4.9 top floor (18<sup>th</sup> floor) plan

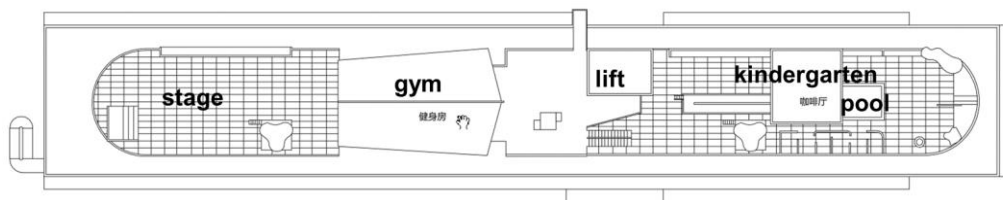


Fig 4.10 roof floor plan

## ② Design Features

### a Flexible Space Adapting to The Space Requirements of Various Functions

The project uses a "bottle rack" type frame structure without load-bearing walls, so the space is very flexible. For public spaces, this advantage is very significant. In the design, there is diversified commercial services space on the 7<sup>th</sup> and 8<sup>th</sup> floor. They have different needs for area and spatial form, so the flexible spaces are easy to meet these diverse needs.



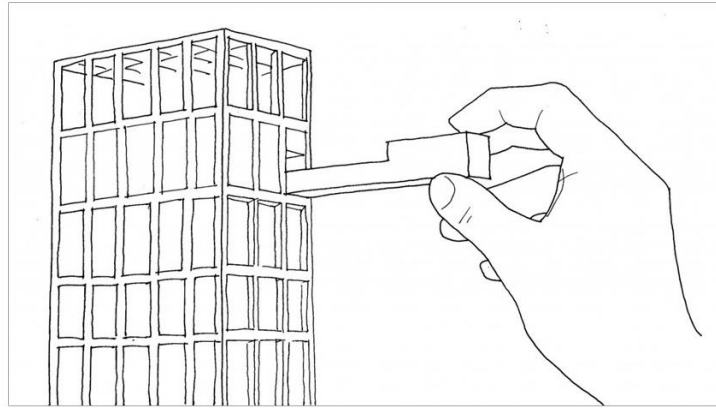


Fig.4. 11 Unite d'Habitation, Marseille uses the frame structure to facilitate various functions  
(source: <http://www.archiposition.com/items/20180525102750>)

Since the project was constructed in 1952, till now the public space has been in operation for 68 years. With the development of society, the surrounding urban space has gradually developed and prospered, and residents' shopping and service needs have changed. As a result, many changes have taken place in the functions of public spaces: laundry rooms, pharmacies, post offices, etc. have ceased operations, and commercial facilities that are more in line with the needs of contemporary life have entered the public floor.

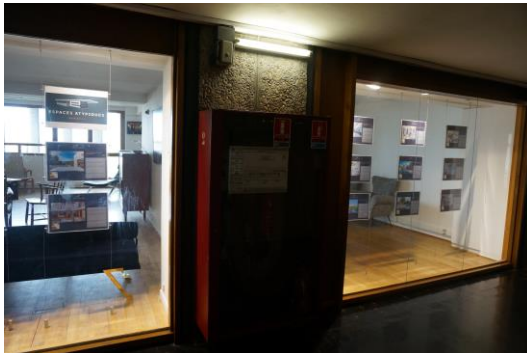


Fig 4.12 Real estate agency



Fig 4.13 Bookstore



Fig 4.14 cafe



Fig 4.15 grocery store

### b Free Social Activity Spaces for Residents

Le Corbusier hoped that, the two-story public spaces would be used not only for the residents' shopping and services, but also function as a recreational space for the residents to communicate. For the design of social activity spaces, the approach is to set window seats in front of the shops, making it a linear space where people can stay; Another way is to create some open spaces at the nodes of the commercial street to create some free spaces.



Fig 4.16 Commercial Street

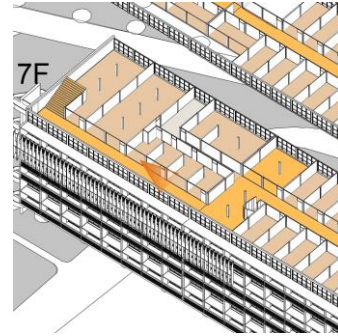


Fig 4.17 An enlarged space at the space node

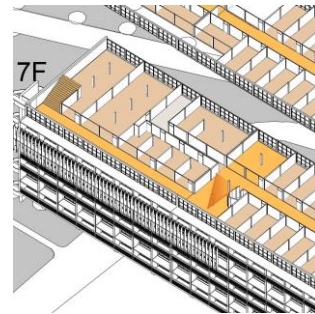




Fig 4.18 An enlarged space node at the end of the commercial street

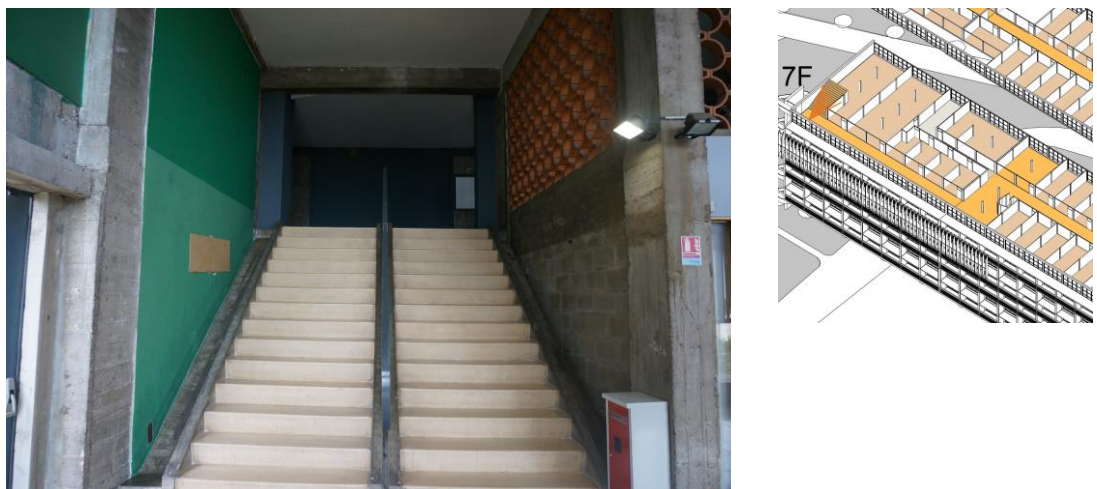


Fig 4.19 Big staircase which connects the 7<sup>th</sup> and 8<sup>th</sup> floor

As a result, the integration of commercial space and social space helps to promote social communication in people's daily life.

#### c Use the Roof Space to Create A Terrace

In the project, the architects paid particular attention to the design of the roof terrace. On the roof platform, the architect designed a series of concrete structures full of sense of "sculpture", such as gym and children's activity space. The roof space which looks like the deck of a giant ship is full of architectural beauty, and it is also an important space for residents to have social activities.



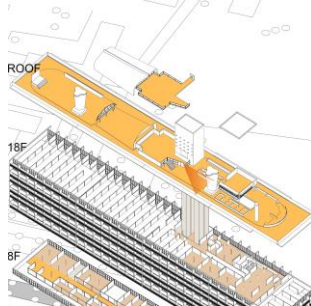


Fig 4.20 Kindergarten

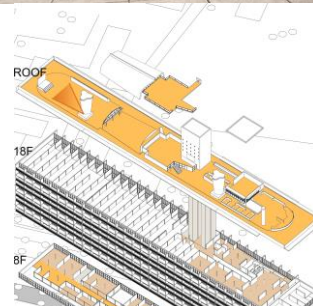


Fig 4.21 Open theater on the roof terrace

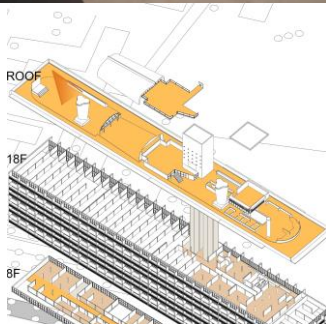


Fig 4.22 A corner of the roof terrace

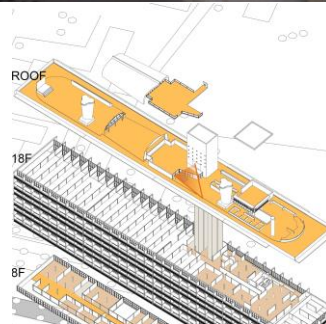


Fig 4.23 Gym on the roof terrace

#### d Fully Consider the Circulation and Sight in The Operation and Management Service

The front office in the picture below is the only one in the whole apartment, which is located in the lobby. The wall of the duty room is semi-circular-shaped, and a large glass is used to

facilitate the housekeeper to observe the three entrances to the hall and the elevator hall from the office.

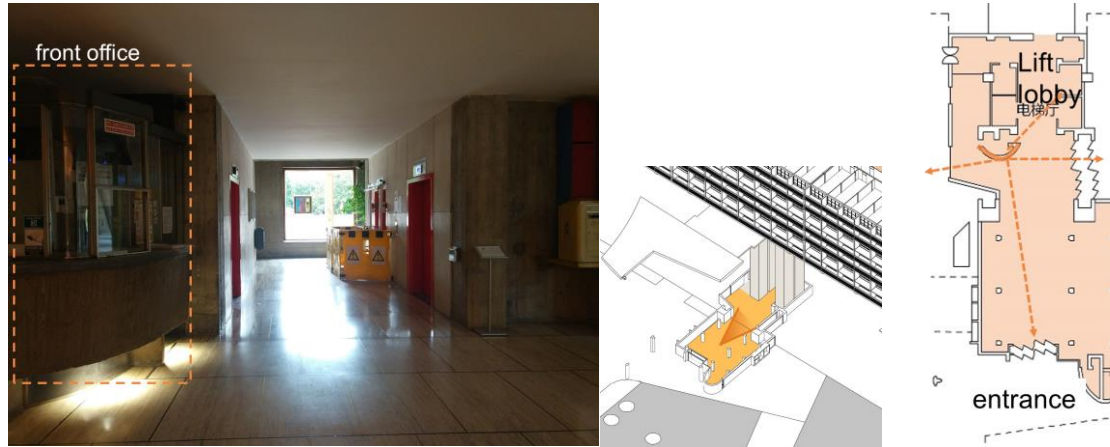


Fig 4.24 The design of the front office facilitates the housekeeper's management.

### 4.3.2 Campus Sanpaolo, Torino

#### ① Project Overview

Campus Sanpaolo is located in Torino, the third largest city of Italy. It's about 24 minutes' bus drive (4.5km) from Porta Nuova. The project is close to urban arterial roads.



Fig 4.25 Location of the project



Fig 4.26 Apartment Surrounding environment

The project is a comprehensive project with two L-shaped buildings surrounding a central courtyard. Its main space is for college students (undergraduate and graduate students, researchers, visiting scholars, etc.), including long-stay apartments and supporting space. Besides, part of the project is a business hotel.



Fig 4.27 Project bird view

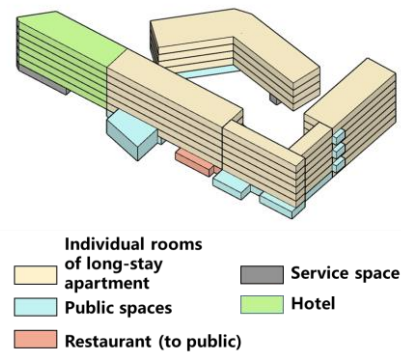


Fig 4.28 Project functions distribution

Table 4.3 Campus Sanpaolo brief information

Campus Sanpaolo	
Location	Via Caraglio, 97, 10141 Torino TO, Italy
Opening time	2010
Type of facility	Student Apartment + Hotel
Developer	SGR Fabrica
Operator	Sharing
Design highlights	A-Green building (A-class energy consumption)
Total surface area	16000 sqm
Floors	7 floors and 4 floors
Unit type	Long-stay rental (longer than 6 months): 94 sets of single rooms, 87 sets of double rooms, 78 sets of two rooms with kitchen, 15 sets of one room with kitchen. A total of 439 beds. Short-term rental: 48 hotel rooms.
Rental	350 euros ~ 525 euros (RMB 2750 ~ 4100)
Main residents	College students, researchers, visiting scholars

The public space of Campus is decentralized, mainly located on the first floor of two L-shaped buildings, with a big shared kitchen, gym, entrance hall, reception space, restaurant (outsourced operation), self-study room and laundry room. Besides, there are three small kitchen and dining space on the 2<sup>nd</sup>, 4<sup>th</sup> and 6<sup>th</sup> floor in the south building.

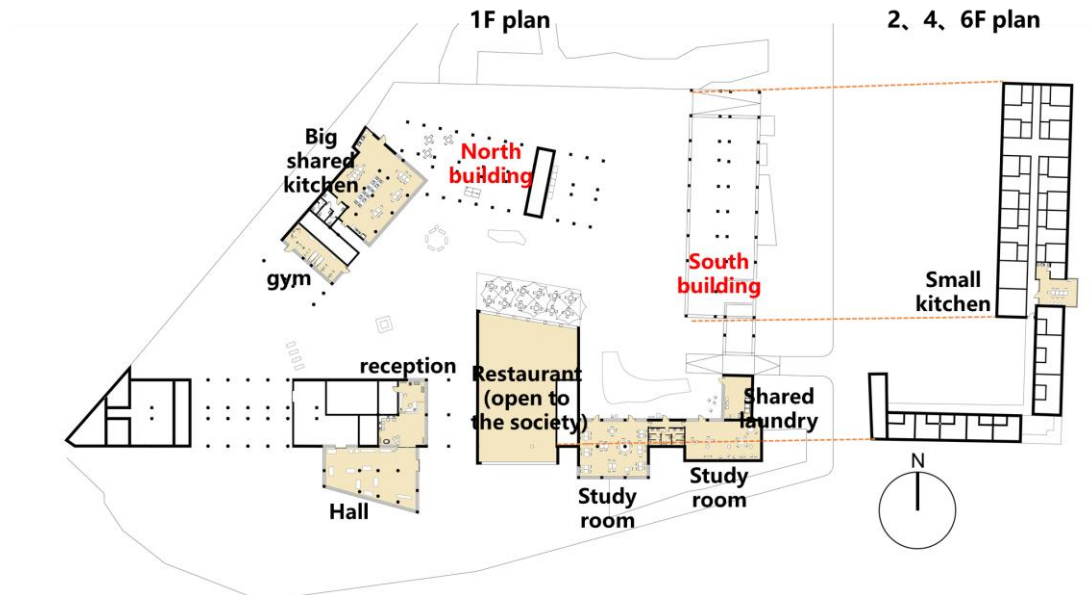


Fig 4.29 Public space of Campus Sanpaolo (the yellow part)



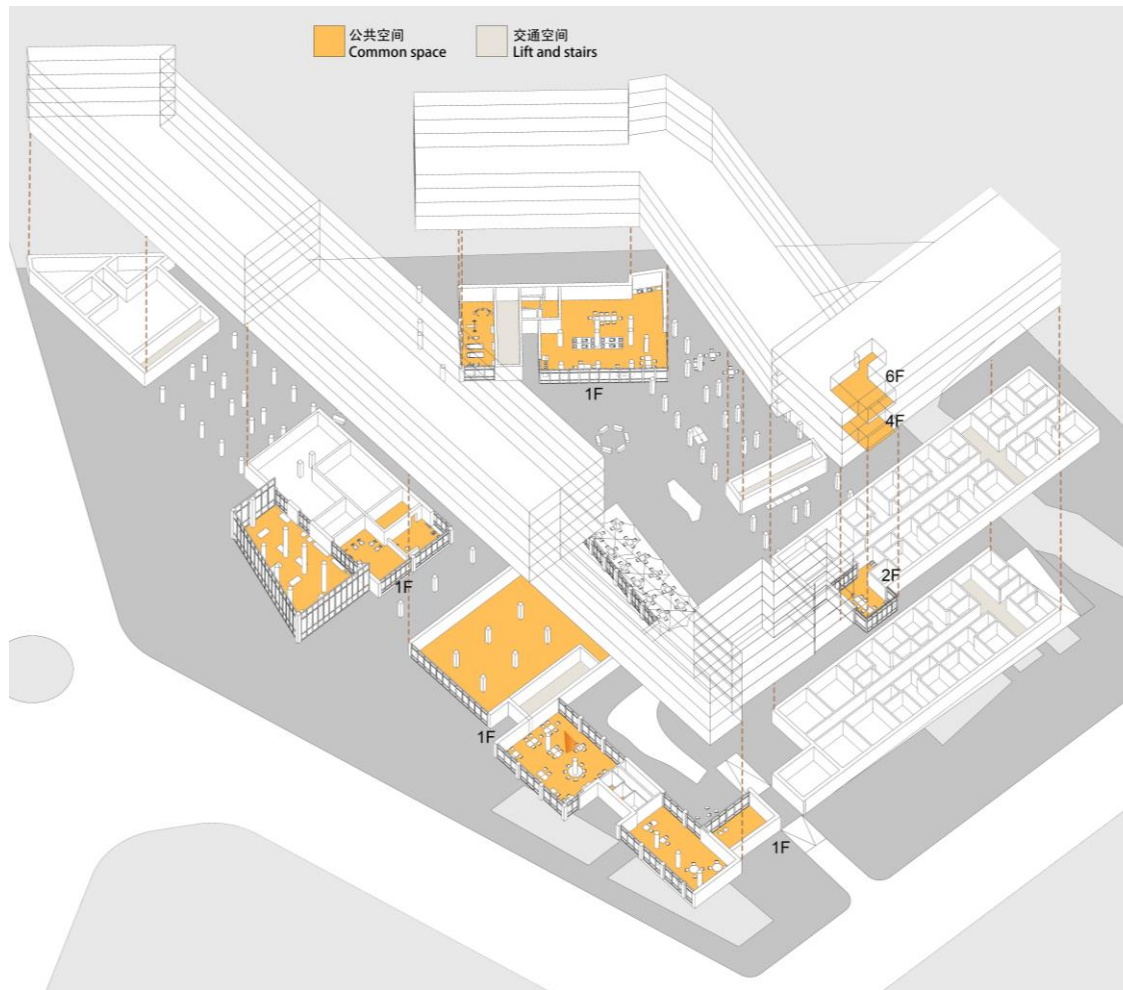


Fig 4.30 Campus Sanpaolo public spaces isometric drawings

## ② Design Features

### a The Configuration and Design of The Space Are in Line with Students' Needs

The main group targeted by the project is a broad group of university youths, so in the design their needs are fully considered. For example, there are 2 study rooms which meets the young people's needs for study and research.

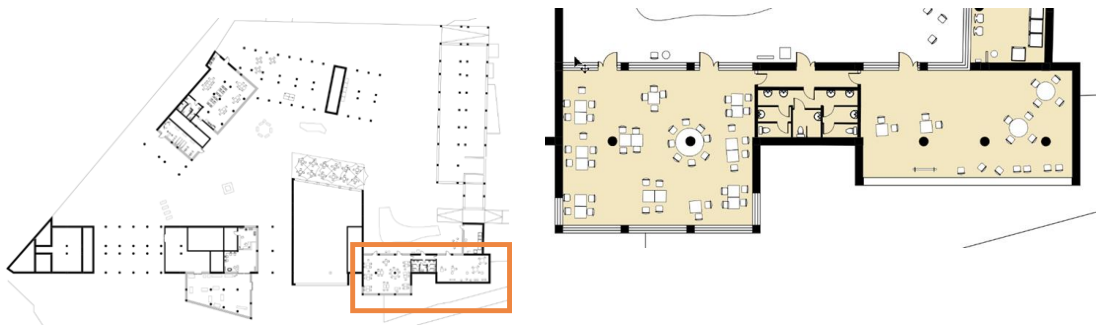


Fig 4.31 Position of the study rooms



Fig 4.32 Study room plan

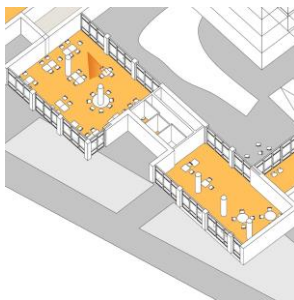


Fig 4.33 A study room full of residents

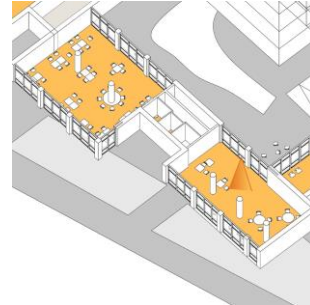


Fig 4.34 Another study room

## b Tiered Cooking and Dining Spaces

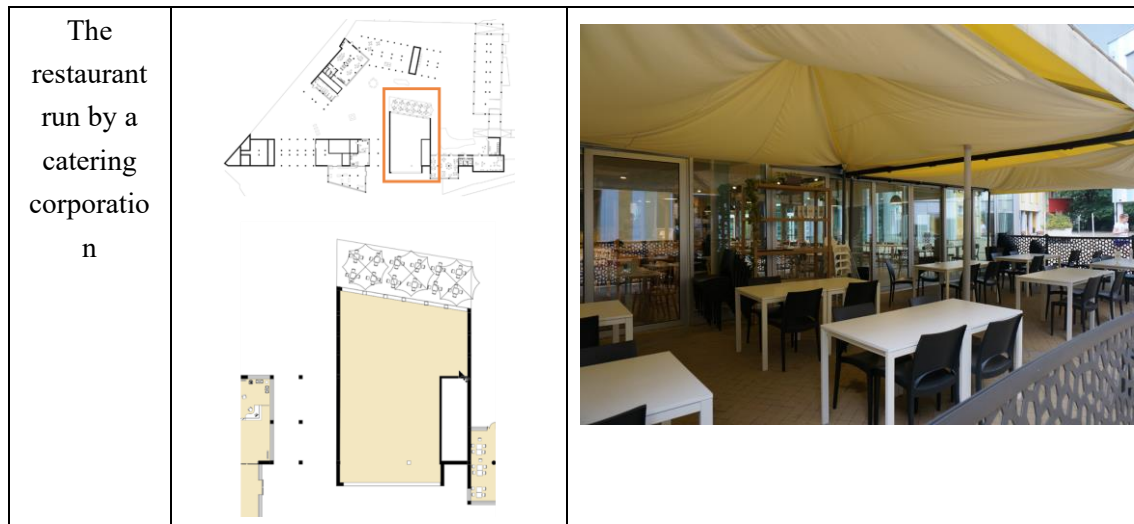
The cooking and dining space of this project is large in total area, and the types are abundant. For college youth, the purposes and occasions of cooking and dining are diverse. Sometimes they just need to fill the stomach, sometimes they want to have party and entertainment, or they simply want to enjoy the food. This project sets up different cooking and dining spaces to meet the needs of cooking and dining in different scenarios.

There is a large kitchen-dining space in the project. Daily cooking needs can be fulfilled here, and some large indoor activities (such as New Year's party) can also be held here. In addition, to better meet the residents daily cooking needs, there are small kitchen and dining spaces on the 2<sup>nd</sup>, 4<sup>th</sup> and 6<sup>th</sup> floor of the south building. In addition, in the project there are also public restaurants and coffee shops open to the society run by catering corporations. In the courtyard there are umbrellas and outdoor seats of the restaurants.

Table 4.4 Three types of cooking and dining spaces in Campus Sanpaolo

<p>Big kitchen and dining space</p>	 Architectural floor plan showing a large, open-plan kitchen and dining area. The kitchen is highlighted in yellow and includes a sink, stove, and microwave. The dining area is adjacent to it, with several tables and chairs. A red arrow points to the entrance of the kitchen area.	 Photograph of a large, bright kitchen and dining area. The space features yellow pillars, orange chairs, and white tables. The kitchen area is visible in the background, with a sink and stove. The floor is tiled.
<p>Small kitchen and dining room in each architectur al group</p>	 Architectural floor plan showing a small kitchen and dining room. The kitchen is highlighted in yellow and includes a sink, stove, and microwave. The dining room is adjacent to it, with several tables and chairs. An orange arrow points to the entrance of the kitchen area.	  Two photographs of a small kitchen and dining room. The top photograph shows the kitchen area with orange walls, orange cabinets, and a sink. The bottom photograph shows the dining room with orange chairs, white tables, and a large window overlooking the street. A colorful mural is visible on the wall.





#### c Fully Consider the Operational Needs and Convenience

Like China's long-stay apartment buildings, the project also adopts the "low management staff ratio" strategy, providing only the most basic management services. The project also assists in operation management through design means, helping to save labor.

In terms of sight and circulation, the design allows the operation and management personnel to easily see the flow of people in and out of the apartment at the service desk, which is also convenient for serving the hotel customers and apartment residents.



Fig 4.35 The reception area is located near the main entrance.

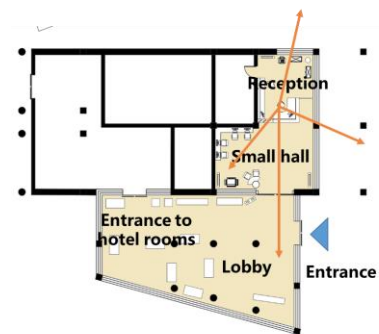


Fig 4.36 Housekeeper at the front desk can keep an eye on the small hall, foyer, and the main entrance.

## 4.4 Public Space Configuration and Design Lessons Learned From Long-Stay Apartments in Europe

### 4.4.1 Space Configuration

#### ① Configure Functional Space According to the Residents' Characteristics

Projects of different countries and different targeted customers have their own characteristics in configuring spaces, and they create spaces according to the residents' needs.

The 4 student apartments have taken students' needs for study space into account, so there are study halls and printing spaces in these projects.



Fig 4.37 Study space for students



Fig 4.38 Study table for apartment residents

In Tietgen Dormitory in Copenhagen, due to the students' high ownership rate of bicycles, there is a bicycle storage space and a layered bicycle rack, which makes the space utilization more intensive.

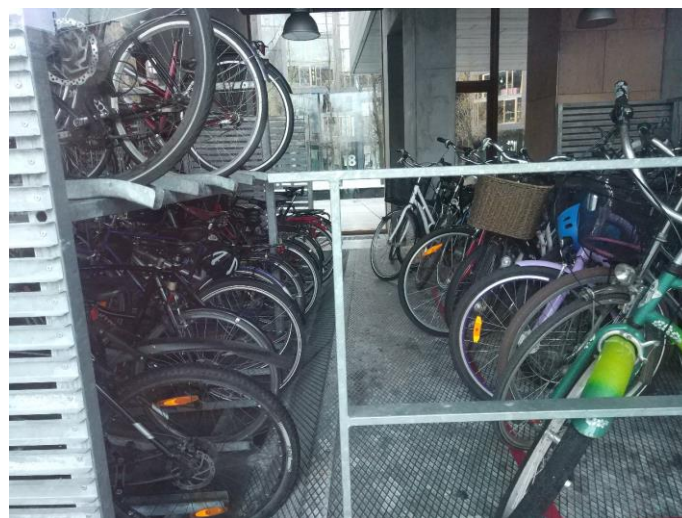


Fig 4.39 Layered bicycle rack in Tietgen Dormitory Copenhagen

Exploring the living habits and space needs of the residents, configuring functional spaces in need is an advantage of these projects, and this also helps the apartment to attract more targeted customers.

## ② Set Public Spaces in Tiers, Improving Space Efficiency and Quality

The 4 student apartment projects all use the basic space structure of "concentration + dispersion" mode in public space. For example, the shared kitchen and dining room shared by the group are interspersed on each floor of the apartment, so that the residents can cook and eat near their individual rooms. The dining room in the group is usually a place for residents to gather for dinner, and also a place for free activities during non-dining hours.



Fig 4.40 Kitchen and dining room in the group provide convenience for residents



Fig 4.41 During non-dining hours, a resident study in the group dining space

#### 4.4.2 Space Design

##### ① The Space Is Flexible and Can Be Divided According to Demands

Apartment life is not static. With the development of society, the needs of residents are constantly changing. Some functions planned in the initial stage of apartment design are gradually difficult to adapt to the needs of current life style. The replacement of functions is a relatively common phenomenon. Public spaces with sufficient flexibility can adapt to diverse area and functional requirements.

In addition, some spaces can be flexibly divided and have independent doors to urban space, which provide more convenience for projects' future operations.

##### ② Use Design to Assist Management Staff' s Daily Work

Managing and office space is a very important space for housekeepers. In addition to the reception area for greeting residents and visitors, managing and office space is usually also equipped with storage space, office space for management staff to store public goods, paper documents and conduct paper work.

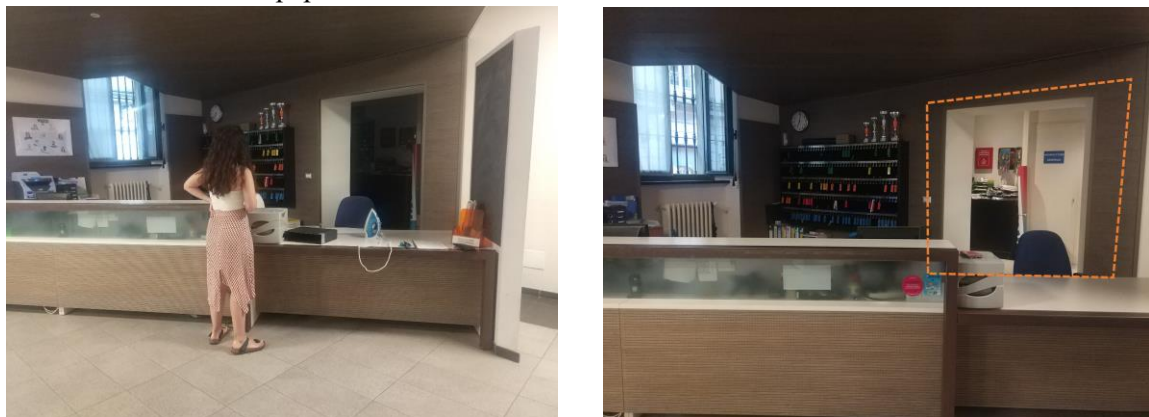


Fig 4.42 Storage and office space behind the reception desk area



③ Pay Attention to Detailed Design and Furniture Selection



Fig 4.43 Tall chairs and cigarette butt barrel in the colonnade

In addition to good architectural space, the apartments also pay attention to detailed design and furniture selection. For example, in the picture above, in Campus Verdi, there are high tables and chairs in the colonnade, providing a free space for friends to sit, chat and drink coffee freely in the summer afternoon, making the empty colonnade a place for casual gathering.



## 第5章 Chapter 5 Study on the Space Demand of Public Space in Long-Stay Apartments

### 5.1 Standpoint of This Chapter

The second chapter of this thesis points out that in the design process of the public spaces, because residents, management staff and enterprises have different interests, the values they pursue are also different. The three parties are always in the game to reach a balanced state. Concretely the contradiction between the three parties' space requirements and reality can be summarized as follows: For residents: the contradiction between the limited public space area and the diversity of behavior and activity needs. For the management staff: the contradiction between the limited number of management staff and the duty to manage the large area. For enterprises: the contradiction between the limited space area and providing as many services as possible, reducing expenses and earning more income. The above contradictions can actually be solved to some certain extent through reasonable space configuration and space design.

From the space configuration point of view, the way to solve the problem might be not "to meet residents' all requirements", but to know what spaces are needed most and what are their ranking through surveys, and to select them according to project area and location.

From the design point of view, is there the possibility of different time, different use mode? What kind of circulation and view sight design can best help managers to improve work efficiency and reduce unnecessary travel? What kind of demands do enterprises have for space?

Therefore, the starting point of this chapter is: to conduct in-depth survey of residents (including potential residents), management staff and enterprises to know about their demands for public spaces, and to maximize the interests of the three parties through spatial configuration and design strategies.

## 5.2 Residents Characteristics, Behavior and Space Requirements

### 5.2.1 Residents' Common Characteristics

#### ① Demographic Characteristics

Youth time is a very special stage in the whole life. At this stage, the physical development of the person has reached its peak, and the psychological development has advanced by leaps and bounds. Young people are full of energy, strong learning ability, and high work efficiency. In addition, due to the one-child policy, today's Chinese youth group is a generation that has been favored and cared for by families and has grown up without worries.

#### ② Personal Psychological Characteristics

a Strong Self-Consciousness

b Confidence and Sense of Security

c Groupness and Independence

#### ③ Life Attitude and Behavior Characteristics

a They pay attention to the quality of life, but are not good at or do not like housework.

b They rely on the Internet to fulfill social, entertainment, clothing, food, housing and transportation needs.

c They are willing to express themselves, like to show themselves online and offline.

d The never want to settle down, preferring to try various careers.

It is worth noting that the above analysis is only a common analysis of China's youth group. In fact, every young person is a distinct individual. Usually in long-stay apartment projects, due to the difference in project location and positioning, the customer groups targeted by each project have also large differences. Therefore, in the research, it is necessary to pay attention not only to the common characteristics of the youth, but also to know about the details, in order to do space configuration and design accordingly.

### 5.2.2 Residents' Typical Behavior in Public Space

In public spaces of long-stay apartment buildings, the residents' behaviors are diverse, which can be divided into housework and daily routine, individual leisure activity, social activity, group leisure activity, and theme activity.

Table 5.1 Residents' Typical Behavior in Public Space

housework and daily routine	Contacting housekeeper and get his or her help and service, cooking, dining, laundry, drying, toilet / washing, gym activities, getting soft drinks, using self-service coffee machine / drink machine, using snack machine, using shared computer
individual leisure activity	Staying alone and rest, office and reading, Karaoke, musical practice / recording.....
social activity	Private chat, meeting guests, group discussion, office work...
group leisure activity	Watching TV and movies, group Karaoke, gatherings, performances, video games, board games, party, table football, playing table tennis, playing billiards, playing shuffleboard, using clip-doll machine...
theme activity	Experience activities (handicraft, oil painting, flower arrangement, making dumplings, etc.) Show activities (large lecture, cross talk show, etc.), road show and publicity

The following is a detailed analysis of the characteristics and space needed of various behaviors.

#### ① Housework and Daily Routine

Usually, such activities require special, independent functional spaces and corresponding facilities (often not available in individual rooms), and there is a one-to-one correspondence between household activities and the functions of the space.

Table 5.2 Housework and Daily Routine and spaces needed

Activities	Space needed
Contacting housekeeper and get his or her help and service	Reception Area
Cooking	Shared kitchen
Dining	Shared dining area

Laundry,	Shared laundry
Drying	Shared drying area
Toilet / washing	Shared washroom
Gym activities-Anaerobic activity	Gym
Gym activities-Aerobic device activity	Gym
Gym activities-yoga	Gym
Getting soft drinks	Soft-drink bar
Using self-service coffee machine / drink machine	Self-service facility area
Using snack machine	Self-service facility area
Using shared computer	Shared pc area
.....	.....

### ② Individual Leisure Activity

In such activities, users regard the public space as "the expansion of their own room space" and carry out some daily individual leisure activities.

Table 5.3 individual leisure activities and spaces needed



Activities	Space needed
Stay alone and rest	Sofa-screen area
Office and reading	Big-table area
Karaoke	Self-service facility area
Musical practice / recording.....	Sofa-screen room
.....	.....

### ③ Social Activity

Such activities are usually planned and involve the participation of more people, for example, group discussions, private chat and so on.

Table 5.4 social activities and spaces needed

Activities	Space needed
------------	--------------

<p>Group discussion and office work</p> 	<p>Big-table area</p>
<p>Private chat, meeting guests</p> 	<p>Private chat area</p>

#### ④ Group Leisure Activity

Table 5.5 Collective group leisure activities and spaces needed

Activities	Space needed
Watching TV and movies	Sofa-Screen Area
Group Karaoke	Sofa-Screen Area
Video games	Sofa-Screen Area
Board games	Sofa-Screen Area
Party	Big-table area
Table football	Table football
Playing table tennis	Table tennis
Playing billiards	Pool table





Playing shuffleboard	Shuffleboard table
Using doll-clip machine	Self-Service Facility Area
.....	.....

### ⑤ Theme Activity

Such activities are usually large in scale and have certain plan and purpose. Most of them are initiated and organized by housekeepers, and require various preparations (pre-preparation, event promotion, on-site organization). Number of participants is usually big (up to a maximum of 20 or more people), so a large space is required. Sometimes tables and chairs can be moved or supplemented according to the space needed.

Table 5.6 Theme activities and spaces needed

Activities	Space needed
Party and performance 	Sofa-screen area
Experience activities (handicraft, oil painting, flower arrangement, making dumplings, etc.) 	Big-table area
Show activities (large lecture, cross talk show, etc.), road show and publicity	Big-table area, sofa-screen area, etc.

	
<p>Road show and publicity</p> 	<p>Big-table area, sofa-screen area, etc.</p>
<p>.....</p>	<p>.....</p>

### 5.2.3 Residents' Public Space Requirements

Through the analysis of the above five types of residents' behavior, combined with the configuration of the public space of concrete long-stay apartment buildings, it is concluded that the space required by the residents can be divided into two categories: fixed-use ones and multi-functional ones.

The functioning of fixed-use space requires not only the architectural space, but also the corresponding facilities or management personnel to fully play the value of the space. The multi-function space is usually simple in layout, and only needs some basic and flexible furniture to play its value. Residents can carry out diverse activities according to their needs and use the space freely. The activities happening in the multi-functional space is countless.

Table 5.7 classification of the spaces need by residents

	Space module	Basic activities
Fixed-use	Shared kitchen	Cooking
	Shared dining room	Dining and party

	Shared Laundry and Drying Area	Washing and drying clothes
	Shared washroom	Going to the toilet
	Gym	Doing fitness sport
	Soft-Drink Bar Area	Buying soft drinks
	Reception Area	Contacting housekeepers and communicating with them
	Shared PC area	Using PC
	Sports Area	Using sports facilities
	Self-Service Facility Area	Purchasing goods
Multi-function	Open Sofa-Screen Area	Staying alone and rest, watching tv and movies, karaoke, playing board games, playing mobile games, watching performances and shows, road show and publicity
	Sofa-screen room	
	Open big-table area	1 person reading books, office work, playing games, 2-3 persons office work or chatting, 4-8persons discussion, playing games, experience activities (handicraft, oil painting, flower arrangement, making dumplings, etc.)
	Big-table room	
	Private chat area	1person reading books, office work, playing games, 2-3persons office work and chatting

In order to gain a deeper understanding of the needs of young people for each functional space, the author conducted a questionnaire survey online. 1553 samples were obtained and after filtering 494 of them were useful.

### ① The Overall Space Demands of The Residents

According to the questionnaire survey results ( $n = 494$ ), residents demand for public space is shown in the following picture. The blue columns indicate the fixed-use spaces, and the yellow columns indicate the multi-functional spaces.

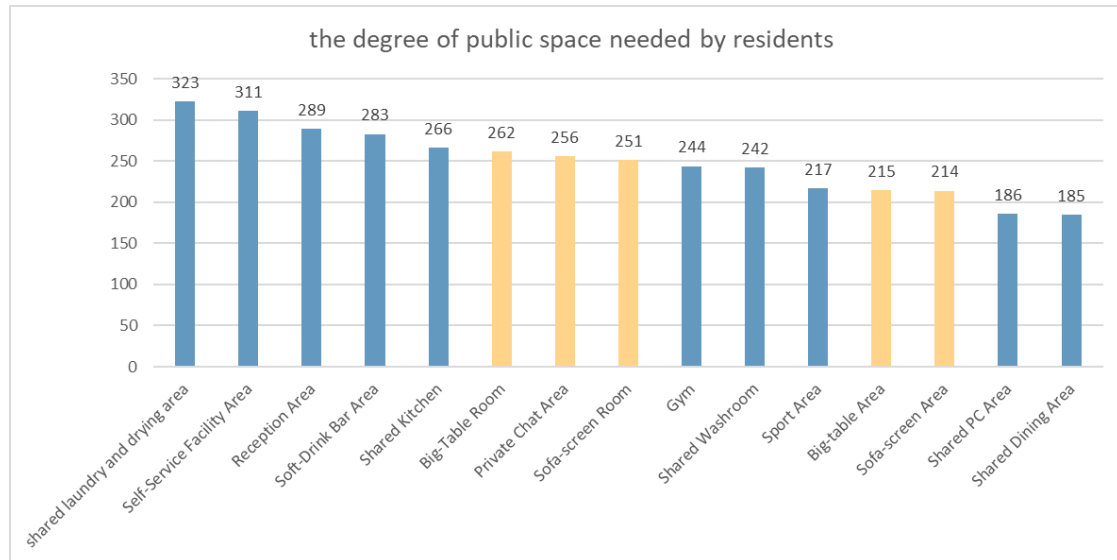


Fig 5.1 The degree of public space needs by residents

As can be seen from the picture above, the order of the public spaces needed by the residents (from high to low) is: shared laundry and drying area - self-service equipment area - reception service area - soft-drink bar area - shared kitchen - large-table room - private chat area - sofa-screen room - gym - shared washroom - sport area - large-table area - sofa-screen area - shared PC area - shared dining area.

Many residents hope that public space can make up for the lack of space in their individual rooms. The most typical approach is to transfer not-so-private activities such as office work and study to public space.



5.2 Many residents studying and working in the public spaces

The above questionnaire survey shows the statistical results of all valid samples from the perspective of residents (or potential residents). The following research will investigate the needs of management staff and enterprises.

## ② Space Demand of Customer Segmentation

As is discussed above, the youth group is full of characteristics, young people of different features (for example, different genders, age, income and living modes) have different needs for living and social activity spaces. Now the long-stay apartment industry is developing towards a featured and specialized future, so it's very necessary to study the needs of different customer segmentation.

### a Youth of Different Genders

In the survey, some housekeepers reported that the proportion of women in residents is higher than that of men, because women usually have higher security and management needs for rental houses, which is the most significant difference between long-stay apartments and common private apartments. In the questionnaire survey, the overall needs of respondents of different genders are shown in the picture below. There's not much difference between the overall demand for public space between men and women, but for different functional spaces, there are some differences.

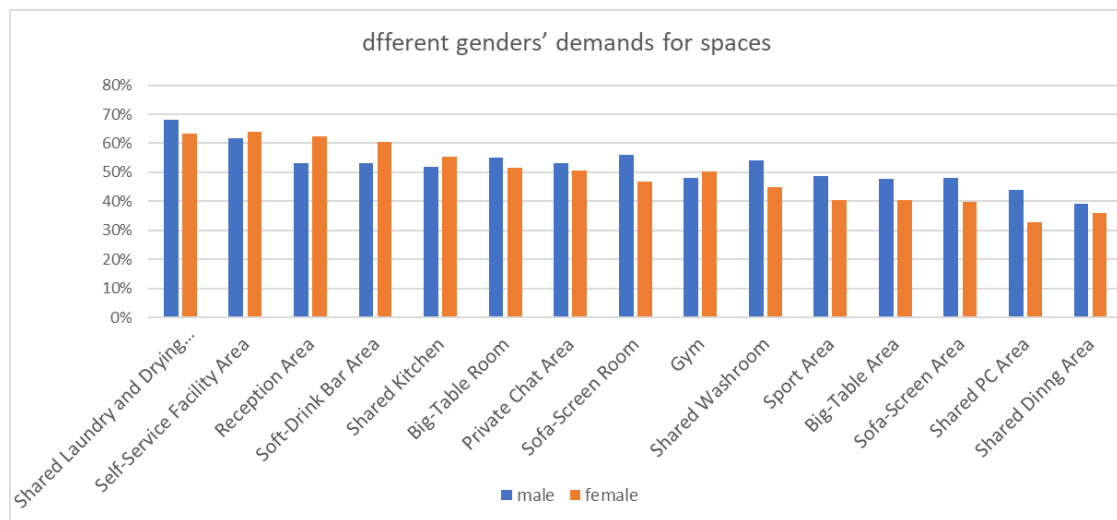


Fig5.3 The demand of different genders

Men and women's ranking for different functional spaces for is shown in the table below. Women's need for reception service areas, shared kitchens and gyms ranks higher than men, and men's demand for sofa-screen room is significantly higher than women's. This phenomenon has



a lot to do with the psychology and living habits of young people of different genders. For example, in terms of life, women usually pay more attention to maintaining a healthy lifestyle and are more enthusiastic about cooking food and exercises, so the demand for shared kitchens and gyms is higher. Compared with men, women value the security of centralized apartment, so they are more willing to keep in touch with the housekeeper, so the reception area is more necessary for them. For multi-functional space, men prefer a sofa-screen room than women, probably this is related to their willingness to show a relaxed state in the public space.

Male			Female		
Ranking	Space module	Proportion of need	Ranking	Space module	Proportion of need
1	Shared Laundry and Drying Area	68%	1	Self-Service Facility Area	64%
2	Self-Service Facility Area	62%	2	Shared Laundry and Drying Area	63%
3	Sofa-Screen Room	56%	3	Reception Area	63%
4	Big-Table Room	55%	4	Soft-Drink Bar Area	60%
5	Shared Washroom	54%	5	Shared Kitchen	55%
6	Reception Area	53%	6	Big-Table Room	51%
7	Soft-Drink Bar Area	53%	7	Private Chat Area	51%
8	Private Chat Area	53%	8	Gym	50%
9	Shared Kitchen	52%	9	Sofa-Screen Room	47%
10	Sport Area	49%	10	Shared Washroom	45%
11	Gym	48%	11	Sport Area	40%
12	Sofa-Screen Area	48%	12	Big-Table Area	40%
13	Big-Table Area	48%	13	Sofa-Screen Area	40%
14	Shared PC Area	44%	14	Shared Dining Area	36%
15	Shared Dining Area	39%	15	Shared PC Area	33%

Fig 5.4 Different genders' ranking of demands for spaces

### b Youth of Different Ages

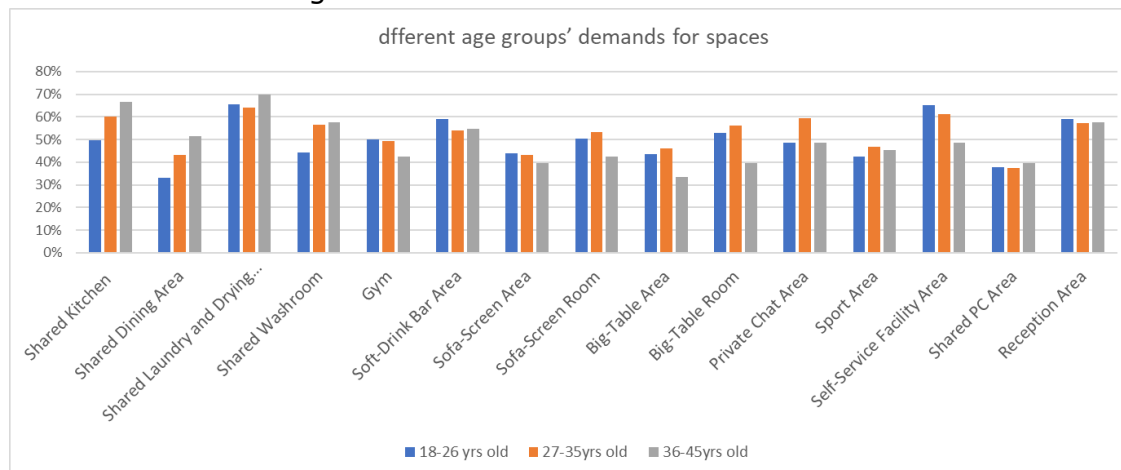


Fig 5.5 the demand of different age groups of young people

Male			Female		
Ranking	Space module	Proportion of need	Ranking	Space module	Proportion of need
1	Shared Laundry and Drying Area	68%	1	Self-Service Facility Area	64%
2	Self-Service Facility Area	62%	2	Shared Laundry and Drying Area	63%
3	Sofa-Screen Room	56%	3	Reception Area	63%
4	Big-Table Room	55%	4	Soft-Drink Bar Area	60%
5	Shared Washroom	54%	5	Shared Kitchen	55%
6	Reception Area	53%	6	Big-Table Room	51%
7	Soft-Drink Bar Area	53%	7	Private Chat Area	51%
8	Private Chat Area	53%	8	Gym	50%
9	Shared Kitchen	52%	9	Sofa-Screen Room	47%
10	Sport Area	49%	10	Shared Washroom	45%
11	Gym	48%	11	Sport Area	40%
12	Sofa-Screen Area	48%	12	Big-Table Area	40%
13	Big-Table Area	48%	13	Sofa-Screen Area	40%
14	Shared PC Area	44%	14	Shared Dining Area	36%
15	Shared Dining Area	39%	15	Shared PC Area	33%

Fig 5.6 Different age groups' ranking of demands for spaces

### c Youth of Different Rental Affordability

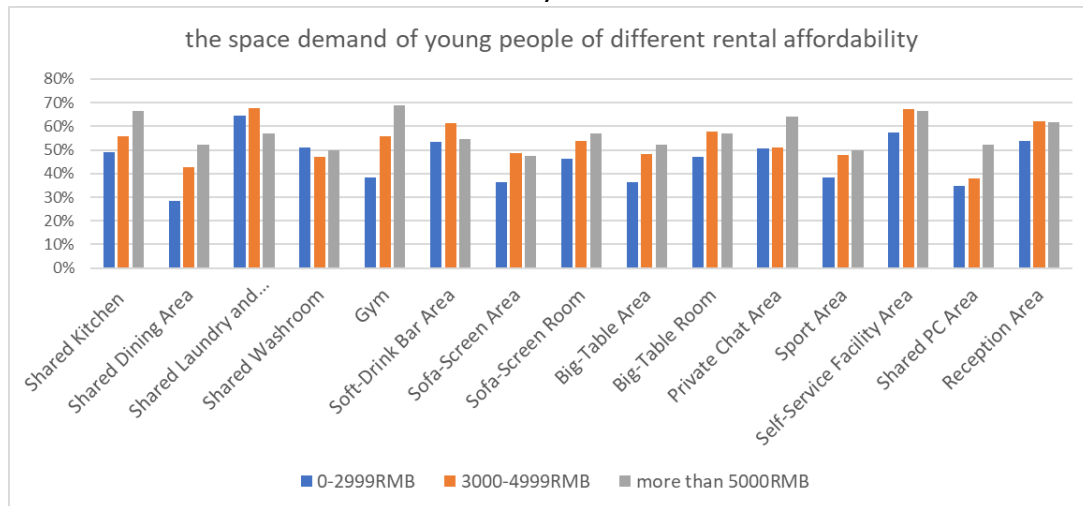


Fig 5.7 The demand of young people of different rental affordability

0-2999 RMB /month			3000-4999RMB /month			5000 or more RMB /month		
Ranking	Space module	Proportion of need	Ranking	Space module	Proportion of need	Ranking	Space module	Proportion of need
1	Shared Laundry and Drying Area	64%	1	Shared Laundry and Drying Area	68%	1	Gym	69%
2	Self-Service Facility Area	57%	2	Self-Service Facility Area	67%	2	Shared Kitchen	67%
3	Reception Area	54%	3	Reception Area	62%	3	Self-Service Facility Area	67%
4	Soft-Drink Bar Area	53%	4	Soft-Drink Bar Area	61%	4	Private Chat Area	64%
5	Shared Washroom	51%	5	Big-Table Room	58%	5	Reception Area	62%
6	Private Chat Area	50%	6	Shared Kitchen	56%	6	Shared Laundry and Drying Area	57%
7	Shared Kitchen	49%	7	Gym	56%	7	Sofa-Screen Room	57%
8	Big-Table Room	47%	8	Sofa-Screen Room	54%	8	Big-Table Room	57%
9	Sofa-Screen Room	46%	9	Private Chat Area	51%	9	Soft-Drink Bar Area	55%
10	Gym	38%	10	Sofa-Screen Area	49%	10	Shared Dining Area	52%
11	Sport Area	38%	11	Big-Table Area	48%	11	Big-Table Area	52%
12	Sofa-Screen Area	36%	12	Sport Area	48%	12	Shared PC Area	52%
13	Big-Table Area	36%	13	Shared Washroom	47%	13	Shared Washroom	50%
14	Shared PC Area	35%	14	Shared Dining Area	43%	14	Sport Area	50%
15	Shared Dining Area	29%	15	Shared PC Area	38%	15	Sofa-Screen Area	48%

Fig 5.8 Ranking of demands for spaces of young people of different rental affordability

## d Youth with Different Rental Modes

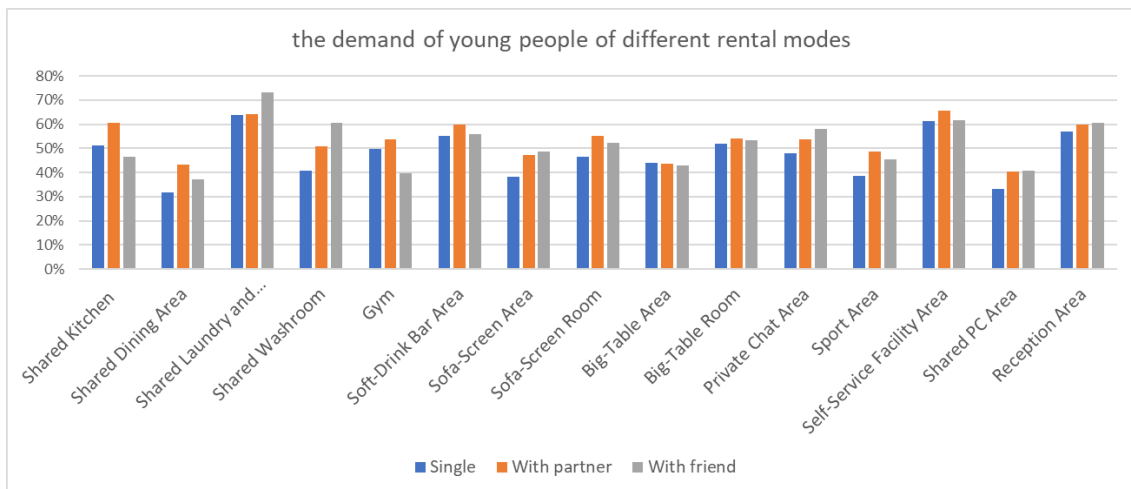


Fig 5.9 The demand of young people of different rental modes

Single			Share room with partner			Share room with friend		
Ranking	Space module	Proportion of need	Ranking	Space module	Proportion of need	Ranking	Space module	Proportion of need
1	Shared Laundry and Drying Area	64%	1	Self-Service Facility Area	66%	1	Shared Laundry and Drying Area	73%
2	Self-Service Facility Area	61%	2	Shared Laundry and Drying Area	64%	2	Self-Service Facility Area	62%
3	Reception Area	57%	3	Shared Kitchen	60%	3	Shared Washroom	60%
4	Soft-Drink Bar Area	55%	4	Soft-Drink Bar Area	60%	4	Reception Area	60%
5	Big-Table Room	52%	5	Reception Area	60%	5	Private Chat Area	58%
6	Shared Kitchen	51%	6	Sofa-Screen Room	55%	6	Soft-Drink Bar Area	56%
7	Gym	50%	7	Big-Table Room	54%	7	Big-Table Room	53%
8	Private Chat Area	48%	8	Gym	54%	8	Sofa-Screen Room	52%
9	Sofa-Screen Room	47%	9	Private Chat Area	54%	9	Sofa-Screen Area	49%
10	Big-Table Area	44%	10	Shared Washroom	51%	10	Shared Kitchen	47%
11	Shared Washroom	41%	11	Sport Area	49%	11	Sport Area	45%
12	Sport Area	39%	12	Sofa-Screen Area	47%	12	Big-Table Area	43%
13	Sofa-Screen Area	38%	13	Big-Table Area	44%	13	Shared PC Area	41%
14	Shared PC Area	33%	14	Shared Dining Area	43%	14	Gym	40%
15	Shared Dining Area	32%	15	Shared PC Area	40%	15	Shared Dining Area	37%

Fig 5.10 Ranking of demands for spaces of young people of different rental modes

To sum up, due to the differences in lifestyle, living state and psychological state, different subdivided youth groups have large differences in the ranking of functions of public spaces.

### 5.3 Management Staff Behavior and Space Requirements

#### 5.3.1 Management Staffs Typical Behavior in Public Space

At present, most long-stay apartment building companies adopt the strategy of "low ratio of management staff", and usually the ratio of housekeeper to number of rooms is 1: 100 ~ 150. In addition, long-stay apartments usually hire security (24 hours a day, at least 2 people), cleaning staff (at least 1 person) and repair worker (part-time possible, at least 1 person) from professional companies.

## ① Housekeepers



Fig 5.11 Housekeepers in a typical long-stay apartment project (462 individual rooms, with a total of 6 housekeeper)

The housekeepers are the main management staff of the long-stay apartment projects. Their main work is to serve the residents, manage the space, organize activities, lead the housekeeping, desk work and internal meetings. In addition, in some apartments where transportation is not convenient, the manager will live alone or with his or her family in the long-stay apartment building.

### a Serve the Residents

Serving residents is housekeepers' most important work. It mainly refers to responding to residents' life needs and solving various life problems for them, including: repairing facilities in the house, answering household inquiries, contract renewal, collecting rent, collecting express delivery, etc. Generally, residents can report repairs and pay rent through WeChat, specific APP, etc., or they can go directly to the reception desk to find a housekeeper directly. If the residents are in trouble with the facilities and equipment in their rooms when they are not at home, they can also entrust the housekeeper to open the door and lead the maintenance personnel into the household for maintenance.

In addition, because usually housekeepers are also young people of 22 - 35 years old, not only do they have "servicing-serviced" relationship with the residents, but also, it's very easy for them to become friends. Residents sometimes chat with the housekeepers, talk with each other, and invite them to participate in group activities, etc.

### b Manage Spaces



The housekeepers' job to manage spaces is divided into two parts, online and offline. Online part: At present, most apartments have electronic-intelligent managing network, so housekeepers can direct check each device (smart locks, water table) online. Offline part: Housekeeper usually take a tour throughout the apartments on each floor three times a day, checking each space; They also manage the operations and using status of public space, such as checking electricity and fire safety in the kitchen, and help users to keep public spaces clean and tidy, coordinate residents' order and timing of the using shared facilities.

#### c Organize Activities

In many projects, housekeepers are also defined as "community operators", not just as a manager and server. The activities led by the housekeeper can be divided into large-scale activities and small-scale activities.



Fig 5.12 Housekeeper is in charge of organizing all kinds of large-scale group activities.

#### d Show the Building to Visitors and Do Contract Work

#### e Desk Work and Publicity

#### f Internal Meeting

#### g Personal Life

### 5.3.2 Management Staffs Space Requirements

#### ① Housekeeper

Based on the analysis above, the housekeeper's main activities in the apartment happen near the reception area, some of them are in the public space and around the entire building. In the 12 hours working time, about 7 ~ 8 hours are spent near the reception desk work, so it is the housekeepers most important "base". In addition, they need to keep an eye on every corner of the

whole building. Based on the work status of the housekeepers, their demands for the space configuration and design are as follows:

#### a Space Configuration Demands

It is necessary to combine reception area with the spaces needed in the operation and management process, for example, express package room, office, lounge, private negotiation area, etc. In some reception areas, there is also space for water bar facilities, so that housekeepers can provide tea service for visitors and residents. Shared washroom is also needed nearby for the convenience of housekeepers and residents in public spaces.

#### b Space Design Requirements

##### **Reception service area:**

For the space distribution, the reception service area needs to be close to the entrance of the building / public space entry, providing convenience for housekeepers to manage the personnel in and out and greet the visitors. This also make it easy for residents to contact the housekeepers and get services.

The service desks and cabinets in the reception service area need a refined, practical and beautiful design, which can not only “hide” unsightly large items, but also have an effect of display.

##### **Other public spaces:**

In order to facilitate the housekeeper to take care of the operation of the public space, the public space should be arranged as centralized as possible, and maintain good sightlines and accessibility with the reception desk, so that the housekeeper can keep an eye on it while working at the reception area. The functional spaces with lots of facilities (shared kitchen, laundry room, etc.) needs to be as close as possible to the reception desk, so that the housekeeper can take care of the equipment.

Inside the public space, the central space needs to be as open and transparent as possible (closed space can be set around), so that the housekeeper can see through it.

## 5.4 Enterprises Interests and Space Requirements

### 5.4.1 Enterprises Interests

For an enterprise, an apartment is a business place and a fixed asset. The essential pursuit of an enterprise is to use the limited space of the apartment to create as much space value as possible,

and to maximize the efficiency of space utilization. To achieve this goal, companies demands on the public space are usually divided into three: increasing income, decreasing expenditure and flexible operating.

### ① Increasing Income

The main source of income for a company is the rental of individual rooms. " From the formula "Rent received by the enterprise = number of rooms \* rental price \* occupied rate":

Reducing the area of public space and increasing the area and number of rooms may increase direct income; increasing the area of public space and improving the quality of public space may increase the "hidden" income. The goal of the company's "increasing income" is to strive for the sum of the direct and implicit income, which is, to pursue a solution that maximizes the total benefits.

### ② Decreasing Expenditure

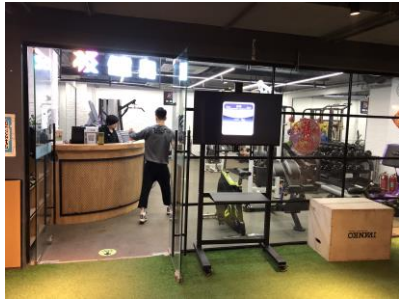


One of the useful ways of decreasing expenditure is to hire as few management staff as possible. In order to achieve this goal, the public space design should facilitate their work. So, for this aspect, the enterprises' interest is the same as management staff's.

### ③ Flexible Operating

According to different business entities and service objects, there are multiple and diverse business methods, such as the following two types: outsourcing part of the space to other professional operators, serving apartment residents and external customers, for example, professional-run gyms; outsourcing part of apartment space to apartment dwellers, they can start business in this project to serve the customer inside and outside the apartment.

Table 5.8 Public spaces' flexible operating mode

Business entity	Service object	Examples of business methods
Other professional operators	Apartment residents, external customers	Professional gyms open to the public

		
Start-up teams among the residents	Apartment residents, external customers	Resident self-employment projects (various types, secret rooms, gyms, bars, etc.)  

#### 5.4.2 Enterprises Space Requirements

The three basic demands of enterprise (increasing income, decreasing expenditure and flexible operating), all have certain influence on the configuration and design of public space.

Increasing income: to use intensive space as much as possible to meet the public functions most needed by residents, to accommodate the community activities that residents most want to carry out, and to maximize the space and time value of public space.

Decreasing expenditure: to carry out the most reasonable space configuration and design, to create a better working environment for operation and management staff, to reduce work pressure, and improve work efficiency.

Flexible operating: to give some spaces possibilities of flexible division and diversified management. It is best to have some spaces that can be directly operated independently for internal and external customers (can be separated from other spaces, have independent doors to the city, etc.).

## 第6章 Chapter 6 Suggestions on the Space Configuration of Public Spaces in Long-Stay Apartments for the Youth

This research is aimed at the configuration and design of the public space of youth centralized long-stay apartment buildings. As mentioned above, this research hopes to address space configuration and space design aspects, the former refers to the "How much space is needed? What functions are needed?" The latter refers to "How to design public spaces?" This chapter tries to give suggestions on the configuration of public space for long-stay apartment buildings for the youth.

### 6.1 Principles of Space Configuration of Public Spaces

#### 6.1.1 Residents' Needs First, Considering the Needs of All Parties

#### 6.1.2 Taking into Consideration Both Open and Private Spaces

#### 6.1.3 Considering Commonalities and Individual Needs and Refining Space Configuration

### 6.2 Basic Space Configuration Suggestions for Public Space

#### 6.2.1 Total Area and Proportion

##### ① Range of Area

Concrete project analysis: According to my research and data analysis (n= 24), public space is usually 2% ~ 10 % of the total floor area, and the average proportion is 5.03 %. The average proportion of low-level projects is 4.05 %, mid-level 5.35 %, high-level 5.73 %. The general trend is that the higher level the project is positioning, the greater the proportion of public space area.

Demand analysis: According to the analysis in Chapter 5, the stronger the rent affordability of residents, the greater their overall demand for public space is.



Based on the above information, it can be concluded that the proportion of public space area to the total construction area is suggested to be 4% ~ 8 %, and the middle-level project can choose 5%. The project proposal of high-level project is not less than 6%.

## ② Minimum Area Recommendation

According to the survey results and the design practice, the public space area is proposed not to be less than 100 ~ 150 square meters. The functional spaces are: service desk, shared toilet, shared kitchen, dining room, open audio - visual area, open leisure office area, fitness equipment area and self-service equipment area.

### 6.2.2 Space Configuration

According to the questionnaire survey on the residents demands in Chapter 5, considering the space requirements of management staff and enterprises, the author summarizes the recommendations for the configuration of spaces (seen in the table below).

Table. 6.1 Space configuration suggestion

Recommendation level		Space	Minimum area (sqm)	Remarks
Must-have	/	Reception desk area	7~13	/
		Service spaces (express package room, office, etc.)	10~20	/
		Shared washroom	7~15	/
		Shared kitchen	10~25	/
		Shared dining room	15~25	/
		Self-service facility area	1~8	/
		Sofa-screen area	15~30	Recommended to have at least one of sofa-screen area or room, if possible both of them
		Big-table area	10~20	Recommended to have at least one of big-table area or room, if

				possible both of them
		take 20% of the above area as passage area		/
		<b>Total</b>	<b>100~150</b>	/
Must-have under certain cases	/	Shared laundry and drying space	6~20	Must have when there's individual room with no washing machine
Optional	☆☆☆	Private chat area	10~15	/
	☆☆☆	Gym	20~30	/
	☆☆☆	Gym (open to public)	200	Depends on the total area of public space, if the area is sufficient, it is recommended to have
	☆☆	Sofa-screen room	15~30	/
	☆☆	Sport area	30~45	/
	☆	Big-table room	10~20	/
	☆	Soft-drink bar area	2~15	Can choose serviced water bar when there are enough operators
	☆	Shard PC area	5~10	/

If space is equipped with only must-have spaces, the basic public space area is 100 ~ 150 sqm, this can be used as a minimum area. The following picture shows an intensive public space with a total area of 98 sqm.

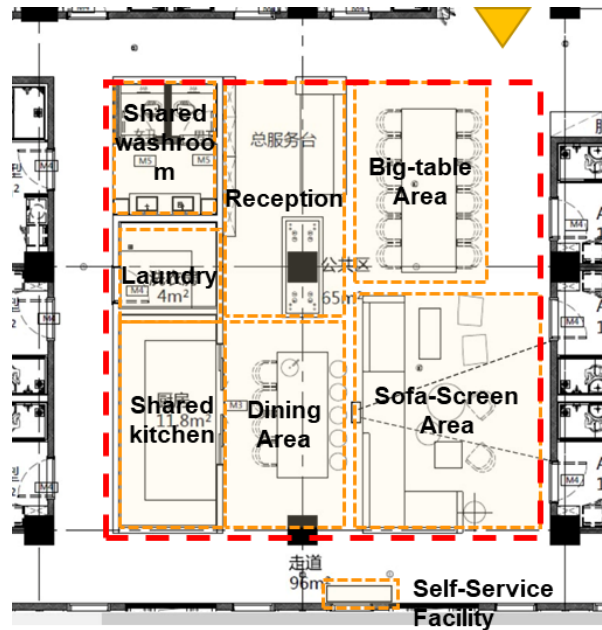


Fig 6.1 An intensive public space of 98 sqm

### 6.3 Suggestion and Examples of Space Configuration for Segmented Resident Group

#### 6.3.1 Space Configuration for Segmented Resident Group

##### ① For Projects Where There Are Many Woman Residents

The results of the questionnaire survey in Chapter 5 show that women have a higher demand for reception service areas, shared kitchens, and gyms, and a lower demand for sofa-screen rooms. Therefore, for the must-have space, the area of the shared kitchen and service supporting space can be appropriately increased. For optional spaces, gym and water bars can be considered firstly. If the gym has professional operation agency, the yoga room and the aerobic equipment area can be expanded.

Table. 6.2 Space configuration list for project with more woman residents

Configuration recommendations		Space module	Remarks
Must-have	/	Reception desk area	/

		Service spaces (express package room, office, etc.)	The area of the express room can be increased (female residents are more enthusiastic about online shopping, and the number of express packages is larger).
		Shared washroom	Increase woman washroom area and dressing space.
		Shared kitchen	Increase the area of kitchen and quantity of kitchenware; can set multiple kitchens in groups.
		Shared dining room	/
		Self-service facility area	/
		Sofa-screen area	/
		Big-table area	/
Must-have under certain cases	/	Shared laundry and drying area	Women prefer to use their own washing machine, so if there are washing machines in every room, the shared laundry can be reduced appropriately.
Optional	☆☆☆	Gym (gym area)	Women need gym (area) more, if there's a big gym, the area of yoga and aerobic equipment can be expanded.
	☆☆☆	Soft-drink bar area	The survey found that women need this space more.
	☆☆	Private chat area	/
	☆☆	Sport area (table tennis, billiards)	/
	☆☆	Sofa-screen room	/
	☆	Big-table room	/
	☆	Shared pc area	/

## ② For Projects Where the Age Group Is Older Than Average

Table. 6.3 space configuration list for project with more residents of late-youth

Configuration recommendations		Space module	Remarks
must-have	/	Reception desk area	/
		Service spaces (express package room, office, etc.)	/
		Shared washroom	/
		Shared kitchen	Increase the area of kitchen and quantity of kitchenware; can set multiple kitchens in groups.
		Shared dining room	Better to have a specific shared dining which is not combined with shared kitchen. The area of the dining room can be big.
		Self-service facility area	The number and types of self-service equipment can be reduced
		Sofa-screen area	/
		Big-table area	/
Must-have under certain cases	/	Shared laundry and drying area	/
Optional	☆☆	Sport area (table tennis, billiards)	The types of sports facilities can be appropriately increased.
	☆☆	Soft-drink bar area	/
	☆☆	Private chat area	/
	☆☆	Gym (gym area)	The gym area can be appropriately reduced.
	☆	Sofa-screen room	/
	☆	Big-table room	/
	☆	shared pc area	/

## ③ For Projects Where the Rent Affordability of Residents Is Strong

## ④ For Projects Where Many Residents Share the Room with Friends and Partners

## 6.3.2 Examples of Space Configuration Design

## ① 200 sqm, mid-level public space for project with more woman residents

Table. 6.4 space configuration for a 200 sqm, mid-level public space for project with more woman residents

		Space module	Configuration recommendation	Area (sqm)
Must-have	/	Reception desk area	√	13
		Service spaces (express package room, office, etc.)	√	15
		Shared washroom	√	10
		Shared kitchen	√	25
		Shared dining room	Big-table area can also be used as dining room	20
		Self-service facility area	√	2
		Sofa-screen area	√	15
		Big-table area	√	20
Must-have under certain situation	/	Shared laundry and drying area	√	15
Optional		Gym (gym area)	√ Small one which is not open to society	30
		Soft-drink bar area	√	10
		Private chat area	×	0
		Sport area	×	0
		Sofa-screen area	×	0



	Big-table area	×	0
	Shared PC area	×	0

② A 500 sqm public space of high-level for project with high-rental-affordability residents

## 第7章 Chapter 7 Public Space Design Principles and Guidelines for Long-Stay Apartments

### 7.1 Design Principles for Public Spaces

#### 7.1.1 Space Allocation - Synthesize All Aspects for Final Design

#### 7.1.2 Distribution and View - Reasonable Distribution and Open View

#### 7.1.3 Scale of Space - Match the Scene of Use, and Create a Warm and Open Atmosphere

#### 7.1.4 Detailed Design - Attach Importance to Details and Furniture Selection

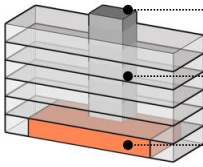
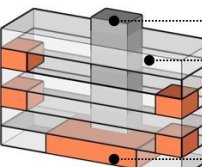
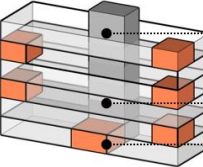
#### 7.1.5 Space Flexibility Design - Consider the Need for Time-Sharing Multiplexing and Later Renovation

### 7.2 Guidelines for Space Structure Design

#### 7.2.1 The Selection of Space Structure

##### ① Centralized Space Structure Is More Recommended

Table. 7.1 Three types of public space structure

centralized	centralized-dispersed	decentralized
 <p>Lift and stairs</p> <p>Individual rooms</p> <p>Public space</p>	 <p>Lift and stairs</p> <p>Individual rooms</p> <p>Public space</p>	 <p>Lift and stairs</p> <p>Individual rooms</p> <p>Public space</p>

When possible, centralized public space layout mode is recommended. The main reasons are as follows: ①Area saving.② Easy to manage. ③Easy to create an active space atmosphere.

In Chapter 3, the author studied the space structure of 31 long-stay apartments projects and 26 of them adopt a centralized space structure. This phenomenon shows that the centralized space structure is recognized in the industry.

However, due to various reasons, not all projects have conditions and are suitable for the centralized space structure. Under this situation, centralized-dispersed space structure is recommended.

## ② Situations Suitable for Centralized-Dispersed Public Space Structure

### a Constraints of the Existing Building to Renovation Projects

#### b The Huge Number of Rooms and Residents

#### c Relatively-High Project Positioning

## 7.2.2 Design Guidelines for Centralized Public Space

### ① Location Selection

#### a Public Space Is Recommended to Be on The First Floor of The Building

The main advantages of this design are as following. Firstly, as a transition between the public urban space and private living room space, the position of the first floor is suitable for public space. Secondly, the housekeeper and security guard keep an eye on the personnel in and out of the building at the reception desk, improving management efficiency. Thirdly it's convenient to greet visitors, residents and friends.

#### b Under Certain Situations, It Can Also Be on Other Floors.

In some cases, there's no possibility for setting public space on the first floor of the building. Or sometimes enterprises choose to set it on other floors for space efficiency considerations. The advantages and disadvantages and design strategies are shown in the following table.

Table 7.2 The advantages and disadvantages and design strategies of public space on other floors except first floor

Public space floor	Common conditions	Advantages (relative to setting public space on the first floor)	Disadvantage	Design Strategy

Basement (usually B1)	The basement of the building can be used and is suitable for public spaces	This design plays the value of underground space, and it is convenient to create more rooms on the ground floor, and increase the economic benefit	Poor ventilation, especially for shared kitchens and gyms	To be equipped with ventilation shafts, fans, etc. To enhance ventilation
First floor of apartment (but not first floor of the building, such as 2nd floor, etc.)	The first floor of the building does not belong to the enterprise, or the area is insufficient for public space	/	Other users (non-apartment residents) disturbance	To set reception area both on the first floor of the building and on the first floor of apartment, or to use smart devices to manage the personnel in and out of the apartment

## ② Spatial Structure Diagram

The recommended spatial structure diagram of centralized public space mode is shown in the picture below.

Its recommended to put the open spaces (e.g., sofa-screen area, big-table area) in the center, surrounded by other rooms, which helps to form an open and warm atmosphere, and space in the middle can be combined during usage. The quiet and active zoning should also be considered to avoid mutual influence in use. The service desk should have a good view to other public spaces, so that the housekeeper can take care of the activities of the public space.

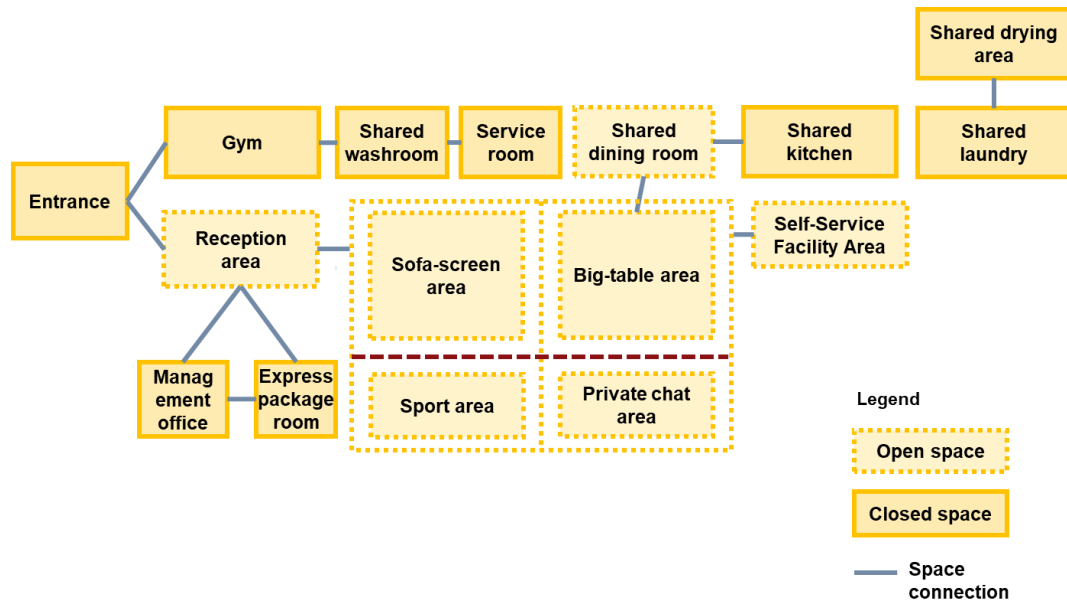


Fig 7.1 Spatial structure diagram

### 7.2.3 Design Guidelines for Dispersed Public Space

#### ① Selection of Dispersed Spaces Function

In the cases when a totally centralized public space is impossible, part (or all) of the public spaces can be dispersed from the centralized area and disperse in the whole building. The space characteristics that are more suitable for dispersed mode are: high use frequency; proximity to individual room brings convenience for residents; when the space is relatively closed, it will not affect surrounding residents.

#### ② Location of Dispersed Spaces

Here are some principles to choose the proper location for these dispersed spaces. Firstly, it is convenient for users to reach; Secondly, the design avoids interference to residents during the use of public spaces.

The pictures below show private chat areas and self-service equipment areas in elevator halls and corridors.

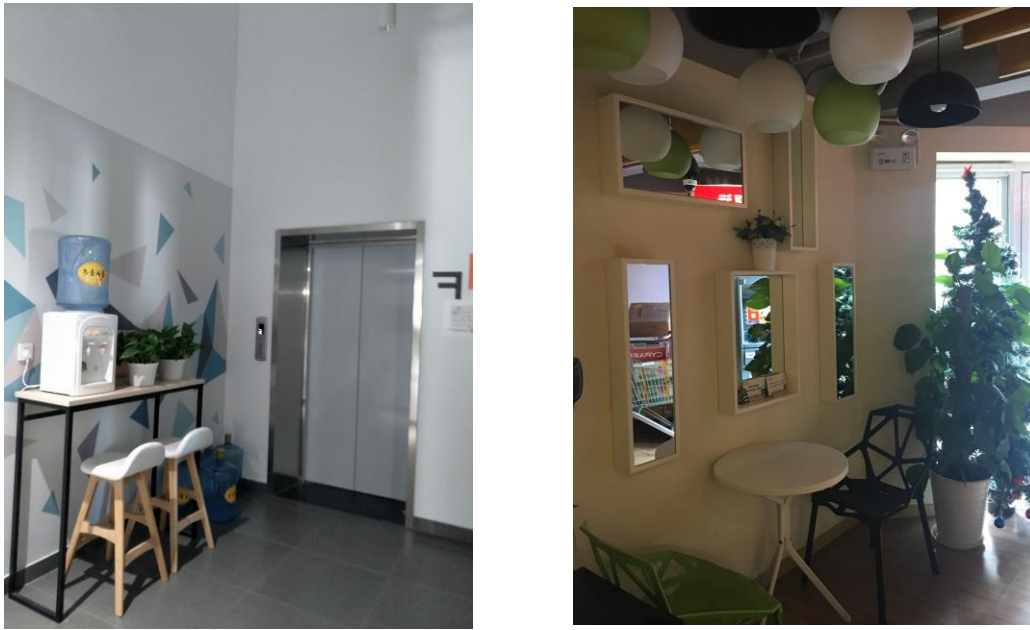


Fig 7.2 Use passage space for dispersed private chat area

### 7.3 Design Guidelines for Fixed-Use Spaces

For fixed-use spaces, the design guidelines mainly include: location selection and layout, functional configuration, and design key points.

#### 7.3.1 Shared Kitchen and Dining Area

##### ① Location selection and layout

The public kitchen and dining room should be close to the external wall for opening windows and ventilation; it's recommended to be close to the entrance to facilitate the transportation of kitchen waste. It is better to stay away from the quiet area and close to the active area, to keep the noises in the kitchen from interfering with the activities in the quiet area, and to facilitate group activities such as dinner. It can also be within management staff's sight to facilitate management.

When possible, the shared dining room and kitchen can be separated, and the dining room should be close to other open spaces, so the dining room can act as a supplement to the public space during non-dining hours, and to expand the space during large parties.



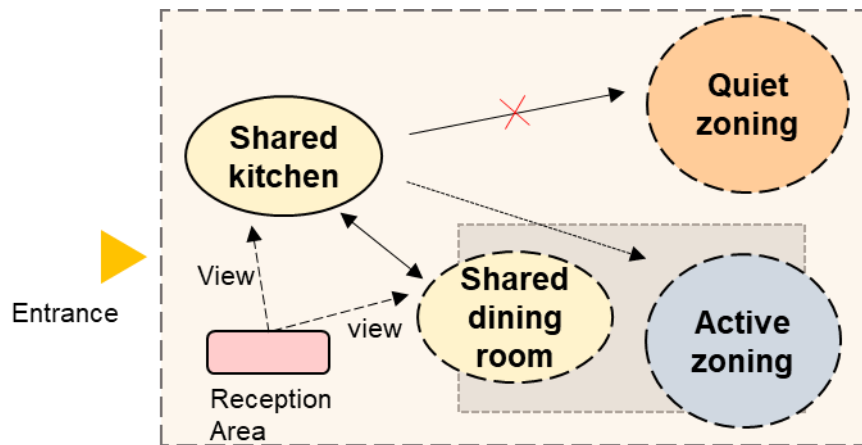


Fig. 7.3 Location selection and layout key points of shared kitchen and dining space

## ② Functional configuration

a Equipped with household electric appliances (such as microwave oven, induction cooker, refrigerator, etc.)

At present, young people generally do not like to cook, and they prefer box lunch, fast food, take-out, etc. on weekdays. Therefore, microwave ovens and induction cookers are used more frequently than gas stoves. The shared kitchen should be equipped with at least one refrigerator with freezing function. If possible, there can be two refrigerators, but there's no necessity to be more, because residents are easy to forget the food in the public refrigerator, and the housekeepers need to regularly remind residents to take away the expired food. In addition, shared refrigerators are also prone to hidden dangers in food safety. Ovens and other cooking utensils can be equipped according to project positioning and residents' gender and age characteristics.

b Equipped with separable storage spaces

Generally, residents need space to store cooking utensils such as pots and pans, seasonings, etc. Separable storage space not only prevents the residents from placing items everywhere, helping to keep the kitchen tidier, but also reduces the hidden possibility of losing personal items, which facilitates management. Rental of the storage spaces can bring additional benefits to the project.

## ③ Design key points

a 2~4--According to the project scale, 2 to 4 groups of "wash - cut - fry" modules can be set

If the sinks and stoves are separated from each other, while the residents wash and cook, they need to move the raw material everywhere. During the process if there are several residents using the space at the same time, their flow lines may cross, and mutual interference can easily occur. Therefore, it is advisable to set "wash - cut - fry" modules in groups in public kitchens.



Fig 7.4 Stoves and sink are arranged in groups, so that the operation is more convenient.

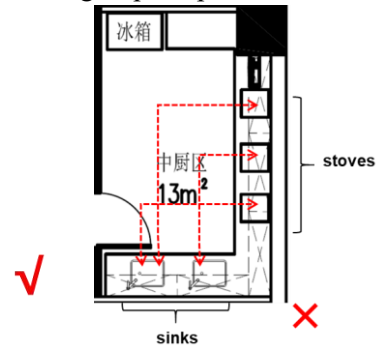


Fig. 7.5 While using the sink and stoves, users' flow lines may cross.

In the design, the scale of shared kitchen should be reasonably decided according to the scale of the long-stay apartment building, and it is recommended that the scale should not be too large.

For example, when there are more than 4 sets of "wash - cut - fry" modules, there will be too many people using the kitchen at the same time, and the environment is not good, and management will be difficult, so environmental hygiene is difficult to guarantee. According to research, at present only about 10% of residents in long-stay apartment buildings often use shared kitchens for cooking. Therefore, it is recommended that projects with 100 individual rooms or less have 2 sets of "wash - cut - fry" module, those with 200 ~ 300 rooms or more have 4 sets. For projects of more than 300 rooms, there can be a four-set big kitchen and several small group kitchens.

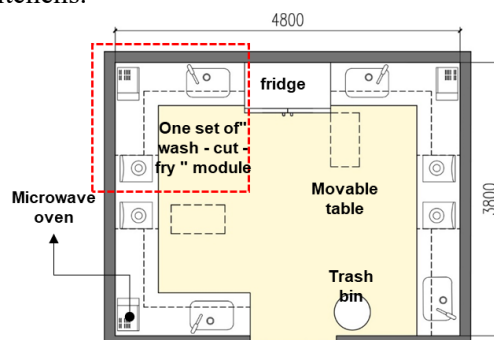


Fig. 7.6 A big shared kitchen with four sets of "wash - cut - fry" module, which cover

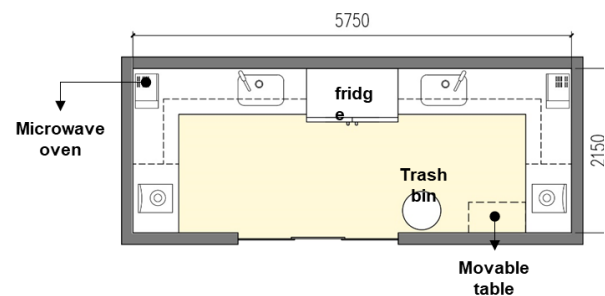


Fig. 7.7 A small shared kitchen with two sets of "wash - cut - fry" module, which covers an area of

an area of about 18 - 22 sqm

about 10 - 15 sqm

#### b Shared storage space can be set



Fig 7.8 Pans stacked on the table or on the ground, making the environment untidy.



Fig 7.9 Cabinets with lock can be rented by residents in need to store personal belongings.



Fig 7.10 There's no suitable place to store the personal kitchen utensils.



Fig 7.11 Hook and boom can be used to accommodate kitchen utensils.

#### c Furniture in the dining room could be diverse and flexible

Young residents in long-stay apartment projects have diverse dining habits and behaviors. Generally speaking, on weekdays they have dinner on their own or with 1-2 friends, and on weekends they often have big dinner or activities. Residents also have more diverse personalities, ranging from those who prefer quietness to those who like to party and love making friends. They also have different needs for the dining environment.

Therefore, it is recommended to set up bar chairs (single dining) and 2 to 3 square tables (which can be combined into a large table) to meet the dining needs of different groups of people.



Fig 7.12 Long bar table and chairs are suitable for 1-2 people dining



Fig 7.13 Big square table are suitable for big dinner and parties.

In dining area, light-weight and flexible tables and chairs can be easily moved and combined, fitting the needs of different situation.

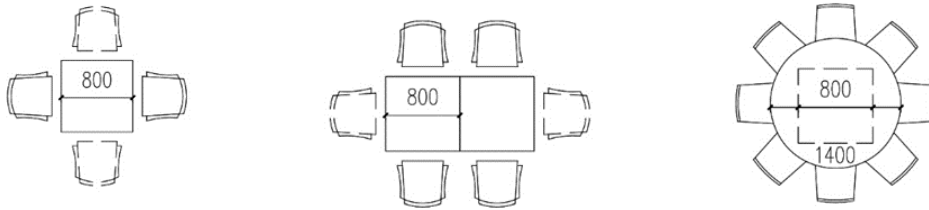


Fig 7.14 By combining square tables, needs of different dining situation can be met

## 7.4 Design Guidelines for Multifunctional Spaces

### 7.4.1 Sofa-Screen Area

#### ① Usage and Common Form

The sofa-screen area is a multi-functional activity space with a sofa as the core. Usually, there are other furniture and facilities such as TV set/ projection screens, coffee tables, flexible seats, and bookshelves. Its use is very wide, from individual activities to group activities can take place here, including, but not limited to, sitting alone, watching TV and movie (cast screen), Karaoke, board games, mobile games, big performances and road shows and publicity, etc.





Fig 7.15 Used for watching tv or movies



Fig 7.16 Used for board game activities



Fig 7.17 Used for mobile games



Fig 7.18 Used for lectures and roadshow

The general form of the sofa-screen area is divided into the following two types: 1. Open sofa-screen area: an open space defined mainly by sofas, TVs, coffee tables, generally arranged as a meeting and living-room mode. 2. Enclosed sofa-screen room: an ordinary room with glass, concrete walls, etc., equipped with sofa, seats, projection screens and other viewing equipment.

The open sofa-screen area can be used for various activities, which is convenient for creating an active space atmosphere, and should be preferentially set. In the case of ample space, a closed sofa-screen room can also be considered.

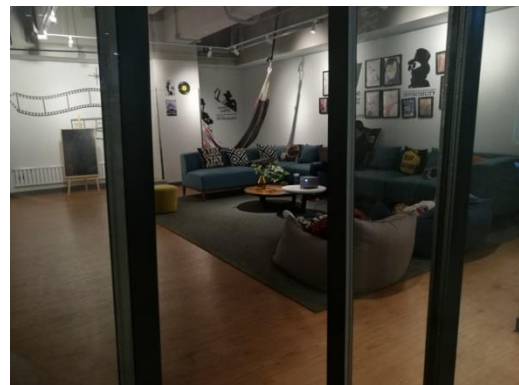
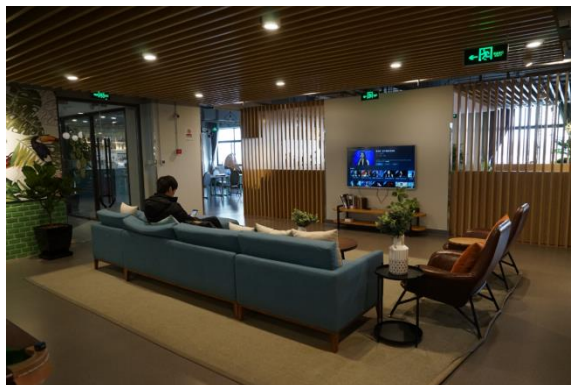


Fig 7.19 An open sofa-screen area

Fig 7.20 An enclosed sofa-screen room

## ② Location Selection and Layout

The location of sofa-screen area should consider avoiding sound interference with other spaces.

Activities happening there are often noisy, so the location should not be near the quiet spaces such as private chat area. If there's a projection screen, it is usually necessary to turn off the lights while using, so it is not advisable to be adjacent to the space that needs to turn on the lighting (table tennis table, billiard table, etc.) to avoid mutual interference.

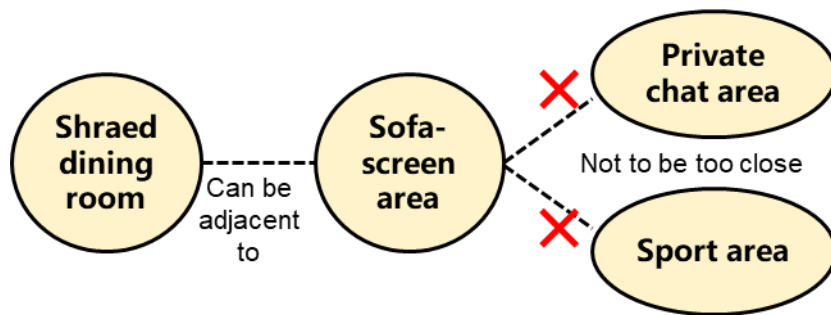


Fig. 7.21 Location selection and layout key points of the sofa-screen area

The open sofa-screen area is usually one of the core spaces of the public space. In the design, attention should be paid to the relationship with the main circulation, and excessive passers-by should be avoided. If people often walk between the sofa and the projection screen or tv, it will affect the use of the audiovisual area.

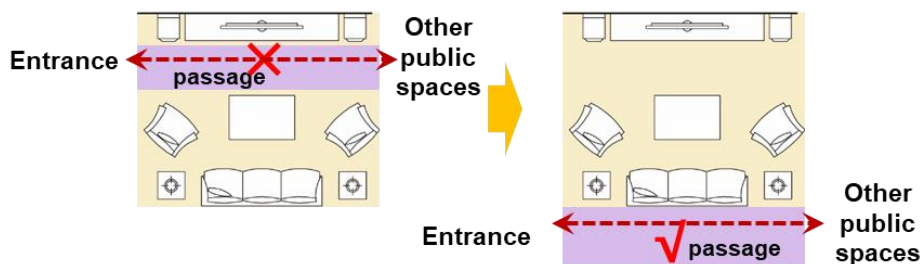


Fig 7.22 excessive passers-by should be avoided



### ③ Design Key Points

#### a The core area of the sofa-screen area (room) should meet the needs of 15-person activity

Under normal situation, the number of simultaneous users of the sofa-screen area is generally within 15 people. When the residents organize movie watching or entertainment activities, there are about three to five persons; when there's a big event held by the housekeepers, the number of people who join is usually no more than 15 people. Therefore, when the spaces are limited, the sofa-screen area can have a smaller scale, and the sofa can accommodate 5 people at the same time, which can meet the common needs of the usual situation. When the space is sufficient, the sofa-screen area should have the space to accommodate up to 15 people at the same time.

When the number of people using the sofa-screen area exceeds 15, there needs to be some free space around the sofa-screen area to expand the boundaries. Adding some light-weight seats can help to accommodate more people.

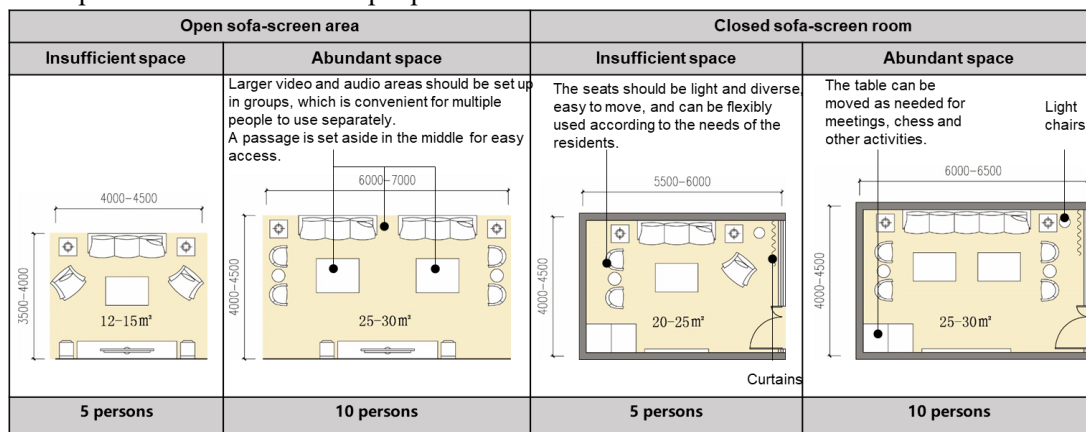


Fig 7.23 Open and closed sofa-screen area design examples

#### b Select flexible furniture to meet the needs of various activities

As mentioned above, the sofa-screen area has many uses, and the arrangement of sofas, tables, and chairs are often moved and changed according to different uses. In addition, it is also recommended to provide different types of seats, including light sofas, stools, recliners, seat cushions, etc., to enable users to flexibly choose according to the needs of different activities.



Fig. 7.24 Chairs arranged for a group chatting



Fig 7.25 The sofas are too heavy to move, which reduces the space flexibility.

## 7.5 Design Guidelines for Space Flexibility

The methods of creating space flexibility design is based on the type of space (fixed-use space / multifunctional space). The fixed-use spaces can carry more functions and the multifunctional spaces can accommodate activities of more people.

### 7.5.1 Versatility in Fixed-Use Spaces

In fact, the activities that can be carried out in a fixed-use space are not absolutely fixed, and through design the space can have the possibility of “different time, different use”.

For example, in the picture below, the layout of the space is very simple, with a high table as a shared dining area between the sofa-screen area and the shared kitchen. During non-dining hours, the dining table can be used for other purposes. Especially when there are group activities in the sofa-screen area, the dining area can be used as a supplement space. Residents can sit, rest and watch the show in the dining area, through this design the actual space of sofa-screen area is expanded when necessary.

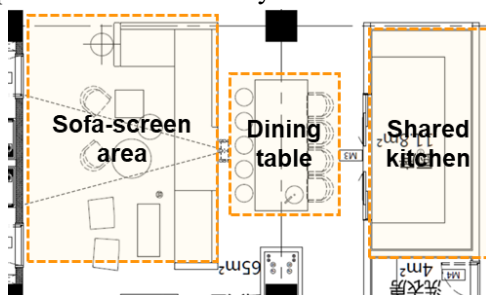




Fig 7.26 Dining area used as an extension of the sofa-screen area when there's a big event.

The unevenness of space users' number along different hours of the day provides many opportunities for flexible use of space. For example, the yoga room in the gym usually covers a large area, but there are only a large number of people using it during the yoga classes and in the evening. It is often empty during the day, which causes a waste of space. If the position of the yoga room is adjusted to be close to other public activity spaces, it can be convenient for residents to use it during the whole day as a private chat area, or for holding group activities.

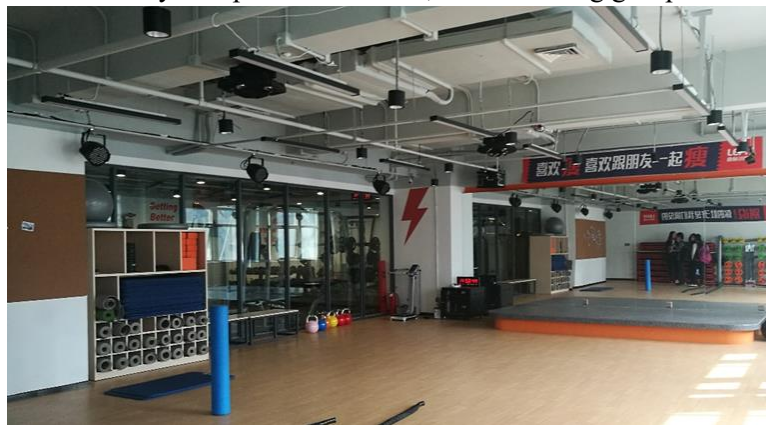


Fig 7.27 yoga room is usually empty during the daytime

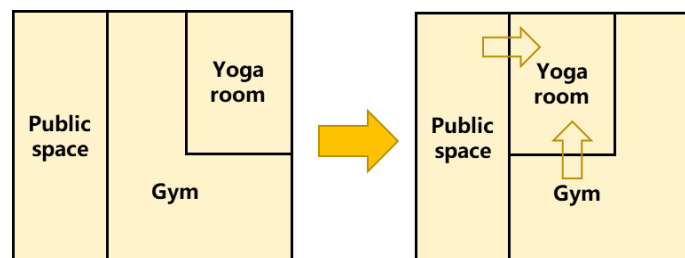


Fig 7.28 Yoga room which is close to other public spaces can be used for other purposes

In addition, the soft-drink bar and other spaces can also accommodate certain social activities and play a variety of purposes. For example, setting some seats near the water bar and increasing the bar area can make it a space for private chat.

## 7.5.2 Soft Boundary of Multifunctional Spaces

### ① Big-Table Area + Sofa-Screen Area

Big-table area and sofa-screen area are the two most important public space modules, and usually they are relatively large, accommodating 15 ~ 20-person activities. In the design, if the two spaces are connected to each other, a big space accommodating up to 40 people or more is created. During ordinary times, a curtain or sliding door can be used to separate the two spaces, where small group activities can be carried out without interfering with each other. When a big space is needed, by moving curtains or sliding doors, or the furniture, a big place can be easily got.



Fig 7.29 The big- table area and sofa-screen area can be combined and separated. (source: <https://mp.weixin.qq.com/s/5yaI7BASDII61-iBEG5SBA>)

### ② Big-Table Area / Sofa Screen Area + Passage Space

Combining the space modules with passage space can also effectively expand the space, meeting the needs of activities with more participants. As is shown below, by combining sofa-screen area with corridors, after the withdrawal of the sofas and tables, the space can accommodate about 40 persons.





Fig 7.30 By combining with the passage space, the space can accommodate more people.

## 第8章 Chapter 8 Conclusion

The research results mainly include the following contents:

By analyzing the development, history and current situation of long-stay apartment buildings, the game among the three main parties - residents, management staff and enterprises is revealed. It's also pointed out that the good design of public spaces should balance their interests and maximize the overall space value.

Through the investigation of China's long-stay apartment buildings, we understand the current design status and use of public spaces in China's long-stay apartment buildings, summarize their space use characteristics and space features, and conclude the common space configuration and design issues.

The development history and current situation of long-stay apartment buildings in Europe are sorted out, representative projects are investigated, and their configuration and design experience are summarized.

Through questionnaire surveys, expert interviews, on-site surveys, etc., the author understands the activities of the three relative groups (residents, management staff, and enterprises) in the public spaces, analyzes the demands of the public space, and summarizes their space demands.

Based on all the results above, the principles and suggestions of public space configuration and space design are given, hoping to have a certain guiding role in the design of subsequent projects.

Affected by many factors, the research has certain limitations. First of all, although the concrete projects investigated by the author in China have covered projects of different levels and sizes, they are mainly located in Beijing and the number of samples is relatively limited. The observed phenomena and conclusions may not fully cover all the cases in China. Secondly, due to limited time and energy, the studied European projects are mainly located in Italy, France and Denmark 's large and medium-sized cities, and most of them are college students' apartment buildings. They have some subtle differences with the long-stay apartment buildings in China. Thirdly, as the design and construction of long-stay apartment buildings involves all aspects of investment, engineering, and construction, although the author learned some of the information related to the design through expert interviews, but it may not be comprehensive.



The main points of the public space configuration and design of the long-stay apartment buildings for youth in China proposed in this article only represent the conclusions drawn by the author based on her own research and analysis, and need to be further tested and improved in further study and practice.

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