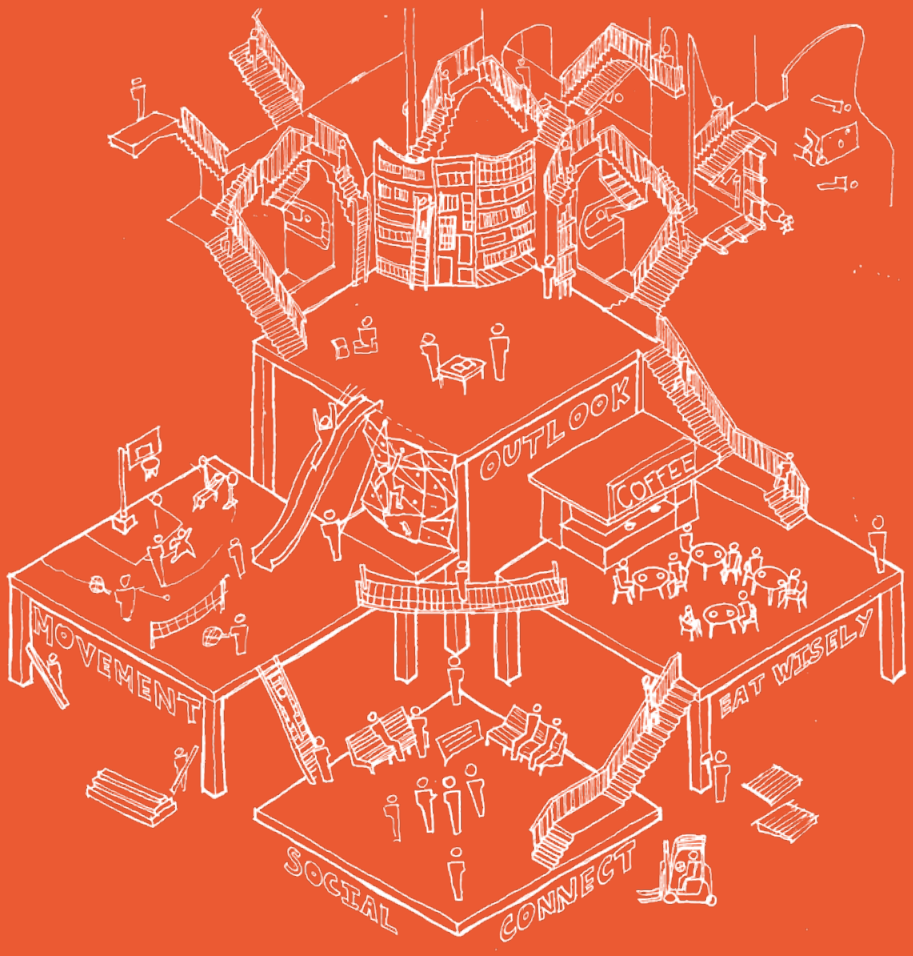
# BETTER TOGETHER.

## A Handbook for the Design of Healthy Elderly Living Environments




## Graduation Research Report

**AR3AD110 Designing for Health & Care**

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**24th January 2024**

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## Abstract


This research addresses the pressing question: ‘How can the architectural design of elderly independent living facilities enhance well-being by promoting social connections amongst the elderly?‘. The aim is to generate guiding principles for socially connected independent living facilities, specifically targetting elderly suffering from social isolation seeking an alternative to aging at home. This research identifies a crucial gap between aging at home and relocating to a care facility, emphasizing the need for a new option. This intermediary option aims to provide elderly individuals with the opportunity to age independently in an ideal living environment with the possibility to foster social connections that further enhance their well-being.

The methodology employs a hybrid approach, combining top-down and bottom-up methodologies. The top-down component extracts archetypal principles primarily from literature and case studies, providing universal design guidelines. Simultaneously, the bottom up aspect centers on understanding the unique needs of the elderly through primary research, ensuring a responsive and context-specific.

The resulting design guidelines are organized across various scales, addressing the intricate needs of the elderly and fostering well-being. The study not only contributes to architectural endeavours but also addresses societal challenges associated with an ageing demographic. In a world predominantly focused on environmental challenges, this research emphasizes the urgency of addressing societal issues, particularly the challenges associated with an aging demographic.

The scope of the study is delineated by a theoretical framework integrating key theories from architectural design, well-being, social connection, and elderly wants/needs. These theories collectively guide the research’s ambition, providing a comprehensive foundation for the proposed design guidelines.

In conclusion, the study culminates in 16 Design guidelines meticulously organized across dwelling, communal space, building program, and site conditions. These guidelines offer a nuanced and multi-faceted approach to architectural design, addressing the intricate needs of the elderly, fostering well-being, and alleviating loneliness. The proposed guidelines serve as a holistic blueprint for architects, ensuring the creation of socially connected and well-supported environments for the elderly in response to the challenges posed by the aging population and the identified gap in existing options.

# Chapter 1
# Introduction

*Problem Statement, Research Question and Methodology*





## 1.1
## Chapter Overview

**Problem Statement, Research Question and The Addressed Gap**

The introductory chapter of this research report navigates the landscape of the ageing population, recognizing its imminent rise and the challenges it poses globally and specifically in the Netherlands. As the percentage of individuals aged 65 and above is projected to double by 2050, a fundamental shift in perspective is crucial. The elderly should no longer be seen as an exception but as the new norm, urging us to reconsider architectural designs to be more inclusive and responsive to their diverse needs. Inspired by the Blue Zones, regions associated with high longevity and strong social connections, this research sets out to explore the pivotal role of social connection in promoting the well-being of the elderly.

Defining social connection across intimate, relational, and collective domains, the research acknowledges its catalytic role in overall well-being. Contemporary healthcare's oversight of social connection heightens the risk of social isolation, a growing concern among the elderly. The lack of social connection contributes to loneliness, affecting over one-third of over-75s in the Netherlands.

The chapter emphasizes the challenges of ageing in place and the limited options for solitary elderly individuals, leading to the research's central gap – the need for independent living facilities that promote social connection. Architects, recognized as shapers of social connection, play a pivotal role in addressing this gap. The research proposes a dual methodology, combining a top-down approach to derive archetypal design principles and a bottom-up investigation to understand users' needs and ensure contextual responsiveness.

By setting the stage for the following chapters, this introductory chapter aims to underscore the urgency and relevance of redefining our approach to architecture in the context of the ageing population, envisioning a future where design principles foster not only longevity but also meaningful social connections for the elderly.

# 1.1 Background of Research

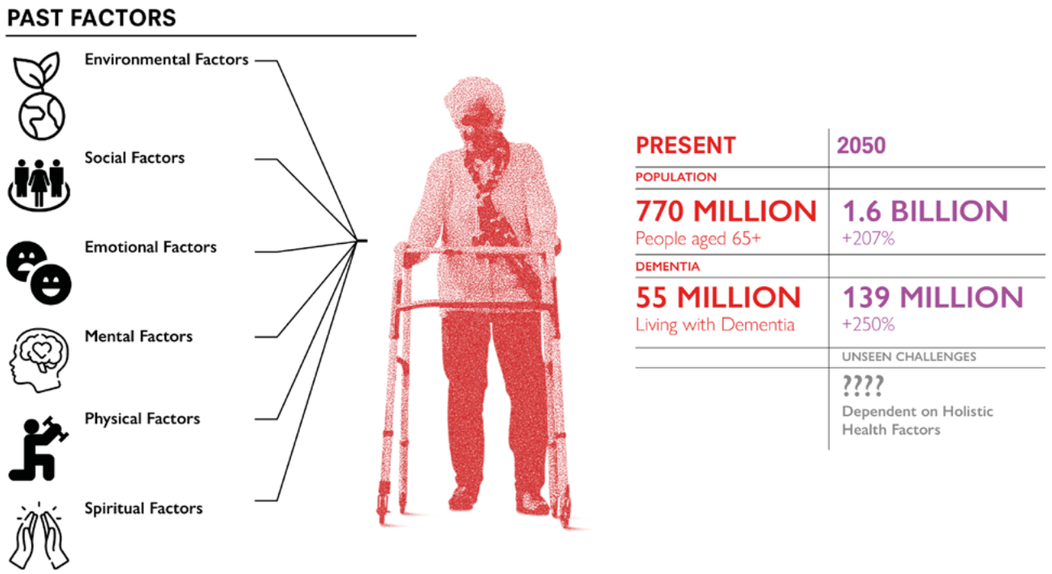



**Fig. 1: The Growing Issue of an Ageing Population Diagram by Author, statistics sourced from World Social Report 2023 (United Nations Department of Economic and Social Affairs)**

### The Ageing Population - Elderly as the New Norm

Globally, we are witnessing an undeniable trend indicating a significant demographic shift, with the proportion of people aged 65 and above projected to more than double by the year 2050, as reported by the United Nations Department of Economic and Social Affairs in 2023. This demographic transformation is not unique to the global landscape; the Netherlands, too, is set to experience a substantial change. By 2040, the percentage of the Dutch population aged 65 or older is anticipated to rise from the current 16% to a staggering 26%, as per data from the Central Bureau of Statistics (CBS) in 2012.

As the elderly population grows, it is evident that the challenges faced by this demographic will increase in both scale and complexity. As society adapts to this shift, the very nature of these changes may evolve in an unexpected way. In light of these transformations, there is an urgent need to redefine our perspective, recognizing the elderly not as the exception but as the norm (Hammond & Saunders, 2021). It is time to consider how our architectural designs can become more inclusive, accommodating, and responsive to the diverse needs of this growing segment of our society. This research proposal seeks to address these critical issues and explore how architecture can be harnessed to promote the well-being of the elderly population in our evolving world.



### Learning From Blue Zones

'Blue Zones' are regions in the world where the population has been observed to have high levels of longevity while sharing a common lifestyle and environment (Poulain et al., 2014). Since the term's first appearance in academia in 2004 based on studies in Sardinia, Italy; several other blue zones have been identified: Okinawa, Japan; Ikaria, Greece; Nicoya, Costa Rica and Loma Linda California. Interest in these areas have piqued in relation to the rising challenges associated with ageing populations. Specifically, several of theories and studies have been developed to try to understand why these areas have such high longevity (Buettner, 2023). These studies have highlighted observations that, as well as having a healthy diet, exercise regime and positive outlook, the people living within blue zones also seem to have a commonality in having strong social relationships and genuine connections with their community members (Buettner, 2023). The research paper will take inspiration from these observations to underscore the significance of social interaction and overall well-being.


**Fig. 2: Four Commonalities between Blue Zones (Live to 100, 2023)**

# 1.2
# Problem Statement

***'Incorporating social support and connections is critical for overall health and for healthy habits to be sustainable'***

**(Martino et al., 2015)**

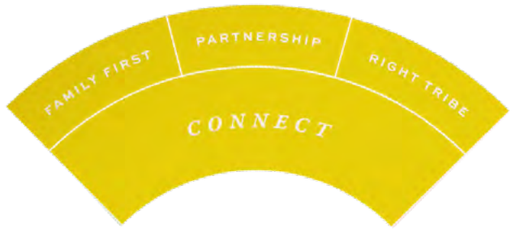




**Fig. 3: Social Connection as a Focus for the Architect, Adapted from the Netflix Series Diagram in 'Live to 100' by the Author (Live to 100, 2023)**





**Defining Social Connection**

Social connection can be defined as 'The feeling or sense of belonging to a group and generally feeling close to and cared by other people' (O'Rourke & Sidani, 2017). As we all know, humans are inherently social creatures (Young, 2008) and therefore social life plays an important role in our survival and self-actualization (Maslow, 1987). The concept of 'social connection' can be further broken down in to three domains of varying scale and intimacy: Intimate, Relational and Collective connectedness (Brewer & Gardner, 1996). Intimate social connectedness is defined as our perceived closeness to those we share a deep, mutual bond of affection and trust, such as spouses, best friends, or close family members (Perry, 2023). Relational social connectedness refers to the perceived presence of family and friendship connections who provide support and mutual aid (Perry, n.d., p. 101). Finally, collective social connectedness is the sense of belonging to a wider group of people, such as teams, organizations, schools etc (Perry, n.d., p. 101). The fulfilment of these three domains are essential in creating social connection in individuals and without it, social isolation becomes a major risk.

**Social Connection as a Catalyst Towards Well-Being**

Unfortunately, contemporary healthcare has neglected social connection as a key aspect of living and preventing disease, as we see a shift in recent times towards the pathogenic approach of medicine and reacting to disease (Battisto, 2019). This neglect increases the risk of social isolation, which in turn can lead to increased occurrence of disease, un-healthy living conditions and even death (Holt-Lunstad et al., 2010). On the other hand, a strong sense of social connectedness can be more than the simple avoidance of disease. In fact, it has been shown to be positively conducive to well-being on the behavioural, physiological, and psychological level (Umberson & Montez, 2010). Therefore, within this research proposal, we can understand social connection as an important catalyst towards well-being. A catalyst that, when promoted, can unlock various pathways to well-being, and when neglected, can create the opposite effect. This is important for this research proposal, as our pursuit of designing for well-being can be hindered by the fact that well-being is an extremely subjective term that can have many different meanings depending on the individual (Fletcher, 2015). Rather than prescribing a one-size-fits-all definition of wellness, architecture can take on the responsibility of creating environments where the potential for personal well-being is maximized. This is achieved through the deliberate promotion of social connectedness, recognizing it as a catalyst that opens doors to diverse pathways on our personal journeys towards well-being.

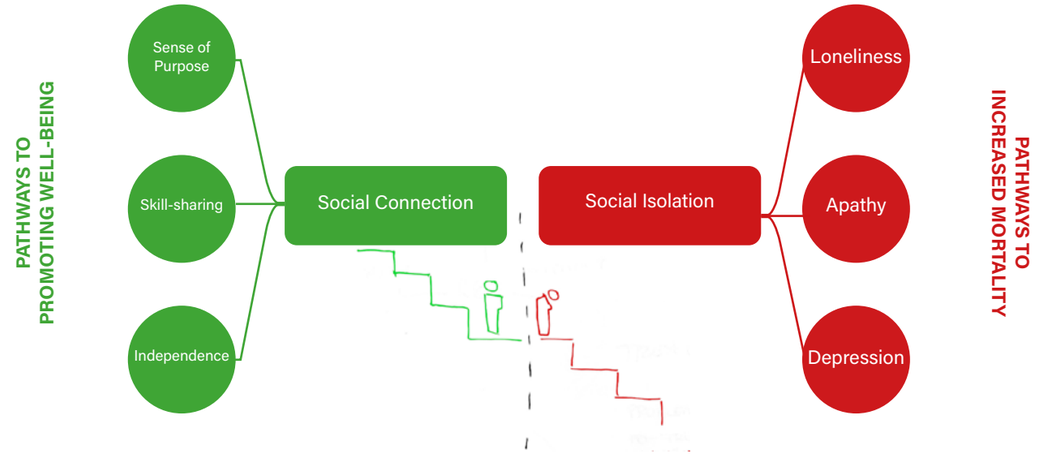



**Fig. 4: Social Connection and Wellness by the Author**

## Social Isolation is a Growing Problem In Society

The lack of social connection is evidenced by the common occurrence of loneliness among elderlies. According to a study conducted by CBS, one-third of over-75s in the Netherlands experience loneliness, with about 10% saying that loneliness is a common occurrence (Statistics Netherlands, 2020). A large proportion of this is most likely linked to the fact that elderly people represent the largest population living alone in the Netherlands (Statistiek, 2019). This trend is expected to continue as the elderly population grows, thereby increasing the amount of elderly people living alone. As mentioned before, social isolation is detrimental for health, and this is especially true for elderly people. In fact, it should be noted that the detriments of social isolation are more serious in elderly people as they are more vulnerable and face unique challenges already in their daily lives (Medicine National Academies of Sciences et al., 2020) This lack of social connection can lead to wider issues especially as the ageing population grows such as the exacerbation of the generational gap, the rise of mental health issues and overall poorer quality of life for the elderly (Van Der Brug & Rekker, 2021).

## Not Everyone Can Age at Home

'Ageing in Place' is defined as remaining in a community-based dwelling during one's late years in life (Ratnayake et al., 2022). It is the most preferred option for most elderlies as it allows them to maintain their autonomy and independence in a community that offers social connections and access to services (Wiles et al., 2012). Elderly people may end up ageing in place alone at home as a result of the death of a spouse or children leaving the household. Most studies are in agreement that ageing in place can be effective in prolonging the life of the elderly and fostering well being if it is conducted within a strong and supportive community (Ratnayake et al., 2022). Studies suggest that without a strong community, ageing in place at home may pose more risks than it does benefits (Ratnayake et al., 2022). Despite these risks, it can be hypothesized that an elderly person may still choose to remain at home simply because the alternative options are lacking. Furthermore, in the case of the Netherlands, the healthcare system currently relies on care being delivered at home as a means of reducing stress on hospitals, but as the amount of elderly people living alone at home rise, this will inevitably create further issues (Baks, n.d.).

In 2015, Netherlands virtually abolished 'bejaardentehuizen' (retirement homes), designed for providing a place for the elderly to live who were not necessarily sick but rather just wanted to be with other retirees, as part of a 'long-term care reform' (van Doorslaer et al., 2020). Although this was initially done to increase 'financial sustainability', it has arguably generated more problems than it has solved (van Doorslaer et al., n.d.). Instead of increased efficiency, the elimination of retirement homes in exchange for more nursing homes created a predicament for elderlies who were living alone as it significantly reduced their options for living. As explained by Paul Baks, the threshold for nursing home care today has been set so high that only those who are exceptionally sick can have access (2017). As a result, an elderly person, living alone at home despite still being healthy, can only choose to either: move in with family (Torres, 2014), continue staying at home, or wait to get sick enough to go to a nursing home. The gap to highlight here is that more consideration should be given to elderly social housing that encourages independent living, fosters social connection and overall well-being for active elderlies that are looking to age in a community environment.

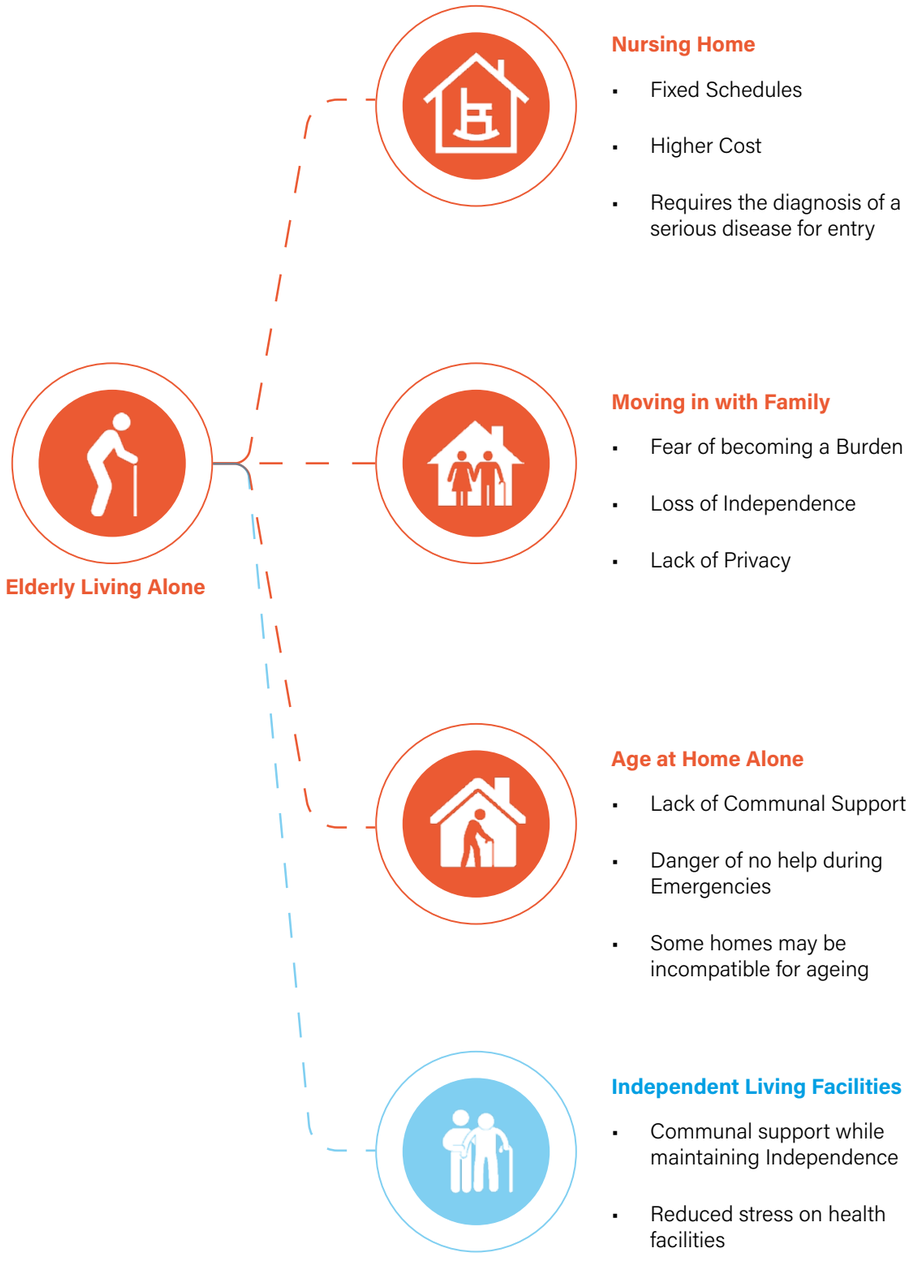



**Fig. 5 - 'Tussen wal en schip': The Need to Create more Independent Living Facilities by Author**

# 1.3 Theoretical Framework

## Literature Overview

**HEALTHY INDEPENDENT LIVING FACILITIES**

SPECIFIC ↑ BROAD

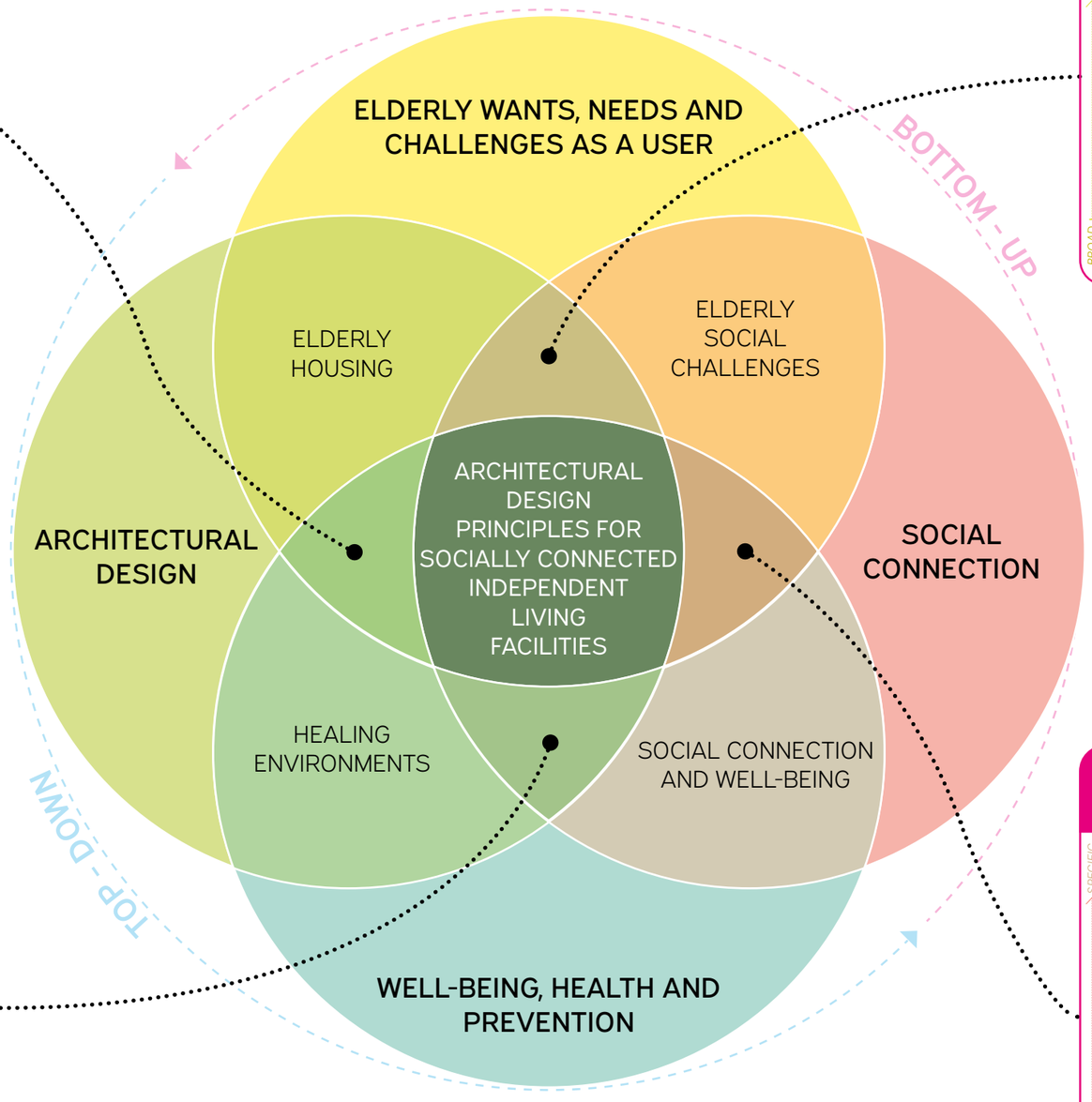
- A Design for Life, Hammond & Saunders, 2021
- Living for the Elderly: A Design Manual, Fedderson & Ludtke, 2009
- Housing Preferences of an Ageing Population, De Jong et al., 2012
- Journal of Housing for the Elderly, Taylor & Francis
- View through a window may influence recovery from surgery, Ulrich, 1984
- The Built Environment and Mental Health, Evans, 2003
- Architecture and Health: Guiding Principles for Practice, Battisto & Willhelm, 2019

*Further Reinforced with **Secondary Research***

**COMMUNITY BUILDING ARCHITECTURE**

SPECIFIC ↑ BROAD

- Social Sustainability, Palich and Edmonds, 2013
- A Design for Life, Hammond & Saunders, 2021
- Social Connectedness 101: The Many Pathways to Social Connection, Perry, 2023
- Social Relationships and Health: A Flashpoint for Health Policy Umberson and Montez, 2010
- National Programs for age-friendly cities and communities: a guide, World Health Organization 2023
- Healing architecture, 2004-2017: Forschung und Lehre = research and teaching, Nickl-Weller, 2018
- The Routledge Handbook Of Philosophy Of Well-Being, Fletcher, 2015




**INTEGRATING ELDERLY HOMES IN TO THE SURROUNDING COMMUNITY**

SPECIFIC ↑ BROAD

- World Social Report 2023: Leaving No One Behind in an Ageing World, United Nations, 2023
- Ageing in Place, Ratnayake et al., 2022
- Why Don't Older People Want to Move in with Their Families?, Torres 2014
- The Meaning of 'Ageing in place' to older people, Wiles et al. 2012
- Nog meer mensen straks alleen, vooral ouderen, CBS, 2022
- Social Isolation and Loneliness in Older Adults, Medicine National Academies of Sciences et al. 2020
- 2021 AARP Home and Community Preferences Survey, Binette

*Further Reinforced with **Primary Research***

**SOCIAL CONNECTION AS A CATALYST FOR ELDERLY WELL-BEING**

SPECIFIC ↑ BROAD

- The Connection Prescription, Martino et al., 2015
- Ageing in The Netherlands: State of the Art and Science, Smits et al. 2014
- Definition, Determinants, and Outcomes of Social Connectedness for Older Adults, O'Rourke and Sidani 2017
- Social isolation, loneliness, and all-cause mortality in older men and women, Steptoe et al. 2013
- Social Relationships and Mortality Risk, Holt-Lundstad et al. 2010
- How Many Friends Does One Person Need?: Dunbar's Number and Other Evolutionary Quirks, Dunbar 2010
- Motivation and Personality, Maslow, 1987

**Fig. 6: Literature Overview Diagram Inspired by Zuzunaga's 'Ikigai' Diagram, by Author**

# 1.3
# Theoretical Framework

## Key Theories

**Overview**

The theoretical framework outlined below is composed of key theories extracted from the four aforementioned domains of Architectural Design, Well-Being, Social Connection and Elderly Wants/Needs. These theories have been selected based on their theoretical, historical and practical significance in relation to the ambition of the research.

**1. Architectural Design - 'Universal Design Principles For Elderly Living Environments'**

The Design Manual: Living for the Elderly by Fedderson & Lüdtke (2018) contains important guidelines adapted from the 7 universal design guidelines created by Ron Mace that aimed to promote design that would be accessible for everyone regardless of any conditions (Mitrasinovic, 2008). In the case of the manual, these principles have been adapted towards the same user group (elderlies) that the research focuses on within a similar problem statement (the ageing population). This theory serves as a solid starting point in providing practical design principles to consider when creating elderly living environments. It is important to note that the theory comes as a result of extensive case studies from countries around the world, and therefore the research would seek to further adapt these specifically for the context of the Netherlands, the research topic and the target user group.

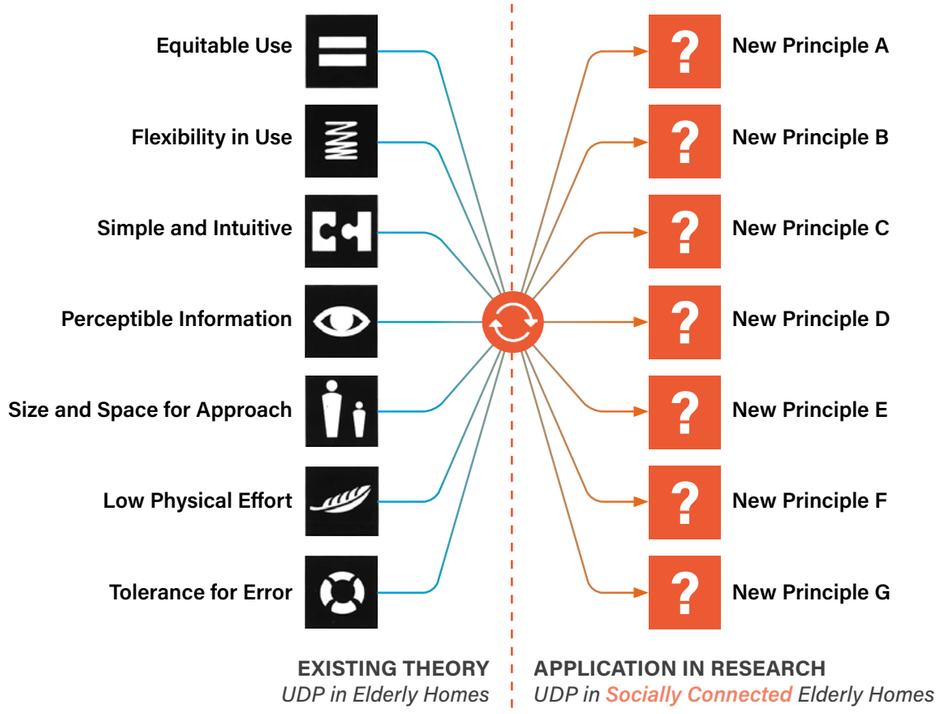



**Fig. 7: Theory of Universal Design Principles (UDP) and Planned Application in the Research, by Author, inspiration from 'Living for the Elderly: A Design Manual' (Feddersen & Lüdtke, 2009)**





**2. Well-Being - 'Architecture for Health'**

'Architecture for Health' is a term used by Battisto and Wilhelm in 'Architecture and Health: Guiding Principles for Practice' to describe a theory that underscores the importance of preventative features in our built environment (2019). The theory is built upon historical observations of how our approach towards architecture and health has shifted from a salutogenic dominated approach towards a pathogenic dominated approach in recent times (Antonovsky, 1979). In other words, contemporary architecture is too reliant on the treatment aspect of diseases and not incorporating enough preventative features. In response, 'Architecture for Health' as described by Battisto promotes design principles that seek to return to a balance between prevention and treatment, one that is regenerative in its approach to create open, accessible, flexible and adaptable health environments. This research will aim to take this wider philosophy and explore its application in socially connected elderly independent living facilities with the hopes that the outcome is resilient in responding to current issues (pathogenesis) and preventing future issues (salutogenesis).

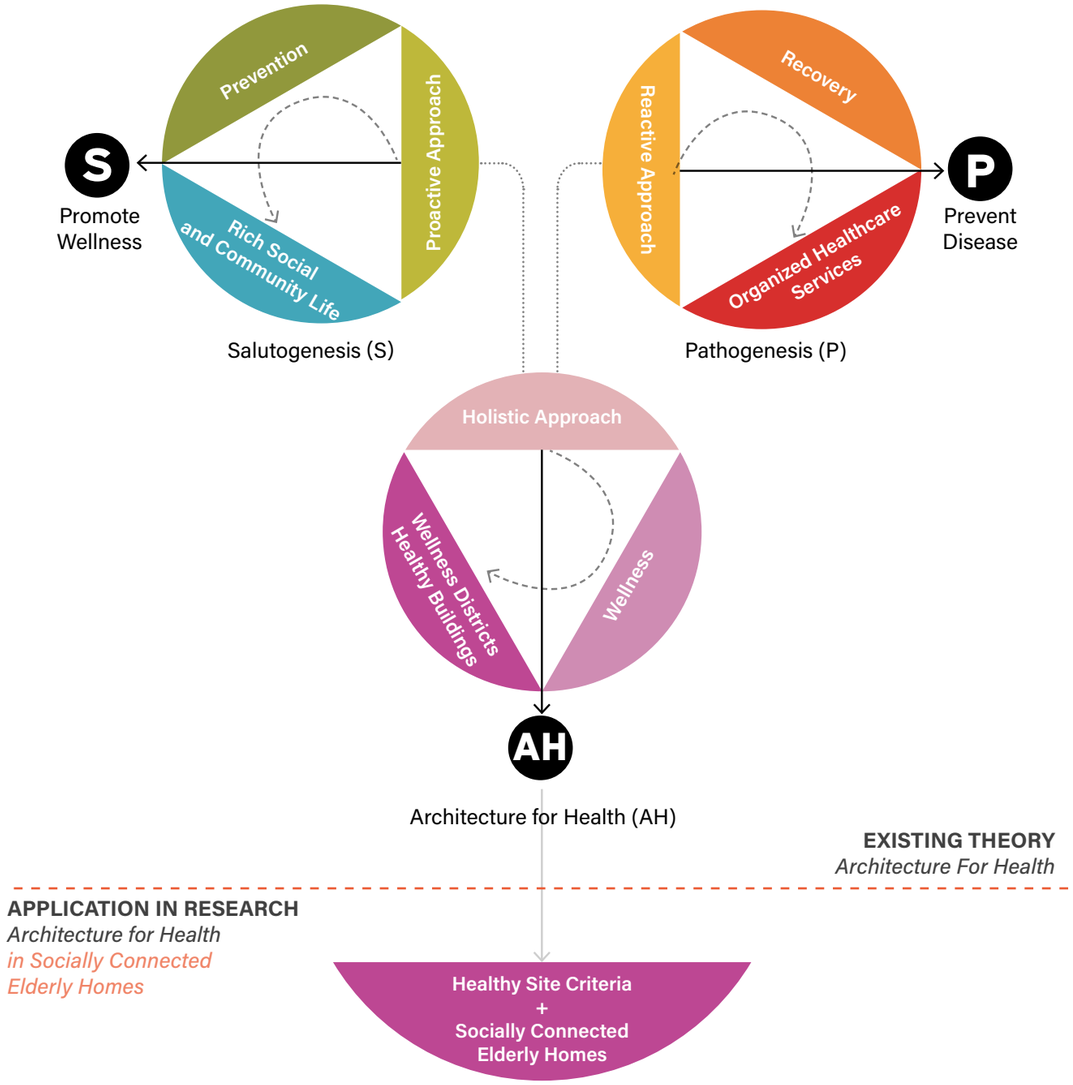



**Fig. 8: Theory of Architecture for Health and Planned Application in Research, by Author with Inspiration from 'Architecture and Health: Guiding Principles for Practice ' (Battisto, 2019)**

### 3. Social Connection - 'The Connection Prescription'

As stated in Chapter 1, Social Connection can be understood as a catalyst for unlocking well-being and promoting health. An important theory related to this is proposed in the *'Connection Prescription'* by Jessica Martino et al. (2017). The study proposes a theory that positions 'Social Connection' as a necessary prescription for the promotion of important well-being aspects. In elaborating this proposition, the paper takes the mnemonic normally associated with your typical medicinal prescription, FITT (Frequency, Intensity, Time and Type) and applies it to the component of social connection. In doing so, this theory provides a useful framework for the measurement of social connection. This research can then employ this theory as a methodology when conducting primary research during fieldwork or interviews.

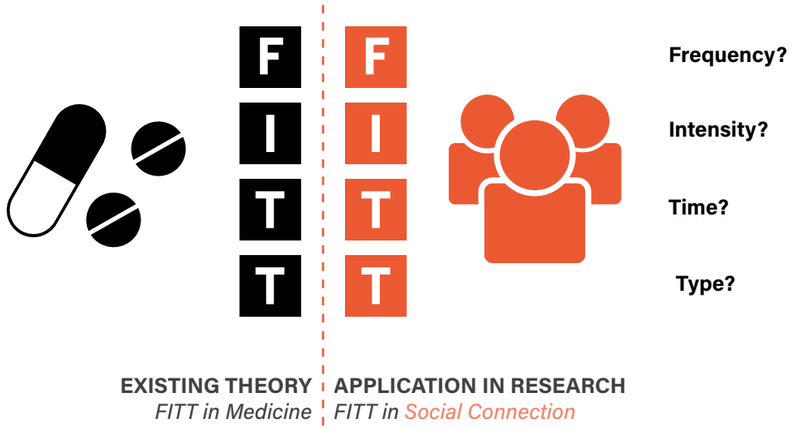



**Fig. 9: Theoretical Framework and it's intersections between Practice, Theory and History by Author**

### 4. Elderly Wants & Needs: - '*Social isolation and loneliness in older adults*'

*'Social isolation and loneliness in older adults'* is a broad-based study on the prevalence of social isolation specifically in older adults (Committee on the Health and Medical Dimensions of Social Isolation and Loneliness in Older Adults, 2020) . Although the paper itself is not necessarily highly 'theoretical', it does provide a hypothesis that suggests that elderly people are at a high-risk of experiencing social isolation due to pre-disposing factors such as living alone, the loss of family or friends, chronic illness and sensory impairments. Furthermore, it also suggests that isolation can be episodic or chronic. Since this hypothesis is based on an extensive study conducted in the United States, it can be utilized in the research as a framework for the development of interview questions and fieldwork. To be specific, interviews can be done to test whether or not this hypothesis is true within the research design context.

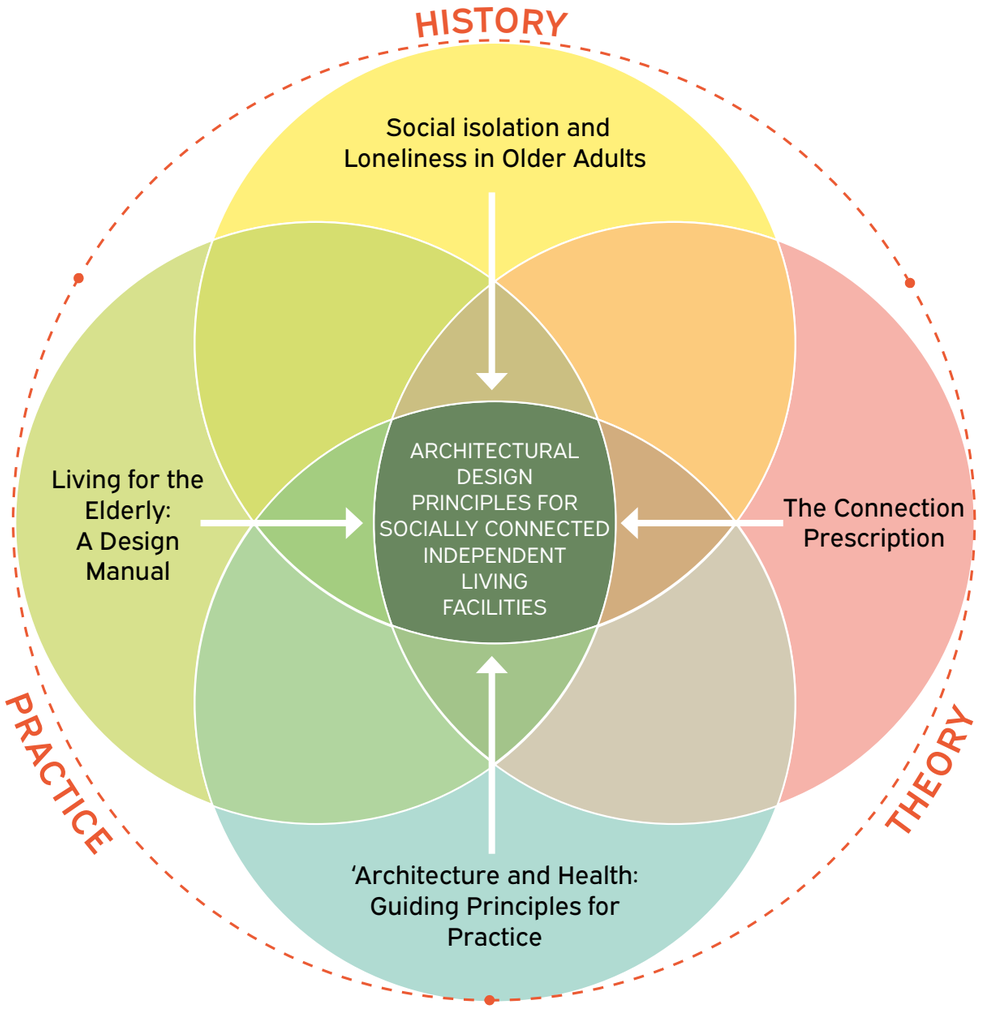



**Fig. 10: Theoretical Framework and its intersections between Practice, Theory and History by Author**


Fig. 11: Housing Progression Of Elderly and The Gap to Be Filled by Author





# 1.4
# The Gap

## In Between the Home and the Nursing Home

**Recognizing Architects as Shapers of Social Connection**

The built environment plays a considerable role in loneliness, social connection and overall wellbeing as our surroundings have been proven to have both direct and indirect effects on our mental health (Evans, 2003). This relationship can significantly influence the health and ageing process of elderlies. In fact, a recent study conducted on Dutch nursing homes revealed a strong positive correlation between apathy and mortality in patients (Nijsten et al., 2017). Architecture can either facilitate or impede the quality, potential and presence of social connectedness, especially in elderly living environments (Palich & Edmonds, 2013). In the case of this research proposal, I will explore the role architecture plays as a conductor of social connection in elderly living environments and how it can be utilized to strengthen the social fabric with the hopes of creating principles for a healthy living environment.

**The Gap to Fill - Independent Living Facilities that Promote Social Connection**

As highlighted before, there is a lack of options for places where solitary elderly people can choose to age while maintaining strong social connections and a sense of belonging to a community. As architects, more focus should be given towards creating a new option that exists in between the option to age in place at home and moving to a care facility. A place where an elderly person can continue living with full independence, while forming new meaningful social connections that promote well-being. **A place that does not represent the end of their story, but a new beginning.**

In doing so, there is potential to not only promote well-being to prolong the quality of life and health span of elderly people as their population increases, but also to relieve the increasing pressure on the healthcare system. In creating an environment where several independent elderlies live together, care can be made available in a much efficient manner. Fewer nursing staff would be required and travel time would be saved since elderly people can be concentrated in a single community where they can all be monitored (Baks, 2017). Furthermore, collective housing is proven to be much more affordable than individual housing due to the pooling of resources, and this allows for the possibility of creating affordable homes within urban areas, keeping elderlies close to facilities, public transport links and communities (Griffith et al., 2022).

***'Planners, developers and designers must stop thinking about older people as patients or a burden, but as citizens.'***

**(Hammond & Saunders, 2021)**

# 1.5
# Research Question

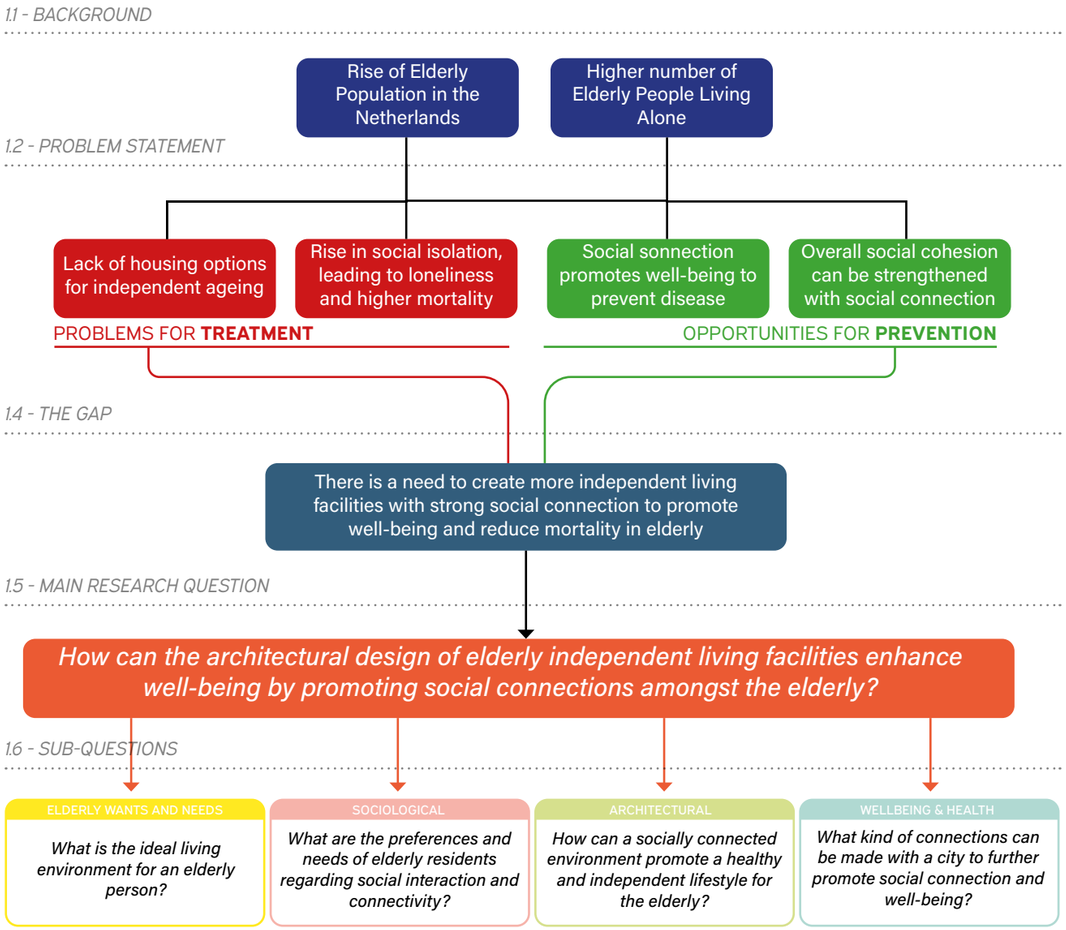



**Fig. 12: Line of Reasoning Towards Research Question, By Author**

### Proposed Hypothesis

My hypothesis is that social connection within elderly living environments are not only necessary to combatting loneliness and other mental diseases, but is also a key catalytic component to promoting overall well-being. In doing this research, I am working towards the outcome of creating Architectural Design Principles for Socially Connected Independent Living Facilities.





### Research Goals

The aim of this research is to generate a set of guiding principles for socially connected independent living facilities that focus on lonely elderly people who do not want to age at home. The hope is that in doing so, we can generate a prototypical approach that can be applied across the Netherlands that can create places for this marginalised group as they grow in size.

### Main Research Question

*How can the architectural design of elderly independent living facilities enhance well-being by promoting social connections amongst the elderly?*

### Sub Questions

- What is the ideal living environment for an elderly person?
- What are the preferences and needs of elderly residents regarding social interaction and connectivity?
- How can a socially connected environment promote a healthy and independent lifestyle for the elderly?
- What kind of connections can be made with a city to further promote social connection and well-being?

### Keywords and Definitions

- **Independent Living Facilities:** Independent living communities are for adults, generally ages 55 and older, who don't need assistance with activities of daily living (ADLs) but are looking for a living environment that offers additional support, onsite amenities and socializing opportunities and activities. (Heyn, 2022)
- **Social Connection:** The feeling or sense of belonging to a group and generally feeling close to and cared by other people (O'Rourke & Sidani, 2017)
- **Age-Friendly Living Environments:** 'Environments designed to account for the wide diversity of older people, promote their autonomy, inclusion, and contributions in all areas of community life, respect their decisions and lifestyle choices, and anticipate and respond flexibly to ageing-related needs and preferences' (World Health Organization, 2023)
- **Well-being:** 'a state in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community' (World Health Organization, 2022)
- **Elderly:** People aged 65 or older (United Nations Department of Economic and Social Affairs, 2023)

# 1.6 Methodology

## Balancing Top Down and Bottom Up Methods

**Overview**

The ambition of this research proposal is to produce design principles for socially connected independent living facilities that can be applied across the Netherlands in anticipation of an ageing population. However, in order to make the research more effective, the methodology applied will be within a framework that positions the research between top-down and bottom-up methods.

**Top-Down: In Pursuit of Archetypal Principles**

The 'top-down' component of the methodology aims to generate universal design principles that outline the key components for an archetypal independent living facility that promotes social connection and by extension, overall well-being. This research will delve in to secondary sources, exploring literature detailing theories and concepts relevant to the theoretical framework as well as exploring its application in case studies on the architectural and urban scale.

**Bottom Up: In Pursuit of Methodologies**

The 'bottom-up' component of the methodology aims to investigate the target user's wants and needs regarding their living environments. In doing so, the aim is to fuse this with the aforementioned top-down principles to ensure that the design is responsive to the unique needs of the user as well as the surrounding context (avoiding 'rubber-stamping'). In doing this primary based research, the hope is to also detail participatory methods for how future architects with the same ambition can extract specific types of information from their target users and most importantly, get them involved in the design process!

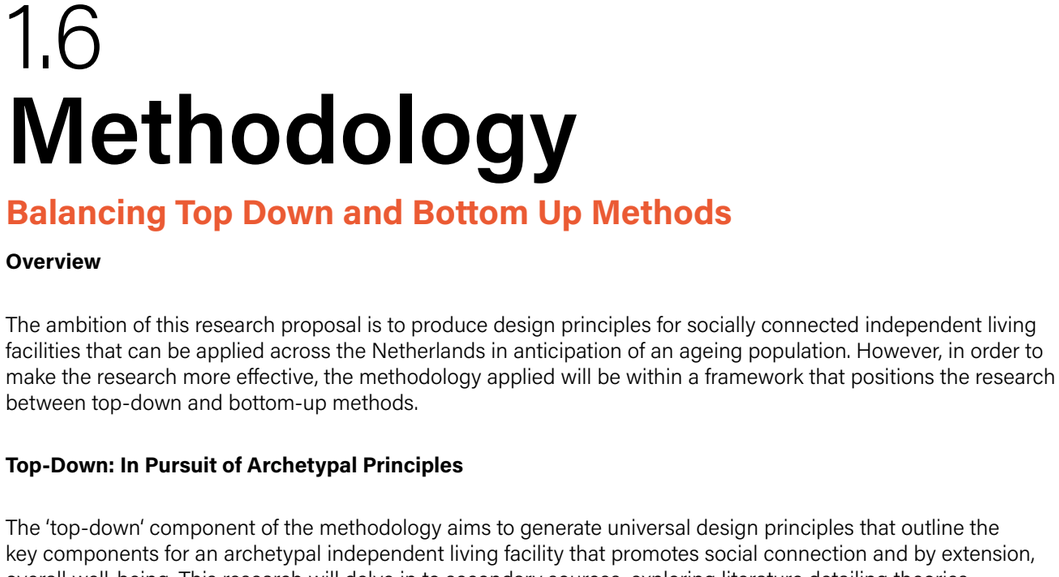



Fig. 13: Translating the Methodology in to Research and Design Outputs


Fig. 14: Methodology and Expected Primary and Secondary Results

# 1.6
# The Research Goal

## Design Guidelines

**Background, Problem, Gap, Question and Goal**

The introduction chapter serves as a comprehensive overview, laying the groundwork for an in-depth exploration into the architectural considerations for elderly independent living facilities. Framed by the backdrop of a rapidly growing elderly population and an increasing number of seniors living alone, the chapter identifies critical issues in the form of missed opportunities for prevention and prevalent problems demanding attention.

Highlighting the significance of promoting social connections for well-being and social cohesion, the research goals underscore the need to address the lack of housing options for independent aging and the alarming rise in social isolation, ultimately leading to increased mortality among the elderly. The identified gap in current approaches emphasizes the necessity to create more independent living facilities that seamlessly integrate strong social connections to enhance overall well-being and decrease mortality rates.

The main research question encapsulates the core objective: exploring how the architectural design of elderly independent living facilities can serve as a catalyst for improved well-being through the promotion of social connections. The subsequent sub-questions delve into specific aspects, ranging from the attributes of a city that encourage healthy independent living to the preferences and needs of elderly residents concerning social interaction and connectivity.

The anticipated outcome, articulated as "Architectural Design Principles for Socially Connected Independent Living Facilities," sets a clear trajectory for the subsequent chapters. As the research unfolds, these principles will be developed, refined, and substantiated, contributing valuable insights to the intersection of architecture and the well-being of the elderly. With a solid foundation established, the forthcoming chapters are a deeper exploration and analysis of these principles, with the aim of offering actionable solutions to address the complex challenges posed by an aging population.

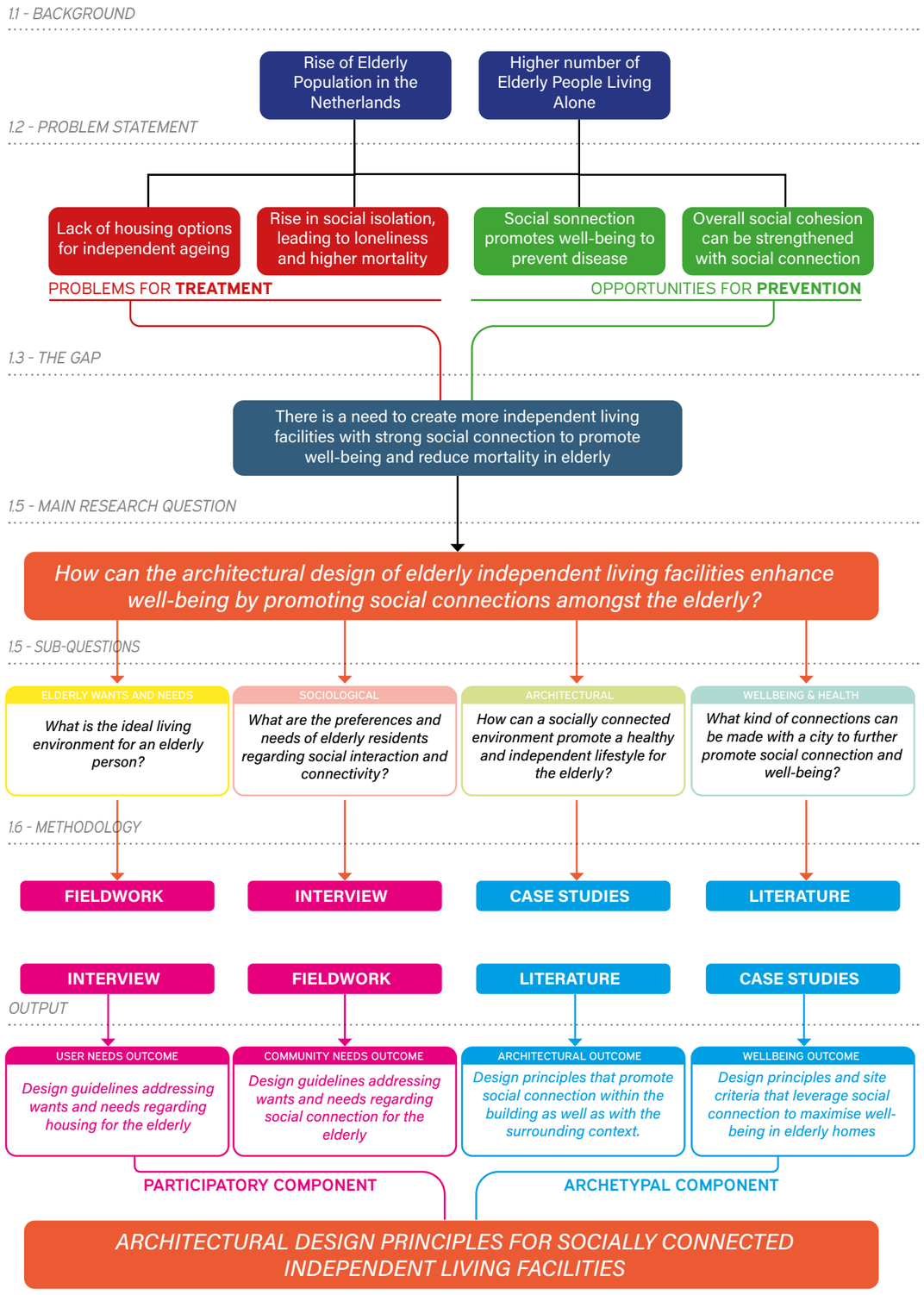
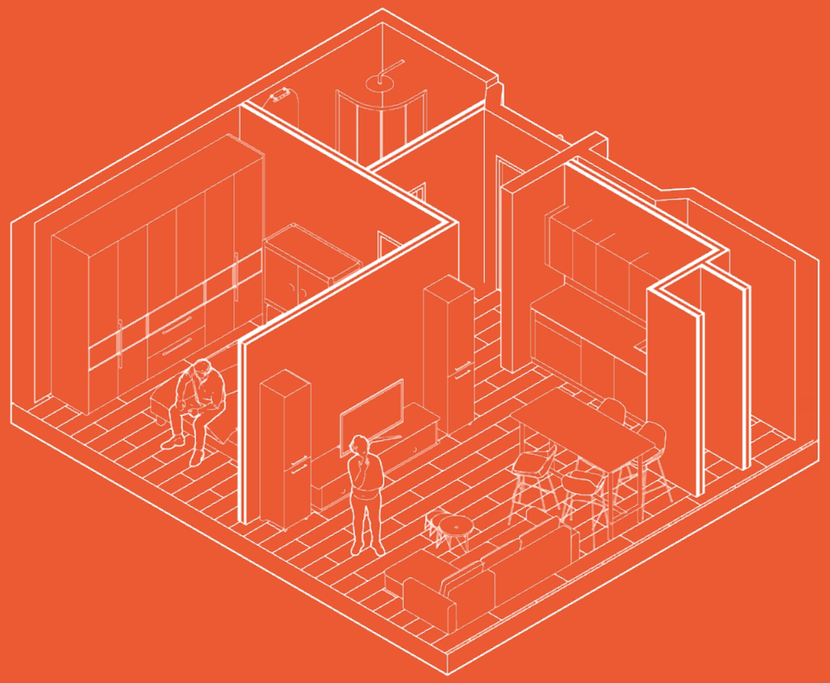



**Fig. 18: Overall Research Framework by Author**

# Chapter 2
# The Ideal Elderly Home



*‘What is the ideal living environment for an elderly user seeking social connection?’*





## 2.1
# Chapter Overview

Lack of housing options for independent ageing

*1.2 - PROBLEM STATEMENT*

*How can the architectural design of elderly independent living facilities enhance well-being by promoting social connections amongst the elderly?*

*1.5 - MAIN RESEARCH QUESTION*

ELDERLY WANTS AND NEEDS

*What is the ideal living environment for an elderly person?*

*1.6 - METHODOLOGY*

LITERATURE FIELDWORK INTERVIEW

*OUTCOME*

USER NEEDS OUTCOME

*Design guidelines addressing wants and needs regarding housing for the elderly*

**The Common Thread of This Chapter, Extract From Overall Research Framework (Section 1.6, Fig.18)**

**Question, Theory and Application**

This section is dedicated to formulating comprehensive design guidelines for crafting the optimal living environment for elderly individuals seeking social connection. Focused on addressing the sub-question—‘What is the ideal living environment for an elderly user seeking social connection?’—this chapter integrates insights from key literature on elderly wants and needs in housing.

Drawing upon established theories and methodologies, the chapter blends theoretical frameworks with on-site primary research conducted in the fieldwork location. Through interviews and documentation of diverse living situations among the elderly residents, the research aims to bridge the gap between the dweller and the dwelling. The ultimate goal is to generate robust design guidelines that not only cater to the individual needs of elderly users but also contribute to the well-being of the broader community.

The outcome of this synthesis will be a set of design guidelines poised to shape the development of future elderly housing units, ensuring they meet the nuanced requirements of both the individual occupants and the surrounding community.

# 2.2
# The ‘Elderly’

## Understanding The User

### Recognizing the Elderly as Individuals

The ‘Elderly‘ is a loose term associated with someone who is considered ‘old‘ by society. However, we must remind ourselves that beyond this lies an individual with unique needs and characteristics. As an architect, an important component for effective design is the communication, participation and recognition of the user as an individual with unique needs. Beyond ineffective design, the inability to recognize the elderly user’s individuality and relying on the sweeping application of one-sided presuppositions also causes delays in the meeting of the demands of the senior housing market. As we know, there are ongoing issues with housing in the Netherlands, with 86% of Dutch people stating their belief that the housing situation in the country is in a crisis, as construction of new homes lags behind schedule (Boztas, 2023).

An argument could be made that the lack of reliable housing solutions that meet the demands of the elderly creates disruptions in the flow of housing, as elderly occupy larger homes that would be better suited for a younger family, for example (Hagen & Neijmeijer, 2020). Therefore, this chapter will have a focus on researching the elderly as a user group, seeing how much of the demographic actually seeks social connection, what is attractive in the housing stock, and what can be learned by interviewing actual residents to take them one step closer to the ‘ideal living environment‘.

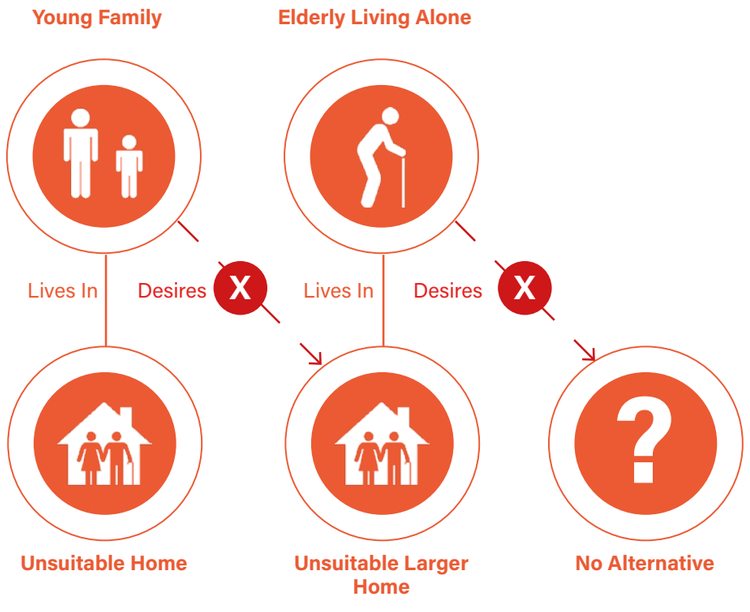



**Fig. 1: The Bottleneck Issue Created by Lack of In-Demand Housing Solutions**





### Living Profiles of the Elderly

In recognition of the rising ageing population, an extensive survey was conducted in the Netherlands in a study called ‘2018 De Grote Omgevingstest Zuid-Holland **(DGOT)** survey‘ (2018). With data collected from 22,500 households aged over 55 (2,500 over 75), this study was instrumental for researchers, architects and planners in acquiring a more in-depth understanding of housing preferences. Both open and closed questions were used in the survey, and were all related to ideal living experience, lifestyle, housing ambition, care demand and living environment preference (Hagen & Neijmeijer, 2020, p.7).

In the case of this research, it is desirable to make a link between wants/needs and specific housing typologies in order to visualize precisely what forms of housing are currently in need. Platform31 produced a paper titled ‘woonprofielen‘ that translated the results of the survey in to parameters that could be linked to 10 defined housing typologies (Hagen & Neijmeijer, 2020, p.13). The answers were sorted in to 10 parameters that measured wants/needs regarding care, community, heterogenity, proximity to neighbourhood, urban/rural, scale, control, sharing and basic/comfort (Hagen & Neijmeijer, 2020, p.10). This piece of research is important in understanding what types of housing are in need, and how much social connection whether or not social connection is indeed an important aspect of the ideal elderly living environment.

*THE AVAILABLE DATA*

**Results from DGOT Survey**
50,000 total responses on:
- *Household Characteristics*
- *Lifestyle*
- *Living Situation*
- *Living Preferences*

*HOW PLATFORM 31 PROCESSED THE RESULTS*

**Living Profile Parameters**
1. *Care*
2. *Community*
3. *Heterogeneity*
4. *Different location*
5. *Living environment*
6. *Living space,*
7. *Control*
8. *Sharing*
9. *Sustainability*
10. *Comfort*

Application of Parameters

**LP Parameters**

**Elder Population Data Set**
22,500 results, filtered by age (55+)

Latent Cluster Analysis

**Housing Typologies**
1. *Own Place*
2. *Private Domain*
3. *Basic*
4. *Residential Building*
5. *Family Home*
6. *City Flat*
7. *Neighbourhood Block*
8. *Park Flat*
9. *Housing Estate*
10. *Senior Flat*

Application of Typology

Elderly
1. Own Space
2. Private Domain
3. Basic
4. Residential Building
5. Family Home
6. City Flat
7. Neighbourhood Block
8. Park Flat
9. Housing Estate
10. Senior Flat

Resident Profiles

*HOW THIS RESEARCH APPLIES THE PROFILES*

**One to One with the User**
1. *Surveys*
2. *Interviews*
3. *Workshops*

Fieldwork

**Identification of elderly seeking social connection as a user group, and the relevant housing types for fieldwork**

**Fig. 2: Platform 31 methodology of translating results from DGOT to ‘woonprofielen‘, and further adaptation in this research for understanding housing preferences for elderly, by Author**

# Housing Types for Those Seeking Social Connection

**Analysing the Presence of Social Connection, Independence and Care in Desirable Housing Typologies**

The research done by Platform 31 provides a more diverse understanding of the elderly as a user group. This is important as it allows this research to pin point specifically what kind of elderly user is seeking social connection in their living environment and furthermore what housing types is compatible with their needs. In doing so, it is then possible to analyse the relevant housing case studies with fieldwork and primary research to examine what works well in fostering social connection and what can be further improved.

In the DGOT survey there were a number of questions asking participants about the importance of community and social contact in their ideal living environment (Hagen & Neijmeijer, 2020, p.31). Platform 31's post processing of these results positioned the responses on a parameter that categorized users in a spectrum ranging from 'individual' to 'communal' (Hagen & Neijmeijer, 2020, p.10). In the case of this research, those who are further on the spectrum towards 'communal' than 'individual' can be considered elderly users that are place a high priority on social contact rather than living alone in their ideal living environment. The below graph displays the results from Platform 31's analysis of housing demand based on DGOT responses, with elderly users seeking social contact highlighted in orange.

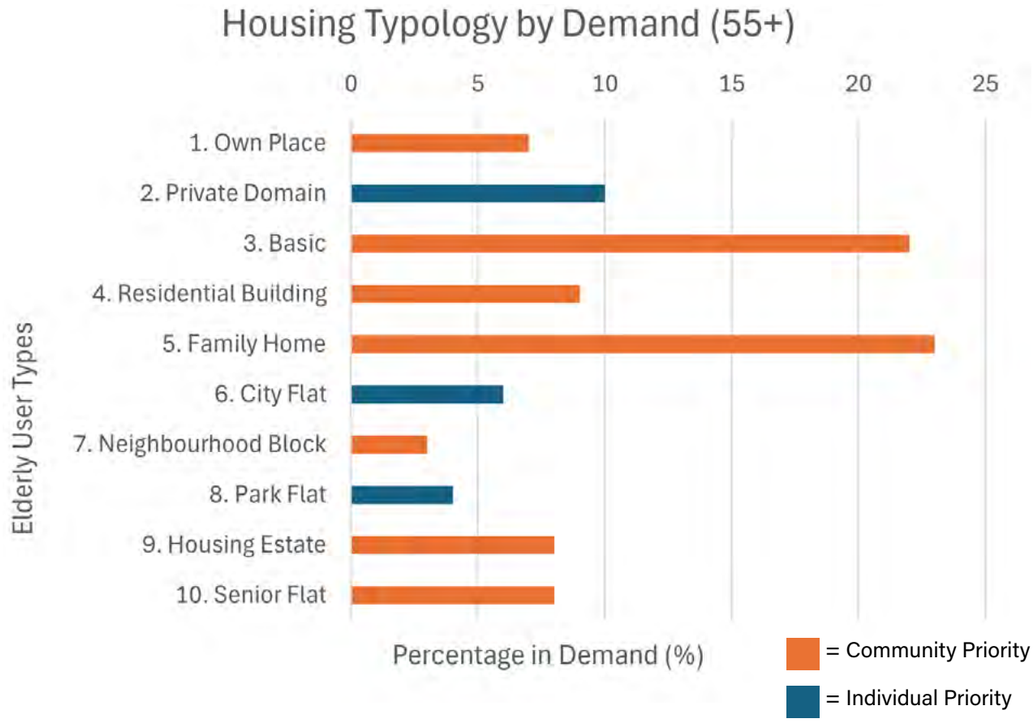



**Fig. 3: Data from Platform 31 (Hagen & Neijmeijer, 2020, p.31)**

A few conclusions can be drawn from the graph above. Firstly, the general consensus from this analysis is that most elderly people find living in a community and by extension some social contact is important for the ideal living environment. This is evidenced by the fact that 7 of the 10 housing profiles lean more towards community than individuality. Furthermore, of the 5 housing types that are in demand: Basic (23%), Family Home (22%), Private Domain (10%), Residential Building (9%) and Senior Flat (8%), 4 of 5 were community priority.





**Social Connection as a Common Thread**

Besides the valuable insights gained from the diversification of elderly as a range of personalities rather than a single user, the results from DGOT and Platform 31 also quantify which of these are currently most in demand. This helps the research identify what forms of housing architects should focus on to satisfy the demands of the elderly by designing suitable places to move to and by extension address the housing crisis. As stated before, the most recent observations on housing demand for the elderly seeking social contact suggest a desire for housing types like the Basic, Family Home and Residential (Fig. 3). The below section examines the descriptions of the exemplar types by Platform31 of each of the top 3 in-demand typologies to try to see what features they have in common that makes them attractive for the user group.

*Quote and Image from Platform 31*
(Duivenvoorden, 2022, p.13)

**Type 5. Family Home - Trusted and Attached**

" *There is **strong social bonding** and people take care of each other when needed. The concept offers room for variation. **People value being part of a community** where all stages of life are represented. Seniors also want to see children playing in the street. Separate facilities for seniors are less important in this concept; **shops and public transport are**. The target group for this concept often lives in this form of housing already (long) and does not like to move to a flat. The homes in this concept are affordable and have limited comfort.* "

*Quote and Image from Platform 31*
(Duivenvoorden, 2022, p.10)

**Type 3. Basic - Functional & Social**

" *The 'basic' housing profile is characterised by function (step-free, (prepared for) care), affordability and **social bonding**. People pay attention to each other. The housing is in the immediate vicinity of where the target group already lives or lived. **There are facilities in the complex that support the sense of community,** such as a meeting room and hobby rooms. The allocation takes into account the social structure of the resident group. Convenience services can also be provided, such as a chore service. **Facilities for seniors, public transport and a supermarket are available in the immediate vicinity.*** "

*Quote and Image from Platform 31*
(Duivenvoorden, 2022, p.11)

**Type 4. Residential Building - Comfortable & Familiar**

" *The residential profile 'residential building' is characterised by a **good location near amenities**, high living comfort, convenience (renting) and a **population with many like-minded people**. People like to retreat to their own safe familiar surroundings. An important aspect of this concept is the homogeneity of the resident group in terms of lay age and lifestyle. People feel at home among similar people, although there should certainly be room for differences. The housing concept offers solidity and structure. Ordinary is good enough.* "

**Conclusions & Relationship with Subsequent Fieldwork**

The above text are direct extracts from Platform 31's descriptions of the most attractive housing types for elderly that place a priority on social contact based on their research and analysis of the large scale survey DGOT. Highlighted in orange are where the descriptions overlap. The general pattern suggests that a sense of community, proximity to facilities such as public transport and comfort/affordability are commonalities. However, these patterns are too general and do not factor in the voice of the user. Therefore, more research should be done on site at one of these housing typologies to see and confirm what compelled elderly user to move there and furthermore, how they can be improved to facilitate social connection, independent living and overall well-being

# 2.3 Fieldwork

## Testing General Trends in Fieldwork

**Fieldwork: Speaking to Residents in a 'Residential Building' Housing Typology**

The 'Residential Building' is one of the housing types as being one of the most in-demand for elderlies seeking social connection. As stated before, the research done by Platform 31, as expansive as it is with 22,500 samples can be further expanded upon by actually speaking directly with residents. The fieldwork presented in this section was conducted in a building that was identified as a 'Residential Building' by Platform 31 in their 'woonvarienten' booklet (Duivenvoorden, 2022, p.11). The purpose of the fieldwork is to gain a more personal understanding of the user, why they moved to the building, what works well for them and what can be further improved upon with regards to their dwelling, independent living, social connection and care.

**Method A - Survey**

The survey distributed also contained questions asking the residents what they wanted to add to their apartment, community and the importance of their dwelling.

**Method B - The 'Ideal Living Environment' Workshop**

A workshop was conducted where the residents were tasked with describing their 'Ideal Living Environment'. In order to facilitate decision making, the workshop was done by printing a set of stickers of various key categories such as facilities, rooms, activities etc. The residents were then challenged to select up to 3 of each category and place them within different proximities ranging from in their home, to their building, to within walking distance and in the overall neighbourhood. This would allow us to see what features should be most accessible for the elderly.

**Method C - Interviews with the Dwellers**

Interviews were done with elderly people living in the facility. Questions were asked about their reason for moving, elements of the apartment that they liked and disliked and the relationship that they had with neighbouring apartments. This was an important component for the research as it allowed us to gain an in-depth understanding of what is important for an elderly person when it comes to their apartment and how this typology can be further modified to be more suitable for different personalities.

**Method D - Documenting the Dwelling**

Paired with these interviews of the dwellers, is of course the dwelling. Photos and drawings were done of the dwelling spaces to examine how they were used and pinpoint any interesting architectural features that were either beneficial or detrimental for the dweller.





**Survey Overview**

During the fieldwork, residents actively participated in a survey that provided significant insights into their living experiences. This chapter delves into the residents' perspectives on their previous living situations, motivations for choosing the building, and their preferences concerning communal spaces. Specific questions focused on identifying their favorite places, desired additions to the living environment, and their engagement in community activities. The responses obtained directly contribute to our exploration of elderly wants and needs, shedding light on the factors influencing social connectedness, as elaborated in the subsequent chapters.

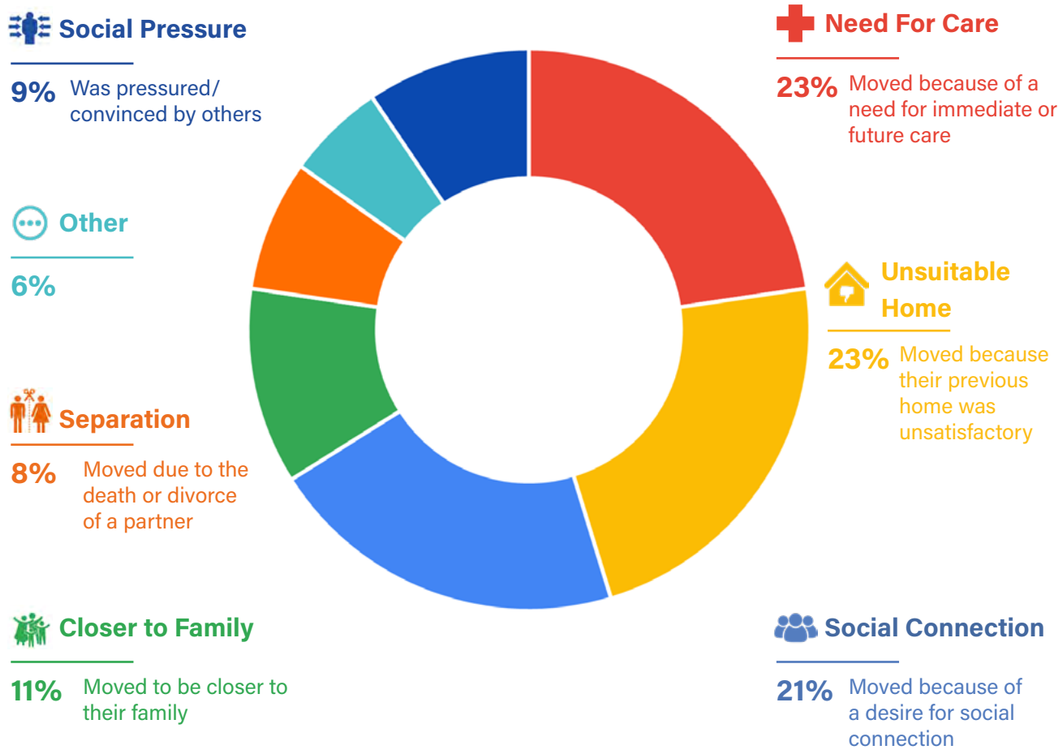



**Fig. 4: Responses to survey question 'Why did you move to this complex?'**

While Platform31 suggests that the user base for this housing type is primarily motivated by a desire for community and social connection, the survey results offer a nuanced perspective. Social connection indeed emerges as the second most cited reason, aligning with Platform31's insights. However, the predominant reasons for moving to this complex revolve around the essential needs for care and the search for a more suitable home, each accounting for 23% of the responses. This indicates a crucial consideration for the design of future independent living facilities. While emphasizing social connections, it is equally imperative to address the potential need for care and ensure overall comfort. Balancing these elements will create a more comprehensive and attractive alternative for elderly individuals seeking an ideal living environment.

## Workshop: Your Ideal Living Environment

The illustration below details the results of the workshop, specifically the zones demarced for the 'ideal home' andt the 'ideal building'. Here, residents were challenged to place stickers to describe what features they wanted and where they wanted it in relation to their dwelling. As well as this, the freedom was given to come up with 'dream' features and 'undesirable' features.

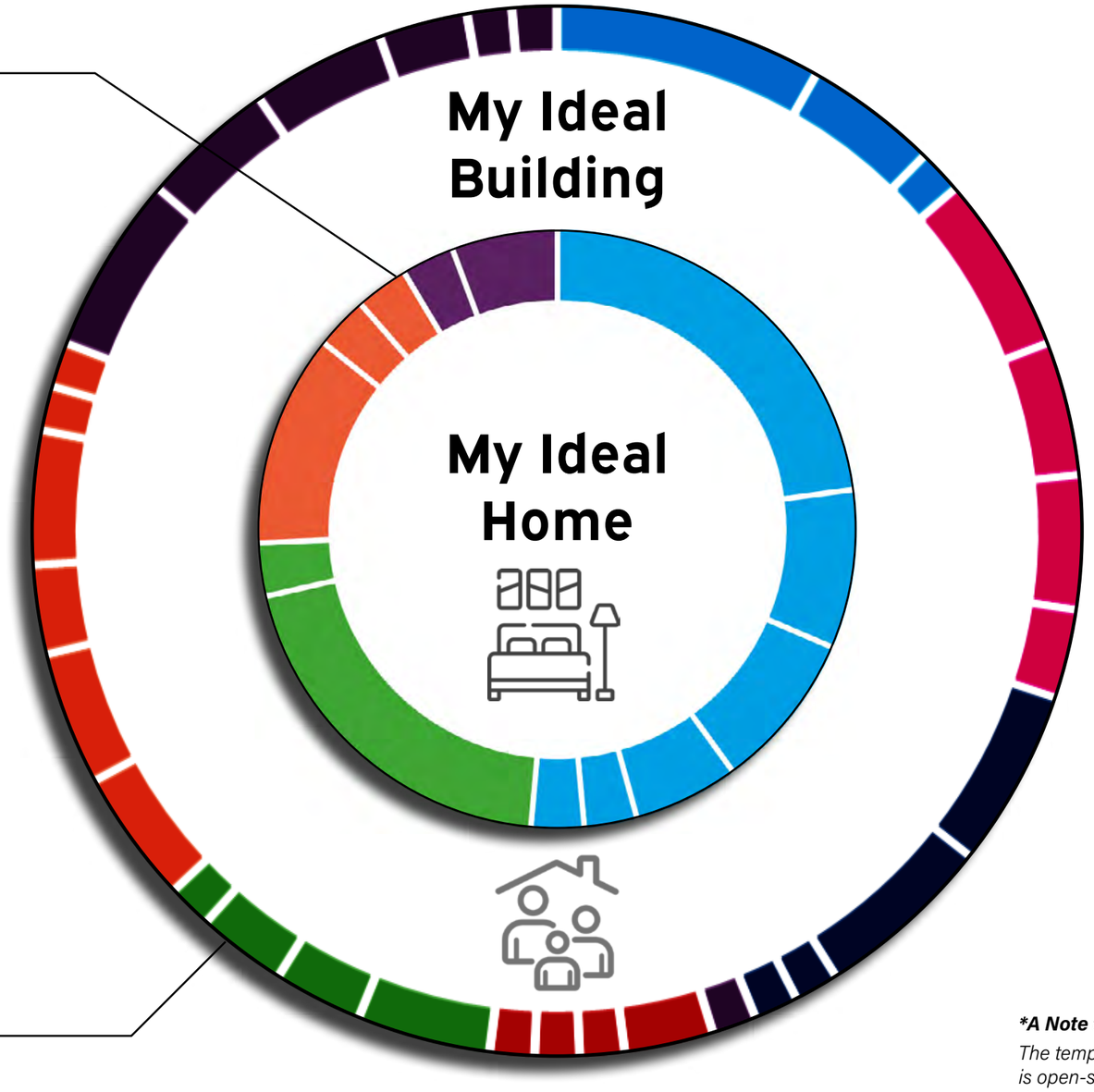
From 11 responses, we noticed the average ideal home had a nice view, the possibility for pets, a kitchen and a connection to the outdoors. On the other hand, the ideal building did not show a true clear pattern, being much more diverse in desired features. One thing to note was that most wanted a space for visitors, commercial spaces, garden and care services.

**CATEGORY LEGEND**

- A = Interior Functions
- B = Amenities
- C = Mobility
- D = Activities
- F = People
- G = Care Services
- E = Outdoor

**Most Desired Features in The Ideal Apartment:**

- 8 Nice View
- 4 Pets
- 7 Balcony
- 3 Kitchen

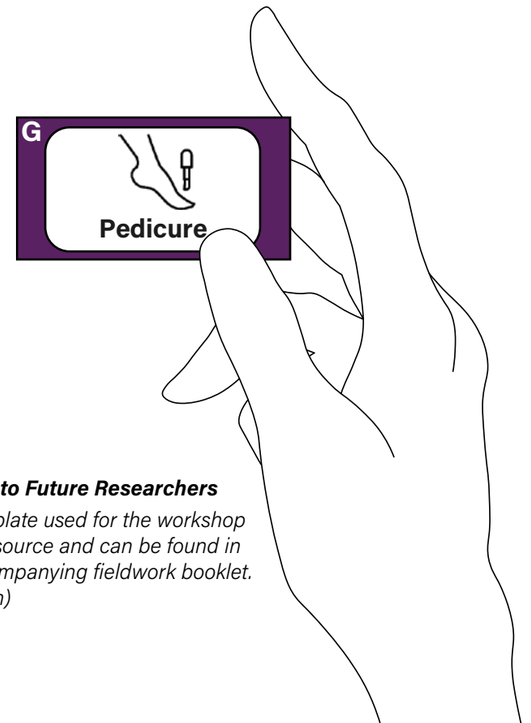



**Most Desired Features in The Ideal Building:**

- 6 Guestroom
- 4 Physiotherapy
- 4 Fietsparkeerplaats
- 5 Students / Young
- 3 Garden
- 3 Hairdresser

**Dream Features:**


**Undesirable Features:**


***A Note to Future Researchers**

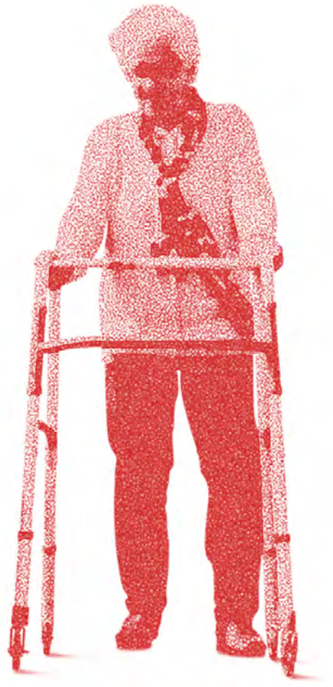
*The template used for the workshop is open-source and can be found in the accompanying fieldwork booklet. (In Dutch)*

# 2.3
# Dweller Profile - Mr.B

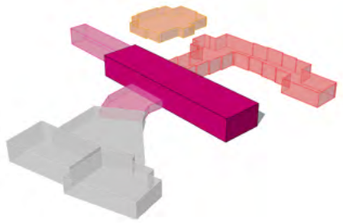
## Interview and Dwelling Analysis

**Interview Overview: Questions and Aim**

Interviews were conducted with multiple residents, usually within their apartments. In these interviews, questioned were asked regarding what worked in their living environment, what could be improved, their perception of social connection and overall place in the community. Mr. B's interview was chosen for display here as the points he made overlapped with other interviews (which can be found in the research booklet).



**Mr B's Location in the Complex:**



Mr. B is one of the residents living in the new building. He is a very active member of the community and frequently engages in the communal activities around 'Het Hart'. In fact, Mr.B was one of the first people we came in to contact with at the start of our fieldwork. An original resident of Hilversum, he was very keen to share his experiences with us.

**Resident Type: Elderly Living in New Build**

**Prior Living Situation: Elderly Living Facility in Delft**

**Current Living Situation: One Bedroom Apartment, Alone**

**Motivation for Moving: Connection to Family**





**Do you like your living environment? Why?**

As you can see, I have invested a lot in to the space. Everything you see, I decorated myself! I was really happy to be able to customize the apartment down to the finest details, from the flooring to the furniture, to the lights in the bathrooms.

**What could be improved with your apartment?**

Overall I am quite satisfied. If I could change one thing, it would be the view. I live on the first floor, and both of my windows face the parking lot. This is nice to see who comes in and out of the complex. However, sometimes I wish I saw something different like the sea or the city.

**Are you socially in contact with your neighbours?**

Yes, but I would not say that I am close with them. I prefer to socialize with the younger residents here, they are much more fun! I like hosting them in my apartment before we head to town.

**In what ways has your apartment contributed to or influenced your sense of community within the living facility?**

I am a very active member of the community. I help a lot with the chores in the communal area. The fact that my apartment is positioned right in front of the communal space makes my life a lot easier as I can easily access the space without walking a far distance.

**What convinced you to move here?**

My family lives in Hilversum. I used to live in Delft, in a similar apartment actually. At some point I realized it was important for me to be closer to my brothers, sisters and son, so I decided to move here.

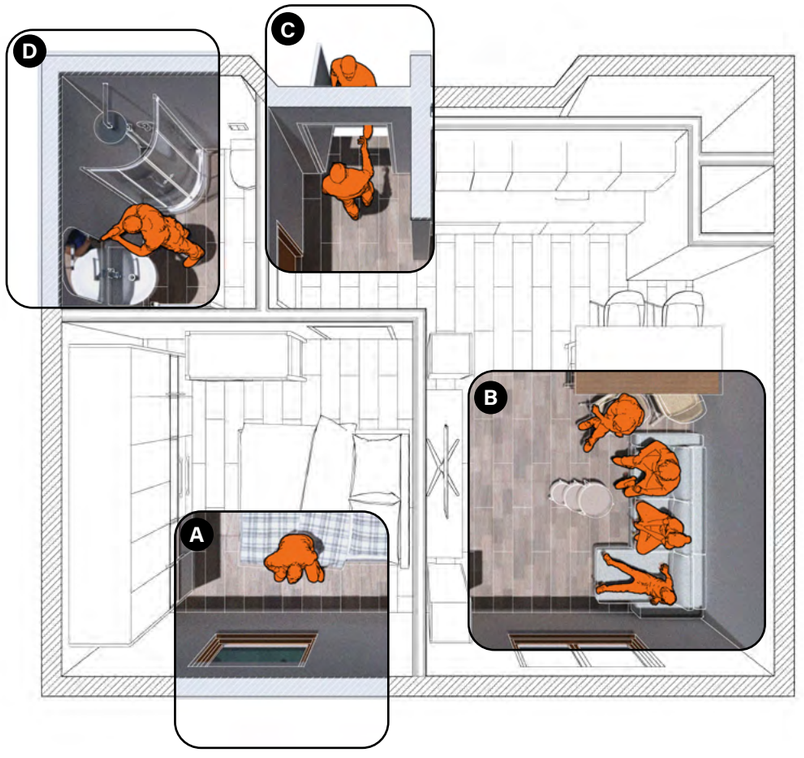
**Conclusions**

**A -** A nice view and daylighting are important aspects to include in an apartment

**B -** Self contained units provide comfort and privacy.

**C -** Position apartments close to communal spaces

**D** - Provide opportunity for customization



# 2.3
# Photographic Analysis

## A View In To Different Uses of Space

**Photographing Homes - Personalizing apartments**

As made evident in the interview, personalisation is a huge factor in giving residents a sense of ownership, and therefore identity within a community. The link to social connection here is that by creating apartments that promote individuality, a resident is more likely to participate in the community (according to fieldwork interviews and dwelling studies).

Displayed here are a series of photographic studies taken during the fieldwork. The photographs are taken from eye level and also from the unique angle of the ceiling. The purpose of this study is to show the many different ways an elderly resident can customize their apartment when given the opportunity to by design.

To conclude, The building examined was quite successful in creating the possibility for residents to personalize their apartment and as a result make it feel more like home.

Fig. 5: Eye level studies of how the same room has been personalized by different residents

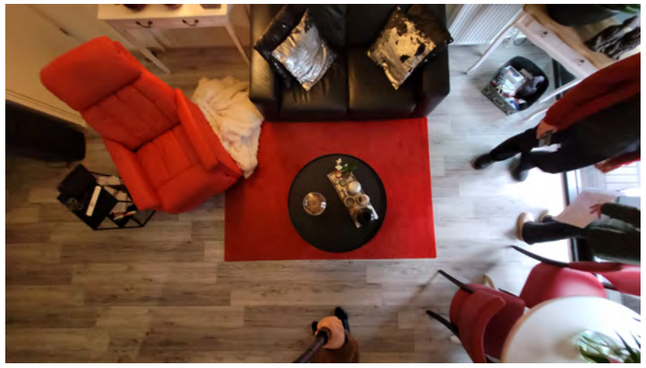


Fig. 6: Ceiling view photographic studies of different living room arrangements

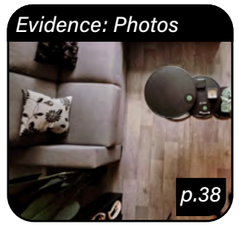
# 2.4
# Design Guidelines

## Conclusions from Interviews and Dwelling Analysis

The below design guidelines are derived primarily from fieldwork, which was done to build upon general trends regarding demand and attractive housing options for elderly residents seeking social connection / community.

### Design Guideline 1 - Customizable Space

*Flexibility in Design for Resident Expression*



Rationale:

High-density housing typologies are repetitive by nature in pursuit of fitting as many homes as possible in a single plot. From observations, providing as much customization as possible to these apartment spaces can create a sense of ownership for the elderly resident and therefore make it feel like home.

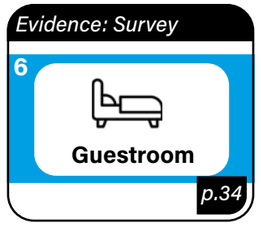
Implementation:

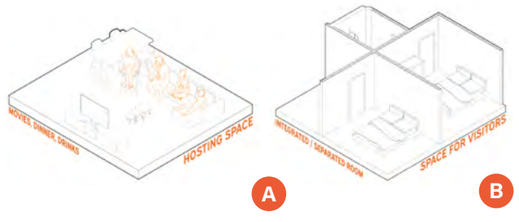
A. Keep apartment designs basic, avoid excessive features and allow this to be dictated by the user

B. Open plan design to allow for flexible arrangement of furniture and decorations.

### Design Guideline 2 - Guest Provision

*The Capability to Have Family & Friends Over*


Rationale:

Visitors are an important part of the daily lives of the elderly residents in the fieldwork. Unfortunately, visits are limited to perhaps an hour for lunch or a walk in town. In the case where a distant relative is visiting for a certain period, residents have a desire to have them around the house to stay or host in their apartment.

Implementation:

A. Apartment units should have a communal area, such as the living room, where guest visits can happen in the privacy of their home.

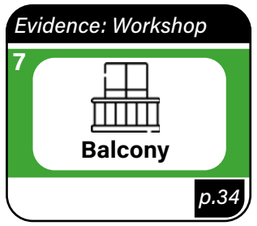
B. Guest rooms, either in the building or as a spare bedroom, increase the amount of visitors for elderly, and by extension their social capital.

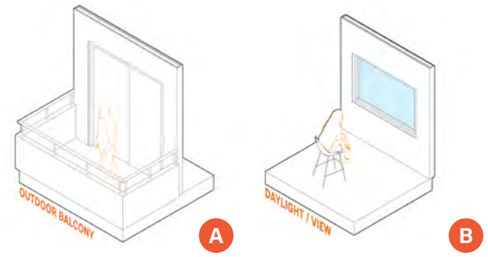




### Design Guideline 3 - Connection to the Outside

*Integrating the Building with the Outdoors*


Rationale:

It is known that daylighting and views are instrumental for the wellbeing of a resident (Hafiz, 2015). This is further confirmed in the fieldwork as both interviews and workshop results show that a view towards the outside is amongst one of the highest priorities for an elderly resident.

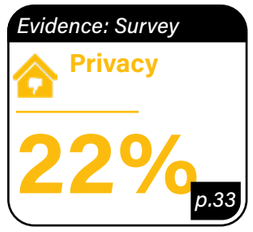
Implementation:

A. Create openings in the apartment that introduce natural lighting in to the dwelling.

B. Capitalize on aesthetically pleasing views in the context.

### Design Guideline 4 - Self-Contained Units:

*Keep Important Functions in the Building*



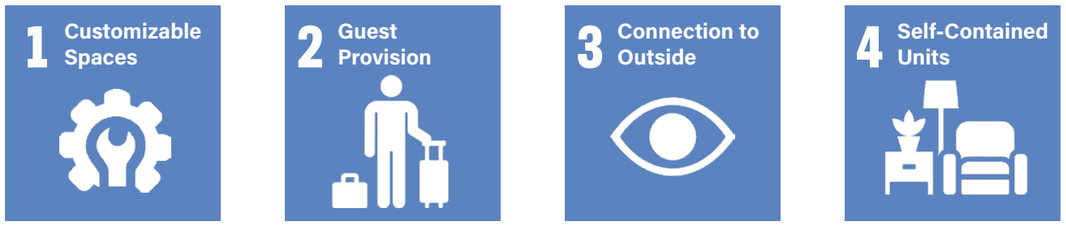
Rationale:

The workshop results and observations allow us to conclude that elderly residents are seeking a fully self-contained unit. This means that all basic amenities such as a bedroom, kitchen and living room are available within their own dwelling.

Implementation:

A. A kitchen, bathroom, bedroom and living room should be core requirements for each unit

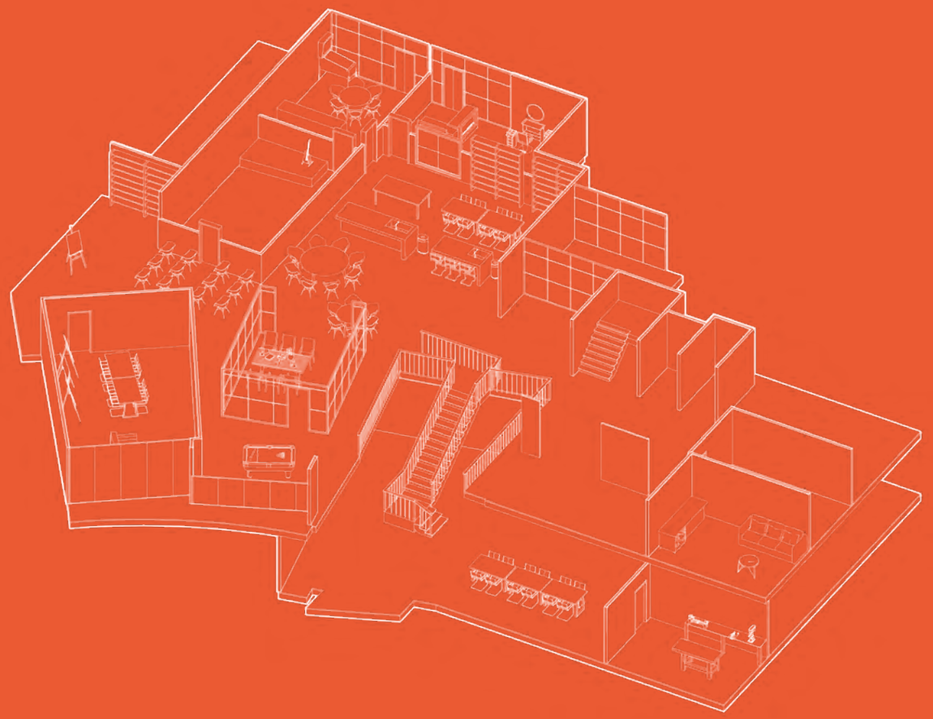
B. Allow for the possiblity of couples and perhaps even small families to stay together.




**Conclusion - Guidelines for Dwelling Design**

This starter set of design guidelines is a solid foundation for the following chapters as it makes clear the most important features architects should prioritize in the design of an elderly living environment. Overall, it is clear that independent living is fostered by giving the elderly the privacy and ownership of a self-contained unit while still keeping them socially connected with guest rooms and a connection to the outside.

# Chapter 3
# Fostering Social Connection for The Elderly



*What are the preferences and needs of elderly residents regarding social interaction and connectivity within their living environments?*





## 3.1
# Chapter Overview

Rise in social isolation, leading to loneliness and higher mortality

*1.2 - PROBLEM STATEMENT*

*How can the architectural design of elderly independent living facilities enhance well-being by promoting social connections amongst the elderly?*

*1.5 - MAIN RESEARCH QUESTION*

SOCIOLOGICAL

*What are the preferences and needs of elderly residents regarding social interaction and connectivity?*

*1.6 - METHODOLOGY*

**LITERATURE** **FIELDWORK** **INTERVIEW**

*OUTCOME*

USER NEEDS OUTCOME

*Design guidelines addressing wants and needs regarding housing for the elderly*

**The Common Thread of This Chapter, Extract From Overall Research Framework (Section 1.6, Fig.18)**

**Question, Theory and Application**

With the previous chapter providing specific guidelines for dwellings that provide social connection and support independent living, this chapter focusses on how communal spaces can be designed with social connection in mind. This section aims to develop design guidelines aimed at fostering social connection for the elderly in relation to the sub-question: 'What are the preferences and needs of elderly residents regarding social interaction and connectivity within their living environments?'

It will draw on theories and methods established in key pieces of literature with regards to measuring, observing and implementing social connection within architecture. In the case of this chapter, the key theories will be re-purposed for the application in elderly housing.

This chapter applies these theories in the fieldwork done in an elderly housing project. This was done purposely as the anthropological nature of social connection and interaction requires us to make observations and direct contact with the user to understand the effects that architecture has on their perceived sense of social connection.

The result is a set of design guidelines that can help drive the design of key spaces such as hallways, circulation cores and communal spaces to stimulate social connection and contact based on theory, observation and interviews.

# 3.2
# Social Connection

## Fostering Social Connection for the Elderly

### Three Variables for Quality Social Connection

As stated in the problem statement, social connection is an absolutely essential component to well-being. The question therefore is, how can this observed, measured and implemented in architectural design? In terms of literature, there has been extensive research done exploring how social connection can be measured and observed as our understanding of it from the medical perspective has evolved (Martino et al., 2015).

In terms of translating it in to physical space, the three variables outlined by Fleming have been commonly referenced in architectural research to assess and influence the quality of social interaction and by extension, social connection (Fleming et al., 1985). These three variables are: the **opportunity for contact between residents**, **the proximity of apartments** and the **availability of the appropriate space to interact** (Fleming et al., 1985). The theory, despite being relatively old, is still rather relevant for the research as it has been applied extensively in architectural studies and aids our ability to create the possibility of helping people form friendships and maintain social connection (Abu-Ghazzeh, 1999, p.42).

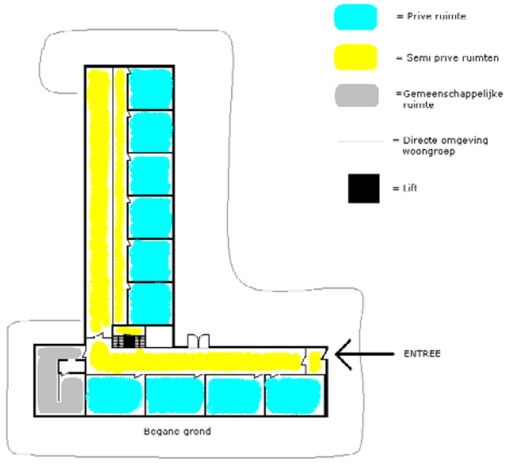



**Fig. 1: Examples of Fleming's theory being applied in the architectural analyses of student spaces (Bouma)**





### Application in Architecture

Abu-Gazzeh's analysis of social interaction and contact in Jordanian neighbourhoods contains a comprehensive theoretical framework that effectively translates these variables in to analysable architectural elements (Abu-Ghazzeh, 1999). An important element that will be extracted for application in this research is maintaining a balance between passive and active social interaction through physical design.

Passive interactions refer to unintentional and unplanned moments of contact between individuals within their living environment (Abu-Ghazzeh, 1999). Examples of passive interactions include the acknowledgement of one's presence in a hallway, through an exchange of goods etc. Although not very notable, such interactions contribute to passive community building and can influence the user's overall perception of their neighbourhood environment (Felbinger & Jonuschat, 2006). In order to account for individual preferences, the repeated occurence of passive contacts is important to account for some people's hesitation to introduce themselves on an immediate first encounter (Abu-Ghazzeh, 1999).

On the other hand, active interactions are intentional and mostly planned activities (Felbinger & Jonuschat, 2006). These can be further distinguished between formal and informal active interactions (Bouma, 2010). Informal interactions are based on pre-existing relatinoships between individuals or groups and can be casual meetings such as meeting to play cards or for coffee. Formal interactions are more organizational and normally take the form of organized events such as large dinners or conferences.

Observations and analyses of these components of social interaction have been analysed before in student housing facilities (Bouma, 2010). In the study, the researcher analysed the presence of passive and active interactions in the hallways and common areas of student housing facilities through the lens of the social contact principles outlined by Fleming, before making propositions for how this can be improved with technological modifications (Bouma, 2010). Since Bouma's work have a lot of commonalities with this research as it concerns housing elements, particularly in the function of the hallway and the common room, this research will re-appropriate this methodology in the analysis of elderly living facilities.

| General Interaction Principles | Physical Spaces | Observed / Missing interactions | Possible Design Principles |
|---|---|---|---|
| Opportunity for interaction<br>Frequency of interaction<br>Types of interaction<br>Availability of Space<br>Proximity | Hallways and Corridors | Passive Contact | ? |
| | Common areas | Informal Active Contact<br><br>Formal Active Contact | ? |

**Fig. 2: Model of evaluating physical spaces and quality of social contact, from literature (Bouma, 2010)**

# 3.3
# Fieldwork

## In-Depth Interviews with the Elderly

**Fieldwork in an Elderly Housing Project in Hilversum: Background**

As part of this research, primary research was conducted on-site in a elderly living facility in Hilversum, a city in the Northern region of the Netherlands. This particular project was interesting as it was one of the few facilities that placed a strong emphasis on maintaining independent and autonomous living for the elderly residents while still providing early stage care in the case of emergencies. The concept of the building aligned strongly with this research and therefore research was conducted over the course of a week.

This section covers the more human aspect of the fieldwork, in the form of interviews, questionnaires and workshops. The primary goal of the research was to not only get to know seniors, but also cultivate methods of interaction that are most productive in extracting the wants and needs of elderly people with regard to their living environment. An important thing to note was that the building was primarily made up of elderly residents, with a smaller percentage of younger people and also caretakers. The elderly residents were also identified as two different types, those that lived in the new development, those that lived in the existing development and those that lived in the separate building next door.

**Method A - Surveys**

Surveys were conducted in the form of questionnaires. The questionnaire was designed to be short and simple, and contain questions regarding the resident's background, their purpose for moving and what they liked/disliked about their living environment. The purpose being to collect responses on a larger scale in such a way that we could quantify the data and get a measurable understanding of how resident's felt about their living environment.

**Method B - Observations**

One method was to conduct research through observations. In this case, the researcher positioned themselves in architectural spaces of interest, such as the communal area or hallway etc. Observations were conducted to record human activity within architectural points of interest. How are these spaces used? What kind of activities occur and where? What works well and what does not for the individual and community? Anthropology and architecture come together to help the researcher understand the bridge between design intention and actual usage.

**Method C - Interviews**

Interviews were conducted one-to-one with the residents. This offered researchers an opportunity to ask specific questions about their social connectiveness, ideal living environment and any challenges they face. In doing so, researchers can acquire an in-depth understanding of the wants and needs of the user.

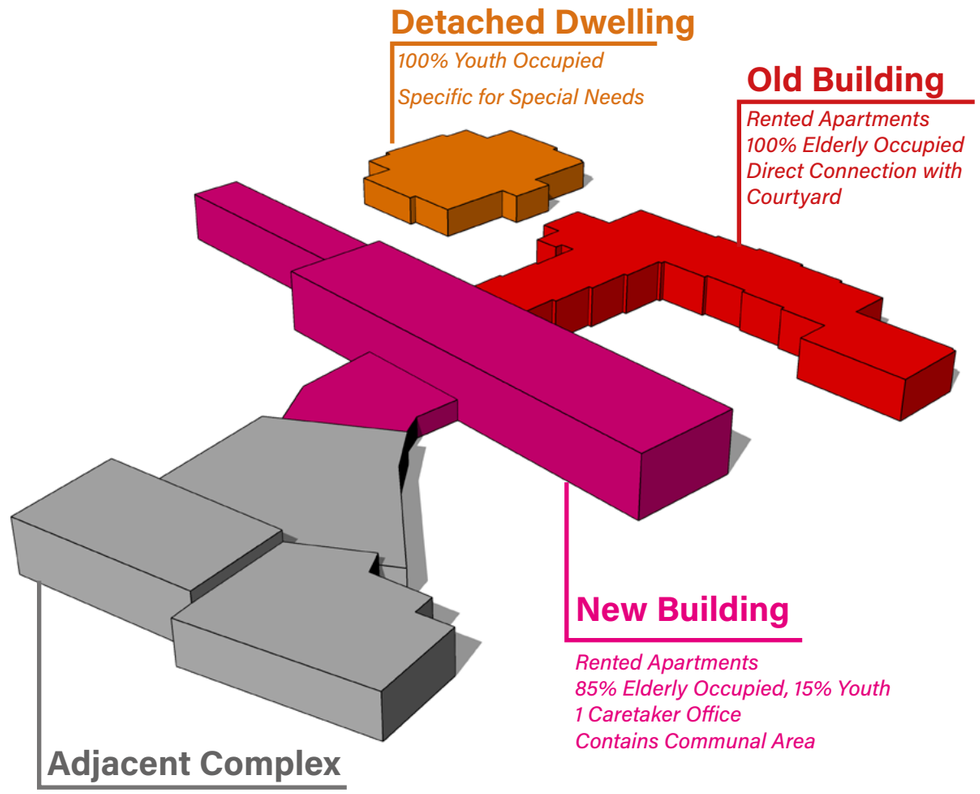



Fig. 3: Overview of the arrangement of the complex and distribution of user types

# 3.3 Fieldwork

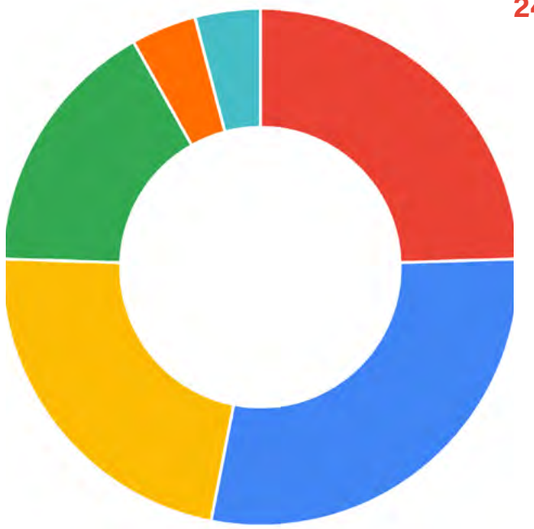
## Analysing Social Connectedness

### Different Age Groups

**16%** Believe that different age groups are important for their community

### Social Activities

**24%** Believe that regular social activities are important for the community



### Privacy

**22%** Believe that having privacy is the most important part for their community

### Diversity

**28%** Believe that the diversity of the community is most important

**Fig. 5: Responses to 'What is the most important part of your community?' by Author**

**Survey Analysis: 'Most important part of your community?'**

The above illustration shows the results of the answers to the survey question, 'what is the most important part of a community?'. The most common answers were social activities, diversity, different age groups and privacy. The fact that privacy is a desirable aspect aligns with the earlier theory that the elderly are seeking aspects that lean towards the 'prive domein' and 'eigen plek' typologies, as these both have attributes related to privacy. The fact that diversity and different age groups were highly regarded was also interesting, as this suggests that heterogeneity is a desirable aspect for elderly housing.

**Mapping Survey Response: The Importance of Proximity**

When mapping the results from the survey it is possible to compare the responses of those who live in the building containing the main communal area and those who are living apart from the communal area. Firstly, there was a noticeable difference in engagement in the survey between those who were in the attached building compared to the detached building. Despite the engagement differential, from the 5 responses received from the detached buildings, **we could see that there was a stark contrast in the social connectedness of the residents based on their proximity to the communal area.**

## Detached Buildings

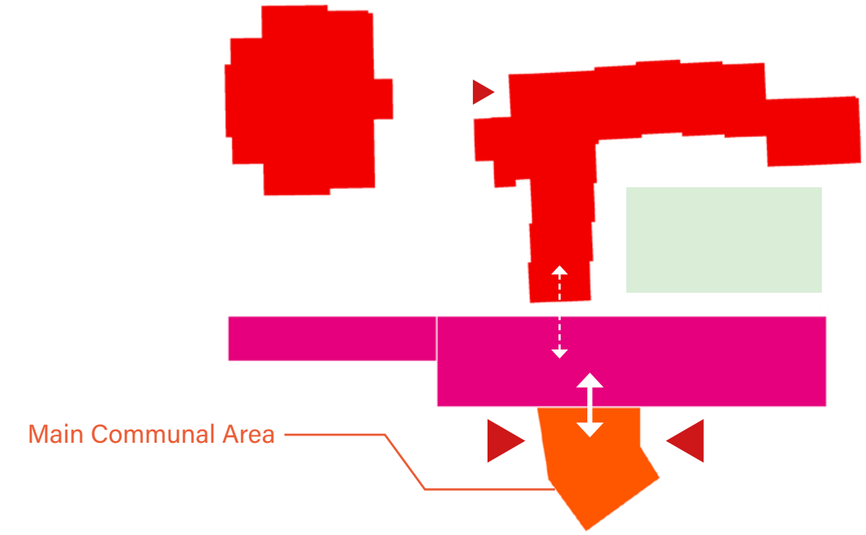
Engagement: 5 Responses

80% say do not participate in the community

60% Hardly or never use the shared facilities of the building

75% Say their social circle is entirely outside of the building

60% Experience a sense of loneliness, 20% experience it often




## Attached Building

Engagement: 30 Responses

42% say do not participate in the community

50% Hardly or never use the shared facilities of the building

87% Say their social circle is within the building

25% say they experience loneliness

6% of respondents are youth

**Fig. 5: Mapping social connectedness in relation to proximity to the communal area**

# Analysing Communal Spaces

The illustration below provides a comprehensive overview of the spatial organization of the main communal area of the building in which fieldwork was conducted. As well as this, it highlights where key observations were made regarding active contact within the space and therefore how stimulating it could be for social connection. Overall, the space succeeded in the sense that it was multi-functional and permeable, but could be improved with a more central location, better organization of commercial spaces and a layout that could better allow both informal and formal active contact to happen concurrently.

| Physical Spaces | Observed / Missing interactions | Possible Design Principles |
|---|---|---|
| Common area consisting of:<br><br>- Bar area<br>- Restaurant<br>- Art Studio<br>- Workshop | **Informal Active Contact**<br>Coffee meetings, Cooking together, Cigarette breaks<br><br>**Formal Active Contact**<br>Conferences, Concerts, Organized Feasts, Meetings | A - Make the communal central<br>B - Mulitple entrances and exits works well<br>C - Formal activity on the edge, informal in the core<br>D - Commercial near the boundarys to encourage more public interaction |

**Observation B - Permeability**

What seems to increase the frequency of contact is the common area having multiple main entrances and exits. This makes it a nexus of movement for the residents and therefore increases the chances of passive contact.

*'I always welcome to the new guests and we always start in the entrance by the communal area' - Mr. G*


**Observation A - Common Characters / Limited Access**

The space is mostly occupied by the same people everyday. Of the four common characters observed, only one was from the detached building.

*'I only ever pass through the communal area, I am not a part of the regular social groups that you see there.' - Mr. B*

**Fig. 6: Common Area Analysis by Author**

**Observation C - Formal active contact negates informal active contact**

The area is used for both formal and informal activities. However, what is noticed is that formal activites make it intimidating for other users to use the space for informal activities. It is hard for both to take place at the same time.

*'There is always a lot happening in the communal space. However, when I first moved in it was intimidating to join in on the organized activities as I did not know anyone' - Mrs. E*

**Observation D - Commercial is not as Public**

While there are 2 public entrances and elevator and a corridor towards the attached building, residents from the detached building need to go through a door and a bridge to access the space.

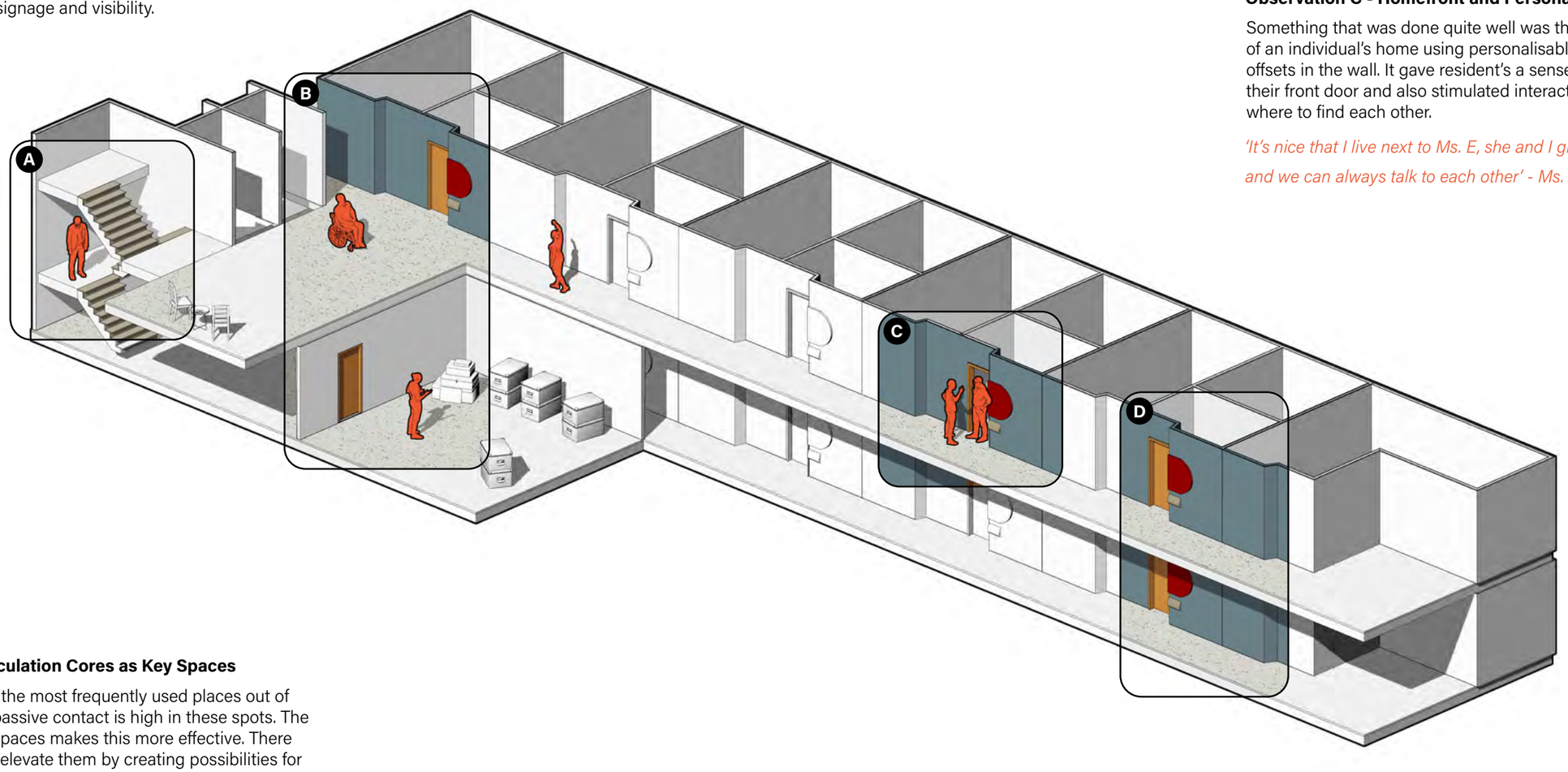
# Analysing Circulation Spaces

The illustration below provides a comprehensive overview of the connective spaces within the building, specifically the circulation core and hallway. As well as this, it highlights were key observations were made regarding passive contact within the space and therefore how stimulating it could be for social connection. Overall, it was noted that the ability to customize the homefront was successful in stimulating ownership and individuality within each floor, however more can be done such as activating the circulation core as a social area and avoiding repetition to encourage better way finding.

| Physical Spaces | Observed / Missing interactions | Possible Design Principles |
|---|---|---|
| Hallways, Elevators, Outdoor passage ways. | **Passive Contact**<br>Greeting and talking in the hallways, Small talk in elevators<br>The ability to identify and knock on each others doors casually | A - Create a home front<br>B - Different finishing on different levels, avoid over-repetition!<br>C - Circulation Cores as Spaces for Active Engagement<br>D - Clear Signage |

**Observation A - Lack of Clear Signage**

One thing noticed during the fieldwork was that it was often difficult to know what floor you were on when using the staircase. For elderly people this could potentially be resolved with better signage and visibility.




**Observation B - Circulation Cores as Key Spaces**

Circulation cores are the most frequently used places out of necessity, therefore passive contact is high in these spots. The inclusion of storage spaces makes this more effective. There could be potential to elevate them by creating possibilities for informal active contact.

*'At first, I was certain that these apartments would be too small for me. However, after I saw the generous storage space, I was convinced' - Ms. E*

**Observation C - Homefront and Personalisation**

Something that was done quite well was the clear demarcation of an individual's home using personalisable boards and subtle offsets in the wall. It gave resident's a sense of ownership for their front door and also stimulated interaction as people knew where to find each other.

*'It's nice that I live next to Ms. E, she and I greet each other often and we can always talk to each other' - Ms. S*

**Observation D - Repetition**

Each corridor in the building had the exact same finish in terms of colour and flooring. This made it difficult for residents to identify where they were in the building.

**Fig. 7: Observations in Corridor and Circulation Spaces**

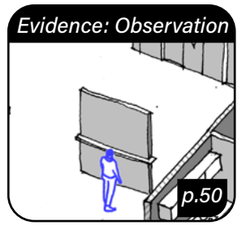
# 3.4
# Design Guidelines

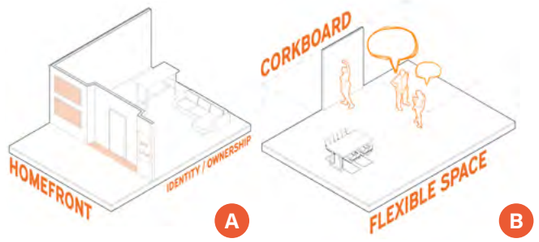
## Conclusions from Observations and Survey Results

The below design guidelines are derived from the application of theory regarding social contact variables to the key observations made during the fieldwork, further reinforced with the interviews and voices of the resident's themselves.

### Design Guideline 1 - Ownership and Self-Governance:

*Encourage a Sense of Home through Resident Involvement*


Rationale:

A sense of ownership and involvement enhances the feeling of being home, and by extension, your connection to the community. This is reinforced by observations and interviews highlighting the positive impact associated with the ability to express yourself (i.e. in the form of homefront decoration) and the freedom to govern the communal space.

Implementation:

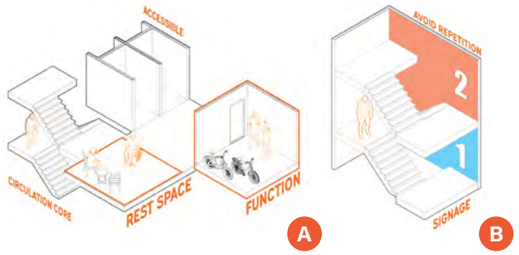
A. Provide opportunities for personalization of communal areas, allowing residents to express their identity.

B. Facilitate resident governance committees or decision-making processes for communal space modifications.

### Design Guideline 2 - Plan Circulation as Opportunities to Meet

*Foster Social Connectivity Through Thoughtful Circulation Design*






Rationale:

Unplanned passive and active social interactions positively impact residents' sense of belonging. The circulation passageways and cores can be further activated by making them places where casual conversation can happen and integrate small modifications that allow informal active social contact.

Implementation:

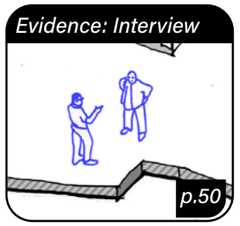
Design hallways and circulation cores to encourage casual encounters by including functional spaces such as storage.

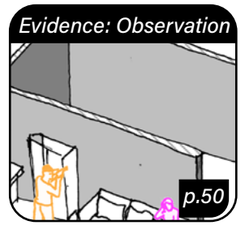
Create variety in different floor levels to help wayfinding

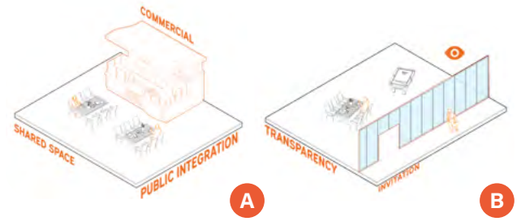


### Design Guideline 3 - Permeable Communal Spaces:

*Enhance Social Interaction by Integrating with the Surrounding Community*




Rationale:

Communal spaces should be open, permeable and inviting not only for the residents but also for the public. This will not only make the space more lively and exciting for the residents living within the building, but also makes the residents feel a sense of social connection with people who live outside.

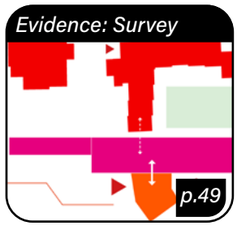
Implementation:

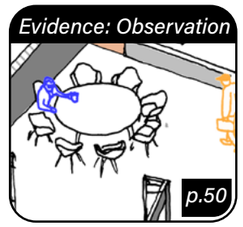
Include commercial spaces in the communal areas to integrate the public.

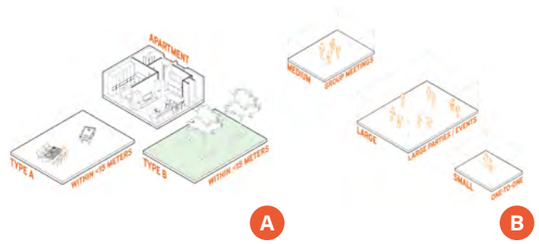
Choose materials that have properties that are inviting such as transparent glass or playful/colourful materials.

### Design Guideline 4 - Diversity in Communal Space:

*Provide Varied and Accessible Communal Spaces for Inclusive Engagement*




Rationale:

As multi-functional as the space was in the fieldwork, it still was ineffective in being inclusive for all residents. This stems from the fact that it not located centrally (survey) and the fact that it is easily saturated by the same groups due to the fact that there is only one communal area for the whole facility.

Implementation:

Ensure easy access and proximity to communal spaces, catering to diverse preferences and needs.

Offer communal spaces of different scales and locations within the facility.

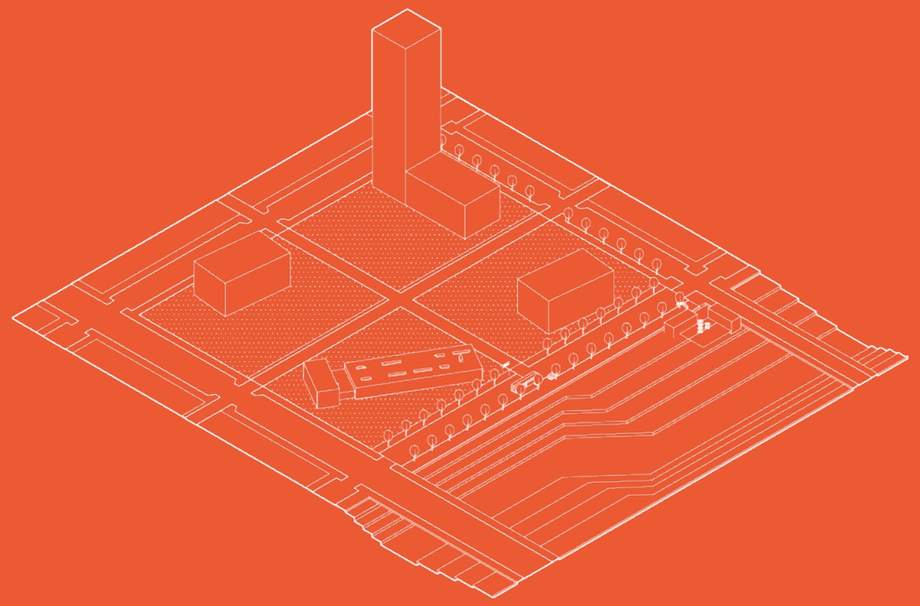




**Conclusion - Guidelines for Social Spaces**

The above principles are valuable for shaping the design of key social spaces within the building, encompassing both circulation areas and communal spaces. When thoughtfully applied, these guidelines can elevate ordinary corridors into canvases for unplanned, passive social contact, while simultaneously activating communal spaces to serve as vibrant stages for intentional, active social interactions.

# Chapter 4
# Fostering Healthy Living for The Elderly



*How can a socially connected environment promote a healthy and independent lifestyle for the elderly?*





## 4.1
# Chapter Overview

Social sonnection promotes well-being to prevent disease

*1.2 - PROBLEM STATEMENT*

*How can the architectural design of elderly independent living facilities enhance well-being by promoting social connections amongst the elderly?*

*1.5 - MAIN RESEARCH QUESTION*

ARCHITECTURAL

*How can a socially connected environment promote a healthy and independent lifestyle for the elderly?*

*1.6 - METHODOLOGY*

**LITERATURE** **CASE STUDIES**

*OUTCOME*

ARCHITECTURAL OUTCOME

*Design principles that leverage social connection to maximise well-being in elderly homes*

**The Common Thread of This Chapter, Extract From Overall Research Framework (Section 1.6, Fig.18)**

**Question, Theory and Application**

The previous chapters looked at how we can create the ideal elderly living environment and how architecture can promote social connection within them. It is important now to consider how these guidelines can be implemented within an architecture that promotes health and well-being if we want to make the most out of social connection for the elderly. In order to answer the question:

*'How can a socially connected environment promote a healthy and independent lifestyle for the elderly?'*

Research will be conducted on the holistic healthy living principles proposed by observations made in the 'Blue Zones' (Poulain et al., 2014). 'Blue Zones' are areas with a high concentration of people who live significantly longer than the rest of the global population. In recent times, these areas have garnered more interest as people wonder what the rest of the world learn from these places to encourage healthier, longer and more independent living. In the case of this research, analysis will be done on the lessons learnt from the Blue Zones, and further research will be done to translate these in to actionable design guidelines that will ensure that a 'socially connected' living environment is a healthy one.

# 4.2
# Health & Architecture

## Health Promotion in Architecture

### Architecture for Health: Salutogenesis and Pathogenesis

As first established by Roger Ulrich, architecture has the power to influence the well-being of its inhabitants (Ulrich, 1984). As stated in the problem statement, the ageing population will challenge us to consider how architecture can prolong the healthspan of elderly residents in order to ensure longevity and health (Burch et al., 2014). In the case of this research, we seek to combine contemporary theories on architecture and well-being in 'Architecture for Health' (Battisto & Wilhelm, 2019) with observations of healthy elderly lifestyles in the 'Blue Zones' (Poulain et al., 2014) to create design guidelines that promote care and wellbeing.

'Architecture for Health' is a concept described by Dina Battisto and Wilhelm in their book 'Architecture and Health' (2019). The concept calls for a more balanced approach in architecture when it comes to health. An approach that promotes wellness through preventative practices (pathogensis) as much as it cures disease when it occurs. The theory itself is relevant for contemporary issues as it stems from an observation made that our system of care has shifted to have more of a focus on pathogenesis or 'healthcare architecture', which is the treatment of diseases, rather than prevention (Battisto & Wilhelm, 2019). As a response to this, a more holistic approach in architecture is a necessity if we want to continue to provide care and promote wellness in a sustainable manner.

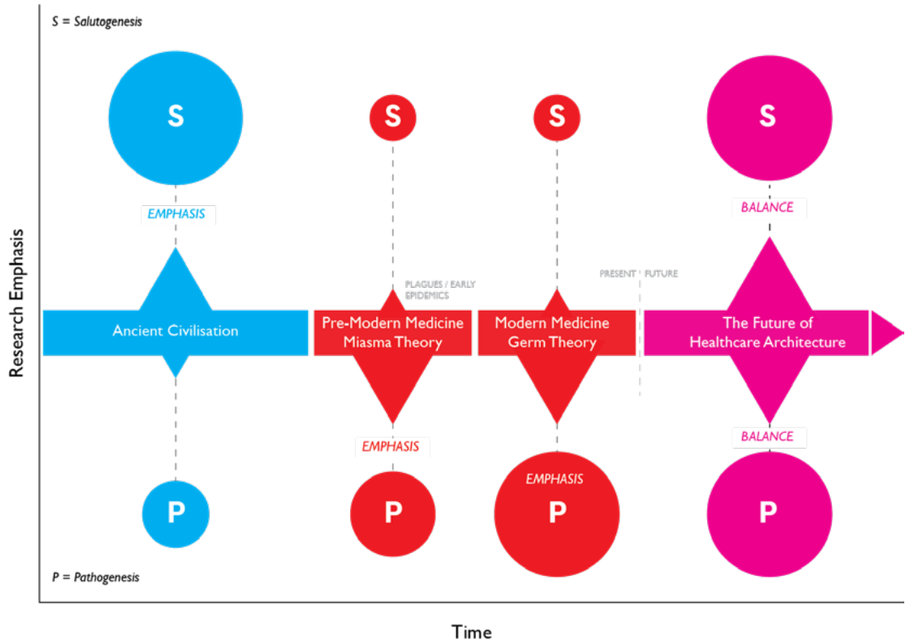



Fig. 1: The Conception of an 'Architecture For Health', By Author based on 'Architecture for Health' (Battisto & Wilhelm, 2019)





### Salutogenesis for the Elderly: Learning from Blue Zones

As stated by Battisto in her concept for 'Architecture for Health', a focus on prevention or 'salutogenesis' is needed in order to swing the pendulum away from a one-sided focus on care (Battisto & Wilhelm, 2019). However, what does salutogenesis mean specifically for the elderly? In order to specify this component further, the 'Blue Zones' will be used as a theory for understanding what well-being and a preventative lifestyle looks like for the elderly.

'Blue Zones' are regions where the population is observed to live significantly longer than the average (Poulain et al., 2014). The Blue Zones are distributed around the world from Okinawa, Japan to Sardinia, Italy. These areas have sparked further interest in recent times in response to the global challenge of the ageing population. Research has been conducted in these areas to understand the factors that contribute to the observation of longer living in these areas. What is particularly fascinating is the fact that these areas do not necessarily have any form of advanced technology that prolongs lifespan, but rather a show common patterns in the way that they live that seem to be contributing to longer, happier lives (Buettner, 2023).

These observations suggest that fulfillment in four different areas were a common pattern to longer living for people living in blue zones. These four areas were: Social Connection, Moving Naturally, Eating Wisely and Personal Outlook (Buettner, 2023). In the case of this research, the salutogenic component of 'architecture for health' can be further adapted for the elderly through the incorporation of the lifestyle theory from the 'Blue Zones'. This re-adapted theory can then be used in the analysis of case studies in order to observe design features that are aligned with 'Architecture for health' and extract them as design guidelines.

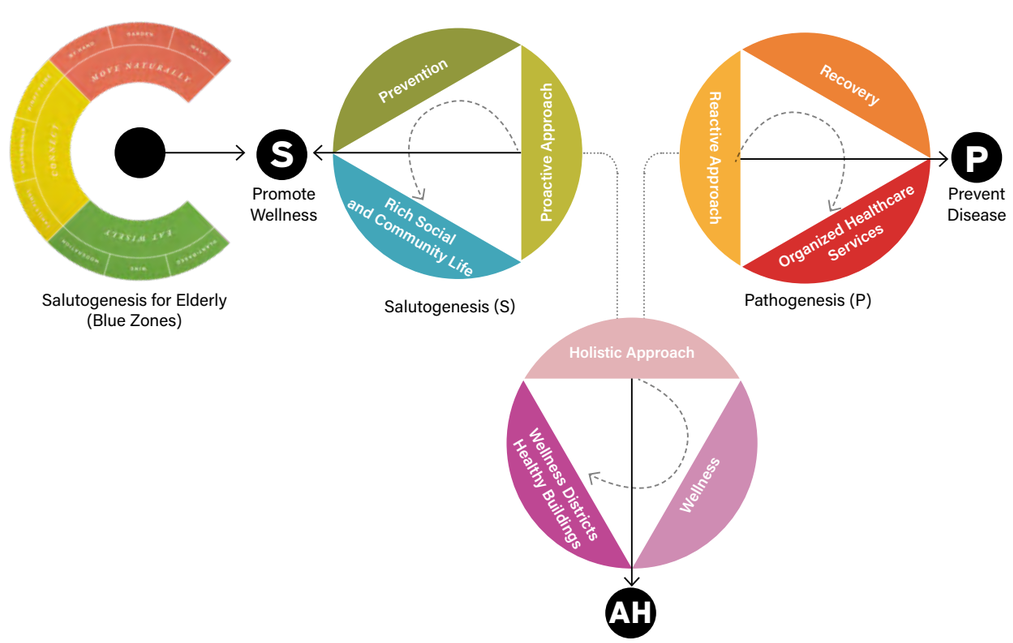



Fig. 2: Adaptation of the 'Architecture for Health' concept for the elderly using the concept of Blue Zones and Ubiquitous Healthcare, by Author

## Jin Well-Being County

**Location:** Prachathipat, Thailand
**Floor Area:** 56659 m²
**Architects:** SHMA Company Limited

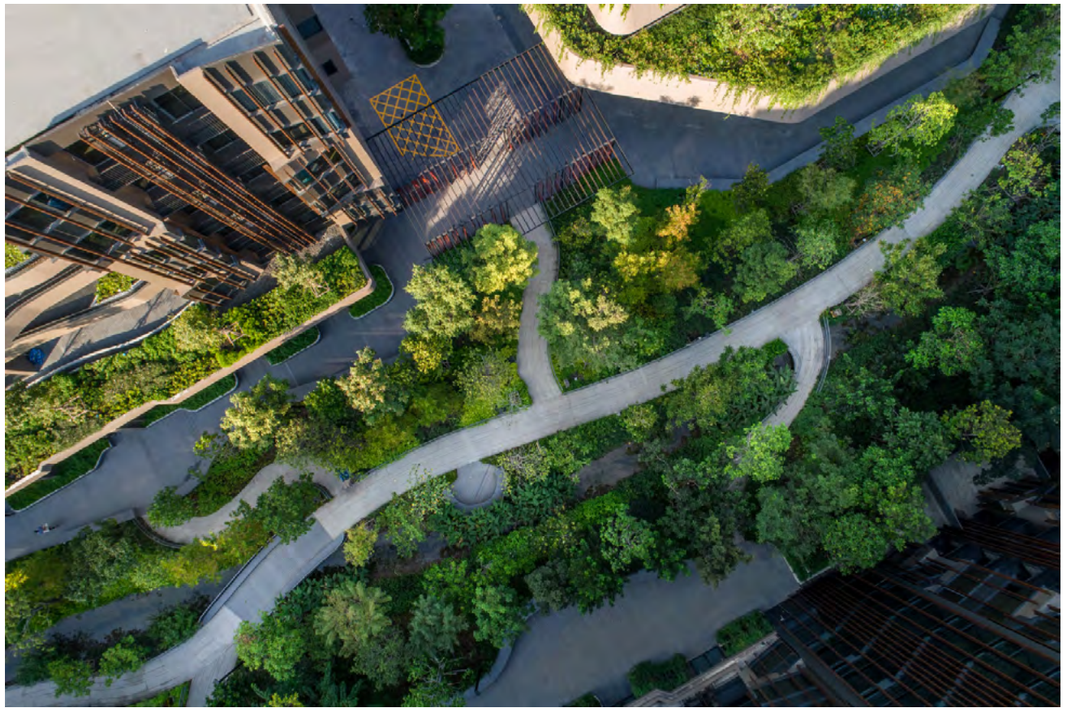
**Building Category:** Housing Development for Elderly, Families and Assisted Living


Fig. 3: Site Plan of the Project, by SHMA Company Limited (2023)

The Jin Wellbeing County is a housing project built in Bangkok Thailand to promote healthy and independent living for the elderly. This case study was chosen as it's goal is well-aligned with that of this research report, to promote healthy independent living for the elderly.

The building programme is composed of 6 separate 7-storey cluster housing complexes, with a landscape designed masterplan connecting all of the buildings. The landscape design was designed in accordance to the '7 dimensions of wellness' (Stoewen, 2017) and also to respond to frequent flooding in the area. Furthermore, social spaces are distributed across the masterplan to encourage meeting, as well as other spaces such as a gym and pools. Residents are mainly healthy elderly, but there are also homes for assisted living and families, to create more diversity.

The project demonstrates a balanced mixture between preventative and treatment features to ensure that people live well but also receive care when they need it. Design features include providing places to meet for social connection, edible gardens to encourage healthier diets and great connection to greenery and care facilities.



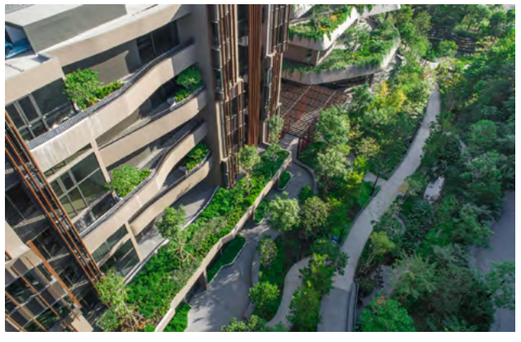


Fig. 4: Collection of Photographs of the Project, by Panoramic Studio (2023)

## Program Analysis - Architecture & Care

It is always important to ensure that care is provided, even if this research is focused on the preventative aspect. After all, with the elderly, anything can happen and therefore it is important that projects are designed in preparation for this. This section examines how a project can be designed in such a way that promotes healthy living while at the same time ensuring that care is provided in the case of an illment, injury or any form of emergency.

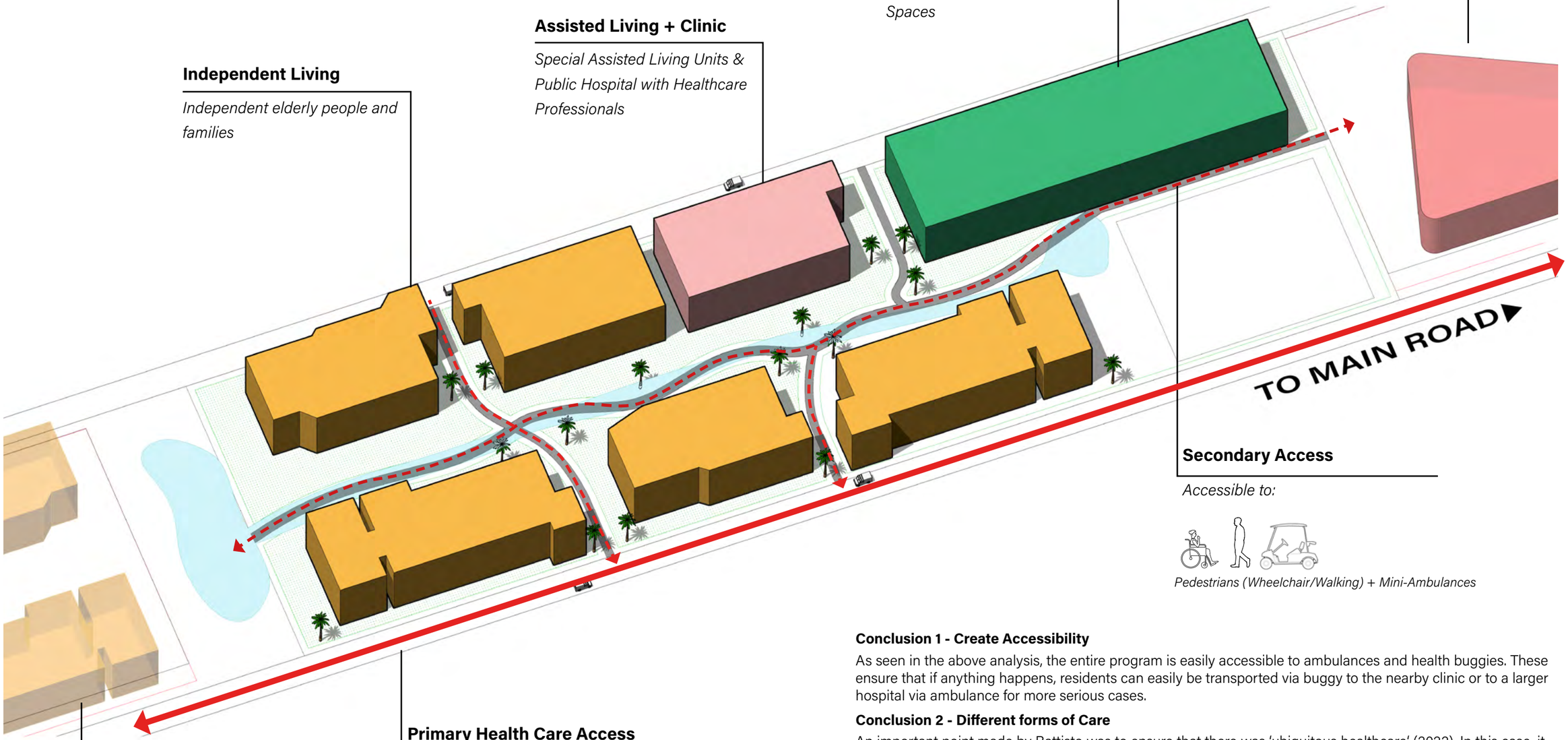



Fig. 5: Jin Well-Being Masterplanning Analysis, by Author

**Conclusion 1 - Create Accessibility**

As seen in the above analysis, the entire program is easily accessible to ambulances and health buggies. These ensure that if anything happens, residents can easily be transported via buggy to the nearby clinic or to a larger hospital via ambulance for more serious cases.

**Conclusion 2 - Different forms of Care**

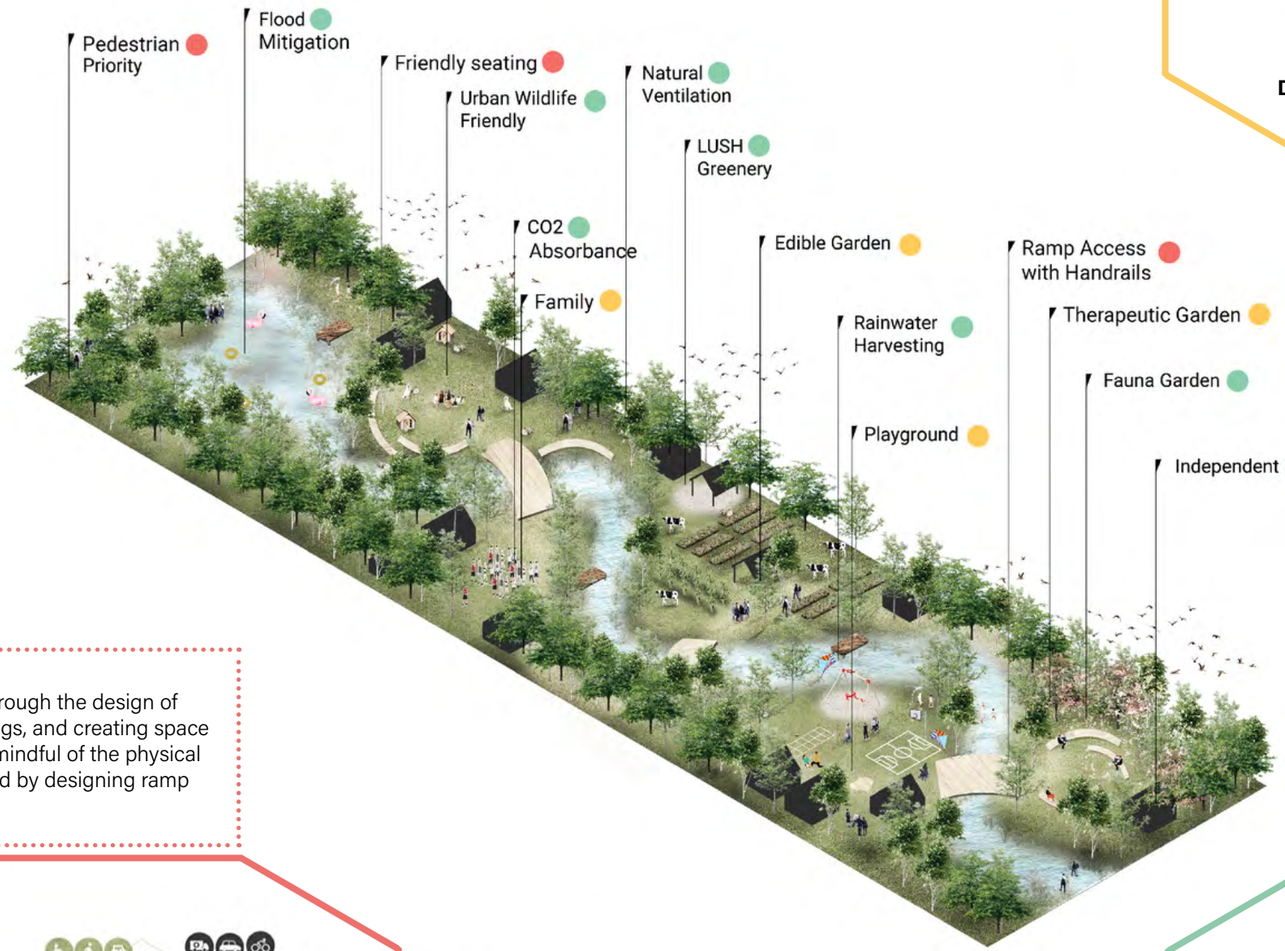
An important point made by Battisto was to ensure that there was 'ubiquitous healthcare' (2022). In this case, it means making health care accessible but also in different forms rather than just a hospital. Here we can see that the Jin County provides access to a wellness center for preventative care, a clinic for early treatment and easy access to a nearby hospital for serious treatment.

**Conclusion 3 - Think about the Future**

Consideration for the future is important in order to consider how a project can grow and adapt should there be more elderly people seeking independent living facilities or more care facilities. Here we can see that the architects have demarked the two adjacent properties for future homes and care facilities.

## Program Analysis - Architecture & Prevention

How can we design the space in-between buildings to ensure holistic healthy living? This is what the architects of Jin Wellbeing aimed to address in the design of the in-between spaces to promote healthy living. They did so through the application of design principles related to community, physical wellbeing and sustainable nature in the public/semi-public spaces between buildings. The below analysis breaks down the different components of the landscape design, its correlation with the habits seen in the blue zoon and as a result conclusions on what design guidelines are effective for the promotion of healthy living (salutogenesis).




### COMMUNITY

**Design for Chance Meeting**

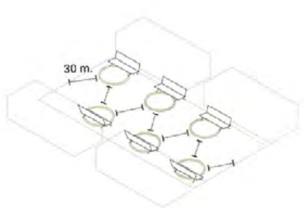
**Multi-Generation Activities**

**Conclusions on Community**

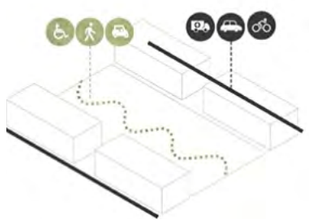
Designing for diversity, inclusiveness and multi-generationality are important to ensure that elderly residents do not feel isolated. This is achieved through the inclusion of multi-generational housing, and the inclusion of activities that cater to multiple demographics.

**Conclusions on Physical Wellbeing**

Natural movement can be stimulated through the design of attractive passageways between buildings, and creating space for activities across them. However, be mindful of the physical limitations of the elderly and the disabled by designing ramp access and seating every 30 meters.




**Seating Every 30 Meters**

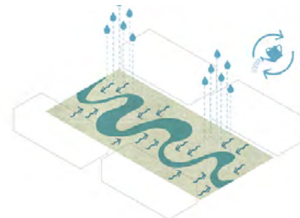


**All Ramp Access**

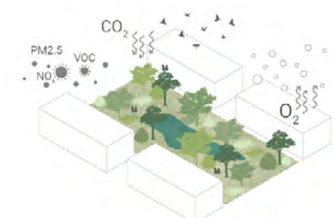
### MOVE NATURALLY

**Conclusions on Nature**

The inclusion of greenery in the masterplan can be beneficial for the mental wellbeing of the residents (Ulrich, 1984), as well as the physical wellbeing through the purification of air (Rehan, 2013). In the Jin Wellbeing County, the biodiversity of the landscape architecture was also done in a way to create multi-functionality, with some areas including edible gardens.



**Multifunctional Bio-Diversity**




**Air Purification**

### NATURE

Fig. 6: Jin Well-Being Landscape Analysis, by Author with Diagrams from SHMA Company Limited

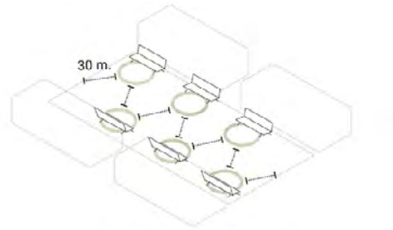
# 4.3
# Design Guidelines

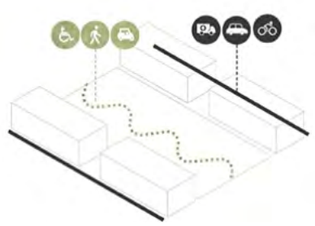
## Conclusions from Case Study Analysis and Literature

The below design guidelines are derived from the application of the theory of 'Architecture for Health' (Battisto) to the analysis of the 'Jin Wellbeing County' case study. The result is a set of design guidelines that integrate healthy living for wellbeing (salutogenesis) and the provision of care (pathogenesis) to make a socially connected environment, a healthy one.

### Design Guideline 1 - Encourage Natural Movement:

*Design Spaces That Invite Movement and Make It Accessible*



Rationale:

Physical movement is an integral component for healthy living as it keeps the body active (WHO, 2022). The key word here is 'natural' movement, as architecture cannot force physical activity. Instead, design features can be executed in a way that invites movement, by either making it attractive or making it subconscious.

Implementation:

Create inviting pathways that encourage physical movement either through walking, cycling or with a wheelchair.

Ensure that these pathways are accessible to wheelchair users as well as on foot.

### Design Guideline 2 - Multi-Generational Housing and Activities

*Design for Inter-generational Interaction and Shared Spaces for All Ages*

Rationale:

A community works best when it is heterogenous and diverse, as this increases the quality of social contact and curbs feelings of isolation for the elderly (Muennig et al., 2017). Therefore, the design of dwellings that accomodate different demographics, and public spaces that encourage multi-generational activities have the potential to create a strong community.

Implementation:

Include space for housing other demographics such as young people or families in the schedule of accomodation.

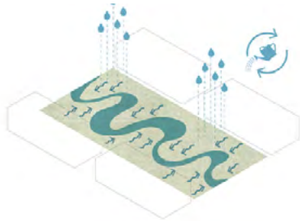
Public and communal spaces should encourage activities that allow for participation regardless of age or physical ability. E.g. sports, libraries, cafe spaces etc.

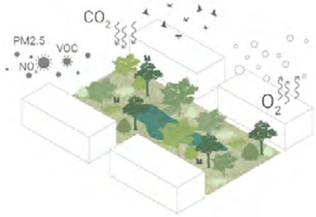




### Design Guideline 3 - Integrate Nature:

*Biophilic Landscape Design for Physical and Mental Wellbeing*






Rationale:

The inclusion of nature has been proven to be beneficial for holistic wellbeing through the improvement of mental wellbeing (Ulrich, 1984) and physical wellbeing through air purification (Rehan, 2013). Ensuring that outdoor spaces are designed with biophillia and bio-diversity in mind will be highly beneficial for healthy living.

Implementation:

Spaces in-between buildings and in the outdoors can be designed to include greenery, purifying air and making the outdoors more visually pleasing.

Bio-diversity can be leveraged to create different functions in the outdoors i.e. flower displays, tree shades or edible gardens for gardeners.

### Design Guideline 4 - Ubiquitous Care:

*Easily Accessible Care Services of Different Types*

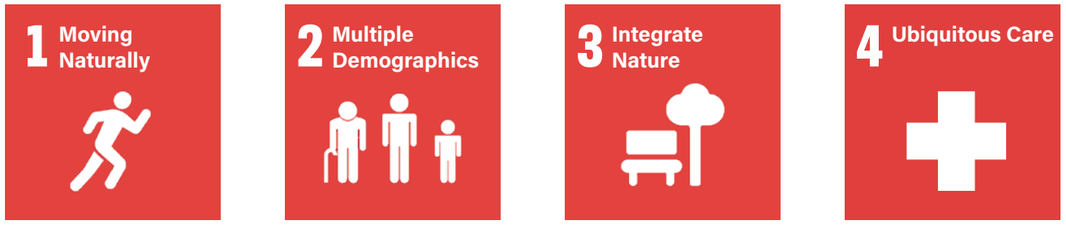

Rationale:

As healthy as they might be, elderly are still at risk of illness or injury. Therefore, the inclusion of care in the design programme is important. 'Ubiquitous care' considers how different levels of care from light to severe can be considered in a building programme to make care accessible and versatile.

Implementation:

Include spaces where light forms of care can be delivered in the case of illness/injury. This can take the form of an in-house nurse or a pharmacy.

In the case of emergencies, ensure that the design has a strong connection to the hospital. I.e. ensure that the ambulance has access or health buggies.




**Conclusion - Guidelines for Health and Care**

The above principles are important as they ensure that the planning of the building is done in a way that the principles for dwelling [chapter 2] and social connection [chapter 3] are leveraged within a building program that encourages healthy living. This way, we ensure that social connection is designed for the purpose of healthy living and preventing disease.

# Chapter 5
# Seeking A Healthy Site

*What kind of connections can be made with a city to further promote social connection and well-being?*





## 5.1
# Chapter Overview

Overall social cohesion can be strengthened with social connection

*1.2 - PROBLEM STATEMENT*

*How can the architectural design of elderly independent living facilities enhance well-being by promoting social connections amongst the elderly?*

*1.5 - MAIN RESEARCH QUESTION*

WELLBEING & HEALTH

*What kind of connections can be made with a city to further promote social connection and well-being?*

*1.6 - METHODOLOGY*

**LITERATURE** **FIELDWORK**

*OUTCOME*

WELLBEING OUTCOME

*Design principles that promote social connection within the building as well as with the surrounding context.*

**The Common Thread of This Chapter, Extract From Overall Research Framework (Section 1.6, Fig.18)**

**Question, Theory and Application**

Up to now, we have explored guidelines for the creationg of a healthy [4], socially connected [3] living environment for the elderly [2]. These guidelines would serve well for the design of a singular building, or masterplan even. However, the next question would then be, where should this be situated?

In order to answer the question:

*'What kind of connections can be made with a city to further promote social connection and well-being? '*

The purpose of this chapter is to finalise our research with a set of guidelines that will serve as criteria for the selection of a site that ensure that the connection with the wider context is in line with the encouragement of healthy, independent living for the elderly. The driving theory in this section is that of the '15-minute city'. To be more specific, the more recent iteration of the concept presented by the 2021 paper published by Carlos Moreno will be analysed in order to generate the design guidelines (Moreno et al., 2021).

# 5.2
# The ‘15 Minute’ City

## The Importance of Proximity

### A ‘Human-scale‘ Understanding of a City

Designing for the elderly requires architects to have a different understanding of the city and the urban context. Proximity to people, facilities, nature and transport is one of the most important factors that elderly people consider when deciding to move to a new home, as confirmed by the primary research done in Chapter 2. As the elderly population rises, it is important to not only think about the design of independent, health living environments, but also how these living environments should be positioned in the urban context.

A relevant concept that can be helpful in synthesizing an understanding of the urban context that can support elderly living is that of the ‘15 minute city‘, introduced by Carlos Moreno (Moreno et al., 2021). The goal of this concept is to create more human-centered cities by creating an ‘urban set-up where locals are able to access all of their basic essentials at distances that would not take them more than 15 min by foot or by bicycle.‘ (Moreno et al., 2021). The hypothesis that the Moreno proposes is that residents of a city will be able to enjoy a higher quality of life where they will be able to effectively fulfill social functions such as living, working, commerce, healthcare etc. and this can be done by making it easily accessible.


Fig. 1: ‘The Quarter-Hour City of Paris‘, Illustrated by Micaël Dessin / for Paris-en-commun

### Relevance to The Elderly

This concept is even more relevant for elderly people. Elderly people face a higher risk of physical and mental impairment that may prevent them from travelling long distances to access certain facilities (Ulloa-Leon et al., 2023). With the implementation of a concept like the ‘15 minute city‘, the design of cities can be done in a way that important facilities like healthcare, recreation and work are accessible to the elderly and by extension, productive for healthy living.

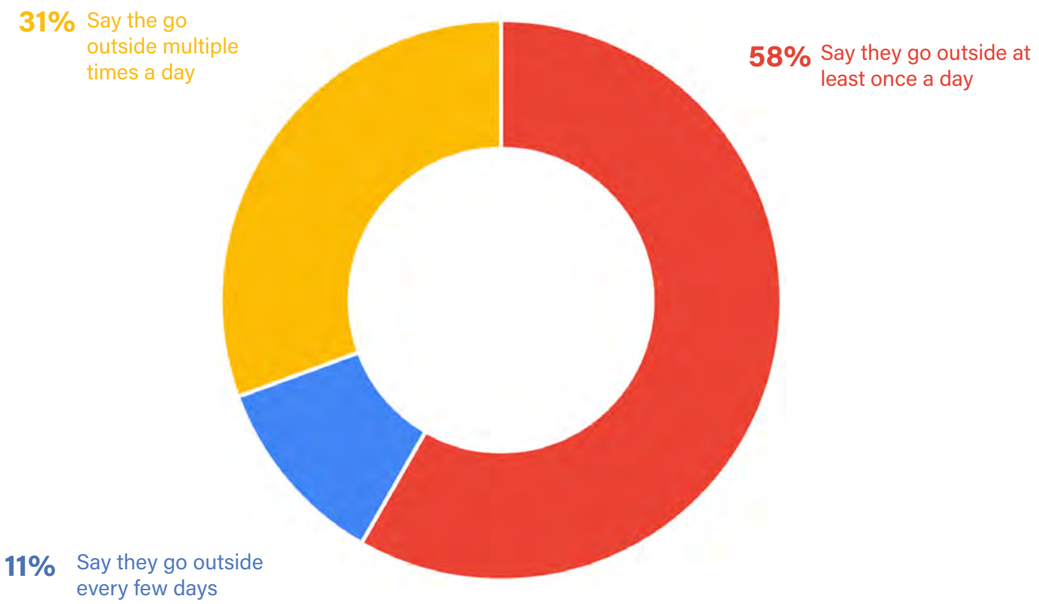



Fig. 2: Answers to the question ‘How often do you go outside?‘ From Fieldwork

This is further strengthened by the fact that being outside is an activity that the elderly often engage in as part of their daily life (Othman & Fadzil, 2015). This is substantiated in the fieldwork, where the survey distributed had a question asking ‘How often do you go outside?‘. 90% of the responses stated that they went outside at least once a day, 30% of which stated they went out multiple times a day. There were no answers that suggested they they did not go outdoors less frequently than every few days.

However, the purpose for which they go out differs depending on what is available and their personalities. Therefore, the next section will delve in to workshop results to explore, on a larger scale, specifically what elderlies find important to have in their immediate context. This way, a ‘15 minute city‘ can be sharpened further to cater towards the elderly.

# 5.3
# Adaptation for Elderly

## Turning a City Building Concept in to a Site Seeking Lens

**The Ideal Living Environment: 'Walking Distance' and 'In the Neighbourhood'**

The results presented below come from the same 'ideal living environment' workshop that was presented in Chapter 2.3. However, where chapter 2's findings were focused on the building and apartment qualities, this section covers the other two zones of the workshop where residents placed stickers. These zones were labelled 'within walking distance' (The inner circle in Fig. 3) and 'In the neighbourhood' (The outer circle in Fig. 3). Residents were asked to place stickers to express what they wanted to have in these different proximity zones. The purpose of this was to understand what features elderlies believed were important to have within walking distance (aligned with Moreno's 15 minute city (Moreno et al., 2021)), and what was important for the wider urban context.

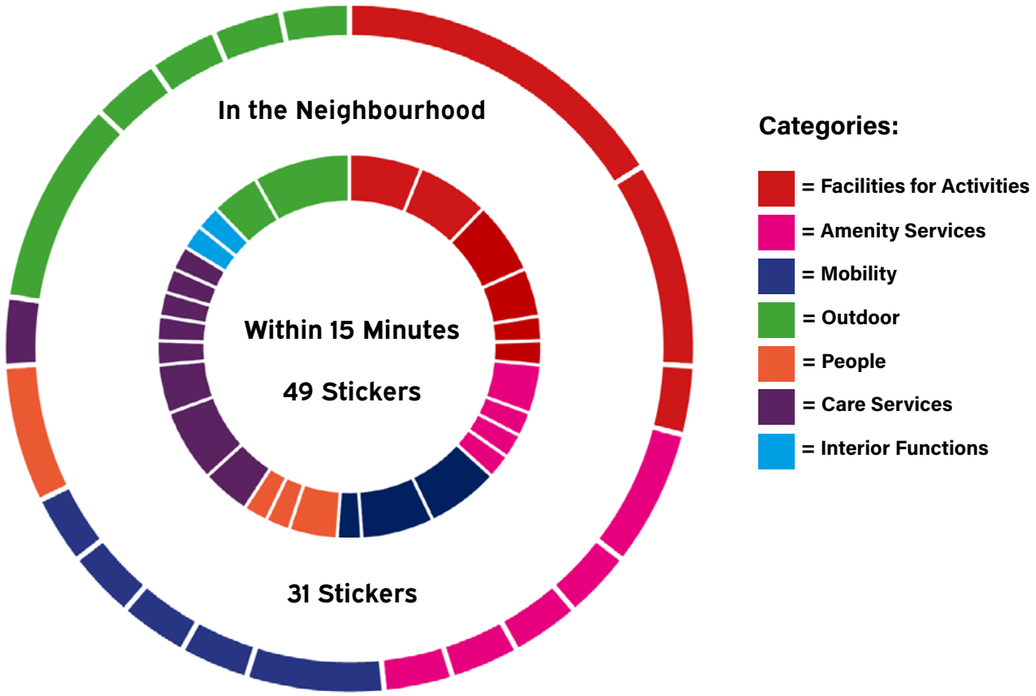



**Fig. 3: Workshop Results for stickers placed in the 'Within Walking Distance' and the 'Neighbourhood' zones**

**Result Analysis**

Firstly, the above shows that in general, the elderly prefer to have facilities, communities, parks and transport within walking distance, evidenced by the fact that 49 stickers were placed in that category as opposed to the 31 for the outer neighbourhood. Secondly, the same categories dominate both circles describing the immediate environment. These categories concern services for care/amenities, activities/outdoors, mobility and people. Other categories were not prominent. This gives a clearer picture regarding what to look for in the 15 minute environment.

**For the Architect: A Lens for Understanding The City**

This concept of a 15 minute city has generated new-found interest as challenges regarding urban health grow in relation to pandemics and in the case of this research, the ageing population (C40 Cities Climate Leadership Group, 2020). One might ask: 'Why should we care about a city-building concept on the urban scale like the 15 minute city when we are only focused on the architectural design of dwelling?'. To the architect, a concept related to urban planning may seem out of the scope. For architects, the relevance of a city-building concept like the 15-minute city lies not in dictating what to ***build*** but in guiding ***what to look for***.

While cities may not have originally embraced the '15-minute city' concept, certain facilities organically cluster in proximity. Architects can leverage this by recognizing these site features and envisioning how the integration of an elderly living environment can not only capitalize on these existing features but also act as a unifying element. To refer back to the theme of social connection, it is important to consider connections to the external environment as well as the internal building.

To be usable for site criteria, the conditions should be simplified and narrowed down based on what is known to be important for the elderly. In the case of this research, proximity to transport, healthcare, community and nature are to be prioritised when looking for a site, as this was what was extracted from the workshop results.

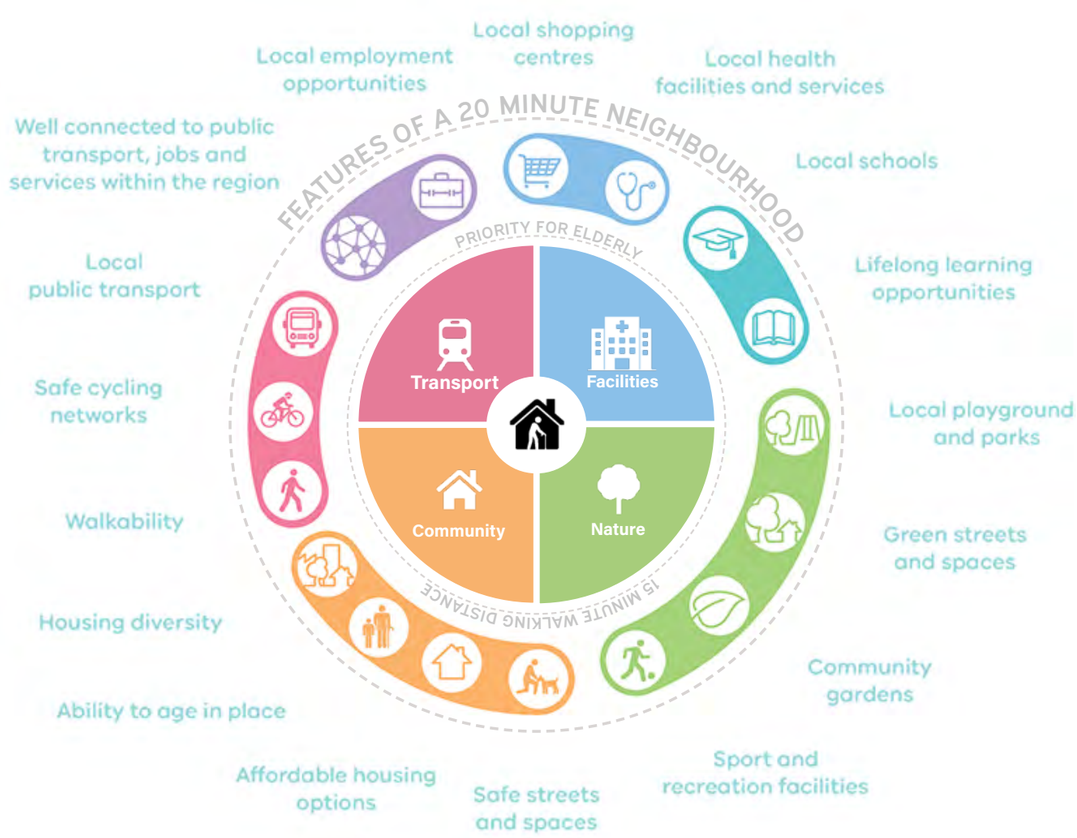



**Fig. 4: '15 Minute City' concept adapted as a site seeking lens for the elderly, by Author**

# 5.4
# Site Guidelines

## Conclusions from Literature & Fieldwork

**Short Case Study: Kampung Admiralty, Singapore**

The '15-minute city' has already been applied in different countries around the world, such as Paris and Barcelona. However, an exemplar case study is that of 'Kampung Admiralty' in Singapore. The project was designed by WOHA architects with the intent of encouraging healthy living for elderlies (WOHA Architects, 2018). The design is well done, but what particularly increases its efficacy is the Singaporean governments dedication to 'pedestrianizing' the city, making everything easily accessible by foot (Azlan Imran, 2021). This relationship between the city and the project is what allows it to further improve social connection, wellbeing and independence.

Following suit from this case study, the below site guidelines are derived from an analysis of the '15 minute city' concept by Carlos Moreno (2021) and adapting to suit the findings from the previous chapter regarding the needs of the elderly. In doing so, the city-building concept of a '15 minute city' is transformed in to 4 guidelines that will aid future architects in finding an appropriate site for future elderly living developments.

**Guideline 1 - Connection to Facilities**

Connection to facilities, specifically to health care and amenity facilities is an essential parameter that should be fulfilled when looking for a site that is appropriate for an elderly living facility. In selecting a site that has good connection to healthcare facilities, elderly people will have better access to receiving care of all types, from the smallest afflictions to more serious emergencies. The assessment of this parameter will be done in accordance to the concept of 'ubiquitous healthcare' described by Battisto, where multiple layers of healthcare facilities will be considered, as opposed to seeing the hospital as the 'center of the universe' (Battisto & Wilhelm, 2019). Other basic amenities such as supermarkets and pharmacists will also be considered.

**Guideline 2 - Connection to Public Transport**

Mobility is an important aspect in the upkeep of well-being. One of the most active methods of transportation is the usage of public transport, encouraging people to walk from place to place, rather than remaining seated in a vehicle (which is also much more inefficient as a method of transport). This also ensures that elderly have easy access to the city center without having to walk too far.

**Guideline 3 - Connection to Outdoor Spaces**

A connection to nature and open-air environments have been known for a long time as being highly beneficial for health and well-being (Ulrich, 1984). Beyond this, these spaces also represent opportunities for physical activity and social connection (Battisto & Willhelm, 2019). Therefore, a connection to dedicated spaces with strong natural features such as parks, forests, lakes and/or canals will be a point of consideration in the venture for a suitable prototypical site.

**Guideline 4 - Connection to Existing Residential Communities**

Last but not least, a connection to existing residential communities will be sought after when it comes to the site. This is an important aspect for the research as a connection to existing communities provides a foundation wherein the research can seek ways to not only create new social networks, but also connect them to existing ones to buttress them even further. This is a vital component in ensuring that the design proposal is harmonious not only within its own boundaries but also with the wider social urban fabric.

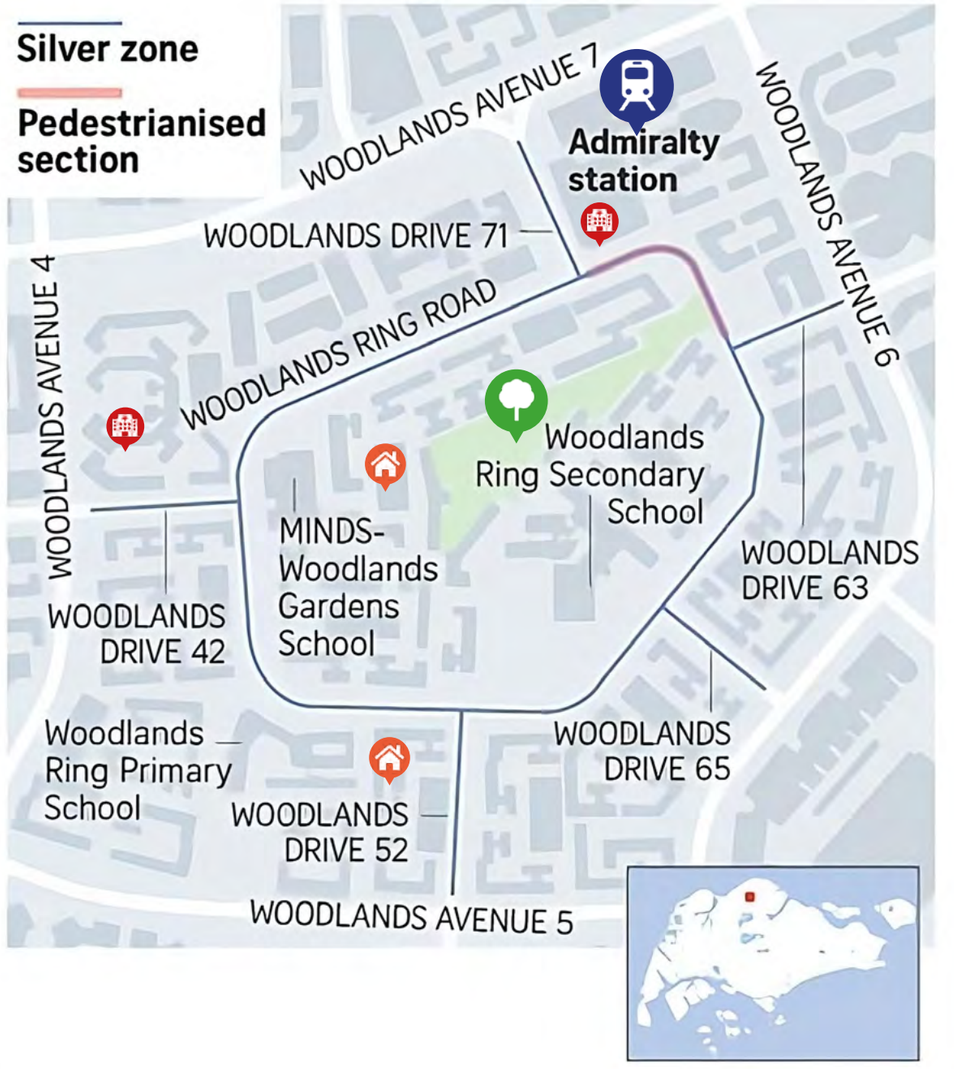



Fig. 5: The Pedestrianisation of Kampung, Aligned with the 15 Minute City Concept (Azlan Imran, 2021)


**Conclusion - Guidelines for Site Criteria**

These principles serve as site selection criteria to ensure that the various design guidelines outlined in Chapters 2, 3, and 4 find a suitable setting. By emphasizing connections to healthcare, public transport, nature, and existing residential communities, these criteria aim to create an environment that further enhances social connection not only within the building, but as well with the surrounding context.

# Chapter 6
# The Elderly Design Toolkit

*Summary of Results*





## 6.1
## Chapter Overview

**A Comprehensive Toolkit**

The chapters leading up to now were done in a manner that addressed different components of the theoretical framework, arranged in to different scales. This method not only ensures that each corner of the research is well explored and developed, but also translated to practical guidelines that address different scales of the design.

Furthermore, the conclusion shows that social connection, in order to be employed effectively, needs to be done in a framework that takes in to account health, housing, urban connections and communal spaces. Social connection is not the only component, it is a catalyst that unlocks other components for well-being and therefore the research was done holistically to ensure this.

# 6.2
# The Design Toolkit

## A Comprehensive Set of Guidelines for Future Elderly Homes

**From the Neighbourhood to the Doorstep**

As stated in the problem statement, there is an urgent need to act now if we want to create healthy and sustainable living environments to accomodate for our elderly population as they grow in the future. The challenge is a daunting one, but by starting with the little things, like social connection, architecture has the potential to unlock many pathways towards providing care and encouraging healthy living.

Each chapter leading to this one originates from one particular theme in the outlined research scope - elderly housing, social connection, architecture for health and the urban environment. Throughout the report we tackled each of these different themes through the usage of primary and/or secondary research. The conclusions drawn from the analyses in each chapter were translated in to actionable, practical and simple design guidelines. Moving forward, the hope is that each of these guidelines serves as valuable directives for any architect seeking to create a socially connected independent living environment for the elderly.

**It is important to note that these guidelines, which might seem like general elements that are relevant to housing for older people and does not answer the main question at first glance, are intentionally summarized with simple icons and succinct headings here for accessibility. However, each guideline is underpinned by a robust rationale/implementation plan discussed in the 'implementation' section of their respective chapters. These implementation plans provide detailed methods relevant to the research method and directly address components of the main research question.**

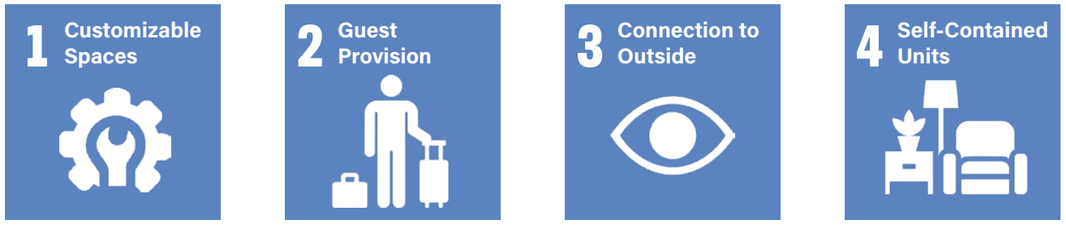
Design is a holistic process, and in order for social connection to be effective, multiple scales should be considered. Social connection does not start and end in the home, it extends to your neighbour, your community and even the surrounding city. Therefore, the design guidelines are organized in a way that it addresses the different key scales for a design project - from inside the house, to the communal spaces in front of the doorstep, to the wider building and the neigbourhood as a whole. This ensures that the guidelines, when applied, are done holistically and therefore harmonious with each scale.

In conclusion, this research has distilled actionable design guidelines across various scales, addressing the vital themes of elderly housing, social connection, architecture for health and urban environments. With the ongoing challenge of the ageing population, these guidelines serve as a guiding compass for the architectural design of socially connected independent living environments. The upcoming Chapter 7 will further solidify the findings, providing a comprehensive overview of the main research question and reinforcing the depth and specificity of the generated design guidelines

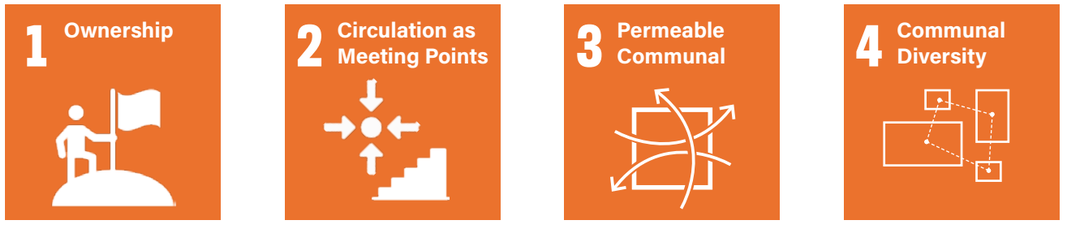




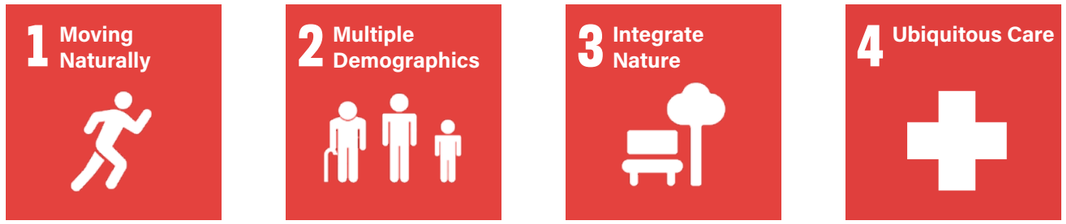
*SCALE A - THE DWELLING*




*SCALE B - THE COMMUNAL SPACES*




*SCALE C - THE BUILDING PROGRAMME*




*SCALE D - THE SITE CONDITIONS*


**Fig. 1: Design Guideline Headings, for details regarding implementation, relationship with methodology and research question, refer to Chapters 5.4, 4.3, 3.4, 2.6**

# Chapter 7
# Conclusions

*Key Takeaways and Future Directions*





## 7.1
# Chapter Overview

**Conclusion, Discussions, Reflection**

In this chapter a conclusion will be given that consolidates the key findings of the research and ties it back to the main research question: ***'How can the architectural design of elderly independent living facilities enhance well-being by promoting social connections amongst the elderly?'***

The section that follows is the discussion, where the entire corpus of the research is evaluated to stimulate further discussion on the topic. Through this critical evaluation, recommendations can be made for future research endeavours in this domain. These suggestions can craft and steer further investigations so they are more effective in tackling the challenge of the ageing population, social connection and the architectural design of elderly living environments.

Concluding the chapter is the reflective segment that delves in to the significance of the research, potential avenues for refinement and personal reflections on the experience of conducting architectural research in a graduation project.

# 7.2
# Conclusion

## Returning to the Main Research Question

The research began by introducing the background of the global ageing population and the related challenges that will rise in proportion. Zooming in to the situation in the Netherlands, it was observed that the elderlies lacked suitable housing, due to certain factors such as the governments decision to abolish retirement homes and the overall housing crisis. A lack of suitable housing for the elderly as they continue to grow in population have been linked to increased social isolation and loneliness, which in turn seriously deteriorates health and increases mortality. It became clear that the gap that needs to be addressed is providing not only suitable housing but housing that foster social connection to treat the problems of today while at the same time encouraging a healthy lifestyle to prevent the problems of the future. Therefore, the burning question that the research set out to answer was:

***'How can the architectural design of elderly independent living facilities enhance well-being by promoting social connections amongst the elderly?***

The theoretical framework helped understand that the main question exists at the intersection between four key themes: Elderly Wants/Needs, Social Connection, Health & Well-being and Architectural Design. Being a multi-faceted question, sub-questions were generated that would allow the research to break up the main question in to smaller chunks for more detailed research. The sub-questions were generated from the identified key theories and their related themes in the theoretical framework.

The first sub-question: ***'What is the ideal living environment for an elderly user seeking social connection?'*** tackles the 'design of elderly independent living facilities' section of the research question through the research of elderly people as a user group and their wants/needs regarding housing. This is an important first step as social connection cannot be fostered in a living environment if that living environment does not have the fundamental features that meet the basic wants/needs of the user.

This sub-question has been answered by first introducing an overview of elderly wants/needs through Platform 31's research on 'woonprofielen'. The research was used to generate a hypothesis on what housing types an elderly person seeking some form of social connection would be looking for, as well as a confirmation on the importance of community in the current housing demand. This hypothesis was then tested in the fieldwork location (which was an identified exemplar of a housing type currently in demand by Platform 31) by interviewing residents, conducting surveys, workshops and studies on their built environment to investigate what works well in their living environment and what can be improved. The findings suggest that there are 4 design guidelines that can be implemented in the design of independent living facilities to fulfill elderly wants/needs: ***Customizable Spaces, Guest Provisions, Connection to Outside, Self-Contained Units.*** These guidelines are to be considered within the scale of the dwelling unit.

The second sub-question: '***What are the preferences and needs of elderly residents regarding social interaction and connectivity within their living environments?'*** tackles the 'promoting social connections for elderly' component of the main question.

This sub-question was answered by first making a link between social connection and architecture using existing literature, which suggests that a focus on hallways and communal areas are important factors for architects to consider when fostering passive and active social contact. This was then further refined in the fieldwork using surveys, architectural analysis of key spaces and interviews to ensure that this concept was re-synthesized specifically for the elderly. The findings suggest that 4 guidelines can be implemented to increase





the opportunity for passive and active social contact: ***Ownership, Circulation as Meeting Points, Permeable Communal and Communal Diversity.*** These guidelines are to be applied on the scale of the communal space, such as hallways, communal areas and even courtyards.

The third sub-question: ***'How can a socially connected environment promote a healthy and independent lifestyle for the elderly?'*** addresses how 'architectural design of elderly independent living facilities enhance well-being by promoting social connections' component of the main question. Recognizing that health encompasses various dimensions, including physical and personal aspects, it is imperative to explore how architectural interventions can effectively accommodate these multifaceted elements. By addressing this sub-question, the research ensures that a socially connected environment can be seamlessly integrated into a broader framework of healthy living for the elderly.

This sub-question was answered by introducing two key theories on health and architecture. 'Architecture for Health' (Battisto & Wilhelm, 2019) provides a holistic and contemporary understanding of how architects should approach health and care by balancing salutogenesis and pathogenesis. This is further narrowed down for the scope of the elderly by re-interpreting salutogenesis for the elderly through the observations made in the Blue Zones (Poulain et al., 2014). This concept was analysed in a case study that was chosen not only due to its focus on 'Architecture & Health' but also due to its alignment with the research goal of creating healthy living environments that promote independence. The findings from the literature and case study suggest that 4 guidelines can be implemented to ensure that a socially connected environment is a healthy one: ***Moving Naturally, Integrate Nature, Multiple Demographics and Ubiquitous Care.*** These guidelines are to be applied on the scale of the building programme, masterplan and overall organization.

The fourth sub-question: ***'What kind of connections can be made with a city to further promote social connection and well-being?'*** addresses how the positioning of 'elderly independent living facilities [can] enhance well-being by promoting social connection' component of the main question. This chapter's significance lies in the mission to formulate guidelines that transcend the confines of the living environment, extending the reach of social connection and well-being into an understanding of the wider urban context. It ensures that a socially connected independent living environment harmoniously interfaces with the city to maximise the potential for social connection and contributing to the overall well-being of its elderly inhabitants

This sub-question was answered by introducing the concept of the '15 minute city' (Moreno et al., 2021) as a concept for understanding the importance of making connections with the city that are accessible by foot. The concept was further refined to be specific for the elderly as a user using the results from the workshop conducted during fieldwork. The findings of this section suggest that 4 guidelines can be implemented to ensure that independent elderly living environments are positioned to foster the right connections: ***Connection to Facilities, Connection to Communities, Connection to Outdoor Spaces and Connection to Transport.***

Combining the results of these sub-questions will result in an independent living facility that enhances well-being through the promotion of social connection for the elderly. The fact that the 4 sub-questions are organized according to scale is no coincidence, it is done to ensure that each scale of the building is addressed to ensure that this goal is fulfilled through and through. Finally, to answer the main question:

***'There are 16 design guidelines that might contribute to the design of socially connected independent living environments that promote well-being and alleviate loneliness for the elderly in acknowledgement of the ageing population. These design guidelines are organized in to four scales - Dwelling, Communal Space, Building Programme and Site Conditions. Dwelling guidelines include providing customizable spaces, guest provisions, a strong connection to the outside within a self-contained living unit. Communal guidelines include giving a sense of ownership in the semi-public areas, treating circulation as meeting points, generating permeability in the communal spaces and ensuring that there is diversity in these communal spaces in terms of scale, function and position. Building programme guidelines ensure well-being by encouraging natural movement, the integration of nature, accomodating diverse demographic groups and ubiquitous care ensuring accessible care is delivered at different levels. Finally, site condition guidelines ensure that social connection is fostered on the urban scale by creating connections with key spaces such as facilities, communities, outdoor spaces and public transport'***

# 7.3 Reflection

## Critical Reflection And Closing Thoughts On The Research

**Discussion & Reflection**

The findings of this research suggest that there are certain factors that can be considered during the design of elderly independent living facilities to ensure social connection and well-being. What is important to note is the fact that this research was done with the intention of being transformed in to a complete design project immediately after. Therefore, it might be that the guidelines might seem constrained or not pushing theory enough, and this is a fair argument. However, this is precisely why the research report was labelled as a 'handbook' in the front page. It is designed to be a companion that guides future architects in their design process for elderly housing, which will undoubtedly be in demand in the future. This is also why the guidelines are presented in a way that looks simple/general on the surface (a catchy headline and a minimalist symbol) as this ensures that they are memorable and also gives architects the freedom to invent their own solutions. If lost, further details can alwayas be found in the implementation section.

Nevertheless, as extensive as the design toolkit may be, more work could have been done in the implementation aspect to provide specific instruction on a visual level (currently they exist as text). Future research could therefore be focused on creating more nuance in the implementation methods of these guidelines.

Furthermore, one important consideration that was omitted was the aspect of materiality and finishing. It was omitted as it was not clear whether guidelines in this section would be that impactful. Nevertheless, the researcher acknowledges that research in to this could have added a level to the guidelines that makes it effective as it addresses even the fine details of a project. Furthermore, it is important to note that the guidelines were made for the elderly who enjoy living in a community. There are elderly people that want to live alone and it is likely that these guidelines will not be effective for that part of the demographic.

Overall, more research needs to be done in this field to accomodate for the various types of elderly users out there and the various challenges they may face moving forward beyond just social connection.

**Relevance of the Research**

This research represents an oppurtunity to conduct research and create an overall design proposal that contributes to an incredibly meaningful and human focused architectural endeavour. It is undeniable that our demographic will experience a drastic change as the elderly population grows in size. This has massive implications on our society and it is of utmost importance that we consider how architecture can positively influence this in order to maintain well-being, social connection and overall happiness.

Today, architectural research is rightly dominated by the urgency of climate change, resource scarcity, and geopolitical implications. These challenges are pressing because they directly threaten our way of life. However, I would argue that the urgency to address societal challenges should be equally compelling. The Ageing demographic is not a far-off issue; it's a reality we're witnessing and will continue to face in the coming years.

Architecture wields an incredible power to shape our environment and, by extension, our lives. It can be the difference between an isolated and lonely existence for the elderly or a life filled with vibrant connections and well-being. We have a responsibility to recognize this potential and act with the same urgency we apply to environmental concerns.

Through this research, we have the chance to improve the lives of countless individuals, starting with those closest to us. We must not only recognize the importance of this endeavor but actively support and engage with it. In this rapidly Ageing world, it is vital that we ensure that our elderly population thrives in environments that nurture their well-being and foster social connection. By embracing this mission, the research not only addresses a significant societal challenge but also contribute to the shared goal of enhancing the quality of life for all generations, to be **'Better Together'.**

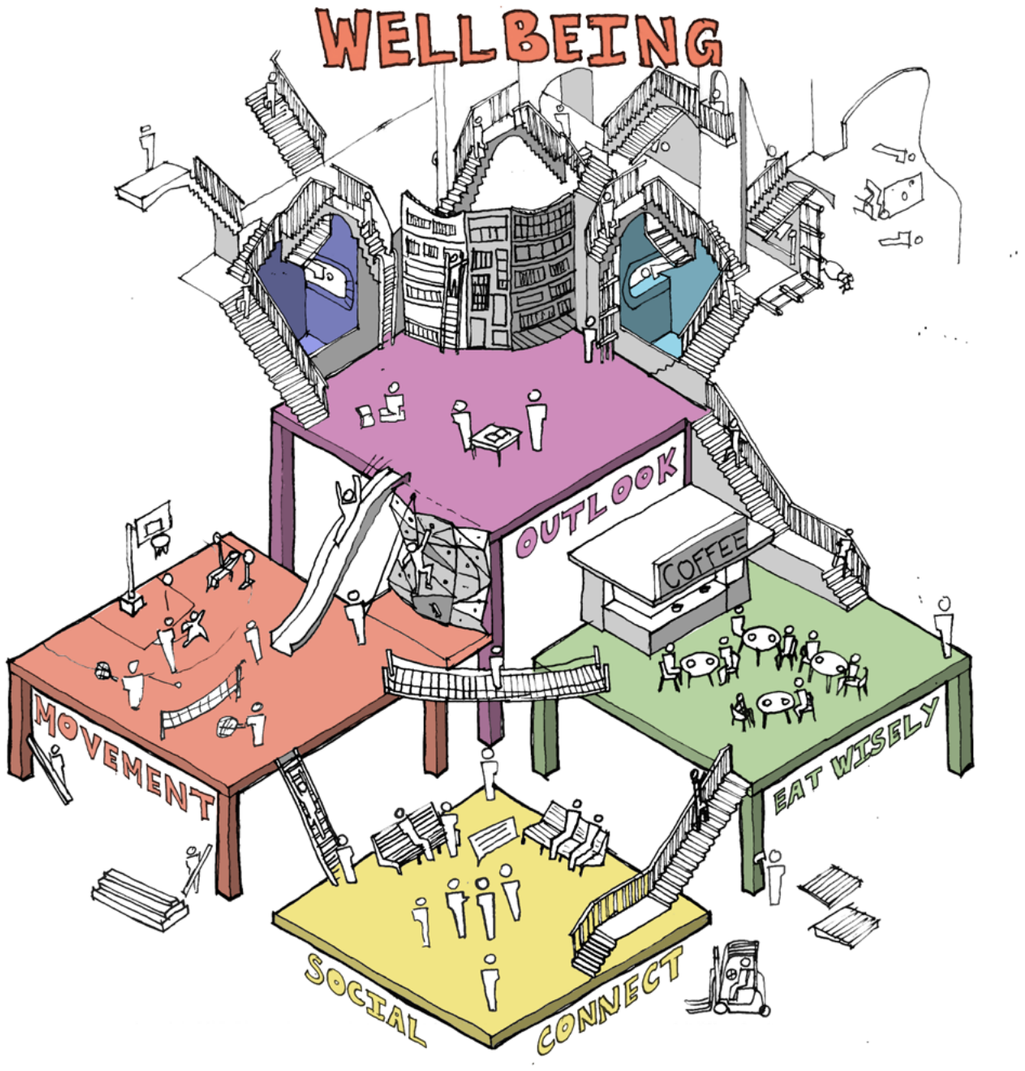



**Fig. 2: Concept Drawing - 'Social Connection as a Catalyst Towards Well-being' by Author**

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7

# Appendix A - Fieldwork Intro

**Introduction Page**

As part of our fieldwork introduction, we produced a one page introduction brief to be posted in the elderly home a week before our arrival. This would not only give notice to the residents of our arrival, but also our intentions. This way, we create transparency, encourage interaction and provide a friendly introduction to who we are. All done in Dutch of course.

Also important to note that the document on the left has been modified to anonymize the participants.

## Wij komen logeren!

Wij zijn [redacted], [redacted], [redacted] & [redacted]. Wij zijn momenteel bezig met ons afstudeerproject van de master Architectuur aan de Technische Universiteit in Delft. Als onderdeel van ons onderzoek zijn wij geïnteresseerd in [redacted] en de bewoners.

In de week van **13 t/m 17 November** komen wij een week logeren! In die week komen wij graag zoveel mogelijk te weten bijvoorbeeld uw levensstijl, de gemeenschap, sociale interacties, gezondheid en de zorg hier in [redacted]. We verspreiden een korte vragenlijst, gaan graag in gesprek en organiseren een leuke workshop. Wij kijken er naar uit om elkaar te leren kennen tijdens de koffie, lunch of een spelletje. Aarzel niet om op ons af te stappen. Tot dan!

**Naam:** [redacted]
**Land:** Thailand
**Talen:** Engels, Thais en een beetje Nederlands

Ik ben [redacted]. Oorspronkelijk uit Bangkok, Thailand, nu al een jaar in Nederland. Mijn passies zijn schaken en gitaarspelen. Ik ben altijd geïnteresseerd in nieuwe ervaringen, verhalen en activiteiten om mensen te leren kennen. Tot snel, en ik kijk ernaar uit om jullie te ontmoeten!

**Naam:** [redacted]
**Land:** Nederland
**Talen:** Nederlands, Engels

Ik ben [redacted] en ik kom uit het dorpje Balkbrug. In mijn vrije tijd ben ik graag met mijn handen bezig in de vorm van bakken en tuinieren. Ook hou ik van gezelligheid met familie en vrienden. Ik kijk uit naar mooie ontmoetingen en leuke activiteiten in [redacted]!

**Naam:** [redacted]
**Land:** Nederland
**Talen:** Nederlands, Engels

Mijn naam is [redacted]! Ik ben opgegroeid in Dronten, maar woon al zes jaar in Delft. Ik hou erg veel van muziek en het allerliefst ben ik aan het skiën in Oostenrijk. Als ik langskom ben ik erg benieuwd naar de verhalen en de reden waarom u in [redacted] bent komen wonen. Tot snel!

**Naam:** [redacted]
**Land:** Duitsland
**Talen:** Engels, Duits

My name is [redacted], coming from a small village northern Germany, my hobbies are Sport, especially football and fitness, as well arts and architecture.
I'm excited to meeting you all and having interesting conversations!

TU Delft

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# Appendix B - Fieldwork Survey

Beste bewoner van [redacted]

Voor ons afstudeerproject aan de TU Delft logeren we deze week in [redacted]
Om een goed beeld te krijgen van [redacted] en de bewoners willen we u vragen om ons te helpen door deze korte vragenlijst in te vullen. Alvast bedankt!

Zou u de ingevulde vragenlijst **vóór vrijdag 17 november** willen inleveren in de doos in het Hart? Als u hulp nodig heeft bij het invullen of met ons wilt kennismaken, wij zijn op dinsdag en woensdag in het Hart (en vast nog vaker).

## Algemene informatie

**1. Geslacht:**
☐ Man ☐ Vrouw ☐ Zeg ik liever niet

**2. Geboortejaar:** ☐☐☐☐

**3. Woont u in het gebouw verbonden aan 'Het Hart'?**
☐ Ja ☐ Nee

## Wonen

**4. Wat was uw woonsituatie voor [redacted]**
☐ Appartement
☐ Vrijstaand huis
☐ Twee-onder-een kap / Rijtjeswoning
☐ Anders, namelijk:_____

**5. Wat was de eigendomsverhouding met uw vorige woning?**
☐ Huurwoning
☐ Sociale huurwoning
☐ Koopwoning

**6. Wat was de voornaamste reden dat u naar [redacted] kwam?**
☐ Omdat ik op dat moment zorg nodig had
☐ Omdat ik in de toekomst zorg nodig zal hebben
☐ Omdat ik behoefte had aan sociale contacten
☐ Omdat mijn huis niet meer geschikt was
☐ Omdat mijn omgeving vond dat dit beter voor mij was
☐ Anders, namelijk:_____

**Z.O.Z.**

**7. Hoe bevalt het wonen in [redacted]?**
☐ Zeer tevreden
☐ Tevreden
☐ Neutraal
☐ Ontevreden
☐ Zeer ontevreden

**8. Waar spendeert u de meeste tijd gedurende de dag?**
☐ Appartement
☐ Gemeenschappelijke ruimte 'Het Hart'
☐ Andere gemeenschappelijke ruimte
☐ Buiten
☐ Ergens anders dan [redacted]

**9. Wat is uw favoriete plek in de woonomgeving?**
_____

**10. Wat zou u willen toevoegen?**
In [redacted]
_____

In uw appartement:
_____

**11. Wat bent u bereid om met anderen te delen?**
**(meerdere antwoorden mogelijk)**
☐ Keuken
☐ Badkamer
☐ Logeerkamer
☐ Tuin
☐ Grotere woonkamer
☐ Hobbyruimte
☐ Wasmachine
☐ Gereedschap
☐ Auto
☐ Fiets
☐ Scootmobiel
☐ Computer
☐ Boeken

**Z.O.Z.**

## Gezondheid

**12. Hoe fysiek actief voelt u zich?**
- ☐ Heel actief
- ☐ Gemiddeld actief
- ☐ Een beetje actief

**13. Ontvangt u ondersteundende hulp?**
- ☐ (Thuis)zorg
- ☐ Mantelzorg
- ☐ Huishoudelijke hulp

**14. Voelt u zich eenzaam?**
- ☐ Vaak
- ☐ Af en toe
- ☐ Bijna nooit

**15. Voelt u zich verveeld?**
- ☐ Vaak
- ☐ Af en toe
- ☐ Bijna nooit

**16. Hoe vaak komt u in de buitenlucht?**
- ☐ Meerdere keren per dag
- ☐ Elke dag
- ☐ Om de dag
- ☐ Wekelijks
- ☐ Minder dan bovenstaande

**17. Welke activiteiten doet u? (meerdere antwoorden mogelijk)**
- ☐ Wandelen in het gebouw
- ☐ Wandelen buiten (bijvoorbeeld naar de winkel)
- ☐ Fietsen
- ☐ De trap gebruiken
- ☐ Tuinieren
- ☐ Zwemmen
- ☐ Yoga / Pilates of iets dergelijks
- ☐ Fysiek inspannende sport, zoals: Fitness, Hardlopen, voetbal
- ☐ Anders, namelijk:_____ **Z.O.Z.**



## Gemeenschap

**18. Bent u lid van de vereniging [redacted]?**
- ☐ Ja ☐ Nee

**19. Hoe vaak doet u iets voor de gemeenschap?**
- ☐ Dagelijks
- ☐ Wekelijks
- ☐ Maandelijks
- ☐ Nauwelijks / nooit

**20. Kruis aan hoe vaak u de faciliteiten in [redacted] gebruikt**

***Dagelijks / Wekelijks / Maandelijks / Nauwelijks***

| | | | | |
|---|---|---|---|---|
| Het Hart | ☐ | ☐ | ☐ | ☐ |
| Gem. keuken | ☐ | ☐ | ☐ | ☐ |
| Fitnesszone | ☐ | ☐ | ☐ | ☐ |
| Familiekamer | ☐ | ☐ | ☐ | ☐ |
| Huistheater | ☐ | ☐ | ☐ | ☐ |
| Café / de soos | ☐ | ☐ | ☐ | ☐ |
| Kapper | ☐ | ☐ | ☐ | ☐ |
| Leeftuin, buiten | ☐ | ☐ | ☐ | ☐ |
| Werkplaats | ☐ | ☐ | ☐ | ☐ |

**21. Mijn sociale kring bevindt zich:**
- ☐ Voornamelijk in [redacted]
- ☐ In en buiten [redacted]
- ☐ Voornamelijk buiten [redacted]

**22. Wat is voor u het belangrijkst in een gemeenschap (kies 1)**
- ☐ Privacy
- ☐ Gemeenschappelijke activiteiten
- ☐ Verschillende leeftijden
- ☐ Dezelfde leeftijden
- ☐ Diversiteit
- ☐ Dezelfde idealen

Einde. Nu kunt u hem inleveren in de doos. Hartelijk bedankt!
[redacted]

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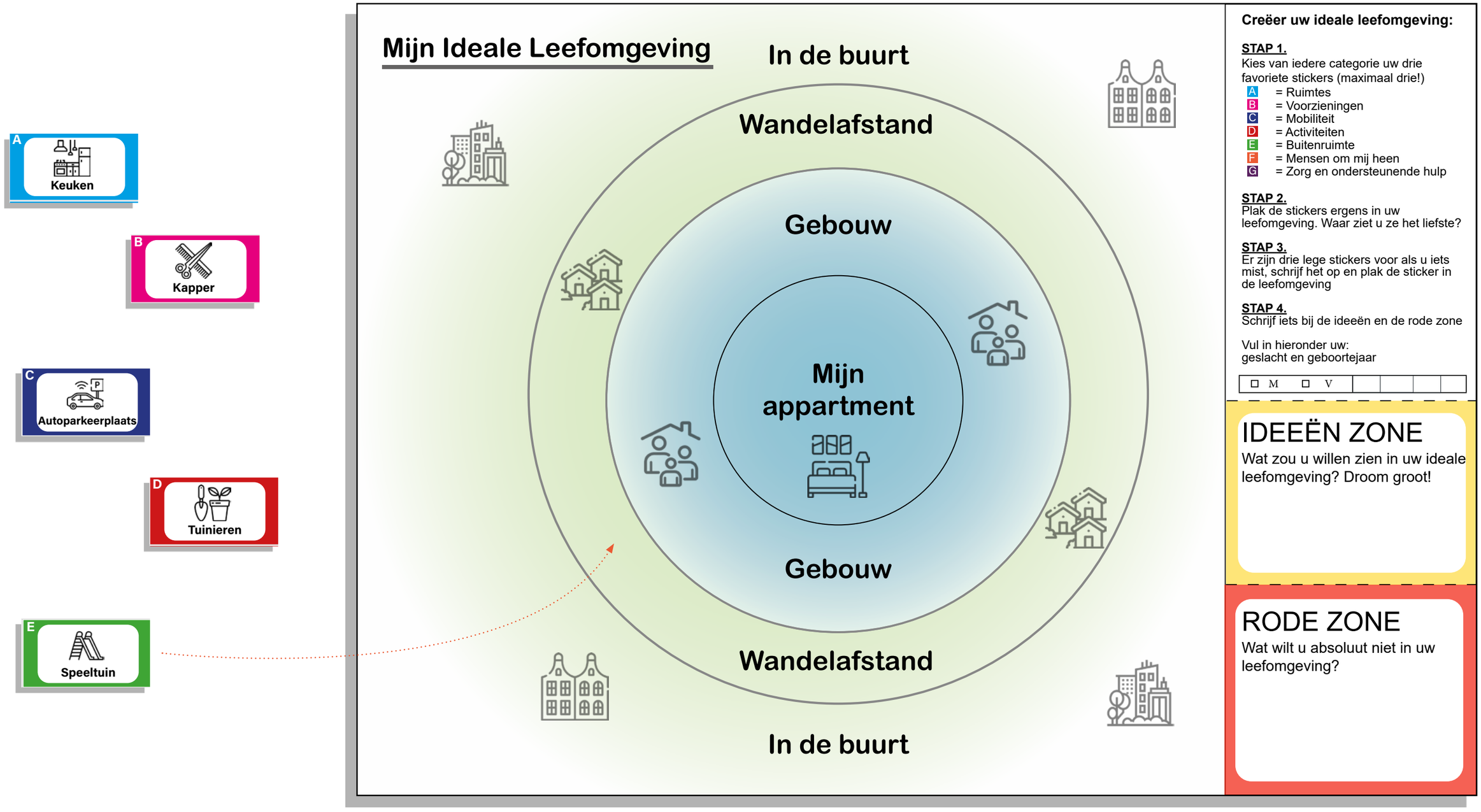
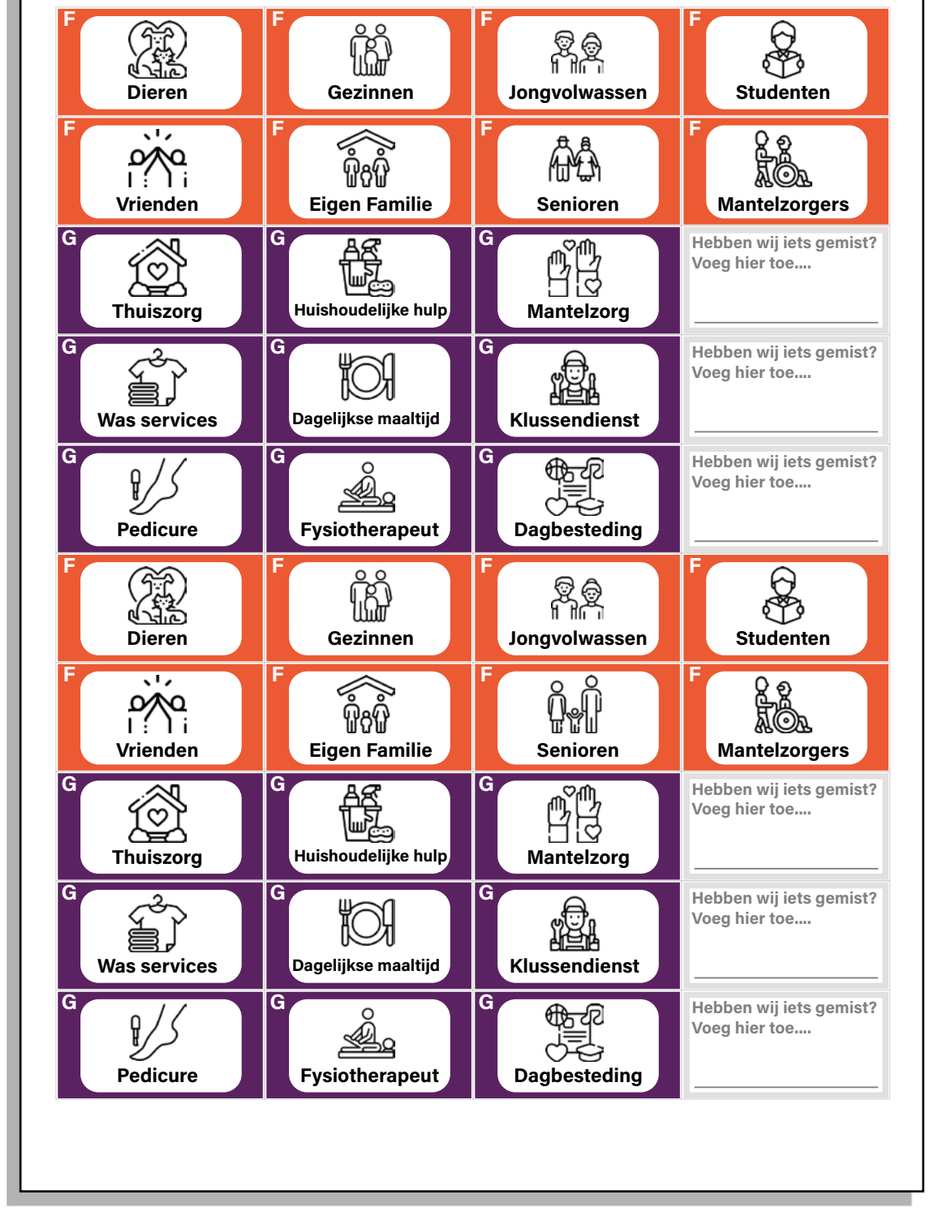
# Appendix C - Fieldwork Workshop




'My Ideal Living' Workshop Board - For the Placement of Stickers


The Available Stickers that the Residents can Choose From

# The Inspiration.

**This decision to choose the 'Designing for Health & Care' studio is deeply inspired by a former project, The Penarth Respite Center. This project was done as part of the undergraduate program at the Welsh School of Architecture and was formative in creating a philopshy that clearly placed the user at the heart of the design process.**

A 'Respite Center' is a place that provides a well-deserved space to rest for caregivers of a child or adults dealing with a severe illness or condition. The project required a deep understanding of the caregiver as a user and their unique needs. This became the ethos of all architectural elements from the overall program, choice of material and the relationship the building has with the surrounding context.

The end result was not only a finalised building project, but a vital contribution to my personal philosophy as a student of architecture. A philosophy that aims to ensure that every building's ultimate goal is to have a net positive contribution to the lives of those that use it. A philosophy that I am excited to continue exploring as part of my graduation studio to cap off my Master's degree in Architecture.

I hope that the lessons extracted from the design of the Penarth Respite Center continue to be of utility in this research towards a better elderly living environment.