Happily Ever After

Mental Health Promoting Senior Living Environments

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04|06|2023

Subtitle

Happily Ever After.
Mental health promoting senior living environments.

Colophon

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Master Graduation Thesis

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Designing for Health and Care:
Towards a Healthy and Inclusive Living Environment

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Preface

This thesis is part of the Master Graduation Studio *"Designing for Health and Care: Towards a Healthy and Inclusive Living Environment"* at the faculty of Architecture in Delft University of Technology. The aim of the studio is to design healthy living environments; spaces that encourage healthy behaviour and are empathetic to the needs of people with disabilities.

I have chosen this studio, because I have a deep fascination for the elderly. I think it is interesting to talk to and work with people who have experienced historical events and who have lived experiences of other societal norms and values. I have noticed that seniors tend to have very different ways of experiencing old age; while some are actively involved in society, others seem to drift away, existing solely in the confines of their home.

Even though these differences are likely to be caused by personal circumstances, rather than by living environments, as an architect I felt challenged to examine whether there is anything I could do to pull seniors out of their shell. I have therefore decided to focus my research on Mental Health Promoting Senior Living Environments.

This research can be interesting for architects, who would like to create more empathetic and human-centered dwellings. In addition it could be useful for architects, tasked with designing senior living environments. Finally this research can be interesting for people who our concerned about the effects of our (built) evironment on our mental health.

I would like to thank my research supervisor Frederique van Andel and my design tutor Birgit Jürgenhake, who have helped to make this research more academic and consistent. I would also like to thank the residents of LivInn retirement home for their hospitality during my fieldwork experience. Additionally I would like to thank Peter Boerenfijn and Carola van den Berg from Habion for organizing this fieldwork experience. Finally I would like to thank my boyfriend and fellow students for providing emotional support and inspiration in the studio.

Nadja Znamenskaya. Delft, 2023.

Abstract

Keywords: *senior living environments, mental health, late life depression, evidence based design*

Late life depression is a common problem among seniors. It is estimated that up to 25% of people over 75 experience depression. The consequences are not limited to a having a worse mental state, but include a variety of physical comorbidities. Therefore countering late life depression will not only help the individual, but it will also reduce pressure on the healthcare system.

Depression should be treated with medication and psychotherapy, but since many seniors spend the majority of their day at home, their moods will be affected by their living environments. Currently senior housing typologies are notorious for being somber and institutional. Therefore this thesis aims to establish *which design factors can contribute to the alleviation of late life depression in senior living environments?*

The factors have been derived through an interdisciplinary approach; findings from a literature review of Evidence Based Design were combined with psychiatric perspectives on late life depression. Finally housing preferences of Dutch seniors were considered, since meeting their needs might contribute to feelings of life satisfaction. In order to illustrate how these design factors could be implemented in architectural design, case studies have been performed of state-of-the-art psychiatric hospitals and retirement homes.

From these methods eighteen mental health-promoting Design Factors have been derived. These Design Factors can be categorized into three groups:
1) Environmental Design Factors include: *Central Location, Views of Nature, (Morning) Light, Noise and Air Quality.*
2) Building Design Factors are comprised of: *Social Spaces, Intergenerational Relationships, Physical Activity, Dementia Spaces, Positive Distractions, Staff Spaces, Appropriate Size, Outdoor Spaces and Home Ownership.*
3) Finishing Factors include: *Accessibility, Privacy, Control and Homelike Environment.*

Integrating these factors into the designs of senior living environments might contribute to the prevention or alleviation of late life depression.

01 Introduction

Background

Aging can be a difficult process for many people. As a person grows older, they lose strength and mobility, they are more prone to various chronic diseases, which leads to a life with less opportunities and more disabilities. In addition older people are more likely to lose close friends and relatives, leaving them grieving and alone. Finally existential questions become more common, as their life becomes increasingly difficult and loses its meaning. Rhebergen, 2022).

As a result it is estimated that between 18 and 25 % of people aged over 75 are depressed, two thirds of the people over 80 are lonely and the same group is also most likely to commit suicide (CBS, 2021; CBS, 2022[1]).

This number is likely to be even bigger, because depressive symptoms in the elderly are often overlooked or attributed to other physical ailments (Vink et al., 2008; Boorsma et al., 2012).

Preventing and countering depression among the elderly would not only improve quality of life from a mental perspective, it could also prevent numerous comorbidities and alleviate symptoms for other unrelated illnesses (Kramer et al., 2009).

Currently the Dutch healthcare system is seriously understaffed and around 50% of health workers report being under too much work-related pressure (CBS, 2022 [2]). As a result a growing number of health workers quits their job, which in turn increases work-related stress for their former colleagues (NOS, 2021).

Since the elderly are a growing demographic, more geriatric care will be necessary in the coming years. Thus combating late life depression and its comorbidities would also alleviate the work-related pressure experienced by healthcare professionals.

Problem Statement

The topic of late life depression healing and prevention is mainly focused, and rightly so, on psychotherapy and medication. Yet since retired seniors spend a large part of their day at home (or in residential care institutions), it is a plausible assumption that they are greatly affected by the spatial qualities of their living environments. Additionally the presence or absence of certain spaces might influence occupation and degree of communication with neighbors, which will ultimately influence one's mental state.

Senior housing typologies are notorious for being depressing places; for many people they form the symbolic threshold before one's death. (Spangenberg & Jobsen, 2016) In addition many senior care facilities were built around the 1960's, when functionality, hygiene and efficiency were prioritized over comfort and quality of life. This results in outdated, anonymous and unattractive living environments (Brekelmans, 2013). It is therefore not surprising that 55% of respondents between 55 and 70 years old have reported agreeing with the statement: "I would prefer dying over going to a nursing home". (Spangenberg & Jobsen, 2016) This disdain or fear of nursing homes is perhaps one of the reasons why seniors are the demographic that is least likely to relocate. (De Jong et al., 2012)

It is therefore important to investigate **how senior living environments can be designed to inspire its residents and promote their mental health**, rather than lower their moods and remind them of their imminent death.

This theme is closely related to the field of Evidence Based Design, which investigates how hospitals can be designed to improve patient outcomes (Ulrich et al., 2010). The main difference is however that a hospital patients are temporary visitors, while seniors reside in their homes permanently. They therefore have a greater degree of ownership and have different requirements for their living environments.

Research Goals

The goal of this research is to **reduce the prevalence and severity of depression among seniors**.

To achieve this goal, I will inform architects how to make design decisions which result in mental health promoting senior living environments.

Architects should make these decisions based on a list of Design Factors, which affect mental health outcomes of seniors. These Factors will be discovered and formulated in this research.

Research Question

Therefore the research question for this thesis will be:

Which Design Factors can contribute to the prevention or alleviation of late life depression in senior living environments?

To answer this question, the following sub-questions will be addressed:

1) Which mood-lifting Design Factors can be derived from the field of Evidence Based Design?

2) How are these factors translated into design decisions in state-of-the-art psychiatric facilities?

3) Which mood-lifting Design Factors can be derived from the field of late life depression?

4) Which mood-lifting Design Factors can be derived from studying senior housing preferences and practices?

5) How are these factors translated into design decisions in state-of-the-art retirement homes?

Hypothesis

My hypothesis is that since the elderly spend most of their time at home, their living environments will influence their mental wellbeing.

For example, a senior with a walker might feel more empowered in a barrier-free space, they might experience less anxiety if they reside in close proximity to a nurse or they might be less lonely in a dwelling with communal amenities. Collectively these interventions might counter some of the causes of depression or alleviate its symptoms.

Theoretical Framework

The theoretical framework for this research can be divided into three domains: Late Life Depression, Evidence Based Design and Senior Housing Preferences. Each of these domains corresponds to one of the sub-questions. This paragraph will explain how the domains relate to the research questions and will introduce the main sources that have been used in this research.

Since the main goal of this research is to combat **Late Life Depression**, it is important to understand its causes and treatment strategies. Vink et al. (2008) have reviewed various studies, focusing on senior depression risk factors. Among these risk factors strongest associations were found for: chronic diseases, poor self-perceived health and functional disability.

Alexopoulos (2005) states in his literature review *Depression in the Elderly* that self-actualization plays a vital role in depression prevention. This self-actualization could be aided by various occupational therapies and better community integration. Architecture could facilitate and stimulate these various prevention strategies.

Nevertheless once depression has been diagnosed, the combination of antidepressants and psychotherapy is the preferred practice. These practices can either be more or less effective, depending on the spatial qualities of the rooms that they are conducted in.

In order to understand how these spatial qualities influence the wellbeing of the elderly, it is important to study **Evidence Based Design (EBD)**, which is a healthcare design philosophy that promotes decision-making, aimed at scientifically proven positive outcomes for its users.

The main principles of EBD are explained by Ulrich et al. (2010) in *A Conceptual Framework for the Domain of Evidence Based Design.* The framework encompasses nine design factors: audio and visual environment; safety; wayfinding, sustainability; patient room; family, staff and physician support spaces.

There are many more studies concerning EBD in healthcare spaces, like Exploring the concept of healing spaces, by DuBose et al. (2018), who establish six different design variables: homelike environment, access to views and nature, light, noise control, barrier-free environment and room layout. To create a more complete understanding of how people might be influenced by their environment, it is important to read a range of different frameworks and compare them to each other.

The findings of EBD could be implemented in the design of senior living environments. However since EBD is aimed at designing healthcare facilities and not permanent homes, there will be other design requirements, which might have been overlooked in EBD. Earlier in this chapter it has been established that seniors are skeptical of senior housing typologies and are unlikely to relocate. Therefore if they are forced to relocate, they might end up in a place that doesn't meet their needs, which hampers wellbeing. It is therefore important to study **Housing Preferences** of Dutch seniors to establish which design factors will make them satisfied homeowners.

De Jong et al. (2012) have mapped housing preferences for Dutch adults, older than 55 years. The study also performs meta analyses based on different age groups within this demographic and based on psycho-social personality traits. Ossokina & Arentze (2020) use big data and stated choice experiments to ascertain which factors stimulate seniors to relocate and which preferences this group has for their future dwelling.

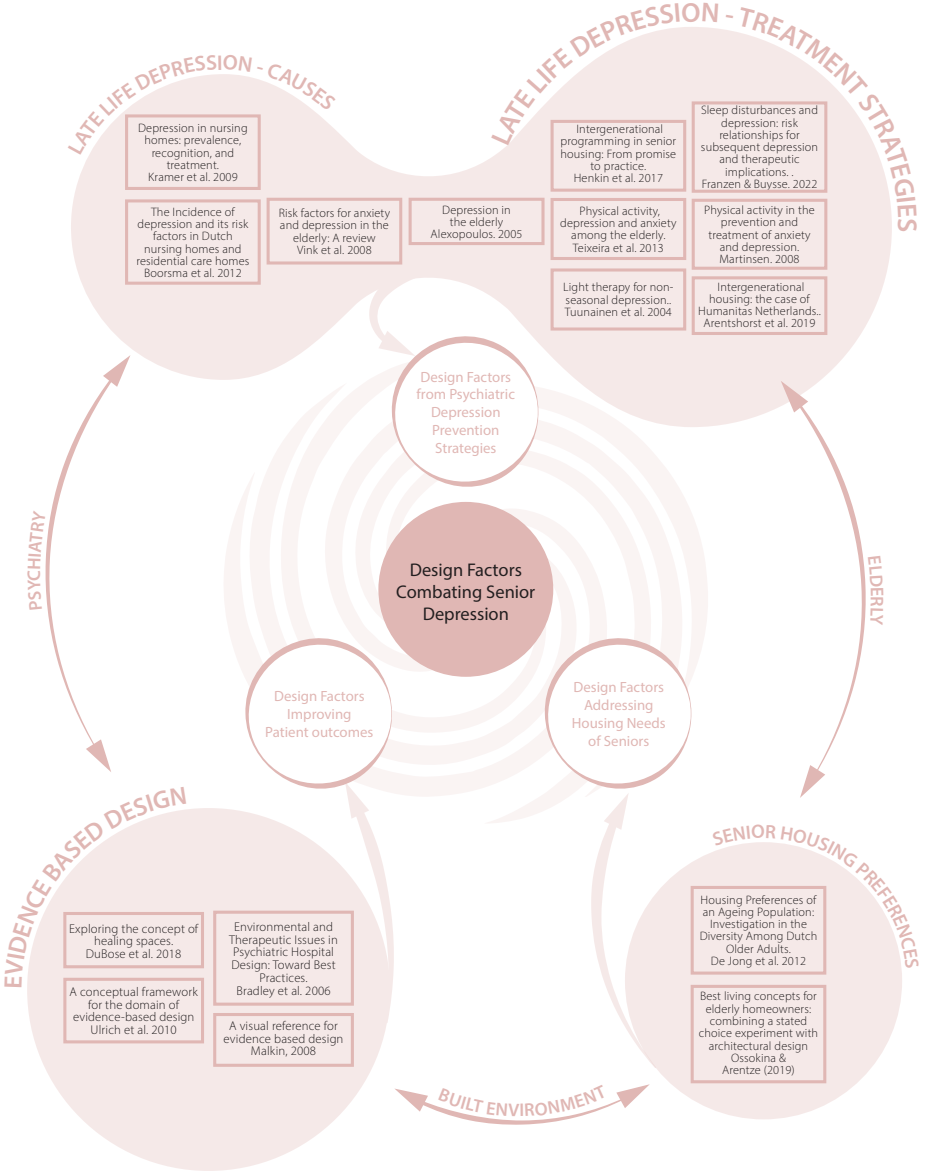


Figure 1 - Diagram of theoretical framework, by author

Methods

The main strategy for answering the research question
Which Design Factors can contribute to the prevention or alleviation of late life depression in senior living environments?
will first be gathering Design Factors from the three domains mentioned in the previous part. In order to illustrate how these Factors can be integrated into architectural design, various case studies of state-of-the art projects will be performed.

This main strategy leads to the five subquestions mentioned earlier. Below the methods will be provided for each subquestion:

1) Which mood-lifting Design Factors can be derived from the field of Evidence Based Design?
I will compare four different papers on EBD and distill from them the factors that relate to mental health for the senior demographic.

2) How are these factors translated into design decisions in state-of-the-art psychiatric facilities?
Three cases studies of state-of-the-art psychiatric facilities will be performed. In these case studies special attention will be paid to the implementation of previously established Design Factors.

3) Which mood-lifting Design Factors can be derived from the field of late life depression?
Interviews about late life depression prevention and treatment strategies will be conducted with two geriatric specialists. The results of the interviews will be tested against findings in literature on late life depression. The most important findings of the interviews will be translated into Design Factors.

4) Which mood-lifting Design Factors can be derived from studying senior housing preferences and practices?
A literature study will provide insights into housing preferences of the elderly. These preferences will then be adapted into Design Factors. In addition observations from a fieldwork in a retirement home will provide insight into the housing practices of seniors. Conclusions from this fieldwork will help bring previously established Design Factors into empirical perspective.

5) How are these factors translated into design decisions in state-of-the-art retirement homes?
Three cases studies of state-of-the-art retirement homes will be performed. In these case studies special attention will be paid to the implementation of the established Design Factors.

Finally I will present a complete overview of mood-lifting Design Factors with examples of design implementations derived from case studies and my personal design proposal for a retirement home.

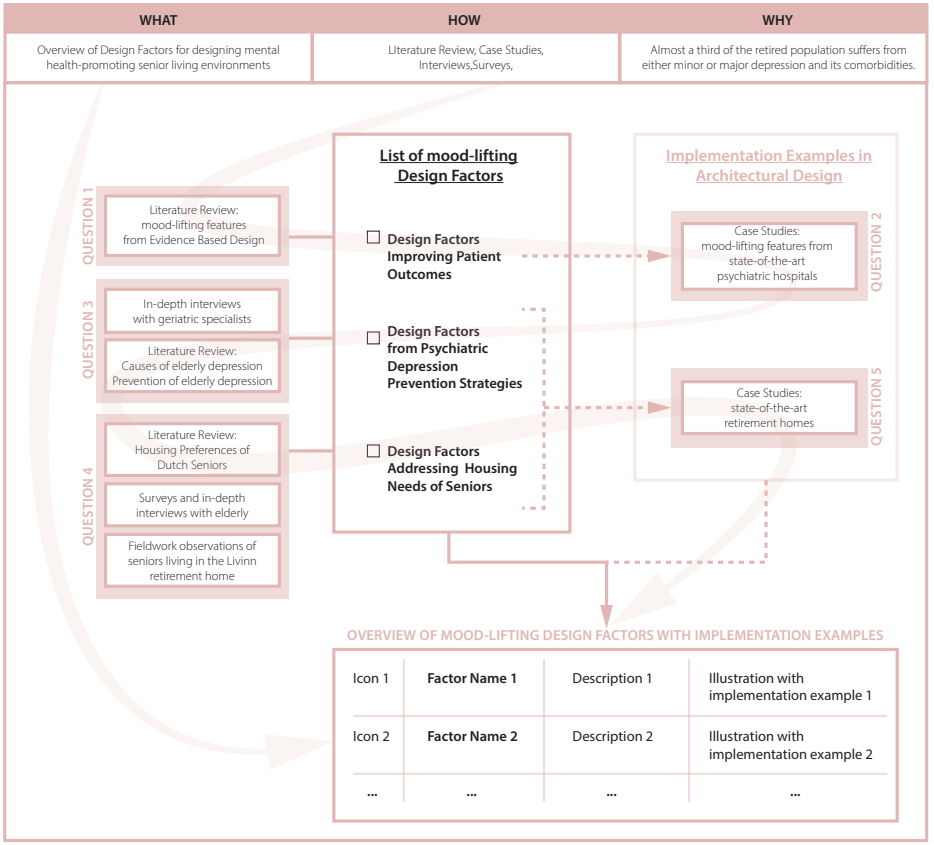


Figure 2 - Research Diagram, by author

02 Learning from Evidence Based Design

In this chapter I will study the present findings in the field of Evidence Based Design (EBD).
Even though EBD is a widely accepted design philosophy, there is no universally accepted list of Design Factors, which influence patient health outcomes. Instead many authors formulate their own list of Factors, based on their own expertise or research findings.
Therefore in order to create a more complete overview of Design Factors that improve patient outcomes, I will compare four different studies.

The choice of studies to be compared will be based on the following criteria:

- Must offer a complete list of Design Factors, rather than focusing on the effectiveness of a single Factor
- Must offer a unique perspective, rather than copying a previous author's framework
- Must be written after 2000, to avoid any outdated findings

Based on these criteria, the following studies were selected:
1) "A Conceptual Framework for the Domain of Evidence-Based Design" - Ulrich et al., 2010

2) "Environmental and Therapeutic Issues in Psychiatric Hospital Design" - Bradley et al. 2006

3) "Exploring the Concept of Healing Spaces" - DuBose et al. 2016

4) "A visual reference for Evidence Based Design" - Malkin, 2008

From this comparison eleven Design Factors have been distilled, which will be used in he rest of this research. The concluding part of this chapter will propose an application hierarchy for these factors.

Ulrich et al. 2010

A good starting point for understanding Evidence Based Design is Ulrich et al.'s "A Conceptual Framework for the Domain of Evidence-Based Design" (2010). Even though it is not the first study on Evidence Based Design, it is foundational for many future authors, who use its proposed framework and list of Design Factors.

There are nine categories in these Design Factors:

1) The *Audio Environment* focuses mostly on the prevention of noise-related nuisance.

2) The *Visual Environment* focuses on sufficient daylight and visual stimulation.

3) Safety Enhancement relates to both anxiety prevention due to perceived safety and actual prevention of contagious diseases.

4) Wayfinding System influences how fast a person feels at ease, due to knowing how to get around the healthcare facility.

5) *Sustainability* is not a factor that directly impacts patients health, but is mentioned nonetheless since it influences hospital management and organization.

6) *Patient Room* is a factor which highlights the importance of privacy, control and autonomy.

7) *Family Support Spaces* should be appropriately designed, to reduce anxiety and stimulate quality social interactions.

8 & 9) Good *Physician and Staff Support Spaces* will improve employee effectiveness and satisfaction, which will ultimately benefit the patients too.

Figure 4 provides an overview of these categories. We can see that most of these features are aimed at removing physical threats and nuisances, while relieving of stress and anxiety.

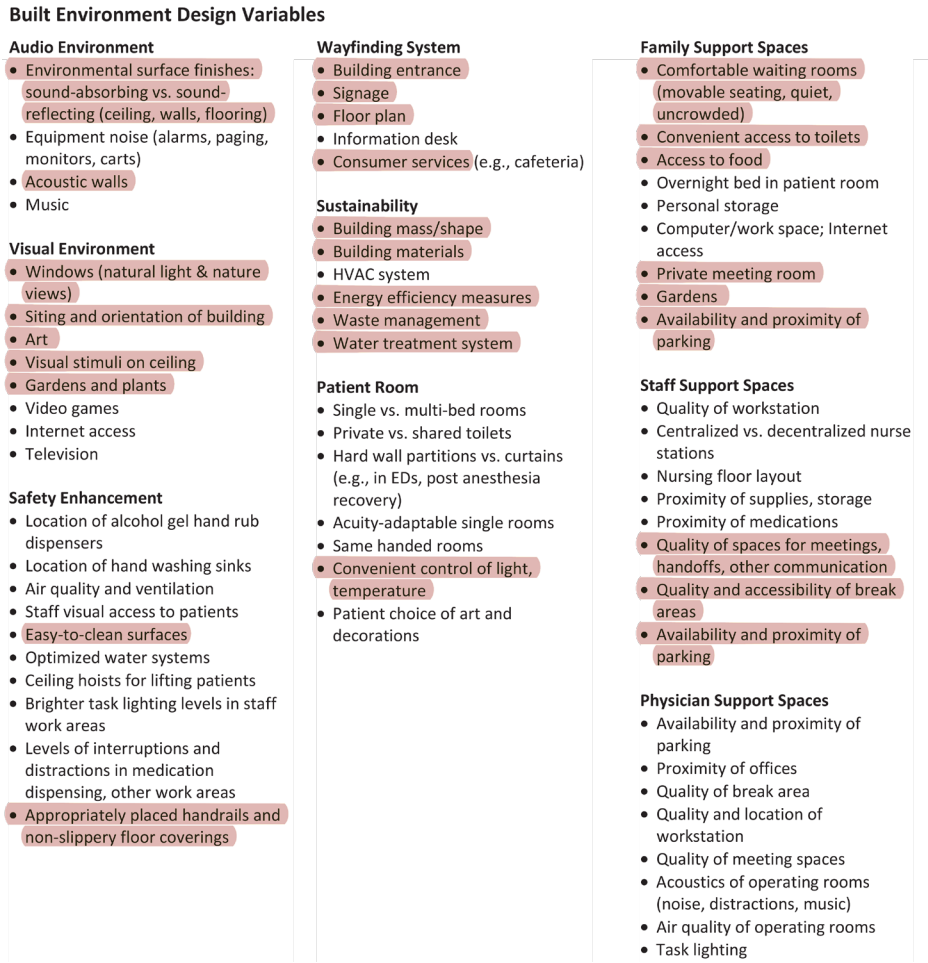


Figure 4 - Design Factors (Ulrich et al. use the term Design Variables) that improve patient outcomes. The variables relevant for the design of senior living environments are highlighted. Ulrich et al., 2010.

Bradley et al. 2006

A study that focuses more on mental wellbeing, rather than physical state of the patient, is Bradley et al.'s "Environmental and Therapeutic Issues in Psychiatric Hospital Design" (2006). The authors distinguish between five broad categories of environmental factors that influence the outcomes of psychiatric patients (see figure 5):

Ambient Factors, which focus on the qualities of daylight and nuisance that can be caused by unpleasant noises and smells.

Another category is *Architectural Factors*, which focuses on programmatic recommendations and permanent spatial aspects of various rooms. The authors emphasize the importance of large windows to promote a connection with the outdoors. They also discourage the use of long corridors or other large undefined spaces, where one might feel lost and anonymous.

Interior Design Factors is related to less permanent spatial aspects, like color palette and furnishing. These factors ought to be tuned to create a soothing, homelike atmosphere, where one feels at ease, in control and normal.

Social Factors focuses on the level of control that patients can express in terms of social interactions. They should be encouraged, but not pressured into interacting with neighbors and staff, always maintaining the possibility to retreat into their private quarters.

The last category *Specific Factors* addresses the question of open vs closed nursing stations and provides recommendations for designing specialized wards, for people with dementia symptoms.

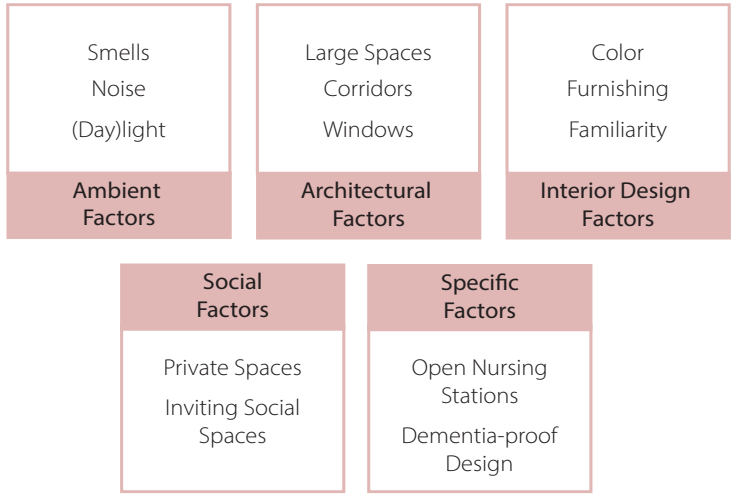


Figure 5 - Bradley et al.'s five categories of environmental parameters that influence patient outcomes, by author

DuBose et al. 2016

A more recent study is DuBose et al.'s "Exploring the Concept of Healing Spaces" (2016). The terms *Healing Space or Environment* are often used interchangeably with EBD, however due to semantic differences these terms are slightly less scientific and tend to focus more on mental wellbeing.

DuBose et al.'s study therefore focuses on examining which EBD strategies can contribute to the more holistic goal of "Healing" over pure physical "Curing".
However since "Healing" is not a single measurable event, DuBose et al. first break down "Healing" into four comprehensive components: *psychological healing*, which focuses on managing emotional responses; *self efficacy*, which involves developing agency and adaptability; *social healing*, where an individual learns to establish and maintain relationships and *functional healing*, where one learns to perform daily activities safely and independently.

Each of these forms of healing has certain metrics, like "level of anxiety" or "sense of dignity", which can be tested against certain Design Factors. Figure 6 shows the connections between these factors and healing components.

The figure shows that the main Design Factors that contribute to healing are *Home-like Environment*, which makes the person feel comfortable, safe and in control; *Access to View and Nature,* which alleviate anxiety and pain; *Light and Noise Control*, which reduce stress; *Barrier-Free Environment,* which greatly contributes to self-efficacy and functioning; and finally *Room Layout*, which balances the patients desire for social contact with possible nuisance from other patients.

The authors specifically left out factors that influence physical curing, since it has already been thoroughly examined by previous authors like Ulrich et al. (2010).

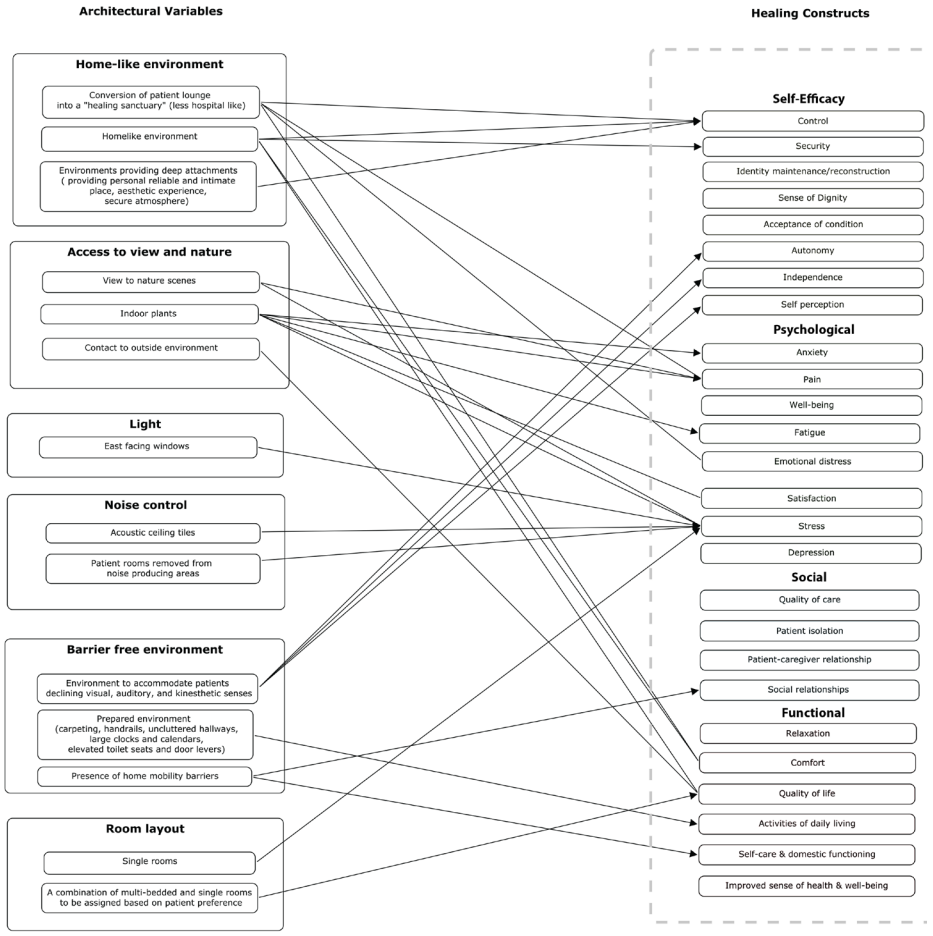


Figure 6 - Relationship between Design Factors (DuBose et al. use the term Architectural Variables) and healing constructs.DuBose et al., 2016

Malkin 2008

The final study is “A visual Reference for Evidence Based Design” by Malkin (2008).
The unique philosophy of the book is that to a patient a hospital is a threatening environment, where one arrives in a weakened state and often feels out-of-control. The real risk of catching hospital-dwelling viruses only contributes to the general anxiety that patients might feel about healthcare settings.

The main strategy to counter this anxiety should therefore be the empowerment of the patient, through the presence of *Choice* and *Privacy*. Also the promotion of communication between staff and patients is vital. The patients should get the feeling that they are not in a frigid institution, but in a empathetic space, where their opinions are taken into account. Therefore an *Easy-to-Navigate*, *Homelike* and customizable environment would already help make a person feel at ease.

In addition the focus of the patient should be shifted to experiencing life, rather than fixating on pain. This focus can be achieved by facilitating visits of *Family and Friends*, establishing a mindful connection with the *Natural Environment* through windows and gardens, but also by providing *Positive Distractions*, like uncontroversial Art and TV.

To conclude the patients should view the hospital as a space that is fit to accommodate the importance of life-changing events. Giving birth, passing away, chemotherapy are very significant events, which should be experienced in an *Appropriate Atmosphere*.

Finally since the staff play such an important role both in the physiological and psychological state of the patient, they too should have a supportive and *Healthy Working Environment.*

Study comparison

On figure 7 on the next page an overview can be seen of the Design Factors from the different sources. Factors that play a prominent role in senior living environments are highlighted, while factors that are specific to hospitals are left blank. Similar Factors are placed in line with each other and the last column contains the terms, which will be used in this research.

One could say that almost all factors can relate to senior living environments, although perhaps for different reasons. For example air quality is an important factor not because of aggressive hospital cleaning agents, but because of possible smells of urinary incontinence. Similarly the factor Light is not necessarily important from the perspective of reduced staff errors, but more from the perspective of creating pleasant brightly lit spaces.

One important factor that is not highlighted is Way-Finding. This factor is omitted since a hospital generally has a large variety of functions and departments compared to a residential building. Therefore wayfinding might be less of a problem in a senior living environment.

Study comparison

Name Article	A conceptual Framework for Evidence-Based Design	Environmental and Therapeutic Issues in Psychiatric Hospital Design	Exploring the Concept of Healing Spaces	A visual reference for evidence based design	
Author	Ulrich et al.	Bradley et al.	DuBose et al.	Malkin J.	
Year	2010	2006	2016	2008	
Factors	Audio Environment	Noise	Noise Control		**Noise**
	Visual Environment	Views	Access to Nature/Views	Natural Environment	**Views of Nature**
	Safety Enhancement	Air Quality			**Air Quality**
	Wayfinding System	Functional Placement		Easy-to-Navigate	
	Family Support Spaces	Social Spaces		Friends and Family	**Social Spaces**
	Staff Support Spaces	Staff Support Spaces		Working Environment	**Staff Spaces**
	Patient Room		Room Layout	Choice	**Control**
	Sustainability				
		Lighting	Visual Comfort		**Light**
		Privacy		Privacy	**Privacy**
		Homelike Environment	Homelike Environment	Homelike Environment	**Homelike Environment**
		Artwork		Positive Distractions	**Positive Distractions**
		Color			
		Indoor Plants			
			Barrier-Free Spaces		**Accessibility**
				Appropriate Atmosphere	

Figure 7 - Comparison of studies that list environmental factors, which influence patient outcomes in healthcare settings. The variables relevant for the design of senior living environments are highlighted. Last column shows the terms that will be used in this research. by author

Design Factors

There are eleven factors that can be adapted from Evidence Based Design. Figure 9 displays these factors, categorized into three groups:

Environmental Factors focus on shaping the elements present in the physical environment, like light, noise and air.
Building Factors consider which spaces ought to be present in the building and what qualities they should have.
Finishing factors then consider the detailing and finishing of various spaces to achieve certain goals.

This categorization helps to limit the number of factors at the first stages of the design. Environmental Factors are to be considered first during site analyses and massing studies, while Building Factors will then help inform the project brief, finally the Finishing Factors become more important in later stages of the design (see figure 8).

In the next chapter implementation examples will be provided to illustrate how these factors are incorporated in architectural design.

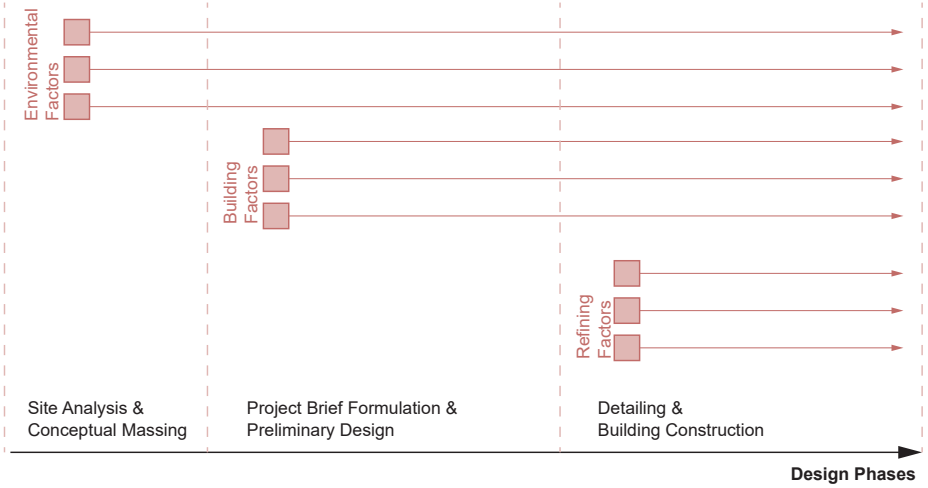


Figure 8 - Design timeline, showing the temporal hierarchy at which different factor groups should be considered, by author.

Environmental Factors

Light *Appropriate lighting results in more pleasant and comfortable spaces.*

Views of Nature *Viewing nature decreases stress and pain.*

Air Quality *Smells of urinary incontinence are not only unpleasant, they can invoke feelings of shame.*

Noise *Being involuntarily exposed to sounds that form a nuisance can cause stress and irritability.*

Building Factors

Social Spaces *Social interactions have a positive effect on our wellbeing and should therefore be accommodated.*

Staff Spaces *Providing staff with healthy break rooms will increase their efficiency and will benefit seniors in need of care.*

Positive Distractions *Uncontroversial art or TV can form a healthy distraction from age-related problems.*

Finishing Factors

Accessibility *Creating an accessible space will empower disabled seniors to be as self-sufficient as possible.*

Control *Moving to a senior living environment can be associated with a lack of autonomy. Providing choices will increase their sense of agency.*

Homelike Environment *Senior living environments can often feel institutional. Creating a homelike environment will normalize their situation.*

Privacy *Seniors don't like sharing their weaknesses and diseases with strangers. Providing privacy protects their dignity.*

Figure 9 - Overview of Factors from Evidence Based Design, by author.

03 Learning from state-of the-art psychiatric facilities

This chapter will illustrate how the mood-lifting Design Factors, introduced in the previous chapter, can be integrated in architectural design.

For that purpose three case-studies of state-of-the-art psychiatric hospitals will be performed. Psychiatric Hospitals have been chosen, since one of the main purposes of these institutions is to improve mental health. Therefore these facilities are likely to have evidence-based mood lifting Factors integrated in their design.

The choice of psychiatric facilities to be analyzed will be based on the following criteria:

- must be built after 2015
- must be critically acclaimed
- information and plans should be available

Based on these criteria, the following projects were selected:

1) Vejle Psychiatric Hospital - 2017 - Arkitema Architects

2) Slagelse Psychiatric Hospital - 2015 - Karlsson Architects & VLA Architects

3) Psychiatric Hospitals Ballerup - 2016 - RUBOW Arkitekter

In each case study I will look for the Design Factors introduced in the previous chapter and I will analyze how they have been implemented. At the end of the chaptergeneralrecommendations will be made about architectural implementations of the Design Factors.

Figure 11 - Aerial View of Vejle Psychiatric Hospital, Image credits: Nature Impact, 2020.

Vejle Psychiatric Hospital

Figure 12 - Green Courtyard in Vejle Psychiatric Hospital. Nygaard, 2017.

Location:	Vejle, Denmark.
Year:	2017
Architect:	Arkitema Architects
Awards:	European Healthcare Design Award for Mental Health - 2018.
Area:	17000 m²

Vejle Psychiatric Hospital is a regional mental health hospital in Vejle, Denmark. It contains six residential blocks, outpatient therapy rooms, an ambulatory children's department, an emergency room and treatment spaces for ECT. Finally there are educational facilities for psychiatry students on the first floor.

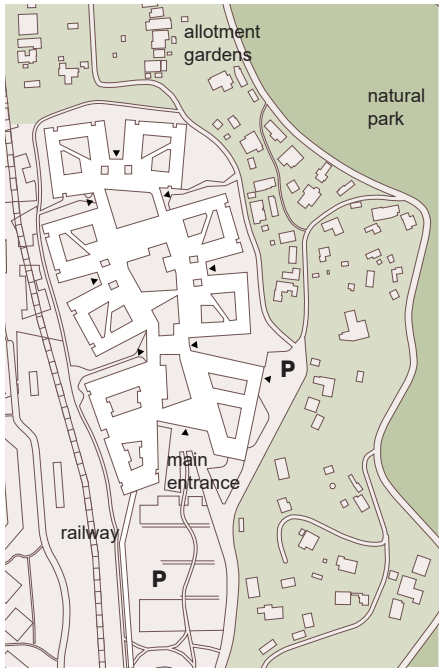


Figure 13 - Direct Environment of the hospital, by author

The building is surrounded by allotment gardens on one side and by greenery and a railway on the other side (see figure 13). The relationship with the allotment gardens is especially unique, because there is no fence separating the hospital from its surroundings. This is made possible, since the residents have no direct access to this area, but only go outside in the courtyards.

This way the patients can have clear, unobstructed ***views of*** everyday life in ***nature***,preventing the feeling of being locked up and enhancing the sense of ***control*** (see figure 14).

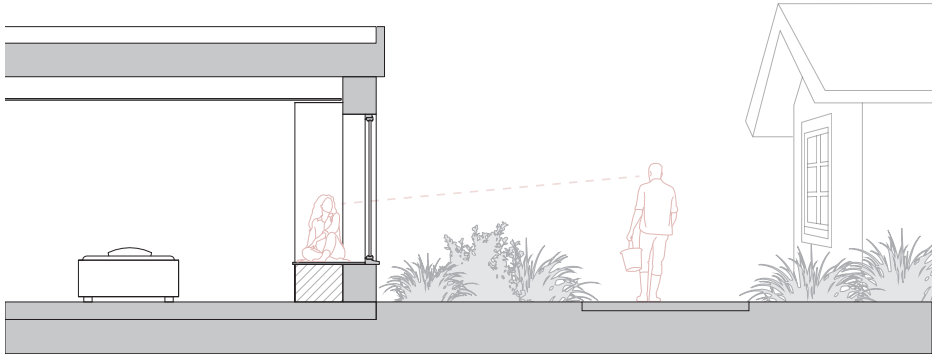


Figure 14 - Relationship of the hospital patients to the owners of the allotment gardens, by author

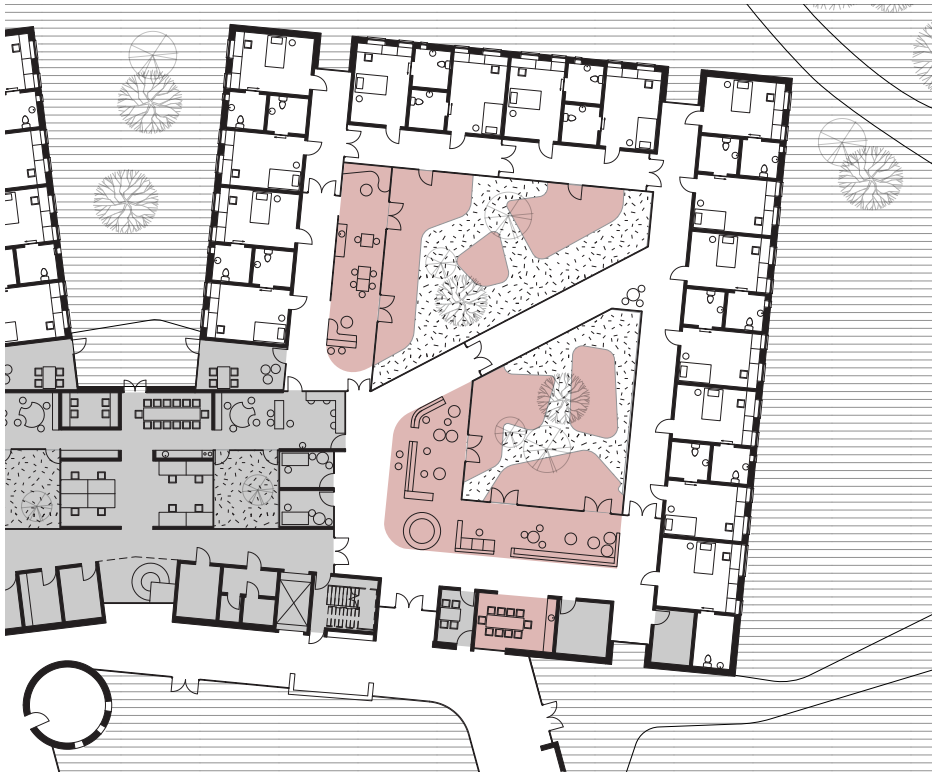


Figure 15 - Top: Floor plan of residential block with social spots, by author.

The patients are free to go into the garden courtyards without facing any fences or barriers. This way the residents are encouraged to spend more time in ***nature***, which benefits their overall mental health.

Each residential block has two courtyards with adjacent ***social spaces*** (see figure 15). These courtyards are centrally located in the block and thus are clearly visible and accessible. The bedrooms are roughly associated with either one of courtyards, but the patients are free to choose any of the two. This choice allows the patients to avoid potential conflicts, while preserving the possibility to go outside.

- Social Meeting Spots
- Staff and Technical Spaces
- Outdoor Green Spaces
- Territory Outside Hospital

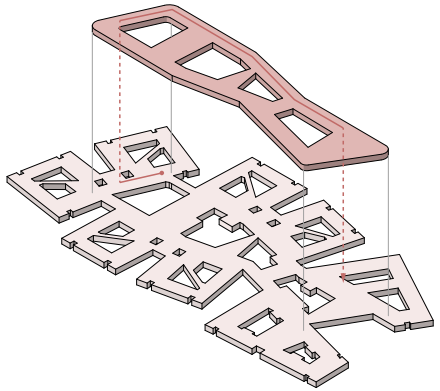


Figure 16 - Axonometric view of private route, by author

Besides educational and staff functions the first floor of the hospital serves as a private transportation ring for patients, which might need to be transferred from their residential block to a therapy room or ambulance. This way they are not seen by the public on the ground floor and their ***privacy*** and dignity are preserved (see figure 16).

In order to optimize the functioning of the hospital, the staff need to be well rested and happy. Therefore the ***staff spaces*** in the hospital are designed with equal care as the patient spaces.

For example they have their own courtyards, that introduce ***light*** and ***nature*** into their working spaces and a terrace on the first floor provides the opportunity to have lunch outside, without being observed by the patients (see figure 17). This allows the staff to take more meaningful breaks, since they can step out of their role of caregivers for a moment.

Figure 17 - Section of the staff block, with two courtyards and roof terrace.

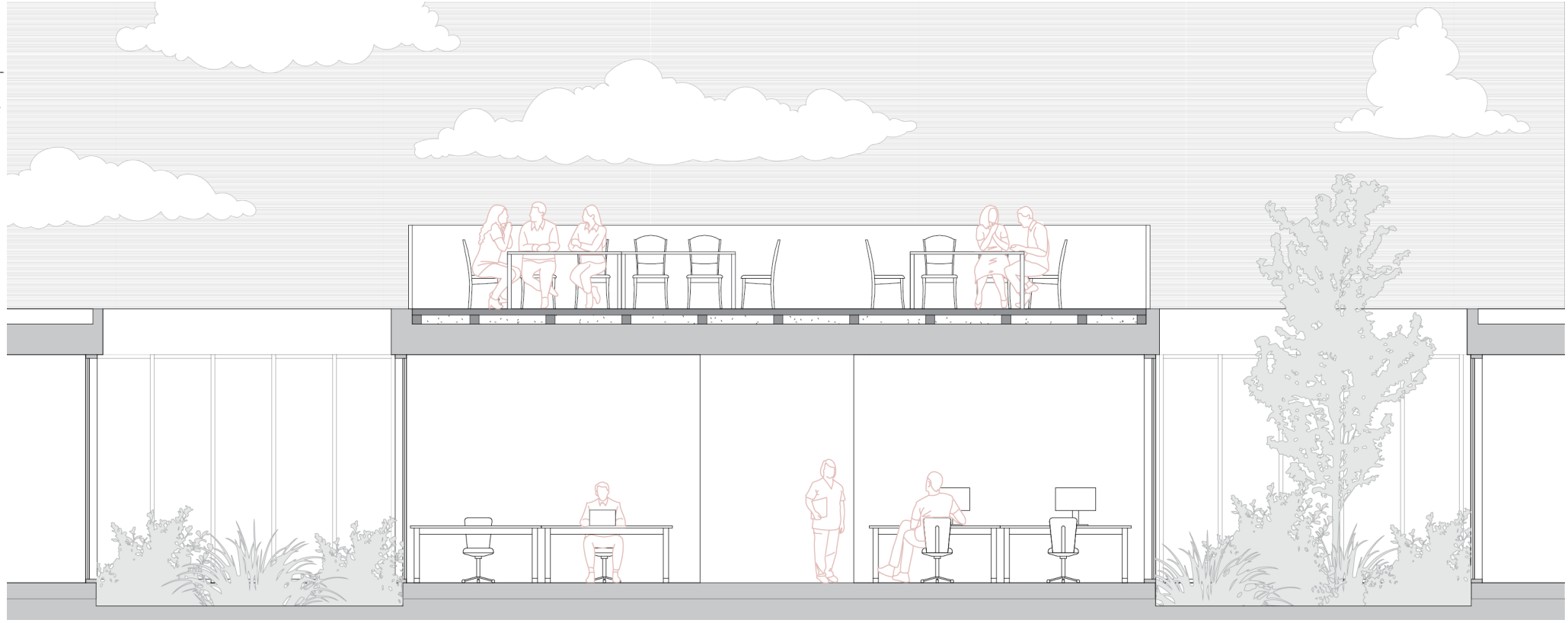


Figure 18 - Public walking paths around the Slagelse Psychiatric Hospital Image credits: Mortensen, 2016.

Slagelse Psychiatric Hospital

Figure 19 - Communal Courtyard in Vejle Psychiatric Hospital. Mortensen, 2016.

Location:	Slagelse, Denmark
Year:	2015
Architect:	Karlsson, VLA
Awards:	AR Healthcare Award, 2016
Area:	44000 m²

Slagelse Psychiatric Hospital is a psychiatric center in Slagelse, Denmark for both general, geriatric and forensic psychiatry as well as a high security asylum for the criminally insane. There are 12 residential blocks, outpatient care, emergency psychiatric services and hosts a knowledge and research center.

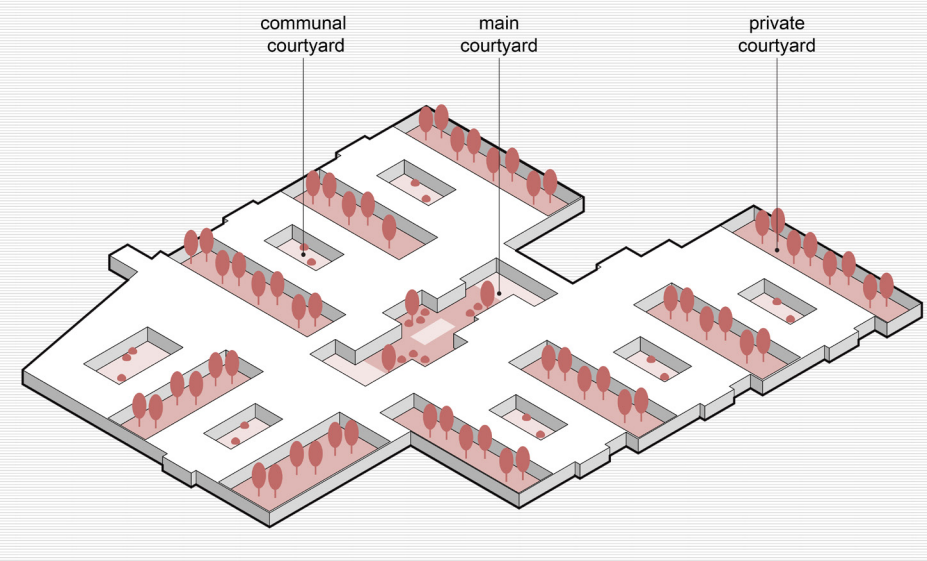


Figure 20 - Axonometric View of the general and geriatric department of the Slagelse Psychiatric Hospital, by author

A key element of Slagelse philosophy is utilizing the healing power of ***nature*** and ***daylight***. The hospital has over 50 courtyards, each being one of the following three categories: the private courtyard, the communal courtyard and the main courtyard (see figure 20).

The ***private*** courtyard is a less accessible overgrown garden, providing a ***natural view*** to all residents (see figure 21). *The communal courtyard* is a small courtyard in the center of each residential block. It serves as a ***social space*** to bring neighboring patients together. It is very accessible with concrete terraces and walking paths (figure 19). *The main courtyard* allows the patients from different blocks to convene in a central meeting spot, like a town square (see figure 22).

The different courtyard types reflect different amounts of stimuli that the patients are exposed to. Starting with the most quiet gardens and increasing towards the most socially challenging main courtyard, the patients can ***control*** the amount of social stimuli that they want to handle.

Figure 21 - Private Courtyard in Vejle Psychiatric Hospital. Mortensen, 2016.

Figure 22 - Main Courtyard in Vejle Psychiatric Hospital. Mortensen, 2016.

The stimuli gradient of the courtyards continues indoors: the most socially active and ***noisy*** spaces are located close to the main entrance and the main courtyard. The courtyard is surrounded by a wide corridor with various extroverted, public functions like swimming pool, gym and flexible social spaces.

Branching from this public corridor are the communal residential blocks, where a more intimate and friendly functions are like a large kitchen and reading nooks.

Finally the most introverted and quiet space is the bedroom, where patients can experience tranquility and ***privacy*** (see figure 23).

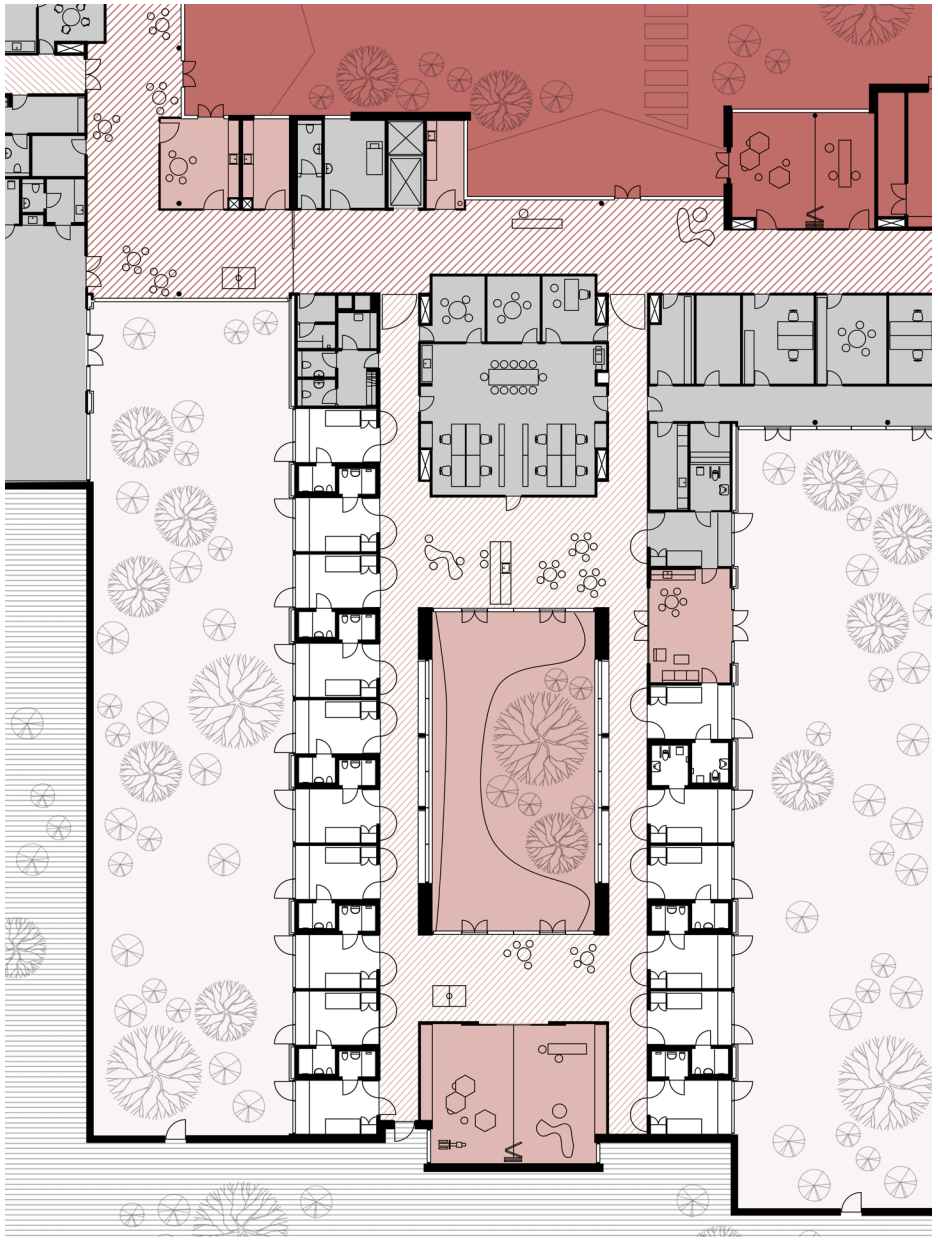


Figure 23 - Floor plan of a single residential block, with an indication of public and private low-stimuli spaces, by author

Figure 24 - Courtyard in Psychiatric Department of Eating Disorders. RUBOW Arkitekter, 2020.

Ballerup Department of Eating Disorders

Figure 25 - Corridor over water in Psychiatric Department of Eating Disorders RUBOW Arkitekter, 2020.

Location:	Ballerup, Denmark
Year:	2019
Architect:	RUBOW Arkitekter
Awards:	DGNB gold certification
Area:	5000 m²

The department of eating disorders at the Ballerup Psychiatric Campus is a small-scale project, that encompasses a conference hall and research center, a daytime clinic for outpatients and a residential block for 16 bedrooms with 24-hour care.

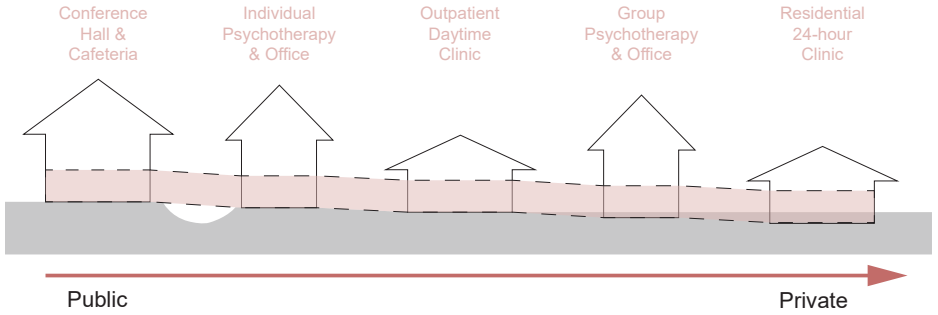


Figure 26 - Descending Corridor from Public to private functions, by author

The project consists of five building blocks, connected through a glass corridor. Each block contains its own specific function, starting with the most public and ***noisy*** conference function at the main entrance and ending with the most private and quiet residential function at the rear of the corridor.

In addition the corridor descends along with the natural terrain, placing the most public functions at the top, and embedding the private functions into the protective landscape. This hierarchy ensures the ***privacy*** of the most vulnerable patients and contributes to logical routing throughout the building, allowing patients to quickly understand their new environment (see figure 26).

In addition the corridor with floor-to-ceiling high windows provides panoramic ***views of nature***. The climate of Denmark can be quite rainy, windy and cold, especially for the weaker anorexic patients. However through the aquarium-like corridors, which constantly provide a different relationship to the ground, the patients can still experience the outdoors and are bathed in ***daylight*** (see figure 27).

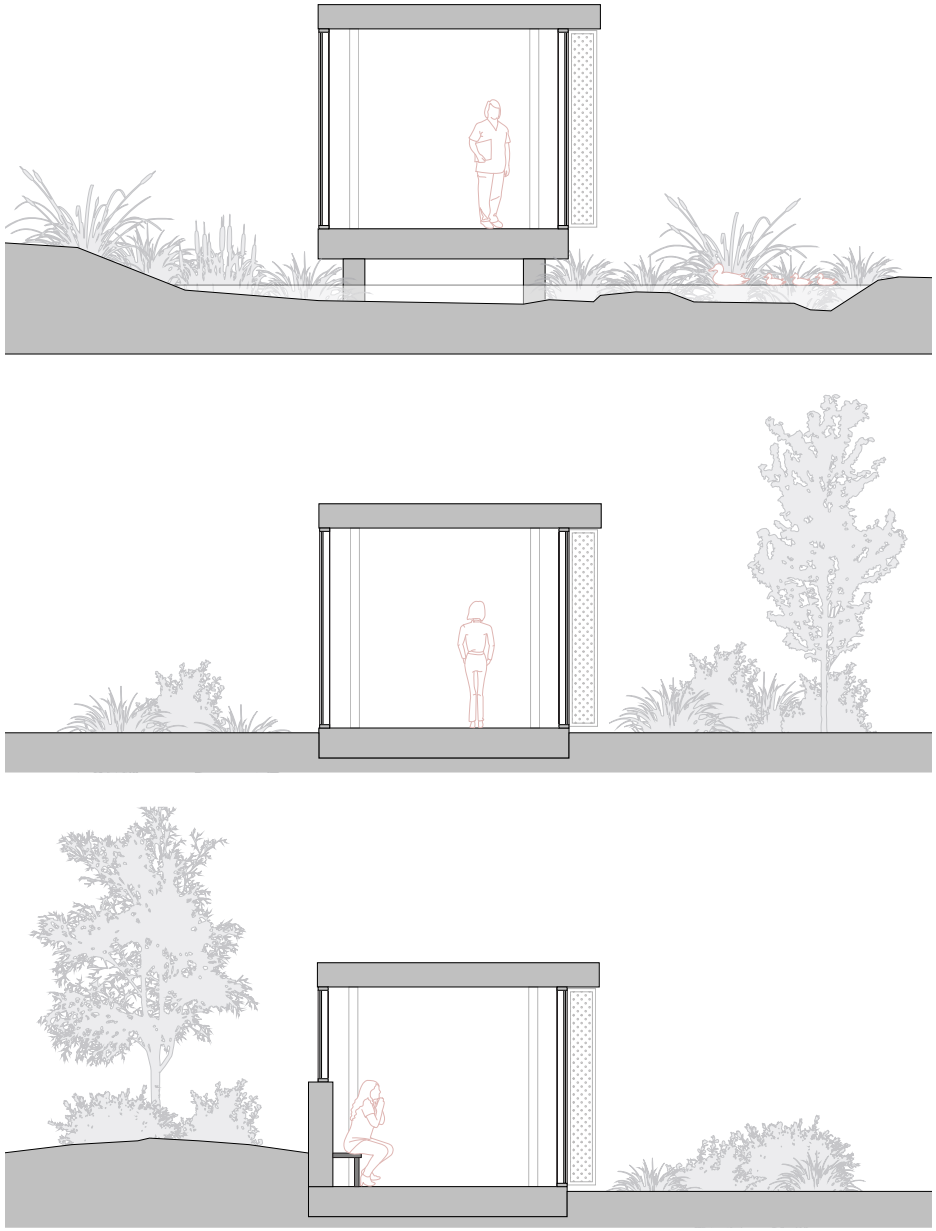


Figure 27 - Sections of corridor when it's above ground, at ground level and embedded into the terrain, by author.

Skylights are used throughout the building to bring in more ***light***. They are placed strategically at communal spaces, like the cafeteria, “hearth room“ or waiting room. This way patients are drawn towards ***social spaces*** where they can meet patients with similar problems, which would promote feelings of empathy and wellbeing.

The skylights also contribute to the wayfinding system. They are always placed at the corridor and thus mark the arrival into a new block (see figure 28).

The ceilings underneath the skylights are painted white and are shaped in such a way, to reflect a maximum of light into the public space. However at working stations the ceiling is lowered, to prevent glare on screens (see figure 29).

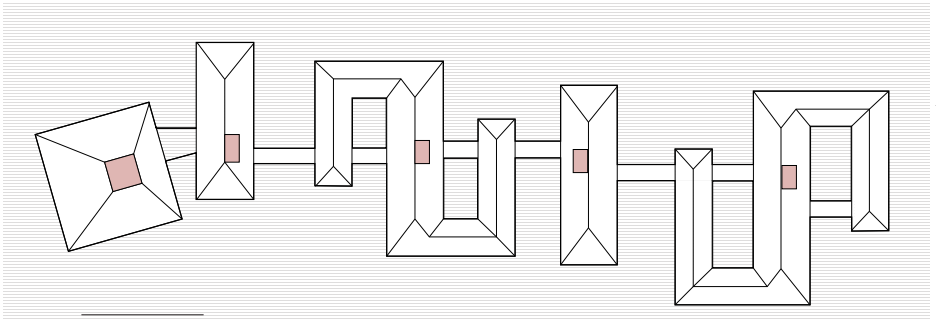


Figure 28 - Overview of skylights throughout the building, by author

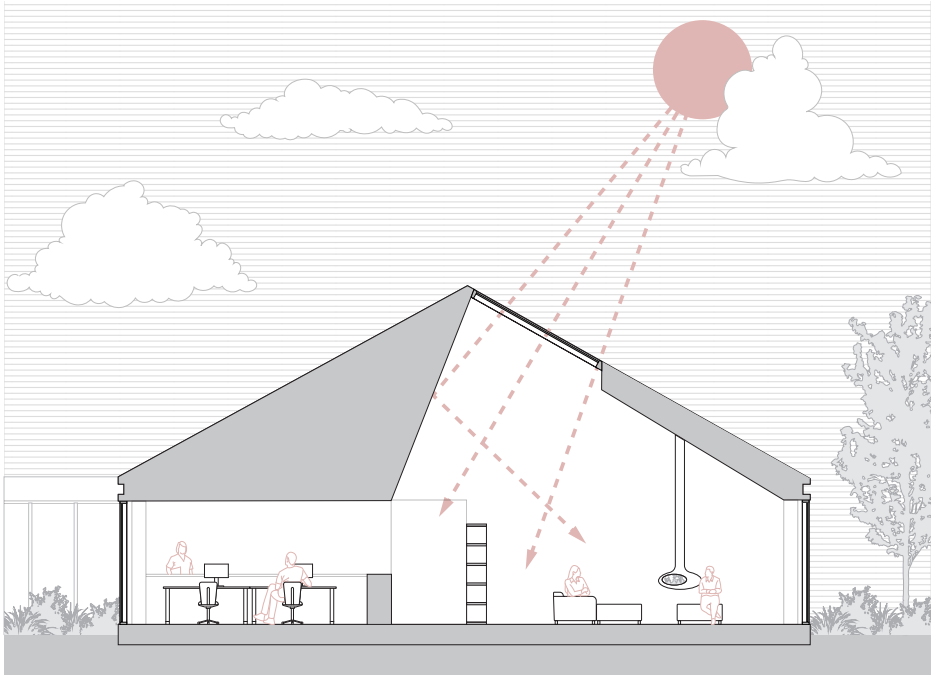


Figure 29 - Section depicting the skylight of the “ hearth room” in the residential block, by author

Conclusions for Design Factors

From the case studies we can learn that especially the factor **Light** is well integrated into all three designs: the buildings are not deep and have large windows in patient rooms, common rooms and corridors. Some designs implement skylights and patios to bring even more light into the center of a building.

Views of Nature are mostly integrated by creating courtyards with lushious gardens.

The courtyards also maintain the sense of **Control**, since patients have the freedom of going outside whenever they want. This feeling is enhanced by having multiple coutyards, so the residents have a choice in where they would like to go.

The centrally located courtyards also serve as **Social Spaces**, where patients can meet each other. During the colder months they can meet each other in the common rooms, which are adjacent to the courtyards. These common rooms are equipped with TVs and board games, which serve as **Positive Distractions** for the patients.

We can see that all three examples have similarities in Routing principles: the outpatient care is lacated closer to the main entrance, while inpatient clusters are located further away. This maintains the **Privacy** of the patients, but also keeps **Noise** levels down in the more secluded residential spaces.

Staff spaces are also located further away from the entrance, they have views of nature and are out of sight for the patients. This way the care staff can truly relax during a break, without interruptions from their patients.

Some of the examples attempted to create a **Homelike Environment** through the use of wood finishings and slanted roofs, however the uniform furniture and minimalist interior design really undermined this attempt.

Air Quality was not visibly addressed in the studied references, but most likely mechanical ventilation was used to provide ample fresh air.

04
Late Life Depression and Architecture

Even though we can learn a lot by studying psychiatric hospitals, understanding the risk factors and treatment strategies for late life depression can help formulate more targeted Design Factors for mental health promoting senior living environments.

In this chapter I will therefore discuss these risk factors and treatment strategies, based on interviews with two specialists: a geriatric nurse and an elderly psychologist.
To prevent anecdotal evidence, I will then test their statements against current findings in literature on late life depression.

I will conclude by expanding the list of Design Factors, described in chapter 2 with Factors stemming from late life depression prevention strategies.

Interviews with Geriatric Specialists

In order to learn more about late life depression I have interviewed two specialists in the field; a geriatric nurse and a geriatric psychologist. A full transcription of the interviews can be found in the appendix, while here only a few key takeaways will be presented. These takeaways will be tested against present literature findings.

The statements from the geriatric specialists will be presented in cursive, while supporting literature is presented in regular font.

Disability and Accessibility
An important aspect that was stressed by both specialists was the fact that depression often stems from recently acquired disability or chronic disease. Many individuals feel frustrated and experience body dysmorphia, because they can no longer perform basic tasks independently and see themselves as a burden.

This claim is supported by Vink et al. (2008) who have established that the primary risk factors for late life depression include: chronic disease, poor self-perceived health and functional disability.

Therefore making spaces accessible and usable for all users is vital for empowerment of these individuals.

Purpose and Social Integration
The aforementioned feelings of body dysmorphia can contribute to already present existentialist concerns. Many individuals, even the ones who are still capable of performing daily tasks, struggle to find meaning in life after retirement. They feel like they are no longer "useful" and often lack "drive", since they feel like their productive life is over.

Social isolation is another issue. After moving into a nursing home or other type of senior housing, many people struggle with establishing new social bonds. This could be attributed to established cliques, which tend to exclude and even bully newcomers. As a result loneliness is a very common problem and can ultimately lead to depression.

The specialists both proposed establishing multiple small common spaces, so residents can avoid conflicts and choose nonthreatening groups. Another solution is introducing a more diverse population; the elderly tend to be more harsh when they are in their own age-group, so when different ages are present, they might act more politely.

Alexopoulos (2005) also emphasizes the importance of having purpose; he claims that besides psycho-education and post-injury psychotherapy, self-actualization is a key strategy for depression prevention.

Self-actualization can not be solved by architectural interventions alone. However according to various studies (Even-Zohar, 2022; Arentshorst et al., 2019) intergenerational relations can significantly contribute to the feeling of purpose in elderly. Especially reciprocal activities, where both generations help each other, can help the elderly to feel needed (Henkin et al., 2017). These experiences help locate their strengths and greatly contribute to their self esteem.
These intergenerational relations can be strengthened by the built environment through the design of intergenerational housing or by placing youth functions, like playgrounds and libraries in close proximity to senior residences.

Physical Activity
Physical activity can be especially beneficial for people struggling with mental health problems. Sports, just like any other achievement, provide us with endorphins, which will boost our mental state and improve sleep.

The relation between physical activity and lower levels of depression is acknowledged by various sources (Teixeira et al., 2012; Martinsen, 2009; Lok et al., 2017)

It is therefore important to promote physical activity in the design, through the incorporation of gyms, visually present stairs and inviting (outdoor) walking routes.

According to Fried et al. (2004) elderly who spend more time with children also tend to be

more physically active, since they feel like they need to "keep up" with them. Therefore the aforementioned intergenerational relations will also help promote physical activity.

Morning Light

Daylight also plays an important role. Since the elderly spend so much time indoors, they don't get sufficient daylight exposure. This impacts their already alternative circadian rhythm and worsens sleeping patterns. This results in constant fatigue, stress and it worsens depression symptoms. The solution to this problem is maximizing daylight exposure especially in the morning. One of the specialists, who works in a nursing home, mentions that they start every day by sitting in a room with daylight lamps and if the weather allows, they sit on the terrace for breakfast.

There are various sources that claim that even in healthy older individuals sleep quality seems to be significantly lower than in younger individuals. Older persons tend to go to bed and wake up earlier, they spend more time trying to fall asleep and wake up frequently throughout the night. Additional various sleep disorders, like insomnia and restless legs syndrome, are more prevalent in older individuals (Kim et al., 1997; Haimov & Lavie, 1997; Tatineny et al., 2020).

It has been shown that sleep quality is bidirectionally related to mental health, with insomnia being a major risk factor for depression in adults of all ages and vice versa (Lustberg & Reynolds, 2000; Franzen & Buysse, 2008; Nutt et al., 2008). Additionally Livingston et al. (1993) have demonstrated that sleep disturbance in individuals of 65 years and older is a main predictor for developing future depressive symptoms.

As a result bright light therapy is recommended as an adjunct treatment against depression, since it helps regulate circadian rhythms and therefore enhances sleep quality (Terman & Terman, 2014; Even et al. 2008; Tuunainen, 2004). Bright light therapy works best if administered from 6 AM to 9 AM and involves a person spending half an hour outdoors, in a sunlit room or in front of a 10,000 lux lamp (Levitan, 2005). This treatment could be naturally integrated into the design of a building, by orienting bedrooms and/or living rooms towards the east. The placement of larger windows and skylights is another strategy. Finally the design of (semi) outdoor social spaces, like conservatories and gardens will turn daylight into a destination.

Dementia Safe Spaces

Finally both specialists did not recommend integrating dementia patients into regular elderly living environments, since they are most likely to be bullied and excluded. It makes sense, since many still psychologically independent seniors fear that they might develop dementia themselves and do not want to be reminded of this illness by encountering dementia patients. It is therefore better to separate them, also so the dementia patients can get occupational therapy instead of wandering aimlessly, trying to find something to do.

Bullying in senior living environments is still a highly understudied field. The topic occasionally gets some attention from popular news media (A.D., 2013; Omroep Brabant, 2022; Associated Press, 2018) and there are several qualitative studies that focus on various case studies, however the prevalence of bullying in senior living environments is hard to establish. (Jeffries et al., 2018; Wood, 2007; Van de Nest, 2016) Due to this lack of research it is also hard to tell whether dementia patients are more likely to experience bullying compared to psychologically independent seniors.

Nevertheless, following the advice of the geriatric professionals it is advisable to create dementia safe spaces, where geropsychiatric patients can feel welcome and can get occupational therapy.

Design Factors

Based on expert opinions and supported by literature on late life depression, design factors can be formulated that will influence patient outcomes (see figure 30).

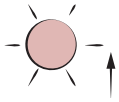
These factors can be categorized into the groups introduced in chapter 2: *Morning Light* will be added to Environmental Factors; *Physical Activity*, *Intergenerational Relationships and Dementia Spaces* fall under Building Factors and *Accessibility* can be added to Refning Factors.

Some of these factors are slight alterations of factors introduced in chapter 2. For example the Factor *Light* now emphasizes the importance of light exposure in the morning and the Factor *Accessibility* gains substantiation.

An important remark is that these groups do not imply the exclusive implementation method of factor integration. For example the *Morning Light* factor will also be affected by decisions on a detailing level, so could also be seen as a Finishing factor.

In chapter 6 implementation examples will be provided to illustrate how these factors can be incorporated in architectural design.

Environmental Factors



Morning Light *Daylight in the morning regulates the circadian rhythm and contributes to better sleep. It therefore indirectly helps prevent and treat depression.*

Building Factors

Physical Activity
Physical activity improves mental health and should therefore be stimulated through the inclusion of gyms and pleasant outdoor spaces.

Intergenerational Relations *Reciprocal intergenerational relations can contribute to feeling of purpose in the lives of the elderly, they should therefore be stimulated on a programmatic level.*

Dementia Spaces
Persons with dementia might experience social exclusion and aimlessness. Creating spaces with occupational therapy will help them feel safe in the larger elderly community.

Finishing Factors

Accessibility *Physical disability is one of the primary risk factors for late life depression. Making accessible spaces will empower disabled individuals to live their life to the fullest.*

Figure 30 - Overview of Design Factors, stemming from late life depression prevention and treatment strategies. By author.

05 Senior Living Environments

Even though we can learn a lot from mental health literature and psychiatric hospitals, senior living environments are fundamentally different, since they are not temporary residences, but permanent homes. As a result the main goal of these living environments is not recovery from illness, but accomodation of daily activities. It is perhaps this aspect that makes nursing homes so depressing; their institutional nature implies transitionality, which serves as a constant reminder of imminent death.

Another important factor influencing design decisions is the older demographic. This age group is retired and therefore is more likely to spend time at home, instead of going to work or an educational facility. This makes their lifestyles different from the rest of the population and they might therefore have different housing preferences. Integrating these preferences into the design of housing facilities will increase resident satisfaction, which will ultimately benefit their wellbeing.

Therefore in this chapter I will focus on housing preferences of Dutch seniors by discussing the findings in present literature. Furthermore I will list relevant observations afrom my fieldwork in Liv Inn retirement home in Hilversum and I will present results from a survey on housing and wellbeing that has been conducted there.

From these results I will draw conclusions and I will append my list of design factors, with elements stemming from senior housing preferences.

Preferences Literature Study

Seniors are the most immobile demographic group. The older the individual, the less they're likely to relocate. (De Jong et al., 2012) There are several possible explanations: seniors tend to associate their homes to valuable memories; they value the established social connections in their neighborhood; they are more likely to be physically or mentally impaired, which makes relocation difficult; finally seniors have often finished paying off their mortgage and therefore have no economic incentive to move (Ossokina & Arentze, 2020). Additionally relocation is often stigmatized among seniors as a sign of weakness and approaching death. (Draak & Plaisier, 2021).

Nevertheless in certain situations moving becomes inevitable. Especially single and disabled seniors are more likely to relocate, since they need more help and have more strict accessibility needs (Ossokina & Arentze, 2020). Alternatively seniors are often pushed by their familiy members to relocate, which makes them feel out of control and takes away their agency. (Draak & Plaisier, 2021).

This makes judging housing preferences of this group problematic: seniors often choose against moving to a place of their stated preference in favor of their current "suboptimal" home.

Another method is studying revealed preferences: statistical data of where seniors move. This method however isn't ideal either, since there is a lack of choice in the Dutch housing market. It is therefore important to look at both stated and revealed preferences.

Stated Preferences

De Jong et al. (2012) have done an extensive study of stated housing preferences of individuals over the age of 55 and have found that besides the desire to stay in the current dwelling, there is a great heterogeneiety in housing preferences. This heterogeneiety can be stratified into three age groups: 55-64 years, 65-75 years and 75+. All groups have a tendency to prefer same-floor apartments in a central mixed-age neighborhood, close to daily supplies, care facilities and public transport.

The group of 55-64 years old prefers large owned apartments with 3 to 4 rooms. The group is also willing to pay extra for domotics and personalized finishing.

The group of 65-75 years old also prefers large owned apartments with 3 to 4 rooms. They are however less inclined to pay more for domotics and personalization and instead prefer having all amenities in walking distance.

[This preference for larger apartments is quite unexpected and according to a survey performed by RIGO Research and Advies (2022) the main purposes for these additional rooms are home offices and guest rooms.]

The last group of 75+ years old does want to downcale to 2 rooms and prefers rent over ownership. This group is also more inclined to live closer to other old individuals.

Another stated choice study by Ossokina & Arentze (2020) supports these statements and adds that seniors of all ages greatly value and are willing to pay extra for large balconies, communal interior meeting spaces and personal parking spaces. There is a general preference for smaller-scaled apartment blocks, with an interior corridor circulation. An important sidenote is that this study only includes the ages of 55-75 and therefore doesn't include the more vulnerable 75+ group.

Revealed Preferences

Ossokina & Arentze (2020) have examined statistical data on relocation of seniors between the ages of 55 and 75 years. They have found that the majority (60%) of relocated seniors move to smaller homes of which half move into social housing without a garden. An interesting statistic is that owning a garden and being settled for a longer time are inhibiting factors for relocation.

Besides disability and being a bachelor, coming from an old home (pre 1985) or an old neighborhood (pre 1965) is another predictor for relocation. Presumably because older houses require more intensive maintenance. This is supported by the fact that 30% move into houses built after 2000.

Finally two thirds of seniors move within 5 km of their old homes and 20% move over a distance which is larger than 50 km. This means that the majority of seniors prefers to stay in their old neighborhood, but a significant part is ready to move a long distance to reunite with their families or return to their home town.

Conclusion

When comparing the stated preferences and the revealed preferences it becomes evident that they are significantly different; seniors would prefer to own a large apartment with a balcony, yet they often end up in smaller (social) rent apartments.

This suggests that there is another reason why seniors are so immobile: the Dutch housing stock does not contain sufficient options that fit the preferences and requirements of seniors. Perhaps they relocate out of necessity or family pressure to a place which they wouldn't have chosen otherwise. As a result they could experience discontent and a lack of agency, contributing to depressive thoughts.

Fieldwork Observations

In the week of October 31st 2022 I have spent four days at the LivInn Senior Housing Complex in Hilversum to learn more about the daily lives of the elderly.

During my stay I have observed and spoken to various residents to learn about their concerns with their living environments. I have participated in various activities at the LivInn and together with two of my colleagues we have organized a drawing workshop. In addition I asked five residents to describe a day in their life and documented the lay-outs of three apartments.

Finally together with my colleagues we have distributed a survey to learn about their living experience in the LivInn. A day-by-day recount of my experience in the LivInn can be found in the Appendix.

An important remark is that despite the fact that there were around 150 residents living in the complex, we only saw around 20 different people. This suggests that only a small group of people is part of the LivInn community, while others either have a life outside of the complex or rarely leave their apartments.

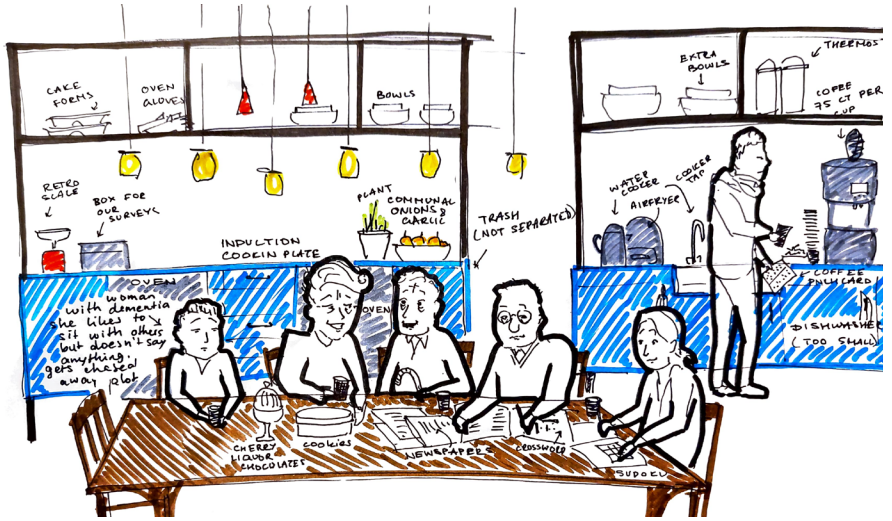


Figure 31 - Sketch of coffee hour in the Heart of the LivInn at 11AM , by author

General observations
Some general observations about the fieldwork include:

- People gather in the Heart of the LivInn around 10-12 for coffee and 16-18 for wine daily (see figure 31)
- Besides that there is at least one extra event going on every day: cooking sessions, dinner, games or other activities
- The Heart is usually quite lively; people are eager to join conversations
- The kitchen in the Heart is the most used space, the rest of the Heart always remains unused (see figure 32)
- There are three buildings in the complex: eastern flank, western flank and central LivInn building. The people from flanks tend to be excluded from social activities
- Many people mention rudeness and even bullying behavior from some people who are at the Heart regularly. It seems like many residents don't engage in activities, because they are afraid to be excluded.

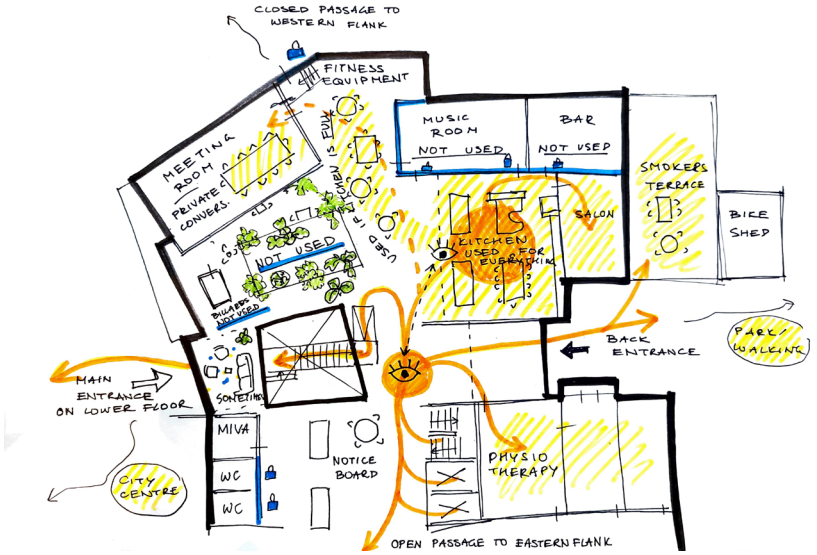


Figure 32 - Schematic overview of the Heart, the central meeting space of the LivInn in Hilversum, by author

Drawing Workshop
As an icebreaker my colleagues and I have organized a drawing workshop.
In the three rounds, each lasting 30 to 45 minutes, we have asked the residents to draw their dream home, ideal view and favorite activity. There were around 10 participants, some of whom only came to chat. The collection of resulting drawings can be found in the appendix.

In the end we had a very productive session, where we learned a lot about our participants.

We discovered that many people were moved into the LivInn by their children, some of them against their will.

Another interesting discovery was that all people drew something nature related, when asked about their favorite view.

Figure 33 - The drawing workshop at LivInn Hilversum. Atciyurt, 2022.

Day-in-a-life

In order to get a better understanding of the daily routine of retired individuals, I have asked five people to describe a day in their lives. All five routines can be found in the appendix. These routines however are not representational for an average senior, since the interviews were conducted spontaneously in the LivInn Kitchen around coffee time.

Figure 34 shows where the interviewed individuals were during the day. It can be concluded from the chart that:

- All the individuals spent more than half of their waking hours (9 to 14 hours) alone in their apartments.
- All of the individuals go to the LivInn kitchen on a daily basis to drink coffee with their neighbors. The most active hours are between 10 and 12 AM.
- All of the individuals spend a few waking hours in their apartments before going to the LivInn kitchen.
- All individuals go outside for a walk daily, either for exercise or to get groceries.

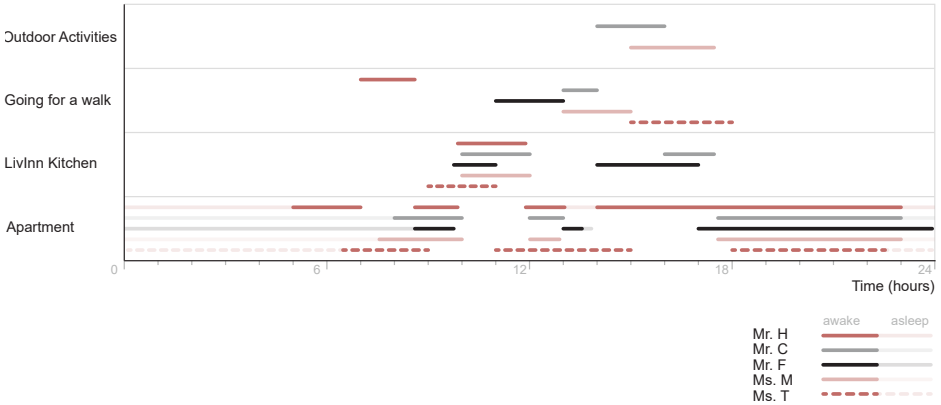


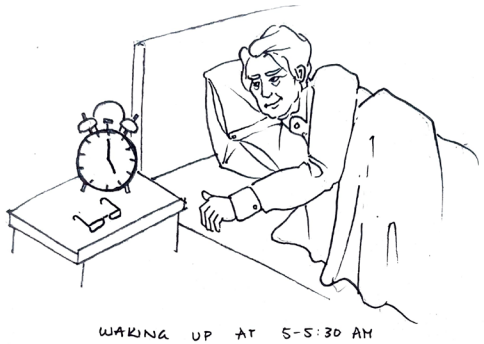
Figure 34 - Day-in-a-life comparison, by author

One of those interviewees, Mr. H, stood out to me in particular, since he seemed to be very satisfied with his life and his mental health seemed aspirational. His day-in-a-life is illustrated in Figures 35 and 36 on the next page.

What I have learned from Mr. H and other residents, who seemed particularly positive, is that it is important to be both proud of one's previous accomplishments and be willing to accomplish even more. Mr. H, who has been a successful illustrator his whole life, has now seriously taken up guitar playing and organizes musical events in the LivInn.

Ms. M (whose routine can be found in the appendix) finds great pride in her life's work of improving building standards and is now greatly involved in organizing activities in the LivInn.

It is therefore important that the management of an elderly living environment doesn't completely pamper its residents, but encourages and supports grassroots initiatives from its residents.



WAKING UP AT 5-5:30 AM

BREAKFAST (HEALTHY) AT 5:30-6 AM

PLAYING GUITAR 6-7 AM

MORNING STROLL, GROCERY SHOPPING 7-8:30AM

COOKING FOR DINNER IN ADVANCE 8:30-10 AM

COFFEE WITH NEIGHBORS IN "HART" 10-12 AM

Figure 35 - Day-in-a-life of Mr. H part 1, by author

WARM INDONESIAN LUNCH 12-13

AFTERNOON NAP 13-14

EVENT PLANNING FOR LIVING 14-18
(OR PLAYING GUITAR)

WARM INDONESIAN LUNCH 12-13
DINNER "INDONESIAN" 18-19

WATCHING TV (MUSIC SHOWS) 19-23
(OR EVENT PLANNING
OR PLAYING GUITAR)

SHOWERING, BRUSHING TEETH & SLEEP 23

Figure 36 - Day-in-a-life of Mr. H part 2, by author

Apartment Lay Outs
During my stay I have been invited into several apartments. The residents were kind enough to allow me to document how they have reorganized their space.

In the figure below is the apartment of Mr. B, which he is incredibly proud of. Packed with various technical gadgets, from LED lights, to an electric hearth and a mixing table, it shows that the host is future-oriented and doesn't feel old at all.
The other apartments can be found in the appendix.

What I have learned from my visit is that there is very little flexibility in terms of furniture arrangement. Nevertheless the three apartments are all very unique and reflect the tastes of the owners through material, color and decorations.

I have also been invited into the home of Ms. L, who seemed very unhappy. One of the reasons was that due to her old furniture not fitting into her new home, her son had provided her with a modern interior, which she couldn't identify with.

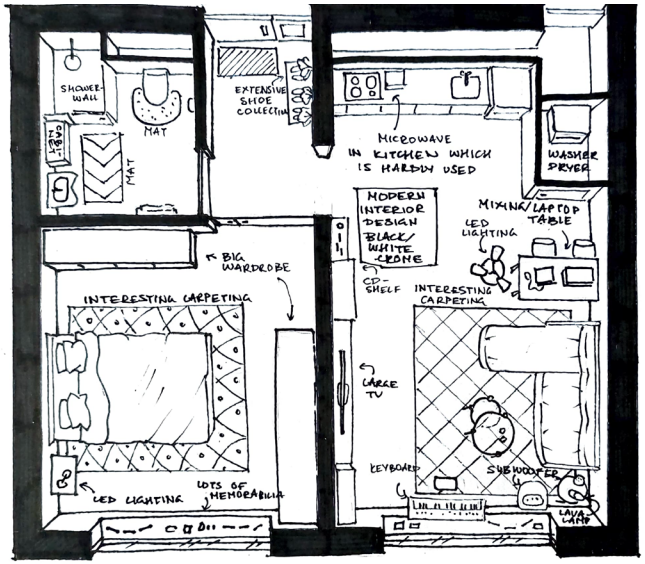


Figure 37 - Apartment of Mr. B - 73 years old, by author

Survey

Of the 150 surveys distributed throughout the building, we only got 38 surveys back.
It is likely that the results that we got back mainly come from people who feel more involved in the LivInn community. This is supported by the fact that 64% of the respondents claimed to know more than 10 people and 57% said that they come to the Heart at least once a day.
It is therefore a fair assumption that this survey doesn't speak for depressed and secluded individuals.

The complete survey, with results can be found in the appendix. The most important findings that are relevant for this study include:

- 87% of the respondents would like to live in a more diverse environment, with varying ages, cultures or languages;
- 34% would like to have a balcony and 34% would like to have a larger storage room;
- 63% would like to meet people from the neighborhood in the LivInn;
- 81% would like to help their neighbors with small tasks like groceries or cleaning;
- 81% of respondents spend most of their waking hours in their living room;
- all respondents mentioned that they go outside at least once a day;
- 52% mentioned that they go outside for groceries;
- 52% regularly participate in food-related activities in the Liv-Inn, while respectively 33% and 30% join for morning coffee and afternoon wine;
- 53% would like to help or already help with organizing various things for the community;
- 37% is satisfied with the convivial atmosphere in the LivInn, yet 34% is unhappy about certain rude individuals.

These results are congruent with the findings in chapter 4 and literature on housing preferences; the majority would like to live in a mixed-age environment and would prefer to have more space and a balcony. Social facilities of the LivInn are very important, but can also be sources of conflict.

Design Factors

Even though the housing preferences do not link directly to depression, incorporating them into the design of senior housing might help making relocation a less stressful period with ultimately more resident satisfaction, which will contribute to mental wellbeing.

From the literature we can formulate four factors, which are important to seniors: *Central Location* relates to Environmental Factors, while *Larger Size, Larger Terraces* and *Home Ownership* relate to Building Factors.

From the LivInn Experiences I have learned that making multiple *Social Spaces* scattered throughout the building might be more advantageous, since residents have the possibility to avoid bullies, while still engaging in social activities. It is important to place these spaces strategically to maximize spontaneous interactions.

These factors are presented in figure 38.

In the next chapter implementation examples will be provided to illustrate how these factors can be incorporated in architectural design.

Environmental Factors

Central Location *Being close to daily supplies, care facilities and public transport is a major senior housing preference.*

Building Factors

Larger Size *Seniors between the ages of 55 and 75 prefer large apartments (with 3 to 4 rooms) afterwards, they prefer to downscale.*

Larger Terraces *Large balconies and terraces are seen as a major asset and greatly improve the value of a dwelling in the eyes of a senior.*

Home Ownership *Seniors prefer to own their homes and live in owner-occupied neighborhoods.*

Social Spaces *Having multiple social spaces allows seniors to avoid conflicts, while engaging in social activities.*

Figure 38 - Overview of Design Factors stemming from senior housing prefereces, indirectly affecting mental wellbeing. By author.

06 Learning From Retirement Homes

This chapter will illustrate how the mood-lifting Design Factors, introduced in the previous chapter, can be integrated in architectural design.

For that purpose three case studies of state-of-the art elderly retirement homes will be done to establish how mood-lifting architectural features are integrated into the design, which are especially relevant for the elderly.

The choice of retirement homes to be analyzed will be based on the following criteria:

- must be (re)built after 2010
- independent senior housing (so complete apartments)
- information and plans should be available

Based on these criteria, the following projects were selected:

1) Kaleidoscoop - 2012 - LEVS Architecten - A retirement home, combined with a cultural and medical center for the neighborhood

2) Legends Residential - 2020 - Architecten Cie - A senior housing complex with active mobility and biodiversity principles.

3) SHARE Kanazawa - 2014 - GOI Architecs - A residential community for seniors, students and disabled children with various amenities for the neighborhood.

In each case study I will look for the Design Factors introduced in the previous chapters and I will analyse how they have been implemented. At the end of the chapter general recommendations will be made about architectural implementations of the Design Factors.

Figure 39 - View of Caleidoskoop from the street. Van der Burg, 2012.

Kaleidoskoop

Figure 40 - Gallery in the courtyard of Kaleidoskoop. Van der Burg, 2012.

Location:	Nieuwkoop, Netherlands
Year:	2012
Architect:	LEVS Architecten
Area:	10000 m²

Kaleidoscoop is a multifunctional senior housing complex in Nieuwkoop, a small town in South Holland. For psychogeriatric patients, there is a closed department in the ground floor and a dementia daycare on the first floor.
Additionally there is a cultural center in the ground floor, with a large theatre hall, a restaurant, a library and office spaces.

Kaleidoskoop is in close proximity to the town center and various facilities like shops, churches, a medical center and bus stops (see figure 41). This allows its residents to access all required amenities with ease and comfort.

And vice versa the inhabitants of Nieuwkoop can easily reach the cultural functions in the complex, due to its ***central location***. Besides plays, the theatre hall is used for various ceremonies, dance and music rehearsals, which draws people of all ages to the complex.

The ***dementia*** patients have two ways of experiencing the outdoors: a large terrace on the park side, which offers tranquil ***views of nature*** and ***privacy***, and an interior courtyard, which is connected to the cultural center, which is a ***positive distraction*** (see figures 42 through 44).

This offers the psychogeriatric patients ***control*** over the level of stimulation that they would like to experience and ensures that they get to observe ***younger generations***, without needing to leave the safety of the complex.

Figure 41 - Map of Nieuwkoop with with amenities and public transport within walking distance, by author

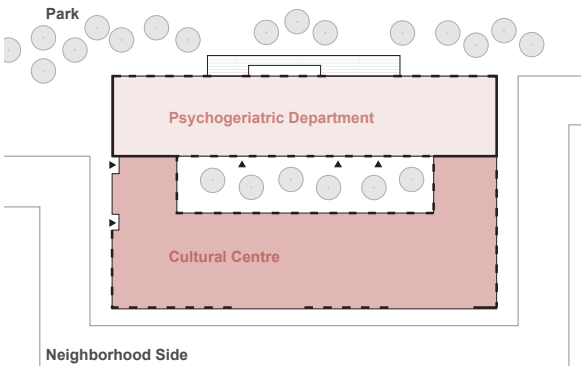


Figure 42 - Functional plan of ground floor, by author.

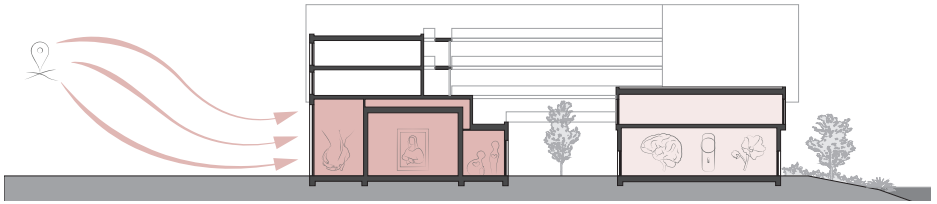


Figure 43 - Section showing the relationship between the cultural center and the psychogeriatric department, by author

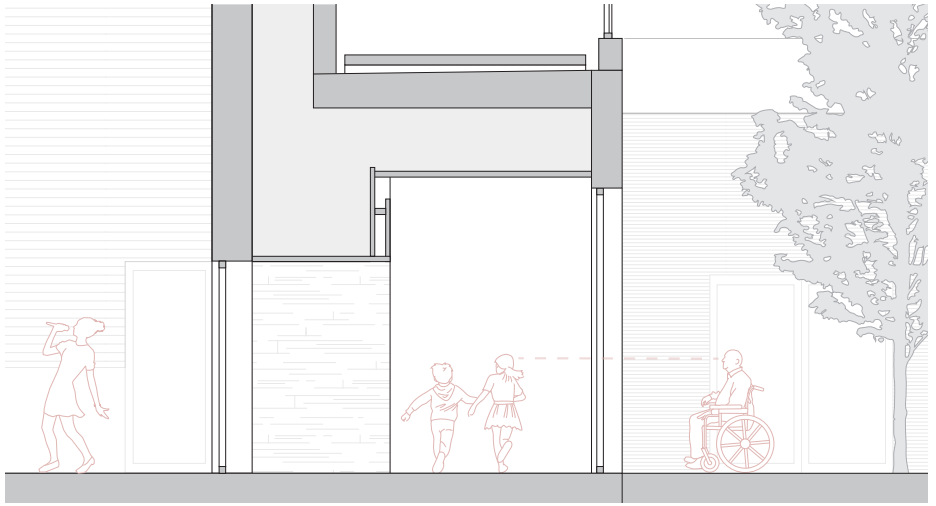


Figure 44 - The courtyard of the psychogeriatric department allows its residents to observe the various visitors of the cultural center, by author

Independent seniors live in the upper stories of the complex. They can reach their apartments through a gallery, running along the courtyard. The terraces of the seniors are integrated into this gallery. This results in a ***homelike*** elevated street, which invites spontaneous ***social interactions*** (see figures 40, 47 - section A).

The gallery is especially pleasant in the late afternoon and evening, when lit by sunlight. Meanwhile the living rooms are flooded with ***light in the mornings***. This is made possible by lowering the building height in the west (see figure 45).

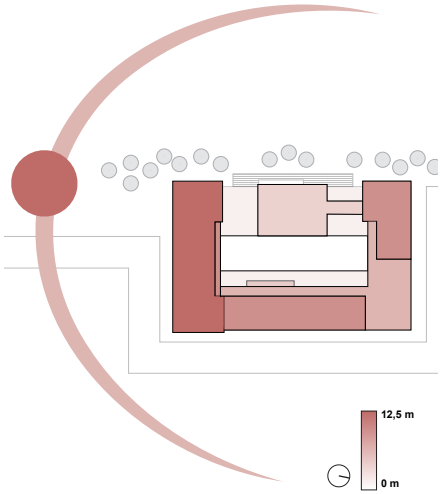


Figure 45 - Height of Kaleidoscoop, by author.

Figure 46 shows a typical apartment. It optimally utilizes the gallery typology by creating a spaceous living room/kitchen, with light coming in from two sides. It also depicts voids in the gallery, which serve a triple purpose: maximizing ***daylight*** in apartments and terraces, providing ***privacy*** in the small bedroom and naturally separate the terraces of neighbors. (see figure 47, section B)

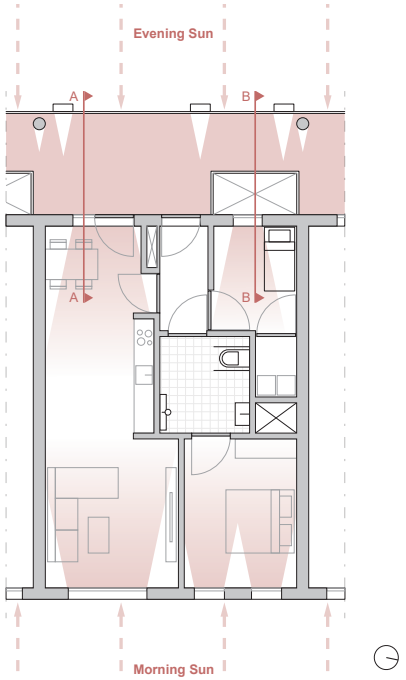


Figure 46 - Plan of well lit, optimally oriented apartment, by author.

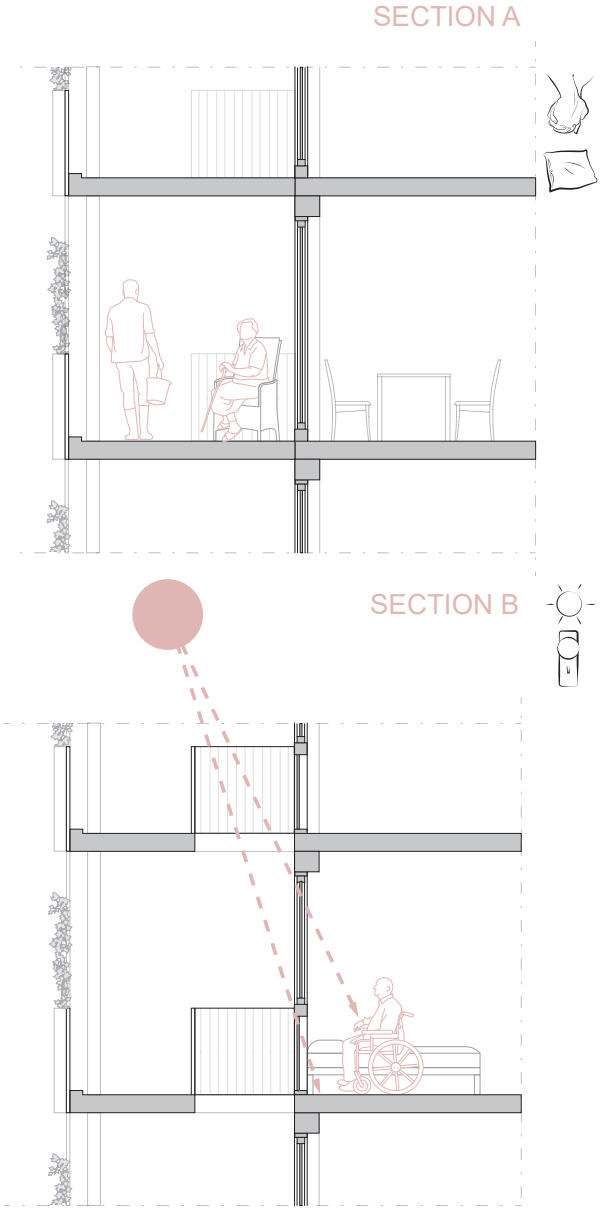


Figure 47 - Sections of apartment with different relations to gallery, by author.

Figure 48 - View of Legends from the gallery. Absent Matter, 2021.

Legends Residential

Figure 49 - Public square in front of Legends. Absent Matter, 2021.

Location:	Leidsche Rijn, Netherlands	Legends is a residential complex for seniors in Leidsche Rijn, a relatively new suburb expansion of Utrecht.
Year:	2020-2023	
Architect:	Architecten Cie, ANA Architects	The complex contains 150 rent apartments of varying affordability while the plinth hosts a lush green garden, a restaurant and other commercial spaces.
Area:	15.666 m²	

Legends residential complex is part of the ***central shopping district***, which means that its future senior residents are in a perpetually lively area. They are also very close to the Leidsche Rijn bus and train station, which allows them to easily reach the old center of Utrecht for other facilities (see figure 50).

The one thing that the residents lack, is a park in their environment (the closest one being a 25 minute walk away). To compensate for this, the architects decided to provide the residents with a lush green garden in the courtyard, which accomodates crucial insect and bird species. (see figures 51 and 52) Fauna accomodation is not only beneficial for biodiversity goals, but also improves general wellbeing of residents, since they feel a closer ***connection to nature***.

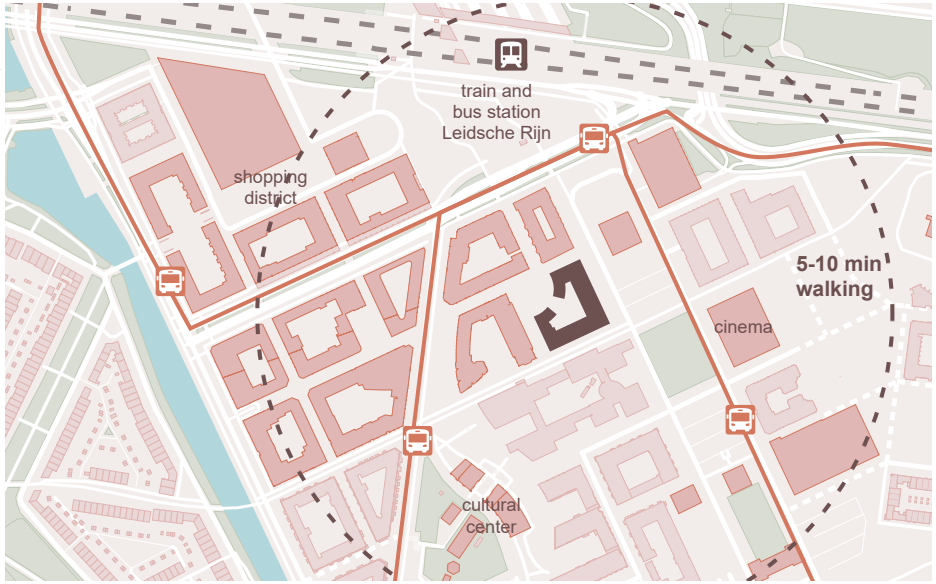


Figure 50 - Map of Leidsche Rijn with with amenities and public transport within walking distance, by author

The large concentration of plants improves the smell and ***air quality*** in the complex, which will also improve wellbeing of the inhabitants.

Finally the garden also serves to increase the attractiveness of the large staircase, embedded in the garden landscape. The staircase leads to an open lobby on the first floor with access to elevators and other outdoor stairs (see figure 53). This strategy of ***active mobility*** encourages residents to reach their front doors by stair, rather than on foot. Meanwhile ***wheelchair-users*** have the possibility to make a loop through the garden and bypass the staircase under the wooden galleries.

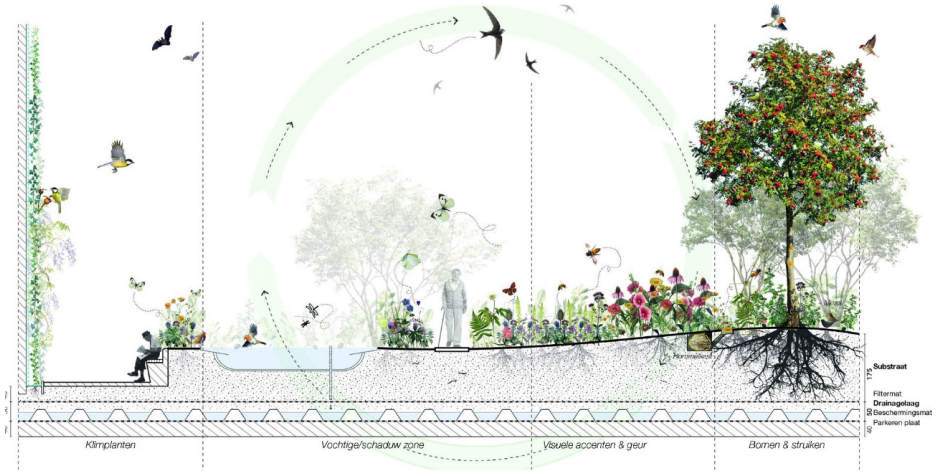


Figure 51 - A section of the garden in the courtyard, showing the accomodation of fauna.Karres en Brands, 2021.

Figure 52 - View of the lush garden in the courtyard, the large staircase is visible in the back. Absent Matter, 2021.

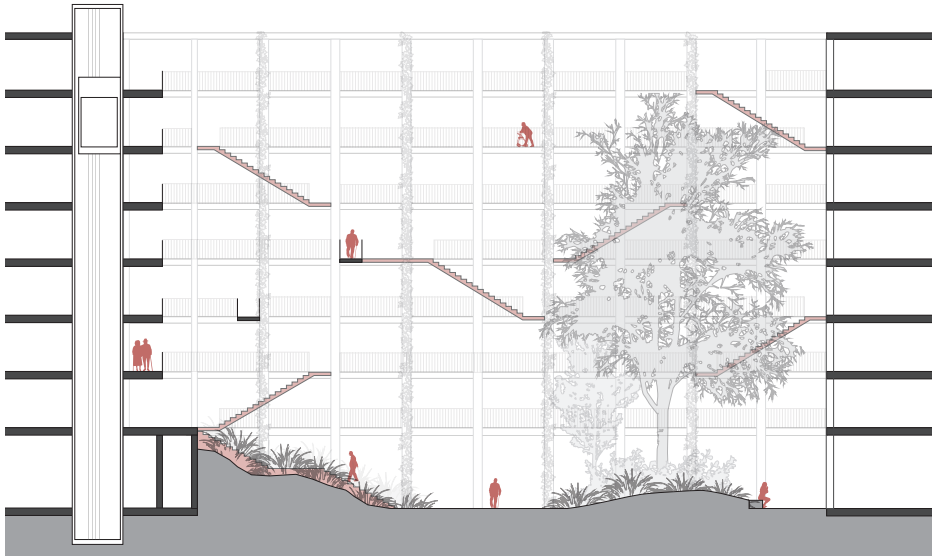


Figure 53 - A section of the courtyard, showing the integration of the staircase into the garden landscape, by author.

The residents reach their front doors from a wooden gallery. Similar to Kaleidoscoop retireent home, these galleries also contain terraces and voids to create a more lively, ***bright*** and ***homelike*** circulation space (see figures 48 and 54).

In addition the galleries are materialized in wood and contain planters for climbing plants. This contributes ***views of nature*** on higher levels and creates a ***homelike atmosphere***.

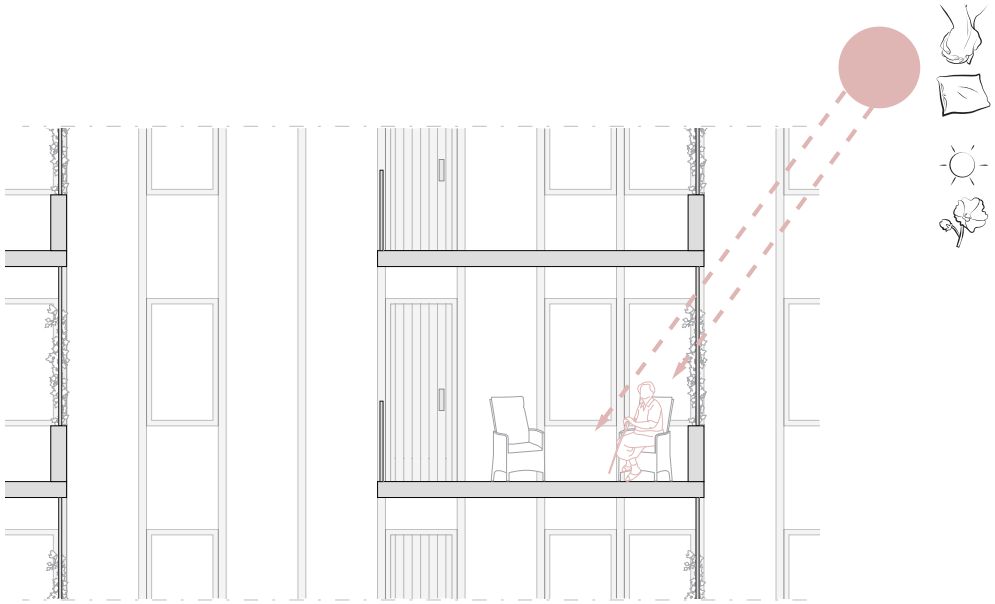


Figure 54 - A section showing the voids and terraces in he gallery with integrated planters. By author.

Finally the design of the apartments contain some interesting choices to maximize usable space. As mentioned in the previous chapter, seniors prefer ***larger dwellings.***
However with the current housing crisis, making large apartments is often unprofitable. To resolve this dilemma, the architects have chosen to make the corridor extra wide, so it can double as an additional room (see figure 55).

Furthermore the architects have integrated sliding walls, which are both convenient for ***wheelchair-users***, but can also make a space appear visually larger.

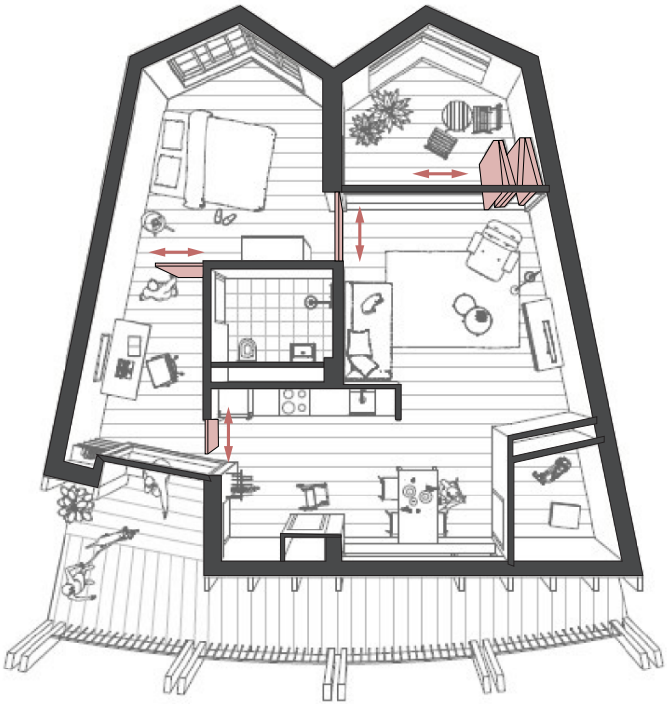


Figure 55 - A perspective plan of an apartment, with sliding walls highlighted. Adapted from ANA Architects, 2021.

Figure 56 - Walking path in Share Kanazawa. GOI Architects, 2014

SHARE Kanazawa

Figure 57 - Common terrace for four senior apartments. GOI Architects, 2014.

Location: Kanazawa, Japan

Year: 2014

Architect: GOI Archiects

Area: 8.000 m²

SHARE Kanazawa is a residential community in Kanazawa for seniors, studens and children with disabilities.

Besides housing, there are various recreational functions like a restaurant, petting zoo, artisanal shops, hot springs and culture workshops. In addition there are healthcare functions both for residents and the wider neighborhood.

SHARE Kanazawa is located on the outskirts of the city, at the foot of the Japanese Alps National Park. Nevertheless the community is ***close to public transport and shopping facilities*** (see figure 58).

Similarly the various facilities of SHARE are easily accessible for people from the neighborhood. For example the children from the elementary school to the west can frequently be found buying candy from the seniors, running the shop in SHARE, or feeding the alpacas.

The authenic Japanese carpentry and abundance of greenery creates a unique village- or ***homelike atmosphere*** and removes any sense of institutionality that is usually associated with senior residences (see figure 57).

Another way this village atmosphere is manifested, is through ***intergenerational reciprocal relationships*** (see figure 59). Everyone in SHARE helps somebody else and thus maintains a feeling of purpose in their lives.

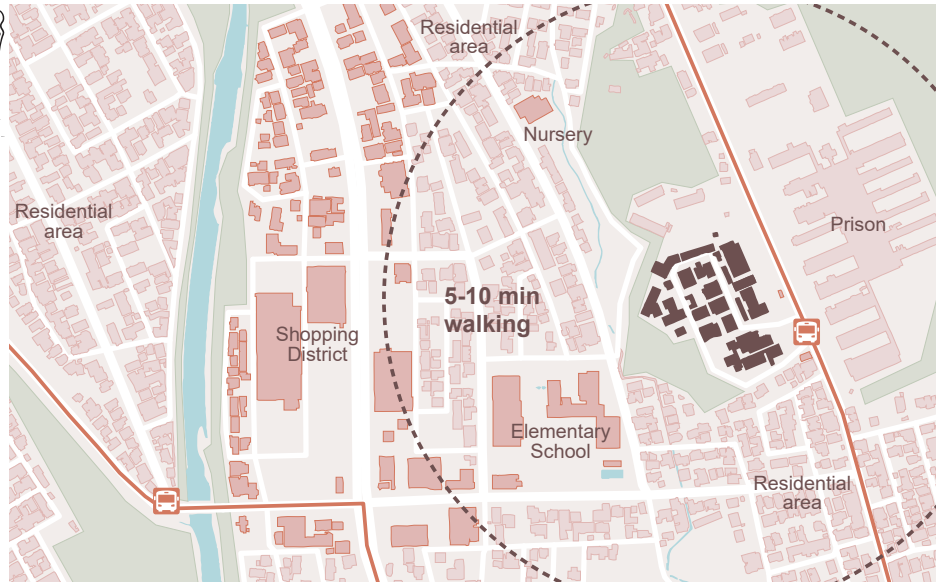


Figure 58 - Map of Leidsche Rijn with with amenities and public transport within walking distance. Adapted from Potok, 2022.

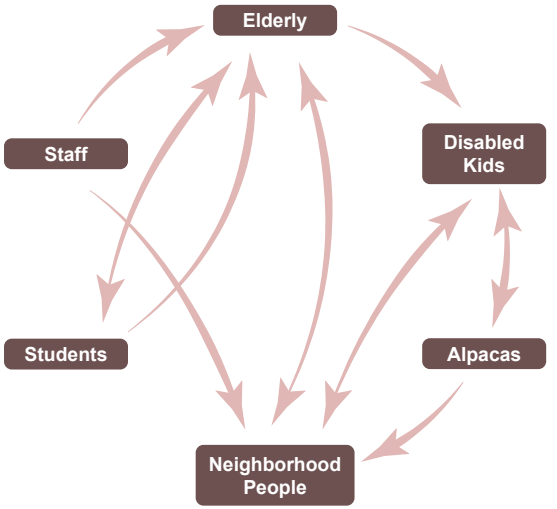


Figure 59 - Graph illustrating reciprocal intergenerational relationships in SHARE Kanazawa. By author.

Figure 60 - Overview of SHARE Kanazawa residential community. Adapted from Liang, 2022.

Housing is concentrated in the center of the village, while the public amenities are placed at the periphery. This makes them more accessible to outsiders and places the residents on the center of all action (see figure 60).

Semi-outdoor terraces are present throughout the village (see figure 61).

They do not only facilitate sponaneous ***social interactions***, but also stimulate residents to spend more outside in the sun, ***fresh air*** and ***nature***.

The larger terraces are used for outdoor activities and performances. This makes these events visible and accessible for the senior residents, filling their lives with activities (see figure 62).

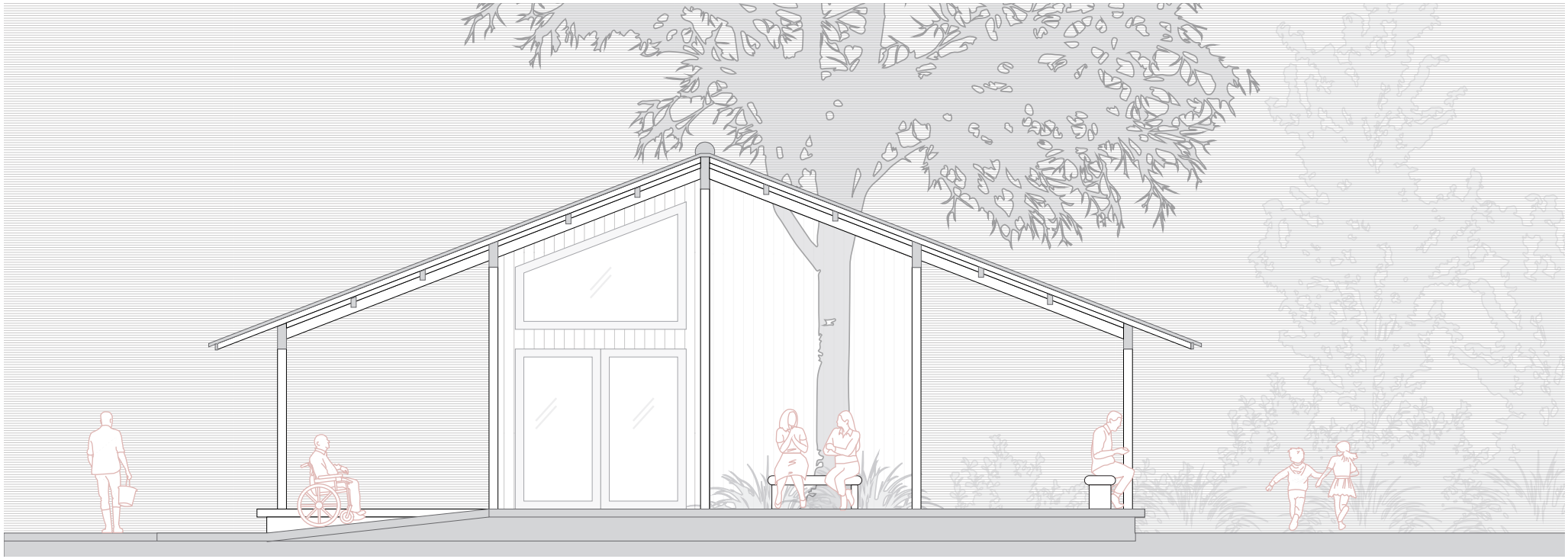


Figure 61 - Section through one of the large covered terraces, adjacent to a cafe/bar where local musicians perform. The present himalayan ceders protrude through the roof of the terrace and display respect and proximity to nature. Benches are positioned facing the natural environment.

The senior housing units themselves also offer opportunities for ***social interaction***; each unit has a shared living room with large kitchen and terrace (see figures 63 and 64). These spaces are used by just four apartments, which means that the neighbors will be able to establish a tight bond.

Each apartment is however independent, with its own bathroom and kitchen. This way the ***privacy*** of the residents is maintained.

The apartments are oriented in such a way that two neighboring housing units are facing each other and have a secluded ***overgrown natural*** path running between them. This makes it easier to check up on sick individuals, who might be unable to get out of bed. This in turn strengthens ***social bonds*** between the residents.

Figure 62 - Children playing Ukelele on the large covered terrace. GOI Architects, 2014

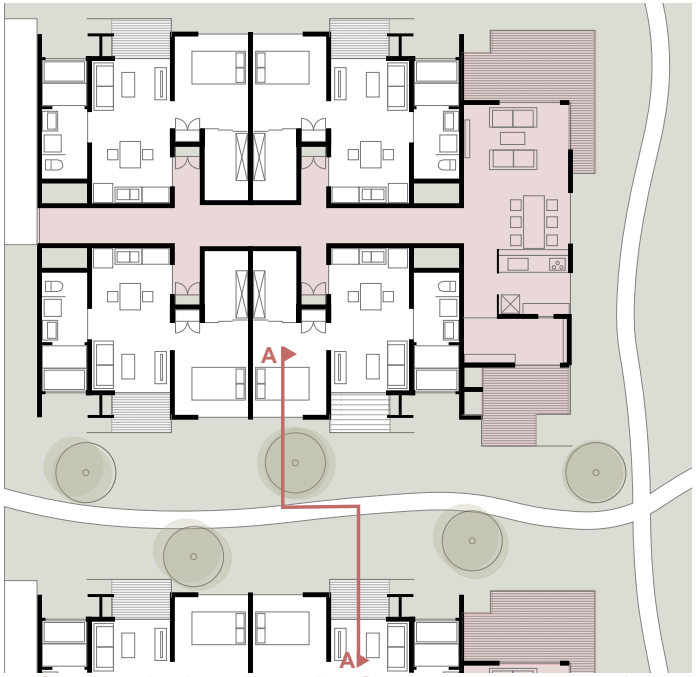


Figure 63 - Plan view of two senior housing units. Common spaces are shaded pink. Adapted from Potok, 2022.

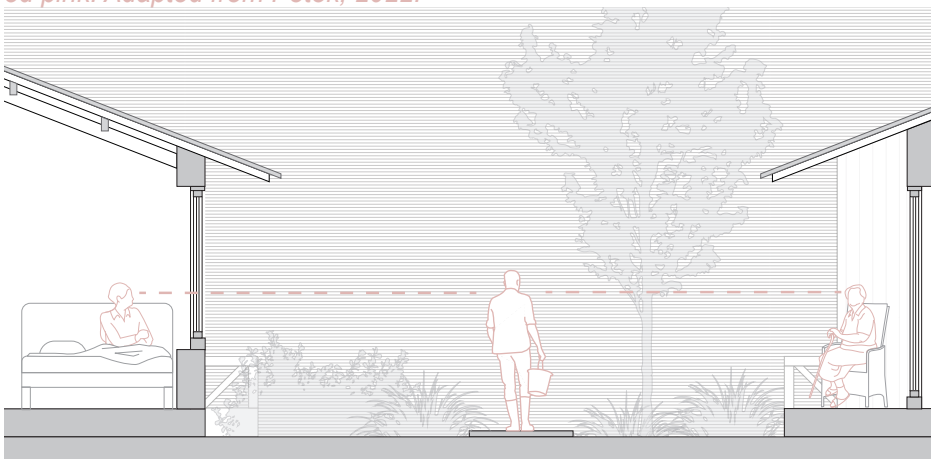


Figure 64 - Section A, showing the visual connections from the senior apartments. By author.

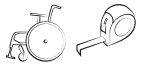
Conclusions for Design Factors

Even though all three designs are located in different urban environments, they all are **Centrally Located**, with plenty of shops and amenities in walking distance.

The added value of these locations is that the projects are easily accessible for outsiders, which also helps to maintain **Intergenerational Relationships**. However the most important way to foster these relationships is by integrating housing or places of interest for younger individuals into the brief.

This way seniors will naturally encounter other people and with sufficient informal **Social Spaces** along circulation routes, like covered terraces and gallery-facing balconies. Another important strategy is creating sufficient sightlines into the senior dwellings, so that neighbors can keep an eye on each-other.

One of the case studies also aimed to stimulate **Physical Activity** by leading the residents through a pleasant staircase embedded into the landscape to a lobby on the first floor.



Nevertheless the building remained **Accessible** for wheelchair-users, especially through the implementation of sliding and folding walls, which are easier to handle from a seated position. These details also result in a visually **Larger Apartment**, without additinal costs for more square meters.

Sadly none of the presented projects have truly **Large** personal **Terraces**. Most examples stick to the minimum required 4 m^2. This is however compensated through the implementation of large communal outdoor spaces, sometimes even with gardening opportunities.

Only one of the projects pays attention to daylighting. By removing apartments in the West, most apartments get **Morning Light** in their living rooms and can enjoy the evening light on their terraces.

The same project is also concious of the future needs of its residents and has both residences and a daycare for people with **Dementia**. These spaces are strategically placed in close proximity to public amenities, so the seniors stay in touch with the outside world.

Finally it is surprising that the majority of the analyzed projects consists of free-sector rent apartments. Even though seniors prefer to have **Ownership** of their dwellings.

07 Summary of Results

In this chapter an overview will be presented of the Design Factors that might improve mental health outcomes. The factors are presented in order of priority and are categorized into the three groups: environmental, building and Finishing.

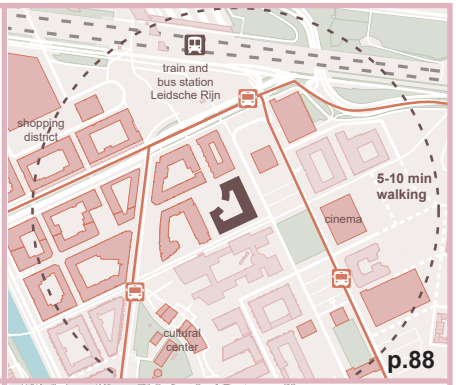
To illustrate the factors, examples will be provided from case studies.

This overview could be used by future architects tasked with the design of a mental health promoting senior living environment.

Environmental Factors

Central Location *Being close to daily supplies, care facilities and public transport is a major senior housing preference.*

Therefore for a senior housing complex a location close to the city center, with shops and supermarkets within walking distance is preferable.



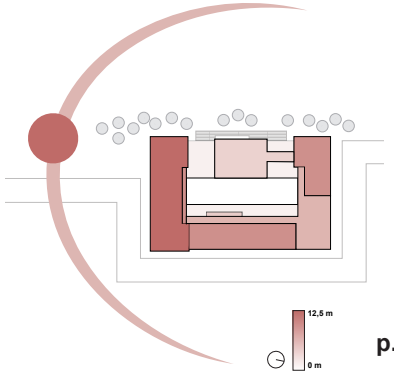
p.88

Views of Nature *Viewing and experiencing nature decreases stress and pain.*

It is thus better to situate a senior housing complex in close proximity to a park If no parks locations are available greenery can be integrated in a lush courtyard garden or in planters on the building. Making (semi-)outdoor communal spaces within this greenery will allow them to spend more time in nature.

p.98

(Morning) Light
Daylight, especially in the morning, regulates the circadian rhythm and contributes to better sleep, which benefits mental health.
Therefore it is important to orient the buiding in such a way that there is plenty of morning light in the living room. A gallery typology allows daylight to enter from two sides.



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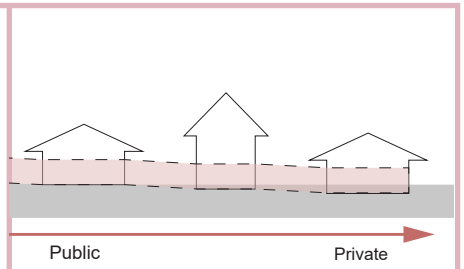
Environmental Factors

Noise *Being involuntarily exposed to sounds that form a nuiscance can cause stress and irritability.*

Hence loud and public functions, like restaurants and cafes, should be separated from dwelling zones by more intimate and quiet buffer zones or placed on different levels.



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Air Quality *Smells of urinary incontinence are not only unpleasant, they can invoke feelings of shame.*

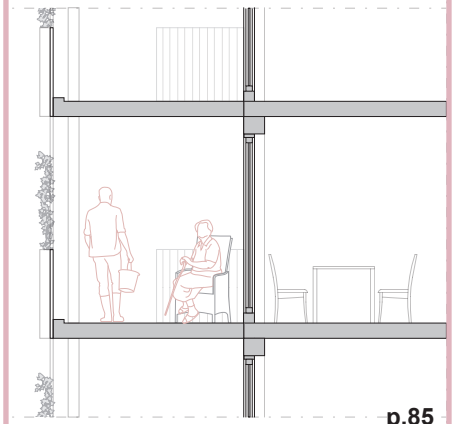
Besides mechanical venitilation interventions, open-air galleries offer the most simple solution for preventing stuffy, smelly corridors. Especially if the galleries are facing a lush garden with a variety of air-purifying plants.

p.90

Building Factors

Social Spaces *Social interactions have a positive effect on the wellbeing of seniors. In order to avoid conflicts, having multiple communal spaces can be thus be a good decision.*

Unplanned social interactions are equally important. To foster them an architect might consider creating spatious and pleasant circulation spaces, which invite to linger.



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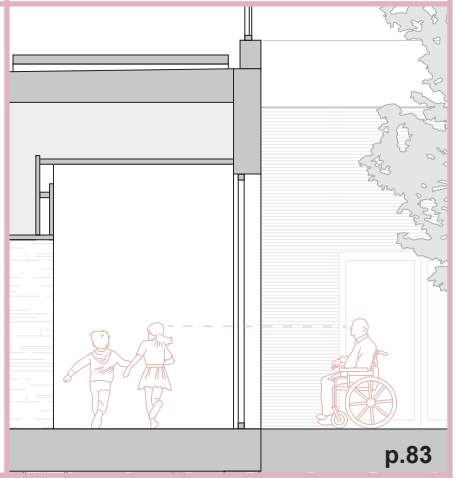
Intergenerational Relations *Reciprocal intergenerational relations can contribute to feeling of purpose in the lives of the elderly, they should therefore be stimulated on a programmatic level.*

This can be done through the inclusion of libraries, theatres, playgrounds and other functions that appeal to younger generations. Another way is to include dwellings for families, starters and students.



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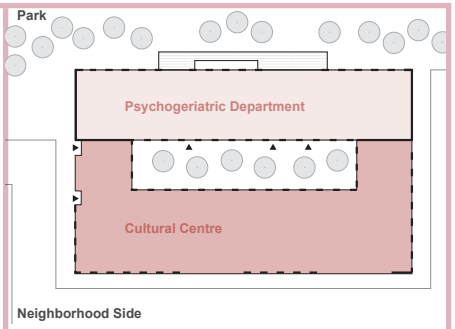
Physical Activity *Physical activity improves mental health and should therefore be stimulated through the inclusion of gyms and pleasant walking routes. In addition placing lobbies on the first floor and making visually appealing staircases might stimulate users to skip the elevator altogether.*

p.90

Building Factors

Dementia Spaces *Persons with dementia might experience social exclusion and aimlessness. Creating spaces with occupational therapy will help them feel safe in the larger elderly community.*

Placing the psychogeriatric department close to cultural facilities allows dementia patients to experience the liveliness of the community.



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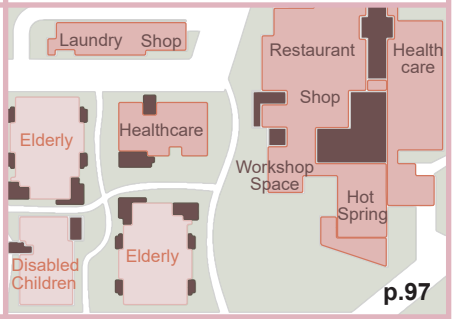
Positive Distractions *Uncontroversial art, interesting views and fun activities can form a healthy distraction from age-related problems.*
Architects can facilitate these distractions by incorporating flexible spaces, which the residents can use according to their needs.



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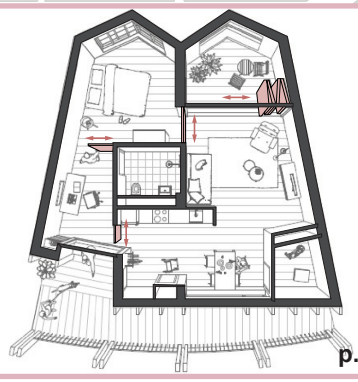
Appropriate Size *Seniors between the ages of 55 and 75 prefer large apartments (with 3 to 4 rooms) afterwards, they prefer to downscale.*

If budgetary restrictions limit the available floor area, sliding and foldable walls can serve as a compromise and make the space appear larger.



p.92

Building Factors

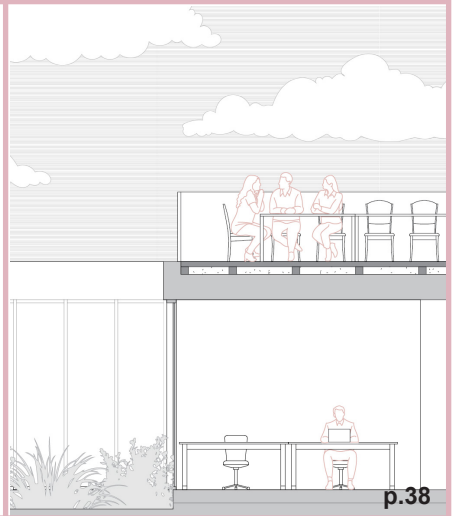
Outdoor Spaces *Large balconies and terraces are seen as a major asset and greatly improve the value of a dwelling in the eyes of a senior.*

In most senior housing complexes large personal balconies are however omitted in favor of common outdoor spaces. This is a budgetary consideration, but perhaps also stimulates the residents to spend more time together.

Figure 65 - Common garden at LivInn Senior Complex. Aciyurt, 2022.

Staff Spaces *Providing staff with healthy break rooms, will increase their efficiency and will ultimately benefit the patient.*

Like their patients, staff benefit from views of nature too. Therefore creating patios will not only bring in natural light, but will also create opportunities to interact with nature. Placing staff break rooms out of sight (on roof terraces), will allow them to take more meaningful and relaxing breaks.



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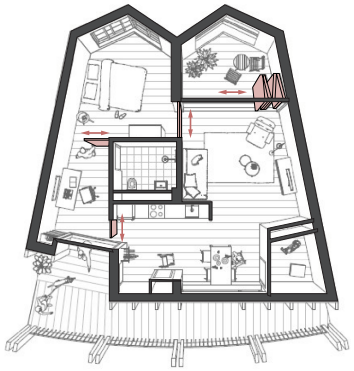
Home Ownership *Seniors prefer to own their homes and live in owner-occupied neighborhoods. Therefore besides (social) rent apartments, owner-occupier apartments should be present in residential senior complexes.*

Finishing Factors

Accessibility *Physical disability is one of the primary risk factors for late life depression. Making accessible spaces will empower disabled individuals to live their life to the fullest and be as self-sufficient as possible.*

In order to design truly accessible buildings, architects should make sure that wheelchair-users can reach all spaces with ease, without feeling like second class citizens. Close attention should be paid to flooring materials, turning circles and spatial dimensions.



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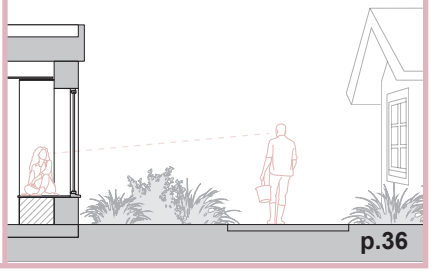
Control *Moving to a senior living environment can be associated with a lack of autonomy. Providing choices will increase a sence of agency among seniors.*

This choice can manifest itself in the absence of fences for dementia patients or in the variety of apartment types and common rooms.

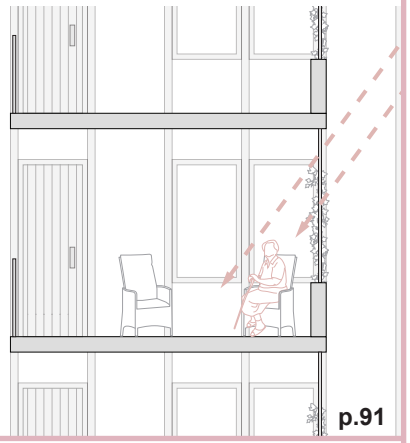


p.36

Finishing Factors

Homelike Environment
Senior living environments can often feel institutional. Creating a homelike environment will normalize their situation.

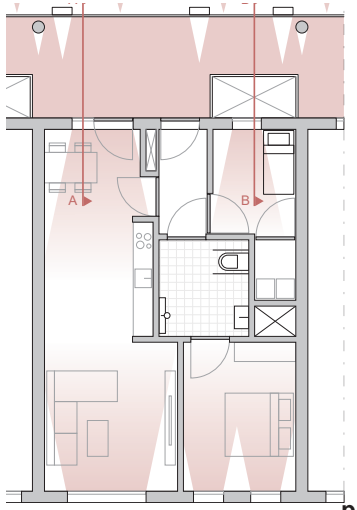
Galleries with lively and personalized front balconies form a homelike alternative to the long, hospital-like corridor, which is typical for many senior living environments Using more tactile materials like wood and upholstery will also result in a more friendly, homelike atmosphere.



p.91

Privacy *Seniors don't like sharing their weaknesses and diseases with strangers. Providing privacy protects their dignity.*

Therefore the appartments should always have rooms or paces, which are hidden from sight of passers-by and visitors. In the case of a gallery flat, privacy is aided by making the walkways wider, so passers-by are further removed from the windows. In addition any terraces that are placed in front of a living room will serve as an attention barrier, granting the people inside more intimacy.



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08
Conclusions

In this chapter a conclusion will be given to the research question and subquestions along with a consie summary of the main findings.

The findings will then be reconsidered in the Discussion. Recommendations will be given for further research on the topic of mental health promoting senior living environments.

Finally a reflection will be provided on the research, where I will share which parts of the research process went well and which parts were less productive. I will then mention what I have learned from the experience of my graduation thesis.

Conclusion

Late life depression is a serious problem in our society. Loneliness, lack of purpose, physical and mental disabilities are all risk factors for developing this disorder. The consequences are not limited to a having a worse mental state, but include a variety of comorbidities. Therefore reducing the prevalence and severity of late life depression will not only help the individual, it will also help reduce the pressure on the healthcare system.

Depression should be treated with therapy and medication, but since retired individuals spend the majority of their day at home, creating a mental health promoting senior living environment might help prevent late life depression or reduce its severity. Especially since current senior living environments are notorious for being dark, depressing and outdated.

This research therefore aimed to answer the following main research question:

"Which design factors contribute to the prevention or alleviation of late life depression in senior living environments?"

To answer this question five sub-questions were formulated:

The first sub-question
"Which mood-lifting Design Factors can be derived from the field of Evidence Based Design?"
has been answered by making a comparison of four studies on Evidence Based Design.
The findings suggest that there are eleven Design Factors that can be adapted from this field:
Light, Noise, Views of Nature and *Air Quality* are Environmental Design Factors. These factors are to be considered at the first stages of the design process.
Social Spaces, Positive Distractions and Staff Spaces are Building Factors, which become important during the project brief definition and preliminary design stages.
Finally *Accessibility, Homelike Environment, Privacy* and *Control* are Finishing Factors. These factors are most prominent in the design of detailing and building technology.

In order to answer the second sub-question
"How are these factors translated into design decisions in state-of-the-art psychiatric facilities?"
three case-studies of psychiatric hospitals have been analyzed. The analysis showed that all factors, except for Homelike Environment were manifested in the designs.

The third sub-question
"Which mood-lifting Design Factors can be derived from the field of late life depression?"
has been answered by interviewing two geriatric specialists. Their insights have then been tested against findings in current literature on late life depression.
The findings suggest that there are five Design Factors, based on late life depression treatment and prevention strategies.
Morning Light is another Environmental Design Factor.
Intergenerational Relationships, Dementia Spaces and *Physical Activity are additional Building Factors.*
Accessibility is resubstantiated as an important Finishing Design Factor.

In order to answer the fourth sub-question
"Which mood-lifting Design Factors can be derived from studying senior housing preferences and practices?"
literature on housing preferences of Dutch Seniors has been studied. Additionally conclusions have been drawn from my fieldwork observations at LivInn retirement home. As a result four new Design Factors have been found.
Central Location is the last Environmental Design Factor.
Appropriate Size, Outdoor Spaces and Home Ownership were the final Building Design Factors.

The last sub-question
How are these factors translated into design decisions in state-of-the-art retirement homes?"
was answered by analyzing three case-studies of state-of-the-art retirement homes. The analysis showed that all new factors, except for *Home Ownership* and large personal *Outdoor Spaces* were manifested in the designs.

Combining the results of these subquestions would result in a mental health promoting senior living environment.
Therefore an exemplary retirement home should be centrally located, preferably close to parks or with integrated greenery. The complex should be oriented in such a way that plenty of morning light reaches the living rooms.
There should be social spaces, where the residents can convene. Meanwhile additional functions in the complex, like a cultural hub or cafe, can serve as positive distractions for the residents and attract younger generations from the neighborhood. These functions should be placed in such a way that there is no noise nuisance for the residents.

The circulation space should be pleasant to promote physical activity and stimulate spontaneous social interactions. Placing this circulation space outdoors adjacent to large personal balconies might help reduce any unpleasant smells and will prevent any institutional associations.
The dwellings should be spacious, preferably with an additional room for hobbies or guests, and offer sufficient privacy to protect the dignity of residents. The dwellings should be fully accessible for wheelchair-users and allow for varying preferences, granting the residents the feeling of control and agency. This feeling can be manifested by introducing more owner-occupier apartments, which grant more freedom and add a sense of permanency.
For residents with dementia symptoms there should be safe spaces with occupational therapy. In order to provide better care its nursing staff should have high quality break rooms with access to light and nature.

So to answer the main research question:

"There are eighteen potential Design Factors that might contribute to the prevention or alleviation of late life depression in senior living environments. These Design Factors can be categorized into three groups: Environmental, Building and Finishing Factors.
Environmental Design Factors include: Central Location, Views of Nature, (Morning) Light, Noise and Air Quality.
Building Design Factors are comprised of: Social Spaces, Intergenerational Relationships, Physical Activity, Dementia Spaces, Positive Distractions, Staff Spaces, Appropriate Size, Outdoor Spaces and Home Ownership.
Finishing Factors include: Accessibility, Privacy, Control and Homelike Environment."

Discussion

The findings of this research suggests that considering certain Factors during the design of a senior living environment might help prevent or alleviate late life depression among its residents.

This research focused on defining Design Factors, rather than exploring the full range of their implementation. The examples provided in the case-studies merely serve as illustrations and do not cover the full potential of their implementations.
The reason for a lesser focus on implementations is to grant the architect freedom to invent solutions, which are more suitable for their situation. Trying to integrate a set of ready-made solutions might feel limiting and implementing them in a suboptimal manner might become counterproductive.

Nevertheless having an elaborate toolbox of implementation techniques for these factors might be inspirational and useful for future designers. Future research could therefore be aimed at discovering various architectural implementation methods for the discovered Design Factors.

One important consideration that has been omitted in this research is individual or local preference. Seniors are a heterogeneous group with different needs and habits. What might be a good practice generally, might be counterproductive for a specific individual or community. For example not all seniors would find a diverse multi-generational community appealing. They might feel more safe and included in a community of similar-minded peers. Similarly not all seniors would want to have large balconies or apartments, since it would require more cleaning and maintenance. In order to account for these interpersonal differences, implementing Participatory Design strategies for prospective residents could be beneficial. This is however a whole new topic and therefore goes beyond the scope of this research.

It is therefore recommended that further research explores which participatory design strategies are productive for this age group.

Reflection

In general I am quite satisfied with the findings of this research. Combining themes from three different disciplines (Evidence Based Design, Psychiatry and Senior Housing Preferences) was an effective strategy to formulate a holistic insight into late life depression prevention. However due to this multidisciplinary approach many findings were not very architectural in nature and had more implications for management and organization of senior living environments.

One way to make my research more architecture-focused would be to pay more attention to implementation strategies. This could be done by making a chapter where I zoom into each Design Factor and find multiple reference projects that implement this factor in different ways. The references could come from buildings unrelated to healthcare, since the Design Factors are quite universal. This chapter could replace the two case-study chapters, since they don't illustrate the factors in a way that is sufficiently systematic.

Finally I have learned that it is good practice to start writing as soon as possible, rather than spending a lot of time on research planning and preparation. Architectural research can be quite unpredictable and if too much time is spent on planning, there will be insufficient time to course correct. For example if I had started writing earlier, I would have had sufficient time to alter the chapter with Design Factor Implementations.

Definitions

Dementia
A group of symptoms, such as memory loss and decline of thinking and language skills. The symptoms can be caused by a range of different diseases, of which Alzheimer's is the most common (Alzheimer's Association, 2022).

Depression
Depression is a mood disorder, that affects how people feel, think and act. Common symptoms include low self-esteem, indifference, feelings of sadness or anxiety and fatigue. (National Institute of Mental Health, 2022)

Design Factors
Specific themes and metrics through which the design of a building can be assessed. (by author)

Elderly
Older persons, usually retired (Merriam-Webster, n.d.-a).

Evidence Based Design (EBD)
A healthcare design philosophy that promotes decision-making, aimed at scientifically proven positive outcomes for its users (Ulrich, 2010).

Late Life Depression
Depression as experienced by the elderly. Late life depression is bidirectionally related to chronic diseases and other comorbidities. (Vink et al., 2008)

Mental Wellbeing
A state of emotional empowerment, peace and satisfaction, characterized by the separation of life's adversities from one's sense of self-worth (Nortje, 2021).

Nursing Home
A residential complex for elderly (see elderly) or chronically ill people, who are in need of intense daily personal or nursing care. (Merriam-Webster, n.d.-b)

Retirement Home
A residential complex for the elderly (see elderly), usually age-restricted to 55+ or 65+. The inhabitants of the complex are typically relatively independent, but have access to light care. (Britannica, n.d.)

Appendix

Diary Fieldwork

Day One

11: Arrival. When we arrive, we see a group of elderly sitting at the big table in the kitchen, enjoying some coffee and cookies and chatting. Carola introduces us to the group and we join their conversations. People mention that they would love to participate and organize more activities, but there is a lack of consistent organization and the inhabitants sometimes have a lack of executive power, because things go through Habion. A little later Carola leads us to our apartments. Mine doesn't have floors, but has a nice view. The residents have provided a lamp, which I can use. The room of the boys has floors. Mr G gives us a tour of the premises. He is a writer and writes the monthly editorial for the LivInn newspaper de Reuring. We see the Hart, with the pool table, living room, kitchen, theatre room and "bar" room. Outside is a garden, it is largely maintained by a man, who used to be the owner of a garden mega store. There are tomatoes and herbs in the garden, which are used by the people cooking communal meals.

After the tour we get summoned into Carola's office and we are informed that the boys are staying in an apartment of a woman who has recently committed suicide. This is quite shocking, but also makes us think about the odd nature of these houses, being the last refuge for many of the inhabitants. So everyone who moves in, will invariantly be confronted with the fact that somebody has recently died in their home.

15: Lunch. We go into the town to get some groceries and explore the town a little. We lunch in the LivInn kitchen and we are joined by various people, who come to the kitchen for a cup of coffee or who walk to or from the salon. They mention that they are glad that they live at the ground floor, because they have access to a small terrace, while the people living in the higher apartments don't have balconies. We write an invitation message about the upcoming workshop on Tuesday in the Liv Inn group chat.

I have a conversation with Ms M, she was in a women's advisory committee for the built environment and later volunteered for the retirement home that was there before the Liv Inn. She lends me her book about the women's advisory committee. We have a conversation with Mr H, a former graphic designer, who showed us his art portfolio.

17: Distributing Questionnaires. Mr G helps us distribute the questionnaires. In the main building the inhabitants have a pouch at their doors for internal correspondence. In the flanking buildings we put the questionnaires into the post lockers at the main entrance. We run short, apparently there are more than 150 apartments in this complex.

19: Drinks and Dinner. We are invited to sit at the outdoor terrace with a few of the male inhabitants, who give us wine and whisky. We make acquaintance with the local cat. We start cooking quite late, so when we're finally eating it's quite late and no more people show up.

22: Since it's Halloween Bugra, Darren and I decide to watch a scary movie.

Day Two

9: Breakfast. A few inhabitants join us for the communal coffee drinking, which starts later. We talk

11: Baking pancakes. Ms. D and Ms. J usually organize the communal lunch on Tuesday and Mr. F does groceries. Mr. F is a bit late, so we start baking quite late. Some 8-10 people join for pancake lunch. We haven't finished baking the batch, but they're hungry so they start eating while we're finishing up. Ms. D and Ms. J really appreciate our help because they're usually so busy baking pancakes, that they don't get to eat any. The main group is already gone, when we're finished, so we have lunch with Ms. D, J and a few other ladies. We hand out a few additional questionnaires. I get stopped by a Ms. A, who proposes to lend me her chaise longue to sleep on during the stay.

14: We go outside to get some cookies and coffee for the workshop. When we return we start setting up the workshop. Many participants are quite early. Another large group in the room is playing Klaverjassen.

15: Workshop. We hand out papers and colored pencils to the participants. They're very happy that they get free coffee and cookies. We explain exercise 1: Draw your dream apartment. This exercise is perceived as being rather vague, so many people start chatting rather than drawing, but that's fine too. As long as they're having fun. Some people don't even try drawing, they prefer working on their own coloring books. They're welcome too. Ms. L gets very upset. She was recently placed into the Liv Inn by her son against her will and she misses her old home. We comfort her and agree to meet with her the next day. But many more people have similar sentiments, various members draw their old house or are inspired by childhood memories. We discuss with the group, who drew what and why. We continue to exercise 2. Here we ask people to draw their favorite views. It is interesting that almost everyone draws a natural landscape, but different kinds: we see a few seas, some flower patches, trees and farm landscapes. Again we discuss with the group who drew what. Finally in exercise 3 we ask people to draw their favorite activity. Two people draw sitting in their stand-up chair and watching Netflix or TV. Two ladies agree that drinking wine together is their favorite pastime. Additionally we see cycling, crystal art, pets and music. After the workshop is finished various people stick around to chat for a little longer and help clean up. Mr. H (who has been a graphic designer his entire life) agrees to give us a drawing class on Thursday and tells a whole story about his various creative endeavors. The Kaverjassers are still playing.

17: We sit at the table to relax after the intense afternoon and we are joined by a group of wine lovers who gather for a pre-dinner drink. We chat. I pick up the chaise longue from Ms. A.

19: Dinner. The wine lovers are still there and have the energy of an established clique. We are joined by two students who live in the LivInn, they were just dropping by for a small chat. The wine loving group slowly dissolve, while its members head home for dinner.

20: Study. After dinner, Bugra and I decide to work a little in the kitchen. We are first joined by a man, who moved out of his larger home, because he could no longer handle the continuous maintenance. He was first upset, because the process was really fast and also because he was pressured by his relatives to move. But he is well accommodated now and does not necessarily want to go back. After he goes away we are joined by another woman, who also tells that she has been placed in the Liv Inn by her son. She felt a little scared at first, but now that she sees that this is not an ordinary nursing home, she is starting to like it. However she also misses her larger old home with a nice big garden, which due to her developing dementia, she could no longer properly maintain.

Day Three

8:30 Breakfast. Bugra leaves to go to a closed geropsychiatric facility in the vicinity. Meanwhile cleaners are vacuuming the “Heart” and sin the kitchen preparations are in place for a tour for potential inhabitants. Coffee and cookies are prepared. Carola asks for the key of my apartment, because it is one of the potential flats. I quickly clean up my room and hand over the key.

9:30 Care attempt & Observations. Apparently at 217 there is a geriatric nursing station, specifically for the people of the Liv Inn. Since I need an interview with a geriatrician, I go there, but no one answers. I try to call them, but I’m recommended to call back later, since they’re busy with a patient now. I therefore decide to do some observations of the heart, I sit at some distance of the most frequently visited kitchen to allow for observations from a distance. Around 10 the potential inhabitants arrive, there are four. Two of them are together with their children. A lady expresses her unease at the prospect of living in an elderly home, she feels older here and mentions that she will miss her furniture. She gets assured by her son that this is no ordinary elderly home and that she will have more fun here. The group is led away to look at the available apartments. Meanwhile the daily coffee group slowly precipitates into the kitchen. Mr. H is one of the coffee drinkers. He spots me and invites Bugra and me for dinner on Thursday. The guy from care calls back and says that he will transfer my phone number to one of his colleagues who is more frequently present in the LivInn. She will call me back. Meanwhile more potential inhabitants arrive, they ask me where to go, since they have an appointment at 11, but it’s only 10:44. So I give them some coffee and settle them down and give them some coffee. I read the Reuring magazine, there are various texts: about getting the Covid vaccine, about hay fever and the odd prevalence of E-bikes, finally there is a short letter from a new resident, who is overwhelmed from moving in and misses her old home, garden and furniture. I also read the notice board. There are several notes about people looking for playmates for various board games. Some people are selling wheelchairs or scoot mobiles. There are also requests and propositions for small acts of informal care, like car transfers, accompanied walks and reading out loud. There is a schedule for upcoming activities, like communal lunches and dinners and group lessons for wheelchair workouts.

12: Conversation with Ms. M. She recalled the Covid times and says that they still organized activities, because the elderly get sick from loneliness and staying inside just as much as they would from Covid, since they have nothing to do at home. The welcome committee, which gave a tour to the potential visitors, is now getting lunch together. Conversation with Mrs. I, she is quiet and does not hear very well, she appears to be a little demented but she likes to sit with the people in the Heart, even though she doesn’t join the conversations.

13: Ms. L, who was upset during the workshop yesterday, finds me in the Heart of the Liv Inn. She invites me into her home in the eastern wing. On our way there we meet her neighbor Ms. K, who has lived in the eastern wing for 10 years and really dislikes the changes introduced by the LivInn. She hates the fact that she is not allowed to enter the Heart with her dog and doesn't like the people that gather there. She says they discriminate her, because she's Jewish and elaborates that people of the LivInn are very xenophobic in general. During the renovations everybody was very rude to the Polish and Syrian construction workers, which made her feel very uncomfortable. Ms. K says she's very happy with our questionnaire, because she can put all of her frustrations there.
Ms. L's apartment is filled with paintings that she made over the years, the living room is furnished in modern rustic wood and steel and she has an amazing view of monumental Dutch houses and trees. But she is unhappy. She was living in a big house with a nice garden not far from here, however her neighborhood recently had changed a lot and so she was considering leaving. She mentioned this to a nosy realtor, who was after her house for quite some time. The realtor contacted Ms. L's son, who agreed to sell the house and within two weeks Ms. L had to move into the Liv Inn, leaving behind large antique furniture and various other belongings. She felt like she had been played and she did not choose Liv Inn, so she does not feel at home here. She thinks all the activities are stupid and make her feel old and disabled. She prefers occasionally going to her old workplace to participate in Live Audiences. The Gooi Media Industry is where she feels more at home. Additionally, living in the flank, she feels like she is being discriminated against by the people from the main building. She made a friend in the flank, who also doesn't like the LivInn and together they get great satisfaction out of bad-mouthing the place.

15: After this long conversation I decide to get some fresh air. I meet Bugra in the Heart and together we're headed to the weekly Hilversum market, which the inhabitants were praising. We buy some vegetables for dinner and are headed to the supermarket to complete the groceries, but on our way we meet Mr. B, who convinces us to join him for one drink at a restaurant in the area. We agree. In the restaurant Mr. B tells us his life story, his hobby of motorcycles and later aiding at-risk youth. He subtly orders food for us, so we end up getting dinner here too.

18: We return to the LivInn. Upon entry we meet a group of people, who had cooked together and now settle down for after-dinner drinks. We are invited to join and so we stay here for some time. We recognize some of the members of the group, they joined us yesterday during the workshop. Ms. M is here too, she seems to be a little tipsy and hints that the elderly are not as innocent as they may seem (wink).

I get a glimpse of a geriatric nurse, who was supposed to call me today, but didn't get to it, due to being so busy. It is also her birthday now, so she must head home to celebrate. She recommends that I try contacting care again on Thursday.

20: We decide to retreat into our rooms, because the heart is too lively and distracting for writing the report. So we go back and work.

Day Four

9: Breakfast. I head towards room 217 to visit the geriatric nurse. We agree to meet at 14:30. When I return to the kitchen, there are already people sitting together for coffee. I decide to interview them, to establish what a day in their life looks like (see Appendix II).
14:Quick lunch. Meeting with geriatric nurse in a quiet corner in the LivInn Heart. She tells us about her job in the LivInn: treating wounds from falling, administering drugs, serving meals, help getting (un)dressed.

She has regular clients, who sign up for care when they move in, but she also helps in case of emergencies or works as a general practitioner. There are many depressed clients, who wouldn't admit it, because they don't want to appear "crazy". Depression stems from feeling "trapped" in a body, which is no longer as strong or able as it used to be, combined with degrading memory there is strong dysmorphia between how one might feel and what they're actually able to do.
Many people also feel excluded from the LivInn community; there are established groups and many people are bullied away. Especially people with dementia are not accepted into the community, which is really sad, because they are harmless and just like to sit with the group, not bothering anyone. This is why she would prefer putting all the dementia patients into a psycho-geriatric ward, where they get daily occupational therapy and aren't wandering around feeling lost and unwelcome everywhere like here. The geriatric nurse tells us that it's important to discuss these things with the inhabitants and raise awareness about depression and loneliness. This would help to remove the stigma around negative emotions. Consequently help could be administered more effectively and people could take each-others needs into account. Treatment of depression should start with acknowledgment, psychotherapy, medication, but most importantly lifestyle changes. Step 1 is getting out and experiencing life, but this step is very hard for people who prefer staying in their bed and who simply don't see the point of getting out. These people need friends or neighbors, who can come over and pull the depressed people out of their shell, while providing peace and calm, because noise and action can be quite overwhelming and scary. In terms of architecture the geriatric nurse recommends plenty of light and bright colors, which could stimulate a positive attitude. Finally she highlights the difference between loneliness and depression. Loneliness can be solved by asking people out and inviting them over to do things. Depressed seniors are often lonely too, but will prefer staying indoors, even when they

are invited to do things, because they don't want to get confronted with their disabilities or have such a low self-esteem and pessimistic worldview, that they don't think anything positive can come out of doing things together.

16: Bugra and I haven't seen the western flank of the LivInn yet. The apartments here are not social housing, but are on sale. We have heard that the inhabitants of this flank have requested to remove the direct indoor connection to the LivInn Heart. We have asked multiple people to explain why this decision was made, but nobody can exactly tell. We decide to visit the western flank to get a feeling of this place. We need to go through the outside and need to call a particular apartment to be able to enter the building. The building is cold and empty, on the second floor there is an atrium, which is quite high; it stretches across several floors. There are several tables with chairs in the atrium, the tablecloths look neat and the chairs are aligned perfectly orthogonal. From this we draw the conclusion that the atrium is rarely used, at least now in November, when it is too cold to sit here. We decide to head back to the main building.

17: In the main building Bugra and I take a look in the hairdresser's salon. The woman working there tells us that she also works in a nursing home, but she prefers working here, because the people are still quite active and not demented. She also likes it here, because in the other complex she moves through the building to visit the inhabitants, while here they come and find her themselves. After he salon Bugra and I join the group of wine-drinkers in the LivInn kitchen. Enlightened by the conversation with the geriatric nurse I start paying attention to certain details. It strikes me that some people are quite harsh indeed. At a certain point when I mention that even though there are 150 people living in the complex, this past week I have mostly seen the same 20-30, Mr. F answers: "They're all sitting in their rooms, serves them right, I think if you're feeling down, you shouldn't come here."
A few people around him nod

in agreement. Remembering the nurse's words about destigmatization, I scold Mr. F and tell him that people should be able to share their burden, to prevent them from accumulating toxic thoughts. He is a bit taken aback, but raises his shoulders and mumbles that it's not his responsibility to take care of others. We talk a little more about various topics, then Bugra and I leave to visit Mr. H for dinner.

18: Mr. H happily greets us. He has prepared an Indonesian dinner: chicken legs in sweet-sour sauce, fried rice and simmered green beans. He tells us about his Indonesian heritage and mentions that people sometimes discriminate him, because of his heritage. He has talked to other Indonesians, who have had similar experiences. He is also mad at the Dutch government for not paying enough reparations to the colonies. Interestingly Mr. H mentioned a few days ago, that he was upset at the fact that his Fata Morgana stage decorations in the Efteling were criticized for being racist.
Mr. H tells us that it's important that people in the LivInn look out for their neighbors. When he just moved in, the woman living next to him had some acute heart problem at night. Her demented husband, managed to knock on Mr. H's door and so he could call an ambulance in time. Sadly the woman had to stay in the hospital for a month and so her husband had to move to a psychogeriatric ward. The woman has recently returned to her apartment and is now very grateful to Mr. H, who has possibly saved her life. Mr. H hopes that if the need arises his neighbors could save him in a similar way. He is quite content with his life in the LivInn, he likes that he can stay busy here, but he dislikes the fact that some of the inhabitants can be very rude and discriminating against others. He would prefer it if people were nicer to each other. It is a good conversation, but it's getting quite late, so I need to leave to catch my train.

Drawing Workshop

Figure 65 - "Draw Your Dream Home", by workshop participants at LivInn

Figure 66 - “Draw Your Favorite View“, by workshop participants at LivInn

Figure 67 - “Draw Your Favorite Activity, by workshop participants at LivInn

Day-in-a-life

Ms. M (85 y-o)

8 - 9	Wakes up, showering
9 – 9:30	Breakfast: sandwich
9:30 – 10	Drinking coffee with neighbors in LivInn kitchen
10 – 12	Variable: receives friend or cleaning lady at home to help with chores or joins activities organized by Senioren Vereniging Hilversum or Vier het Leven (sometimes it happens in the morning or evening too)
12 -13	Lunch
13 – 14	Stroll or physiotherapy
14 – 18	Variable: joins activities or doing work for activities committee of the LivInn
16 – 17:30	Drinking wine with neighbors in LivInn kitchen
17:30 – 19	Cooking and Dinner
19 – 23	Variable: joins activities or watches TV, reads
23	Sleeping

Notes: likes the concept of LivInn, but finds that there is not enough structure for organizing things, inhabitants don't take responsibility, LivInn doesn't provide financial independence for committees which hampers their working, doesn't like the fact that inhabitants aren't allowed to renovate their bathrooms, is annoyed by the lack of walls in the bathroom.

Day-in-a-life

Mr. H (73 y-o)

5-5:30	Waking up
5:30-6	Breakfast: Sandwich with wholewheat bread, tomato, goat cheese + herbal tea
6-7	Playing guitar
7-8:30	Morning stroll, grocery shopping
8:30 - 10	Cooking for the whole day ahead
10 – 12	Drinking coffee with neighbors in LivInn kitchen
12 – 13	Lunch: warm Indonesian
13 – 14	Nap
14 – 18	Variable: playing guitar, event planning for the LivInn
18 – 19	Dinner: Indonesian
19 – 23	Variable: watching TV (documentaries, music programs), playing guitar, event planning
23	Showering, Sleeping

Notes: is very busy with planning and organizing, never bored, a little tired, pays attention to health, doesn't drink or smoke, urged by children to move here, wants a larger storage room.

Day-in-a-life

Mr. C (77 y-o)

7:30 – 8	Waking up
8 – 10	Breakfast: Cheese sandwich, showering, watching TV/ listing to radio or music
10 – 12	Drinking coffee with neighbors in LivInn kitchen
12 – 13	Lunch: cheese sandwich
13 – 15	Physiotherapy, walking
15 – 17:30	Variable: meeting with friends/family for a game
17:30 – 19	Cooking something simple and dinner
19 – 23	Drawing, watching TV
23	Sleeping

Notes: is a little bored, is still orienting himself in the LivInn, recently hurt his legs, but hopes to start cycling after recovery, urged by children to move here preventively.

Day-in-a-life

Mr. F (75 y-o)

8 – 9	Waking up, showering
9 – 9:45	Breakfast: cheese sandwich + coffee, taking medication
9:45 – 11	Drinking coffee with neighbors in LivInn kitchen
11 – 13	Walking, groceries (for himself and for the LivInn), likes the market
13 – 13:30	Lunch: sausage or ham sandwich
13:30 – 14	Nap (occasionally)
14 – 16	LivInn Committee work, once per week cooking for LivInn
16 – 17	Drinking wine with neighbors in LivInn kitchen
17 – 19	Cooking: likes cooking complex dishes, dinner
19 – 00	Variable: LivInn Committee Work, watching TV (VI, Jinek), looking for recipes on the internet
00	Showering, sleeping

Notes: very involved in LivInn, feels like he is doing too much, but since he moved in early responsibilities were pushed onto him.

Day-in-a-life

Ms. T (69 y-o)

6:30 – 7	Waking up, toilet, weighs herself
7 – 9	Breakfast: oatmeal + tea, listens to audiobooks (Leon de Winter)
9 – 11	Drinking coffee with neighbors in LivInn kitchen, doing sudokus
11 – 12	Lunch: salad or soup, doesn't like cooking
12 – 15	Knitting + audiobook (knitting projects for herself and family)
15 – 18	Running or grocery shopping
18 – 19	Simple cooking (sometimes ready meals), dinner
19 – 22:30	Watches TV with Mr. F, reads news on laptop, listens to audiobook
22:30	Showering, Sleeping

Notes: doesn't like when it's too busy, so doesn't join the wine drinking, doesn't like being responsible for doing things, prefers helping out spontaneously when someone asks, wants a balcony and a storage room.

Apartment Lay-outs

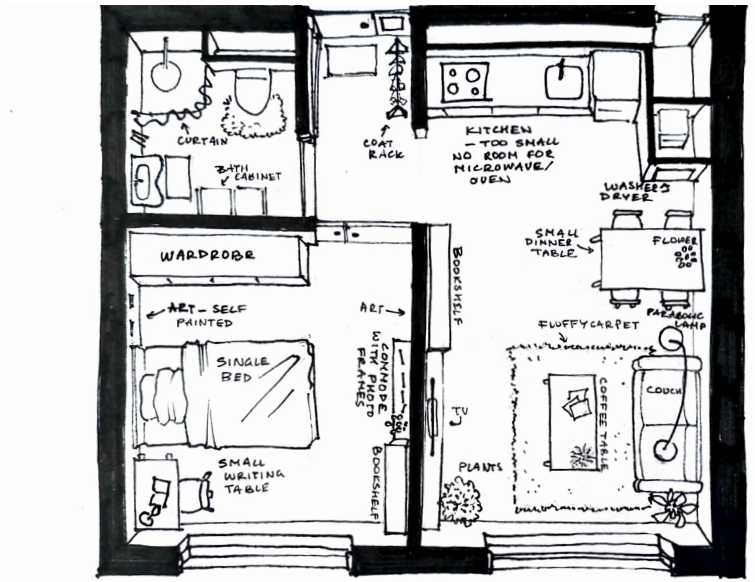

Figure 68 - Apartment of Ms. M - 85 years old, by author

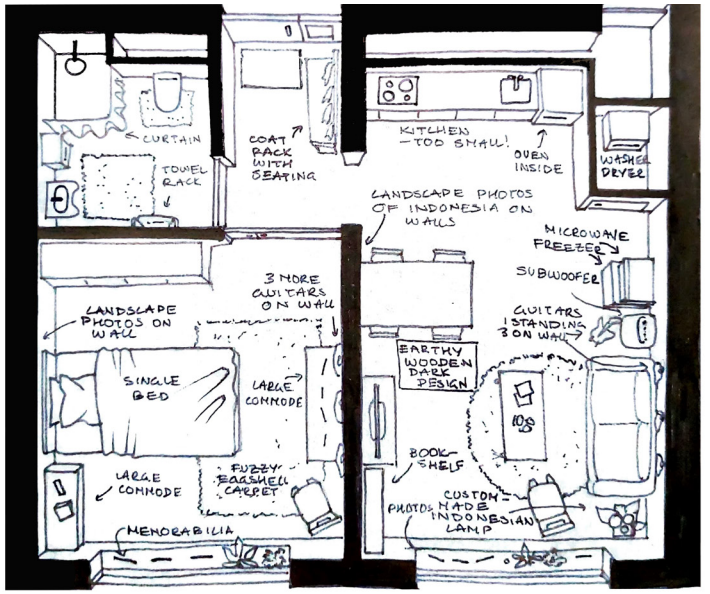

Figure 69 - Apartment of Mr. H - 77 years old, by author

Survey + Results

Enquête Wonen en Welzijn

Beste bewoner van de Liv Inn Hilversum,

Voor u ligt een enquête over Wonen en Welzijn, wij zouden het erg op prijs stellen als u deze invult, maar het is uiteraard niet verplicht. Voor onze studie Architectuur aan de Technische Universiteit in Delft zouden wij graag willen weten welke onderdelen van een leefomgeving in een seniorencomplex bijdragen aan een beter welzijn van de bewoners. Hiervoor zouden wij graag willen weten hoe u het wonen in dit gebouw ervaart. Wij moedigen u aan om eerlijk te zijn en waar nodig ook kritisch te zijn, zodat er in de toekomst meer passende oplossingen ontworpen kunnen worden. Om uw persoonsgegevens en identiteit te beschermen, vragen wij u geen naam of andere contactgegevens te noteren. De ingevulde enquête kunt u voor dinsdag 8 november 18:00 uur inleveren in de grote doos in het Hart van de LivInn. Bedankt voor uw bijdrage!

Met vriendelijke groet,

Nadja Znamenskaya, Darren van der Waart & Bugra Atciyurt
Studenten Technische Universiteit te Delft

Algemeen

1. Wat is uw leeftijd en geslacht?

   Average : 66 years Excl. youth: 76 38% male 62% female

2. Hoe bevalt het wonen in de Liv-Inn?

   5% excellent 69% good 23% okay 3% still getting used to it

3. Hoeveel bewoners van de Liv-Inn kent u?

   □ Niemand □ Een paar □ Een tiental □ Meer dan tien
   □ Bijna iedereen

   14% know a few 22% know around 10 50% know more than 10

   14% know almost everyone

4. Wat was uw woonsituatie voor het intrekken in de Liv-Inn?

   12% seniorhousing 15% parents (students)

   39% rowhouse/freestanding home 33% apartment

Survey

Dagbesteding

5. Zou u willen leven met mensen van andere leeftijd? Zo ja met welke leeftijden/culturen?

□ Nee 13%
□ Ja, met: 87%

68% with other cultures and ages 19% specific wishes

6. Kruis aan welke faciliteiten u zou willen delen met uw buren:

14% □ Woonkamer
14% □ Keuken
22% □ Wasruimte
22% □ Auto
11% □ Fiets
16% □ Scootmobiel

7. In welke ruimte besteedt u de meeste tijd als u wakker bent?

81% in living room 10% outside 9% other

8. Hoe vaak per week komt u buiten en waarvoor?

14% multiple times a day 86% daily

52% groceries 52% sports

9. Met welk weer gaat u het liefst naar buiten?

27% any weather 35% no rain 38% sunny

10. Aan welke activiteiten in de Liv-Inn doet u mee, hoe vaak?

9% participate in as many activities as possible 52% eating together

33% morning coffee 30% wine 27% games 24% commitee meetings

11. Zou u af en toe willen bijdragen aan de buurt, denk aan bijvoorbeeld werken in een bibliotheek, oppassen of werken in een klein winkeltje? Indien ja, wat zou u leuk lijken?

18% already helps 35% wants to help

20% thinks they're incapable to help 26% doesn't want to help

Woonomgeving

12. Is er iets waar u in het bijzonder (on)tevreden over bent in de Liv-Inn?

37% is happy about the convivial atmosphere

34% is unsatisfied about some rude people

13. Welke faciliteiten in het gebouw en/of de omgeving ontbreken er voor u?

22% miss grocery shop or restaurant

34% miss balcony or terrace 34% want a large storage room

14. Wat vindt u van “het Hart” van de Liv-Inn? Komt u er vaak en wat doe u daar?

39% regularly in hart 18% daily in hart 24% sometimes in hart

18% never or rarely in hart

Survey

15.Zou u in plaats van “het Hart” liever in een kleiner huiskamertje met een klein hecht groepje buren willen samenkomen?

13% want a smaller alternative 8% maybe

79% don't want a smaller alternative to hart

Sociale interactie

16.Hoe vaak en waar ontmoet u andere mensen?

51% daily 41% regularly 8% not frequently

56% meets people outdoors 50% meet people in the hart

14% meet with their families 17% meet spontaneously in public spaces

17.Zou u meer mensen willen ontmoeten? Waar zou u ze willen ontmoeten?

65% doesn't want to meet more people

35% wants to meet more people

18.Wanneer of waar voelt u zich alleen?

65% doesn't feel alone 15% rarely feels alone

12% misses their deceased spouse 8% feels lonely in their home

19.Zou u het fijn vinden als de mensen uit de buurt in het complex langs zouden komen? Waarom wel of niet?

37% would not want to meet people from the environment

63% would like to meet people from the neighborhood in LivInn

Zorg

20.Ontvangt u mantelzorg? Zo ja, hoe vaak en waar ontvangt u deze zorg?

79% doesn't receive care 13% occasionally receive care

8% receive daily care

21.Staat u open voor het helpen van uw buren met boodschappen en/of huishoudelijke klusjes? Zo ja, met welke klusjes?

81% would like to help with small tasks

Dit is het einde van de enquête. Bedankt voor uw bijdrage!

Interview with Geriatric Psychologist

Majorie Damen

What activities constitute your job?
I work in two different places: a nursing home, where I provide guidance and advice for the nursing staff about their patients; and I also treat my own patients in a mental health clinic in The Hague.

What, according to you, is the main reason that elderly get depressed?
The elderly hardly ever see their children, who have long constituted their meaning of life. As a result they can become existential, especially as they grow more and more dependent on caregivers.

What, according to you, is the primary method to counter depression (besides therapy and medication)?
Physical activity is very important, a good daily routine and more social contacts.

Do you think introducing more communal facilities, like kitchens or balconies would help in establishing these social contacts?
I am not sure. This generation is very individualistic and values privacy, I don't think they would like to give up any their own amenities in favor of something communal. Especially if they don't become friends with the people they're sharing things with. Perhaps if it comes as a bonus and doesn't replace the things they expect.

Do you think there is a stigma against depression amongst the elderly?
The stigma is certainly bigger than with younger age groups, but we're actually making a lot of progress now with spreading awareness and information about mental health within this demographic too.

Do you think the elderly would be less depressed if they could contribute something to their neighborhood or community?
It would certainly help, but the question is whether they would want to do such a thing. Many people feel don't like being pressured into participation and others might feel incapable of joining. However if there is intrinsic motivation in them to do something useful, it would certainly boost their confidence.

Have you experienced that depressed patients have worse sleeping problems too?
Yes. Actually it is natural for older persons to have different sleeping patterns. Their sleep is often interrupted by bathroom breaks and they often wake up earlier. Many also nap in the afternoon. It gets worse with depressive patients, who can't rest due to intrusive negative thoughts. We are actually performing daylight therapies on depressive or insomniac patients with special lamps and it helps. But real daylight in the morning of course is better.

What interventions in the built environment do you think are important for improving mental health among the elderly?
No long corridors, they don't have a homelike atmosphere. There should be different spaces for different kinds of social gatherings, for bigger events and for small spontaneous meetings. Gardening is very important, so there should be spaces for that.

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