

Research on the Design of Elderly-Oriented Public Activity Center in Rural Planning and Construction

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ABSTRACT

Against the background of new rural construction, this paper takes the rural public activity center as the research object, and systematically combs the design of elderly-oriented rural public activity center. The strategy of elderly-oriented rural public activity center is summarized, which provides reference for its design in new rural construction.

Keywords: rural construction, public activity center, elderly-oriented design

I. INTRODUCTION

Since the 1980s, China's rural construction has developed rapidly on the basis of drawing on and introducing foreign theories and methods, which involves many aspects of rural construction. The research on the construction of beautiful countryside is increasingly abundant. In recent years, a large amount of manpower, material and financial resources have been invested in new rural construction, and favorable results have been achieved. The aging of rural population is becoming increasingly serious with new rural construction. The aging of rural population is particularly rapid in China. It is estimated that by 2020, the elderly population in China will reach 243 million, accounting for about 18% of the total population. The accelerating aging makes the challenges in rural areas more serious. The supporting public services in most rural areas of China lags behind seriously, and the elderly in rural areas face more pension plights than those in urban areas. The situation that the left-behind elderly are dominant in number among rural permanent residents brings aging issue to the design of rural living environment.

Among new rural construction, the construction of public activity center has become the carrier to improve the living standard of villagers and satisfy their spiritual demands. With the acceleration of rural revitalization, the vast majority of rural areas have basically completed the construction of public activity centers. However, most of the design and construction of rural public activity centers are done by local craftsmen, lacking of scientific and systematic design. As a result, many rural public activity centers fail to meet the people-oriented design principles, not to mention the

relevant elderly-oriented requirements. The design and construction of rural public activity center should not only understand the aesthetic interests and physiological needs of villagers, but also excavate the cultural context of the village, and plan and design on this basis. This paper will provide a theoretical basis for the construction of public activity center in new rural construction.

II. RELATED CONCEPTS

A. Rural public activity center

Rural public activity center is a place for villagers to gather, relax and discuss, which usually refers to the current location of the village committee, namely service center for party member and the mass. According to the definition of urban public activity center, it can be seen that rural public activity center is a place where the villagers have the most concentrated and frequent political, economic, cultural and other social activities. Due to regional and cultural differences, the design of rural public activity centers has its own characteristics and unique regional signs. Rural public activity centers fall into two camps: a place financed by the government and equipped with functions such as village committee routines, meeting and mass recreation; or a place of leisure and entertainment built by the masses with their own funds. This paper mainly analyzes and studies the former.

B. Elderly-oriented design

Experts from different regions hold different opinions on the concept of elderly-oriented design. Chinese experts and scholars share that elderly-oriented design should take full account of the physical functions and action features of the elderly in the design of public buildings such as residences, shopping malls, hospitals and schools. Barrier-free design should be

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realized in interior design or outdoor landscape, and emergency services should be introduced to meet the needs of people who are or will be in their old age. The elderly-oriented design makes building space more humanized and practical.

III. THE UNIVERSAL PROBLEM IN THE DESIGN OF RURAL PUBLIC ACTIVITY CENTER

At present, achievements have been made in the design of rural public activity centers in China, but there still exist many problems, such as the lack of elderly-oriented design.

A. *The function division design is unreasonable and the function is not perfect*

Space of different nature should be set up for different activities. The different nature of activities leads to the relative independence of these functional spaces while they are interrelated. The elderly-oriented design of public activity center should cover perfect functions and reasonable function division, which is an important part of the design. The research results of the author in the rural areas of Chengdu show that the function division of the public activity centers in villages with better economy is relatively perfect. For example, the activity center of Idyllic Garden, Wenjiang District, Chengdu City, Sichuan Province, covers indoor office space, library, conference room, leisure room and outdoor pavilion gallery. However, there is no indoor and outdoor public activity space in the public activity center of Liujiexiang Village, so some additional space for recreation and cultural study can be considered. Other economically backward villages enjoy only basic living facilities, let alone elderly-oriented design.

In a word, most rural public activity centers boast office space, creating room, rural clinic, outdoor small activity space and other functional space, while indoor public activity space has not got a position. The research on landscape creation and interior decoration reveals that elderly-oriented design has not been put on the agenda of new rural construction. This results from the absence of top-level design, posing both opportunities and challenges to designers.

B. *Unreasonable streamline design of space, ignoring the needs of special age groups*

Special attention should be paid to the organization of streamline in space planning and design, as the organization of streamline directly affects the quality of each space. The survey found that the spatial streamline of public activity centers in many villages failed to meet the physiological needs of the elderly, especially in barrier-free design, the size of the door opening, the direction of the door and the terrain. The streamlines of public activity center should be clear, especially in the

area with large flow of people. The dissonance of spatial streamline arrangement affects people's behavior. Without reasonable partition, the public activity area, waiting room and negotiation room will interfere with each other. At present, the design of most rural public activity centers is fettered by local economy. Insufficient government investment, lack of design research and long-term consideration will lead to the failure of planning. That is why most villages are now equipped with only basic living facilities.

C. *The lack of space decoration and regional characteristics are not obvious*

Decorativeness is one of the basic attributes of art, and the lack of artistry directly sways the experience of the audience. A number of field visits reveal that most public activity centers in Chinese villages lack a complete decoration design system in space decoration, short of excavation of traditional culture and design process of decoration symbolization. Its spatial decoration is formed accidentally, lack the conformity that guides design. Physiological and psychological needs of the elderly serve as the core of elderly-oriented design, and spatial decoration emphasizes the psychological demands of the elderly. The elderly prefer an activity scene that allows him to remember many cherished memory, and a space that can trigger memories and bring beauty enjoyment.

IV. ELDERLY-ORIENTED DESIGN STRATEGY FOR RURAL PUBLIC ACTIVITY CENTERS

The planning of public activity center in new rural construction should follow the design principle from whole to part. Elderly-oriented design runs through the whole design, from site selection to function division, to streamline design, and then to decorative design. Elderly-oriented design is reflected in the details of each design point to create an activity environment suitable for the elderly.

A. *Outdoor environment design principle of public activity center in new rural construction*

Outdoor activities are the best way for the elderly to experience vitality in their leisure activities. Therefore, the detailed design of rural public activity centers should conform to the use habits and psychological needs of the elderly, and make the outdoor environment in line with design strategies such as safety, interaction and emotion.

B. *Interior space design principle of public activity center in new rural construction*

The interior environment design can indicate whether the rural public activity center meets the elderly-oriented design requirements from many details. The public activity centers in many villages visited by

the author indicate that attention should be paid to the social nature of main passageways, the flexibility of spatial boundaries and the suitability of color temperature in design. The three best reflect the needs of the elderly.

C. Site-selecting principle of public activity center in new rural construction

The large area and dispersed houses in rural areas make site selection of public activity center with relatively concentrated population and convenient transportation particularly important. The features of the elderly determine that rural public activity centers should enjoy convenient transportation, quiet environment, relatively flat terrain, as well as close to the village infrastructure, and far away from pollution sources and the production and storage places of inflammable and explosive goods. The village activity center is generally located in the local village committee, or in the vicinity of the main road and convenience stores, where enjoy large flow of people and best infrastructure. The principle of "central place theory" should be followed when choosing the location of activity center in the sparsely populated villages as the central place is irreplaceable. However, individual households living in remote areas and elderly villagers with limited mobility should also be taken into account and arranged in a point-by-point manner according to local conditions. The planning of public activity center is diversified, which should not be reconstructed only on the existing basis of each village department, service center for party member and the mass, etc.

D. Functional grouping principle of elderly-oriented public activity center in new rural construction

1) *Functional grouping under the principle of elderly-oriented design:* The functional grouping of different spaces should be planned in accordance with the series of national standards for the living environment of the elderly on the basis of their physiological and psychological needs. The grouping and distribution of each functional space should give priority to the distance between toilet and each area, then the priority of each functional space, finally the furniture layout of the area. The rural public activity center is a multi-functional complex, which should cover the functions of learning, communication, entertainment, office and reception within the village, namely office meeting function, leisure and entertainment function, cultural and learning function, sports and fitness function, rest and communication function. The function of office meeting is mainly reflected in the village cadres' handling of routines and democratic procedures. The elderly-oriented design of office furniture should conform to the ergonomic

characteristics of the elderly. As an activity place for rural people, the public activity center should offer recreational function suitable for all ages. That is to provide a place for villagers to play chess, play cards, sing songs and watch movies. The public activity center should also have the function of cultural learning. The space design should meet the reading and learning needs of some elders. The existing public activity centers are mostly equipped with sports and fitness function, and all kinds of activity equipment can basically meet the needs of the elderly. The function of rest and communication varies from space to space. There is no need for fixed areas. Both indoor and outdoor spaces can be employed. The physical characteristics of the elderly indicate that rest facilities such as tables and chairs are indispensable.

2) *Space lighting under the principle of elderly-oriented design:* Physiological factors such as deterioration of eyesight and decline of color recognition of the elderly determine that special attention should be paid to lighting in the design of rural public activity centers. The lighting suitable for the elderly is higher than that of ordinary space. Lighting requirements for different functional spaces are also different, such as 500LX for cultural learning space.

E. Streamline design principle of elderly-oriented public activity center in new rural construction

1) *The streamline design of dynamic and static division and the universal design of the elderly:* The public activity center is composed of a variety of spaces, and different spaces have different functions. The layout method of dynamic and static division effectively avoids the mutual interference between different spaces. The mobility of the elderly and their visual characteristics determine that the ambiguous space division in the design must be avoided to ensure the accessibility and convenience. The design of public activity space should conform to the design code for buildings for the elderly. The convenience for the elderly is also an effective way to ensure the utilization rate of public activity space. In other words, only reasonable dynamic and static division can ensure that the elderly feel comfortable, secure and belonging in the space.

2) *Streamline design of different communication levels:* Ergonomics divides space into four spatial levels: public space, semi-public space, semi-private space and private space based on communication level. Space arrangement based on such communication level can reduce the communication issue within crowd and alleviate the loneliness of the elderly.

F. Key points of decorative design of elderly-oriented public activity center in new rural construction

1) Decorative mix of decorative design elements and spatial scale: The physiological and psychological characteristics of the elderly require that the proportion of space decoration should be more in line with the behavioral characteristics of the elderly, and the care of the elderly should be highlighted in the spatial details and decorative elements, so that they can move comfortably and conveniently in the environment. The elderly-oriented decoration design of public activity center should explore local elements as ecology, history, regional characteristics, folk customs, farming culture, refine the representative decoration elements, and embody them in each link of the design detail. It gives people visual enjoyment and cultural edification, and makes villagers feel a deep sense of belonging.

2) The application of regional materials and the shaping of beauty in form: Materials with local characteristics should be adopted to present space form. Considering the needs of the elderly, soft materials can be appropriately selected to reduce the risk factor. The principles of formal beauty, such as repetition, mutation and dislocation, can be employed to shape unique space.

V. CONCLUSION

The elderly-oriented design of rural public activity center is an arduous task that must be enhanced and implemented as soon as possible under the slogan of "rural revitalization". The following three points should be followed in the design and planning of elderly-oriented design:

A. The principle of problem-oriented design should be upheld

Based on the design status of the new rural public activity center and problem orientation, this paper discusses the functional characteristics of the center. The results show that such center in China should boast five functional spaces: office meeting, leisure and entertainment, cultural and learning, sports and fitness, and rest and communication.

B. The relevant standards of architectural design for the elderly should be followed

Based on the physiological and psychological characteristics of the elderly, the space functions are integrated according to relevant national standards to meet the needs of villagers. The space scale is reasonably distributed, and the relevant national standards are introduced to make favorable elderly-oriented design.

C. The historical context should be preserved to highlight the spatial decorative features

The regional culture should be explored, and the space should be decorated with abstract and subtraction, so as to improve the villagers' aesthetic sentiment and sway their way of life.

Given the large amount of money invested in rural planning and construction in China every year, the author hopes that the research and practice can provide some insights for the new rural construction that is groping forward.

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