

Spatial pattern and fine design of community elders' canteen based on aging vision

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Abstract: The catering service is the standard configuration for home-based care services. The design of community elders' canteen has typical significance in the construction of pension service facilities. Based on the spatial investigation of the community canteens, this paper analyzes the service contents, spatial patterns and usage status of the elders' canteens, summarizes the construction experience of the elders' canteen in terms of spatial mode and fine design, and proposes suggestions for the future development of the elders' canteen in terms of system construction and its environmental facilities design.

Keywords: Elders' Canteen; Community; Spatial Model; Fine Design

1 Background

According to pension service model in China, the ordinary residential area is the main pension base for the elderly in China. The home service of the community is the key element deciding whether the elderly can spend their remaining years in their own homes^[1]. The "9064" pension plan implemented in China specifies that home care is the main form of old-age care for the elderly. More than 90% of the elders need to live out one's life in retirement in the community.^[2] For the majority of elders who can take care of themselves, dining has become the first demand for their home-based care. Most of the existing community elders' canteens are constructed based on experience, lacking a unified design and construction guidelines. The community canteens require further improvement in terms of site planning, architectural design and the aging design.

2 The space system of the elders' canteen

2.1 Service mode

The community elders' canteen, as its name implies, is a canteen for the elderly to take meals, and is one of the main elderly care facilities in the community. Currently the home-based catering services can be roughly divided into two modes. Some communities adopt the service mode of the central kitchen + dining place, that is, there is no kitchen in the dining place, and the meal is delivered to the community's catering spot by the delivery car at the scheduled time. The elders pick up the meal with the registered meal card and eat at home or at the dining place. This model can complete the catering services of single or multiple communities in a limited venue, and is suitable for communities with a dense catering spot but lacking public use space. Since meals are made outside the catering spot, the requirements for the distribution service chain are high, and the elderly have no space for communication

when eating, and the service experience is similar to that of a fast food restaurant. Some communities adopt the service mode of community kitchen + canteen. The establishment of the elders' canteen space includes two functional modules of kitchen and dining room. This mode can ensure the comfortable dining space and service experience for the elderly, and guarantee the quality of meals, but it requires a large public use space in the community and has high labor cost.

2.2 Construction mode

According to the spatial relationship between the community elders' canteen and other pension facilities in the community, the construction mode of the elders' canteen can be divided into four types: independent, semi-independent, dependent, and hybrid.

Independent mode refers to the elders' canteens which provide dietary services for the elderly in the community with completely independent construction space and operation services. The independent elders' canteen has a high degree of freedom in planning and design, and is easy to construct or transform into an aging dining space environment. However, the initial investment is large, the labor cost is high, and the service capacity is limited.

Semi-independent mode refers to the form in which the building is independent, but the operational services work together with similar pension facilities. The space planning and design of the elders' canteens in this mode is relatively free. The canteen is connected with other adjacent facilities through corridors and courtyards, forming a community comprehensive aged care service facility to improve space and manpower utilization.

Dependent mode refers to the form in which building space and operational services are attached to larger community aged care facilities and managed through zoning. The space planning and design of the elders' canteen in this mode will be limited, but large facilities can provide certain resource support, and the two can share part of the public space for easy management.

Hybrid mode means that the elderly canteen is located in the canteen of other institutions or in the school canteen. The dining areas of the elders are separated from others accordingly. The elderly and the staff of the unit are separated in different areas of the same space. The spatial planning and design of the elders' canteen in this mode is limited by the original site, but the resources of the original canteen can be utilized, and the construction is easy to carry out.

It can be seen that different construction modes have their own advantages and limitations. The construction modes should be flexibly adopted based on the land use characteristics, operation status and age composition of the elderly.

3 Spatial mode of the elders' canteen

3.1 Site selection and scale

In addition to meeting the urban planning requirements, the location of the community elders' canteen should be settled in a community where the density of the elderly population is large and the demand for food and beverages is large. ^[3] The

average walking fatigue limit for healthy elderly people is 10 minutes, and the distance is about 450~500m. The radius of public service facilities in residential areas should be no more than 800~1000m. According to the planning requirements of comprehensive community service facilities and the physiological characteristics of the elderly, the optimal range of the service radius is 500~800m. Besides, the municipal conditions should be good, so that the elderly in the community can arrive on foot safely and conveniently. The site should be as close as possible to the public space of the community, such as the Park, the Community Plaza, etc., for the formation of community integrated service facilities and for the convenience of residents of all ages in the community. In the planning phase, the site of elders' canteen in newly-built communities can be selected in a shared base with child care building or a community health service center, or may be built in conjunction with an elderly activity center or an elderly day care center. ^[4] The elders' canteen in completed community can be constructed in idle sites through function replacement in cases of land shortage. If the elders' canteen needs to be built with other buildings, it should be in the lower part of the building and set up with independent entrances and exits.

For example, in an elders' canteen that serves 60 people with a kitchen, the general delivery service should not exceed 10 people, and it needs to arrange a dining seat for the remaining 50 elders in the dining area. According to the eating habits of the elderly, the peak meal time is between 11:30 and 12:30. ^[5] If the seating arrangements are too small, the waiting time of the elderly will be too long, causing space congestion; if there are too many seating, it will result in space waste and will not be conducive for the staff to concentrate on the catering service. According to the feedback from the staff at the research sites, it is ideal for the elderly to eat in two batches at this time and it is estimated that the ideal number of seating is about 25. ^[6] According to the ratio of the sum of the size of the kitchen and the warehouse to the size of the dining area in the "Dietary Building Design Standard", the kitchen area is 30 m², and the area estimation of other auxiliary function rooms is shown in Table 1.

Table 1 Ratio of the functional rooms of the elders' canteen

Times of Service	Time of Delivery	Dine-In (Seating)	Dining Room (m ²)	Kitchen (m ²)	Lobby (m ²)	Pick-up Area (m ²)	Packing Area (m ²)	Toilet (m ²)	Staff Room (m ²)	Others (m ²)	Total (m ²)
60	10	25	50	30	5	6	4	30	10	15	150
100	15	42	84	30	8	10	4	38	10	20	204

Note: According to the "Dietary Building Design Standard", the sum of the size of the small canteen kitchen and the warehouse is not less than 30 m², and the size increases by 0.3 m² for each additional person served when 100 or more people shall be served.

3.2 Function and plane

The community elders' canteen is a category of catering buildings with basic functional modules for dining and kitchen catering and auxiliary rooms. Taking into account the actual needs of community care services, ^[7] the elders' canteen is also an important living place for the elders and an important support for the development of community care services. It is necessary to add special service functions in the functional configuration based on the needs of the service object. For example, setting up social work stations or volunteer workstations in the elders' canteen and arranging office space of appropriate size to provide convenient docking windows for elders in the community, so that social organizations or volunteer organizations can get in touch with community service objects. ^[8] The services provided by social work station in community elders' canteen can include, but are not limited to, offer endowment services resources, social security support for the elderly, community life facilities, and recreational and health information activities. The elders' canteens can provide meals at a market price through the take-out window. They can provide take-away services to people who have food and beverage needs in the community but do not provide dine-in food, which can both bring profits without occupying the scarce public resources in the elders' canteen.

Some community elders' canteen can also set up an outdoor rest area, close to the entrance foyer or dining area, and arrange greening and seating ^[9] for old people to talk to each other and enjoy the sun before waiting for meals and after meal.

4 Fine Designs

The fine design of the community elders' canteen is mainly reflected in the various functional spaces of the elderly dining stream, ^[10] and the consideration of requirements of barrier-free design and general design in the design of various facilities (Table 2).

Table 2 Demand of Facilities in the Dining Area of the Community Elders' Canteen

Facilities in the Canteen	Usage Intention (%)	Requirement	Details
Wash Basin	80	Wash hands before or after meal	Splashproof
Spice Rack	30	Adjust for each person's taste preference	One for each table
Tea Room	60	Get hot water, make tea	Place it close to the dining area
Wall Clock	90	Check the time	Hang on the wall of the canteen

Table 2, cont.

TV	45	Watch TV shows	Reserve room on the wall for TV in the dining area
Electric Fan	75	For ventilation and cooling off	Wall Fan
Air Conditioning	60	Adjust summer temperature and humidity	Wall-hanging/Cabinet type/Centralized
Bulletin Board	20	Elderly health care news	Bulletin board in the lobby/dining area/outdoor
Menu	80	Daily Menu	Place it close to the pick-up area
Barrier-free handrail	95	Guarantee the safety of the elders	Set barrier-free handrail in the places where the elders are easy to fall such as corridor/steps
Sterilamp	95	Guarantee the sanitary safety of the canteen	Reserve room on the wall of the dining area

Note: The percentage of frequency used is compiled from 143 field survey data.

5 Suggestions for the construction of the elders' canteen

The construction of the elders' canteen in China has just started with limited investment and limited payment capacity of the elders. Therefore, the practicability of the design plays a significant role in the operation of the canteen. For example, some operators currently pay attention to realize manpower savings and service efficiency through design and believe that a larger-scale elders' canteen is more economical. There are also some operators who are pursuing a higher dining rate and a lower per capita use area, which is considered to be more conducive to cost reduction and therefore do not mind using a cramped spatial form. However, with the development of China's economy and society, ^[11] the elderly will also pursue a better living environment and service quality in the future, and personalized service with life care as the core will be more popular. By that time, some of the elders' canteen built today with limited facilities and cramped public space will likely be eliminated for no longer meets market demand. The architectural design and operation services of the elders' canteen should be matched with the actual needs of the elderly. ^[12] Since the building is difficult to adjust flexibly with the needs of future use groups, it is necessary to consider future needs in the initial design and leave room for possible upgrades and reconstruction in the future.

6 Conclusion

At present, China's social pension service system is in a period of rapid development. The construction of community service facilities for home-based care

for the aged is still in its infancy. Based on national conditions and drawing on the development experience of advanced regions, [13] positive coping strategies should be formulated early and a system of different types of elders' canteen should be established to provide a variety of elderly catering service options for the elders in the community, and create a space environment for the elders to dine in the canteen.

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