



Age-Friendly City New Nursing Spaces for the Elderly

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Abstract. The social and geographical profiles of cities are altering as a result of significant aging processes. Significant ageing processes are changing the social and spatial profile of cities. This project analyses the present situation and the profound influence of the social isolation of the elderly. In view of the medical reality in the aging process of the elderly, the focus will be on transforming the single traditional nursing space into a comprehensive space with residence and care integrated, providing an innovative way of Co-Living for the elderly, and emphasizing the potential and possibilities of the age-friendly community. Therefore, the study emphasizes the necessity to redesign and reorganize the living environment in Wood Green (London) with the goal of opposing the social isolation of the elderly.

As a method of sharing, Co-Living serves an effective function to alleviate social isolation, which not only promotes their body and mind in the direction of health but also protects the dignity of the aged in utilizing space and receiving services. In this case, design elements should be considered in terms of diverse spatial forms that allow residents to improve physically, mentally, and emotionally. In addition, the impact of nature on health will also be explored using the expanding body of research related to environmental psychology for reference.

Keywords: the elderly · social isolation · Co-Living · inclusive housing · collective housing · community life

1 Introduction

The project aims to present a detailed description of the National Health Service in England (NHS) and restructuring senior housing in Wood Green. It is desired to create an age-friendly community for the elderly living alone, with adequate medical facilities, amenities, public space, and treatment measures. This can combat the increasingly serious problem of social isolation of the elderly [7].

The first part of the project provides an overview of the NHS system and identifies the existing shortcomings, such as the insufficient hospital beds. This problem, on the one hand, further results in the elderly not receiving timely medical support when they become ill [9]; on the other hand, the inadequate nursing space makes those in the

recovery stage compelled to return home to take care of themselves, which may worsen their physical problems.

In the second part, the project examines the psychological and social requirements of older people, particularly those over 65 years, in the context of COVID-19 where those people are at a high risk of spending extended amounts of time at home. Social isolation, as the most significant health issue for older people, may cause serious mental health problems such as high levels of loneliness or high mortality rates in specific circumstances [11].

As a result, inclusive senior housing based on the Co-Living concept is expected to be established, which can accommodate people of different ages and nursing staff, and realise the integrated design of the residence, nursing, and entertainment. In order to strengthen older people's connection with society and satisfy the living requirements of various populations, one-bedroom units, two-bedroom family units, care units, and emergency units are provided [10]. These seemingly fragmented family units, which are different from the traditional nursing space, are linked together rather than independently.

Therefore, the design strategy is based on the following three principles; firstly, a variety of communal circulations will be constructed in the building, including ramps, mobile platforms, stairs, elevators, etc. [20]. These modes of transportation can not only provide a more convenient connecting space but also serve as a shared space for the elderly to communicate and gather. Secondly, visual stimulation should be created, including landscape view and horticulture therapy [21]. Through a variety of sight settings and green landscapes, those elderly people can also contact the outside world and achieve the effect of psychological healing without leaving home. Thirdly, it is advocated to add more public facilities such as communal restaurants, reading areas, or art areas which are suitable for the elderly to promote social participation [12].

2 Background

2.1 Bed Blocking in Hospital

According to a report by Age UK, thousands of elderly people end up in hospitals with potentially life-threatening infections because general practitioners (GPs) and other community-based NHS services rarely provide physical, psychological, and social care to people. Longer hospital stays may lead to worsened health outcomes and increased requirements for long-term care. [1].

2.1.1 Definition of “Bed-Blocking”

Bed-blocking is a term used to describe a situation where patients stay in the hospital for non-medical reasons, such as waiting for social services [13].

2.1.2 Reasons for “Bed-Blocking”

The long-term occupation of hospital beds may be attributable to the lack of supportive care after returning home or the non-availability of a temporary or permanent space in a residential home, rehabilitation unit, or a smaller community hospital [28].

2.1.3 Influences of “Bed-Blocking”

Longer stays in hospital are often associated with worsened physical condition and increased requirements for long-term care, which results in the unavailable supply for new patients [25].

2.1.4 Effort on Bed-Blocking

Compared with that in 2018, 19,000 fewer bed days were lost with 50 fewer persons delayed each day on average. Due to the joint endeavor of NHS and social care staff, considerably fewer people are currently confronted, with delayed hospital leaving. However, social services have been severely savaged by multibillion budget cuts and will also be devastated by the restrictive immigration rules considering its reliance on international personnel [17].

3 Impact of COVID-19

3.1 Self-care at Home

As part of the lockdown measures, people are required to stay at home and reduce unnecessary social contact [8]. However, social isolation can be considered the most detrimental issue for those over 65 years old with high-risk or underlying medical problems, which may cause high loneliness and high mortality. [2].

3.2 Social Isolation Among the Elderly

3.2.1 How Socially Isolated are Older People?

According to a survey, the elderly are more likely to be isolated and the primary factors associated with that are inappropriate state of physical and mental health, solitude, no children, low-income level, and unbecoming accommodation. They are also insufficient in receiving friendships, care services, and social contact that so many of us take for granted. This poses potential threats because the elderly are unable to accept practical help, such as transport and care services, and become disconnected from this inclusive society.

3.2.2 What Causes Social Isolation?

On the one hand, effective care for the elderly relies on hospitals instead of the community to establish a community information infrastructure. [3] As a result, there is a lack of face-to-face contact, peer-to-peer support, and timely visits between the elderly and nursing staff [13]. Also, the elderly cannot communicate with others around them while they stay at home alone. Therefore, an effective information flow and contact space needs to be provided to evaluate the broader requirements of the elderly and encourage effective social integration. On the other hand, the lack of amenities and services renders it difficult and challenging for old people to access their local hospital. [4].

4 Design Strategies

4.1 Co-living—An Age-Friendly Community

4.1.1 Communal Circulation

A growing body of research highlights the importance of designing or retrofitting communities for walkability in order to provide them the opportunity to maintain a healthy, active lifestyle after retirement. [5].

Therefore, the traffic flow in the building is divided into different groups and the abundance of traffic space is calculated to enable the elderly to fully activate their bodies inside the building thereby providing maximum convenience for their life.

Also, elevators serve as the fastest means for the entire people to utilize while nursing staff can only use a cargo elevator to transport equipment, patients, and supplies. A staircase is a supplementary form of transportation in the building, mainly serving the elderly with strong walking abilities [14]. The moveable platform is located in each tiny family unit for private use; it is available when a person is disabled, frail, or unwilling to move [18]. The platform facing the exterior of the building also allows the elderly to enjoy the landscape while moving [26]. In addition, ramp circulation enables those with the ability to move to exercise by making eye contact and interacting with the greenery and enables those who can't walk to use a wheelchair with the assistance of family members or caregivers. [Fig. 1].

4.1.2 Visual Stimulation

Mainly through the combination of horticultural therapy and landscape visual stimulation, it is thus possible for the elderly to communicate with the outside world.

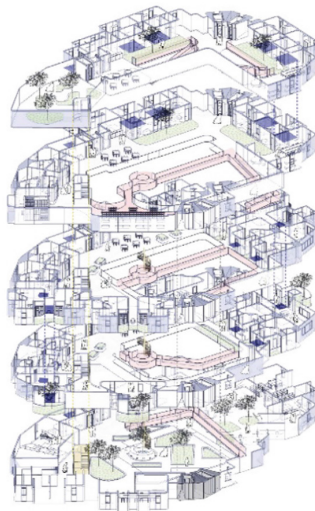


Fig. 1. Communal circulation system [self-painted]

In this strategy, the roof garden, green balcony, central courtyard, and planting devices will be designed to fit the architectural space. Horticulture therapy has been shown to be an effective intervention for a wide range of vulnerable groups, including those who suffer from mental health issues, intellectual disabilities, or physical impairments [15]. Green spaces provide individuals with an opportunity to socialize, which helps isolated and vulnerable groups feel included in society. Also, visual stimulation is of vital significance as elderly people spend a lot of time rambling, sitting or, lying down observing the physical environment [19]. Inside the private home visual connections to the outside should be established. [6] For some elderly people with limited mobility, the capacity to encounter nature is frequently limited so visual stimulation and sensory experiences can not only help them realise green immediately, but also create a brand new sense of movement, life, and change inside the building.

4.1.3 Public Facilities

This strategy attempts to increase shared space, enhance infrastructure construction, and foster older people's collective consciousness and social participation.

Some exploratory studies have shown that social space has a significant positive effect on the behaviour and mood of older adults. [7] Older people in this environment exhibit more active participation and less socially isolated behaviour. Therefore, according to the requirements of the elderly, some adjacent public spaces are conducive for them to exhibit more active participation and less socially isolated behaviour, and also to avoid the loneliness caused by boredom or lack of friends.

This building adopts the distribution strategy of 'housing units surrounding the central courtyard' with the organic green space becoming the central public [16]. Abundant light for the interior spaces is intended to be provided via the hollow atrium, unrestricted openings, and flexible walls in the centre [20]. The infrastructures are classified into the communal restaurant, conversation area, reading area, performance area, art area, and a large courtyard, which respectively provide people with a diversified shared community where people of different ages can communicate, and intergenerational activities may occur. In addition, caregivers are also located on this floor in order to keep an eye on the elderly's behaviours and provide immediate assistance.

5 Design Work

5.1 Site Analysis (Scale: London - Haringey - Wood Green - High Street)

5.1.1 Hard to Get Nursing Care

According to Haringey's distribution map of medical facilities, most of the medical points are distributed along the main road; the medical facilities in Wood Green also adhere to this rule, but the distribution is fairly dispersed. This is especially challenging for the elderly near High Street where they are more concentrated and in poorer physical condition as they may travel even an hour for medical care needs.

5.1.2 Potential Factors of High Street

Based on the above-mentioned argument, the project will focus on High Street and try to find potential spaces for building comprehensive nursing housing [22]. The housing will be located along the main street, which will have multiple convenient transportation stations and green spaces nearby. Additionally, the infrastructure is rather abundant and can radiate directly to areas where the elderly are concentrated.

5.2 Design Analysis

5.2.1 Community Scale

The building is a nursing and residential complex with the concept of Co-Living, which provides community life for the elderly and prevents social isolation. The building is initially intended to have five floors, but the first floor and second floor can be used as an increasable volume to generate more dwelling spaces by replicating and stacking.

The ground floor is an open space with multiple flexible entrances opening in all directions and connecting the external walkways and gardens so that the division between internal and exterior space is eliminated. During the epidemic, it will be isolated from the outside world using transparent materials with only one entrance opened. In addition, the huge public space on the ground floor serves a variety of purposes. For instance [23], the central sensory garden serves as a setting for horticulture therapy and promotes the combination of appropriate exercise and sensory experience with ramp circulation [Fig. 2]. Also, there are some small rehabilitation spaces where additional intergenerational and social events will be held.

In terms of living quarters, the first and second floors [Fig. 3] [Fig. 4] have four two-bedroom family units, five one-bedroom units, a nursing station, as well as a conversation area, and two communal dining halls. In this case, people can be saved from unnecessary travel between spaces through corridors or central bridges.

Third floor [Fig. 5] provides two one-bedroom units and four care units for the weak elderly. In addition, there are roof gardens, terrace gardens, music rooms, a conversation area, and two communal dining halls. The elderly can access the roof floor directly [Fig. 6] through the ramps in front of the care units and the staircase in the central



Fig. 2. Rendering (central courtyard, sensory garden and view on the ramp) [self-painted]

landscape so that they can make use of the landscape view, horticulture therapy, and community life on the roof garden [Fig. 7].



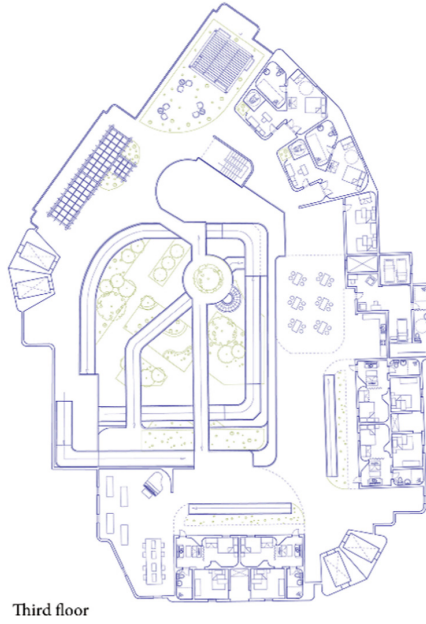
First floor

Fig. 3. First floor of the Co-Living housing [self-painted]



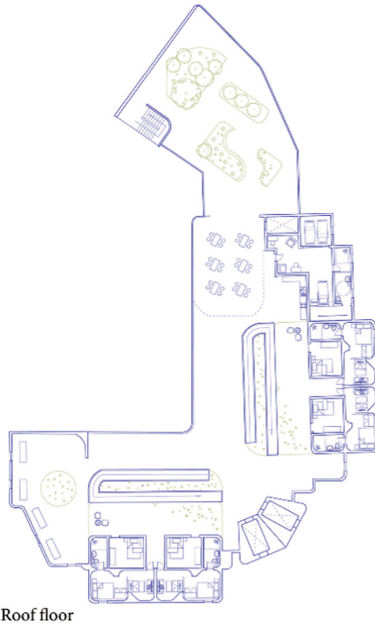
Second floor

Fig. 4. Second floor of the Co-Living housing [self-painted]



Third floor

Fig. 5. Third floor of the Co-Living housing [self-painted]



Roof floor

Fig. 6. Roof floor of the Co-Living housing [self-painted]

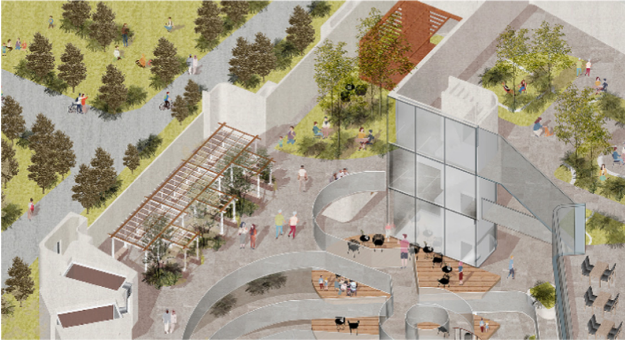


Fig. 7. Rendering (roof garden and communal restaurant) [self-painted]

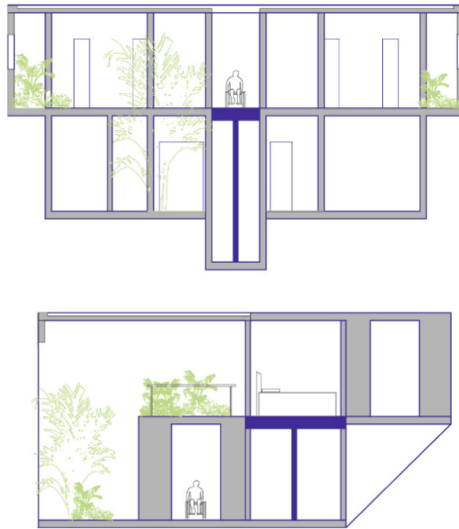


Fig. 8. Section (the mobile platform in two-bedroom family unit and care unit) [self-painted]

5.2.2 Unit Scale

The design of each unit separates the public and private spaces within a single unit by having two floors. The majority of the living spaces are located downstairs, while the bedrooms and study spaces are located upstairs. Each floor is equipped with a landscape balcony, thereby enabling the elderly to enjoy the scenery [Fig. 10].

One-bedroom units can be configured in two different ways to adapt to the appearance and orientation of the building. This unit provides residence for an elderly person or a family. Two-bedroom family unit serves two elderly persons or two families. They live separately on the second floor but share the living room and kitchen on the first floor. At the same time, the mobile platform facing the exterior of the structure was installed to not only helps the elderly reach quickly but also allow them to enjoy the landscape vision while moving [Fig. 9].



Fig. 9. Rendering (the elderly enjoy the landscape vision while moving) [self-painted]



Fig. 10. Rendering (natural vision green balcony and community life in units) [self-painted]

The care unit is a shared unit for the nursing staff and the elderly who are unable to live independently. At the same time, the nursing staff's room will be used as the mobile platform, which provides timely supplies, treatment, and even companionship for the elderly [24].

The emergency segregation unit, which is included in the nursing station, is mainly used for addressing emergency isolation and treating unexpected infections. In addition, the staff space also includes offices and bedrooms for nursing staff, storage rooms for medical supplies [27], a freight elevator, and a platform for urgently transporting patients so that patients can quickly reach outdoors and be taken to the hospital (Fig. 8).

6 Conclusion

6.1 Advancement of Nursing Care Spaces and Realization of Co-living

One of the effective approaches to responding to demographic ageing and social isolation is to make cities, communities, and housing age-friendly. First of all, in order to address the shortage of hospital beds, a nursing space should be made available for the elderly

who have not fully recovered after leaving the hospital. Secondly, opportunities should be provided for the elderly who have experienced extreme loneliness for a prolonged period of time to live together, make friends, and establish connections with society. Thirdly, nursing staff and patients should be linked to live together. With this method, it is of vital significance to improve the existing problems of the lack of face-to-face contact, peer support, and timely visits between the elderly and nursing staffs. A nursing and residential complex adhering to the concept of Co-Living has been designed to reshape the rehabilitation space for the elderly and ensure the elderly's dignity in using space and enjoying services. It demonstrates that the communal circulation system, green system, and shared public amenities can contribute to the development of convenient community life, thus addressing the physical and mental problems of the elderly effectively.

6.2 Vision for the Future

In the future development of Wood Green, the urban orientation is primarily focused on serving the requirements of young people and commerce. However, the combination of green spaces and nursing spaces will be produced on High Street by making use of potential spaces, including the open gardens, enclosed green spaces, and idle green spaces along the street and front squares. It is hoped that this process will produce a new type of synchronized operation for elderly care in the city centre. Therefore, cities will gradually be more green-oriented and age-friendly for improved health and a higher standard of living.

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