

# Research on the Furniture Demand of Public Rental Housing Residents

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**Abstract.** We shall have lucid waters, lush mountains and invaluable assets. We would rather have lucid waters and lush mountains than have invaluable assets, and lucid waters and lush mountains are invaluable assets. This is the scientific judgment put forward by General Secretary Xi Jinping, which reflects the government's determination for ecological improvement. Along with the development of ecological cities and public rental housing, the green and ecological furniture design is also the future development trend. Through the investigation and analysis of the lifestyle of the public rental housing residents and the features and types of the existing SOLO furniture, this study infers the demand of the furniture, which provides the basis for the subsequent green furniture design of the public rental housing on the basis of the ecological city theory.

## 1. Introduction

According to the theory of ecological footprint, the demand of human society for resources has greatly exceeded the carrying and supplying capacity of the earth, and the trend of ecological deficit is still growing. The 18th National Congress of the Communist Party of China put forward the vision of "ecological China" and "beautiful China". In the report of the 19th Communist Party of China National Congress, Comrade Xi Jinping pointed out the task of speeding up reform of the system for developing an ecological civilization, and building a beautiful China. The modernization we want to build is featured by harmonious coexistence of human and nature. We need not only create more material and spiritual wealth to meet the people's growing needs for a better life, but also provide more high-quality ecological products to meet the people's growing demand for a beautiful ecological environment. In this context, a number of eco cities have emerged, especially Xiong'an New Area under construction has been taken as an example of eco-city construction. In order to meet the demand of talents and attract talents at home and abroad, it is proposed that Xiong'an will pilot a new real estate development model and vigorously develop public rental housing. "Public rental housing" has become a hot word in recent years. As an integral part of the eco city system, the public rental housing established in the context of eco city must be also green and ecological. At present, the main orientation of the construction is energy conservation and carbon reduction, while most furniture of the internal facilities stays in the stage of environmental protection materials. Along with the development of eco cities and public rental housing, ordinary furniture will not meet the demand, so how to develop public rental housing green furniture that complies with the concept of eco cities will become a new orientation of furniture design research. In this paper, through the investigation and analysis of the furniture demand of the public rental housing residents, we can get the demand on the furniture, and provide the basis for the subsequent green furniture design of public rental housing on the basis of the eco city theory.

## 2. General survey of public rental housing residents

### 2.1 Investigation and analysis of living form

In order to investigate the living form and demand of the public rental housing residents, we conduct many sampling surveys on public rental housing in three locations in Guangzhou by means of questionnaires, interviews and observation records, etc.

After the survey, it is found that most respondents are newly employed college students and migrant workers who are below the age of 35, and their monthly income is 2,000-3,000 yuan. They are mainly "blue-collar workers" and "white-collar workers", and they are mainly single people. Most of these people are satisfied with the medium-sized space suitable for single life. How to effectively use the narrow residential space is particularly important. Therefore, these people choose to use multi-functional furniture which can effectively make use of the space so as to obtain multi-functional and effective space to enjoy life.

Public rental housing can meet their basic living demands, protect personal privacy, and the perfect surrounding facilities, convenient life, low rent, etc. are the main factors to attract this group. Through on-site investigation, the types, features and scale of public rental housing in Guangzhou are analyzed and summarized as follows:

Table 1. Analysis of Public Rental Housing Living Space.

Type	Spatial features	Scale
Single room	Bedroom, toilet, balcony, kitchen	40m <sup>2</sup>
One room and one hall	Bedroom, toilet, balcony, kitchen, living room	45m <sup>2</sup> -50m <sup>2</sup>
Two bedrooms and one hall	Bedroom * 2, toilet, balcony, kitchen, living room	50m <sup>2</sup> -62m <sup>2</sup>
Three bedrooms and one hall	Bedroom * 3, bathroom, balcony, kitchen, living room	63m <sup>2</sup> -69m <sup>2</sup>

From the investigation and analysis results, it can be seen that the scale of public rental housing is basically between 40m<sup>2</sup> - 69m<sup>2</sup>, and the basic space functions include bedroom, toilet, balcony and kitchen, which is a typical SOLO space.

## 2.2 Analysis on the residents' demand for furniture

It can be found from the living space of public rental housing that it is typical SOLO, such indoor space is limited, so the role of furniture is particularly important in ensuring comfort and wider space for activities. SOLO residents usually prefer multi-functional and convenient furniture. Moreover, even in a narrow space, it is also expected to meet the demands of the residents, so that it can have the functions suitable for the corresponding space, improve the space utilization rate, and make the space more comfortable and spacious.

Meanwhile, compared with that in the past, the importance of design has greatly increased. Along with the development of the times, people believe that furniture is a fashion object to express their own personality. They not only pursue the fun of use, but also pursue the fun of viewing. The furniture designed for SOLO residents shall have many functions, convenient use, space operability and high-level experience.

The main demands of public rental housing residents can be inferred from the investigation and analysis:

- (1) Functional diversity.
- (2) Enhance usability and convenience.
- (3) Strengthen space flexibility and liquidity.
- (4) Advanced design.

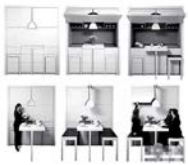








## 3. Investigation and analysis of existing SOLO furniture

### 3.1 Furniture feature analysis

Considering the living environment and lifestyle, SOLO furniture requires other features besides the inherent functions of general furniture. Through the investigation and analysis of the current SOLO furniture in the market, it is found that the features that small-household residents ultimately require are the play of product inherent role and the effective use of space in a limited space. Therefore, the











issues to be considered in the design and planning include the scale and form of living space, effective use of space, preferred design and function, price, use convenience, movement and safekeeping, etc. The morphological features of the existing small-household furniture are summarized as follows:

Table 2. Furniture Feature Analysis.

Feature	Picture	
Small size		Small size is the minimum standard to guarantee the required function and the most basic element to effectively use space. Small furniture is not only easy to operate, but also cheap to purchase.
Extension		Extension means to increase the length and area of standards, which are usually used for dual standards. It can be divided into long and short design or large and small design, but it can be adjusted according to user standards.
Stacking		Stacking refers to stacking many units or modules in a horizontal or vertical way. They can be stacked by stacking or minimizing storage space according to the user's purpose.
Deformation		Deformation refers to the proper arrangement of furniture with many functions according to the purpose of use.
Combination		Combination involves not only the inherent function of varieties, but also other functions. It is the concept of combination or integration among other varieties or other functions.
Movement		Move furniture location selectively according to demands, which is recently applicable multi-function in all furniture fields.
Folding		Folding function is an angle adjustment function centered on the rotating axis, and it is designed as a functional form of the furniture.
Storage		Storage is not the storage form of general furniture, but to improve the efficiency of space by using hidden space or corner space as storage space.
Built-In		The whole set or part of the furniture fixed on the building wall can save the room space.

### 3.2 Analysis of furniture usage

Table 3. Furniture Function Analysis.

Product name	Picture	Function
Sofa bed		Sofa, bed and other multi-purpose mattress can be easily folded and straightened
Bunk bed		The first level is a desk, the second level is a bed, so the space can be multi-purpose furniture
Desk and mini dining table		Irish dining table which can be used as both storage and dining table more effectively makes use of narrow space.
Table		Interesting design and colorful products with high popularity, "interesting" and "smile" are not consumed because of needs, but for "happy consumption" to become a new consumption trend.
Single seat		The separate design of the legs and the main body is easy to use as required.
bookshelf		A small bookshelf
Sofa assistant table		Creative space can be created by connecting the detachable armrest mini table to the sofa.
Bookshelf combination mini dining table		A table for both storage and dining
Admission stool		The seat with storage function can be moved easily
Combined bed table		The furniture that folds up the bed and lets out the table.

In order to study the function of the existing SOLO furniture, the functional features of the existing small-household furniture are analyzed through the online survey and market survey. The following is the analysis results:

Table 4. Existing SOLO Furniture Features.

	Type	Features
1	Volume	Mostly small furniture
2	Style	Popular style
3	Function	1 to 2 functions
4	Material	Wood and wood synthetic materials

### 3.3 SWOT analysis of furniture

Through the SWOT analysis of SOLO furniture, we can understand the existing problems of SOLO furniture. At first, improve the existing furniture, reduce the volume and promote the space utilization in order to save space. Therefore, try to use folding structure or elastic structure to design furniture. Secondly, the existing small-household furniture has about one or two functions, which is very limited. If we want to have multiple functions, we can only buy a lot of furniture. This not only reduces the efficiency of space use, but also increases the economic burden. Therefore, multi-functional furniture shall be designed to save space and reduce the expenditure caused by the purchase of furniture, so that it is more suitable for SOLO residents. Thirdly, the global wood resources are scarce, and the price is also increasing at present. The use of wood as furniture material not only has a negative impact on sustainable environmental development, but also increases the cost of furniture. Wood synthetic materials help to reduce costs, but they can cause environmental pollution. Therefore, it is necessary to replace it with environment-friendly materials with large output. At present, bamboo is a relatively excellent material.

Through SWOT analysis, the future design of green furniture in public rental housing is clear.

Table 5. SWOT Analysis of SOLO Furniture

S	The demand for space efficiency increases.
	Practical and reasonable purchase tendency.
	Functional and variable demands.
	Convenience of assembly and disassembly.
W	Insufficient space utilization.
	Limited design and monotonous function.
	Insufficient environmental protection of materials.
O	Increase of public rental housing residents.
T	The problem of dealing with the furniture after changing the big house in the future.

## 4. Conclusion

The main demands for furniture are inferred from the investigation and research on the public rental housing residents and the existing SOLO furniture market:

The first is the low price. No matter college students or ordinary workers, the quantity of people with high income who live in public rental housing is small, so the low price is a key issue when they choose furniture;

The second is convenience. The furniture shall be light and easy for transportation, assembly and separation;

The third is environmental protection. As China pays more and more attention to environmental protection, whether the furniture is environmentally friendly becomes the key issue of evaluation.

The fourth is the free change service. Free change service is very important for public rental housing residents with small living space.

The fifth is multi-functional, intelligent and personalized. Young people have the character which changes with the trend. Functional diversity can stimulate their curiosity, intelligence can meet their high-tech pursuit, as well as their pursuit of distinctive personality and different spiritual demands.

## **Aknowlegement**

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