The Design of Perceptual Environment of Residential Area Under the Mode of Home-Based Care

Feng ZHAO\textsuperscript{1,a,*} and Jia FU\textsuperscript{2,b}

\textsuperscript{1,2}School of Civil Engineering and Architecture, University of Jinan, China
\textsuperscript{a,}\textsuperscript{b}32975282@qq.com
*Corresponding author

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Abstract. Taking the residential home care mode suitable for the old building as the research content, based on the environmental perception characteristics, this paper puts forward the design strategy of outdoor environment construction which is suitable for the old residential environment from three aspects: the sports environment, the road environment and the infant environment.

1. Introduction

China is a populous country, and an economic power house, it is also a country that the aging of the population is developing rapidly. In the process of rapid development, the rapidly growing aging population plays a vital role in China’s development.

The livelihood plan of living and working in peace and contentment, is the embodiment of our culture and ideas, only the first live after the music industry, to appease the people’s livelihood, in order to seek common plans. As the saying goes, “the family has an old treasure”, by creating a comfortable environment for the aged and settling the “treasure” at home, can the “home” be stable and prosperous, so as to create more social wealth. Home care is the main pension model, so that the elderly “home” environment is more pleasant, and the creation and transformation are more in line with the elderly physiological and psychological residential environment.

While the urbanization process in our country has gradually shifted from initial quantitative transfer into qualitative change and the urban development process has been diverted from extensional expansion into intensional growth, more and more urban built-up areas, the old urban areas in particular, are facing transition of planning ideas. The quantity of old residential areas possesses considerable proportion in the urban residential areas in our country. During the development process of urban outer expansion, original residential areas were retained in the vicinity of urban centers. These areas are generally comprised of multi-storey buildings, where the usage duration of buildings and environment are more than 20 years.

2. The Status Quo of Home Care

In 1956, the United Nations published in “Population aging and its socio-economic consequences”, summed up that when a country or region has a population of over 65 years, the proportion of the total population exceeds 7%, which means that the country or region into aging. The Vienna World Congress on Aging, which was held in 1982, identified more than 10 per cent of the total population of older persons aged 60 and over, meaning that the country or region was aging [1]. Internationally, the proportion of people over 60 years of age is 10% of the total population, or 7% of the total population is 65% of the population as a standard for the country to enter an aging society. The date for July 2015 show that China’s population aged 60 and above in 2015 reached 222 million, accounting for 16.15% of the total population. It is estimated that by 2020, the elderly population will reach 248 million and the aging level will reach 17.17%. Among them, the population aged over 80 will reach 30.67 million. In 2025, the population aged over 60 will reach 300 million, becoming a super-old country [2]. In the world, although China is not the most seriously ageing country, but because of the consequences of family planning, due to the total population base, we now become the world’s fastest aging countries.
Europe and the United States and other developed countries emphasize the independence in the concept of life, and the privacy of people. Although the elderly and their family members are closely related, they prefer to live alone in the form, so the pension model is formed that moderate social support and service institutions support elderly people who live alone.

Among the Asian countries, Japan is the first to enter the aging population of the country, and also the earliest in Asia to adapt and respond to aging national conditions to make changes in the country. At present, the degree of aging in Japan is the highest in the world, accounting for 96% of the old-age model, the community pension 1.08%, institutional pension 2.92%. From the beginning of the sixties of the last century, the oriental family gradually formed a “two generations of housing” housing model to meet the needs of home pension.

In the “12th Five-Year Plan” period, the state has made a comprehensive reform of the old-age insurance system and the cause of aging. Based on the end of the family pension, the community pension as the basis, the agency pension to supplement the medical care of the integrated pension service system initially formed, the number of pension beds reached 6.727 million; the elderly living environment continued to promote the elderly to continue to optimize the conditions of social participation [3]. “The 13th Five-year” national aging career development and pension system construction planning issued in 2017 notice that, to consolidate the basis of home community pension services, develop home-based care services and strengthen the construction of community care service facilities based on the community development environment. In the residential area, we must gradually complete the supporting pension service facilities, in order to facilitate the construction of housing for the elderly.

3. Characteristics of Environmental Perception Processing

The interaction between people and the environment is based on the perception of the environment, and people with age changes, the perception of the environment and the perceived environmental preferences have changed.

The process of human perception is a regular process that presents several characteristics, such as the perception of the mind, the integration of consciousness, the perception of constant and the adaptability of perception, which are the characteristics of perception.

4. Residential Area Environment Design - Moderate Awakening Level

The elderly due to the gradual degradation of physiological functions, daily travel narrows, the perception of the sound, color, temperature and other changes in the environment gradually decreased in the elderly.

The lower the arousal level, the more difficult it is, and the higher the arousal level, the more exciting it will be. Only the best arousal can make people happy, and maintaining the best awakening is a good expression of environmental design. From the young like lively places, like and can withstand a higher level of awakening, wake up to the old age level down, like a stable, peaceful and slow life.

Residential environment design should not only meet the physiological function of the elderly to bring the inconvenience of the problem of travel, but also concern about the changes caused by the deterioration of the perception of the environment, to design a habitat in line with the characteristics of the residential environment, specifically related to the following three surroundings:

4.1 Sports fitness environment

With age, the elderly are increasingly concerned about health problems, daily exercise has become the focus of their attention, in the home of the old age, the appropriate increase in fitness places to adapt to the growing demand for exercise.

Fitness exercise place is divided into two types, and the one is the building-based fitness hall, fitness venues and other types of buildings. Due to climate and air pollution reasons, the winter is not suitable for outdoor sports in the north, the movement needs to provide indoor environment, so
in the residential area supporting the construction of fitness places, open to all ages, add some more suitable for older projects, such as table tennis, square dance, swimming pool, etc., which are the approaches to improve the winter sports. Another type of playground is a variety of outdoor space. When the weather is appropriate, go to the outdoors for daily exercise, the venue must be able to carry out the conditions of diversified sports, can better meet the needs of the elderly in the neighborhood near the different types of training, such as walking, square dance, small group aerobics, shake empty bamboo and so on. There should be a proper separation between the various sites so that they do not disturb each other and form a centripetal field.

Elderly people due to the degradation of physiological functions, they are familiar with the outdoor venues and the longer they adapt to the environment the weaker the ability to adapt to mutations, so the residential area provided by the elderly need to be more safe, stable and less frequent situation. Taking into account the safety needs of the elderly, the activities of a suitable residential area should focus on the appropriate isolation from the surrounding environment and distinguish the flow of people and traffic between the site and the pedestrian.

The ground pavement should take full account of the elderly inconvenience of the legs and legs, the sense of decline in body balance characteristics, for boxing, dancing and other activities of the venue to choose flat, non-slip, easy to fall off the material; the exchange area can choose a certain degree of roughness, not smooth ground material, so that wheelchairs, walkers and other can be affixed to the ground which are not easy to slide; in highly variable areas, attempts are made to use the ramp to solve the height difference, and it’s recommend to use larger slope of friction material to suit the safe use of different groups of people.

4.2 Residential road environment

Road environment in the residential area is both functional and recreational type, it is necessary to meet the needs of fire and traffic, but also to meet the needs of daily travel, so residential road design should pay attention to its use of the functional, road system clear, concise, easy to understand and remember.

Residential roads usually include residential areas, residential and group roads. In principle, it does not include all forms of urban roads. According to the use of roads, residential roads include motor vehicle roads, non-motorized roads, sidewalks and parking lots, as well as road ancillary facilities such as lighting systems, greening, steps, ramps, traffic signs and so on.

The proper design of the residential road should be reflected in the simplicity, clarity and smoothness of the road system. The road should have good accessibility, clear sense of direction and easy identification, which will help the elderly to address and locate in the outdoor environment. Elderly people should not face complex road systems and environmental systems in settlements. The environment should be designed to help older people build up control and self-confidence, slow down the anxiety caused by lack of control, psychological characteristics, and environmental perception characteristics of the appropriate age environment. The road system should be in the details and system to reflect the barrier-free design, embodied in the road, ramps, signs and specific node design, there must be a clear traffic signs guide and comfortable night lighting system to facilitate the elderly at any time travel. In order to ensure the safety of the elderly travel, the ramp should be used to absorb water or water permeability of the material. The visual characteristics of the elderly require a higher lighting standard, should be considered in the installation of lighting safety, lighting equipment to ensure adequate brightness to enhance the vision of the elderly on the outdoor space depth and height difference in the ability to identify and improve security. Residential road should be in the management of people as much as possible diversion, for the elderly and children to provide safe, quiet space for the activities. The curbs on both sides of the road should be painted with bright colors, to clear the way of the road, so that the road can be clearer, in line with the elderly visual perception characteristics.

4.3 Child care environment

Many elderly people finally began to achieve the “three generations of home” life after their children got married, for children to take care of their children, the elderly life is closely related to
children’s life, and the characteristics of residential areas are more reflected in the shadow of elderly and children residential environment design reflects the “suitable for the old” and “appropriate small”, in line with the characteristics of the elderly while meeting the characteristics of child perception.

Supporting the construction of children’s activities facilities, is conducive to the elderly in the area with children in the vicinity of children’s activities to set up appropriate seats to facilitate the elderly to rest and take care of children, but also for other elderly people to “see” other people’s activities, meeting the needs of the optimal level of awakening.

5. Conclusion

Into the aging society and even the ultra-old society, the family pension is the country’s implementation of the main pension model, and home place has become an important concern for the elderly environment. We will pay great attention to the reconstruction and construction of the old environment in the residential area, so as to conform to the characteristics of the elderly and the cognitive environment, which is conducive to improving the quality of the old-age pension.

References