Confused but not Lost - Assisted Living for People with Dementia

Kuo Kuan-Ting, 2026
Housing and Healthcare Architecture

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Department of Architecture & Civil Engineering

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Abstract

This Master's thesis investigates how architectural design can reduce confusion and anxiety for people with dementia in Swedish facilities, and how these principles can be adapted for the Taiwanese context. The research is primarily based on Swedish assisted living regulations and housing standards. Given that dementia has become a significant social challenge in Sweden, the built environment plays a vital role in the well-being of those affected; however, many existing facilities still cause distress due to poor spatial design.

The study examines theories regarding spatial configuration, wayfinding, and spatial perception in dementia, alongside the role of architectural form. Through literature reviews and case studies, these theories are translated into a set of practical design principles, which guide a proposal for an assisted living facility in Gothenburg.

This project demonstrates that architectural decisions have real consequences for the orientation and well-being of residents with dementia. It aims to show how theoretical concepts can be directly applied to architectural practice to ensure a sense of direction for residents.

Finally, the thesis discusses how the Swedish experience and design principles can be transferred to the Taiwanese context. This process involves comparing the care systems, architectural typologies, and urban differences between the two regions to analyze which design elements are transferable and which present localization challenges. Drawing on personal reflections, the author explores the common dilemmas faced by both Sweden and Taiwan in the discussion of elderly care architecture, ultimately offering valuable insights for Taiwan's developing long-term care system and facilities.

Key Words: Assisted Living, Residential Healthcare, Dementia, Wayfinding and Spatial Orientation

Kuan-Ting, Kuo

I'm in Sweden to deepen my expertise in sustainable building design. Over the past year, I have strengthened my abilities by participating in healthcare and senior housing design projects, developing LCA frameworks, and advancing computational analysis skills.

Education

Chalmers University of Technology

Göteborg, Sweden | Sep 2024 – Present

Master of Science in Architecture and Urban Design

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- ACE400 Architecture in the Anthropocene
- ACE470 Healthcare architecture 1
- ACE520 Residential healthcare: Housing for seniors
- ACE510 Mediated material interfaces
- ACE380 Sustainable development and the design professions
- ACE415 Media and representations
- BOM251 Life cycle engineering
- DAT566 / DIT408 Introduction to Data Science and AI

Tunghai University

Taichung, Taiwan| Sep 2016 – Jun 2021

Bachelor of Architecture

Professional Experience

Architectural Designer, United Open Architects

Tainan, Taiwan | Aug 2021 – Oct 2022

- Developed 3D models and detailed drawings independently.
- Led competitions and permit coordination with engineers.
- Presented design proposals and communicated directly with clients.

Professional Projects

- Campus Planning for a School: Accessibility Planning Assessment | Mid/Final Review
- Elementary School Kitchen Design Commission | Comp, SD, DD, CD
- University Student Cafeteria Renovation Design Commission | Comp, SD, DD, CD
- Museum Exhibition Space Design Collaboration | SD, DD

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Finally, I am profoundly grateful to my family. Our discussions about their experiences caring for my grandparents provided me with essential insights into the realities of Taiwanese care facilities. Seeing the system through the eyes of a caregiver helped shape the design process in ways that data alone never could.

1. Introduction

This chapter sets out the dementia care challenge in Sweden and Taiwan, the research questions driving the thesis, and the methods, theories, and limits used to shape the work that follows.

1.1 Background

SWEDEN

The study has shown that dementia has become a major societal challenge in Sweden. According to Ding et al. (2024), 3.7% of Swedes aged 62+—92,293 people—have a registered dementia diagnosis, with prevalence rising sharply with age and varying by region and living conditions.

For this reason, the Swedish government launched the policy Nationell demensstrategi 2025 – 2028, defining dementia as a national priority and emphasizing improved quality in special housing. This strategy clearly states that the built environment can be a crucial part of supporting people living with dementia.

Despite growing attention, many existing built environments in Sweden are still not friendly to people living with dementia. Evidence from multiple studies shows, for instance:

- Long, monotonous corridors, frequent turning points, and limited sightlines make wayfinding difficult and increase anxiety (Ghamari et al., 2025).
- Many environments lack clear landmarks and meaningful environmental cues, resulting in low legibility and higher cognitive load (Ghamari et al., 2025).
- Outdoor areas, although proven to reduce stress and support well-being, remain underused or difficult to access, with unclear transitions and limited supportive features (Bengtsson, 2015).
- Several care facilities still reflect institutional design logics, prioritizing staff efficiency over autonomy and everyday participation (Andersson, 2013; Andersson, 2011).
- Ordinary housing also contains critical environmental obstacles—especially in kitchens, entrances, and bathrooms—where narrow layouts, thresholds, and limited maneuvering space are particularly challenging for individuals with cognitive decline (Iwarsson & Ståhl, 2003).
- Symmetrical floor plans, identical layouts between stories, and windowless corridors interrupted by fire doors provide few orientation cues, while inadequate daylight in communal rooms further weakens residents' sense of time and place (Torrington & Tregenza, 2007).

TAIWAN

The topic is important to me. As a future architect in Taiwan, our society is now facing an increasing number of elderly people living with dementia (both of my grandparents have been living with dementia). However, our nursing homes, healthcare facilities, and architects have limited experience in addressing this issue or designing for it. Even though some cultural differences mean that knowledge cannot be transferred directly, I would like to take this opportunity to study Sweden and learn advanced, evidence-based approaches to how space can make a positive impact for people with dementia.

To bridge the gap between these international precedents and Taiwan's current architectural practices, it is essential to integrate localized, evidence-based research regarding spatial planning.

- The physical environment directly impacts the behavioral and psychological symptoms of dementia; while poorly configured environments can exacerbate agitation, anxiety, and confusion, thoughtfully designed spaces can significantly improve wayfinding, daily functioning, and social interactions (Lee & Haung, 2023).

- Addressing the cognitive load caused by monotonous corridors requires a strategic approach to route configuration. Research utilizing space syntax demonstrates that straightforward route planning—specifically implementing a symmetric tree-branch structure rather than circular or highly intersected layouts—can substantially alleviate wayfinding difficulties for individuals experiencing cognitive decline (Chen, Ko, & Hsieh, 2021).

- Care facilities must transition toward "unit care" models. Dividing facilities into smaller, home-like settings for limited groups of residents provides a familiar, domestic scale that safely accommodates natural behaviors and preserves autonomy (Chin, 2013).

- Beyond the facility itself, future architectural planning must also consider the social integration of these spaces. Implementing a symbiotic care structure that supports co-living and shared spaces between individuals with dementia and the broader community can mitigate isolation and foster reciprocal, supportive relationships (Fang, Liu, & Huang, 2024).

By synthesizing the advanced principles observed in Sweden with these localized architectural strategies, future healthcare facilities in Taiwan can be carefully designed to provide therapeutic, navigable, and socially inclusive environments.

Research Question

Main Questions

How can architectural design reduce confusion and anxiety for people with dementia in a Swedish facility, and how can these principles be adapted for the Taiwanese context?

Sub-Questions

- Which spatial and architectural conditions impair orientation and recognition for individuals living with dementia?

- What design strategies can architects employ to mitigate these conditions and create a dementia-friendly built environment?

- How do the elderly care systems of Sweden and Taiwan differ?

- What knowledge embedded in Swedish architectural practice can be meaningfully transferred across these two cultural contexts?

1.2 Methods

Research for Design

Literature Review

The first part of the literature review builds a theoretical base on how dementia affects people's use of space and the behavioural problems that come with it. It also looks at how architects can help reduce cognitive confusion and keep residents' behaviour stable.
Based on this theory, the research scope is clearly defined in the Delimitations chapter to focus only on dementia, not other cognitive disorders, while taking into account the size limits and rules in the current Swedish building codes for assisted living.

After this basic knowledge, the research goes into more detail to answer the main research question: what design strategies can architects use to reduce these problems and create a dementia-friendly built environment? This part is divided into the following areas:

Study of Typology:

- Sweden: The review looks at the change towards a more homelike care model, studies the common spatial layout of assisted living for dementia, and points out common design limits. It also explores design opportunities for creating personal and varied private spaces.

- Taiwan: To give a comparison, this section describes Taiwan's current change towards community-based care centres and specialised residential models. A fuller analysis of the differences between the two elderly care systems is left for the Discussion chapter to keep the focus clear here.

Space for Dementia

- The review is then extended to find specific design factors made for dementia care. This part mainly uses Swedish and Nordic sources, with extra material from Western and Central Europe where local research is limited. These findings are also compared with Taiwanese research to show the differences in development and design priorities.

Outdoor Environment:

- Because the final design proposal includes a lot of outdoor space, this section looks at the therapeutic value of outdoor areas in assisted living. As with the interior analysis, this part compares Swedish and Taiwanese research to set up a full set of environmental guidelines.

Case Studies

To connect theory with practice, the study also analyses existing elderly care buildings, mainly in Sweden and the wider Nordic region. These case studies are a useful chance to review real spaces together with the related literature. Existing projects show how other architects deal with these issues, and reveal the strengths and weaknesses of each building in terms of apartment layout and the overall efficiency of the floor plan.

Summary of Design Principles

The main purpose of this wide review is to correctly understand and interpret existing knowledge from architectural research and built environment guidelines. Finally, the findings from the literature review and case studies are brought together as a set of core principles in the Summary of Design Principles. These principles work as evidence-based standards for generating the design and for checking whether the architectural proposal can successfully provide a positive, therapeutic environment for its residents.

Research into Design

Following the literature review and case studies, the consolidated design principles are translated into spatial decisions through an iterative, evidence-based design process. Each principle is treated as a performance criterion against which architectural moves can be tested and refined.

- At the site scale, principles concerning outdoor accessibility, vehicular separation, and the therapeutic value of nature inform the volumetric strategy and the rotated T-shaped configuration.

- At the building scale, principles regarding small-scale unit care, navigational simplicity, and boundary definition between corridors and units guide the floor plan development, leading to three differently sized units (8, 9, and 10 residents) connected only through a central lobby that functions as a wayfinding landmark.

- At the unit scale, principles concerning communal subdivision, decentralised nursing presence, and varied seating arrangements shape the placement of the shared kitchen, the lounge, and the balconies.

- At the apartment scale, Swedish regulatory requirements are combined with the visual axis principle to produce a 36 m² unit prototype with a clear sightline from the entrance to the window.

Throughout the process, design decisions are continuously cross-checked against the principle catalogue. This back-and-forth between principle and form ensures that the resulting proposal is driven by the response to the cognitive, social, and regulatory conditions of dementia care in the research phase.

Research through Design

The proposal as a way to test and reflect on the principles drawn from the literature, and it also becomes a source of new questions: which design moves work because of the Swedish welfare and regulatory setting, and which can stand on their own.

This reflection forms the basis of the discussion chapter, where the proposal is used to think about how parts of its logic might transfer to the Taiwanese elderly care context.

1.3 Theories

Dementia

Definition

- Dementia is defined as "a syndrome associated with progressive memory impairment and loss of other cognitive functions (aphasia, apraxia, agnosia)" (Van Steenwinkel, 2015)

Disorientation

- Most people with dementia "are confronted with disorientation in space, time, and identity" (Van Steenwinkel, 2015, p. 4) , which “causes profound feelings of insecurity, anxiety, and homelessness" (Van Steenwinkel, 2015)

- These impairments affect their relationship with the environment, where orientation means "placing the place and placing oneself within it" (Örulv, 2010, cited in Van Steenwinkel, 2015)

Understanding the role of Environmental Factors in Architecture

- People with dementia often seek "comfort either in seclusion or in the proximity of others, and/or in the sheltering character of 'little worlds' " (Van Steenwinkel, 2015)

- Daylight, material, lighting, interior colouring, sound and noise⋯ are ambient factors that influence the human perception of space. (Andersson, 2011)

- Recognizable, well-placed furniture "enable people with dementia to maintain control ...".(Jonsson, 2013)

- People with dementia face barriers such as "unclear transitions, uneven surfaces, and insufficient seating." (Bengtsson, 2015)

- Architecture can support orientation by "accommodating places for everyday activities, and places for privacy and togetherness" (Van Steenwinkel, 2015)

- Spaces with clear sensory coherence prevent confusion and support stable behavior. (Andersson, 2011)

Main Literature for the Following Chapters

The chapters that follow rely on a small set of central works. The Swedish typology and apartment regulations build on Andersson (2011) and Nord (2013).

The dementia-specific spatial principles draw mainly on Van Steenwinkel (2015) and Ghamari et al. (2025), with the design framework of Tsekleves and Keady (2021) used to organise the principles in Section 2.5.

The outdoor environment section uses Bengtsson (2015) and Rodiek (2005) as the Swedish base.

The Taiwanese perspective is supported by Chin (2013) for unit-care models, Chao (2009) for outdoor space, and Lee and Haung (2023) for therapeutic environments.

1.4 Delimitations

Boundary

The master's thesis will focus on, and be limited to, the architectural and environmental aspects that affect the daily life of people living with dementia, and based on the references, the study will mainly be situated within the Swedish/ European context.

The project will not discuss medical treatments, diagnostic processes for dementia, staffing in healthcare centers, or healthcare operational systems. Even though cultural transferability is discussed conceptually, it does not aim to compare global healthcare systems in detail.

The design recommendations will be developed through architectural drawings or perspective simulations, such as layouts, spatial organization, accessibility, and sensory clarity. Lastly, the thesis concentrates on supportive design for people with dementia and does not cover other disorders.

Regulation

In Sweden, a primary architectural delimitation for assisted living facilities is the strict regulation governing the size and spatial configuration of private apartments. According to standard building norms, individual private apartments are highly constrained in size, typically restricted to a compact area of approximately 30 to 36 square meters (Andersson, 2011; Nord, 2013).

Based on standard architectural reference models, a typical apartment layout operating within this limitation measures approximately 35.9 square meters (7.48 meters in overall length by 4.80 meters in width) and is strictly subdivided by the following mandatory dimensions:

Hygiene Room (Bathroom): Requires a substantial portion of the floor plan, typically measuring at least 2.53 m by 2.30 m. This specific dimension is legally required to accommodate a full wheelchair turning radius and provide sufficient workspace for care staff around the toilet and shower.

Entrance and Hallway Zone: Must maintain a minimum clearance width of 1.60 m to ensure unobstructed wheelchair access, maneuverability, and proper door swing allowances.

Combined Bed-Sitting Room: The remaining living area is confined to a length of approximately 3.05 m to 4.65 m. This multipurpose space must integrate sleeping, living, and a kitchenette area, while still housing a mandatory clear wheelchair turning circle.

Outdoor Extension: Adjacent balconies, when included, are typically designed with a standard outward depth of 1.80 m.

1.5 Sustainability

Guidelines

SDG 3 Good Health and Well-being

- By creating supportive environments that reduce stress, promote orientation, and enhance mental stability for people with dementia.

SDG 11 Sustainable Cities and Communities

- By contributing to inclusive, safe, and dementia-friendly community infrastructure in Sweden.

SDG 12 Responsible Consumption and Production

- By applying long-lasting, healthy, and sustainable material choices and design strategies that minimize environmental impact.

Strategies & Materials

During the development of this project, SDG 3 (Good Health and Well-being) and SDG 11 (Sustainable Cities and Communities) were already integrated into the formulation of the design guidelines. Regarding SDG 12 (Responsible Consumption and Production), the following two strategies were implemented:

First, regarding the selection of environmentally friendly materials, priority is given to those with Environmental Product Declarations (EPD). For instance, the timber flooring and outdoor wooden decking featured in subsequent chapters utilize standardized, recyclable materials that meet sustainability requirements.

Second, the apartment units presented later in the proposal follow a simple rectangular form based on a single, repetitive module. This design logic creates an opportunity for prefabricated construction methods, which could significantly minimize material waste on-site—an approach that would be further detailed should the project progress to more technical thinking.

2. Study of Assisted Living

This chapter reviews how assisted living is organised in Sweden and Taiwan, looks at design factors specific to dementia and outdoor space, examines three case studies, and ends with a set of design principles.

2.1 Study of Typology

SWEDEN

The Shift in Demographics and Care Models

- Rise in Dementia: Dementia has become the most frequent age-related problem among older populations, which fundamentally changes the spatial requirements for eldercare facilities (Andersson, 2011).

- The "Homelike" Ideal: There has been a distinct shift away from large, institutional settings toward small-scale, homelike environments (Andersson, 2011; Nord, 2013). A homelike environment is considered crucial because it helps older people with cognitive decline cope better with everyday living (Andersson, 2011).

Standard Spatial Organization

- Cluster Layouts: Assisted living facilities are typically organized into residential units or clusters containing 5 to 15 individuals (Andersson, 2011; Nord, 2013).

- Room Specifications: The individual flats usually range from 20 to 40 square meters (Andersson, 2011). A standard model allocates approximately 30 square meters per private bed-sitting room (Nord, 2013).

- Internal Layout: These private rooms typically consist of an open multi-purpose space functioning as a combined bedroom, living room, and kitchenette, alongside an en-suite bathroom (Andersson, 2011; Nord, 2013).

- The Common vs. Private Space Dilemma: Building regulations permit the reduction of private room sizes if compensatory space is added to communal dining and social areas (Nord, 2013). This has resulted in a dominant architectural norm where central common rooms are spacious and well-designed, while private rooms remain uniform, small, and identical (Nord, 2013).

- Usage Reality: Despite the architectural emphasis on common areas, research indicates that frail older people often spend up to 20 hours a day isolated in their private bed-sitting rooms (Nord, 2013). Consequently, small and identical private rooms fail to accommodate the highly individualized needs and routines of the residents (Nord, 2013).

Design Constraints

- Medical Needs vs. Homelikeness: There is an inherent conflict between designing a cozy, homelike environment and fulfilling the requirements of complex medical care. For example, the need to maintain strict hygiene and prevent the spread of bacteria like MRSA often requires spatial finishes and facilities that disrupt the residential feel of the architecture (Andersson, 2011).

- The Tyranny of Accessibility and Safety Standards: The architectural design of assisted living is heavily dictated by a fragmented but strict body of regulations concerning accessibility and occupational safety (Nord, 2013). Architects must accommodate specific measurements for wheelchair turning radii, door widths, and workspace for care staff around beds and toilets (Nord, 2013).

- Loss of Sensory and Aesthetic Quality: Because designers must prioritize the functional requirements of the disabled body and the safety of the care workers, the existential, aesthetic, and sensory dimensions of the space are often neglected (Nord, 2013). For example, a bathroom is frequently designed strictly as a clinical workspace for bodily care, missing the opportunity to design a space that offers a relaxing and soothing bathing experience for aching older bodies (Nord, 2013).

Opportunities

- Redefining the Private Realm: True architectural innovation in this sector requires abandoning the repetitive norm of identical units and instead utilizing the flexibility within the law to create varied, highly individualized private spaces that cater to the diverse personalities and daily realities of the residents (Nord, 2013).

TAIWAN

The architectural typology of assisted living and long-term care facilities in Taiwan has historically been dominated by non-purpose-built structures and highly institutional layouts. However, driven by rapid demographic aging and national "aging in place" policies, there is an ongoing typological transition toward community-based care centers and specialized residential models (Hung et al., 2022).

Taiwan’ s elderly care facilities are increasingly transitioning from traditional institutional frameworks toward a "group home" orientation, which emphasizes creating a "home-like" atmosphere to foster a sense of belonging and mitigate the progression of dementia symptoms (Lin & Ou, 2024). Regarding spatial configurations, design priorities have shifted toward incorporating continuous circulation paths and intuitive entrance guidance to enhance accessibility and environmental safety for residents (Architecture and Building Research Institute, 2020). Furthermore, recent national policy frameworks highlight the integration of "community-integrated care" and small-scale, multi-functional spatial designs, aiming to improve the resilience and personalization of long-term care environments (Ministry of Health and Welfare, 2025).

2.2 Space for Dementia

SWEDEN

Design for People Living with Dementia (Tsekleves & Keady, 2021)

- Design Interactions Framework: Architects should utilize a "Design Interactions" framework that considers the relationships between People, Contexts, Materials, and Things. This holistic approach helps improve how people with dementia connect with their environment and services.

Design should focus on four main areas (Tsekleves & Keady, 2021)

1. Reminiscence and Personhood: Supporting identity and connection to the past.
2. Social Interaction: Facilitating engagement in the moment.
3. Independent Living: Supporting daily tasks and autonomy.
4. Cognitive and Physical Stimulation: Providing sensory and physical engagement.

The "Little Corners" Concept (Van Steenwinkel, 2015)

- Subdivide large living rooms into smaller frames to allow residents to retreat or observe social activities without feeling overwhelmed.

Nurse Station Design (Van Steenwinkel, 2015)

- A need for keeping an eye on residents was acknowledged, but most of the time this was established by being among the residents rather than by supervising them from a distant and separate place.

Four Design Principles (Marquardt, 2011, as cited in Ghamari et al., 2025)

- To promote successful orientation, design should follow four guidelines: simplicity in navigation, visual accessibility, minimizing decision-making, and enhancing architectural legibility.

Floor Plan Configuration and Design Typologies (van Buuren & Mohammadi, 2022, as cited in Ghamari et al., 2025)

- Floor plan configurations characterized by single linear corridors with minimal corners are proven to be more effective in facilitating successful wayfinding, while layouts featuring multiple corners are presented with challenges that impede navigation.

Landmark Navigation Preferences (Bonavita et al., 2022, as cited in Ghamari et al., 2025)

- Studies highlight that older adults, including those with dementia, show a preference for navigating based on salient beacon landmarks rather than metric spatial representations.

Injury Events sustained in residential environments (Thodelius, 2017)

- Targeting High-Risk Rooms: The Living Room and Bedroom are the most frequent locations for injuries among the elderly and those with disabilities. Design safety efforts should prioritize these spaces.

TAIWAN

Behavioral and Psychological Symptoms of dementia. (Lee & Haung, 2023)

- Evaluations of residential aged care facilities in Taiwan using the Environmental Audit Tool (EAT) demonstrate that purpose-built environments score significantly higher than their non-purpose-built counterparts in three crucial therapeutic domains: size, planned wandering, and privacy and community.

Enhancement of Physical Safety (Architecture and Building Research Institute, 2020)

- through slip-resistant flooring with a slip resistance coefficient (C.S.R.) of 0.4 or higher in bathrooms and kitchens, pre-installed grab bars near toilets and showers, lever-type faucets and door handles, and emergency call buttons positioned both within standing reach and at floor height for use after a fall.

Fostering Social Engagement (Chaudhury & Xu, 2022)

- Integrating sensory and culturally relevant elements—such as familiar domestic landmarks, highly accessible outdoor therapeutic gardens, and optimized daylighting—substantially improves residents' quality of life, reducing cognitive load, and preserving personal autonomy.

Multiple Shared Spaces with Diverse Settings for Free Choice (Chin, 2013)

- Within a defined spatial area, multiple shared spaces and outdoor areas with varying atmospheres should be provided, allowing residents to freely choose where to stay and move about—such as the dining room, lounge, courtyard, and outdoor garden.

Furniture Arrangement (Chin, 2013)

- In communal living areas outside of private rooms, a sufficient number of chairs should be provided. Chairs should not merely be lined up along the walls but arranged in a manner that facilitates conversation among users, accompanied by tables of varying sizes.

2.3 Outdoor Enviroment

SWEDEN

Therapeutic Value
(Rodiek, 2005 ; Ghamari et al., 2025)

- Outdoor spaces are essential, not optional. Access to nature helps regulate circadian rhythms (improving sleep patterns), reduces stress, and increases Vitamin D absorption (Rodiek, 2005).

- Sensory gardens and horticultural therapy demonstrate a positive impact on reducing agitation levels and promoting activity among dementia patients (Lu et al., 2020, as cited in Ghamari et al., 2025).

Design for Usage (Rodiek, 2005)

To ensure residents actually use these spaces, the design must include:

- Accessibility: Easy, barrier-free access to the outdoors.
- Comfort: Provision of shade and comfortable seating accommodations.
- Sensory Appeal: Incorporation of plants and pleasant views.

Dementia-Friendly Environment (DFE)
(Motealleh et al., 2022, as cited in Ghamari et al., 2025)

- These principles highlight elements such as orientation, accessibility, socialization opportunities, stimulating activities, sensory engagement, triggers for reminiscence, safety protocols, and sustainable practices.

TAIWAN

Primary factor when choosing institutions
(Chao, 2009)

According to environment-behavior observations, in-depth interviews, and questionnaire surveys:

- 83.66% of the elderly consider the availability of outdoor resting spaces as a primary factor when choosing a nursing institution.

- 77.6% of the elderly use the outdoor resting spaces on a daily basis.

Spatial Planning
(Chao, 2009)

- The size of the outdoor space is not the most critical factor; what the elderly truly need is an easily accessible and barrier-free environment.

- Vehicular traffic (cars and motorcycles) should be excluded from outdoor resting areas to avoid causing stress to the elderly.

- Outdoor paving must prioritize slip resistance to prevent falls and injuries among the elderly.

- An adequate number of ergonomic benches and exercise equipment should be provided and strategically placed in wind-sheltered areas.

2.4 Case Studies

Case 01 : Elderly Care Skärvet

Program: Elderly Care
Architect: Kjellander Sjöberg

- Layout: The floor plan features a central circulation core that extends outward into two distinct units. Each unit provides social and shared communal spaces for the residents, and both feature an outdoor balcony for relaxation.

- Apartment: Linear Circulation: The internal circulation path is kept simple and straight. This maximizes the available floor area while strictly accommodating the turning radius required for a wheelchair.

- Visual Axis: The entrance and the main window align perfectly to create a clear, continuous line of sight.

- Integrated Accessibility: The bathroom is positioned near the entrance and the bed for optimal accessibility. By consolidating the bathroom, storage, and foyer into a single zone, the primary living space for the bed, dining table, and seating is significantly expanded.

Figure 1. First floor plan of Elderly Care Skärvet

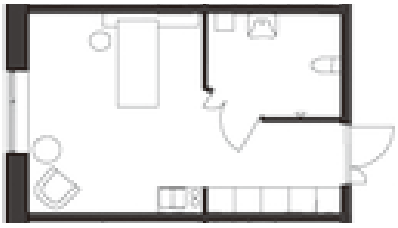


Figure 2. Apartment plan of Elderly Care Skärvet

Figure 3. Interior Design of Elderly Care Skärvet

Figure 1, 2, 3
Note. Adapted from Elderly Care Skärvet / Kjellander + Sjöberg Architects, by ArchDaily, 2017 (https://www.archdaily.com/884368/elderly-care-skarvet-kjellander-plus-sjoberg-architects). Copyright 2017 by ArchDaily.

Case 02: Retirement Home

Program: Retirement Home
Architect: LAND arkitektur

- Layout: The defining highlight of this layout is that the daily living units offer close physical proximity or direct sightlines to the central garden. This design guarantees that residents can easily enjoy the outdoor scenery, even if they experience limited mobility or during inclement weather.

- Apartment: The apartment layouts share several principles with the previous project:

- Linear Circulation: The internal circulation path is kept simple and straight, maximizing the available space while accommodating a wheelchair's turning radius.

- Visual Axis: The entrance and the main window align to create a clear, continuous line of sight.

- Flexible Space: An additional, separate room is included in the floor plan, which can be utilized for extra storage or other personalized uses.

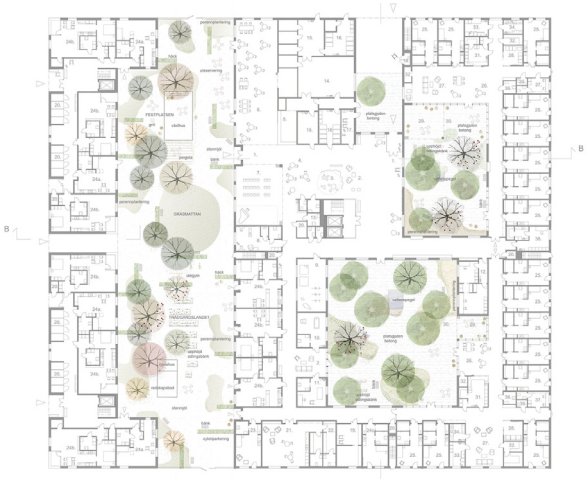


Figure 4. First floor plan of Retirement Home

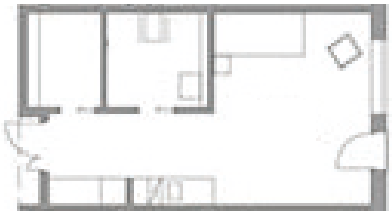


Figure 5. Apartment plan of Retirement Home

Figure 6. Interior Design of Retirement Home

Figure 4, 5, 6
Note. Adapted from Retirement Home Trädgårdarna by LAND Arkitektur, by Landezine, 2017 (http://landezine.com/retirement-home-tradgardarna-by-land-arkitektur/).
Copyright 2017 by Landezine.

Case 03 : Carpe Diem Dementia Village

Program: Elderly Care
Architect: Nordic Office of Architecture

- The primary focus of this case study lies in the seamless integration between indoor and outdoor environments, as well as the strategic layout of the external spaces.

- As illustrated in the interior photographs, the outdoor design is highly considerate of residents who value their privacy. It allows them to experience seasonal transitions and weather changes directly from the comfort of their indoor seating. For residents with limited mobility, the ability to observe the outdoor surroundings provides a significant source of leisure and engagement.

- Regarding the layout and visual impact, the outdoor area does not rely primarily on greenery. Instead, it utilizes hardscaping to create versatile spaces for residents to host activities or appreciate the curated flora. Furthermore, the inclusion of diverse seating arrangements is a crucial element of the overall design.

Figure 7. Outdoor Activities

Figure 8. The Layout of Outdoor Environment

Figure 9. The Seat beside the Window

Figure 7, 8, 9
Note. Adapted from Carpe Diem Dementia Village, by Nordic Office of Architecture, n.d. (https://nordicarch.com/projects/carpe-diem-dementia-village).
Copyright by Nordic Office of Architecture.

2.5 Summary of Design Principles

This thesis uses three of the four lenses from Tsekleves and Keady's (2021) design framework for dementia care—People, Contexts, and Things—and applies them to architectural design. People refers to the cognitive and physical experience of residents with dementia. Contexts refers to the spatial, social, and regulatory setting of Swedish residential care. Things refers to the architectural responses to these conditions. The fourth lens, Material, focuses on design research methods and is therefore not used in this thesis.

These three lenses guide how the following principles are organized. Each principle responds to residents' needs (People), fits the Swedish care setting (Contexts), and is expressed as a specific architectural design (Things). The principles are grouped into six areas—unit organization, wayfinding, circulation, communal living, apartment regulation, and outdoor environment—and are applied in the architectural design presented in the "Design Proposal" chapter.

Unit Organization

- Small-Scale Unit Care: Environments should be organized into "living units" of approximately 10 residents to foster a homelike atmosphere and avoid repetitive architectural features that trigger a "hospital-like" perception (Chin, 2013; Van Steenwinkel, 2015).

Wayfinding and Spatial Orientation

- Navigational Simplicity: Design must prioritize simplicity in movement, visual accessibility, and overall architectural legibility (Marquardt, 2011, as cited in Ghamari et al., 2025).

- Path Configuration: The layout should utilize single linear corridors with minimal corners (van Buuren & Mohammadi, 2022, as cited in Ghamari et al., 2025).

- Visual Cues and Landmarks: Secondary corridors should be differentiated using distinct colors (such as blue walls) or materials to create a directional sequence. Additionally, prominent "beacon landmarks" should be integrated to accommodate the preference of individuals with dementia for landmark-based navigation over metric spatial representations (Van Steenwinkel, 2015; Bonavita et al., 2022, as cited in Ghamari et al., 2025).

Circulation and Corridor Design

- Boundary Definition: The main corridor should not run directly through dwelling units; maintaining separate spatial entities helps preserve the transition between public and private domains (Van Steenwinkel, 2015).

- Avoidance of Disorientation: Replace long, featureless, and repetitive corridors with structural variations and memorable "orientation nodes" (O'Malley et al., 2018, as cited in Ghamari et al., 2025).

Communal Living and Social Interaction

- Spatial Subdivision: Large communal living rooms should be subdivided into "little corners" or smaller frames. This provides residents with choices for quiet observation or partial social engagement, preventing the stress associated with overly large, open spaces (Van Steenwinkel, 2015).

- Social Furniture Arrangement: Seating should be arranged in clusters around tables of various sizes to facilitate conversation, rather than being lined up against walls (Chin, 2013).

- Nursing Integration: Nursing stations should be low-profile and decentralized, ensuring caregivers are positioned "among" the residents rather than supervising from a distant, separate station (Van Steenwinkel, 2015).

Apartment Regulations and Zoning (Swedish Standards)

- Hard Regulation: Design must strictly comply with Swedish building norms, which typically restrict private apartments to approximately 36 square meters with a minimum hallway width of 1.6 meters. (Andersson, 2011; Nord, 2013)

- Hygiene Room Standards: Bathrooms must measure at least 2.53m by 2.30m to provide a sufficient wheelchair turning radius and adequate workspace for caregivers.

- Visual Axis: A clear line of sight must be established within the apartment from the entrance to the window to enhance spatial continuity and a sense of security (Nord, 2013).

Outdoor and Therapeutic Environments

- Activity Cues: The garden design should incorporate functional elements that suggest specific activities—such as benches for social interaction, bird feeders, or gardening tools—to encourage engagement with the natural world (Van Steenwinkel, 2015).

- Therapeutic Outcomes: Design gardens to reduce pain, agitation, and stress while improving emotional stability (Uwajeh et al., 2019; Lu et al., 2020, as cited in Ghamari et al., 2025; Rodiek, 2005.

- Injury Prevention: Safety design should prioritize the living room and bedroom (Thodelius, 2017) (e.g., slip-resistant flooring and threshold removal). Furthermore, vehicular traffic must be strictly separated from residential outdoor rest areas to minimize environmental stressors (Olson & Albensi, 2021, as cited in Ghamari et al., 2025; Chao, 2009).

3. Site & Context

This chapter introduces the Brattåskärrsvägen site near Östra Hospital in Gothenburg. It covers the planning context, the surrounding programmes, the terrain, and the current visual character that shape the design response.

3.1 Site Information

Zoning Status

The Brattåskärrsvägen site currently functions primarily as an open-air parking lot and is classified in administrative maps as "undeveloped traffic land". According to the Gothenburg Comprehensive Plan, the site is situated within the "Other Intermediate City" (Övriga mellanstaden) zone , designated for mixed-use urban development.

Strategic Position

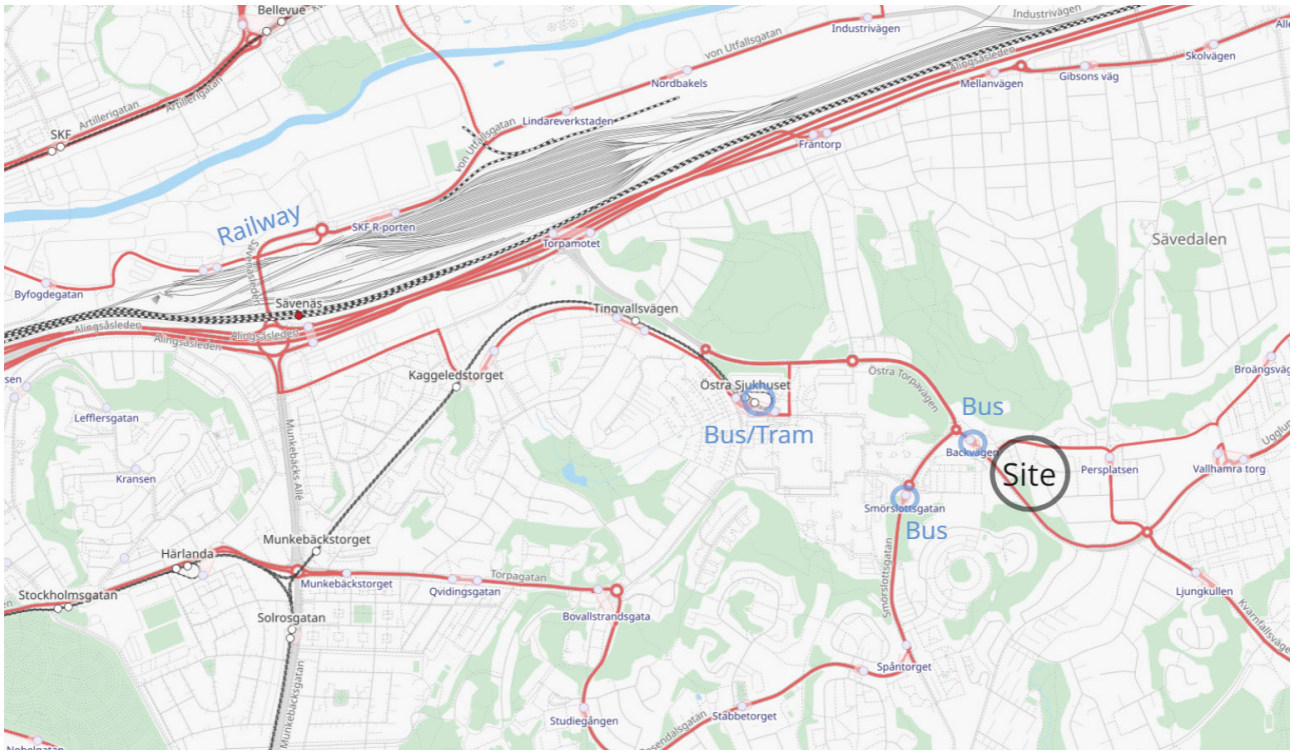
This designation provides a strategic foundation for the de-institutionalization and urban integration of assisted living facilities. From a governmental perspective, the development is expected to address the city's requirement for 10 new assisted living residences (VOB) over the next decade, specifically targeting the approximately 3 new facilities needed for the Centrum district. Located at the municipal border near Ugglumsleden and Brattåskärrsvägen , the site benefits from proximity to Östra Hospital, public transport links (HPL), and a local service center, all of which are essential for reducing social isolation among elderly residents.

Planned Capacity

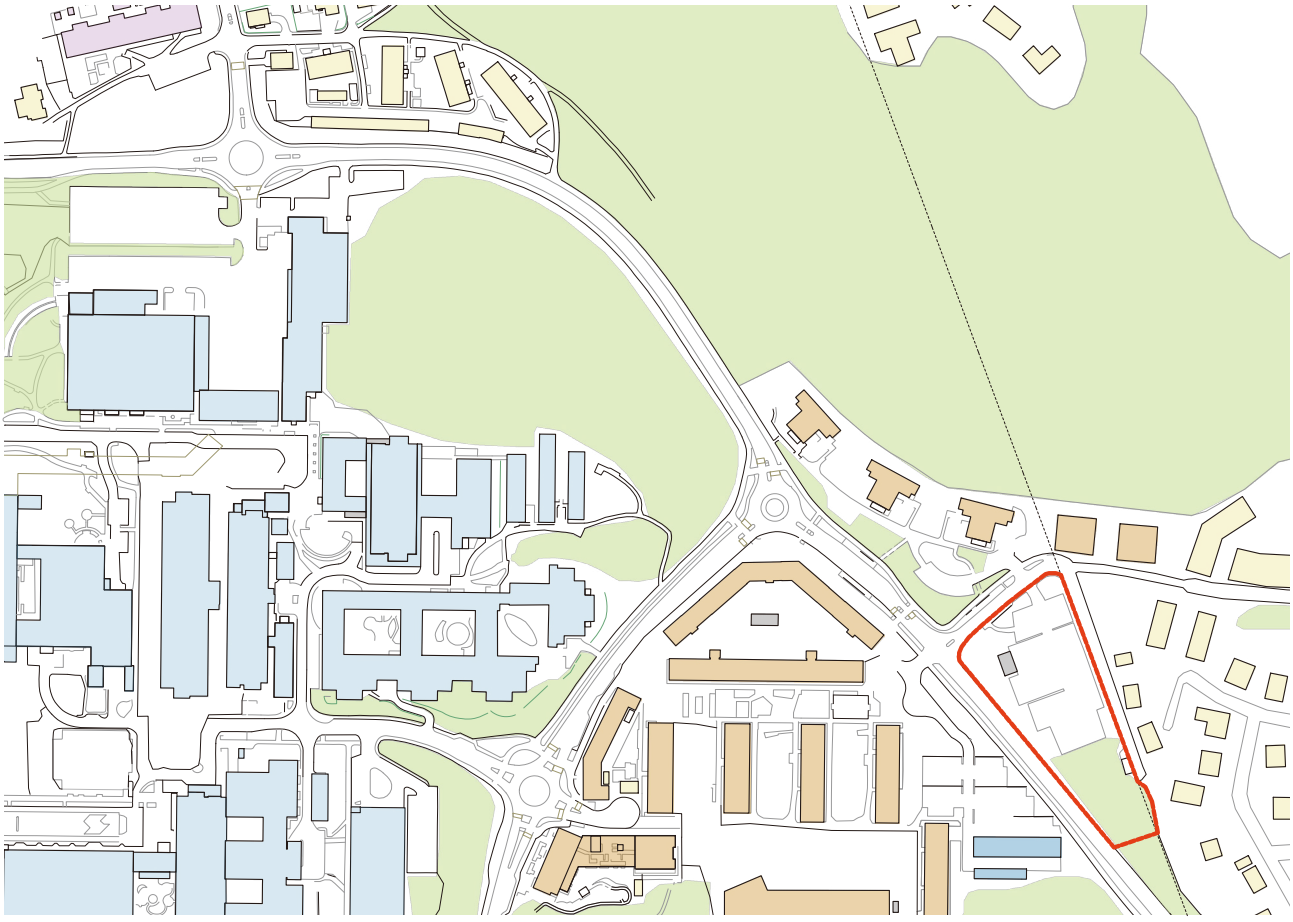
In the municipal preliminary feasibility study, the site is identified as having the potential to accommodate between 80 and 120 residential apartments. According to the development benchmarks provided by the city, the suggested planning framework envisions a four-story building with a total gross floor area (BTA) of approximately 10,000 square meters. Within this reference model, the government anticipates a distribution featuring a ground floor with a main entrance, logistics area, and one care unit, with floors two through four each housing three care units.

To enhance the quality of life for residents, the government's expected planning direction emphasizes high-quality outdoor environments. Preliminary assessments indicate the site can potentially provide two outdoor spaces totaling approximately 2,800 sqm (1,200 and 1,600 sqm respectively), significantly exceeding the standard requirement of 1,500 − 2,000 sqm.

3.2 Site Analysis

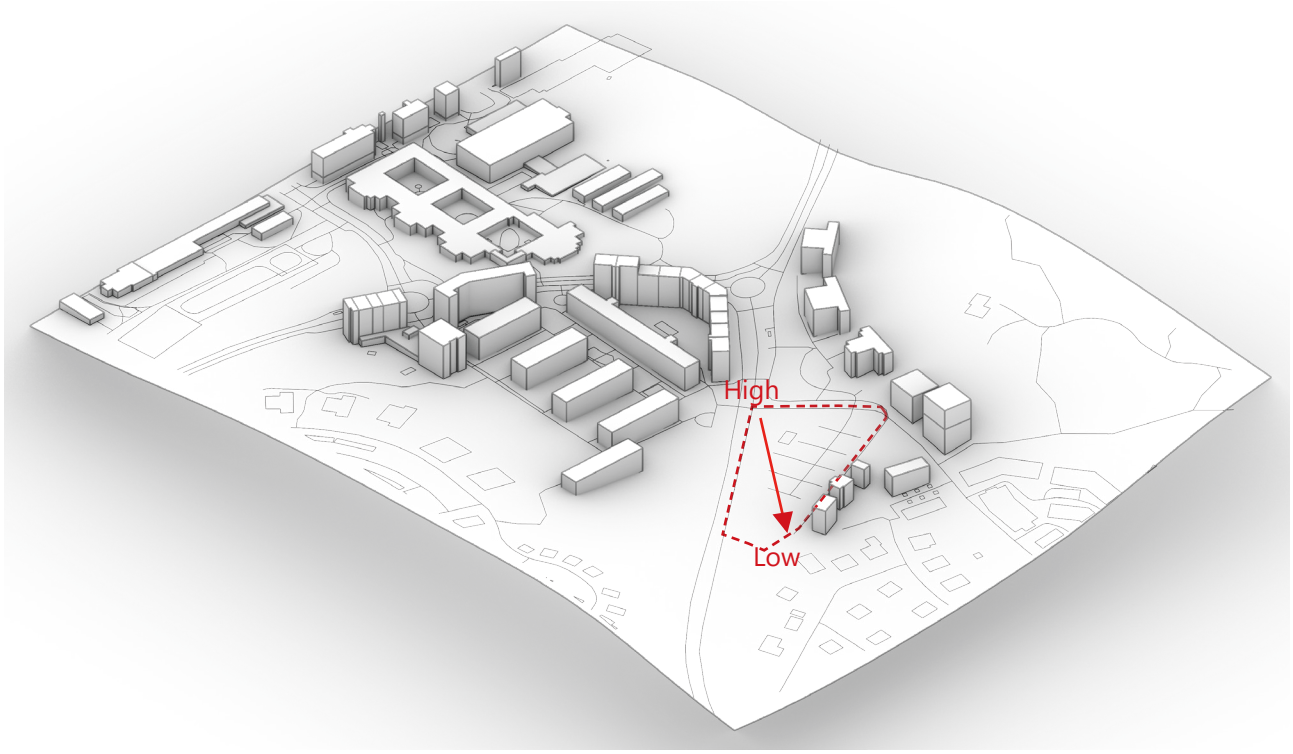


Traffic Map of the site

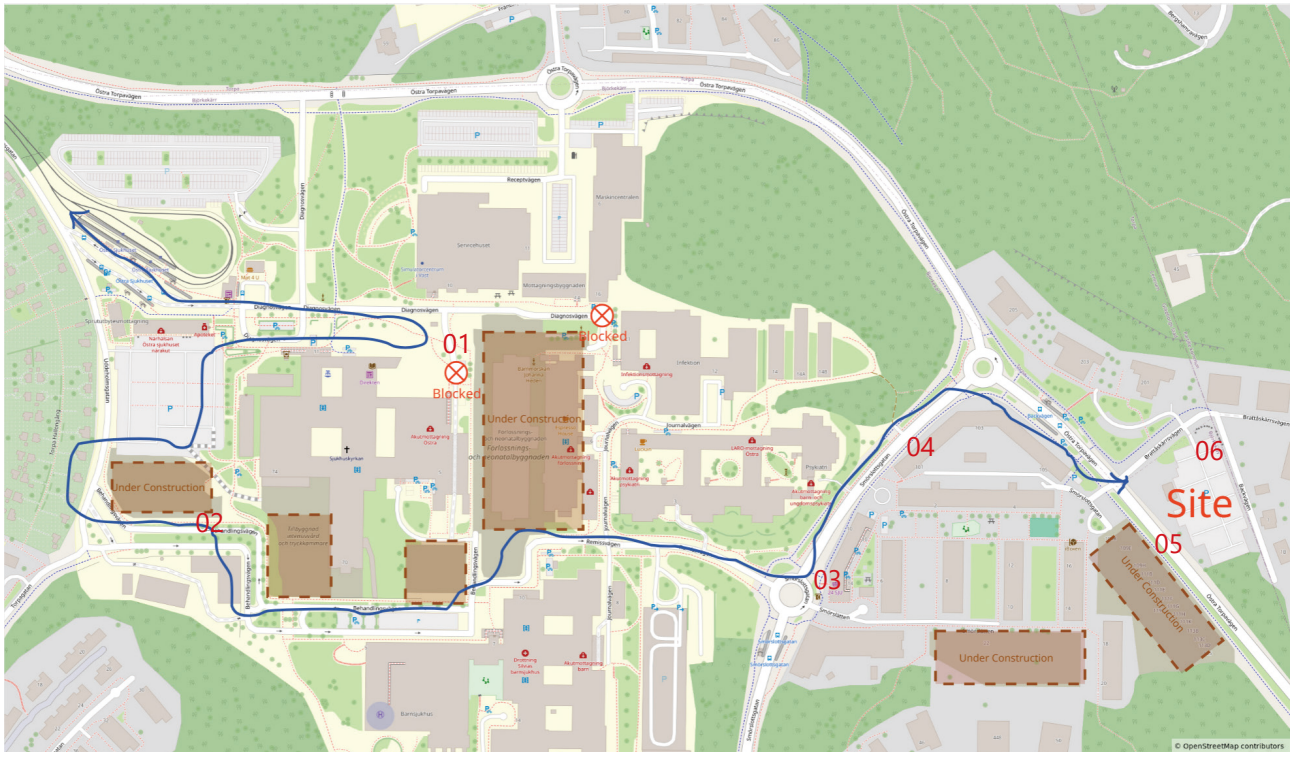


Zoning

Hospital | Post Office | Residential (mixed) | Residential | School



The Terrain of the site



How I approach the site & the current situation of the site

01 the Hospital under Construction

02 The plan of the hospital in the future

03 The Facade Pattern of the surrounding building

04 The path to the Site

05 The building next to the site

06 The building & Greenery next to the site

4. Design Proposal

This chapter presents the architectural proposal. It moves from site strategies and form studies to floor plans, individual apartments, sections, and façade, showing how each scale carries the principles from the previous chapters.

4.1 Form Study

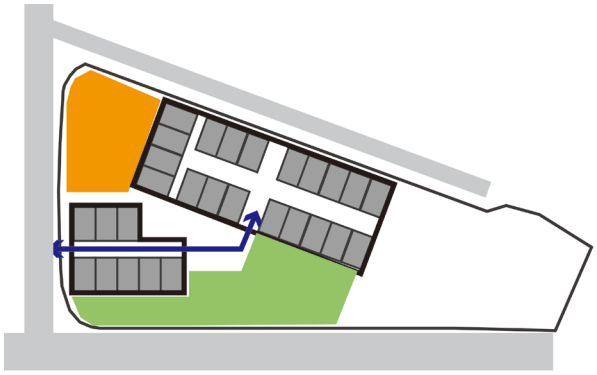
The study of massing and the literature review for my thesis were conducted in parallel, despite their sequential appearance in the chapters.

This approach allowed me to put theoretical concepts into practice and test them immediately. During the initial massing tests, my focus was on organizing logistics, arranging residential units to ensure the dimensions were viable for future development, and positioning green spaces and circulation paths.

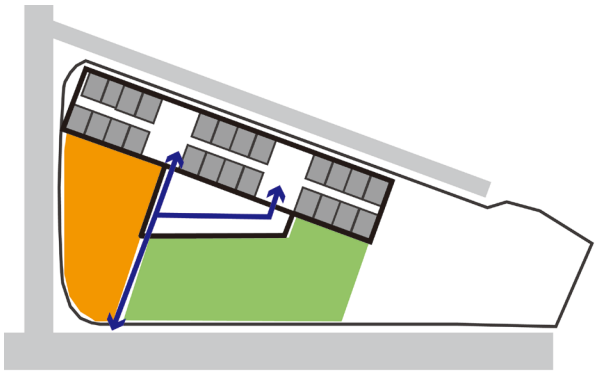
Several key criteria were established during the first phase. I decided to place the building along the eastern road to maximize the available outdoor space. The primary entrance was situated to the southwest, as the site’ s sloping topography made this the most logical layout for managing elevation changes. I also debated whether to split the building into several smaller blocks or maintain a single volume. Given the narrow shape of the site, I concluded that splitting the structures would be inefficient, as it would complicate service areas and create redundant entrances.

Consequently, I started with a linear "I-shaped" massing. However, this form proved unsuitable. Beyond the issue of requiring two separate circulation cores, it was difficult to ensure these nodes remained conveniently close to both the green corridors and the parking facilities.. (To address this, I needed to introduce an additional "connecting unit" on the ground level, as illustrated in the diagram.)

Massing Study 01



Multi-building configuration



Single integrated volume (I Shape)

Apartment Unit

Parking & Delivery

Green space & Public Use

Flow for Entrance

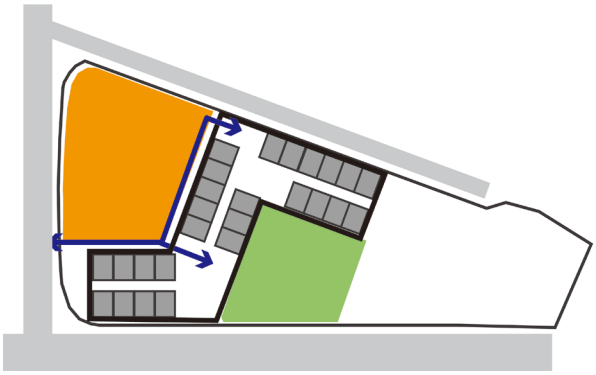
While all three shapes performed better in terms of dividing green space and parking—allowing a single circulation node to serve both areas—the T-shape proved superior for the internal layout.

To ensure that each residential unit could function as an independent, self-contained cell without being interrupted by primary traffic, the T-shape’ s three-way extension from a central point offered significantly higher efficiency for both staff and residents.

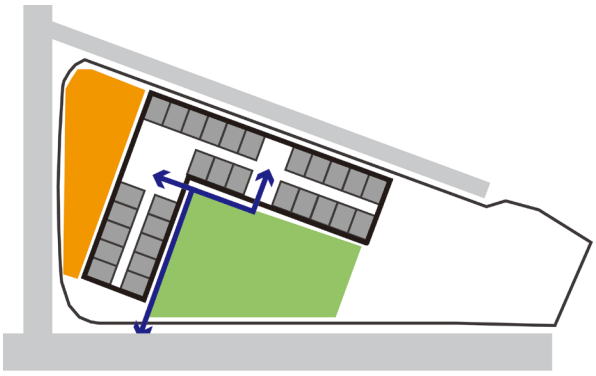
Subsequently, I applied a slight rotation to the T-shaped plan. This adjustment was made to establish a clear hierarchy between the green space and the parking area.

Furthermore, this rotation enhanced the openness and public accessibility of the green spaces, while orienting the primary pedestrian entrance more invitingly toward the main intersection.

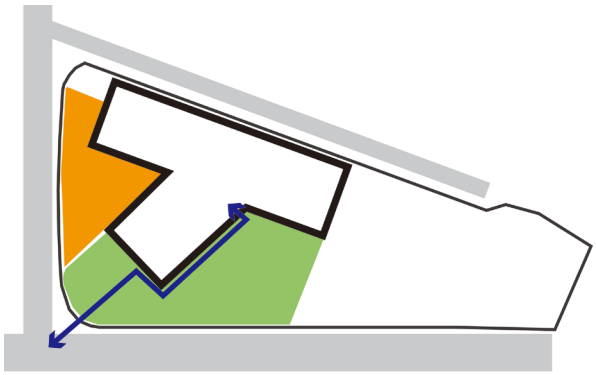
Massing Study 02



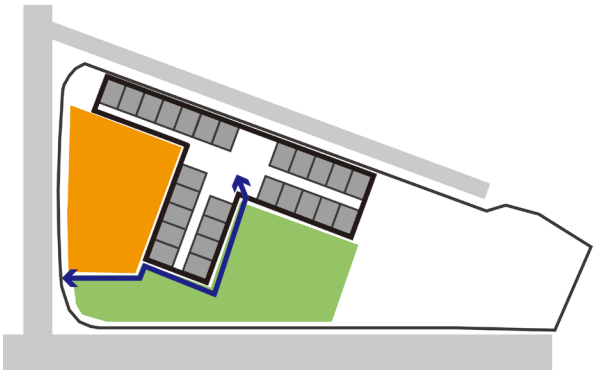
S Shape



L Shape



Rotated T Shape



T Shape

Apartment Unit

Parking & Delivery

Green space & Public Use

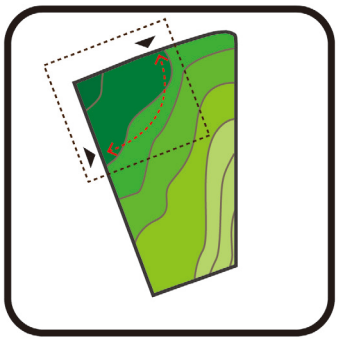
Flow for Entrance

4.2 Strategies

Following the massing studies and the integration of site analysis with the spatial design principles established in my research, I have defined six core strategies for this design proposal.

Seamless Accessibility

The design ensures clear, barrier-free accessibility from the standard parking areas to the main entrance by maintaining consistent, level ground topographies along the western and northern edges of the site.

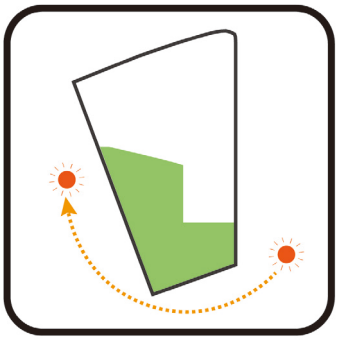


Maximizing Outdoor Spaces:

The site layout is oriented to prioritize and maximize outdoor recreational areas. To ensure the highest quality of these spaces, vehicular traffic and logistics are strictly separated from the residents' outdoor resting areas, preventing noise and safety hazards from causing stress.

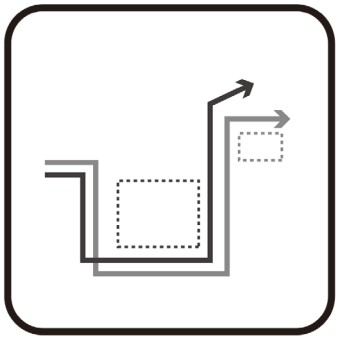
Green Space Planning:

The design intentionally designates the southwestern area of the site as green space, integrating it into the therapeutic landscape.



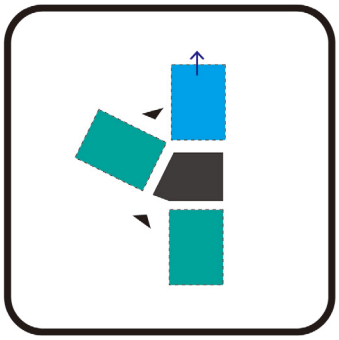
Optimized Traffic Flow

The placement of logistics and delivery spaces is optimized to prevent any interference with general visitor traffic and pedestrian movement.



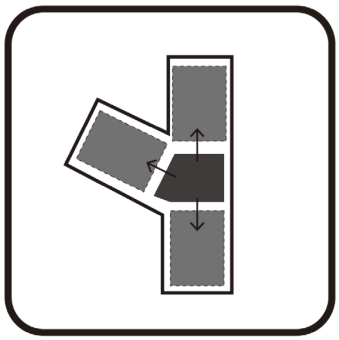
Strategic Zoning:

Logistics, service areas, and residential spaces are carefully zoned to minimize their physical and visual impact on the planned green environment.



Monolithic Building Form

A single monolithic volume was chosen to suit the narrow site. This consolidated form streamlines staff operations and enhances resident safety through more effective monitoring.



4.3 SIte Plan

SIte Plan, S = 1:2000 (A4)

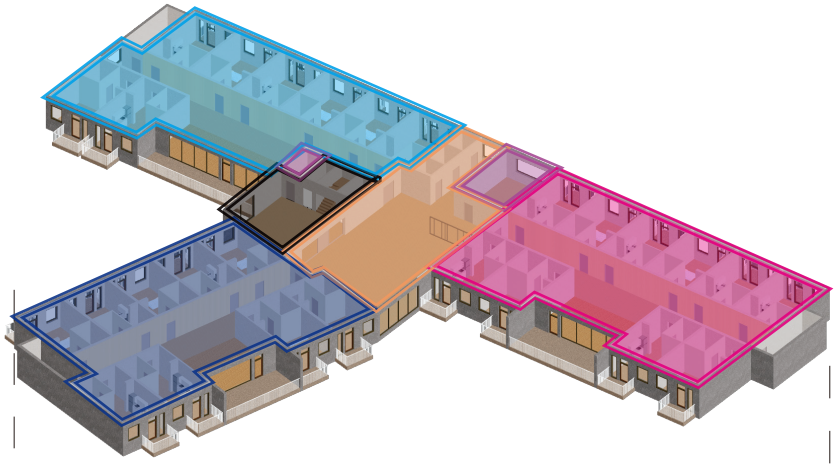
The Greenery between the Main Road and the Outdoor Area

As shown in the site plan, this rotated angle allows the T-shaped volume—divided into two arms—to be easily identified by pedestrians from across the intersection on both façades, where the two main entrances are located. One side primarily faces the vehicular access, while the other opens onto the designed outdoor courtyard, so that neither side is overlooked. A more detailed comparison of the two main entrances is provided in the "Ground Floor Plan" chapter.

In addition, providing optimal sunlight conditions for green areas in Sweden typically requires unobstructed sunlight access. However, this happens to coincide with the side adjacent to the main road on this site. To respond to these site conditions, the layout introduces approximately two rows of tree arrays separating the outdoor space from the main road, enhancing privacy, reducing disturbance, and providing a green environment. While maintaining both the daylight quality of the open space and the privacy of the residents, the design further integrates the forest to the south of the site, producing a clear delineation of the outdoor green area and offering residents a sense of safety through well-defined boundaries.

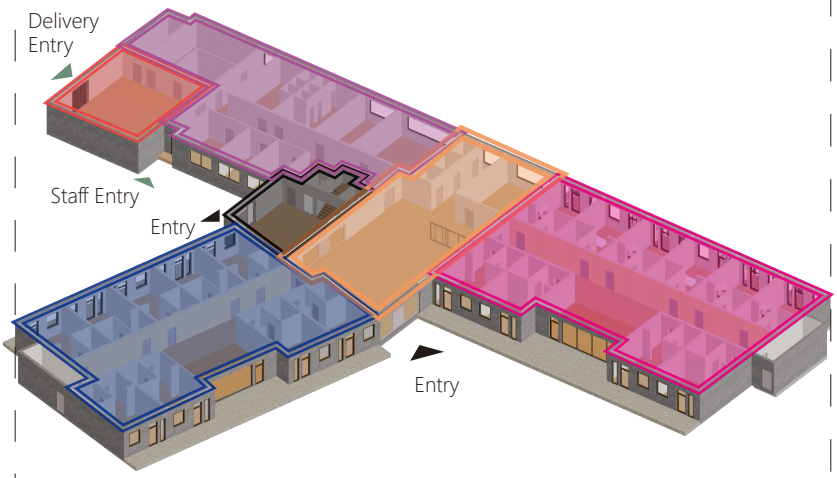
4.4 Brief

1st - 3rd Floor



Staff Zone
Centeral Core
Public Area (Indoor)
Unit 01
Unit 02
Unit 03

Ground Floor



Logistics and Storage
Staff Zone
Centeral Core
Public Area (Indoor)
Public Area (Outdoor)
Unit 01
Unit 02

Usage in 1st - 3rd Floors

Function	Area(m2)	Number
Staff Zone		
Nursing Station	22	1
Storage	10	1
Cleaning room	10	1
Technical room	8	1
Public Area (Indoor)		
Lobby	115	1
WC	6*2+4*1	2
Unit 01		
Apartments	36	9
Sharing Kitchen	52	1
Balcony	30	1

Function	Area(m2)	Number
Unit 02		
Apartments	36	10
Sharing Kitchen	56	1
Balcony	38	1
Unit 03		
Apartments	36	8
Sharing Kitchen	66	1
Balcony	35	1

TOTAL are functions: 1,430 m2

Usage in Ground Floor

Function	Area(m2)	Number
Logistics and Storage		
Central Storage	106	1
Staff Zone		
Changing Room	75	1
Break Room	50	1
Offices	16*2+23*1	3
Meeting Room	30	1
Central Laundry	37	1
Central Cleaning Hub	16	1
Public Area (Indoor)		
Lobby	115	1
WC	6*2+4*1	2
Physiotherapy room	44	1

Function	Area(m2)	Number
Public Area (Outdoor)		
Seating Area	50+69	2
Courtyard	538	1
Unit 01		
Apartments	36	9
Sharing Kitchen	52	1
Outdoor Terrace	88	1
Unit 02		
Apartments	36	10
Sharing Kitchen	56	1
Outdoor Terrace	44+68	2

TOTAL are functions: 2,193 m2

4.5 Ground Floor Plan

Ground Floor Plan, S = 1:400 (A4)

First, regarding the configuration and atmosphere of the outdoor space:

- According to "Safety and Environmental Protection" (Chao, 2009), vehicular traffic must be strictly separated from outdoor recreation areas. In this building, the central volume of the T-shape provides this complete separation. The arrival routes for vehicles and pedestrians are divided into two main circulation systems, which will be further explained later in this chapter with detailed drawings.

- Furthermore, in line with "Activity Cues" (Van Steenwinkel, 2015), in addition to the hard paving designated for flexible group gatherings, "wooden platforms" of differing materials are arranged as cues for resting, static activities, and gathering. A variety of seating types and environmental conditions are also provided—those near trees and away from the building, those with shading, or those positioned closer to other resting areas where social interaction is more likely.

1. Single Apartment
2. Sharing Kitchen & Dining Area
3. Service Core (Stairs & Elevator)
4. Lobby (Seating Area)
5. Physiotherapy room
6. Break room (Staff)
7. Meeting room (Staff)
8. Changing room (Staff)
9. 3-person Office (Staff)
10. 2-person Office (Staff)
11. Central Storage (Staff)
12. Central Laundry (Staff)
13. Central Cleaning Hub (Staff)
14. Delivery Platform (Staff)
15. Fire escape stairwell
16. Drop-off Area

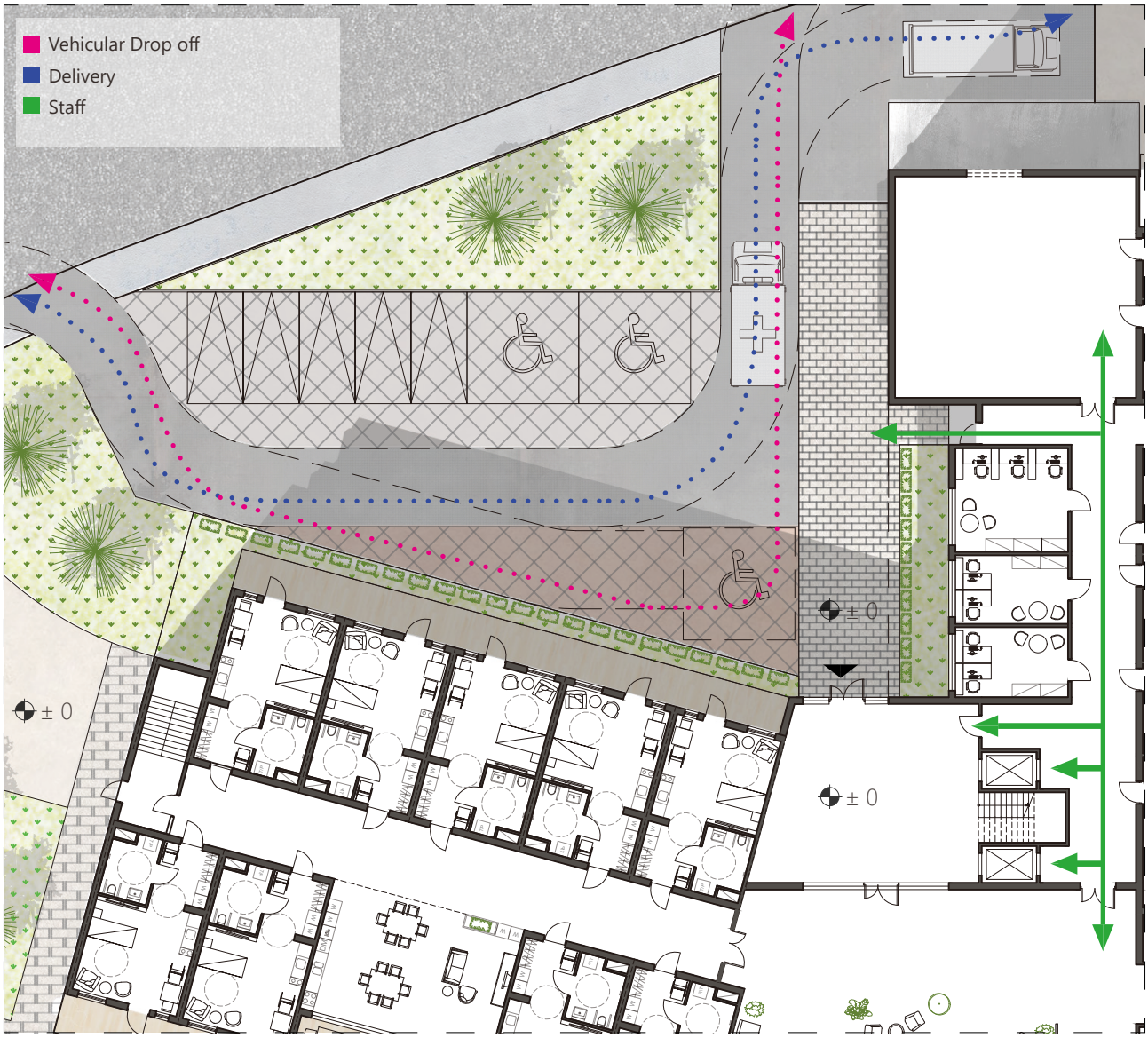
▼ Main Entry
▼ Staff Entry
▼ Emergency Exit

- Finally, since the site is a gently sloping terrain with elevation differences, the design follows the principles of "Navigational Simplicity" (Ghamari et al., 2025), prioritizing simplicity in movement and accessibility. The site (excluding the perimeter sidewalk) is divided into only two zones at different levels, connected by two accessible ramps. This avoids overly complex circulation and excessive zoning, simplifying the composition of the outdoor space into a clearly defined central plaza—framed on two sides by trees and on the other two by the building volume.

The functional zoning of the plan was illustrated diagrammatically in "the Brief" chapter. On the ground floor, the staff areas and goods delivery zone are located in the upper-right portion of the volume, equipped with dedicated external and internal entrances and a two-way elevator, so that staff can work without disturbing the residents. The remaining central section contains the lobby, elevator, and service core, acting as the central node that connects the other parts of the T-shaped volume—responding to "Avoidance of Disorientation" (Ghamari et al., 2025) through the use of orientation nodes.

Because of the similarity of the residential unit prototype in this design, the detailed interior layout of the units will be discussed together in the "1st – 3rd Floor Plans" chapter.

4.5.1 Vehicular Circulation and Goods Delivery



Ground Floor Plan, S = 1:300 (A4)

The parking area provides two accessible bays and one temporary drop-off zone for residents with mobility difficulties or for ambulance use. The temporary drop-off bay is offset from the main parking driveway so that it does not obstruct circulation.

Goods delivery shares the same driveway, but the loading area is arranged separately in front of the storage room and is not shared with the drop-off zone. This separation ensures that the different vehicle flows do not interfere with one another, that loading and unloading do not cause spatial congestion, and that the visually less appealing process of handling goods is kept away from the residents' direct line of sight.

The independent staff entrance is also located here, so that staff activities remain close to the storage area and clearly separated from the daily life of the residents. The staff office is positioned along the main circulation route on the vehicular side, allowing staff to respond promptly when assistance is needed outside or in the event of an emergency.

The path to the main entry - for the parking delivery

The rendering shows that the parking bays and drop-off area can be visually distinguished through different paving materials and colors. The main entrance is located within the central, taller volume—positioned between the two side façades—which responds to "overall architectural legibility (Ghamari et al., 2025)" within the principle of Navigational Simplicity.

In terms of perceptual quality and the impression given to outsiders, the building's entrance is framed by the driveway and planting. The main entrance, set deeper within the site, suggests that the circulation on this side carries a more private and quiet atmosphere—one in which residents are less likely to be disturbed.

For the residential units on this side, a temporary drop-off zone combined with a green strip serves as a buffer between the units and the parking area, with the option of installing a fence if required.

4.5.2 Pedestrian-Oriented Main Entrance and Outdoor Pathways

Ground Floor Plan, S = 1:300 (A4)

First, in consideration of accessibility, the entire route from the street corner to the main entrance is maintained at a consistent level for the convenience of wheelchair users.

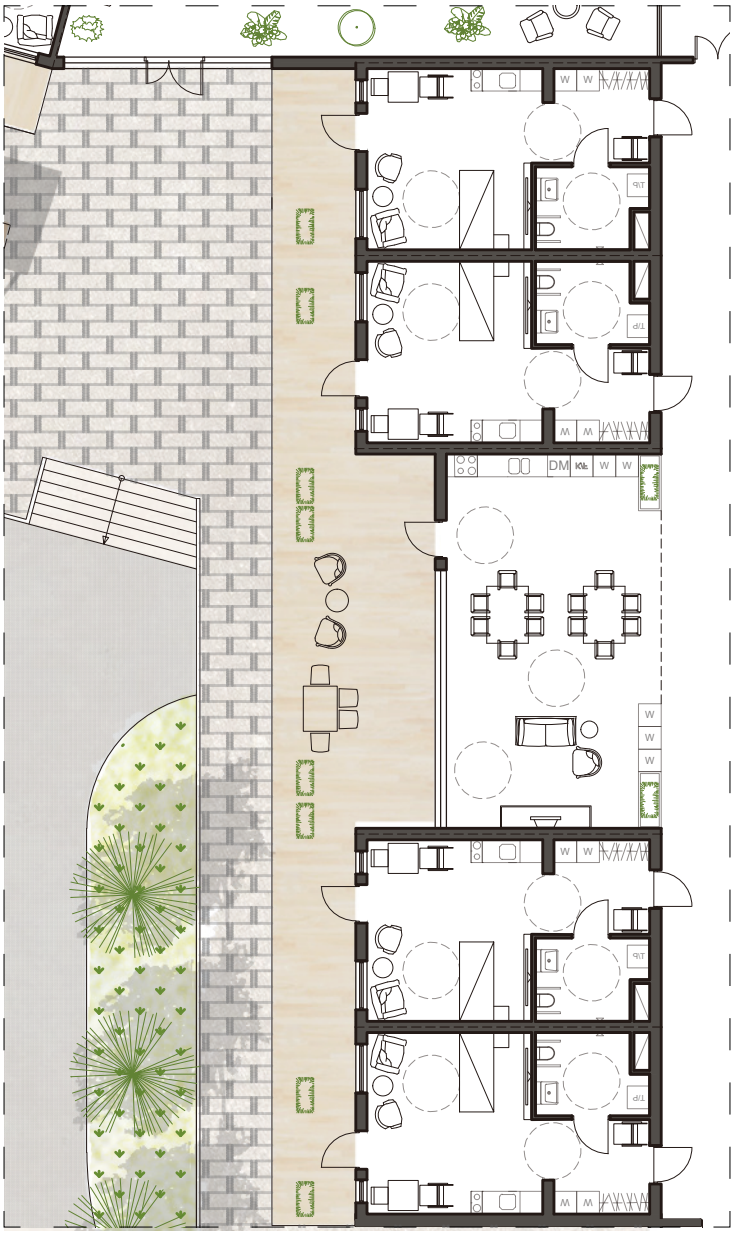
Second, because this entrance is located at the center of the T-shaped volume, it sits at the heart of the site, away from the road, which ensures privacy. To support architectural legibility, however, a number of suggestive and guiding architectural elements are arranged around the site. These include a gap in the row of street trees along the sidewalk marking the start of the path, the paving pattern along the route, a row of trees lining the pedestrian path, long wooden resting platforms acting as vertical column-like elements, and the elevation difference with the southern outdoor area—all of which guide pedestrians toward the central entrance.

The path to the main entry - for the pedestrian

The rendering illustrates that the imagined experience of this main pedestrian route is not merely functional. It is part of a varied outdoor environment, suited to residents who would like, on stepping out of the apartment, to be near social seating areas. On fine-weather days, opening the door that connects to the outdoor platform allows residents to engage in physical activity within this outdoor setting.

This arrangement also increases the likelihood that residents entering or leaving the building will engage in conversation with others, rather than walking down a long, deserted path.
The intention is to reduce the "hospital-like" perception, fostering a sense of community from the entrance onward.

4.5.3 Outdoor Terraces



Ground Floor Plan, S = 1:200 (A4)

Compared with the outdoor platform near the social area on the previous page, the outdoor terrace serving the residential unit on the other side creates a different atmosphere: a space from which residents can observe the surrounding activities and social life from behind a railing, retaining their independence while leaving room for being approached or joining others' activities.

Residents can engage in static activities here—such as tending plants or reading—within a setting that has some background activity. When they wish to join others, they may cross the railing area, the green strip, and the platform, and proceed via the stairs or ramps on either side into the more public area.

For the people living on the ground floor - the Outdoor Platform near the Greenery

The rendering shows how this implicit boundary and the layered public − private gradient are defined. The terrace area belonging to these residents is finished in wooden-toned paving; beyond it, a different material represents the "walkway"; and railings and trees form a more physical boundary against the larger outdoor space. Since the wooden platform is shared by residents of the same unit, they may discuss together how to arrange this small outdoor space of their own.

Adding small decorations or planting pots is encouraged, as this maintains social engagement while responding to "the flexibility within the law to create varied, highly individualized private spaces that cater to the diverse personalities and daily realities of the residents" (Nord, 2013).

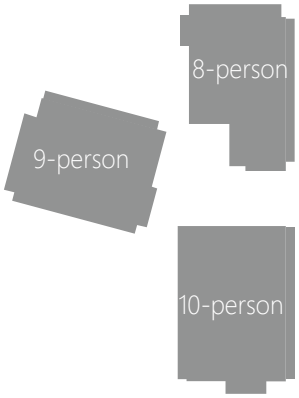
4.6 1st - 3rd Floor Plans

1. Single Apartment
2. Sharing Kitchen & Dining Area
3. Balcony
4. Nursing Station
5. Storage
6. Cleaning room
7. Service Core (Stairs & Elevator)
8. Technical room
9. Lobby (Seating Area)
10. Fire escape stairwell

1st - 3rd Floor Plan, S = 1:400 (A4)

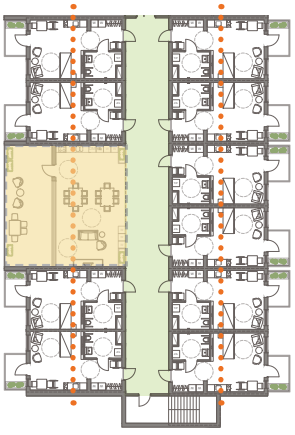
As mentioned in the ground floor plan section, the center of the T-shaped volume is the service core that connects the three residential units. The central service core functions only as a node: the corridors of the units are not directly connected, and each unit has its own distinct entrance, providing a clear separation. This responds to the principle of "Boundary Definition"—"The main corridor should not run directly through dwelling units" (Van Steenwinkel, 2015)—and also to the role of the central lobby as a "Landmark"—"structural variations and memorable spaces along paths can serve as reinforcing orientation nodes" (O'Malley et al., 2018, as cited in Ghamari et al., 2025).

The number of residents per unit follows the principle of "Small-Scale Unit Care" (Chin, 2013; Van Steenwinkel, 2015). The three units, from north to south, accommodate 8, 9, and 10 residents respectively, totaling 27 residents per floor. The ground floor accommodates the 9-person and 10-person units (totaling 19 residents), and combined with the 1st to 3rd floors, the building can house 100 residents in total. This satisfies the planning intent mentioned in the "Site Information" chapter—"the site is identified as having the potential to accommodate between 80 and 120 residential apartments."



3 Units ; 27 residents per floor

Although the number of residents per unit varies, the same compositional strategy is applied throughout: apartments are arranged in two rows, with a shared communal space placed between them (discussed in greater detail later in this chapter). The advantage of this arrangement lies in its layout. While a single straight corridor would, in principle, offer the simplest configuration, a single-row arrangement would produce an excessively long corridor and the type of monotonous, low-memorability circulation noted in "Avoidance of Disorientation" (O'Malley et al., 2018, as cited in Ghamari et al., 2025). A double-row apartment arrangement is therefore adopted, with the corridor placed in between, and a communal space with large windows and an open layout is further inserted along it. This also improves indoor daylighting and alleviates any sense of confinement, responding to the principle of "Path Configuration" (van Buuren & Mohammadi, 2022, as cited in Ghamari et al., 2025).



Double-row Apartment & A Center Communal Space

Another key consideration is the placement of the nursing station, located beside the central lobby and separated by transparent glass and a corridor. This non-surveillance-style arrangement is based on "Nursing Integration" (Van Steenwinkel, 2015): "Nursing stations should be low-profile and decentralized."

4.6.1 Socializing Space

First Floor Plan, S = 1:200 (A4)

The furniture arrangement follows the principle of "Furniture Arrangement" (Chin, 2013), with chairs placed around tables at the center of the space to encourage social interaction. Sofa areas, individual armchairs, and small corner zones are also incorporated to create "little corners" (Van Steenwinkel, 2015).

The overall layout also reserves sufficient space for wheelchair users to turn or pause as needed.

Flooring 02

Flooring 01

Socializing & Sharing Kitchen in each unit

The rendering shows that the overall color palette is warm. The flooring of the communal space and that of the corridor, as well as the walls along the apartment entrances and those of the communal area, are differentiated through subtle but non-stimulating color variations, responding to the principle of "Visual Cues" (Van Steenwinkel, 2015)—"Secondary corridors should be differentiated using distinct colors (such as blue walls) or materials to create a directional sequence."

4.6.2 Balconies

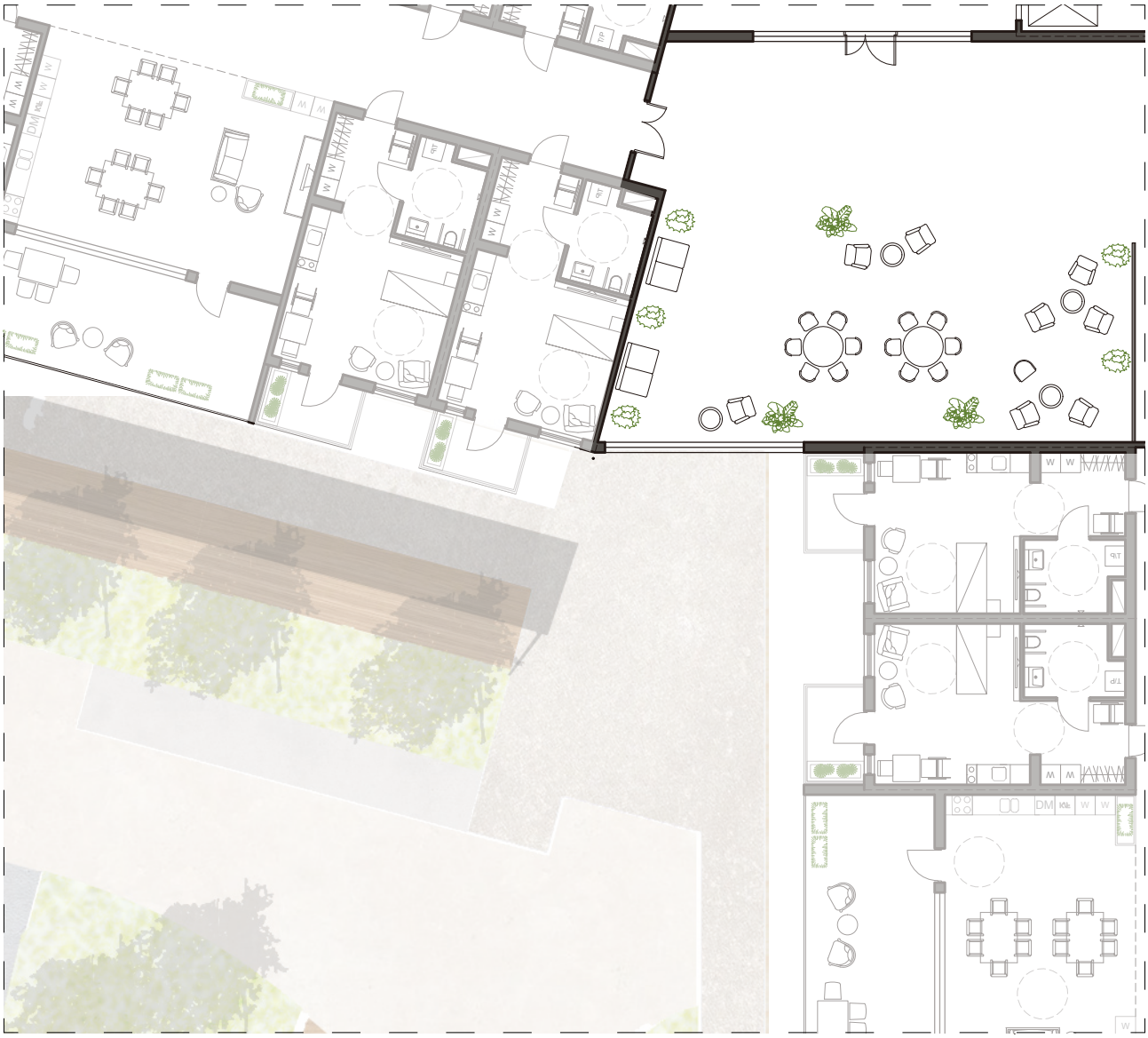
First Floor Plan, S = 1:200 (A4)

The balcony arrangement follows the same logic as the ground-floor terraces, producing an atmosphere where residents can observe the surrounding activities and social life from behind a railing. They are provided with shading, which allows residents to install personalized furniture or planting arrangements as they wish. Sufficient space is also reserved for wheelchair users, and some seating is included so that residents can simply sit, look out over the green area on the ground floor, and enjoy the sunlight. (All three balconies face primarily west and southwest.)

View of the residents on the Balcony

The rendering clearly conveys the spatial quality of these balconies—sunlight entering the shaded balcony (mainly during midday and afternoon hours), offering residents an excellent view.

4.6.3 Communal Space (Lobby)



First Floor Plan, S = 1:200 (A4)

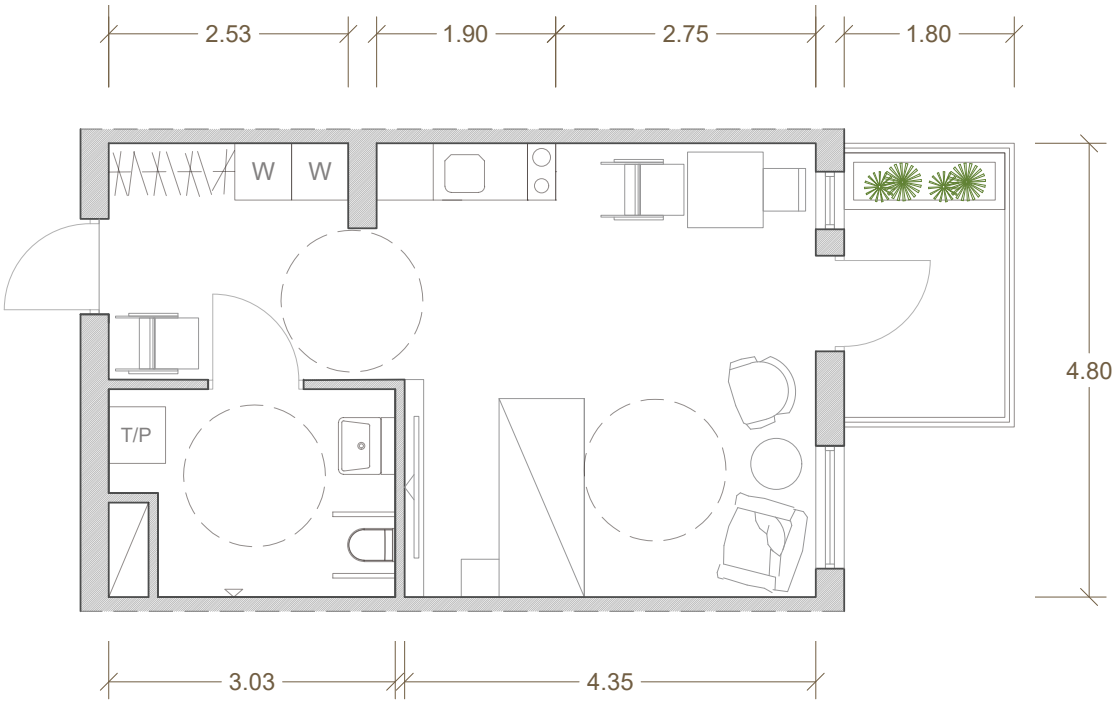
The lobby functions as both a circulation node for residents and a "Landmark," as described in the "1st – 3rd Floor Plans" section. The furniture arrangement here follows the same principles as the communal spaces within each unit, maintaining variety: round tables surrounded by chairs are placed centrally to form a social setting, and individual sofas or small clusters of armchairs are arranged near windows and in corners for residents to choose from.

As this is the main area in which residents from different units can interact and gather, the windows are oriented toward the south—the principal direction of sunlight in Sweden—to enhance indoor daylighting quality.

View of the residents in the lobby

The rendering depicts what it would feel like for a resident wishing to sit by the window and enjoy a moment of reading. Beyond the windows, residents can also take in the southern outdoor space and the view of the forest.

4.7 Apartments



Apartment Plan, S = 1:80 (A4) (Unit: Meter)

First, the design provides an interior area of approximately 35 square meters and a bathroom 2.8 meters in length (see Apartment Dimensions), meeting the dimensional requirements of "Swedish Standards". Building on the earlier case studies of apartment typologies and the principle of "Visual Axis"—"A clear line of sight must be established within the apartment from the entrance to the window" (Nord, 2013)—the apartment plan establishes a clear sightline from the door to the window.

Considering also the principle of Usage Reality—"research indicates that frail older people often spend up to 20 hours a day isolated in their private bed-sitting rooms" (Nord, 2013)—private space remains where most residents spend the majority of their time. In designing the apartment plans, beyond complying with relevant Swedish regulations, wheelchair-use efficiency was the top priority — a single circulation spine with activity spaces arranged on either side.

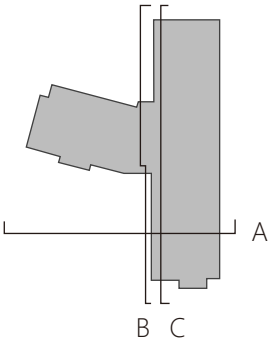
Each apartment also includes a balcony spacious enough to accommodate personal planting or outdoor furniture (on the ground floor, this takes the form of a terrace). This responds to the therapeutic benefits noted in the thesis: horticultural therapy can alleviate pain, agitation, and stress while improving attention and emotional stability (Uwajeh et al., 2019; Lu et al., 2020). For residents with limited mobility, the balconies and windows still allow them to observe the outside world.

Apartment Indoor

The rendering shows the outward view from the bedroom window, as well as the space remaining beyond the essential furniture, which both facilitates wheelchair movement and leaves flexibility for residents to make personalized arrangements.

4.8 Section

As shown in the section drawing, the building is structured primarily with load-bearing wall (slab-wall) construction, given the rational arrangement of the multiple rooms. The relationship between the balconies and the outdoor spaces, as well as the topographic level differences of the site, are all clearly expressed in Section A.



Section A, S = 1:500 (A4)

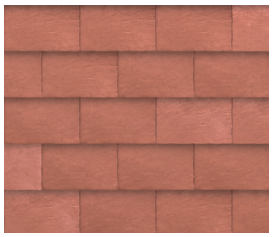
Section B, S = 1:500 (A4)

Section C, S = 1:500 (A4)

4.9 Facade

For the façade, the chosen material is a muted light grey-brown tile in an unobtrusive tone, intended to serve as a backdrop to the surrounding greenery. The first reason is to establish a quiet atmosphere in relation to the surrounding context; the second is to reduce excessive colour stimulation while visually emphasising the green space around the building.

Facade Pattern



Roof tiles

Pavement

Outdoor Terraces

Northeast Facade (Main Entry for drop-off zone for residents with mobility difficulties) , S = 1:500 (A4)

Southwest Facade (Facing the Intersection), S = 1:500 (A4)

4.10 Summary and Further Development

The proposal shows how the principles synthesised in Section 2.5 can be operationalised in a single architectural project on the Brattåskärrsvägen site.

At the site level, the rotated T-shaped volume separates pedestrian and vehicular flows, frees the southwestern portion of the plot for a continuous green space, and uses two rows of trees to mediate between the main road and the residents' outdoor environment.

At the building level, the central core acts as a memorable orientation node connecting three independent living units of 8, 9, and 10 residents, supporting both the small-scale unit care principle and the boundary definition between communal and unit-internal corridors. Within each unit, the double-row apartment layout with an inserted communal space avoids the long, monotonous corridors identified in the literature, while the decentralised nursing station, the variety of seating clusters, and the "little corners" along the windows respond to the social and behavioural needs of residents.

At the apartment level, the 36 m² prototype meets Swedish regulatory dimensions while preserving a clear visual axis and a wheelchair-friendly single circulation spine, with a balcony or terrace extending the private realm outward.

Owing to time constraints and the need to balance multiple considerations, the proposal was not fully resolved in every respect, and several aspects could be developed further.

First, the detailed design of the larger spaces—such as the core service area and the lobby—has not yet been fully resolved. A more careful study is needed, for instance, on how landmarks can be genuinely established within these spaces, and on how the actual functions of each zone within these large areas should be allocated.

Second, each residential unit currently terminates in the door of a fire-escape staircase. The original rationale was that placing the door directly at the end of the corridor would allow residents to reach the stairs without having to search for a route; however, this came at the expense of daylight. A possible refinement would be to set the stair core back slightly, so that the end of the corridor instead terminates in a window with good daylight.

Finally, the outdoor circulation was originally located by following the existing contour lines as closely as possible, minimising changes to the terrain when defining where the level differences occur. If the quality of the outdoor environment were given priority, however, a larger area at the +0 level could be devoted to green and recreational space. This would also mean that residents with reduced mobility would not need to descend the ramp to the -80 level—a somewhat remote spot—in order to rest or take part in activities.

5. Discussion

This chapter compares the elderly care systems of Sweden and Taiwan across urban density, culture, and time pressure. It then reflects on which parts of the design proposal can travel between the two contexts.

5.1 Taiwan Elderly Care System

1. Historical Origin: Borrowed from Japan, but Diverged

Taiwan's long-term care (LTC) system draws heavily on Japan. Japan launched the "Gold Plan" in 1989 and implemented its Long-Term Care Insurance (介護保険) in 2000 (Wu, 2017). Taiwan modeled its LTC 1.0 (2007) on Japan's Gold Plan and, in LTC 2.0 (2017), directly adopted multiple Japanese services — day care centers, small-scale multifunctional centers, dementia group homes, family-based care, and the ABC community-integrated care model (mirroring Japan's Chiiki Hōkatsu Care System, 地域包括ケアシステム) (Lin, 2018; Control Yuan, 2019).

The key difference is funding: Japan uses a social insurance model (premiums + taxes, roughly 50/50), while Taiwan uses a tax-funded model (tobacco tax, real-estate consolidated tax, etc., funneled into the LTC Fund). Japan's model is stable but pressures premium hikes; Taiwan's offers flexibility but suffers from fund instability tied to housing market fluctuations — a central concern about LTC 3.0's long-term sustainability.

2. Facility Types, Share, Target Population & Monthly Cost per Person (2024 Data)

By service mode, facilities are classified into home-based, community-based, and residential. Taiwan has approximately 18,973 service sites/ institutions in total, distributed as follows (Ministry of Health and Welfare, Statistics Bureau, 2024):

Some Noticeable points:

Community-based sites account for nearly 80% of all LTC infrastructure, homebased about 12%, and residential only 9% — clearly reflecting Taiwan's "aging-in-place,community-centered" policy direction.

However, residential facilities (1,687 institutions;~118,700 beds) remain critical for those with moderate-to-severe disabilities. Government subsidy enhancement: Residents with disability level 4+ staying 180+ daysannually receive up to NT$120,000/year (rising to NT$180,000 under LTC 3.0).

Taiwan Elderly Care Facility Distrubution

2024 data · ~18,973 service sites & institutions nationwide

Category	Facility Type	Count	% Total	Target Population	Monthly Cost / Person (NTD)
Home	Home care service agencies	2,235	11.8%	Disability level 2+, prefer staying home	Govt. quota NT$10,020–36,180; standard self-pay ~NT$1,600–5,800
Home	Home barrier-free renovation	(subsidy)	—	Same as above	Up to NT$40,000 every 3 years (one-time)
Community	Level A: Integrated service centers	774	4.1%	Case management & referrals	No direct fees
Community	Level B: Multi-service hubs (incl. day care)	9,419	49.6%	Need daytime care, return home at night	Full-day NT$14,850–28,270; standard self-pay ~NT$2,400–4,500
Community	Level C: Neighborhood LTC stations	4,718	24.9%	Mildly disabled, needing community support	Mostly meal/respite fees, ~NT$2,000–4,000
Community	Dementia group homes	Few	<0.1%	CDR ≥ 1, 10–15 residents per home	NT$40,000–50,000 (mostly self-pay)
Residential	Nursing care institutions (Yang-hu)	990	5.2%	Self-care impaired; need NG / urinary / gastrostomy tube care	NT$20,000–35,000
Residential	General nursing homes (Hu-li-zhi-jia)	510	2.7%	Chronic illness, severe disability, multi-tube care	NT$20,000–60,000
Residential	Long-term care institutions	38	0.2%	Chronic illness needing prolonged medical care	NT$20,000–45,000
Residential	Dementia care institutions	~15	<0.1%	Moderate-or-greater dementia, mobile	NT$30,000–45,000
Residential	Assisted living homes	~8	<0.1%	Self-sufficient but lacking family support	NT$15,000–25,000
Residential	Veterans' homes & residential LTC	~126	0.7%	Veterans and disabled persons	Comparable to similar facilities

Distribution: *Community-based ~78.6% of all sites; Home-based ~11.8%; Residential ~8.9% (1,687 institutions, ~118,700 beds).*

Subsidy: *Residents with disability level 4+ staying 180+ days/year receive up to NT$120,000/year (rising to NT$180,000 under LTC 3.0).*

Source: *MOHW Statistics Bureau (2024); Long-Term Care Decade Plan 2.0 Statistical Tables, Ministry of Health and Welfare.*

3. Key Facility Type Definitions

- (1) Community Service Stations (Level C, Neighborhood LTC Stations)

- Classified under Article 9 of the Long-Term Care Services Act as community-based services, mostly operated by community development associations, churches, temples, and other local organizations. In the care system, it plays the role of the most grassroots, widest-coverage outpost: with a service radius designed for 5 – 10 minutes' walk, providing communal meals, blood pressure monitoring, disability-prevention courses, simple cognitive training, and short-term respite. For sub-healthy and mildly disabled seniors, it serves as the first line of defense to "delay disability and avoid institutionalization"; for family caregivers, it is the closest channel for respite and LTC information referral (Ministry of Health and Welfare, 2024).

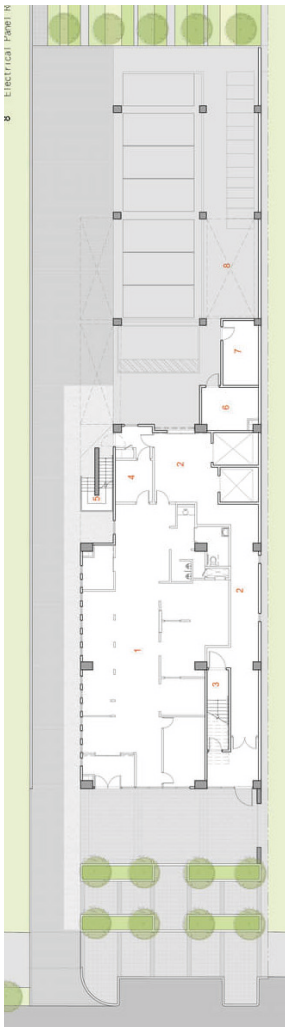


Figure 10. Ground floor of Community Service

Figure 11. Physiotherapy Equipment

Figure 10, 11

Note. Adapted from JJPan: Shuang-Lien Shin-Chuang Social Welfare Center, by Forgemind, 2021 (https://forgemind.net/media/jjpan-%E6%BD%98%E5%86%80%E8%81%AF%E5%90%88%E5%BB%BA%E7%AF%89%E5%B8%AB%E4%BA%8B%E5%8B%99%E6%89%80-%E9%9B%99%E9%80%A3%E6%96%B0%E8%8E%8A%E7%A4%BE%E6%9C%83%E7%A6%8F%E5%88%A9%E4%B8%AD%E5%BF%83/). Copyright 2021 by Forgemind.

- (2) Day Care Centers (Level B)

- Classified under Article 9 of the LTC Services Act as community-based services and established under the Standards for the Establishment of Welfare Institutions for the Elderly. Users must pass LTC 2.0 assessment with disability level 2 or above to apply for subsidies. The spatial design typically adheres to a "basic cluster" principle, ideally consisting of 6 to 10 individuals to balance privacy with daily social interaction needs (Architecture and Building Research Institute, 2020). These units are designed to include shared communal spaces, such as a living room, dining room, and kitchenette, ensuring residents maintain functional independence (Architecture and Building Research Institute, 2020).

- It is the core node of LTC 2.0 community-based services: daytime care with evening return home, allowing disabled/dementia seniors to receive professional rehabilitation and social activities to delay deterioration while maintaining family ties. The government targets "one day care center per junior high school district," making it the most critical infrastructure for sustaining the "aging-in-place" policy.

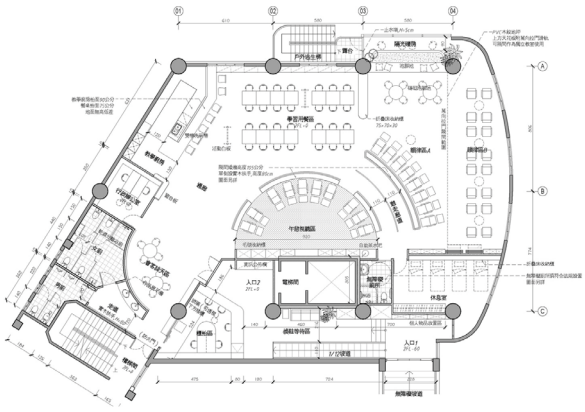


Figure 12. Ground floor Plan of Daycare Center

Figure 13. Interior Design of Daycare Center

Figure 12, 13

Note. Adapted from Changhua Dacun Lian-Ma-Yu School: Dementia Day Care Center, by TON Horizon, 2023 (https://ton-horizon.com/%E5%BD%B0%E5%8C%96%E5%A4%A7%E6%9D%91%E9%80%A3%E7%91%AA%E7%8E%89%E5%AD%B8%E8%8B%91%E5%A4%B1%E6%99%BA%E6%97%A5%E7%85%A7%E4%B8%AD%E5%BF%83/). Copyright 2023 by TON Horizon.

- (3) General Nursing Homes

- Established under the Nursing Personnel Act and the Standards for the Classification and Establishment of Nursing Institutions. Its competent authority is the Department of Nursing and Health Care, MOHW, separate from elderly welfare institutions and residential LTC institutions. By law, 24-hour professional nursing staff must be on duty, and it can admit "tri-tube patients" (nasogastric, urinary, and tracheostomy tubes) and severely disabled seniors with chronic illness. In the care spectrum, it functions as the medical × LTC interface: when a senior's condition exceeds what nursing care institutions can handle but doesn't yet require acute hospital care, the nursing home is the most suitable option. It often serves as a transitional station between "hospital discharge → home/care," with the highest medical intensity among residential care types.

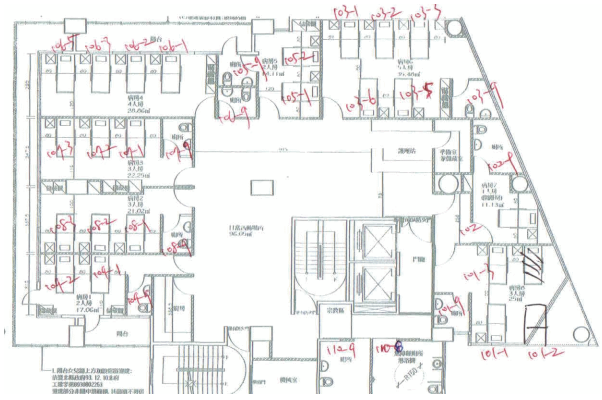


Figure 14. Floor Plan of Nursing Home

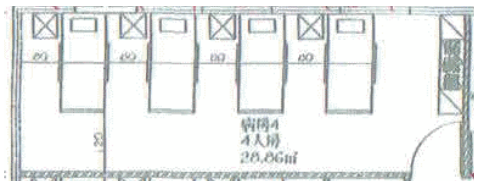


Figure 15. Typical Unit of the Nursing Home in Taiwan

Figure 14, 15

Note. Adapted from Pingtung multi-level precision nursing center, by Johnson, 2023, Johnson’s Food and Travel Notes (https://johnson1.pixnet.net/blog/post/575635884). Copyright 2023 by Johnson.

- (4) Hospital-Affiliated Senior Parks (Continuing Care Retirement Community, CCRC)

- Also known as a Continuing Care Retirement Community (CCRC) — comprehensive institutions integrating multi-tier care ("active senior housing → assisted living → nursing care → general nursing home → dementia care → palliative care") within a single park. The core philosophy is "Aging in Place" — seniors do not need to relocate due to deteriorating health and can move within the park horizontally or vertically based on disability level, from healthy senior apartments to end-of-life palliative care. The biggest feature is the integration of medical, social welfare, and residential systems, plus hospital-grade resources: resident physicians, emergency green channels, and rehabilitation centers. Most operate on a high-deposit + monthly-fee model. They account for a small share of overall care capacity but are seen as the highest demonstration tier of Taiwan's elderly care services.

Overall Layout of CCRC

The Apartment in CCRC

Figure 16, 17

Note. Adapted from About Chang Gung Health and Culture Village, by Chang Gung Medical Foundation, n.d. (https://www1.cgmh.org.tw/cgv/About/Abxut?Id=9&m=3). Copyright by Chang Gung Medical Foundation.

4. Recent Trends (2025–2026)

Taiwan's LTC 3.0 was approved on December 31, 2025, and rolls out in 2026 with three major shifts (Executive Yuan, 2025):

- (1) Deepening "aging-in-place" with home renovation as a core tool:

- Through LTC 2.0's barrier-free home modification subsidy (codes E/F), the government covers bathroom grab bars, anti-slip flooring, ramps, and threshold removal — up to NT$40,000 every three years (70% subsidy for standard households) (Social and Family Affairs Administration, n.d.). Combined with the smart assistive device rental program launching July 1, 2026 (covering transfer, mobility, bathing/toileting, care beds, and safety monitoring), the goal is to enable seniors to age safely in their own homes.

- (2) Medical × LTC integration and the "10-minute care circle":

- LTC 3.0 establishes home-based responsible-physician networks, integrates Post-Acute Care (PAC) with LTC rehabilitation, and shifts residential institutions to per-capita payment. The "10-minute care circle" and "co-living community" concepts (borrowed from Japan's Chiiki Kyōsei Shakai, 地域共生社会) aim to ensure care needs are met within a 10-minute drive (Chen & Kuan, 2022).

- (3) Expanded eligibility & filling residential gaps:

- New eligible groups include (all-age) dementia patients (regardless of being) under 50 and PAC cases (Ministry of Health and Welfare [MOHW], 2025); families with foreign caregivers can now also access Short-term Substitute Care Services (MOHW, 2025). To address the residential shortage, the government plans to establish 2,500 additional beds in resource-poor areas and another 1,000 beds through partnerships with social housing programs (MOHW, 2025).

5.2 Comparison between Sweden and Taiwan

Overview of Elderly Care Services in Sweden

According to statistical data as of the end of 2023, the elderly care system in Sweden has profoundly implemented the "Aging in Place" policy, with home care services (Hemtjänst) serving as the primary form of support. Approximately 161,500 individuals receive home care, covering about 23% of the population aged 80 and over (Socialstyrelsen, 2024).

In contrast, special housing or nursing homes (Särskilt boende, SÄBO), which provide 24-hour care, accommodate approximately 83,000 residents, about 32% of whom have a dementia diagnosis (Socialstyrelsen, 2024). Regarding other supportive housing and services, senior housing (Trygghetsboende) accommodates around 40,000 individuals, while day care services (Dagverksamhet) serve approximately 23,200 people.

Overall, the ratio of individuals in institutional care to those receiving home care in Sweden is roughly 1:2. This reflects a significant trend since the 1992 Ädel Reform, shifting resources from large institutions to home-based support systems and maintaining the proportion of seniors aged 80+ living in institutions at below 10% (OECD, 2023; Socialstyrelsen, 2024b).

Difference 01. City Planning & Density

The development of elderly care spaces in Sweden is fundamentally shaped by the Planning and Building Act (SFS 2010:900), which establishes a "planning monopoly" (planmonopol) for local governments (Sveriges riksdag, 2010). This legal framework allows municipalities to lead land-use allocation and maintain long-term land reserves until urban plans are ready for implementation. From a spatial perspective, Swedish urban areas (tätort) have relatively low population densities.

For instance, the density of Stockholm is approximately 4,000 people per km², and even its most crowded inner-city areas reach only about 12,000 per km² (Statistiska centralbyrån, 2024c). This combination of strong legal authority and moderate urban density ensures that municipal governments can secure large, complete sites in central areas specifically for social welfare housing.

In contrast, Taiwanese cities face extreme population pressure and fragmented land ownership. The population density in Taiwan's urban cores is two to six times higher than that of Sweden. For example, the central districts of Taipei range from 17,500 to 24,900 people per km² (Taipei City Government Department of Urban Development, 2025), while Taichung's core areas reach between 11,000 and 20,700 per km² (Taichung City Government Bureau of Civil Affairs, 2022).

Furthermore, land values in Taipei's core are exceptionally high, with transaction prices often exceeding NT$ 605,000 per square meter (Ministry of the Interior, 2024). Compared to the market prices in central Stockholm for 2025 – 2026, which average between NT$ 331,700 and NT$ 424,700 per square meter, the cost of acquiring land in Taiwan is roughly 1.5 to 2 times higher (Investropa, 2026; Statistiska centralbyrån, 2024b).

Given Taiwan's high urban density and land costs — with central Taipei reaching NT$ 605,000 per square meter (Ministry of the Interior, 2024) — purpose-built, standalone care facilities on large dedicated sites are rarely feasible in urban areas. Community-based and day care facilities therefore predominantly occupy existing building stock.

Difference 02. Culture

Chaudhury & Xu (2022) identified "sociocultural preferences" and the creation of "home-like environmental features" as core elements emphasized in Asian research, aiming to mitigate the negative perception of facilities as hospital-like environments.

Fang et al. (2024) further indicated that "symbiosis" among residents is a structural feature of daily life in Taiwanese facilities; this relationship occurs between residents with and without dementia, establishing an emotional support network akin to "family" through mutual assistance and interaction.

Additionally, spatial configurations must provide diverse social spaces and visitor reception rooms to support residents' social engagement with the outside world (Chaudhury & Xu. 2022). Chin (2013) also explicitly included family companionship spaces as a design requirement for dementia units in Taiwan.

In contrast, the Swedish context exhibits a different focus: Andersson (2013) noted that shared spaces in Swedish special housing (SÄBO) represent the intersection of "dwelling" and "workplace" perspectives, though the status quo often prioritizes nursing procedures. Van Steenwinkel (2015) introduced the concept of "small worlds / little corners," emphasizing individual daily socialization as the primary design focus.

In summary, while the Asian context tends to foster large-family-like symbiotic cohesion and family connections through public spaces, the Swedish context focuses on carving out private corners for individuals within the framework of nursing systems. This difference in usage density and temporal rhythm reflects the projection of cultural differences onto architectural programming.

Difference 03. Time Pressure

According to historical statistics from Statistics Sweden, the country reached the "aged society" threshold around 1972 (Statistiska centralbyrån, 2024a). Combined with the Ädelreformen in 1992 (Edebalk, 2010), the system has benefited from approximately half a century of evolution. In contrast, Taiwan faces immense temporal pressure.

According to the National Development Council (2022), Taiwan became an "aging society" in 1993, an "aged society" in 2018, and is projected to become a "super-aged society" by 2025. The transition from "aged" to "super-aged" takes only seven years in Taiwan, compared to eleven years in Japan (Cabinet Office, 2024). Under this time constraint, Taiwan’ s Long-Term Care (LTC) 2.0 has established a community-based service proportion of 78.6%, with residential institutions representing 8.9% (Ministry of Health and Welfare, 2024).

This structural distribution is a strategic response to the rapid pace of population aging. Over the next decade, dementia care architectural practice in Taiwan will focus on the operationalization of verified design principles within building renovations and the development of mixed-use models integrated with community centers and day-care facilities.

Summary

To sum up, the comparison across three dimensions — urban density, cultural values, and system maturity — shows that Sweden and Taiwan share the same goal of providing supportive environments for people with dementia, but pursue it through quite different spatial strategies and regulatory frameworks. These differences do not prevent knowledge transfer; rather, they help to clarify which design principles are broadly applicable and which need to be adapted to local conditions. This question is explored further in the following section.

5.3 Transferable Learning in the Proposal

Opportunities for Daycare Service in Taiwan

Taiwan's current care system provides a concrete foundation for these applications. Community-based services, classified under Article 9 of the LTC Services Act and established under the Standards for the Establishment of Welfare Institutions for the Elderly, serve as the core node of the infrastructure. Day care centers (Level B) are the primary setting for individuals with dementia who return home at night.

The spatial design of these centers typically adheres to a "basic cluster" principle, ideally consisting of 6 to 10 individuals to balance privacy with daily social interaction needs (Architecture and Building Research Institute, 2020). These units are designed to include shared communal spaces, such as a living room, dining room, and kitchenette, ensuring residents maintain functional independence (Architecture and Building Research Institute, 2020).

The spatial principles developed in this proposal map directly onto this typology: the shared kitchen acts as a social anchor, communal spaces are subdivided into intimate seating clusters, and corridors are designed to be short enough to ensure visual legibility from end to end.

Opportunities for Dementia Group home in Taiwan

The dementia group home, though currently representing a small fraction of registered sites, is the residential typology most structurally aligned with this proposal.

Its small scale, domestic character, and unit-based organization resonate with the Swedish evidence base. As the Long-Term Care 3.0 Plan expands residential capacity—targeting the establishment of 2,500 additional beds in resource-poor areas and 1,000 beds through social housing partnerships (Ministry of Health and Welfare, 2025)—this typology is positioned for growth.

The spatial reasoning explored in this thesis—such as distinguishing unit entrances from corridors and positioning nursing stations to support rather than surveil—is directly applicable to the development of these future facilities.

Different Context in Outdoor Environment

The principles for outdoor environments require the most localized adaptation. While this proposal utilizes a purpose-built ground-level garden, Taiwan's dense urban infill sites often lack such footprints. Rooftop gardens, accessible terraces integrated with street-level greenery, and semi-public courtyards within existing building envelopes serve as realistic equivalents. Despite these formal differences, the underlying requirement remains constant: residents must have regular, barrier-free access to safe outdoor spaces (Chao, 2009).

As an Architect in Taiwan

Unlike the preceding sections and chapters, this portion focuses more on my personal experiences and is therefore less objective than the theoretical framework provided earlier. However, I believe that personal perspective and conviction are indispensable components of architectural design thinking.

Beyond the initial three points analyzing the possibilities for Taiwan’s future development, my greatest takeaway from this project was learning how to interpret academic discourse and translate it into empirical design decisions. This involved searching through various papers and finding a balance between idealized states and the practical constraints of the site and project requirements. Should more localized research emerge in Taiwan in the future, I am confident in my ability to analyze it and establish a corresponding set of design guidelines.

Furthermore, regarding the translation of different cultural contexts, my two years in the Swedish Master’s program often required me to step outside my usual framework and design habits. Architecture serves as a cumulative record of cultural experiences; even when architects or policymakers in different environments pursue the same goals, the methods they employ differ vastly. For instance, while both Taiwan and Sweden are addressing the challenges of an aging society, they have developed two completely distinct care systems.

Returning to the architectural strategy of this project: although the site is "relatively narrow" compared to the program—at least by the standards of my studies in Sweden—this is a daily reality in high-density Taiwanese cities, where we must constantly negotiate the compromise between "ideal space" and "actual constraints." (During my undergraduate years, for example, I explored how Japanese architecture maximizes efficiency in extremely small apartment layouts).

If I consider how these types of facilities might evolve from a Taiwanese perspective, my focus shifts toward a vertical implementation of these living units. If a building reaches eight stories or higher, what additional elements must be added to the design principles? If units are stacked vertically, what corresponding functions should be interspersed between floors to serve as transition spaces? Given that higher floors have less access to the outdoors, how can we provide opportunities for outdoor greenery or activity space? I do not have definitive answers yet, but these are the questions I will continue to explore as an architect in Taiwan.

Reflection for Sweden

Because this project was primarily developed within the Swedish context, Taiwanese literature served a supplementary role. At the same time, my understanding of the Swedish care system and its lived experience is not yet profound, so I do not feel comfortable providing definitive feedback. Instead, I am highlighting the common difficulties encountered when elderly individuals in Taiwan are moved into care facilities, alongside the thoughts that occupied my mind during the development of this proposal.

As discussed in the "Difference 02. Culture" chapter, the reason many Taiwanese institutions strive to create a "second home" environment is that the elderly are often resistant to being sent to care facilities. To increase social acceptance, organizations attempt to foster this domestic atmosphere—regardless of its actual effectiveness. In my preliminary research on the Swedish system, I noticed that home care services remain the majority preference. This led me to wonder whether Sweden faces similar cultural hurdles regarding institutionalization.

Furthermore, a primary reason some Taiwanese elders eventually accept and enjoy day-care centers is the opportunity for new social circles. (I recall a time when my grandfather, who had dementia, went missing because he wanted to visit a friend who had already passed away; he had forgotten this fact and wandered toward his friend's old residence, eventually losing his way). This reinforces my belief that the social dimension is as critical as the physical environment in care architecture.

5.4 Conclusion

Architecture cannot cure dementia, yet it profoundly shapes the daily lives of those living with the condition. This thesis examines the influence of the built environment by analyzing research, synthesizing core design principles, and applying them to a specific site. Furthermore, it explores how these principles adapt to the constraints of different countries, with a particular focus on a comparative study between Sweden and Taiwan.

The proposal for Brattåskärrsvägen remains theoretical and has not yet been tested in a real-world setting. Additionally, the comparative analysis of Taiwan relies primarily on literature, statistics, and the author's subjective observations. Consequently, further validation is required through the professional lens of a practicing architect to fully understand the practical challenges faced in the industry.

Presented as an architectural project, this research discusses the tangible impact of spatial decisions in dementia care and explores how these considerations translate into design operations. In Taiwan, the link between space and wellbeing is often overlooked, as current design culture tends to prioritize operational efficiency and legal compliance over spatial quality.

Over the next decade, Taiwan will develop a significant amount of healthcare infrastructure. these buildings will define the daily experiences of thousands of families. Therefore, ensuring that future projects provide superior care environments for those in need—whether they are elderly or living with dementia—remains a primary objective for both future research and the author’ s professional practice.

Finally, this study reflects on the author's experience regarding the transfer of cross-cultural knowledge between Taiwan and Sweden. It concludes that enhancing opportunities for social interaction is a vital design perspective for the future of assisted-living facilities.

6. Reference

Andersson, J. E. (2011). Architecture and ageing: On the interaction between frail older people and the built environment [Doctoral dissertation, Royal Institute of Technology, Stockholm].

Andersson, M. (2013). Common spaces in assisted living for older persons: Aspects of usability from the residential and workplace perspectives [Doctoral dissertation, Chalmers University of Technology].

ArchDaily. (2017, November 28). Elderly Care Skärvet / Kjellander + Sjöberg Architects. https://www.archdaily.com/884368/elderly-care-skarvet-kjellander-plus-sjoberg-architects

Architecture and Building Research Institute. (2020). Research on accessible design principles of age-friendly house (Report No. 109B1002). Ministry of the Interior.

Bengtsson, A. (2015). From experiences of the outdoors to the design of healthcare environments: A phenomenological case study at nursing homes [Doctoral thesis, Swedish University of Agricultural Sciences].

Cabinet Office. (2024). Annual report on the ageing society: 2024. https://www8.cao.go.jp/kourei/whitepaper/index-w.html

Chang Gung Medical Foundation. (n.d.). About Chang Gung Health and Culture Village. Retrieved from https://www1.cgmh.org.tw/cgv/About/About?Id=9&m=3

Chao, T. W. (2009). The study of the outdoor space of nursing homes and retirement communities: A case study at Suan-Lien Elderly Center [Master's thesis, Fu Jen Catholic University].

Chaudhury, H., & Xu, M. (2022). The role of the built environment on the quality of life for residents in long-term care facilities in Asia: A scoping review. Innovation in Aging, 6(5), igac045. https://doi.org/10.1093/geroni/igac045

Chen, C.-F., & Kuan, Y.-Y. (2022). Implications of Japan's community integrated care system evolution for Taiwan's LTC policy. Community Development Journal. https://cdj.sfaa.gov.tw/Journal/Content?gno=12940

Chen, M.-S., Ko, Y.-T., & Hsieh, W.-C. (2021). Exploring the planning and configuration of the hospital wayfinding system by space syntax: A case study of Cheng Ching Hospital, Chung Kang Branch in Taiwan. ISPRS International Journal of Geo-Information, 10(8), 570. https://doi.org/10.3390/ijgi10080570

Chin, Y. L. (2013). A study on spatial planning for residential units at long-term dementia care facilities. Architecture and Building Research Institute, Ministry of the Interior.

Control Yuan. (2019). Corrective case no. 108-Nei-Zheng-0010.

Ding, M., et al. (2024). Prevalence of dementia diagnosis in Sweden by geographical region and sociodemographic subgroups: A nationwide observational study. The Lancet Regional Health – Europe, 45, 101029

Edebalk, P. G. (2010). The Ädel reform: A major reform in Swedish elderly care. Swedish Institute for Social Research.

Executive Yuan. (2025). Long-term care decade plan 3.0 (2026 – 2035): Approved version. Ministry of Health and Welfare.

Fang, C.-C., Liu, Y.-H., & Huang, S.-H. (2024). The symbiotic experiences of residents with and without dementia co-living in Taiwan's long-term care facilities: A phenomenological study. BMC Geriatrics, 24, Article 611. https://doi.org/10.1186/s12877-024-05205-9

Forgemind. (2021, April 28). JJPan: Shuang-Lien Shin-Chuang Social Welfare Center. https://forgemind.net/media/jjpan-%E6%BD%98%E5%86%80%E8%81%AF%E5%90%88%E5%BB%BA%E7%AF%89%E5%B8%AB%E4%BA%8B%E5%8B%99%E6%89%80-%E9%9B%99%E9%80%A3%E6%96%B0%E8%8E%8A%E7%A4%BE%E6%9C%83%E7%A6%8F%E5%88%A9%E4%B8%AD%E5%BF%83/

Ghamari, M.; Suvish; Dehkordi, A.A.; See, C.H.; Sami, A.; Yu, H.; Sundaram, S., et al. (2025). Dementia friendly buildings — Approach on architectures. Buildings, 15, 385.

Hung, Y.-C., Chen, K.-C., Chen, I.-F., & Liu, L.-H. (2022). A study of the key sustainable factors of Taiwan's community care centers. Sustainability, 14(3), 1413. https://doi.org/10.3390/su14031413

Investropa. (2026). Housing prices in Sweden (2026). https://investropa.com/blogs/news/sweden-housing-prices

Iwarsson, S., & Ståhl, A. (2003). Accessibility, usability and universal design: Positioning and definition of concepts describing person − environment relationships. Disability and Rehabilitation, 25(2), 57 − 66.

Johnson. (2023, December 20). Pingtung multi-level precision nursing center [Blog post]. Johnson's Food and Travel Notes. https://johnson1.pixnet.net/blog/post/575635884

Jonsson, O. (2013). Furniture for later life: Design based on older people's experiences of furniture in three housing forms [Doctoral dissertation, Lund University].

Landezine. (2017, October 12). Retirement Home Trädgårdarna by LAND Arkitektur. http://landezine.com/retirement-home-tradgardarna-by-land-arkitektur/

Lee, P.-W., & Haung, C.-H. (2023). Assessing the therapeutic environment of residential aged care facilities for people with dementia in Taiwan. International Journal of Social Science and Humanity, 13(1), 26 − 29.

Lin, S.-H. (2018). A preliminary study of Japan's long-term care insurance: Experience and implications. Civil Service Quarterly, 10(3), 1 − 28.

Lin, Y.-L., & Ou, S.-J. (2024). Building design for daycare center and group home for elderly persons with dementia. Engineering Proceedings, 74(1), 53. https://doi.org/10.3390/engproc2024074053

Ministry of Health and Welfare. (2024). Long-term care decade plan 2.0 statistical tables. https://1966.gov.tw/LTC/lp-6485-207.html

Ministry of Health and Welfare. (2025). Long-term care ten-year plan 3.0 (2026 − 2035).

Ministry of Health and Welfare, Statistics Bureau. (2024). Senior and long-term care statistics portal. https://dep.mohw.gov.tw/dos/cp-5223-62358-113.html

Ministry of the Interior. (2024). Real estate transaction price inquiry service. https://lvr.land.moi.gov.tw/

Nord, C. (2013). Design according to the law: Juridical dimensions of architecture for assisted living in Sweden. Journal of Housing and the Built Environment, 28, 147 − 155.

Nordic Office of Architecture. (n.d.). Carpe Diem Dementia Village. https://nordicarch.com/projects/carpe-diem-dementia-village

OECD. (2023). Health at a glance 2023: OECD indicators. OECD Publishing. https://doi.org/10.1787/7a7afb35-en

Rodiek, S., & Schwarz, B. (Eds.). (2005). The role of the outdoors in residential environments for aging. Social and Family Affairs Administration. (n.d.). Assistive device resource portal. Retrieved April 29, 2026, from https://newrepat.sfaa.gov.tw/

Socialstyrelsen. (2024a). Nationell demensstrategi 2025 − 2028.

Socialstyrelsen. (2024b). Statistik om äldreomsorg 2023 [Statistics on social services for the elderly 2023].

Statistiska centralbyrån. (2024a). Population by age and sex. Year 1860 − 2024 [Data table]. Statistikdatabasen. Retrieved April 29, 2026, from https://www.statistikdatabasen.scb.se/pxweb/en/ssd/START__BE__BE0101__BE0101A/BefolkningR1860N/

Statistiska centralbyrån. (2024b). Prices for newly produced dwellings: Production price per dwelling and per sq.m. useful floor space. Retrieved April 29, 2026, from https://www.scb.se/en/finding-statistics/statistics-by-subject-area/housing-construction-and-building/construction-and-conversion/prices-for-newly-produced-dwellings/

Statistiska centralbyrån. (2024c). Tätorter i Sverige 2023 [Urban localities in Sweden 2023]. Retrieved April 29, 2026, from https://www.scb.se/hitta-statistik/sverige-i-siffror/miljo/tatorter-i-sverige/

Taichung City Government Bureau of Civil Affairs. (2022). 2021 Taichung city civil affairs statistical yearbook. https://www.civil.taichung.gov.tw/

Taipei City Government Department of Urban Development. (2025). General situation of Taipei city development. https://udd.gov.taipei/article/tsxbf9f

Thodelius, C., Ekman, R., Lundälv, J., & Ekbrand, H. (2017). Injury events sustained in residential environments: Age and physical disability as explanatory factors for differences in injury patterns in Sweden. Housing & Society, 44(1-2), 127-140

TON Horizon. (2023, January 30). Changhua Dacun Lian-Ma-Yu School: Dementia Day Care Center. https://ton-horizon.com/%E5%BD%B0%E5%8C%96%E5%A4%A7%E6%9D%91%E9%80%A3%E7%91%AA%E7%8E%89%E5%AD%B8%E8%8B%91%E5%A4%B1%E6%99%BA%E6%97%A5%E7%85%A7%E4%B8%AD%E5%BF%83/

Torrington, J. M., & Tregenza, P. R. (2007). Lighting for people with dementia. Lighting Research and Technology, 39(1), 81 − 97. https://doi.org/10.1177/1365782806074484

Tsekleves, E., & Keady, J. (2021). Design for people living with dementia: Interactions and innovations.

Van Steenwinkel, I. (2015). Offering architects insights into living with dementia [Doctoral thesis, KU Leuven].

Wu, H.-L. (2017). Japan's long-term care insurance system and the right to survival. Angle Publishing.

AI appendix

Generative AI, such as Gemini, has been used as supportive tools in this project, mainly for assisting in structuring the narrative with author's notes to improve the clarity of academic writing, and language refinement.

AI was also used to make minor refinements to some visual simulations, such as using Banana Pro 2 in Gemini to add people and objects and to change the season in the renderings. All design strategies, drawings, 3D modelling, design decision explanations, and reflections were completed by the author.

The author has thoroughly reviewed all content and assumes full responsibility for the final work.