Analysis and optimization strategy of residential buildings in the main urban area of Kunming

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Abstract. With the rapid development of China's social economy, the number of housing construction has been increasing and the quality of housing has always been improving. At the same time, people's requirements for residential construction are also higher. Aiming at the residential buildings in the main urban area of Kunming, this paper analyzes the current situation of residential buildings in the main urban area of Kunming by using the methods of literature analysis, field investigation, induction and comparative analysis. It is found that the existing residential forms in Kunming mainly include multi-storey residence, villa and high-rise residential buildings, and analyze the problems of these three kinds of buildings.

Keywords: main urban area of Kunming; Residential building; Current situation analysis.

1. Introduction

In the process of the rapid development of urbanization in China, due to the continuous decrease of residential land and the continuous appreciation of land, the residential areas with high plot ratio have become the only way for people to live in the future. As an important area in the process of rapid urbanization development in China, Kunming, a large number of high-density communities have emerged in recent years, and the quality of living environment has been paid more and more attention. As pointed out at the 19th National Congress, the core contradiction lies in the contradiction between the people's ever-growing needs for a better life and unbalanced and inadequate development. In such a big background, residential areas, as the main component of the society, should pay more attention to "people-oriented" and create a pleasant environmental conditions.

2. Development status of residential buildings in the main urban area of Kunming

Housing is a place where people live and provides an occasion for people to cultivate their body and mind. This is not only a witness of people's lives, but also an inevitable part of human survival. As time changes, people always pursue a high-quality of life, and the demand for housing is no longer a single function of life, but can be used as a multi-functional place such as family gatherings, guest negotiations, and children's games. Therefore, this paper makes a preliminary study on the current situation of residential buildings in Kunming city. After investigation, it is found that the current residential forms in the main urban area of Kunming city mainly include multi-storey buildings, high-rise buildings and villas. Next, the three residential forms are analyzed in detail.

2.1 Multi-storey residence

In the main urban area of Kunming, there are also many old residential areas built at the end of the last century and at the beginning of this century. These old residential areas are mainly multi-storey houses, many of which are located in better areas. At that time, there was a lack of houses, the building codes were not perfect, the actual needs of residents and the needs of future housing construction and development were not considered. Moreover, because these communities do not design houses according to the "people-oriented" approach, it is difficult to comprehensively design houses from people's living needs, thus leading to the decline of living quality. In the
construction process of multi-storey housing in the main urban area of Kunming city, some problems are gradually highlighted.

Table 1. Distribution of multi-storey residential communities in the urban area of Kunming city

<table>
<thead>
<tr>
<th>name</th>
<th>location</th>
<th>construction time</th>
<th>plot ratio</th>
<th>Green rate</th>
<th>Number of residential areas</th>
<th>number of plies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hongshan New Village Community</td>
<td>Hongshan South Road, Wuhua District</td>
<td>1994</td>
<td>2.1</td>
<td>30%</td>
<td>74</td>
<td>7</td>
</tr>
<tr>
<td>Heping Village Community</td>
<td>Heping Road, Guandu District</td>
<td>1999</td>
<td>1.6</td>
<td>30%</td>
<td>16</td>
<td>7 or 6</td>
</tr>
<tr>
<td>Chestnut head community</td>
<td>Panlong District East Road, Renmin Road</td>
<td>1999</td>
<td>1.8</td>
<td>20%</td>
<td>30</td>
<td>7</td>
</tr>
<tr>
<td>Ma Saying community</td>
<td>Qianshan District Qianxing Road</td>
<td>1996</td>
<td>1.55</td>
<td>25%</td>
<td>63</td>
<td>7 or 6</td>
</tr>
</tbody>
</table>

2.1.1 Outdoor facilities are inadequate and lack of maintenance

Fitness equipment and rest equipment are the main items of people in outdoor activities. The study found some outdoor equipment in residential areas and insufficient activity venues and lounges in larger areas. Moreover, there are no public toilets in these residential areas. The lack of public toilets brings many inconveniences to people active outdoors. Therefore, people need to reduce the time and frequency of outdoor activities, which is bad for people's physical health and mental health.

2.1.2 There is some noise interference

Most of the residential areas under construction in the last century are still in new development zones, and the surrounding transportation construction has just started. However, through so many years of development, many communities have been located in the main area of the region, and are very easy to be affected by urban traffic, which brings comfort to travel, but the noise also produces a certain trouble to people, but also brings a certain inconvenience to people's life.

2.1.3 The facade is generally old

With the improvement of the application life of the housing building, the building will appear different degrees of material fading, equipment loss and other aging phenomena. In the early stage of construction, because the residence is not reserved for the location of air conditioning in the rear, the outdoor air conditioner is directly installed on the facade, these situations have a severe effect on the style of the community and reduce the comfort of the community. Aging facade equipment makes building materials easy to fall off under windy and rainy conditions, causing a certain risk.

Whenever, people is the most important. For residences, in the context of increasingly modern lifestyle, travel, supermarket shopping and so on need to carry a lot of heavy objects, which elevators a lot of inconvenience to residents living in high floors. Problems such as poor residential environment, insufficient outdoor facilities and narrow roads, multi-storey residential buildings cannot make the needs of the people be met. Therefore, although the multi-storey residential buildings have the advantages of good lighting and low floor area ratio, they have been gradually eliminated in recent years and no longer built.

2.2 villa

In 2003, a large number of residential buildings, many villas and houses with gardens, brought the concept of quality of life to Kunming. Since then, the villa has officially entered the sight of the people in Kunming city, just meeting a part of the people with high requirements for living quality. In foreign countries, the history of villas has been very long, but in the domestic beginning mostly as people's second residence. With the increasing number of people who buy villas and the
improvement of the national policy on villa construction, the villa market is becoming more and more rational. However, the villa still has many problems.

Table 2. Distribution of villas in the main urban area of Kunming city

<table>
<thead>
<tr>
<th>name</th>
<th>location</th>
<th>construction time</th>
<th>plot ratio</th>
<th>Green rate</th>
<th>Number of residential areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expo eco-city</td>
<td>Panlong District World Expo Park area</td>
<td>2006</td>
<td>0.35</td>
<td>69%</td>
<td>9</td>
</tr>
<tr>
<td>Jasmine tang dynasty</td>
<td>Panlong District through the golden road</td>
<td>2010</td>
<td>0.67</td>
<td>64%</td>
<td>17</td>
</tr>
<tr>
<td>Lin and hall</td>
<td>People's West Road, Wuhua District</td>
<td>2009</td>
<td>1.2</td>
<td>56%</td>
<td>40</td>
</tr>
<tr>
<td>Perfume and wind</td>
<td>Xishan District Hongta West Road</td>
<td>2007</td>
<td>0.59</td>
<td>50%</td>
<td>27</td>
</tr>
<tr>
<td>Dianchi golf</td>
<td>Xishan District Xingtai Road</td>
<td>2005</td>
<td>0.48</td>
<td>62%</td>
<td>3</td>
</tr>
</tbody>
</table>

2.2.1 There are hidden dangers

For the elderly and children, the stairs are not very convenient. If there are old people and children in the home, only the villa with the stairs will have a big safety problem. Although the elevator can be installed in the villa, the protection and maintenance of their own elevator is also a big problem.

2.2.2 Low plot ratio, a waste of land resources

By comparing villas with multi-storey housing buildings and high-rise housing buildings, the building volume ratio of villas is low, consuming land resources and low land utilization rate. Therefore, according to the fact that land is large, small and land is increasingly scarce in China, a large number of villas should not be built.

2.2.3 House prices are too high

In Kunming, the price of villas greatly exceeds the purchasing strength of general housing buyers. A villa at least a few millions, sometimes reach tens of millions is also very normal. It is generally felt that when the price of a residential building is six times the salary of residents, residents generally have the ability to buy the residential building on sale. However, now the price of housing in our country has been dozens of times of residents' income, the price of villas is higher, which makes most consumers can only wait and see.

Based on the above problems, although there are many advantages of villas, with the economic development and the launch of national policies. In 2019, the National Department of Housing and Urban and Rural Development issued a special urgent notice on the "approval of villa project construction", clearly stating that we should strengthen the control and renovation of villas not built in accordance with laws and regulations, and "review the villa projects that have been built, under construction, under approval and to be approved". So the villa was also limited to its development.

2.3 High-rise residential buildings

With the rapid development of society, technical level and economy, residents' living mode and the need for housing are constantly changing. Residents' demand for high-rise housing has been increasing, and the problem of high-rise housing is gradually revealed.

Table 3. Distribution of high-rise residential buildings in the main urban area of Kunming city

<table>
<thead>
<tr>
<th>name</th>
<th>location</th>
<th>construction time</th>
<th>plot ratio</th>
<th>Green rate</th>
<th>Number of residential areas</th>
<th>area of structure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Star ze garden</td>
<td>Guandu District, Zijun Road, near zitai Road</td>
<td>2010</td>
<td>1.6</td>
<td>46%</td>
<td>90</td>
<td>2500000m²</td>
</tr>
<tr>
<td>Lishui ya yuan</td>
<td>Beijing Road, Panlong District</td>
<td>2006</td>
<td>2.4</td>
<td>45%</td>
<td>19</td>
<td>350000m²</td>
</tr>
</tbody>
</table>
As can be seen from the above table, the initial number of high-rise buildings in the main urban area of Kunming is low, the plot ratio is low, and the greening rate is high. As the time goes by, the number of high-rise residential buildings becomes higher and higher, and the plot ratio becomes higher, and the greening rate decreases. With the increase of the number of floors and the decrease of greening, some problems appear accordingly.

2.3.1 The absence of public space in the high-rise residential buildings

When developing the high-rise buildings, some people living in the middle and high-rise residential buildings face the reality of living far away from the ground floors. Although residential buildings are equipped with elevators, which can be convenient for people to go up and down, it will weaken people's enthusiasm and initiative to participate in social collective activities on the ground on the psychological level. In addition, the floor area ratio of high-rise buildings is much higher than that of several other residences. The limited area contains more and more residents, strengthening people's demand for outdoor activities. The ground alone can not meet the needs of many local people: therefore, the top priority is to expand the public activity area of high-rise buildings to meet the psychological needs of residents, so that people participate in some outdoor activities on the spot. However, in the high-rise buildings, without the necessary traffic space, most buildings will not organize too much public space.

2.3.2 Indoor space design lags behind The Times

In terms of indoor function, the house generally lacks a comprehensive design. The door entrance does not consider the type size, affect the entry and exit of large furniture. Some small apartment living room through the indirect ventilation and lighting of the kitchen, the production of smoke in the kitchen will have a negative impact on the living room, there is no special storage room in the house. To the toilet, only pay attention to the area, the layout of sanitary ware is still not applicable. Because the pipeline involves the lower roof, it is difficult for residents to change the layout of sanitary equipment according to their own needs, so they can only arrange according to the delivery situation. These disadvantages bring inconvenience to the daily life of the residents, and also affect the quality of life of the people where they live.

3. Summary

With the drastic changes in China's urbanization process in recent decades, more and more people pour into the city, unable to bear the pressure. For the residential buildings in Kunming, the methods of literature analysis, field investigation, induction, comparison analysis show that there are various building forms, such as multi-storey houses, villas, high-rise houses and high-rise houses in Kunming. Under the current circumstances, the high-rise residential model with extremely high density and high floor area ratio will become a certain choice for people to live in most cities. Although high-rise homes have advantages in land intensification, number of residents and number of households, they also lose their sense of home, hoping that these problems can be improved in the future.

References


