



THE NEXT CURRENT

Research Report

Designing Health & Care Graduation Studio

Colophon

Graduation report

Designing Health & Care Graduation Studio
AR4AD300
*Faculty of Architecture and the Built Environment
Delft University of Technology*

Bente van Drie
6098436
2nd June 2026
DRAFT A2

Supervisors are:
Birgit Jürgehake
Kobe Macco

Table of contents

- Foreword
- Abstract

INTRODUCTION

- Problem statement
- Relevance
- Research question
- Target group

APPROACH

- Theoretical framework
- Methods
- Planning

DESIGN CONTEXT

- Site selection
- Concept
- Building form

RESULTS

- Existing housing stock
- Active ageing
- Relocation in Houtwijk
- Casestudies

CONCLUSION & DISCUSSION

- Conclusion
- Implications
- Reflection

BACK MATTER

- Appendices
- References
- Acknowledgements

Foreword

Before you lies my research on designing a residential complex for older adults in a neighborhood of The Hague, Houtwijk. During the project I did research on the contribution of architecture to active ageing, social interactions and a better housing flow within Houtwijk. With this, not only the building itself, but the relation between living, encounters and public space were taken into account as well.

The design process challenged me to look beyond the functional dwelling design alone. Within the process the element of water developed into a main theme of the project. It forms a physical structure, but also a social and sensory aspect of the living environment. This creates places for encounters, movement and calmness, and contributes to a living environment that supports active ageing.

Lastly, I would like to express my sincere gratitude to my tutors, Birgit Jurgenhake, Kobe Macco and Jasmina Campochiaro, as well as my fellow students and everyone who contributed to this research through their support, valuable insights and constructive feedback throughout the process.

Abstract

The ageing population in the Netherlands leads to an increasing demand for suitable housing typologies for older adults. The older generation remains in their family home due to financial and social factors. The problem is clearly visible in Houtwijk, a neighborhood in The Hague. A large amount of residents lives in these family homes without needing the space, but alternative, independent housing for this generation is lacking. In addition, a significant part struggles with the social dilemma of having to move to another neighborhood and potentially losing their social network.

This research focuses on the question of how housing for older adults can be spatially designed to support active ageing, while promoting housing flow in Houtwijk. The theoretical foundation was formed by the concept of active ageing, in which health, independence, social participation and a familiar environment were central.

The research shows that the existing housing stock in Houtwijk aligns insufficiently with the needs of the ageing population. But, the older residents in Houtwijk have a strong connection to their neighborhood and are willing to relocate if they are able to keep living within their familiar environment. The factors of independence, privacy, accessibility and the possibility of social encounters are crucial.

Based on the results, a housing complex has been designed. It combines independent living with collective facilities and a publicly accessible courtyard. Within this design, water is the main design instrument. The water supports active ageing on different levels: it stimulates movement through recreational and physical activities, promotes social interactions through several meeting spaces and contributes to mental health through calming sensory experiences.

In addition to its benefits for human experience, water also has many ecological qualities and contributes to the environment, other species and the climate.

The design shows that architecture has an important contribution to the wellbeing of older adults and the existing housing possibilities within a neighborhood. By creating an attractive, accessible and socially connected living environment, older adults are stimulated to relocate within their comfort while helping free up larger homes for younger generations. The combination of age-friendly homes, communal spaces, clear transitions between public and private domains, and the integration of water forms a spatial strategy that supports both active ageing and the future development of Houtwijk.



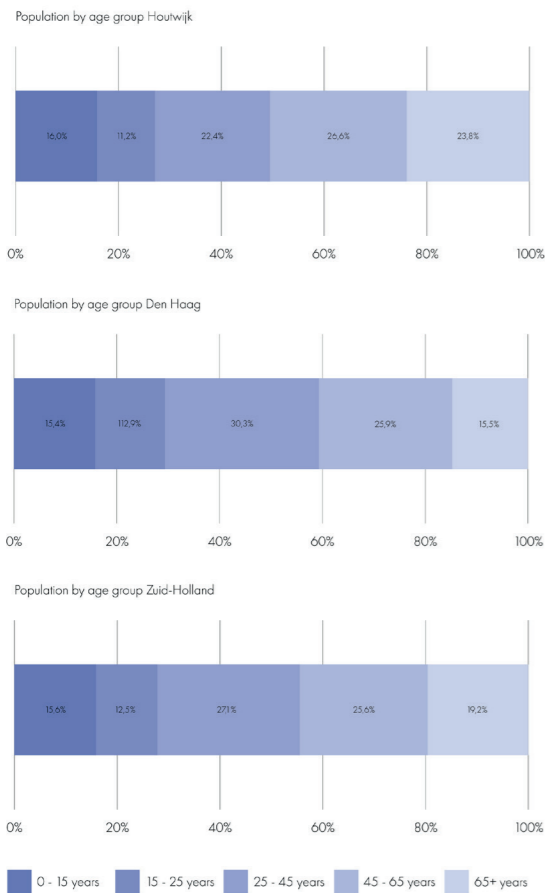


INTRODUCTION

- Problem statement
- Relevance
- Research question
- Target group

Problem statement

The ageing population in the Netherlands has increased. In 1990 only 12,8% of the population was at least at the age of 65, now in 2025 20,8 % is at that age.¹ This broader national trend is also visible at the regional and neighbourhood scale, as illustrated in the diagrams of population by age group in *Figure 2*, which compares the population structure of Zuid-Holland, The Hague and Houtwijk. The number of older households increases faster than other generations.



Source: (Allecijfers, 2025)
Figure 2: Population by agegroup (Allecijfers.nl, 2025)

Nowadays there are approximately 2,5 million households in the Netherlands in which someone is over the age of 65. By 2035 this number is anticipated to climb to nearly 3 million and by 2070 even to 3,5 million. Within this growth especially the proportion of the population aged 80 years old and over is expected to increase rapidly. Their share will at least multiply until 2070. This demographic shift will place a considerable additional burden on the health care.²

The existing housing stock does not adequately accommodate the requirements of the growing population of older adults. A substantial share of older residents occupy family homes.³ This general development can be illustrated in Houtwijk. The household distribution map in *Figure 3* and the housing types shown in *Figure 4* indicate that households without children are frequently concentrated in family homes. Meanwhile, more clustered ways of living, community-based living spaces or age-appropriate apartments are scarce. Care is progressively shifting to individuals' own residential environments. This happens because the transitional step between home-based care and nursing homes has been eliminated due to budget cuts by the government. The previously existing residential care home had older adults living on their own, in an age-appropriate environment with the healthcare needs close by. Nowadays the housing market in the Netherlands offer inadequate living spaces for those needs. The consequence that comes with this is that older adults cannot find a suiting living space and stay in their family homes.⁴



Figure 3: Households within Houtwijk (Allecijfers.nl, 2025)

This lack of movement in housing causes a domino effect throughout the market; family homes remain occupied, while entry-level homes are developed extensively to cope with the current demand. An important aspect of the housing market circulation lays not with building new family homes, but with creating attractive and affordable housing for older adults. When they move on to more suitable living spaces, the family homes become available to young families.⁵



Figure 4: Housing types Houtwijk (Allecijfers.nl, 2025)

In this context, making housing construction future-proof is an important consideration for the upcoming years. This involves designing new developments to accommodate long-term changes in population composition. In particular, the needs of an ageing society must be addressed, as the current housing supply is no longer sufficient. For the Netherlands it is important to focus on developing a living environment that responds to the needs of older adults. Building for this generation helps older adults to stay vital.⁵

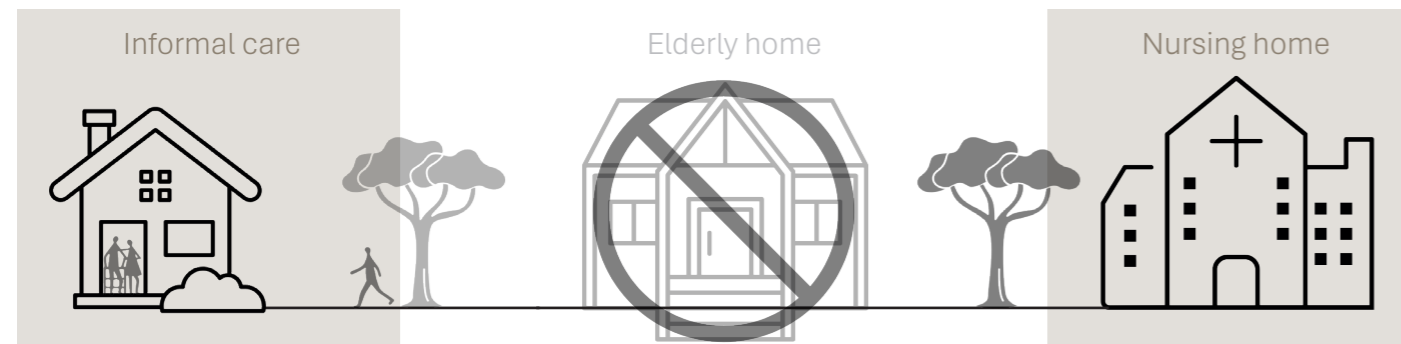


Figure 1: Care system in the Netherlands (Own drawing, 2025)

1 N.a., 'Hoeveel ouderen zijn er in Nederland?', Ouderen, (Centraal Bureau voor de Statistiek, 2025)
 2 N.a., 'Groeï huishoudens vooral door ouderen', Prognose: Huishoudens in de toekomst vooral door meer alleenstaanden, (Centraal Bureau voor de Statistiek, 2024)
 3 Ruben Koops, 'Meer dan alleen gelijkvloers', Verleid ouderen naar nieuwbouw: 'Dan komt hele huizenmarkt in beweging', (RTL Z, 2025)
 4 N.a., 'Hoe de ouderenzorg werd afgebroken', Zembla onderzoek, (NPO start, n.a.)
 5 Peter J. Boelhouwer, 'De huisvesting van ouderen', De woningcrisis in Nederland; achtergronden en oplossingen, (TU Delft, 2023), 18

Relevance

The relevance of this research lies in the significant role that older adults hold in Houtwijk's current housing and social dynamics, as illustrated by the age distribution shown in Figure 5. Although the neighbourhood was originally developed as a family-oriented residential area, a substantial proportion of its spacious terraced houses is now occupied by older residents who have lived there for many years.⁶ The neighbourhood, like the rest of the Netherlands, offers almost no suitable housing options between a regular home and a nursing facility. As a result, the housing circulation stagnates, family homes remain occupied, while younger families face limited opportunities to settle in the neighbourhood.⁴



Figure 5: Age group per dwelling Houtwijk (AlleCijfers.nl, 2025)

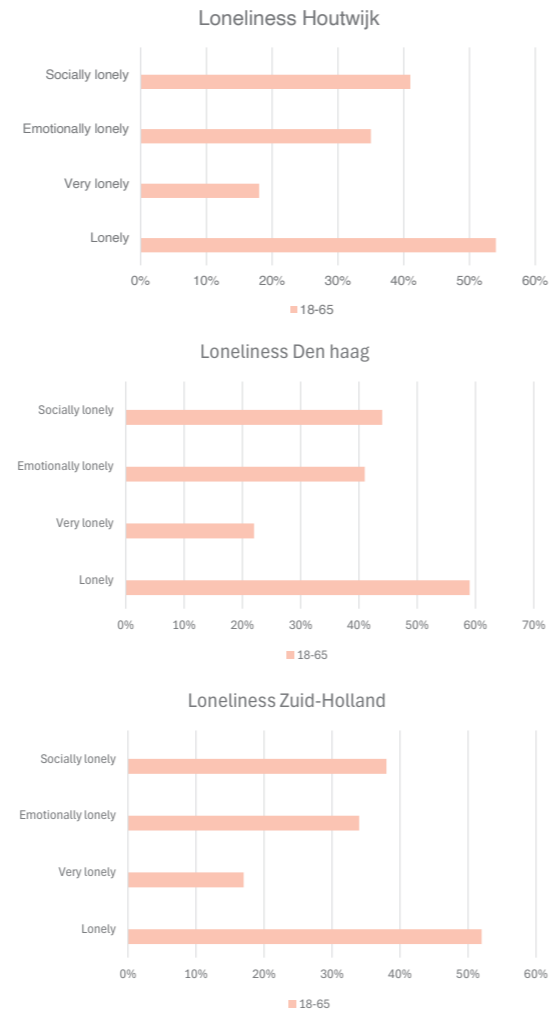


Figure 6: Loneliness (AlleCijfers.nl, 2024)

At the same time, the social position of adults at the age of 65 and older in Houtwijk is increasingly fragile. As shown in Figure 6, levels of loneliness among older adults in Houtwijk are high. 55% of the residents aged 65 and older experience a form of loneliness.⁷ Public spaces and community facilities in Houtwijk primarily cater to young children and families. The mismatch between the physical environment and the needs of older residents contributes to social isolation and reduces their perceived quality of life.



Figure 7: Public facilities Houtwijk (Research report, 2025)

These issues are amplified by the advancing ageing of the neighbourhood. With nearly 24% of residents already over the age of 65. An increasing number is approaching this age range. Meaning that Houtwijk is facing a demographic shift that will intensify in the coming years.⁸ The absence of appropriate housing options for older adults is a central issue. The neighborhood offers few age-inclusive amenities, as becomes clear from the functional map in Figure 7. And high levels of loneliness further complicate the situation. Together, these conditions place older adults at the core of Houtwijk's future challenges.

Summary

The core of the problem lies in the lack of suitable housing options for older adults who wish to continue living independently. This group is growing and affected by the disappearance of intermediate care housing and the rising pressure on informal care. The focus lies on housing at a neighbourhood or building scale, where self-contained dwellings are combined with a low level of on-site or nearby support, rather than institutional nursing home care.

Houtwijk has a high share of older residents living in family houses, but the neighborhood offers insufficient age appropriate alternatives. Besides this, over 50% of older residents face loneliness and social vulnerability. The limited availability of suitable housing options for older adults prevents the housing market from functioning effectively and limits housing flow. In addition, it negatively affects the daily lives and overall wellbeing of older residents.

To address these challenges, this report focuses on identifying what type of housing could support older adults in Houtwijk. The research is guided by the following central question:

How can housing for older adults be spatially designed to support active ageing and contribute to better housing flow in Houtwijk?

To answer this main research question, the report uses these sub-questions:

- Which spatial and typological characteristics of the existing housing stock in Houtwijk limit or support housing flow for older adults?
- How can housing design support active ageing at the scale of the dwelling, the building, and the immediate environment?
- How can housing for older adults encourage residents to relocate within Houtwijk?

⁶ Studio Participants, 'Interviews', Research booklet, (TU Delft, 2025)

⁷ N.a., 'Eenzaamheid', Gezondheid in de buurt Houtwijk, (AlleCijfers.nl, 2024)

⁸ N.a., 'Inwoners per leeftijdsgroep in de buurt Houtwijk', Statistieken buurt Houtwijk, (AlleCijfers.nl, 2025)

How can housing for older adults be spatially designed to support active ageing and contribute to better housing flow in Houtwijk?

- 1 Which spatial and typological characteristics of the existing housing stock in Houtwijk limit or support housing flow for older adults?
- 2 How can housing design support active ageing at the scale of the dwelling, the building, and the immediate environment?
- 3 How can housing for older adults encourage residents to relocate within Houtwijk?

- People often feel too young or healthy to move while they are still working or have children at home.⁹
- The housing should be embedded in a community with family homes, ensuring that the sounds and activities of other generations are present in everyday life.
- People with a low income have little confidence in finding suitable housing.¹⁰
- Houtwijk has a relatively low average income.

Empty nesters 65+ Retired



⁹ Jens Hellewaard, 'Conclusies - woningeigenaren (NL)', *Wat beweegt senioren om de verhuistap te maken?*, (PLATFORM31, 2026), p. 32
¹⁰ 'Kunnen - alle doelgroepen', (Platform31, 2026), p. 29



APPROACH

- Methods
- Planning
- Theoretical framework

Designing Health & Care Graduation Studio

Methods

This research applies a ‘research by design’ approach. Various research methods are combined to develop a design that supports the housing needs of older adults in Houtwijk. In this chapter we outline and motivate the adopted approach for this research.

Literature

Literature research focuses on two main themes. These include the concept of ‘active ageing’ and the spatial and social criteria that support it. The second addresses the current conditions of the living environment for older adults.

Analysis on current situation in Houtwijk

Quantitative data from the Research Report of the Health & Care studio is used to analyse demographic characteristics, housing data and neighbourhood structures. The data is used to decide on possible locations for new housing in the existing urban fabric.

Workshop

Through a participatory workshop with residents of Houtwijk, insights are gathered into their current living situation. How they experience their homes, and their preferences for future housing.

The workshop explores topics such as daily use of the dwelling, perceived shortcomings, and the extent to which residents feel their homes are suitable for ageing in place. In addition, it addresses residents’ views on relocation, including conditions in which they would consider moving, as well as motivations and barriers related to leaving their current home.

Case studies

Relevant case studies of existing housing for older adults are analysed. The aim is to understand which design strategies and criteria contribute to comfort and social interactions. In particular, the research focuses on case studies that promote active ageing, both on a social and physical level. Projects are selected that stimulate social interaction, community participation, and opportunities for physical activity.

By analysing these case studies, insights can be gained into which spatial and programmatic functions support an active lifestyle for older adults. The selected cases also provide inspiration for architectural forms, spatial organisation, and design solutions. In this way, the case studies help identify the most appropriate functions for the building and can lead to new insights into possible design approaches.

Combining research and design

Based on literature, data analysis, interviews and case studies a set of design criteria is established and applied on the design proposal. Where necessary, additional information is gathered to further refine these criteria. The final design translates the research outcomes into a housing model that supports active ageing and contributes to the housing market flow in Houtwijk.



Planning

Q6



Week 2.1 - 2.3

- Introduction
- Fieldwork
- Generic problem statement



Week 2.4 - 2.6

- General research booklet
- Specific problem statement
- Research questions



Week 2.7 - 2.10

- Methods
- Theoretical framework
- Argumentation on design location
- Model of location
- First mass studies

A1 - January 2026

Q7



Week 3.1 - 3.3

- Precedents analyses
- Design research
- Program of the design



Week 3.4 - 3.10

- Typologies
- Volume studies
- Architectural design
- Technical aspects

A2 - March 2026

Q8



Week 4.1 - 4.8

- Design on urban scale
- Design on building scale
- Design on human scale



Week 4.9 - 4.10

- General repetition

A3 - June 2026

Theoretical framework

Living Conditions and Ageing in Place: Supporting Independence and Well-being

The quality of life of older adults is influenced by their physical living environment and community. According to *The World Health Organisation (WHO)* living conditions play a crucial part in the well-being of older adults. Costs of living determine where people live, their level of comfortability and the experience of well-being. Older adults should be able to live independently and comfortably. Besides this, the *WHO* emphasises the value of flexibility in housing layouts and supporting services, because the maintenance of a home becomes more difficult as people age.

Not only the housing unit itself is important, but also the immediate living environment. Accessibility of facilities and services in the neighbourhood are influential factors. Social aspects and a familiar environment foster a sense of connection and community, while opportunities for social interactions help reduce isolation. Older adults need privacy and independence, and the surroundings should offer public space. A balance between calm and lively areas ensures social safety and stimulates interactions.¹¹

Janine L. Wiles, and the publication *Ageing & Society*, build on the concept of 'ageing in place' and supports the *WHO*. Besides the home, environment and community are considered, including the accessibility of social networks, transport, health care and facilities.¹² Research published in *The Gerontologist* emphasises that 'ageing in place' focuses on living in a familiar and trusted environment.¹³

The concept of 'ageing in place' is elaborated in five key aspects: place, social networks, support, technology and personal characteristics. This aligns with research done by *Horner and Boldy (Australian Health Review)*. They described 'ageing in place' as a positive approach intended to meet the needs of older adults and support them in living independently, or with minimal assistance, for as long as possible.¹²

By combining the approach of the *WHO*, concerning living conditions with a scientific approach on 'ageing in place', a coherent framework emerges. The physical home, immediate environment and social context are covered. These guidelines show the influence of spatial interventions on autonomy, well-being and functionality. Applying these insights into the design for older adults, aims to create a living environment for older adults to live independently.

Active ageing

'Active ageing' refers to the process of optimizing opportunities for health, participation and security in order to enhance quality of life as people age (*WHO,2023*). The aim of active ageing is to prolong a healthy life expectancy. Within this framework, health is understood as a state of physical, mental and social well-being. The preservation of autonomy and independence is a core objective.¹⁴

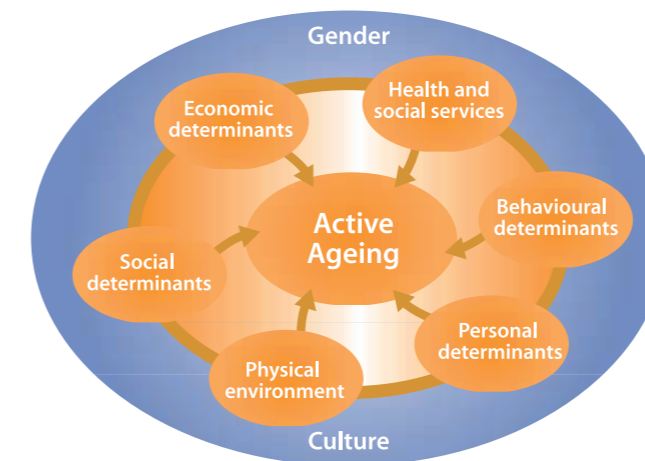


Figure 8: Active ageing model (WHO, 2023)

Active ageing can be categorized into 7 determinants as showed in *Figure 8*. These variate from individual characteristics to broader environmental and social conditions. However, not all determinants can be influenced by architectural design.

This research focusses on three specific determinants: physical environment, social determinants and health and social services. These can be translated into spatial and architectural interventions. Individual factors, like personal and behaviour determinants, can't be influenced by architectural design directly and are therefore not used.

Physical determinant

With increasing age, physical capacity declines. In adults, approximately 50% of body weight consists of muscle mass. In people aged 70 to 80, this is often reduced to only 25%. Lower muscle mass results in a higher risk of chronic diseases. By being more physically active, ageing cells are broken down. This is significant, since two-thirds of older adults report physical limitations.¹⁵



Figure 9: Guidelines for movement (Own drawing, 2026)

At the same time, 25.5% of older adults do not meet the physical activity guideline of thirty minutes of light-intensity exercise five times a week, such as walking, gardening, or running errands. In addition, 66% of older adults do not meet the fitness guideline of engaging in twenty minutes of high-intensity physical activity three times a week.¹⁶

Among various possibilities, swimming receives particular attention. It helps with the prevention of respiratory problems, improves the posture, physical condition and offers social advantages. Swimming integration is effective in improving physical fitness of older adults. Besides, it increases self confidence, it improves all aspects of the quality of life and reduces stress and anxiety.¹⁷

Within the built environment, water can support physical activity by encouraging movement and recreation in everyday life. Swimming facilities, therapeutic water environments and water-oriented public spaces can stimulate older adults to remain physically active in an accessible and low-impact manner. In this way, water becomes a spatial element that supports the physical determinant of active ageing.

11 N.a., 'Housing', *Global age-friendly cities: A guide*, (World Health Organization, 2007), p. 30-37

12 Katinka E. Pani-Harreman, Gerrie J. J. W. Bours, Inés Zander, Gertrudis I. J. M. Kempen, Joop M. A. Van Duren, 'Conclusions and implications, Definitions, key themes and aspects of 'ageing in place': a scoping review', (*Ageing & Society*, 2019), p. 2057

13 Janine L. Wiles, 'Discussion', *The Meaning of 'Ageing in Place' to Older People*, (Oxford University Press on behalf of The Gerontological Society of America, 2011), p. 365

14 N.a., 'Active ageing: The concept and Rationale', *Active ageing A policy framework*, (World Health Organization, n.a.), p. 12

15 LMCG, 'Zwemmen als medicijn tegen de rollator', *ZBB*, (zwembadbranche, 2017)

16 N.a., 'Sport', *Enquete: Beweging & Sport*, (nationaal ouderen fonds, n.a.)

17 'Results', (*Acta Scientiarum*, 2019), p. 3-4

Social determinants

Historically, almshouses, or 'hofjes', were among the oldest forms of social housing. A report by Bayes Business School shows that residents who move into 'hofjes' experience an increase in longevity of up to 2,5 years. As residents typically enter 'hofjes' in their early 70s, this corresponds to an extension of approximately 15% of their remaining life expectancy. The research found that 'hof' residents, despite coming from the most disadvantaged socioeconomic group, can expect to live as long as wealthier members of the general population.¹⁷

The spatial qualities of 'hofjes' can be understood through the theory of Jan Gehl's Life Between Buildings. This explains how architectural space facilitates forms of social contact. According to Gehl, the quality of public space influences the extent to which passive and active interactions occur in daily life. Spatial qualities such as visibility, accessibility and opportunities for staying contribute to social involvement and a sense of connection.¹⁸

By facilitating these forms of contact, architectural space can strengthen social participation and reduce isolation among older adults.

Water features can further enhance these social and psychological benefits. The sound of water, with high-energy water stimulating activity and low-energy water promoting calm, creates a sense of safety and can mask unwanted urban sounds. Water areas bring people together for rest and recreation, reduce stress, enhance attention, and evoke joy and comfort, providing clear social and psychological benefits.¹⁹

As collective spaces, water-orientated environments can function as informal meeting places that stimulate encounters between residents.

Health & social services

Within this research, health & social services are approached as integrated components of the everyday living environment. The emphasis lies with the prevention and promotion of health. With this, health promotion is the process of enabling people to take control over and to improve their health. And disease prevention includes the prevention and management of the conditions that are particularly common as individuals age.

As the population ages, the demand for care and medication will increase as well. Especially for delaying and treating chronic illness, relieving pain and improving quality of life. By integrating care and support the focus could shift from treatment to prevention.²⁰

This can be supported through accessible housing, integrated care spaces that encourage daily activity and social interaction. Preventive design strategies can contribute to maintaining independence and reducing the need for intensive care.

Water can contribute to psychological wellbeing and stress reduction through multisensory experiences such as sound, reflection and movement. These environmental qualities can support mental health and create calming living environments for older adults.

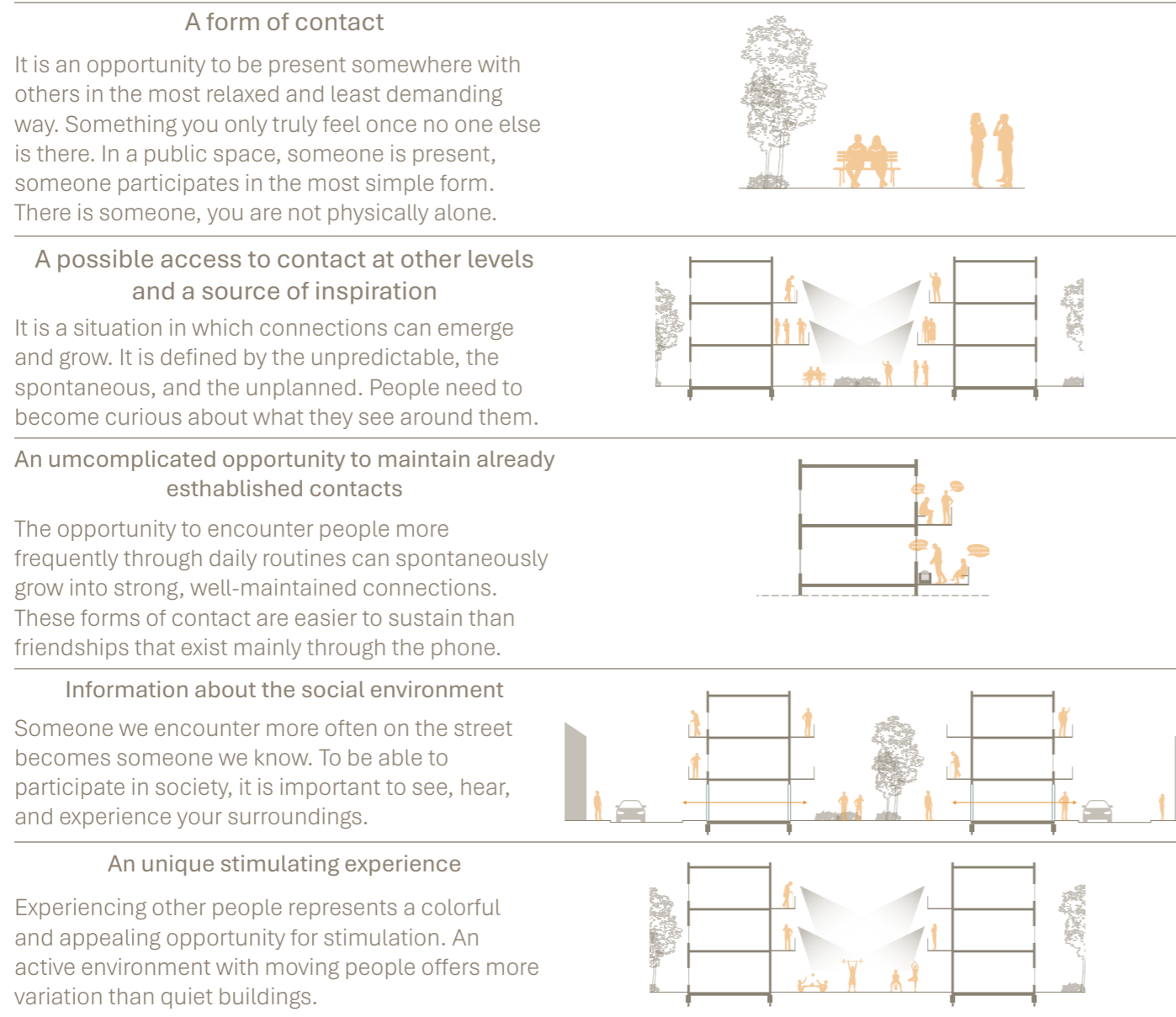


Figure 10: Types of contact (Own drawing, 2026)

17 Amelia Hill, 'Almhouse residents may live up to two and a half years longer, study finds', *Social housing*, (The Guardian, 2023)
18 Jan Gehl, 'Life between buildings', *LIFE BETWEEN BUILDINGS using public space*, (Island Press, 2011), p. 15-22

19 Nicolette van den Bos, 'Human Perception Lens', *Living with water*, (Faculty of Architecture & the Built Environment, Delft University of Technology, n.a.), p. 4-10
20 N.a., 'Determinants Related to Health and Social Service Systems', *Active ageing A policy framework*, (World Health Organization, n.a.), p. 21 - 22

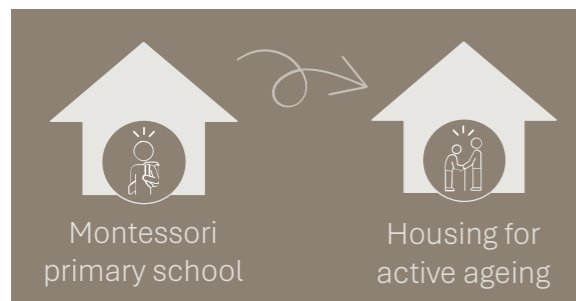
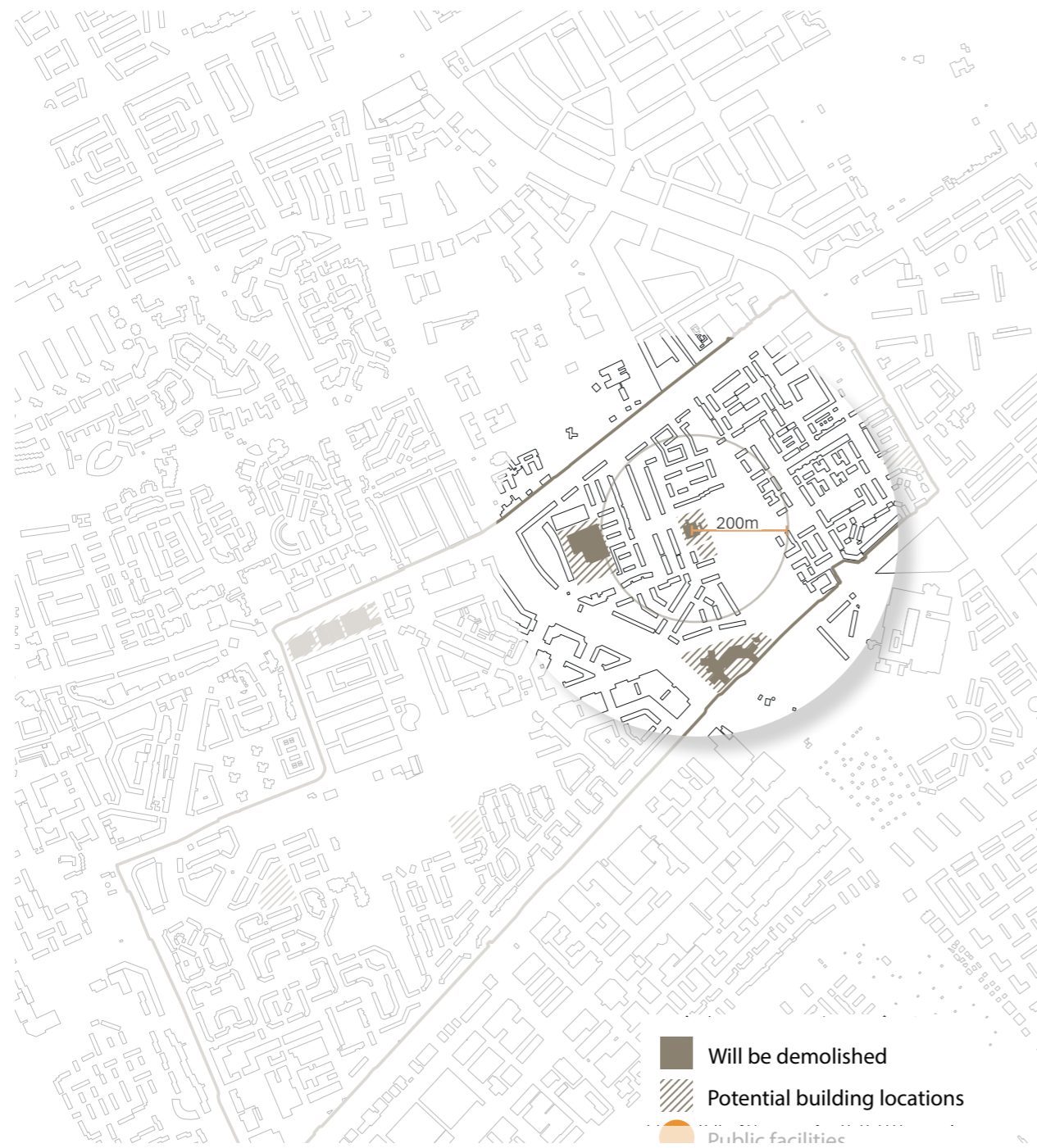


DESIGN CONTEXT

- Site selection
- Site characteristics
- Concept
- Building form

Designing Health & Care Graduation Studio

Site selection



In the northern part of Houtwijk, The Hague, lies Montessori Primary School. The surrounding neighborhood is characterized by family homes that are currently occupied largely by an ageing generation. The site benefits from its direct connection to the Kleine Hout Park, while the quiet residential streets contribute to a calm and pleasant living environment.

Figure 11: Radius surrounding selected site (Own drawing, 2026)

Figure 12: Age groups of residents (Own drawing, 2026)



Figure 13: Public facilities (Own drawing, 2026)







Figure 14: Movement in neighborhood (Own drawing, 2026)

Site characteristics

Natures structures and entrances






Houtwijk has a large amount of nature. The green and blue structures are experienced as positive by the residents but the entrances to the park behind the design location are all very closed of and narrow. This created an unsafe area with dark entrances.

-  Entrance to park
-  Green area
-  Water structures
-  Bike lane



Transportation

The main roads in Houtwijk are located on the boarder. Cars from these roads cause minimal noise nuances. Public transport from the tram and buses is reachable within 400 meters.

-  Neighborhood road
-  Main road
-  Bike lane
-  Bus stop
-  Tram stop



Households, community and safety

Households with older adults are located closely to the site. The residents mention they would consider moving if it would be possible within their community. The new site could serve as a possibility. The main entrance street for the neighborhood runs along the site which makes it a relatively busy used road.









-  Entrance street
-  Unsafe area
-  Households with older adults
-  Community



Figure 15: Zoomed out location analysis (Own drawing, 2026)

Sun and wind




The sun is primarily held back by the trees surrounding the current site. The wind could be considered an obstacle alongside the road, but is already cut of by most of het buildinglines in the neighborhood. The trees also have a positive impact on breaking down the wind.

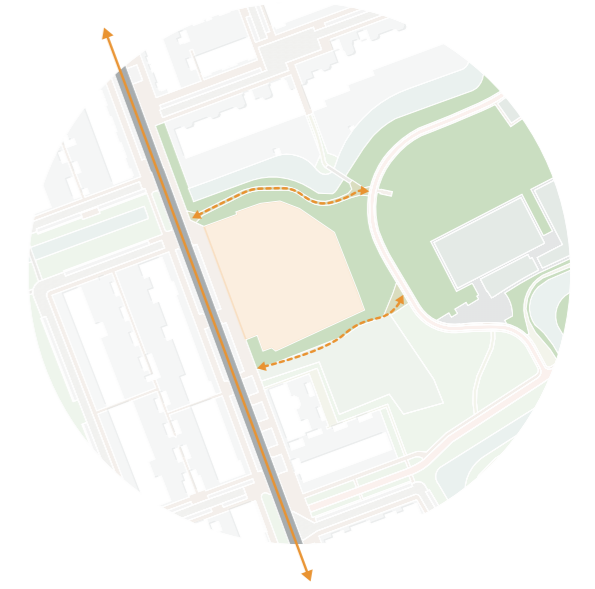
-  Wind orientation
-  Sun path
-  Tree
-  Building line



Main road and paths





The site is easily accessible to the public by the entrance road of the neighborhood. Around the site their are two walking paths that serve as an entrance to the park. These paths are narrow and mostly covered with trees. The current situation is invisible from the street.

-  Main road
-  Park
-  Walking paths



New situation

For the new situation the boarder line of the site will be expanded. The two walking paths surrounding the current site will be combined into one broader visible connection between the street and the park. This creates a safe and inviting path.

-  New boundary
-  Tree
-  Expansion of boundary
-  Sightline

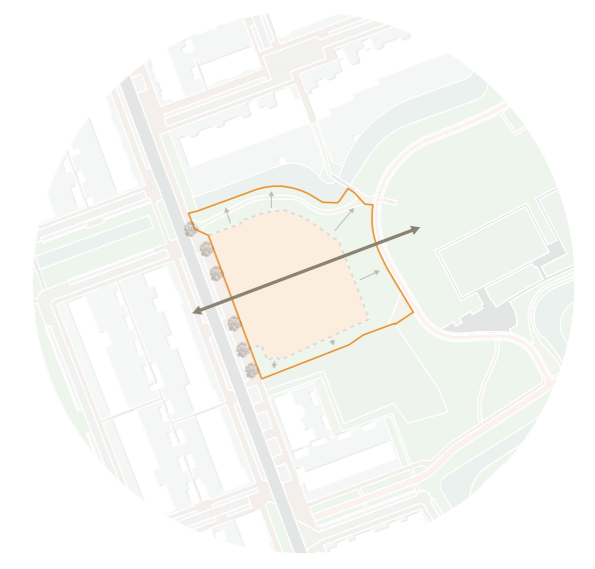
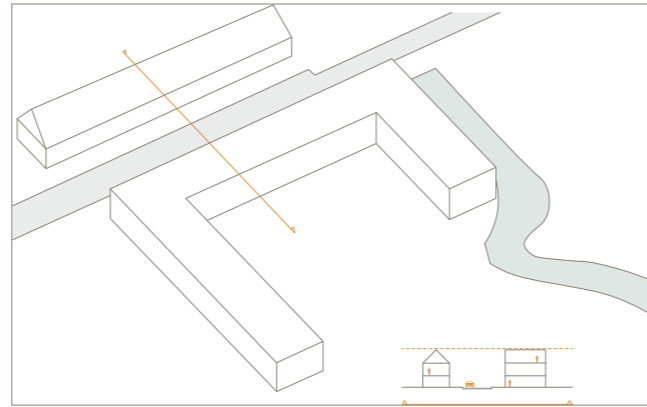


Figure 16: Zoomed in location analysis (Own drawing, 2026)

Building form

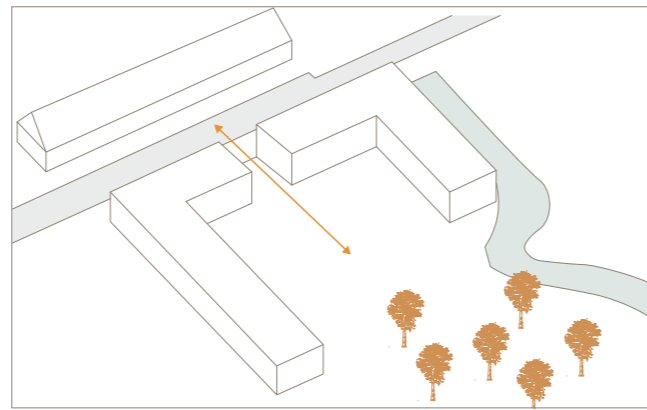
1. Almhouse form

The U-shaped form of the building block is based on the idea of a courtyard which stimulates encounters and a form of social control. Residents pass each other regularly, this creates this social control and feeling of community. According to the research this contributes to well-being, health and prolonging of the life expectancy.



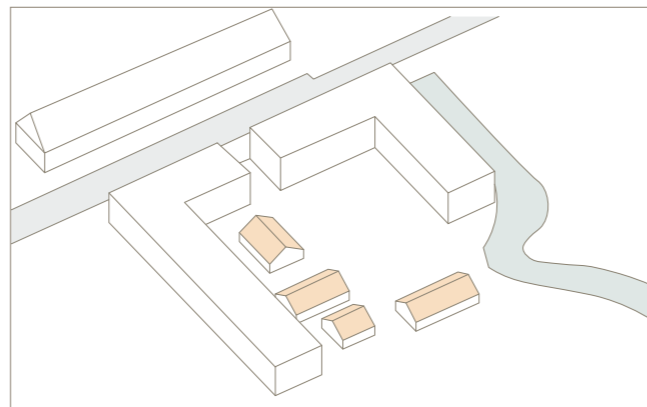
2. Connection neighborhood & park

Removing two paths creates more space and gives the opportunity for a new route to the park which is open, safe and clear. With this a connection between neighborhood and park is formed.



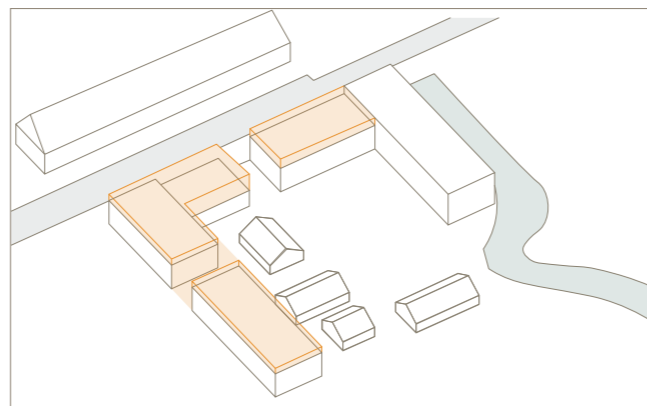
3. Public functions

The public functions are given a different building form with a sloped roof, which sets them apart from the dwellings.



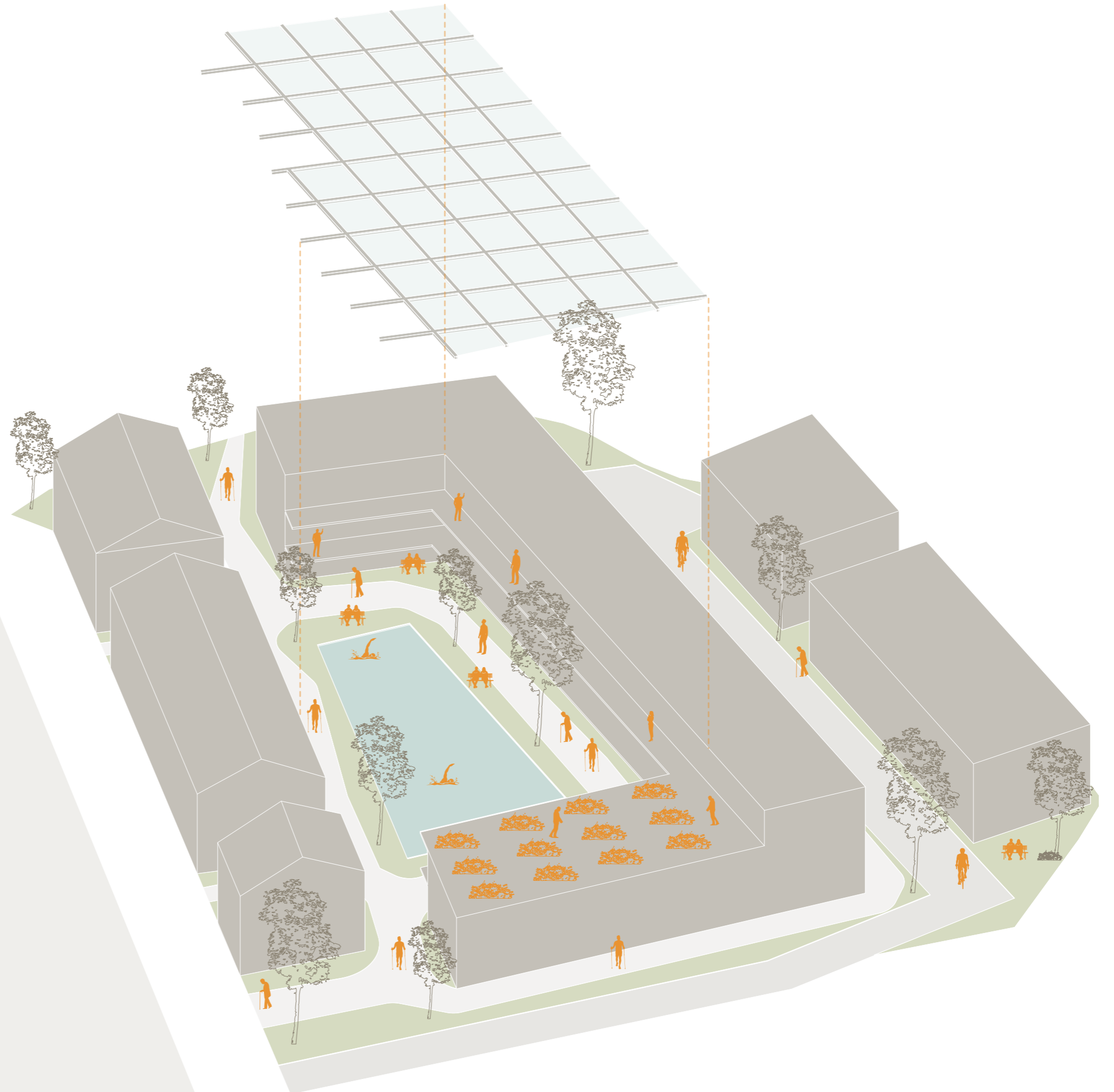
4. Sun study

Variations in building heights improve the access of sunlight into the courtyard. In addition, more space is created along the side, allowing additional sunlight to reach the area.



Concept

The next
current





RESULTS

- Existing housing stock
- Active ageing
- Relocating in Houtwijk
- Casestudies

Designing Health & Care Graduation Studio

1. Existing housing stock

Houtwijk largely consists of multi-storey row houses and was originally developed as a family-orientated neighborhood. However, nowadays it is experiencing an ageing population. 24% of the current residents are 65 and older, but within the coming 20 years this could rise to almost 50% of the residents.²¹ This demographic shift increases the pressure on the existing housing stock. The existing housing stock in Houtwijk has supporting, as well as limiting characteristics that influence the housing flow for older adults. Overall, the limiting characteristics dominate.

The housing stock in Houtwijk is dominated by family homes. The accessibility of these houses depends on the mobility of their residents, as the houses have stairs and raised thresholds. These characteristics don't pose an immediate problem to active older adults. Stairs and thresholds can become barriers to independent living as mobility declines. This is supported by the workshops, in which many residents expressed a preference for single-storey dwellings or homes with access to an elevator.

Figure 17 shows that the buildings surrounding the design location are row houses that are no longer occupied by young households with children, but by households either without children and by residents approaching retirement age. This indicates a mismatch between housing typologies and household compositions. The workshops confirmed this mismatch, as many residents indicated that their family homes have become too large after their children moved out.

The housing stock in Houtwijk offers mostly multi-storey, non-life-course adaptable rowhouses with few alternatives in the immediate surroundings. The lack of typological variation within the existing housing stock limits housing flow for older adults and increases the mismatch between the housing stock and the ageing population.

The neighbourhood offers a strong connection to the living environment, which supports ageing in place. This attachment is reinforced by the importance placed on social contact, green spaces and local facilities during the workshops. Meanwhile, the suitability of the housing as people age decreases. There is a lack of life-course adaptable housing typologies in the neighbourhood that give older residents the possibility to move within their current living environment. Workshop participants expressed a preference for housing typologies that combine opportunities for social interaction with privacy and independent living, such as an almshouse. In addition, the absence of an intermediate housing typology between independent family housing and assisted living facilities further limits opportunities for relocation within the neighborhood.²²



Figure 17: Mismatch of rowhouses and households (AlleCijfers.nl, 2025)

21 N.a., 'Statistieken buurt Houtwijk', *AlleCijfers* (AlleCijfers.nl, 2025)
22 Workshop with residents of Houtwijk, (Getting to know the user, 2025)

2. Active ageing

The ageing population in the Netherlands increases the urgency of designing living environments that support active ageing. Architecture can contribute to an active and independent lifestyle at the scale of the dwelling, the building and the immediate environment.

Within active ageing this research focusses on the physical determinants, social determinants and health & social services. These determinants translate into spatial interventions at dwelling, building and the immediate environment scale.

During the workshop, residents highlighted the importance of opportunities for movement, social interaction and access to water-related elements such as fountains, streams and swimming facilities within the immediate environment. Combining various water features can support active ageing through movement, sensory and social experiences and collective use.

2.1 Physical determinant

As discussed in the theoretical framework, physical activity is essential in maintaining health, independence and physical capacity among older adults. Therefore, the built environment should encourage movement and everyday activity at the scale of the dwelling, the building, and the immediate environment.

Within this context, water-based activities can support active ageing by stimulating physical movement in an accessible and low-impact way.

Water-based activities can also take place in a social setting, where group activities create opportunities for interaction, communication and a sense of belonging.²³ The movement of water and the presence of people around it can encourage everyday activity and engagement. Furthermore, the presence of water contributes to the environment through its natural appearance, allows light to enter both the home and the surrounding area, supports biodiversity, and the constant sound of water creates a sense of calm.²⁴

Integrating water within residential environments can stimulate movement, support informal interaction, improve environmental quality and create calming sensory experiences that contribute to the physical determinant of active ageing.

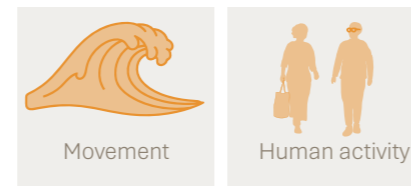


Figure 18: Water features (Own drawing, 2026)

2.2 Social determinants

Social interaction within the living environment contributes to participation, social safety and sense of belonging among older adults.

A 'hof' typically consists of buildings arranged around a car-free or low-traffic courtyard. This typology creates a semi-public and enclosed living environment in which cars are kept out of sight, allowing space for social interaction and little noise. These qualities support the social determinant of active ageing by encouraging everyday interaction and reducing social isolation.²⁵

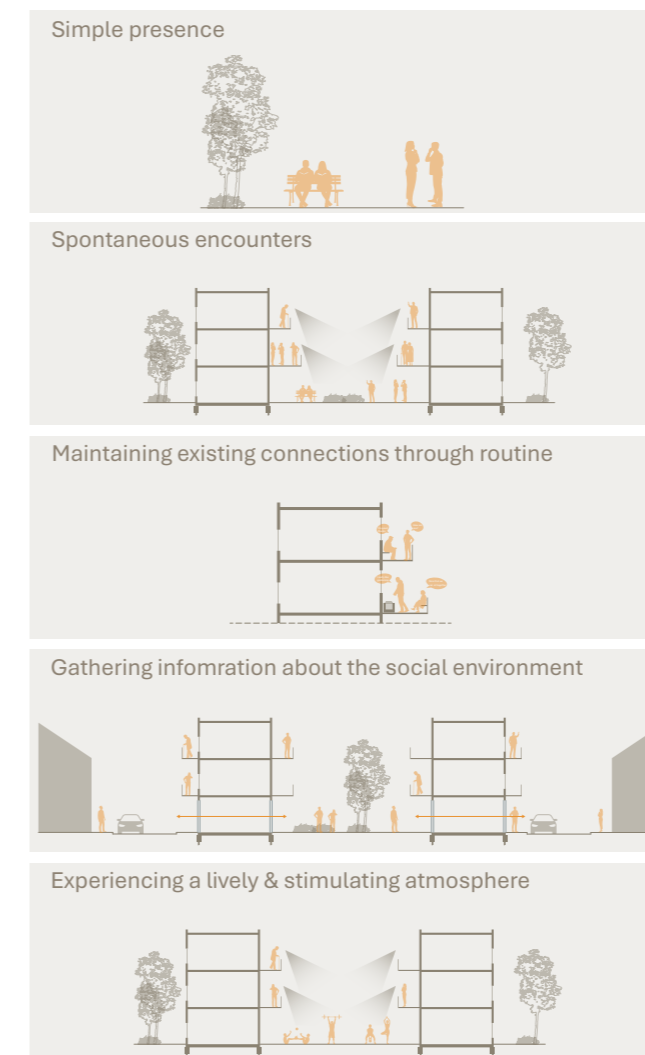


Figure 10: Forms of social interactions (Own drawing, 2026)

Spatial implications of case studies

The case study research shows that the 'hof' typology can contribute positively to social interaction, neighborhood connection, and the living quality of older adults when a balance is created between public and private space. The historical 'hofjes' demonstrate the spatial strength of enclosed forms and clear sightlines, which stimulate recognisability and informal social contact between residents.

At the same time, the analysis also reveals the limitations of fully enclosed 'hof' structures, where the courtyard becomes disconnected from the surrounding neighborhood and functions mainly as a private domain. The more contemporary case studies illustrate how a 'hof' can remain connected to its urban context by incorporating public routes and spaces that invite movement, activity, and interaction. These public transitions contribute to a more active and socially connected living environment while strengthening the relationship between the building, its residents, and the surrounding neighborhood.

For the design proposal, this means that the 'hof' should not function as a completely closed courtyard, but as an accessible and connected public space with clear spatial transitions between public and more private areas. A clear routing structure can create this balance by maintaining privacy around the dwellings while allowing the courtyard to contribute to the social and spatial quality of the neighborhood.

In this way, the spatial qualities of the 'hof' typology are used to strengthen both community formation within the housing complex and the connection to Houtwijk.

²³ Daniel Vicentini de Oliveira, Lucas Guilherme Muzolon, Mateus Dias Antunes and José Roberto Andrade do Nascimento Júnior, 'Introduction, *Impact of swimming initiation on the physical fitness and mental health of elderly women*, (Acta Scientiarum, 2019), p. 1

²⁴ Berry Ijmker, 'Hoeveel planten zwembijver? | zwembijver verhouding planten', *Zwembijver aanleggen*, (BERRY IJMKER natuurlijke zwembijver, 2021)

²⁵ Willemijn Wilms Floet, 'hofjes van liefdadigheid', *nieuwe open ruimte in het woon ensemble*, (n.a., n.a.), p. 17-23

These findings demonstrate the need for a contemporary reinterpretation of the 'hof' typology, in which social enclosure is balanced with daylight, privacy and urban integration.

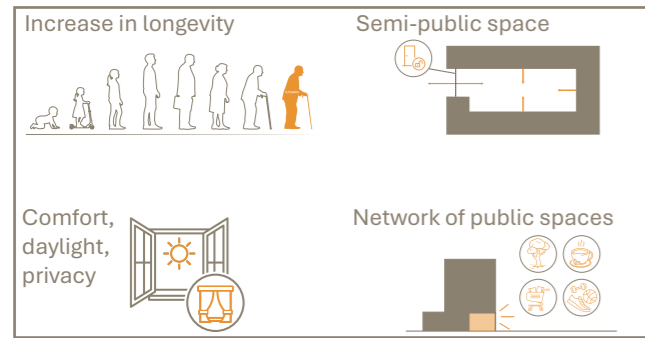


Figure 19: Principles of the hofes typologies (Own drawing, 2026)

Incorporating these principles, contemporary 'hof'-inspired designs can combine the benefits of historical aspects with modern standards of comfort and accessibility.

Water features can strengthen communal outdoor spaces by improving sensory comfort and encouraging residents to spend time outside.¹⁹

These principles influence social interaction across the scale of the dwelling, the housing complex and the surrounding neighborhood.

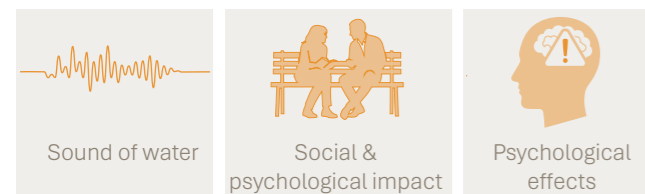


Figure 20: Water features (Own drawing, 2026)

2.3 Health & social services

Health and social services are already introduced in the physical and social determinants, it can be integrated into the everyday living environment through spatial design. At the scale of the dwelling, health and social services become important in supporting independent living and encouraging safe use of shared outdoor environments.

A workshop with residents from Houtwijk highlighted that having a self-sufficient home is crucial. While residents value social contact, they prefer sheltered spaces outside their home, as these create a sense of safety and encourage them to spend time in the outdoor environment. Similarly, access to essential facilities, such as toilets outside the dwelling, motivates residents to leave their homes. To further support social interaction beyond the immediate housing complex, residents expressed a strong preference for guest rooms. These spaces allow them to host visitors and also facilitate the temporary presence of home care workers, providing flexibility and security when health needs arise.

Other health and social benefits extend to the building and immediate environment. Water, for example, can be integrated into courtyards, facades, or adjacent outdoor spaces to enhance wellbeing. Reflection and light from water surfaces, visible from windows or near building facades, create calmness and harmony indoors and in semi-public spaces. Form, such as gentle, natural shapes, supports relaxation. Ecology, supported by water, sustains greenery and natural elements in the immediate environment, contributing indirectly to health and social wellbeing. This demonstrates the importance of integrating flexible support spaces within the housing environment, allowing care to become part of everyday living rather than a separate institutional system.

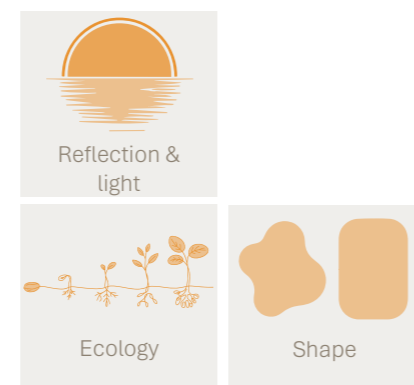


Figure 21: Water features (Own drawing, 2026)

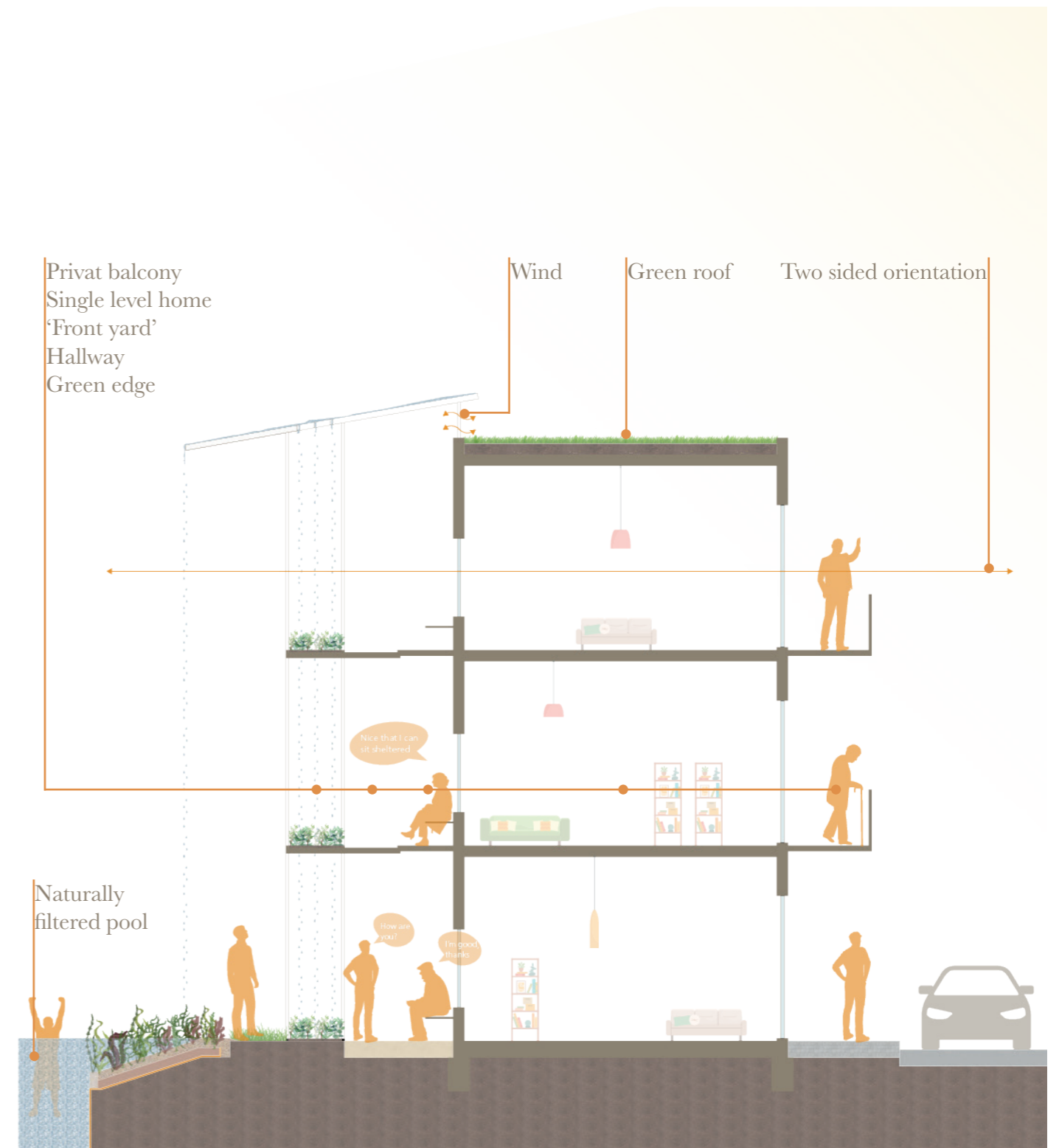


Figure 22: Principle for active ageing (Own drawing, 2026)

19 Nicolette van den Bos, 'Human Perception Lens', *Living with water*, (Faculty of Architecture & the Built Environment, Delft University of Technology, n.a.), p. 4-10

2.4 Water as the instrument

As water is the main instrument of the design, it supports active ageing across the scale of the dwelling, the building, and the immediate environment. It encourages movement, promotes social encounters, and contributes to comfort, safety, and wellbeing.

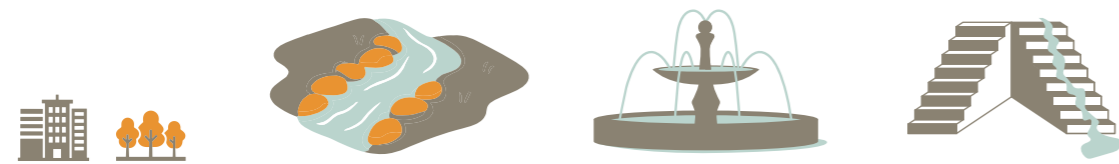


Figure 26: Design scales (Own drawing, 2026)

Rather than addressing a single aspect of active ageing, water can simultaneously support movement, social interaction, environmental quality and psychological wellbeing across multiple spatial scales.

Design principles

Sound of Water
High energy water stimulates, low energy water calms. The noise gives a feeling of safety and can mask unwanted urban sounds.



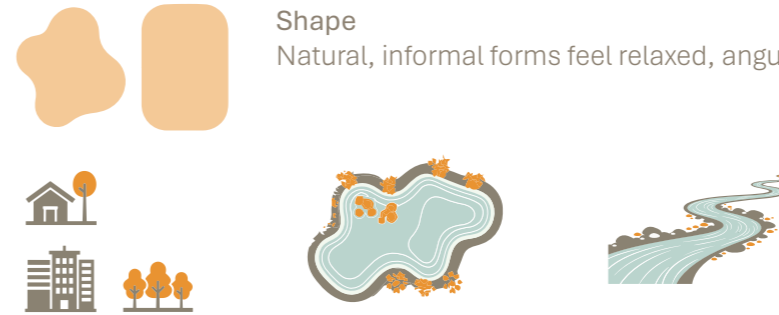
Reflection & Light
Water reflections create calmness and harmony. They can reflect light indoors, facades and water surfaces enhance this.



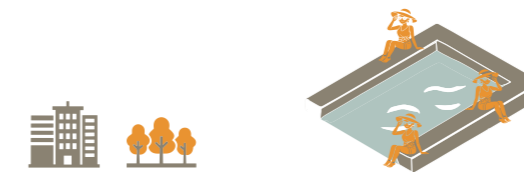
Movement
Variation in the flow of water attract people and affect movement and social interactions.



Shape
Natural, informal forms feel relaxed, angular forms are more formal.



Social & Psychological Impact
Water areas bring people together for rest and recreation. Water also reduces stress, enhances calmness, attention, and evokes joy and comfort.



Psychological Effects
Waterfalls and mist produce negative ions with increase serotonin and decrease depressive feeling. Urban areas tend to have a shortage in this.



Human activity
Water can stimulate people to move and be active within their immediate environment.



Ecology
A green surrounding can only be accomplished with a water supply.



Additions to the 'Human perception lens' to complete the functions of water within active ageing

Figure 23: Designprinciples (Own drawing, 2026)

3. Relocating in Houtwijk

Willingness to move

For many older adults, relocation is perceived as a complex and undesirable process. This is related to the complexity of the moving process and uncertainty about finding a suitable alternative within the neighborhood. In general, the older generation of residents in Houtwijk are comfortable in their current home and living environment.⁹

Familiarity and location

It appears from conversations with residents of Houtwijk that the willingness to move strongly depends on the preservation of this familiarity. An important condition for relocation is that the new dwelling remains within the same neighborhood.

Living and spatial quality

In addition to location, spatial and programmatic qualities of the home are also decisive. For a long-term perspective, single-level living is considered essential. Simultaneously, the current family homes are equipped with a private garden, considered an essential part of their living quality.

Balance between privacy and collective

Although privacy is important, residents are open to collective facilities and spaces, provided they serve as a complement and do not come at the expense of their own independent home. Within this context the concept of a hofje is considered positively. The typology offers a balance between easily accessible social contacts and the possibility to withdraw in their own home.

Dwelling size and flexibility

Regarding the dwelling size, it appears a more compact dwelling is acceptable, as long as the functional quality remains. The workshops and interviews showed that a minimum of three rooms was preferred to maintain flexibility and independence.²⁶

Program

Based on these findings, it can be concluded that the willingness to move is not considered a necessity, but depends on the extent to which the new dwelling can equal or improve upon the current quality of living while responding to the changing needs of ageing residents. Familiarity with the immediate environment and the preservation of social networks form important conditions for relocating. In addition, the dwelling itself must offer a high degree of independence, privacy, and spatial quality through single-level living and access to a private outdoor space.

Meanwhile, the addition of collective spaces and facilities can stimulate social contact. These findings result in concrete design requirements for the program, which form the basis of the functional concept and consider both the physical and social connection to place. By combining these spatial and social qualities within a familiar environment, architecture can lower the threshold for relocation and stimulate housing flow within Houtwijk. Relocation within Houtwijk can be encouraged through housing typologies that combine accessibility, independence, privacy and collective qualities within a familiar neighborhood context.



Figure 24: Program (Own drawing, 2026)

⁹ Jens Hellewaard, 'Conclusies - woningeigenaren (NL)', *Wat beweegt senioren om de verhuistap te maken?*, (PLATFORM31, 2026), p. 32

²⁶ Own work, 'Workshop', *Getting to know the user*, (Faculty of Architecture & the Built Environment, Delft University of Technology, 2026), appendices



CONCLUSION & DISCUSSION

- Conclusion
- Implications & recommendations
- Reflection

Designing Health & Care Graduation Studio

Conclusion

How can housing for older adults be spatially designed to support active ageing and contribute to better housing flow in Houtwijk?

The growing population of older adults in the Netherlands needs a living environment which supports active ageing on a physical, social and mental level. Architectural design can support active ageing by facilitating movement, social interaction and independent living across different spatial scales.

The research into the existing housing stock of Houtwijk showed that the neighborhood is currently dominated by multi-story family homes that are increasingly occupied by ageing and smaller households. The limited variation in housing typologies and the lack of life-course adaptable dwellings restrict housing flow within the neighborhood. This demonstrates the need for housing that better responds to the changing spatial and accessibility needs of older adults while allowing them to remain within their familiar environment.

Providing attractive and supportive housing for older adults can both enhance active ageing and encourage relocation within the neighbourhood. By enabling older adults to relocate within their own neighborhood, larger family dwellings can become available for younger households, improving housing flow within Houtwijk.

In addition, the research into active ageing showed that architectural design can support physical activity, social interaction, wellbeing, and health across the scale of the dwelling, the building, and the immediate environment.

Within this framework, water functions as a spatial design instrument that connects the different determinants of active ageing. It supports movement, stimulates social interaction and contributes to environmental quality and mental wellbeing through sensory and ecological qualities.

The research also showed that willingness to relocate within Houtwijk depends strongly on preserving familiarity, independence, privacy, and social connections. Older adults are more willing to move when the new housing maintains the qualities of their current living environment while responding to changing needs related to ageing. Collective spaces are most effective when they support informal encounters while remaining secondary to independent living.

The research demonstrates that life-course adaptable housing, collective spaces and carefully designed public to private transitions can support active ageing while improving housing flow within Houtwijk. These clear transitions between private dwellings, the collective courtyard and public routes create opportunities for social interaction while maintaining privacy and independence. In this way, the design responds to both the demographic development of the neighborhood and the need for improved housing flow for older adults.



Active ageing on the dwelling



Water is used as the instrument to enhance the daily experience and well-being of older adults. Multiple elements spatially articulate this.

1. Reflection and light

The experience of light in the dwelling is also influenced by water elements. A window with fused glass creates a water-like structure through the living room. On the other side of the dwelling a perforated aluminium facade cladding filters the light that comes through like drops of water on a window. Besides this, the cladding functions as a barrier between the private dwelling and the public gallery.

2. Shape

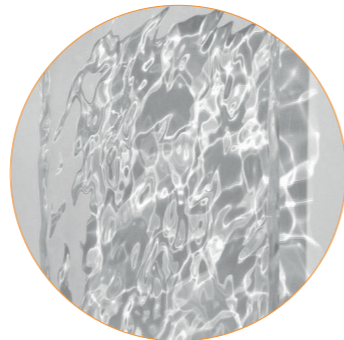
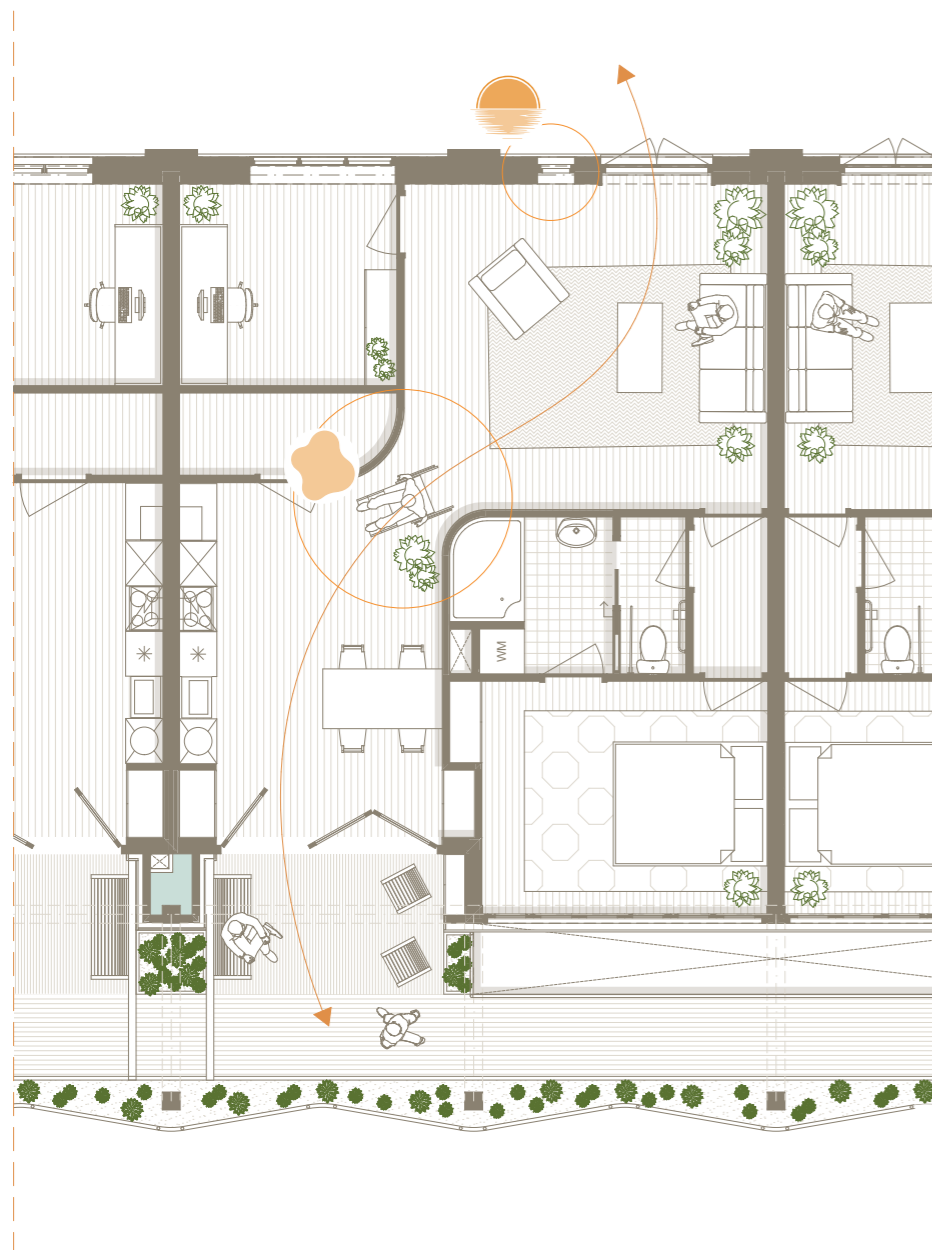
The spatial shape of the dwelling is inspired by the flowing characteristics water has. Rounded walls create a gentle transition between spaces and give one larger space the feeling of two separate rooms without interrupting the flow. This space connects both sides to the facade and with that the outerspace while giving the residents the choice between a more public room next to the gallery or a space where residents can withdraw themselves from the public.

3. Psychological effects

Water is used to foster mental tranquility. The rainwater collected from the roof is stored on the gallery. This storage creates a vance between the 'frontyard' on the gallery and gives privacy to the residents. The soft sounds of falling water has a calming effect, which contributes to stress reduction and relaxes people.

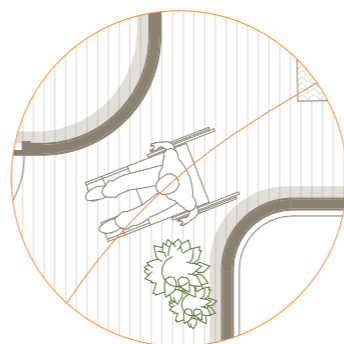
4. Human activity

Water actively becomes a part of daily use. The stored rainwater can be used through a tap. This stimulates physical activity, increases awareness of water usage and enhances the relation between residents and nature.

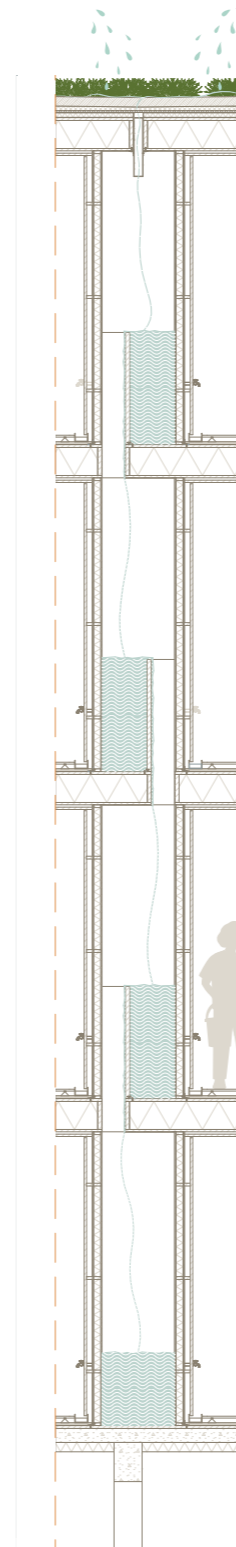


1. Light
Fused glass

<https://hongjiaglass.com/product-item/fused-glass/>



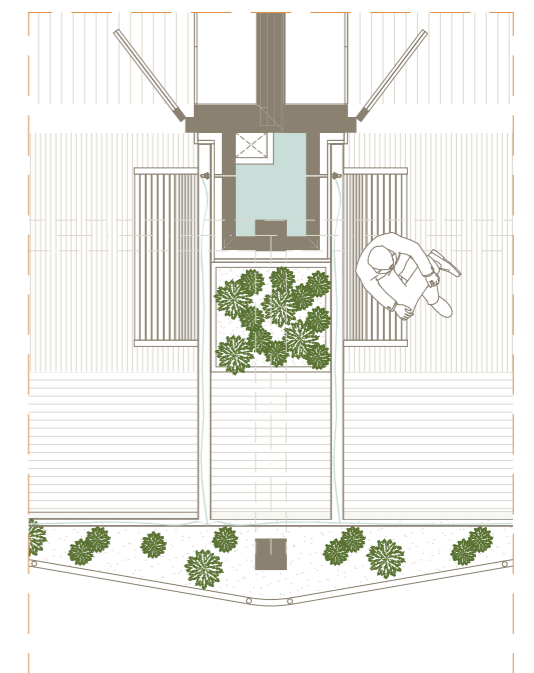
2. Shape
Rounded walls



3. Psychological effects
Soft sounds of falling water



4. Human activity
Use of Rainwater



Active ageing on the building



On the building scale, water is used as the instrument to enhance well-being of older adults, stimulate movement and strengthen social and ecological relations. Multiple elements spatially articulate this.

1. Ecology

Ecological integration is applied visually and functionally. Galleries end with a green strip so residents continuously have a view on greenery. Besides this, green roofs collect rainwater, cool down the building and contribute to the biodiversity.

2. Sound of water

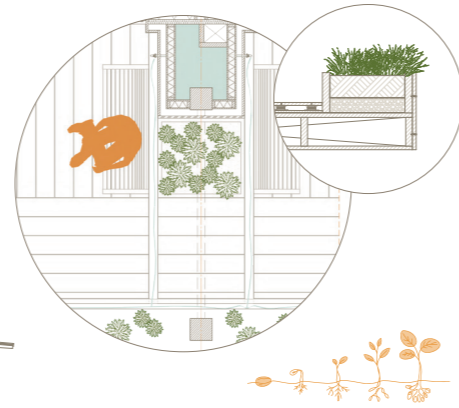
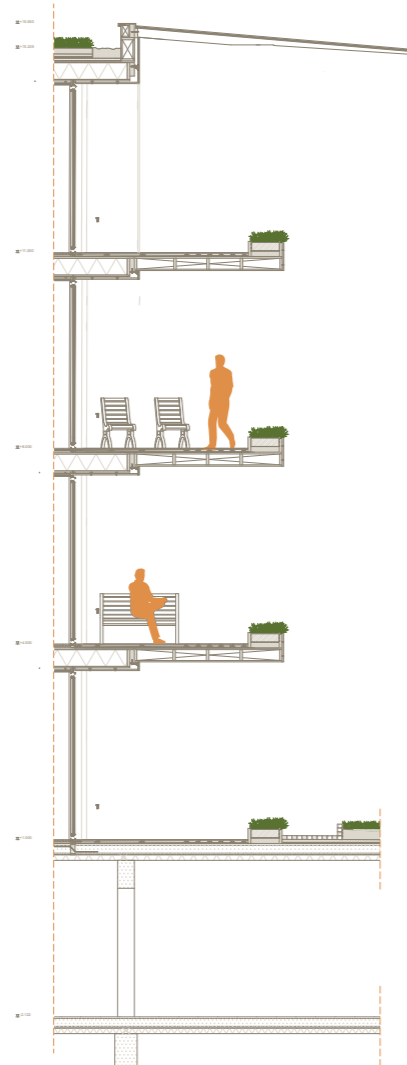
Water has been used as an auditory element to foster calmness and reduce stress. The roof of the gallery slopes down, allowing water to visually fall alongside the gallery. The soft, continuous sound of falling water contributes to a calm living environment.

3. Movement

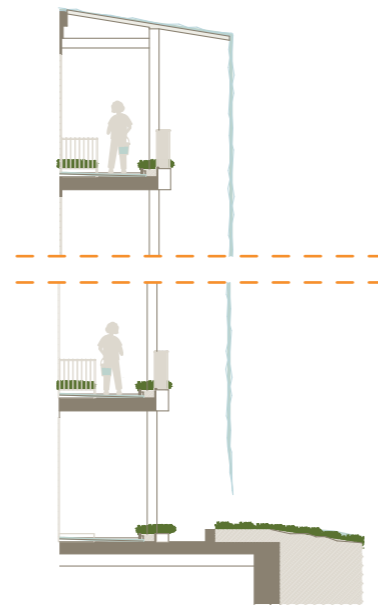
Water introduces dynamic and subtle forms of movement. The rainwater that falls alongside the gallery is visible as lively curtain that stimulates residents to be active. Simultaneously, gutters in the gallery floor ensure a slow and calm water stream that supplies water to the green strip along the gallery.

4. Social & psychological impact

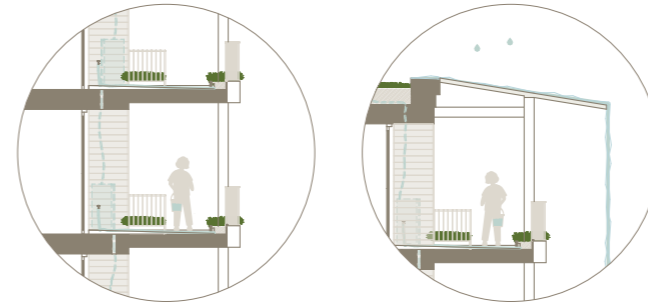
From the gallery and public spaces, residents have a view on the water elements, this encourages them to move to those places. The water elements are places where people can come together for social interactions which contributes to the mental health.



1. Ecology
Green strip

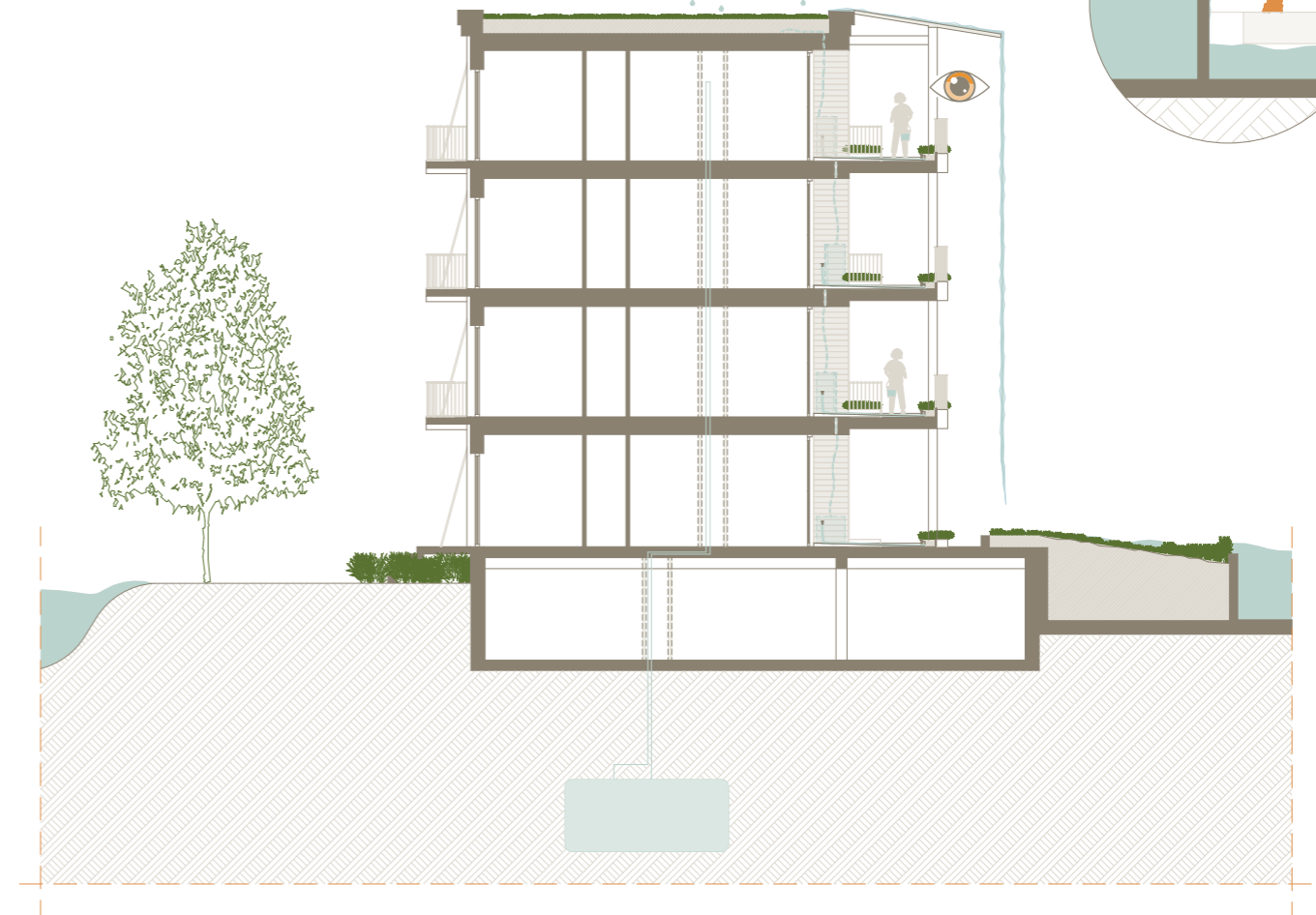
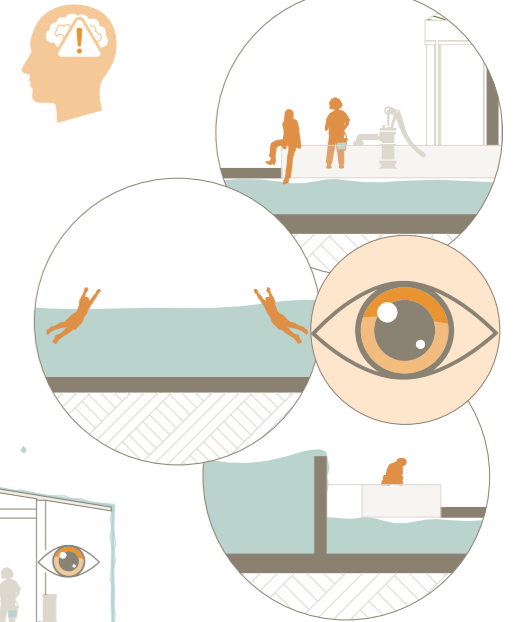


2. Sound of water
Sloped roof



3. Movement
Active gallery

4. Social & psychological impact View in activity



5. Reflection & light

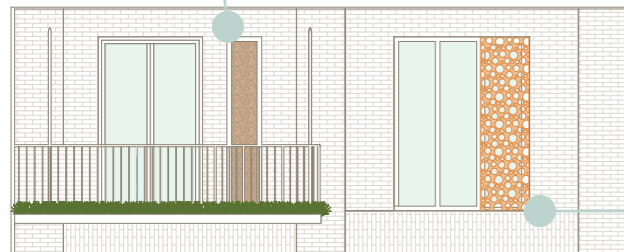
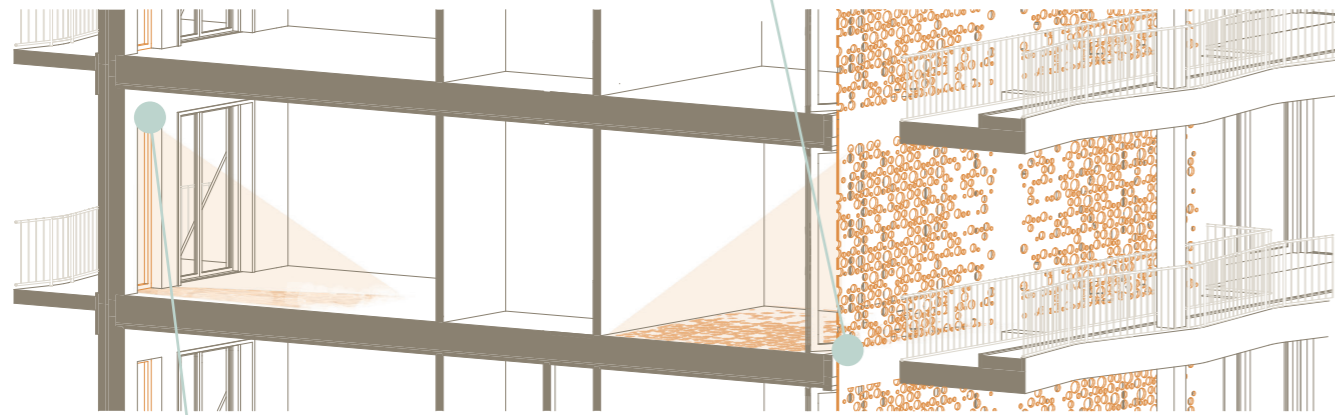
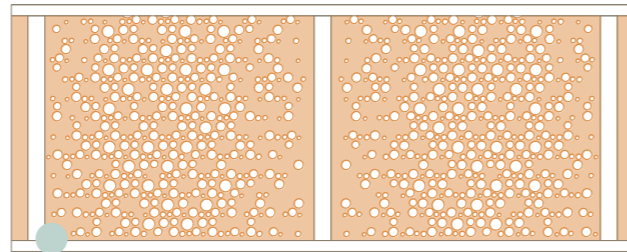
The facade in the courtyard consists of perforated aluminium panels with a pattern of water drops. More perforations shows a room that needs more daylight, while less of no perforations shows a function that doesn't need as much daylight. This creates a dynamic interplay of light, shadow and privacy.

6. Shape

The shape of water is integrated in the aluminium facade cladding in the courtyard. It enhances the image of flowing water and makes the concept visible on the building scale.



6. Shape
Perforated aluminium



The outer facade is primarily dominated by brick, while also reflecting elements of the courtyard. In addition to the fused glass in the living room, perforated aluminium panels, which define the character of the courtyard, are also placed over sections of the windows on the outer facade.

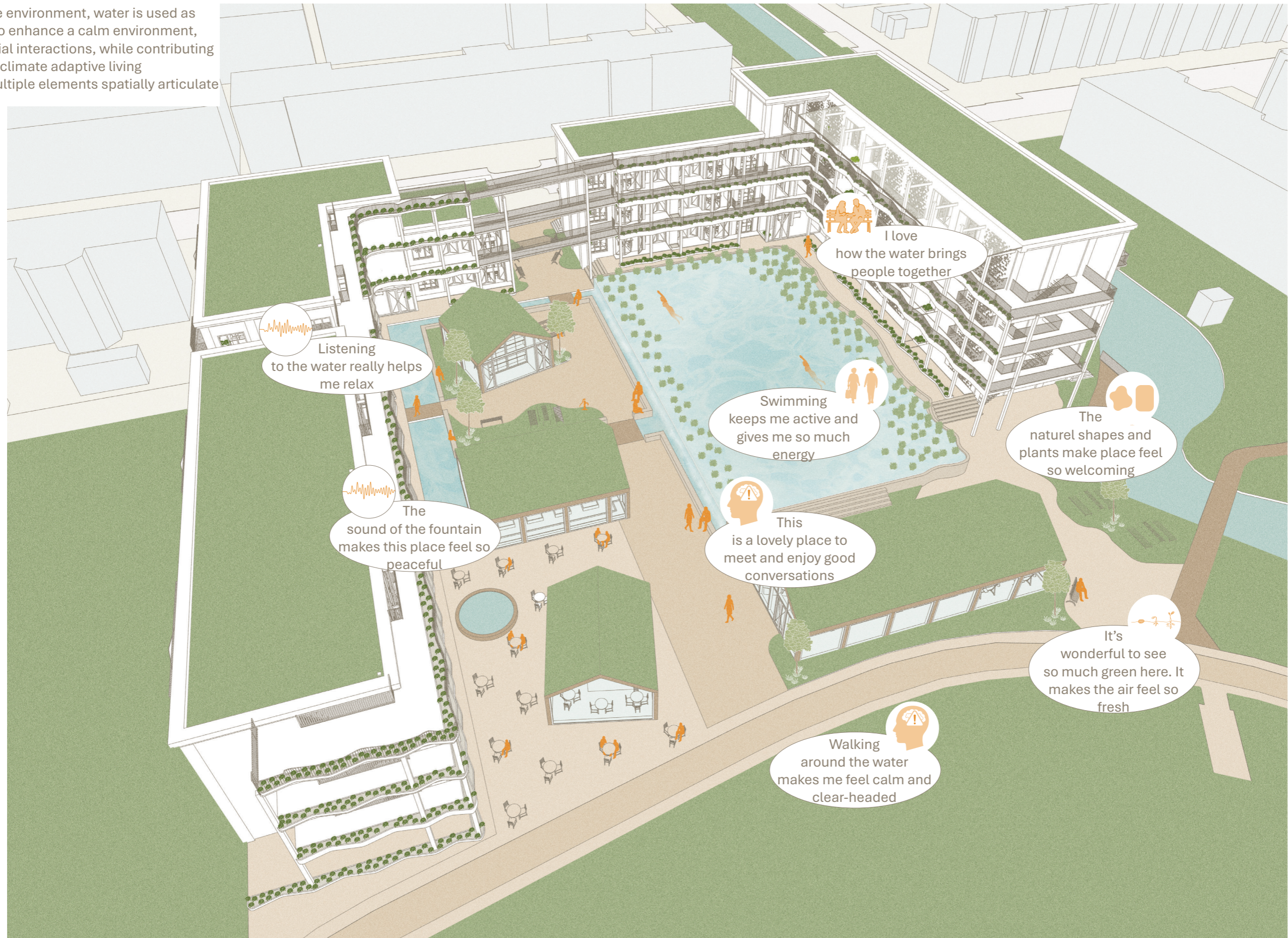


5. Reflection & light
Sunlight reflection in building

Active ageing on surroundings



In the immediate environment, water is used as the instrument to enhance a calm environment, activity and social interactions, while contributing to a healthy and climate adaptive living environment. Multiple elements spatially articulate this.



Implications & recommendations

The design focuses on active ageing and, with that, encouraging social interaction. Public routes, places to linger near the water and various sightlines are added to create an environment in which interactions and the use of public space are stimulated. However, the degree of actual social interactions depends on the users themselves. Architecture can design conditions in which interaction becomes more likely, but it cannot fully be enforced by a design on its own. Aspects such as social habits, time of use, cultural differences and the feeling of ownership play a major role in this as well.

Adding water, places to sit and greenery could ensure that people stay longer and feel more comfortable. Meanwhile, there is no guarantee that these interventions automatically lead to intensive social interactions. This way, the dynamics of the area will remain unpredictable.

Besides this, the design tries to create a more accessible and safe park by opening up the entrance and with that barrier between neighborhood and park. Removing the physical and visual barrier of the park can invite more people into the park and contribute to social interactions. However, a more open structure doesn't necessarily mean that the whole park will be safer. Besides spatial design, safety is determined by management, lighting, maintenance and social presence.

This shows that architecture can have an important supporting role in stimulating social interactions and improving the spatial experience. The ultimate effect of a space depends on human behavior and use.

Reflection

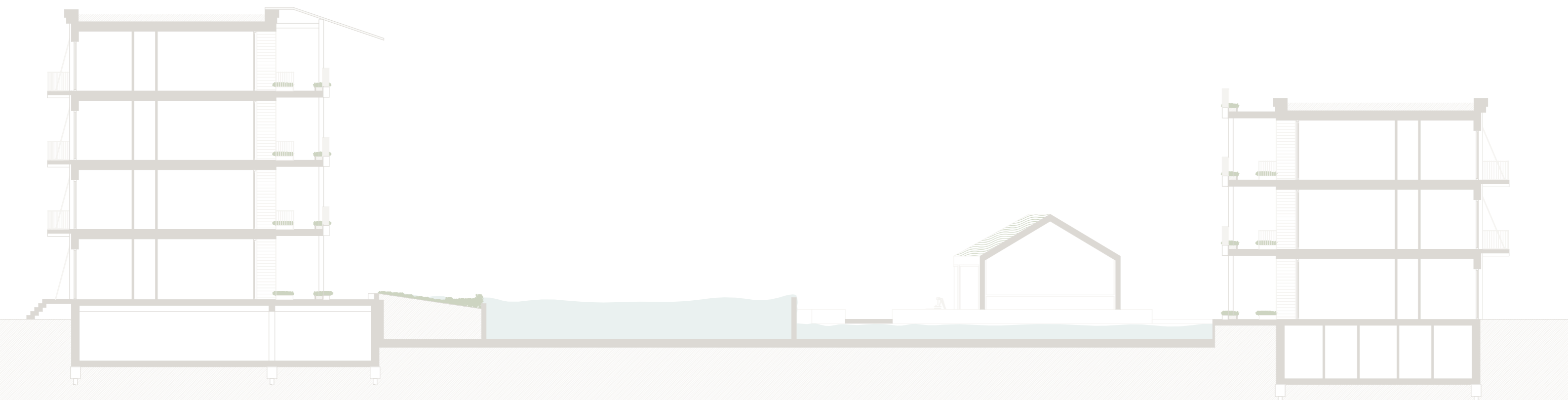
The process didn't always go smoothly for me. Especially at the beginning it was difficult to give direction to the research and to find the right literature. Because of this, the project has a wide scope which made it harder to have the right balance between research and design.

As the process progressed, the direction of the research became clearer with the right literature. Because of this, the project started to make more sense and so I could focus on the design itself. The research and design started reinforcing each other from that moment on. The theoretical insights were translated into spatial design, which made the project increasingly concrete.

Implementing the results into the design went generally well. Especially in relation to water, greenery and social interactions the design choices came from the research. The facade formed a bigger challenge than expected. This part of the design needed more attention to align well with the function, use and environment. Various options and possibilities were explored before the final facade outcome was created that felt both architectural and spatial.

In addition, I sometimes found it difficult to zoom in on specific parts of the project. The materials you choose have an influence on the appearance of a building, but also on how it aligned with the function, the user and the surroundings. Trial and error was a necessary process to come to an aesthetic and substantive result within the concept of the project.

The tutoring during the process and many experiments with various design possibilities led to the final design. This result shows how the research is translated into an architectural proposal. Besides, this process taught me to keep reflecting on my design choices, but simultaneously stay confident in your own process and design.





BACK MATTER

- Appendices
- References
- Acknowledgements

Designing Health & Care Graduation Studio

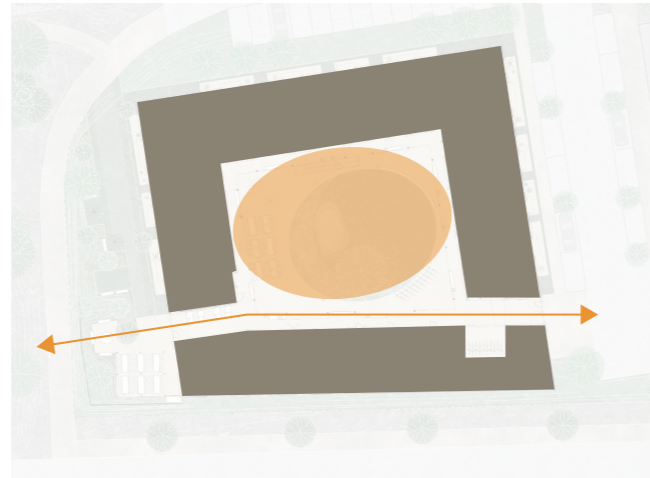
Casestudies

1. Senior collective housing Midgaard - Farum (competition proposal)

This project is from a housing competition aimed at creating an active and inspiring living environment for older adults. The design brings together various aspects related to ageing, with a strong emphasis on fostering a sense of community.

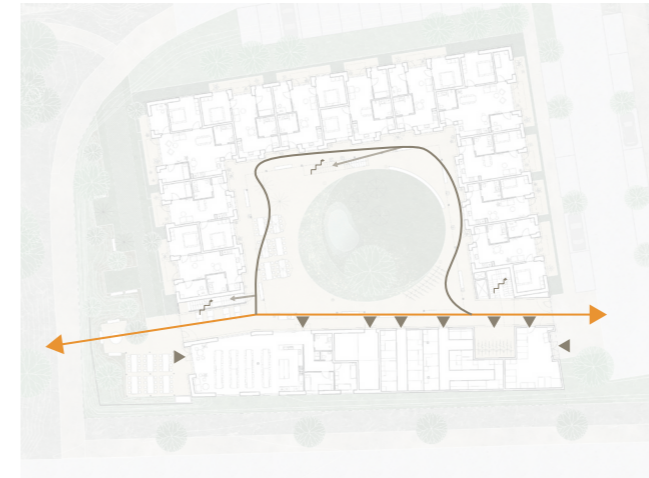
The building is intended to promote a healthy and socially engaged lifestyle, encouraging interaction while supporting residents' well-being. The use of a wooden façade contributes to a warm and inviting appearance, reinforcing the overall residential quality and atmosphere.³²

Minimal sightlines to surroundings



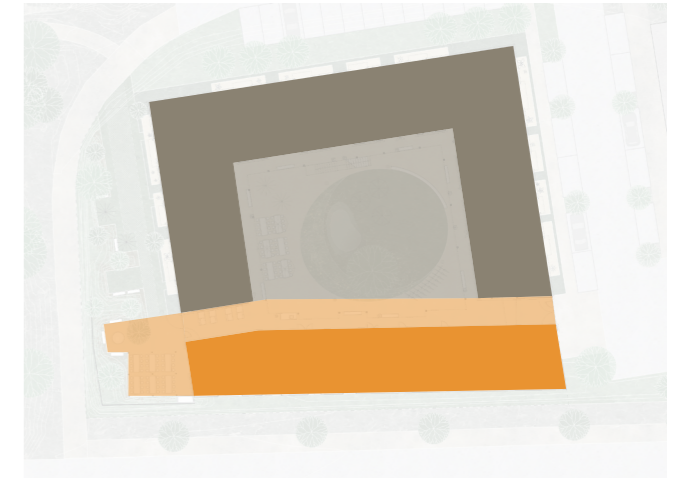
- ↗ Connection between street and courtyard
- Walls enclosing courtyard
- Courtyard view

Routing & entrances



- Routing through building
- ⌋ Stairs
- ▲ Main entrance
- ▲ Entrance

Privat & public spaces



- Public space for community
- Indoor privat space for residents
- Outdoor privat space for residents
- Indoor privat dwelling for residents



³² N.a., 'Senior collective housing Midgaard', Work, (Nordarchitects, 2018)

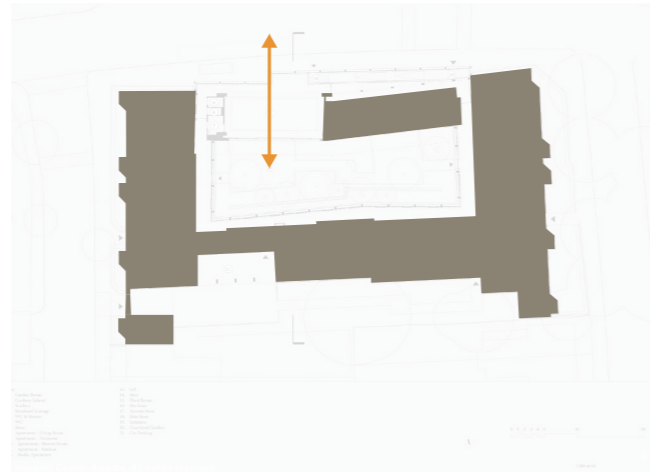




2. Appleby blue Almhouse - London

Designed specifically for today's generation of older people who want to lead an active life in the heart of the inner city, the new almshouse responds to the challenges of social isolation and dementia, while embracing the opportunities of an active and involved older age. A new community has been imagined that is both cohesive and outward-looking.

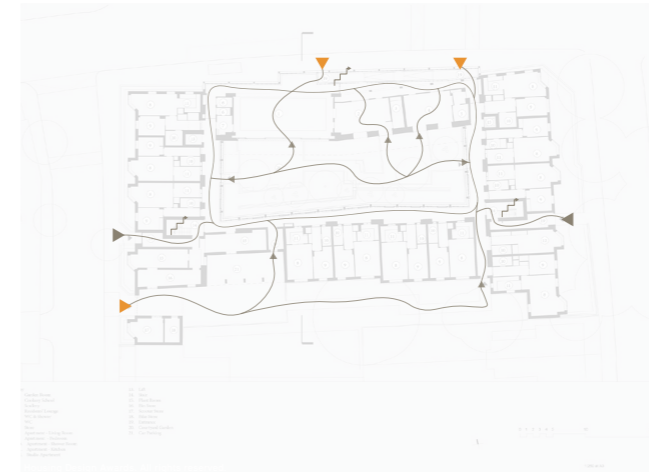
The building is organised around a courtyard garden, lined on its sides by glazed galleries. Large sliding screens open onto the courtyard garden, while generous benches and planters outside each apartment allow residents to sit with a friend or neighbour. Facing the street, the ground and first floors house a series of shared rooms.³³





Minimal sightlines to surroundings



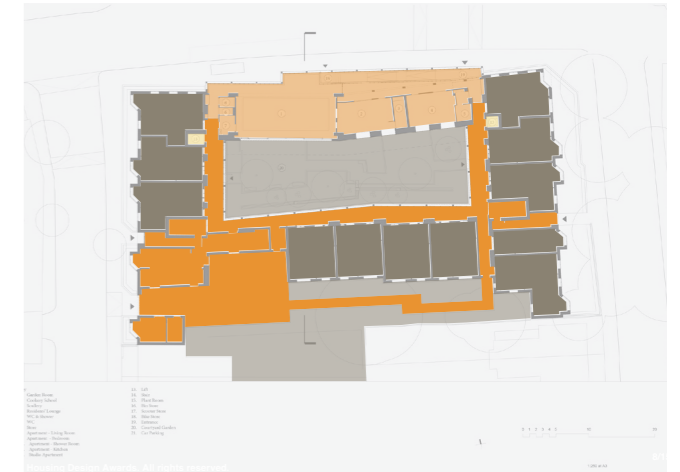
-  Connection between street and courtyard
-  Walls enclosing courtyard





Routing & entrances



-  Routing through building
-  Stairs
-  Main entrance
-  Entrance

Privat & public spaces



-  Public space for community
-  Indoor private space for residents
-  Outdoor private space for residents
-  Indoor private dwelling for residents



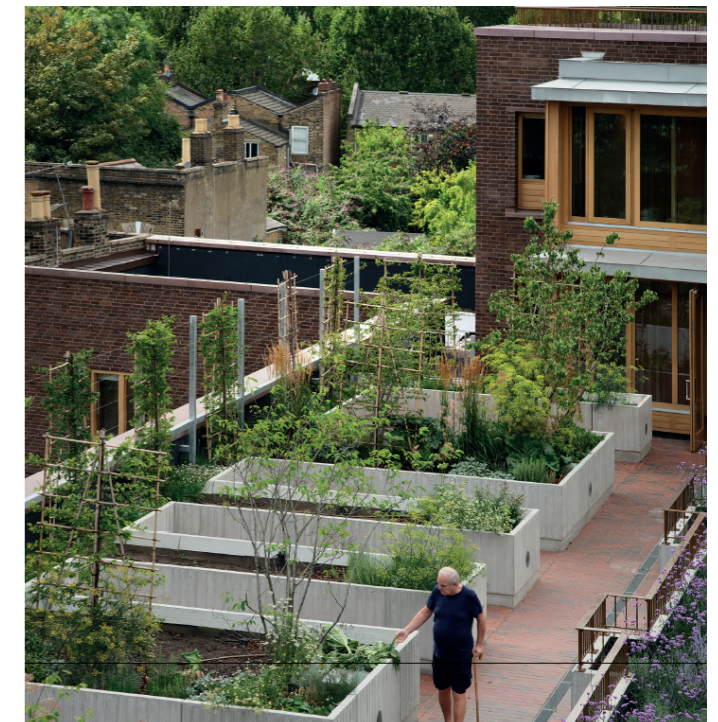
Public functions visible from sidewalk



Semi-individual 'outdoor' space



Facade follows street pattern



Communal garden for residents

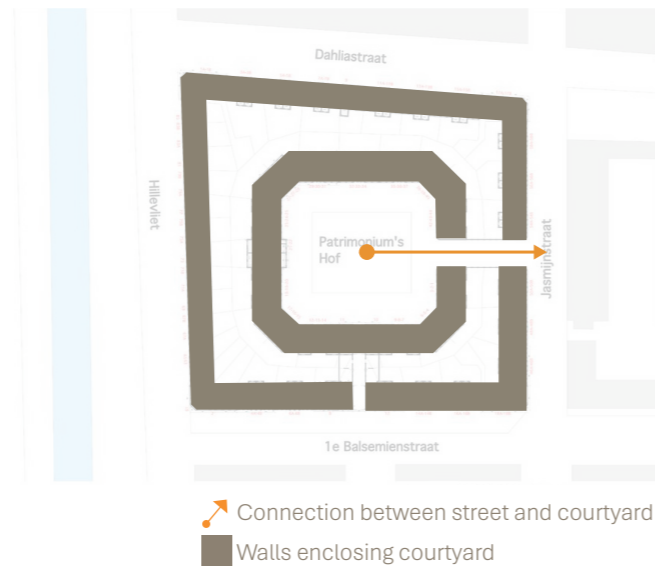
³³ N.a., 'Appleby Blue Almhouse: A new benchmark for older people's social housing', APPLEBY BLUE, (United St Saviour's Charity Southwark, n.a.)

3. Patrimoniumshof- Rotterdam (Contemporary 'hofje')

The Netherlands has a history of the 'Hof' typologies. These are houses around a common courtyard. Most of these 'hofjes' have restricted access to the rest of city which creates a semi-privat area.



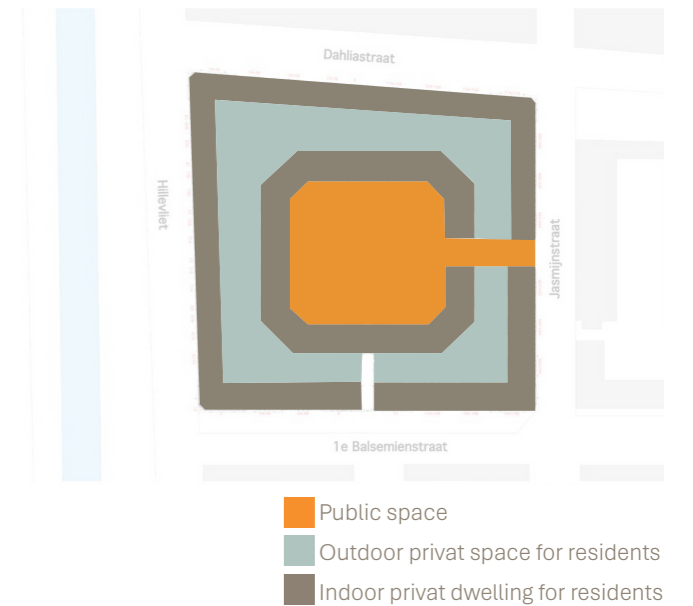
Minimal sightlines to surroundings



Routing & entrances



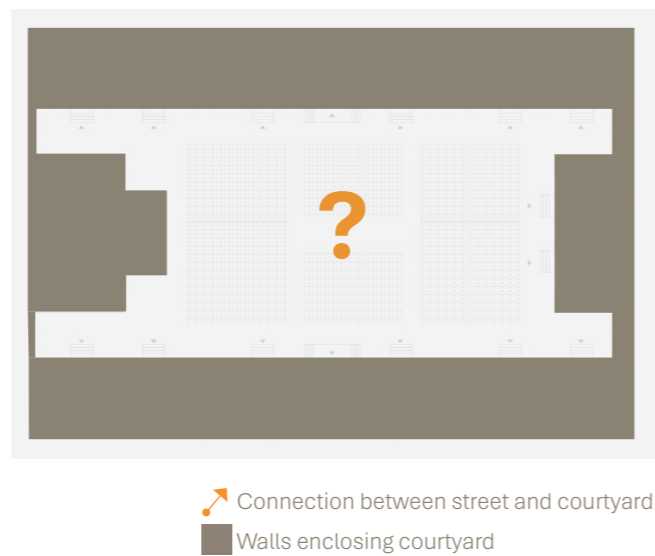
Privat & public spaces



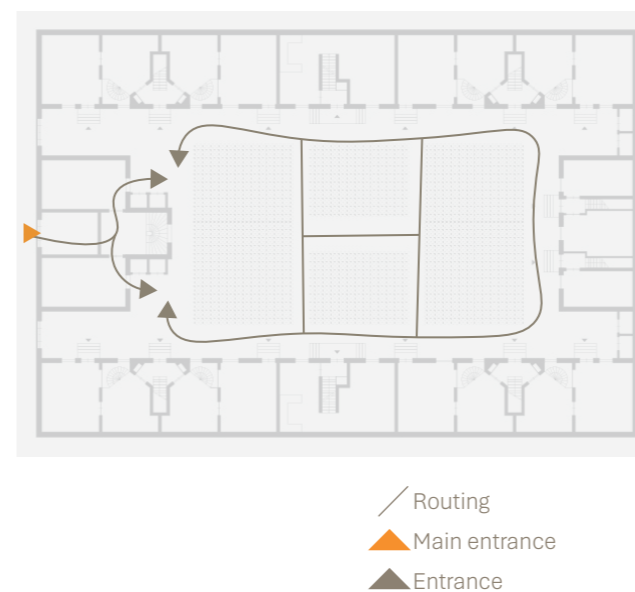
4. Van Brienenhof - Amsterdam (Contemporary 'hofje')



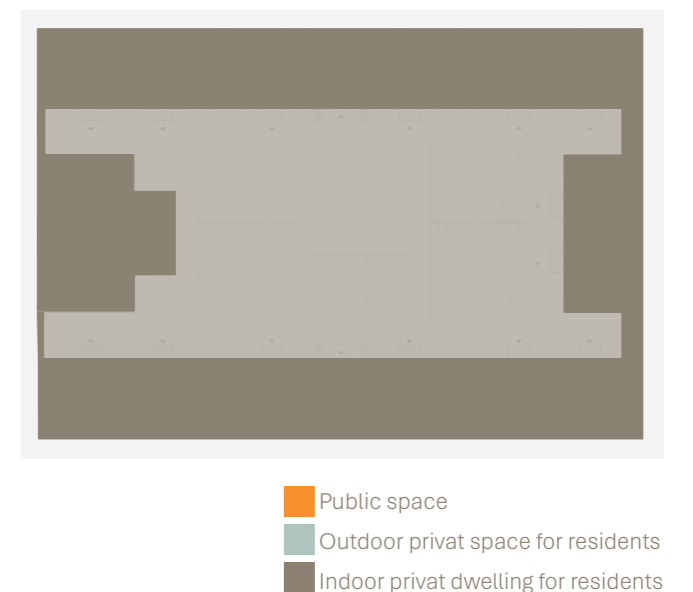
Minimal sightlines to surroundings



Routing & entrances



Privat & public spaces



34 N.a., 'Hofjes : Dutch communal courtyards', Hof, (teatimerumblings, 2020)

References

N.a., *Prognose: Huishoudens in de toekomst vooral door meer alleenstaanden*, (Centraal Bureau voor de Statistiek, 17 december 2024), <https://www.cbs.nl/nl-nl/nieuws/2024/51/prognose-huishoudensgroei-in-de-toekomst-vooral-door-meer-alleenstaanden>

Peter J. Boelhouwer, *De woningcrisis in Nederland; achtergronden en oplossingen*, (TU Delft, 2023), <https://monitor-koopwoningmarkt.nl/wp-content/uploads/2023/10/De-woningcrisis-in-Nederland.-Achtergronden-en-oplossingen.pdf>

Ruben Koops, *Verleid ouderen naar nieuwbouw: 'Dan komt hele huizenmarkt in beweging'*, (RTL Z, 13 juni 2025), <https://www.rtl.nl/nieuws/economie/artikel/5513485/ouderenwoning-sleutel-tot-vastgelopen-woningmarkt>

N.a., *Zembla onderzoekt*, (NPO start, n.a.), <https://npo.nl/start/serie/zembla-onderzoekt/afleveringen/seizoen-4/hoe-de-ouderenzorg-werd-afgebroken/afspelen>

Studio Participants, *Research booklet*, (TU Delft, november 2025)

N.a., *Gezondheid in de buurt Houtwijk*, (AlleCijfers.nl, 2024), <https://allecijfers.nl/gezondheid/buurt-houtwijk-den-haag/>

N.a., *Statistieken buurt Houtwijk*, (AlleCijfers.nl, 2025), <https://allecijfers.nl/buurt/houtwijk-den-haag/>

N.a., *Ouderen*, (Centraal Bureau voor de Statistiek, 2025), <https://www.cbs.nl/nl-nl/visualisaties/dashboard-bevolking/leeftijd/ouderen>

Jens Hellewaard, *Wat beweegt senioren om de verhuisstap te maken?*, (PLATFORM31, 2026)

N.a., *Global age-friendly cities: A guide*, (World Health Organization, 2007)

Katinka E. Pani-Harreman, Gerrie J. J. W. Bours, Inés Zander, Gertrudis I. J. M. Kempen, Joop M. A. Van Duren, *Definitions, key themes and aspects of 'ageing in place': a scoping review*, (Ageing & Society, 2019)

Janine L. Wiles, *The Meaning of 'Ageing in Place' to Older People*, (Oxford University Press on behalf of The Gerontological Society of America, 2011)

N.a., *Active ageing A policy framework*, (World Health Organization, n.a.)

Gauden Galea & Shin-pei Tsay, *Towards More Physical Activity in Cities*, (World Health Organization, 2017)

Amelia Hill, *Social housing*, (The Guardian, 2023), <https://www.theguardian.com/society/2023/may/22/almshouse-residents-may-live-up-to-two-and-a-half-years-longer-study-finds>

Willemijn Wilms Floet, *nieuwe open ruimte in het woon ensemble*, (n.a., n.a.), p. 17-23

Jan Gehl, *LIFE BETWEEN BUILDINGS using public space*, (Island Press, 2011)

LMCG, *ZBB*, (zwembadbranche, 2017), <https://www.zwembadbranche.nl/zwemmen-als-medicijn-rollator/>

N.a., *Enquete: Beweging & Sport*, (nationaal ouderen fonds, n.a.), <https://order.perssupport.nl/file/pressrelease/bb1a2fa5-5c3f-4bcd-989c-fdc892f91f60/dc1aa15b-1dc6-4aec-8b0b-44755b98689c/InfographicBewegingSport.pdf>

Nicolette van den Bos, *Living with water*, (Faculty of Architecture & the Built Environment, Delft University of Technology, n.a.)

Daniel Vicentini de Oliveira, Lucas Guilherme Muzolon, Mateus Dias Antunes and José Roberto Andrade do Nascimento Júnior, *Impact of swimming initiation on the physical fitness and mental health of elderly women*, (Acta Scientiarum, 2019)

Berry Ijmker, *Zwemvijver aanleggen*, (BERRY IJMKER natuurlijke zwemvijver, 2021), <https://berryijmker.com/hoeveel-planten-zwemvijver-verhouding/>

Own work, *Getting to know the user*, (Faculty of Architecture & the Built Environment, Delft University of Technology, 2026)

N.a., *Work*, (Nordarchitects, 2018), <https://www.nordarchitects.dk/projects/senior-collective-housing-midgaard/>

N.a., *APPLEBY BLUE*, (United St Saviour's Charity Southwark, n.a.), https://www.ustsc.org.uk/almshouses/new-almshouse/?utm_

N.a., *Hof*, (teatimerumblings, 2020), <https://teatimerumblings.wordpress.com/2020/01/12/hof-hofjes-dutch-communal-courtyards/>



THE NEXT CURRENT

Designing Health & Care Graduation Studio