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Analysis on the Agreement between Architectural Planning and Design and Human Settlement Environment Based on Visual Impact

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ABSTRACT. *With the rapid economic development, the living and consumption level of residents has reached a relatively high level. With the improvement of living standards, the demands on living conditions and quality of life will increase. From the perspective of residential architectural design and planning, the residential environment should form the core part of residential planning. Residential buildings in residential environment have a very unique style, which is not only reflected in the appearance of residential buildings, but also the connotation of residential buildings. It can be seen that the key of residential planning and architectural design should be to create a good living environment and a harmonious living atmosphere. Under the premise of people-oriented, the housing designers must choose a reasonable housing mode, improve the housing environment and the quality of life as much as possible. Based on the visual factors, this paper studies and analyzes the planning and design of residential buildings and the living environment, in order to provide some reference for the follow-up work of relevant designers.*

KEYWORDS: *Residential environment, Residential planning, Architectural design, Vision*

1. INTRODUCTION

The concept of human settlement environment is a design concept that, on the basis of meeting people's residential needs, attaches importance to the harmonious coexistence between human and nature, creates a sustainable living environment and improves people's living comfort [1]. In essence, the living environment is closely related to the overall level of residential planning. As an architectural designer, he should be able to create a high-quality living environment and improve the atmosphere of the home. When designing and planning, he should choose the

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appropriate residential design mode based on the basic human-oriented thinking [2]. On the premise of putting people first, residential designers must choose a reasonable residential mode to improve the residential environment and the quality of life as much as possible [3]. Residential environment and residential planning and design are closely related in essence. For residential designers, if they want to meet the more stringent residential demand under the increasingly improved quality of life of the people, they must fundamentally optimize the residential environment so as to make it conform to the overall planning and design of buildings [4]. Architectural design should follow the principle of people-oriented to make it have practical functions [5]. Use formal language to express the theme, artistic conception, emotion and main themes in the design to create a pleasant living environment [6]. For the establishment of a good living environment, it is very important to ensure safe and convenient supplies for life, rich and colorful leisure places, healthy sports living places, civilized social atmosphere and convenient transportation.

Residential building design planning based on residential environment should not only meet the basic residential needs, but also meet different use functions, including visual effects and sustainable development functions. Every factor involved in the human settlement environment should be comprehensively analyzed and studied, and efforts should be made to innovate the residential design planning. People's actual psychological needs should be grasped, and new residential design technical measures should be applied to continuously improve the residential design mode [8]. In the process of residential design, all aspects of the residential environment should be taken into account, and efforts should be made to find out the external factors that affect the residential environment by analyzing the psychological needs of residents, and finally a reasonable design mode should be planned according to the influencing factors [9]. The residential area of residential environment has a very unique style, which is not only reflected in the appearance of residential buildings, but also in the connotation of the residential area [10]. The choice of living environment is very important. What it represents is not only the appearance of the environment, but also the profound cultural background it can show people. Combined with the unique design style, the layout of the community and the external environment are integrated to show the local characteristics of the living environment [11]. In the design of residential quarters, people's potential demand for living conditions should be fully considered. Based on the visual factors, this paper studies and analyzes the planning and design of residential buildings and the living environment, in order to provide some reference for the follow-up work of relevant designers.

2. Basic Connotation and Characteristics of Human Settlements

The living environment includes living conditions, infrastructure and ecological environment. People are the main body of living environment. A good living environment can make people feel happy and live a happy life. Before making the design plan, it is necessary to make a simple investigation and understanding of the residents' needs. To understand what kind of living environment residents need and what are the general requirements for housing. A good living environment is affected

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by many factors, including indoor space, outdoor greening, overall architecture, natural folk customs, etc. The planning and design of residential buildings in the residential environment have increased the aesthetic feeling and cultural atmosphere of the city and become residential buildings that create the residential environment and provide residents with pleasant spiritual life and visual enjoyment of beauty. From the perspective of human settlement environment, residential planning reflects livability, conforms to the people-oriented goal, and is committed to creating a beautiful residential surrounding environment. Residential buildings based on residential environment must be designed according to local conditions, according to local building conditions, combined with urban tradition and culture, emphasizing the whole life cycle design of buildings. Only by closely combining the real requirements of residents can residential design reflect the profound humanistic care. Specifically, when designing and planning, it is necessary for residential designers to use various means to innovate their design ideas. Residential buildings in cold areas should be as compact as possible and should not adopt point-like or point-like splicing forms. The overall requirement of sunshine spacing must be met.

Residential design planning should also change its thinking and integrate ecological elements into the overall residential design and planning. The planning and design of residential buildings based on human settlement environment should make full use of renewable resources to minimize the energy consumption and operating costs of residential buildings and promote sustainable development. Only when the residential design is integrated into the local overall ecological system can the aim of ecological protection be embodied, thus enabling residents to obtain better experience. The concept of human settlement environment is mainly manifested in reducing the encroachment on natural resources and integrating into the environment so that the ecological environment can develop normally under the laws of nature. The house itself must protect the surrounding ecological environment, reduce the use of non-renewable resources, and promote the recycling of resources [12]. Only the combination of design concepts and residents' needs can achieve the goal of humanistic care, which is the ultimate requirement of residential design. The planning and design adheres to the manpower, closely combines the architectural and self-contained residential landscapes, and ensures the aesthetics, economy and applicability of the residential buildings with scientific and reasonable design schemes.

The integration of ecological elements into residential design is an infrastructure for building a harmonious city that can beautify the city and better promote urban culture. Therefore, the planning and design of residential buildings in human settlements needs to strike a balance between current development and future use, and can coordinate with the environment and save materials and energy on the basis of ensuring aesthetics. The purpose of developing a project schedule is to control project time and save time. One of the main features of the project is the strict time limit requirements. A reasonable and scientific project construction plan is an extremely important part when the project begins to implement progress. Moreover, some time processes are estimated based on previous construction projects of the construction company. In the current construction schedule planning process, the plan

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review technique is based on an estimated time of 80% completion rate. The time estimate of the construction period is in accordance with the particle swarm optimization probability function, as shown in Figure 1.

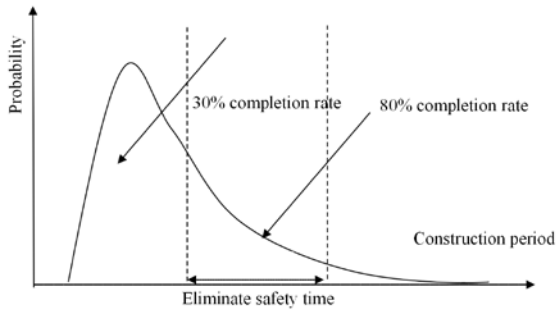

Fig.1 Estimated Probability Distribution of Process Duration

3. Residential Design Principles and Specific Planning Based on Residential Environment

3.1 Understand and Improve the Local Natural Environment and Ecological Environment

Topographic conditions will affect people's travel. If the travel conditions are inconvenient, even if the residential conditions are better and meet people's psychological needs, they will not be very popular. People must face up to the problem of environmental pollution, understand the importance of the environment to people's life, and then formulate timely measures to reduce environmental pollution and create a healthy environment for people's life. In order to ensure the use efficiency of construction materials and reduce the project cost, project management personnel must strengthen the management and strict control of materials and their use on the construction site. Using the existing technology to establish a multi-mode collaborative work environment. Collaborative work support platform with integrated building management mode. The cooperative design and operation process is shown in Figure 2.

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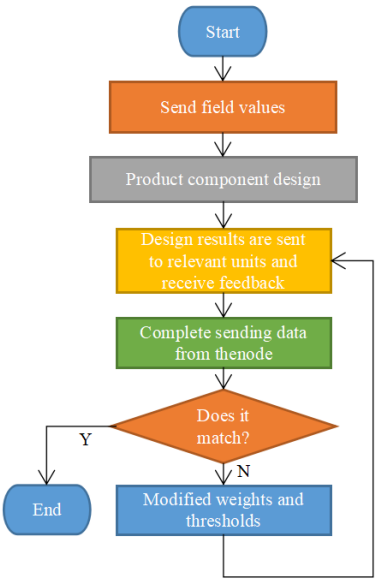

Fig.2 Construction Engineering Cooperation Design Operation Process

The building information model extracts and transforms based on specific information formats to realize data docking and sharing between different professional software. Dimensioning the comparison and reference columns:

$$e_j = -k\sum_{i=1}^{n} f_{ij} \ln f_{ij} \qquad (1)$$

Under the interference of new factors, it is possible to generate new deviations, and continue to control according to the above methods:

$$W_j = 1 + k\sum_{i=1}^{n} f_{ij} \ln f_{ij} \Big/ \sum_{j=1}^{m} (1 + k\sum_{i=1}^{n} f_{ij} \ln f_{ij}) \qquad (2)$$

In the model, the topological relationship between two objects is characterized by whether the inner, outer and outer subsets of the object intersect, expressed as:

$$W_j = d_j \Big/ \sum_{j=1}^{m} d_j \qquad (3)$$

Project schedule management refers to the management of the progress degree of each stage and the deadline for the final completion of the project during the implementation of the project. The construction period of the working procedure follows lognormal distribution. The particle swarm optimization algorithm is applied to the regulation. Figure 3 shows the results of the critical chain method plan.

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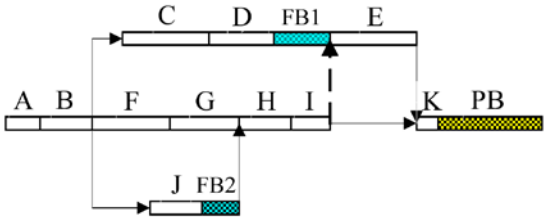

Fig.3 Key Chain Planning Results

Architects need to make full use of the latest science and technology to improve and improve the living environment. At the same time, they must have innovative thinking on residential planning and design, adapt to local conditions, and introduce new ones [13]. Planning and design should take into account multiple factors, pay attention to the division of spatial functions, pay attention to separation of movement and privacy. It is necessary to provide residents with a variety of housing sets based on differences in population, differences in living habits, and diversity needs. We need to vigorously promote the spirit of energy conservation and develop residential energy under the premise of developing new energy sources. If all building designs consider energy-saving factors, it is possible to reduce pollutant emissions and restore ecological balance in a short period of time. The improvement of the quality of life has accelerated its pace of environmental pollution, and will in the future also bring irreparable harm to people's lives. The interior space design should meet different needs according to various functions, and allocate the room area of different functions to achieve the most reasonable economical and comfortable scale.

3.2 Fully Consider All Aspects of Housing Design Conditions

The quality of spatial planning and design directly affects the quality of the indoor environment, and the rational use of space is the key to ensuring the normal needs of residents. If there is a problem with the ecological environment, the surrounding buildings will also be affected. Therefore, the living environment should not only meet the needs of the building, but also protect the ecological environment and promote the coordinated and sustainable development of the two. After understanding the basic terrain around the residential project, it is necessary to make rational use of the various resources of the site to achieve the best distribution of development type and intensity. The design of residential buildings fully takes into account the pressure of life, and specially chooses the design concept of livability, that is, to relieve the pressure by improving the living environment and providing people with beautiful scenery, which enhances the residents' green ecological experience. Due to the pressure of life and work, city residents have been living in a tense atmosphere. If they still need to bear the pressure of living at this time, it will definitely affect people's mental health. The most important thing for houses is lighting. The intervals

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between houses should be reasonable to ensure that the lower floors have sufficient lighting conditions and are not blocked by adjacent floors. In the process of designing the interior of the residence, the communication and connection between residents should be fully considered, and a reasonable rest and leisure space should be designed. In order to achieve a harmonious living environment, we can start from many aspects, such as protecting the natural ecological environment, promoting the harmonious development between human and nature, reducing pollution sources, improving urban supporting facilities, etc.

4. CONCLUSIONS

With the social progress and the development of urban and rural economy, the residential environment has gradually attracted the attention of many residents. As the person in charge of residential design and planning, it is necessary to improve the thinking. With the development of society and the construction of cities and towns, more and more people begin to pay attention to the residential environment problems, which also brings pressure to the designers of residential construction. Applying the concept of living environment in the design and planning of residential buildings can not only meet people's living needs, but also create a more comfortable living environment. People's demand for living environment is increasing gradually, which requires architects to improve the living environment from the residents' needs. Designers should combine the ecological environment and natural conditions to design a residence that is suitable for living and has a better living environment. Residential buildings with harmonious living environment should also have unique style, which is not only reflected in the appearance of residential buildings, but also in the connotation of residential areas. In the residential design, the concept of visual effect is integrated, and through reasonable indoor and outdoor planning, the purpose of reducing energy consumption and promoting sustainable development is achieved. Living environment has a great influence on people's life. Living in a better quality living environment will promote the development of people's physical and mental health. In order to provide better living conditions for the residents, we need to improve the residential planning, protect and choose the living environment.

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