

BEYOND THE FRONT DOOR

*Architectural guidelines for a Cohousing community within the
Tarwewijk*



Abstract

This research investigates the potential of co-living as a strategy to mitigate loneliness, with a specific focus on the Tarwewijk neighborhood in Rotterdam. The study aims to answer the question: What living environment principles can support the design of a cohousing community that fosters social cohesion on different scale levels in the Tarwewijk? By integrating insights from literature, site visits to collective housing projects, and interviews with experts, policymakers, and residents, the research identifies key spatial and social factors that contribute to successful co-living environments.

The analysis is structured across three spatial scales: the neighborhood, the street, and the building. Findings indicate that while the Tarwewijk has social cores with adequate public spaces, its walkability is compromised by physical barriers, leading to a fragmented social fabric. At the street level, issues such as narrow sidewalks, obstructive parking, and a lack of personal investment in the public realm diminish the sense of community. At the building level, diversity in housing typologies and well-designed communal spaces enhance inclusivity and social interaction. Flexibility in spatial arrangements also emerges as a crucial factor in maintaining long-term community engagement and adaptability.

The research further explores the role of scale in co-living communities, emphasizing the balance between group size, spontaneity, and social cohesion. The cluster collective model is identified as a promising approach, combining scalability with diversity while addressing the challenges of isolation and fragmentation.

The study culminates in the formulation of 32 living environment principles, compiled as a pattern language, which serve as design guidelines for future co-living projects. These principles provide a framework to enhance social cohesion, adaptability, and sustainability in collective housing, ensuring that co-living developments effectively address urban loneliness while fostering resilient communities.

Keywords; *Co-living, Social cohesion, Loneliness, Living environment principles, Cohousing, Tarwewijk, Rotterdam, Spatial scale, Walkability, Public space, Housing diversity, Communal spaces, Flexibility in housing, Cluster collective model, Urban resilience*

Beyond the front door

Collective living in the Tarwewijk

Master graduation research into architectural guidelines
for a vital cohousing community within the Tarwewijk in
Rotterdam South

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Table of Content

1. Introduction	6
1.1 Problem statement	8
1.2 Research question	8
1.3 Methodology	9
1.4 Diagrammatic research overview	10
2. Design for social cohesion	11
3.1 Neighbourhood scale	11
3.2 Street level	14
3.3 Building scale	18
3.3a Case study - Taste	22
3.3b Case study - Samenhuis	24
3. Needs of the residents	26
4.1 "conversation board"	26
4.1 Residential turnover	28
4.3 Meaning of a long-term vital community	28
4.4 Characteristics of a vital community	29
5. Role of scale and flexibility	30
6. Conclusion	33
7. Discussion	36
Bibliography	37
Appendix 1 "a collection of living environment principles"	38
Appendix 2 Summary's of the conducted interviews	72
Appendix 3 Urban analysis Tarwewijk	75

1. Introduction

"The vast majority of Rotterdam residents are satisfied," reported RTV Rijnmond on April 2, 2014 (RTV Rijnmond, 2014). However, Tarwewijk was highlighted as an exception. The propensity to move in Tarwewijk is notably high at 6.7% (NPRZ, 2023). The neighborhood is characterized by significant cultural diversity, with only 19% of residents having Dutch origins. Additionally, incomes in the area are very low, with 64% of the population earning within the lowest 40% of incomes nationwide (Wijkprofiel, 2024). These challenges contribute to Tarwewijk's vulnerability, and the high turnover rate undermines the development of social cohesion (K. Lankhaar, 2023).

My proposed solution to enhance social cohesion within the Tarwewijk neighborhood is to establish a space that welcomes everyone, a place where residents can connect without the need to spend money or consume. This space should be a lasting fixture in the community, fostering relationships over time. The envisioned space is a cohousing community. As such, this research focuses on the dynamics of collective housing groups and their potential to strengthen social cohesion in the neighborhood. I explore both the opportunities and challenges of collective living, with a particular emphasis on its ability to combat loneliness. Notably, individuals living in co-living arrangements are 80.6% less likely to experience loneliness (Kuyper, 2021).

While much attention is given to the design of collective housing forms, it has proven difficult to successfully connect these living arrangements with the surrounding neighborhood, according to Philip Krabbendam, architectural researcher and resident of Centraal Wonen Delft. Therefore, this research will focus on the interaction between different scales and how these connections can be strengthened.

"I would say that not living together is an anomaly. It's normal, and it always was normal, to live in larger communities together."

Ilka Ruby said in an interview with BK Talks

Collective housing forms may appear to be a concept that became more developed in the late twentieth century, but if we look at human history, collective, self-sustaining living was actually the norm for a very long time. As I. Ruby describes in her book *Together, the New Architecture of the Collective*, it wasn't until the Industrial Revolution in the mid-nineteenth century that there was a shift toward nuclear families and the associated single-family homes. The Industrial Revolution, which coincided with urbanization, also led to a separation of domestic and productive spaces, which has had significant consequences for the interaction between different scales within the city.

Sociologist J.W. Duyvendak argues that in recent decades, there has been a shift from a collective to an individualistic society, which has contributed to the problem of loneliness (J.W. Duyvendak, 2004). D. Czychke argues that addressing this problem must be a collective effort, requiring policy interventions (D. Czychke, 2022). As designers, we play a key role in building inclusive living

environments that promote social interaction and community engagement. Additionally, there are other benefits of collective housing models, such as sustainability and cost reduction through shared resources. This further underscores the potential of collectivity.

According to Annet Akkerdam, policy officer for cooperative living at the Municipality of Rotterdam, research into the needs of the users is lacking. Akkerdam also noted that there is a need for research into potential users on various scales. Are people willing to share, and if so, which facilities are they willing to share? These are highly relevant questions for designing a successful collective housing model. However, they are also context-sensitive questions, as not every resident of Rotterdam, or even Tarwewijk, has the same needs in this regard. Therefore, it is not possible to come up with one general solution.

Many attempts have already been made in Rotterdam, and the municipality is actively discussing the implementation of collective housing forms. Yet, progress is lagging, primarily due to the high investments required, as Akkerdam points out. A successful design on the community level is Centraal Wonen in Delft. Here, the community center is well-used for events, but over the past 40 years, there has been little success in involving the wider neighborhood, according to Krabbendam. This highlights opportunities for further research into how collective housing can contribute to neighborhood integration.

There are also positive examples, such as Vrijburcht in Amsterdam, where broader engagement has been achieved. For instance, they have a theater and a café accessible to the entire neighborhood but managed by the community. Spatial design plays a crucial role in this, making it even more interesting to explore how this societal issue translates into the physical design of living environments.

“What living environment principles can support the design of a cohousing community that fosters social cohesion on different scale levels, in the Tarwewijk?”

shape their appearance and function. The second topic delves into the built environment’s role in fostering social cohesion. It considers which design elements encourage connections among residents and identifies the current challenges in the Tarwewijk that hinder such cohesion. Lastly, the question addresses how the built environment operates across different scales to support social cohesion. It investigates the interplay between these scales and explores the importance of flexibility in design to accommodate varying needs and dynamics within the community. These different elements together will form the foundation for living environment principles that foster social cohesion to create a resilient environment in which residents feel comfortable and are willing to stay.

This question explores three interconnected topics. The first focuses on cohousing communities, examining what they are and how they are designed. This includes understanding their defining characteristics and the physical and social aspects that

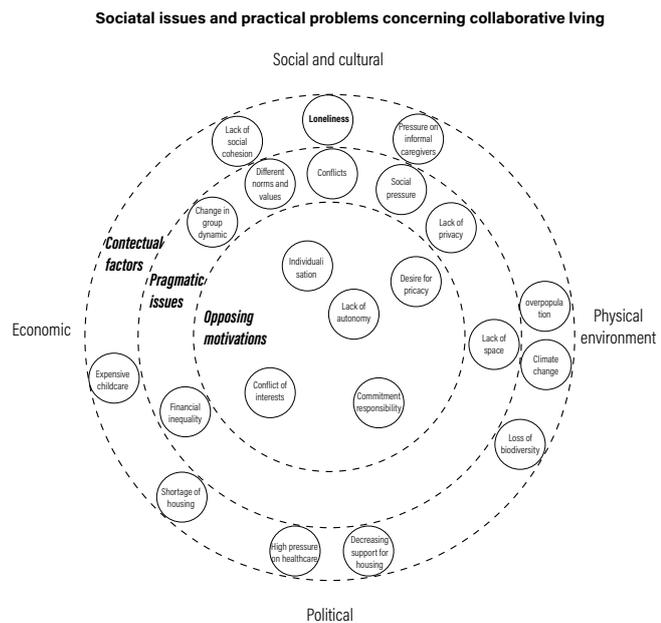
1.1 Problem Statement

The concrete problem is that there is too little social cohesion in the Tarwewijk (K. Lankhaar, 2023), partly due to the built environment. This thesis will therefore investigate the opportunities and challenges of using collective housing as a tool to restore social cohesion, with a particular focus on addressing the issue of loneliness.

Loneliness is a growing social problem with significant consequences for the health and well-being of individuals. To define the problem, the following questions are posed: How does the built environment facilitate social cohesion? What are the needs and desires of the residents? And what is the role of scale and flexibility? The physical and social structures of neighborhoods can have a major impact on how people interact with each other. The Tarwewijk is an interesting case due to its diverse population and high moving rates.

Based on the earlier analysis by Czischke, a framework has been developed, similar to how she summarized opportunities, but this time focusing on the potential problems of collective housing. This framework is a summary of issues that emerged during the research of the past months. Prominent sources of inspiration include my interview with cooperative housing policy officer

Akkerdam and the interview with architect and resident of Centraal Wonen, Krabbendam. Additionally, the framework is based on insights from the lecture Collective Housing Delft and the documentary Droomdorp Eemgoed.



1.2 Research question

What living environment principles can support the design of a cohousing community that fosters social cohesion on different scale levels, in the Tarwewijk?

1. *How can the building environment facilitate social cohesion on different scale levels?*
2. *What are the needs and desires of the residents within a cohousing community in the Tarwewijk?*
3. *What is the role of scale and flexibility within a cohousing community?*

1.3 Methodology

The goal of this research is to derive architectural guidelines that will support the design of a cohousing community in the Tarwewijk, Rotterdam South. To develop these guidelines, the research integrates multiple approaches, including a literature review, mapping and observation, interviews, and case studies.

The literature review focuses on how the built environment can either facilitate or hinder social cohesion. Key references include *Soft City* by David Sim, as well as *Cities for People and Life Between Buildings* by Jan Gehl. This research is structured across three spatial scales:

1. Neighborhood level
2. Street level
3. Building level

The insights from the literature review were then applied to the mapping and observation of the Tarwewijk, which was documented through a photo analysis. At the neighborhood level, attention was given to non-commercial public spaces where people can meet, as well as the identification of social cores. At the street level, aspects such as walkability, human scale, and a sense of control and identity were examined, three principles selected from David Sim's nine criteria for livable urban density.

The analysis at the building level was conducted by translating these nine urban density criteria to the scale of the building (further elaborated in Figure X). This process resulted in six key criteria, which were then used as a framework for comparing the two case studies. These case studies were analyzed not only through literature and physical observations but also through interviews with residents, who provided insights into the social aspects of cohousing communities. These interviews also served as valuable input for the next chapter, which explores the needs and desires of the residents.

After investigating the physical factors that contribute to social cohesion, the focus of the research shifts to the social aspects required to foster social cohesion. To gain a deeper understanding, a "discussion board" was created to guide conversations with residents about which spaces they would or wouldn't share with their neighbors. The results of these discussions were then visualized in a diagram that maps spaces on a spectrum from private to public. Additionally, the needs of the residents were analyzed in relation to literature on the core aspects that sustain a vital community. These social aspects were then translated into physical and architectural interventions that could facilitate social cohesion. Finally, the conclusion of the research is presented in text and compiled into a collection of living environment principles that will serve as guidelines for the future design process.

Finally, the research examines the role of scale and flexibility. This chapter is informed by a combination of literature, site visits, and expert interviews. The findings from this combined research led to the development of a cluster model for the cohousing community, as illustrated in Figure X.

1.4 Diagrammatic research overview

The research is based on three primary sources of input: literature review, site visits to collective housing projects, and interviews with experts, residents, and policymakers. The synthesis of these inputs informs the development of design guidelines, which are highlighted in orange at the center of the diagram.



Figure X, Diagrammatic overview of the research structure (own diagram)

3. Design for Social Cohesion

The built environment serves as a subtle yet powerful facilitator of our daily lives. Often without us realizing it, it shapes the way we live and interact with others. In his book *Soft City*, David Sim highlights the importance of “seemingly banal aspects of the everyday environment the simple things that influence our behaviour and contribute to our well-being.” The main question is this chapter is; “How does the building environment facilitate social cohesion on different scale levels?” To answer this question the chapter delves into observations in the Tarwewijk and connects this to theoretical insights.

The modern city is often approached on either the urban scale or the building scale. However, as Krabbendam argues, the scale that lies in between these two is often neglected, especially in the design of modern city (2024). This intermediate scale is crucial, particularly for designing co-housing structures that aim to foster social cohesion and include the neighbourhood. Because it is exactly that scale that contains the most potential for social cohesion within the neighbourhood. These transitional spaces play an essential role in connecting the larger urban context with the intimate building environment, figure X describes how an extra space can soften the border between public and private by giving space for people to create their own space.

The earlier mentioned scales thus are; the neighborhood, the street, and the building. Using the Tarwewijk in Rotterdam as a case study, the chapter will examine how these scales interact and how thoughtful design at each level can enhance both individual well-being and community life.

3.1 Neighbourhood scale

In recent years, socializing has increasingly become tied to consumption. A neighborhood, for instance, is often valued for its cafés, restaurants, or other commercial spaces that encourage social interaction through consumption. For example, Ray Oldenburg’s concept of “third places” often highlights establishments like coffee shops or pubs as critical for fostering community, although these spaces typically require some level of financial transaction to participate (R. Oldenburg, 1989). In a neighborhood like the Tarwewijk, these kinds of spaces are generally not available because many residents lack the financial resources.

In interviews conducted with residents of economically disadvantaged neighborhoods, the need for semi-public spaces where consumption is not obligatory has been highlighted (C. Mellner, 2021). This observation is affirmed by Karen Welp and Sander de Haan, the initiators of Buurtklimaatje, who emphasize the challenges posed by financial transactions in social initiatives. During an interview, De Haan remarked, “As soon as money becomes involved in one of our social initiatives, things start to get complicated” (2024). This underscores the necessity for spaces in the Tarwewijk that facilitate social interaction without the obligation to consume, addressing a critical aspect of fostering inclusive community engagement (Pattern X).



10-15 cm (4-6 inches)

In as little as 10-15 cm (approximately 4-6 inches) along the edge of a building, there is space for a row of plant pots, an ashtray to be left out, or a place for a cat to perch undisturbed.



15-50 cm (6-20 inches)

With 15-50 cm (approximately 6-20 inches), there is room for bigger potted plants, a parked bike, and perhaps a narrow bench.



50-90 cm (20-35 inches)

At 50-90 cm (20-35 inches), there may be space for a little awning or small overhang. This offers protection from the elements and gives you a little buffer while coming and going. This edge zone might be enough that you leave the door ajar, and perhaps you leave a little chair outside.



90-150 cm (35-60 inches)

At 90-150 cm (35-60 inches), you can have a planting zone, a small table and a couple of chairs, space to park the pram or stroller sideways, or a couple of bikes.



150-180 cm (60-70 inches)

At 150-180 cm (60-70 inches), you may be able to have a table that you can sit fully around, or a chaise lounge. The more supports to comfort you can fit in, the more likely you are to spend time outdoors and socialize with your neighbors.

Figure X, Possibility's of the transition zone according to size (Sim, 2019)

These consumption-free spaces have been mapped for the Tarwewijk in Figure X. The analysis distinguishes between different types of spaces, such as community centers, green spaces, churches, schools, and supermarkets. The quality and mapping of these spaces are further elaborated in the urban analysis in the appendix. While supermarkets are inherently consumption-oriented, they have been included because they are universally frequented and serve as informal meeting points across all layers of society.

Subsequently, an analysis was conducted on how these different spaces relate to one another. It is evident that the Tarwewijk is divided into two residential areas and an industrial area along the harbor. These three parts are separated by the road and the metro line, which form harsh borders. These borders split the residential part of the neighborhood into two social clusters with two social cores, highlighted in pink in Figure X. It makes the most sense for a collective to be located in the social core to ensure that the threshold for participation remains low (Pattern X).



Figure X, Neighbourhood analysis, potential meeting spots without obligation to consume (own map)



Figure X, Neighbourhood analysis, identified borders and social cores (own map)

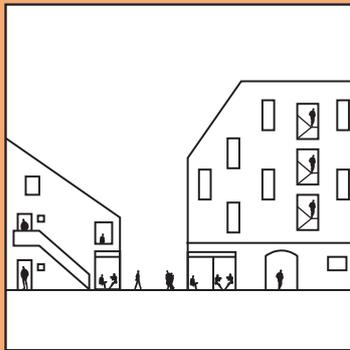
3.2 Street level

The “forgotten scale” is perhaps the most important for fostering social cohesion within a neighborhood. In his book *Life Between Buildings*, Jan Gehl emphasizes the importance of human-scale design in creating vibrant, livable urban spaces. Gehl argues that well-preserved cities in Europe, spanning nearly a thousand years, were not created with the city itself as the goal but rather as a tool shaped by human use. This fundamental approach differs greatly from modern urban planning. The focus on human scale was central to the design of these highly valued old city centers because they emerged as functional spaces for human interaction rather than as ideological constructs imposed on citizens.

Gehl (2011) further notes that modest dimensions, narrow streets, and small spaces, along with buildings rich in detail, are often experienced as intimate and welcoming. In contrast, large, open spaces with wide streets and tall buildings are frequently perceived as cold and impersonal. He argues that spaces should be proportionate to the human scale, allowing for interactions that occur naturally (Pattern X). People feel most comfortable in environments designed with their

Walkability in the Tarwewijk

While examining the walkability in Tarwewijk, it became evident that the sidewalks are frequently obstructed by various objects, such as bikes, bike racks, lampposts, and parked cars. These elements clutter the pedestrian space, making it challenging for people to navigate comfortably. In some areas, there is no sidewalk at all (photo X), forcing pedestrians to walk on the road, which compromises safety. Additionally, in instances where sidewalks are present, they are often too narrow to allow for smooth passage, especially when encountering oncoming pedestrians. This lack of space not only hinders the ease of movement but also diminishes the overall walkability of the area, reducing the sense of safety and comfort for residents and visitors alike.



Walkability



1. Non existing sidewalk
Polstrandstraat



2. Narrow sidewalk along fence
Blankenburgstraat



3. Bicycle racks, lamppost are obstacles
Millinxstraat



4. Seating incorporated in facade
Mijntstraat



5. Bicycle racks & lamppost are obstacles
Millinxstraat



6. Non existing sidewalk
Roggestraat



7. Non existing sidewalk
Polstrandstraat

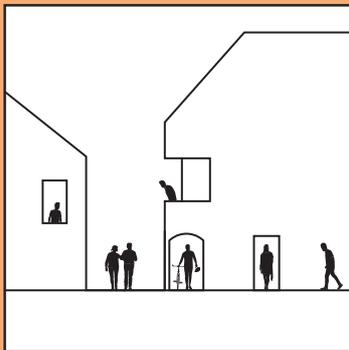


8. New wide constructed sidewalk
Mijntstraat

Figure X, Observations in the Tarwewijk (own photo's, 11-12-2024)

Human Scale in the Tarwewijk

The second principle observed in the Tarwewijk was Human Scale (Pattern X), see images below. Given that 79% of the area is highly residential (Wijkprofiel, 2024), maintaining a human scale is crucial for fostering social cohesion. Human scale is characterized by attention to detail at eye level (Gehl, 2011) and buildings that typically do not exceed six stories in height (Sim, 2019). When reviewing the photos taken in the area, it becomes apparent that the building heights often adhere to this guideline. However, many buildings lack sufficient detail at eye level, and photo X illustrates a building with a closed plinth, which limits interaction between the street and the building, thus detracting from the human-scale experience. But often there are buildings with a lot of detail, and alternately, there are front gardens that offer the potential for a good experience at eye level. However, these front gardens are not always well-maintained, which means their potential is not always fully realized.



Human scale



1. Bench looking out on active places
Hekelingenstraat



2. Flat behind two story houses
Polislandstraat



3. No transition zone and lack of human scale
Zwartewaalstraat



4. Lack of human scale causes harsh boarder
Brielselaan



5. Wide sidewalk with little obstacles
Mijnsherenlaan



6. Spacious transition zone
Blankenburgstraat



7. Fence in front of a flat
Katelrechtselagedijk



8. Closed ground floor with unused geen
Zwartewaalstraat

Figure X, Observations in the Tarwewijk (own photo's, 07-01-2025)

scale in mind. For a space to be perceived positively, objects and events must be at eye level and allow sufficient time to process visual impressions (Gehl, 2011). This emphasis on scale ensures that urban environments are inviting and conducive to social interaction.

Building upon Gehl's insights, Sim (2019) developed nine criteria for livable urban density, of which three are most important for fostering social cohesion: (1) human scale, (2) walkability, and (3) a sense of control and identity. These three aspects are evaluated in the Tarwewijk (see Figures X, X, and X).

Walkability (Pattern X) plays a crucial role in creating a sense of safety, vibrancy, and community. A neighborhood with high walkability feels more dynamic, as the presence of people on the streets fosters social interactions and contributes to a safer environment. Walkability goes beyond having adequate sidewalks; it encompasses the entire pedestrian experience, including the journey between points A and B, the quality of the streetscape at eye level, the sense of safety, the availability of resting spots, and the width and condition of the sidewalks. All these elements subconsciously influence our choice of transportation. The more often people choose to walk, the more lively and vibrant the community becomes.

Despite the importance of walkability, many pedestrian landscapes are cluttered with obstacles. Gehl (2013) observes that sidewalks often resemble slalom courses, filled with traffic signs, lampposts, parking meters, and other fixtures that disrupt pedestrian flow. Cars and bicycles parked on narrow sidewalks further exacerbate the issue, forcing pedestrians to navigate a maze of obstructions. These conditions highlight a fundamental failure in urban design to prioritize the pedestrian experience.

In summary, several aspects of the street level in the Tarwewijk need improvement to enhance its ability to foster social cohesion, particularly in terms of walkability, human scale, and a sense of control and identity.

3.3 Building Level

To explore which principles effectively foster social cohesion at the building level, two collectives are analyzed and compared. Both are Christian communities, each consisting of approximately 20 residents, and have been established for around 11 years. They share a similar vision rooted in Christian values: "living together as a community while serving and contributing to the broader neighborhood." Their similarities in many aspects make the comparison particularly compelling, as it allows the influence of the built environment to become more apparent.

The first case study is that of Taste, analyzed on page X, located in the Voorhof neighborhood of Delft. Along with Kirmina, I visited this community twice, where we received a guided tour of the building and its surroundings. The second case study I visited is Samenhuus Ernaast, analyzed on page X, situated in the Tarwewijk. This provides valuable insights into a collective in my target area since it is located in the Tarwewijk. The two projects are compared based on the translation of 6 principles for livable urban density (Sim, 2019). The translated principles are visible in figure X, and they are: diversity of residences, diversity of common spaces, flexibility, group size, walking routes, and sense of control and identity (all of these principles are elaborated in patterns X through X in the appendix).

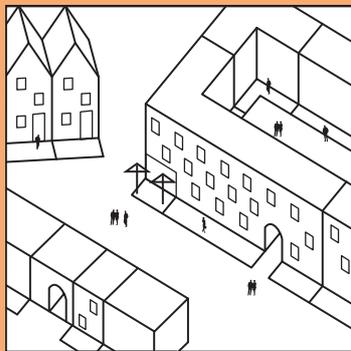
When comparing Taste and Samenhuus Ernaast, the diversity of residences stands out as one of the key differences. Taste demonstrates a higher level of adaptability, offering a mix of single-room studios with shared facilities and fully independent apartments. This variety caters to different household types, allowing for both privacy and shared living, depending on individual preferences. On the other hand, Samenhuus Ernaast offers units ranging from 35 to 65 m². While there is some variation, the space is still somewhat limited for families. For example, a family of five is living in one of the 50 m² units, which leads to potential overcrowding and reduced comfort.

When it comes to the diversity of common spaces, Taste offers a more extensive selection. Its common areas include a large kitchen, a cozy living room, a spacious garden, a meeting room, a prayer space, and additional facilities for residents renting single rooms. This variety allows for diverse interactions and ensures that different needs are met within the community. In contrast, Samenhuus Ernaast provides fewer communal spaces: just a common room and a rooftop terrace. While functional, this limits opportunities for different forms of social engagement and communal activities.

The design of the walking routes in Taste offers another advantage. The building features a gradual transition from public to private spaces, starting with a visible playground and moving through communal areas before reaching private apartments. This design fosters a sense of comfort and a clear spatial hierarchy, guiding visitors and residents alike. In comparison, Samenhuus Ernaast has more straightforward walking routes, with the main entrance quickly leading to the common room and shared staircase, which then provides access to the upper floors. Although efficient, this simplicity might lack the nuanced gradation that helps create a stronger sense of privacy and community integration.

Sense of Control and Identity in the Tarwewijk

The third principle analysed focuses on the sense of control and identity (pattern X), see images below. According to Sim (2019), this sense is cultivated by people being present on the streets and “guarding” the street from their windows. Identity plays a key role, as a place with a distinct identity is more likely to feel personal; when people feel ownership, they are more inclined to care for their surroundings. In Tarwewijk, however, residents generally exhibit a low sense of responsibility toward their neighborhood, with an index score of 84, compared to 124 in Rotterdam (Onderzoek010, 2024). Fieldwork revealed physical signs of this, such as the garbage pile in photo X, overgrown front yards, and vacant buildings. Additionally, the combination of fences with spikes and closed window curtains pointed to a possible lack of a sense of control in the area. Furthermore, nearly every street was crowded with parked cars, further diminishing control over the streets, as even if people opened their curtains to observe the street, their view was obstructed by the cars.



Sense of Control and Identity



1. Closed curtains
Millinxstraat



2. Garbage pile next to the garbage bin
Katendrechtse Lagedijk



3. Fence behind fence
Millinxstraat



4. Locked fence for neighbour hood garden
Ollerhoekstraat



5. Fences with spikes
Spijkenissestraat



6. Facade with little detail
Zwartewaalstraat



7. Closed facade on the ground floor
Heinenoordstraat



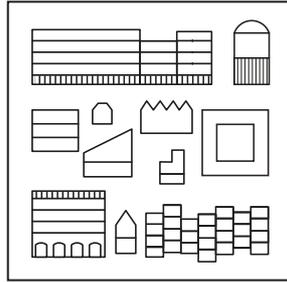
8. Vacant building
Millinxstraat

Figure X, Observations in the Tarwewijk (own photo's, 07-01-2025)

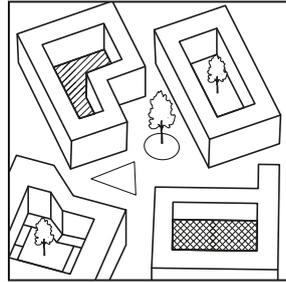
9 Criteria from urban to building level

- | | | |
|----------------------------------|----|-------------------------------|
| 1. Diversity of Built Form | -> | Diversity of Residences |
| 2. Diversity of Outdoor Spaces | -> | Diversity of Common Spaces |
| 3. Flexibility | -> | Flexibility |
| 4. Human Scale | -> | Ideal group sizes |
| 5. Walkability | -> | Walking Routes |
| 6. Sense of Control and Identity | -> | Sense of Control and Identity |

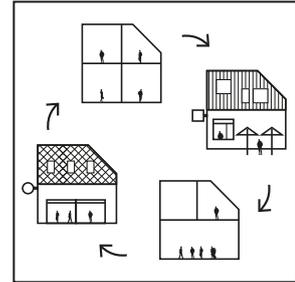
Urban Level



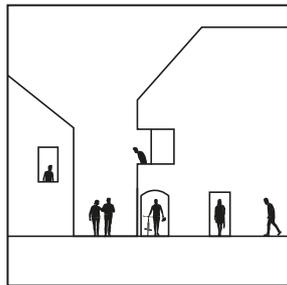
1. Diversity of Built Form



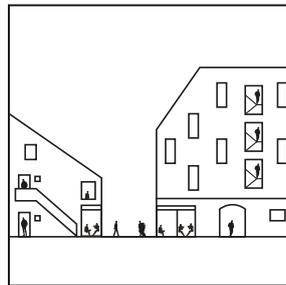
2. Diversity of Outdoor Spaces



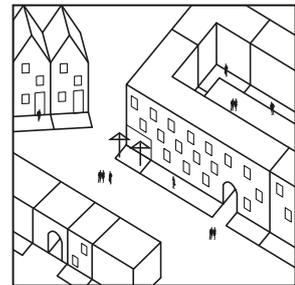
3. Flexibility



4. Human Scale



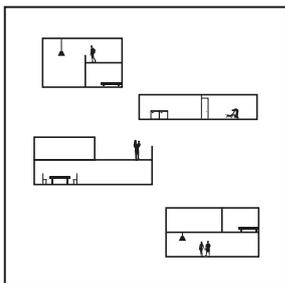
5. Walkability



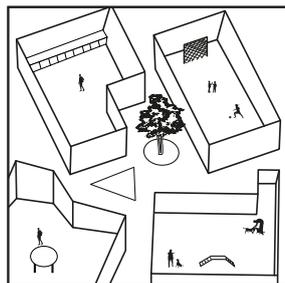
6. Sense of Control and Identity



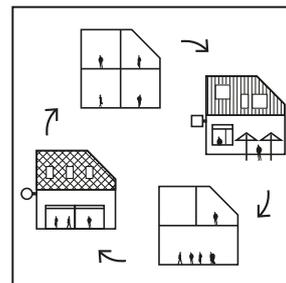
Building Level



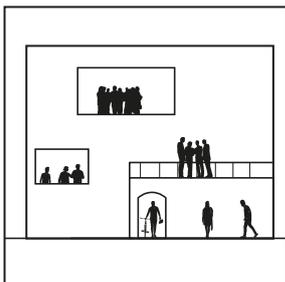
1. Diversity of Residences



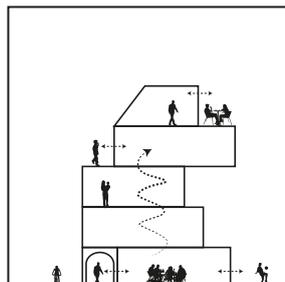
2. Diversity of common spaces



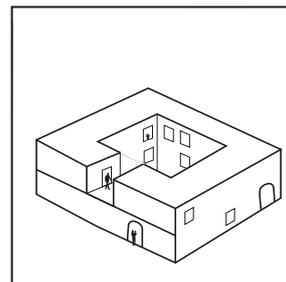
3. Flexibility



4. Ideal group sizes



5. Walking routes



6. Sense of control and identity

Flexibility in adapting the living spaces is another important aspect of comparison. Both Taste and Samenhuys Ernaast feature central staircases and “wet rooms,” allowing for the reconfiguration of rooms to suit evolving needs. However, Samenhuys Ernaast faces challenges due to its smaller space (25 m² per unit), which limits the ability to adapt rooms effectively. In contrast, Taste, with its mirrored structures and slightly larger space per resident (38 m²), offers greater flexibility in meeting the changing requirements of its residents.

The group size in each building has a distinct impact on community dynamics. Taste currently houses 17 adult residents, a mix of families and single individuals. This provides a good balance for organizing events and community activities without placing too much pressure on any one individual. Additionally, the available space for expansion means that the community can grow if needed. Meanwhile, Samenhuys Ernaast has a smaller group of 11 adult residents, which some residents feel is too small for initiating large-scale community projects. However, this smaller size has its advantages, allowing for deeper and more meaningful relationships to develop among residents.

Finally, the sense of control and identity varies between the two buildings. Samenhuys Ernaast has limited variation in its unit sizes (40–65 m²), which, while providing some flexibility, doesn’t fully accommodate larger households, such as the family living in a 50 m² apartment. In contrast, Taste offers a well-balanced transition from public to private spaces, fostering a strong sense of control for its residents. During my conversations with residents, Taste members explained that the garden acts as a natural space for casual social interactions. For example, when children from the neighborhood come to play in the garden, a resident may step outside to engage in small talk. In contrast, Dennis from Samenhuys Ernaast mentioned that their residents often go to the adjacent playground for social interaction, but not all residents are equally eager to engage in these activities. Therefore, the barrier to spontaneous (Pattern X) social interaction in Taste’s garden is noticeably lower compared to the playground at Samenhuys Ernaast. Job, a resident at Taste with a background in architecture, described the garden as a “fluent transition zone” that is “more accessible and inviting than a living room, where you actually have to open a door to get in.”

In conclusion, Taste offers a more adaptable, varied, and socially engaging environment compared to Samenhuys Ernaast. While both buildings have strengths, Taste provides a broader range of options for residents in terms of living spaces, common areas, flexibility, and opportunities for community building.

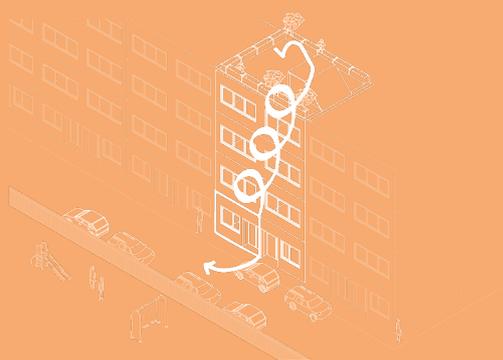
CASE STUDY 1

Samenhuis Ernaast, Tarwewijk



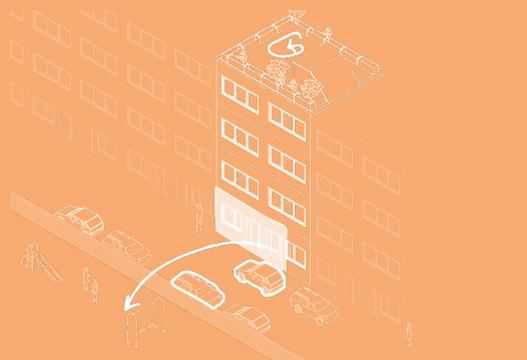
Walking Routes

The walking routes through the building are very straightforward. The main entrance opens into a hallway, which connects to the common room and the shared staircase. This staircase provides access to the apartments on the upper floors and the common rooftop terrace.



Sense of Control and Identity

In terms of diversity of residences Samenhuis ernaast consists out of 7 residences in total that all vary from 45 m² to 55 m², which is not a big variation. Some residences are inhabited by 1 single person but in one residence there lives a family with 5 people.





Group Size

The building is home to 16 people, ranging from individuals to families, with parents mostly in their 30s or 40s. Conversations with residents revealed that a group of 16 is somewhat small for initiating community projects. However, a key advantage of this smaller group is the opportunity to build deeper and more meaningful relationships.



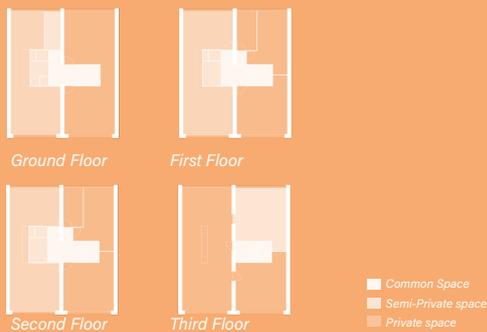
Diversity of Common Spaces

The place has two different common spaces: a common room with a large dining table, kitchen, and seating area, and a rooftop terrace accessible via the shared staircase.



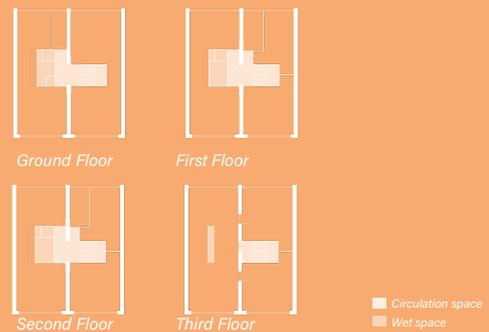
Diversity of Residences

Samenhuis Ernaast consists of a total of 7 residences marked orange and purple in the figure below. The residences range in size from 35 m² to 65 m², which is variation but when looked at the occupation it becomes clear that some residence inhabit an apartment alone while others live with their whole family on 50 m².



Flexibility

The building consists of two connected terraced houses, spanning wall to wall. As shown in the figure below, the staircase and "wet rooms" are centrally located, making it relatively easy to add or combine rooms around them. However, the limited space (25 m²) makes this process challenging, as became clear during conversations with the residents.



CASE STUDY 2

Taste in Voorhof, Delft



Walking Routes

The building features a gradual transition from public to private spaces. It begins with the playground in the garden, which is visible from the street. From there, you enter the common living room, which is open three times a week. Beyond that, you can access the kitchen and see some front doors. However, if you were to go upstairs to the singles' living room, it would feel intrusive, as though that area is not meant to be accessed by visitors.



Sense of Control and Identity

The smooth transition from public to private spaces provides a comfortable level of control. While the façade doesn't necessarily convey a strong identity due to its lack of detail, this is more than compensated for by the well-maintained garden and the inviting interior of the common spaces.





Group Size

The building currently houses 24 people, but there is enough space for more, as a few of the single rooms are still vacant. The residents are a mix of families and mostly single young individuals. With this number of people and the available space, organizing events is manageable for them without placing too much pressure on any one person.



Diversity of Common Spaces

The floor plan, combined with the photos, reveals a large kitchen, a cozy living room, and a spacious garden. Additionally, there is a meeting room, a prayer space, as well as a kitchen and bathroom for those renting single rooms. These various common areas provide different levels of accessibility and foster diverse ways of interaction.



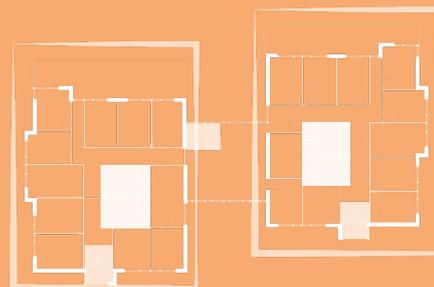
Diversity of Residences

The former elderly care building has been renovated into a mix of single-room studios with shared facilities, such as a kitchen and bathroom, and fully independent apartments. Conversations with the residents revealed that families prefer having their own private space, while single individuals are generally more open to sharing certain facilities.



Flexibility

The floor plan diagram below shows that the building consists of two mirrored structures connected by a spacious stairwell. With the "wet rooms" centrally located and each building having its additional own staircase, it is relatively easy to combine single rooms into larger apartments, which is already done. Additionally the amount of space per resident, 38 m² makes this building flexible.



4. Needs of the Residents

There is still very little research into the specific needs of “Rotterdamers” (AIR, 2024). Despite the lack of detailed insights into the actual demand for co-living, interest appears to be growing (Csischke & Kuyper, 2024). However, Rotterdam still lacks a significant number of co-living examples, which became evident during conversations with residents. Many people seemed uncertain about what co-living actually entails or how it could be integrated into their daily lives. There is limited knowledge about how many people would be interested in co-living and, if they are, what form it should take. To explore this topic, this chapter examines the question: “What are the needs and desires of residents living in a cohousing community in the Tarwewijk?” While individual preferences vary (Kuyper, 2024), general assumptions can be made based on conversations with residents of collective housing projects in the Tarwewijk and Delft.

4.1 ‘conversation board’

Some progress has been made, thanks to the work of fellow researchers Tijmen Kuyper and Anna Buijter during their graduation project. Kuyper developed a scale that categorizes spaces from public to private, while Buijter conducted a questionnaire to understand which spaces people are willing to share. Building on their research, a “conversation board” (see figure X) was created to engage people in discussions about sharing spaces.

The purpose of the conversation board was not necessarily to determine which spaces people were or weren’t willing to share, but rather to delve deeper into the motivations behind their choices. The board consists of various sections, each representing a type of space.

“I wouldn’t want to share a workspace because I’m worried it won’t be a quiet environment.”

Resident Carnisse & Fellow student

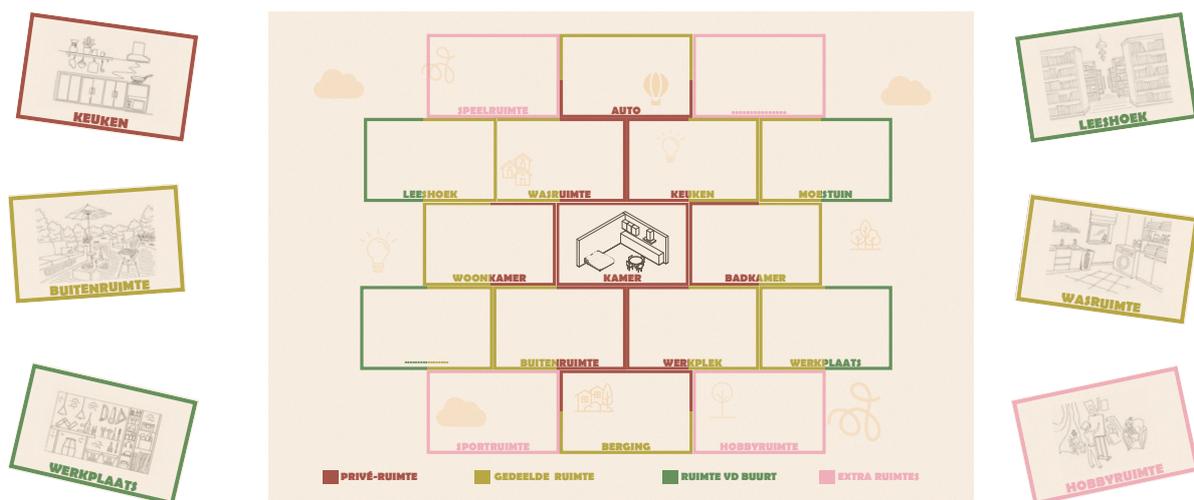


Figure X, Conversation board

While the bedroom was considered a fixed private space, the other rooms were divided into three categories:

1. *Private/Collective: kitchen, bathroom, living room, workspace, outdoor space, laundry room, car, storage.*
2. *Collective/Neighbourhood: community garden, workshop, reading corner.*
3. *Additional Spaces: playroom, hobby room, gym, or own idea.*

“Everybody needs their own kitchen, because you need to have the opportunity to retreat if you feel like it.”

Amber, resident Samenhuus

For each space, participants could choose whether it would be private, shared with a collective, or shared with the neighbourhood. Additionally, participants could select an extra space and describe how they would want to use it. This was particularly interesting as it provided insights into priorities when additional shared facilities are available.

During these conversations, new perspectives were revealed. For instance, one participant expressed a desire for a shared playroom, which could facilitate shared childcare responsibilities among neighbours. In contrast, another participant was firmly against sharing a workspace, citing concerns about maintaining a quiet environment for focused work. Reaching out to residents from the Tarwewijk proved to be more difficult than anticipated. Ultimately, the conversation game was played with two residents. However, it was also tested with fellow students and students from other faculties to gain alternative perspectives. Interestingly, students often have substantial experience in sharing facilities, which made their input particularly valuable. Eventually, a scale from private to more public spaces was drawn up, see figure X.

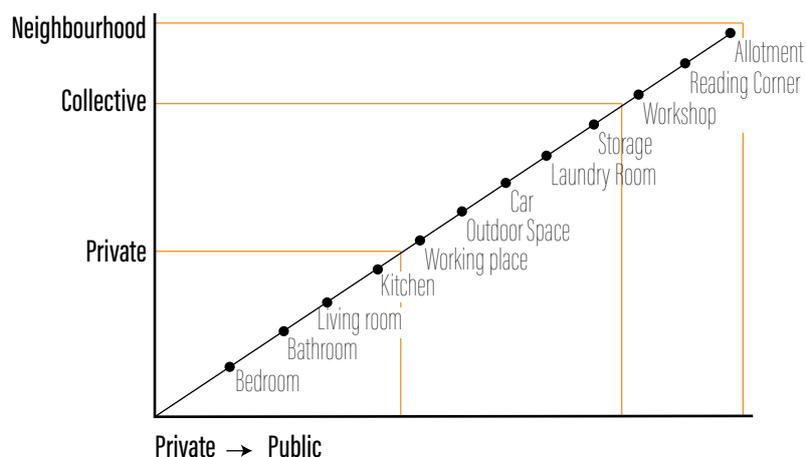


Figure X, Scale from private to public based upon Buiten and Kuyper and own interviews

So, while the concept of co-living is gaining interest, there remains a significant gap in understanding the specific needs and preferences of residents regarding shared living arrangements. The lack of clear examples and awareness among residents highlights the need for further exploration of both the demand and the practical implementation of co-living concepts. Preliminary research and tools, such as the conversation board, have proven valuable in uncovering motivations and priorities for sharing spaces, revealing diverse perspectives ranging from a desire for shared childcare facilities to concerns over maintaining privacy and quietness in workspaces. However, since it is not doable within the given time to create a general overview of the desires of the residents of the Tarwewijk, a persona drawn up from the residents of 'Samenhuis Ernaast' is included in the Appendix to provide guidelines for the design.

4.2 Residential Turnover

The high residential turnover rate in the Tarwewijk is identified as a key factor contributing to the weak social cohesion in the area (NPRZ, 2014). Nieuwenhuis, Völker, and Flap (2013) found that once residents decide to move, they invest less in both their neighborhood and relationships with neighbors, further weakening the sense of community. Given that high residential turnover is seen as a significant problem, investing in long-term solutions for neighborhood stability becomes crucial for policymakers and city developers. Research has identified several factors that can encourage residents to stay longer in a neighborhood, including attachment motives, social anchors, and neighborhood attachment (e.g., Anderson, 2008). Therefore, the establishment of a successful collective living community that can endure within the neighborhood would be a substantial step forward in addressing these issues.

However, as Annet Akkerdam emphasized, many collective living initiatives in Rotterdam have struggled to maintain their vitality over time. Similarly, Dennis Bouwen, a resident of a collective living space in the Tarwewijk, pointed out that conflicts among residents could lead to the disintegration of the community. It is, therefore, essential to conduct further research into how such communities can remain vital in the long term, ensuring they are resilient and sustainable despite challenges.

4.3 Meaning long-term vital community

There has been a lot of research in the field of vital community's, however not a lot in 'long-term vital community's'. The research of Scott 2010 asserts that the definition of a vital community as follows; A vital community is characterised by strong, active and inclusive relationships between residents, the private sector, the public sector and social organisations. According to Oregon Explorer, a vital community is one that achieves positive outcomes for its members by fostering strong social, economic, and environmental connections, ensuring sustainability, and enhancing residents' quality of life.

Even though these researches talk about vital community's and one can assume the term vital includes being for the long term, they don't mention it specifically. Therefore this research has its own definition of a long-term vital community; "A group of individuals living together or interacting regularly, characterized by sustainable social cohesion, adaptability, and functionality, enabling them to thrive collectively over an extended period." This research will also assume that

the characteristics of a vital community will lead to a long term community.

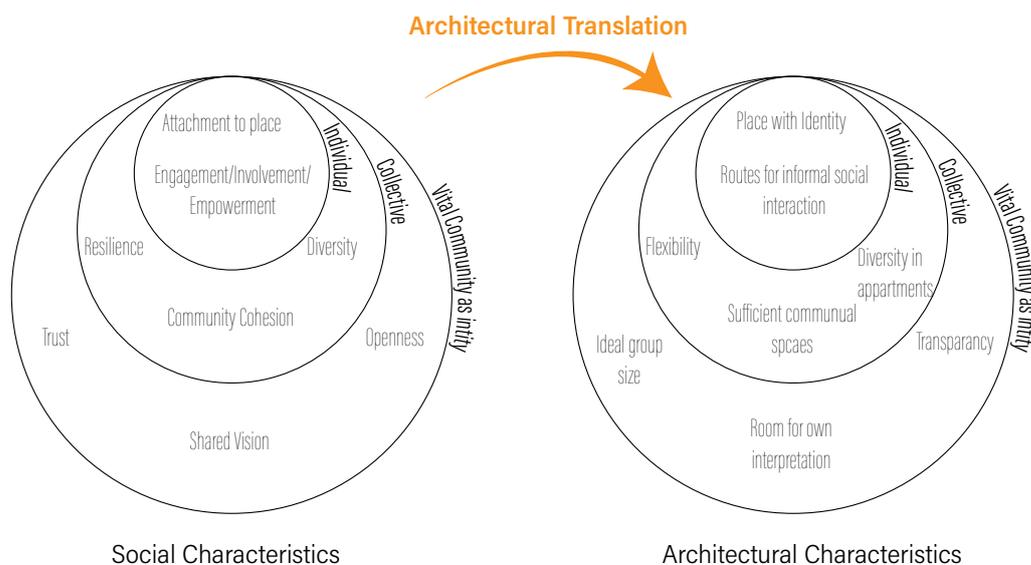
4.4 Characteristics of a Vital Community

K. E. Pani-Harremann developed a conceptualization based on earlier done research in vital communities. In doing so she first made a to the point summary of the characteristics of a vital community which she divided into three layers, the individual, the collective and the community as entity. These combined characteristics on the three layers than should lead to a vital community.

1. Individual characteristics; Attachment to Place, Engagement Involvement Empowerment
2. Collective characteristics; Community cohesion, resilience and diversity
3. Vital communities as entity; Collective shared vision, community openness and trust.

These different social characteristics are than translated to physical outcomes that would facilitate these social characteristics of a vital community in figure X. These 8 design principles that than arise have a lot in common with the earlier described design criteria of Sim. Which could be seen as affirmation that they point in the right direction.

The pillars for a vital community primarily focus on the social structures that need to be in place, but these social structures are deeply intertwined with architectural elements that support and facilitate these interactions. For instance, a key issue in some community designs is the lack of shared public spaces that foster interaction not just among community members, but with the broader neighborhood. An example of this can be seen in the difference between Taste in Delft and Samenhuis Ernaast. Taste incorporated an open, community-accessible space, the garden, from the outset, which contributed to its successful integration with the surrounding neighborhood. In contrast,



8 design take-aways for Long-Term Vital Community; (1) Place with Identity, (2) Routes for informal social interaction, (3) Flexibility, (4) Sufficient communal spaces, (5) Diversity of residences, (6) Adequate group size, (7) Room for own interpretation (Pattern), (8) Transparency (Pattern)

Samenhuis Ernaast, despite having similar intentions, lacked such a space, which could have been a barrier to fostering broader community cohesion. The success of Taste's design can be attributed, in part, to its architectural form, which prioritized openness and accessibility for a larger community.

Ironically, many of the translated vital community principles align closely with those identified in the case studies. However, two new principles emerge. The first is "room for personal interpretation", which was also highlighted during the interview with Bouwen (2024). Bouwen emphasized the importance of having a higher purpose beyond simply living together and enjoying one another's company. They noted that there will inevitably be moments when being around each other becomes less enjoyable, and without a deeper reason for co-living, the original motivation to live together might be forgotten.

The second new principle is "transparency", which already came up front as a topic of discussion within the interview with Krabbendam (2024). Krabbendam illustrated this principle with an example: indoor windows between the kitchen and living room. These allow parents and children to be in separate spaces, helping to avoid noisy conflicts, while still maintaining visual connection and oversight.

Overall, the similarities between the principles used in the case studies and the principles that have re-emerged here suggest a higher likelihood that these principles are effective in practice. However, to draw a well-founded conclusion, a significantly larger number of case studies and communities would need to be analysed.

5. Role of Scale and Flexibility

One of the key questions in understanding the dynamics of cohousing communities is: "What is the role of scale and flexibility within a cohousing community?" Previous research has shown that these factors are crucial in shaping the functioning, social cohesion, and adaptability of a collective. The way a community is structured, both in terms of size and its ability to adapt to changing circumstances, directly influences its long-term viability and the lived experiences of its members.

Studies on the longevity of collectives reveal that smaller groups tend to have shorter lifespans. This is largely due to a lack of diversity in talents and skills, which makes the group more vulnerable to disruption when a few members become less engaged (Nuesink, 2016). Flexibility plays a critical role here: a community that lacks the ability to absorb change or adapt to shifts in participation is more likely to dissolve over time.

This challenge was also evident in an interview with Bouwen (2024), who shared an experience about having to ask a resident to leave because she did not fit well with the group. The conflict that arose from this decision illustrates how interpersonal tensions can have a disproportionate impact in smaller

communities. Bouwen noted that in a larger group, such tensions might be mitigated, as conflicts would not have the same disruptive effect on the collective. If too many of these conflicts occur in a small-scale setting, the entire community risks falling apart.

However, increasing the size of a collective is not a straightforward solution. As a community grows, the sense of belonging and intimacy often diminishes (Happy Cities, 2024). Larger groups also experience a decline in spontaneous interactions (Pattern X), which are essential for a thriving cohousing environment. Without spontaneity, social engagement can start to feel like an obligation rather than a natural part of daily life, reducing the very benefits that make cohousing attractive.

Most collectives find their ideal size at around 30 households, a scale that supports an engaged yet manageable community (ScottHanson & ScottHanson, 2005). However, Kuyper (2025) challenges this notion, arguing that this middle ground may not provide the best of either end of the spectrum. At this size, a collective is often too small to sustain extensive shared facilities but too large to easily maintain informal communal activities such as shared meals.

To address these challenges, Kuyper proposes the concept of *cluster collectives* (Pattern X). This model introduces flexibility into the scale of a cohousing community by dividing it into interconnected subgroups. Cluster collectives offer several advantages: they allow for organic growth, support diversity within the community, and maintain the intimacy and manageability of smaller groups. Crucially, this structure also enhances adaptability, as clusters can evolve, merge, or separate based on the needs of the community. However, this model also presents risks, such as potential isolation between clusters, which could undermine the broader sense of belonging.

In conclusion, scale and flexibility are fundamental to the success and sustainability of cohousing communities. Smaller groups often struggle with longevity due to limited diversity and greater vulnerability to individual disengagement, while larger groups face challenges related to diminished spontaneity and weaker social cohesion. Flexibility, both in social structure and physical organization, emerges as a crucial factor in mitigating these issues. The cluster collective model offers a promising approach to balancing the benefits of small and large communities, but its success depends on maintaining strong connections between clusters to prevent fragmentation. Ultimately, the interplay between scale and flexibility determines whether a cohousing community can foster a resilient, adaptive, and socially cohesive living environment.

6. Conclusion

This research has explored both the opportunities and challenges of co-living as a strategy for combating loneliness, with a specific focus on the Tarwewijk in Rotterdam. The central research question guiding this study was: What living environment principles can support the design of a cohousing community that fosters social cohesion on different scale levels in the Tarwewijk? By examining the role of the built environment in fostering social cohesion, conducting interviews with experts, policymakers, and residents, and analyzing existing co-living projects, the study aimed to identify the physical and social elements that contribute to the success of collective living environments. The insights from these various sources were synthesized into a framework of 32 living environment principles (see page X), also referred to as pattern languages, which can guide the design and development of future co-living spaces.

The research began by investigating social cohesion at three spatial scales. At the neighborhood level, the Tarwewijk was found to have two social cores with sufficient public spaces and buildings. However, at the street level, walkability was often compromised by obstacles such as narrow or missing sidewalks and parked cars obstructing visibility. These factors created physical barriers for social cohesion (pattern X) and contributed to an unwelcoming atmosphere. Additionally, indicators such as garbage accumulation, closed curtains, and poorly maintained front yards suggested a lack of control and identity, further diminishing walkability.

Despite these challenges, one element that positively influenced social cohesion was human scale. Many buildings featured detailed facades, and their height generally did not exceed six stories, which helped maintain a sense of intimacy. However, some buildings lacked these qualities, featuring blank facades, inactive plinths, or large, empty spaces, making them less inviting and disrupting the human-scale experience. Thus, while human scale was present in parts of the neighborhood, it was not consistently implemented.

At the building level, two different co-living arrangements were analyzed, highlighting the importance of diversity in housing typologies. A greater diversity of residences within a community fosters inclusivity by attracting a broader range of individuals and facilitating both integration and long-term engagement. Furthermore, the combination of communal spaces played a crucial role in strengthening social cohesion. The presence of a semi-private garden adjacent to a common room, as observed in Taste, effectively served as a transitional zone between private and public realms, allowing for spontaneous interactions without compromising residents' sense of privacy.

Flexibility emerged as another critical factor in the success of co-living arrangements. Insufficient flexibility in spatial layouts can lead to cramped living conditions, fostering conflict and prompting residents to leave. Moreover, the size of a community directly influences spontaneity in social interactions. Larger groups tend to experience reduced spontaneity (pattern X), which can limit organic interactions, a core strength of co-living environments. Therefore, flexibility in spatial configuration and group size is essential to maintaining long-

term social cohesion and adaptability.

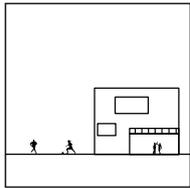
Beyond architectural principles, the study sought to understand the perceptions and preferences of Tarwewijk residents regarding co-living. An attempt was made to facilitate discussions using a discussion board, though this approach proved to be ineffective, as participants found it difficult to engage with the format. Nevertheless, valuable insights were gathered through conversations with students experienced in shared living arrangements, as well as from previous research on the topic. These insights contributed to the development of the scale of public to private rooms (pattern X), highlighting the importance of clear transitions between shared and individual spaces.

Another key challenge identified was the high turnover rate in the Tarwewijk, which poses a significant barrier to long-term community vitality. To address this, social principles associated with a stable community were translated into physical design elements that enhance a sense of place attachment. For example, spaces with strong identity markers were found to foster greater emotional connections among residents. Notably, six of the eight principles derived in this study aligned with those identified by Sim (2019), reinforcing the broader applicability of these findings.

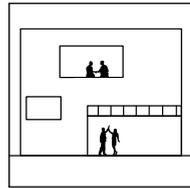
As the research progressed, the significance of scale and flexibility became increasingly evident. These factors are crucial to the success and sustainability of collective housing models, as they directly impact social cohesion, adaptability, and long-term viability. Smaller groups often struggle with limited diversity and engagement, whereas larger groups face challenges in maintaining a sense of community and spontaneity. The cluster collective model presents a potential solution by balancing scalability, diversity, and manageability. However, careful attention must be paid to fostering connections between clusters to prevent social fragmentation.

To give answer to the main question of the research a set of practical guidelines for designing successful co-living spaces in the Tarwewijk is compiled. These 32 living environment principles (see page X) serve as a foundation for the next phase of this project: the development of a co-living collective. By adhering to the principles of social cohesion, flexibility, and adaptability, future co-living spaces can be designed to support vibrant and sustainable communities that effectively address the challenges of urban loneliness.

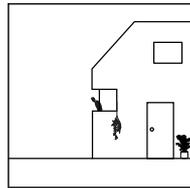
32 Living environment principles



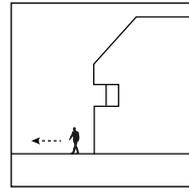
Social space without consuming



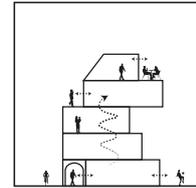
Spontaneous vs planned



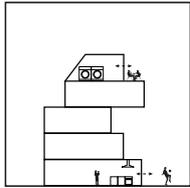
Transition zone



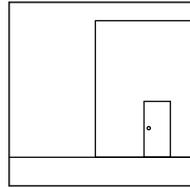
Space for Pedestrian



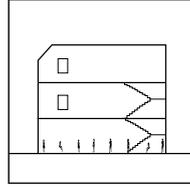
Walking routes



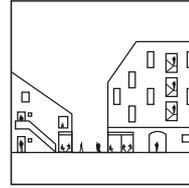
Combining must and may



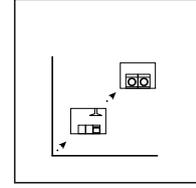
Border public and private



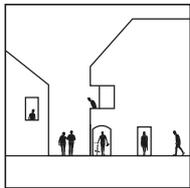
8 adults in one household



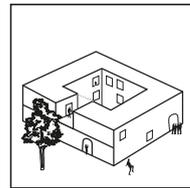
Human scale



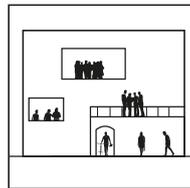
Public to private scale



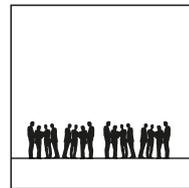
Walkability



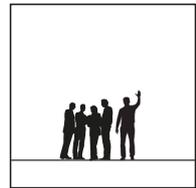
Vital community principles



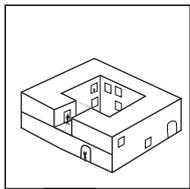
Group sizes



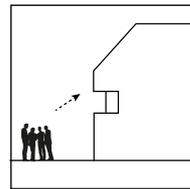
More people, less spontaneity



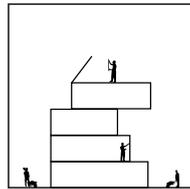
Collective starts with group



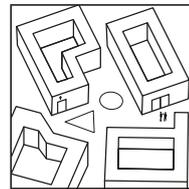
Sense of control and identity



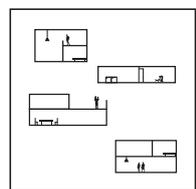
Shared vision



Leave space for community



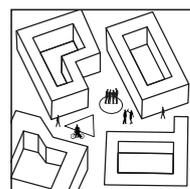
Existing non-consume places



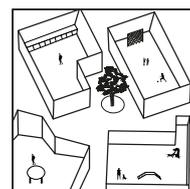
Diversity of residences



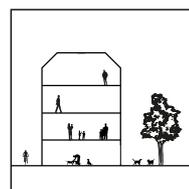
From city to building scale



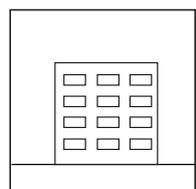
Social cores Tarwewijk



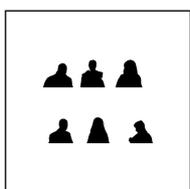
Diversity of communal spaces



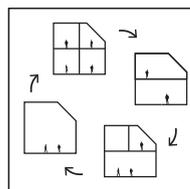
Layering



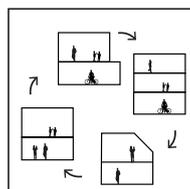
Anonymous agencies



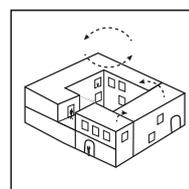
Persona



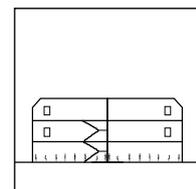
Flexibility



Flexibility costs space



Household, cluster, community



2 household, 1 cluster

7. Discussion

While this research provides valuable insights into co-living and social cohesion, several limitations must be acknowledged. The conclusions are primarily drawn from two case studies, which, while informative, do not offer a comprehensive understanding of the full spectrum of co-living experiences. A broader range of case studies and resident perspectives would be necessary to strengthen the findings. Moreover, relatively few residents were interviewed, which limits the depth of insight into the lived experiences of those directly affected by co-living environments.

It is also important to recognize that co-living is not a universally suitable housing model. While it offers opportunities for social connection, it does not meet the needs or preferences of all individuals. Additionally, urbanization and densification, factors that physically bring people closer together, are paradoxically linked to increased social isolation (Gruebner et al., 2017). As highlighted in expert interviews, being surrounded by people does not necessarily foster connection and can sometimes exacerbate loneliness.

Furthermore, while Gehl's (2011) work on public life in cities provides relevant insights, its primary focus on European urban contexts may limit its applicability to other cultural settings. Additionally, some examples may be outdated, given the evolving nature of urban development and social behavior.

Future research should address these limitations by incorporating a wider range of case studies, conducting more extensive resident interviews, and considering a broader cultural and temporal context. This would lead to a more nuanced understanding of co-living's potential and its role in fostering meaningful social interactions in diverse urban settings.

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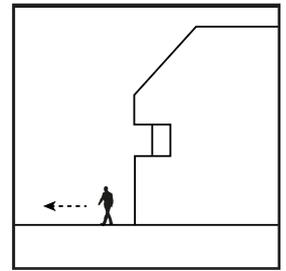
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Appendix 1

*“a collection of living environment principles
that foster social cohesion”*

Space for Pedestrian

For streets to be lively and vibrant, people need to be on them. To attract people, streets must be appealing places to walk, which means wide sidewalks with minimal obstacles.



Theoretical back-up

Many objects are placed on sidewalks to keep them "out of the way" (Gehl, 2010). However, these obstacles actually make walking more difficult, often leading people to choose other forms of transport, such as public transport, cycling, or driving.

Practical implication

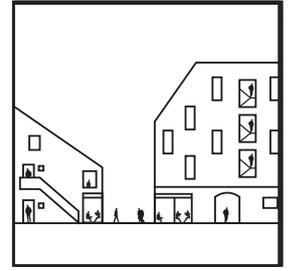
The image shows an example where objects, such as bike racks and lampposts, are placed on the sidewalk. This creates a slalom-like path for pedestrians, and when there are oncoming pedestrians, the space becomes too narrow to walk comfortably. If there are too many of these "obstacles" along the way, pedestrians may choose a different route or another mode of transportation next time.



Key words: pedestrian friendly, sidewalk, obstacles, vibrant streets

Human Scale

Smaller spaces bring people closer to their surroundings, enhancing sensory engagement and intensifying experiences through sight, sound, smell, and touch. They also create better microclimates, ensuring greater physical comfort. Additionally, the compactness of these spaces provides a sense of security by allowing a clear and manageable overview of the area.



Theoretical back-up

David Sim concludes the chapter about human scale as follows; *'Human beings are highly sensitive to unpleasant physical and climatic phenomena. When there is an interruption or disconnect between one place and another because of a bad experience, patterns of behavior are lost, and people are much less likely to walk or spend time in that place. The quality of human-scale elements such as smaller dimensions, sensory experiences, and care at eye-level, should be consistent through a neighborhood and not just exist in isolated spots.'* So he emphasizes that people will spend more time in a certain place when it has human scale.

Practical implication

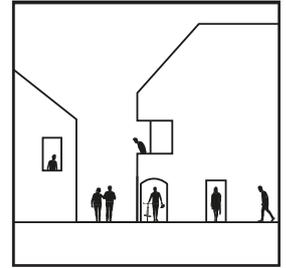
Sim translates this into concrete principles, such as: no higher than six stories, ideally four or five. A great example of this is the historic center of Paris. The city is made up of five-story buildings, full of architectural details (except for the Eiffel Tower). This human scale plays a crucial role in creating a pleasant walking experience. The height and detailing of the buildings ensure that people don't feel lost in the space but instead connected to their surroundings. This allows for the appreciation of subtle elements like balconies, facades, and ornaments, enhancing the sense of proximity and aesthetic enjoyment.



Key words: human scale, intimacy, social interaction, sense of security, identity

Walkability

Walkability encompasses more than just ease of walking; it refers to an overall pleasant and comfortable experience that seamlessly connects indoor and outdoor spaces. Along the route, it involves a logical arrangement of functions, smooth transitions from public to private areas, and an adequate balance of must and may spaces.



Theoretical back-up

David Sim says as follows; *“Walkability refers to the smallest, but perhaps most important, movements that people make every day. Designing for walkability is about connecting people to the life of their neighborhood, seeing what is available, and having options to access it. The goal is quick-and-easy access, convenience, spontaneous participation, and being able to get from one situation to another quickly and easily.* With this he implies that good walkability will lead to more connection between people in the neighbourhood, more social cohesion.

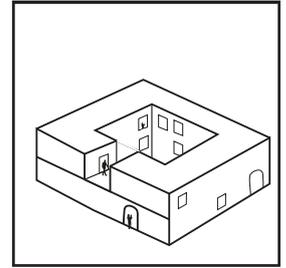
Practical implication

A notable example where walkability significantly enhances the overall experience is the Garden of Taste, as shown in the figure below. Here, a smooth transition unfolds from the street to the playground and then to the communal living room. This visual connection and physical access between indoor and outdoor spaces eliminate the barrier of immediately entering a living room, which can often feel like a significant step.



Key words: walkability, experience, walking routes, balance public private, transition zones

Sense of Control and Identity



When there is a sense of control and identity in the built environment, people feel a stronger connection to their surroundings, fostering belonging, ownership, and social interaction. Clearly defined spaces, from private to public, allow individuals and groups to personalize their environments, balancing privacy with community engagement.

Theoretical back-up

Sim emphasizes the importance of sense of control and identity. He explains that it could be created by small things such as a recessed step in front of a doorway where the resident can put a potted plant (2019). Attachment to a place can be fostered through thoughtful design that emphasizes identity and uniqueness. When a space reflects local culture, history, or natural surroundings, it becomes more relatable and meaningful to its users, encouraging a sense of belonging and connection. Which will eventually lead to people feeling more connected to the community itself and the probability that they want to leave will be smaller.

Practical implication

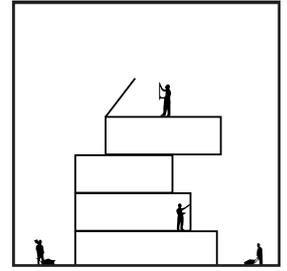
The image below illustrates how residents of the Tarwewijk were given the opportunity to shape their own spaces. While not everyone is equally engaged, this approach fosters a sense of control and identity. For instance, the open curtains signal a sense of comfort and ease within the environment.



Key words: sense of control and identity, safety, control, identity, ownership, belonging, social interaction, balance public private

Leave Space for the Community

By leaving space for the community to shape their own identity and contribute to the design of communal areas, residents are given the opportunity to foster a sense of ownership and belonging. This process enables them to transform the space into something that feels truly their own.



Theoretical back-up

Christopher Alexander's *Pattern Language* (1977) supports the idea that allowing communities to shape their own spaces fosters a sense of ownership and belonging. He argues that when people have the opportunity to actively participate in designing their environment, it creates a deeper connection and attachment to the space. Alexander emphasizes that spaces should be adaptable to the needs of their users, enabling them to personalize and shape their surroundings.

Practical implication

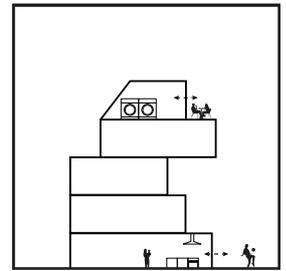
The treehut at the cohousing community Taste is set for renewal. During the interview with resident Job de Vogel, it was evident that he was invested in the project. His enthusiasm and pride in the plan highlighted his belief that by creating something unique for the community, he would foster a stronger sense of belonging and connection.



Key words: identity, ownership, belonging

Combining Must and May Spaces

Combining “must” and “may” spaces in a building encourages spontaneous encounters between people. It also provides a reason to visit social spaces, thus avoiding the awkwardness of simply going to a space for the sake of being social.

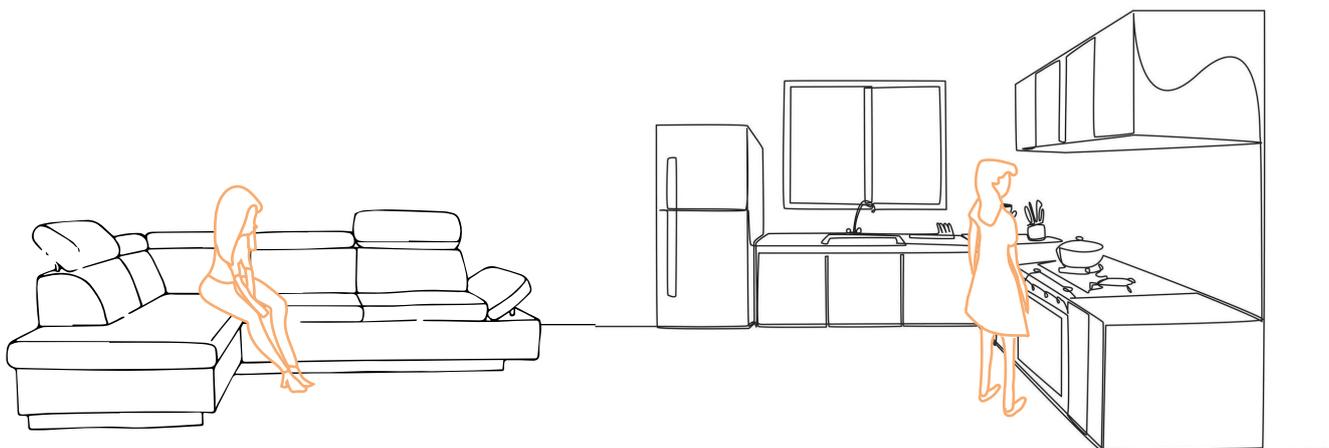


Theoretical back-up

In an interview with graduation student Tijmen Kuyper, he explained that combining “must” and “may” spaces can reduce the awkwardness of entering a space solely for socializing, which often feels like a high barrier. In his book, he quotes a resident of The Warren in Amsterdam, who says, “The backdoor is used more than the front entrance because that is where the bike parking is” (Hoexum, 2024). Kuyper argues that thoughtful design integrating these “must” and “may” spaces increases the likelihood of people naturally using the “may” spaces.

Practical implication

By combining the living room with the kitchen, you create opportunities for spontaneous encounters. People going to the kitchen naturally pass through the living room, increasing the chances of casual interaction. These unplanned moments don't require individuals to start a conversation but offer the possibility if they choose to. The organic and unforced nature of these interactions makes them feel comfortable and natural.



Key words: must and may spaces, walking routes, social interaction, walkability, balance public private

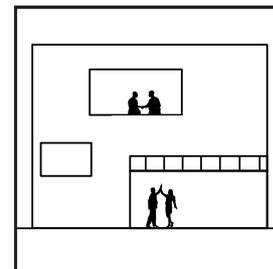
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Spontaneous vs Planned Meetings

Due to various societal developments, our lives have become increasingly structured and planned. As a result, many people feel a resistance to adding more "scheduled meetings" to their agendas. Therefore, it is crucial to design cohousing in a way that fosters a sense of spontaneity.



Theoretical back-up

In recent decades, cultural and economic shifts have led to people spending less time at home, making the emphasis on spontaneous interactions increasingly important for cohousing communities. With less time available to organize or attend planned social events, designing walking routes through the building that organize spontaneous interaction is essential (Fromm & Jong, 2020; Drenth, 2021).

Practical implication

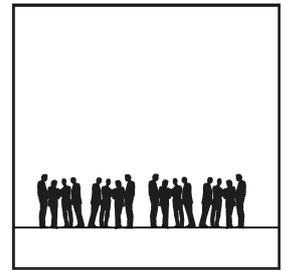
Going to the living room for a scheduled coffee with a roommate can feel like just another task. In contrast, bumping into your roommate during the last few minutes of waiting for your laundry and then spontaneously deciding to take a coffee break together feels like a more natural interaction. Looking back on it, this kind of spontaneous connection often feels more joyful.



Key words: spontaneity, group size, scale, social interaction, walkability, balance public private

More People, Less Spontaneity

The larger the group responsible for managing a household, the less spontaneous it becomes, as bigger groups require more organization and scheduling. So the amount of people per household, cluster and community must be well-balanced.

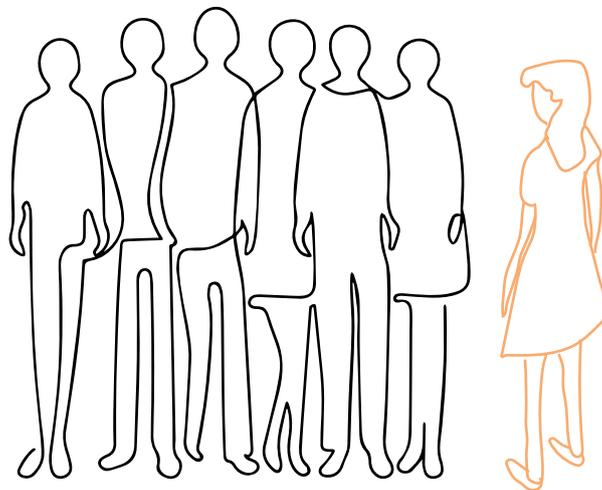


Theoretical back-up

On lower socio-spatial scales like a house share or small cluster that shares daily living spaces, activities like eating together are more easily arranged in a spontaneous informal manner. The larger the social scale, the more activities like eating together require planning, coordinating, teamwork and start to look more like work and are thus often managed in designated working groups for planned interaction (Dijkhuis & Krabbendam, 2020).

Practical implication

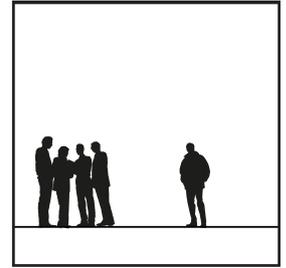
Cooking for four people can easily be arranged at 5 pm, while preparing dinner for a group of twenty requires more groceries and preparation, taking longer. As a result, it needs to be planned in advance to ensure everyone gets their food at the same time and within a reasonable timeframe.



Key words: spontaneity, group size, scale, social interaction, balance public private

Ideal Group Size Varies by Context

There is no one-size-fits-all group size, as it depends on context and the individuals involved. However, research suggests that small groups may face more conflicts, while large ones can lead to anonymity. The ideal size lies somewhere in between, where balance and connection are achieved.



Theoretical back-up

Research by Gordon and O'Keefe (2008) suggests that smaller groups typically exhibit higher levels of cohesion and communication, but may experience increased conflicts due to close proximity. In contrast, larger groups tend to suffer from diminished social bonds and accountability, potentially resulting in reduced cooperation.

Gordon, P., & O'Keefe, D. J. (2008). *Group size and cohesion: A theoretical exploration*. *Journal of Social Psychology*, 48(2), 153-167.

Practical implication

An example of carefully considered group sizes can be found in Centraal Wonen Delft. The floorplan below shows that the community is organized into clusters, each consisting of two households, with a large communal space at the center. While the project functions well at the household and cluster levels, there are fewer initiatives at the larger community level, according to Krabbendam in an interview. He suggested that 120 people might be too few to truly drive the community forward within this context.



Key words: group size, household, cluster, community, neighbourhood, scale

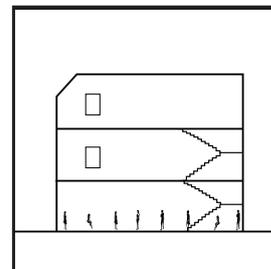
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Gordon, P., & O'Keefe, D. J. (2008). *Group size and cohesion: A theoretical exploration*. *Journal of Social Psychology*, 48(2), 153-167.

Krabbendam, P. (2024, Oktober). Interview

+/- 8 Adults per Household

Eight (grown-up) people per household is an optimal balance between having enough people to take on chores and other initiatives and not having the idea of shared responsibility is no responsibility.

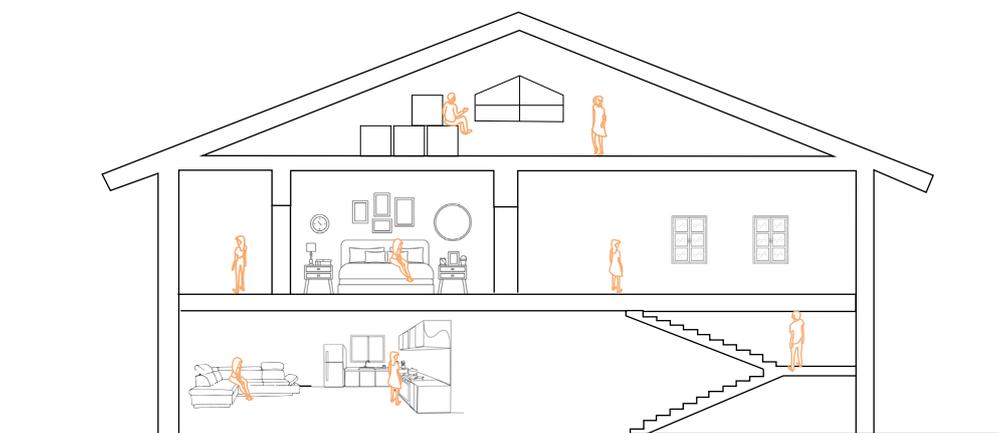


Theoretical back-up

In an interview, Krabbendam explained that eight people is the ideal number for a collective, as it allows for meaningful friendships while still offering the opportunity to avoid others when needed. Research also shows that with eight people in a meeting, there is an optimal balance, where dominant individuals become less overpowering, and shy participants have a chance to speak up (Krabbendam, 2024).

Practical implication

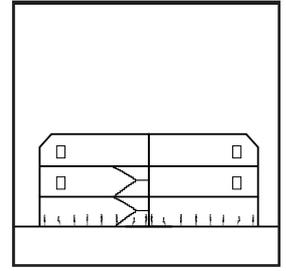
See theoretical back-up



Key words: text

2 households, 1 cluster

A group of about 24 adult people is an adequate size for launching neighborhood initiatives outside the cluster. It allows for regular interaction and familiarity with everyone on a monthly basis, remains informal, and offers enough support to successfully carry out tasks and initiatives.

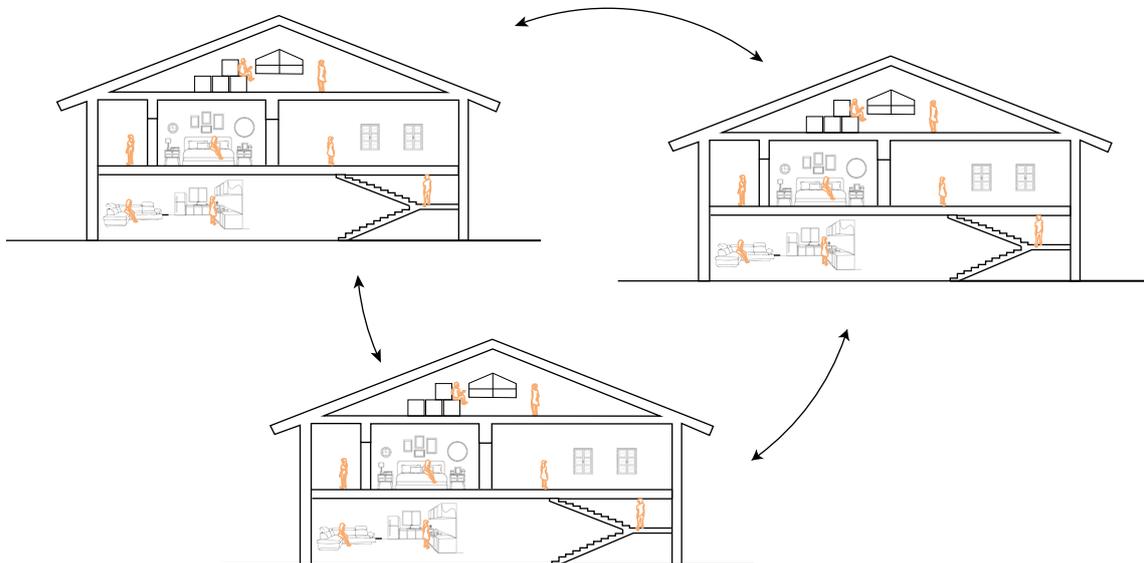


Theoretical back-up

In interviews with de Vogel (November 2024), it was mentioned that 25 people (including 6 kids) provides enough support to take on initiatives, but having a few more could help distribute tasks more evenly. In a separate interview with Bouwen (December, 2024), it was noted that 16 people, including 6 children, was slightly too few to effectively carry out initiatives. Of the 10 adults, 4 had young children, limiting their available time for such activities.

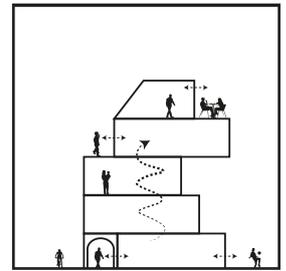
Practical implication

See theoretical back-up



Walking Routes

Designing with walking routes in mind enhances walkability by not only connecting must and may spaces but also facilitating transitions between public and private areas. These routes can offer the option of entering one's home privately, without the need to pass through shared hallways or common spaces.

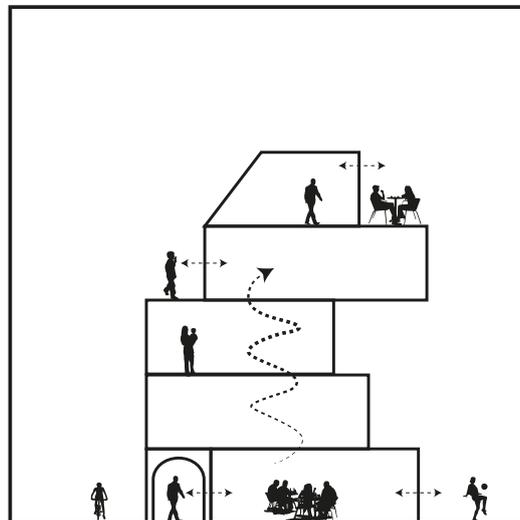


Theoretical back-up

The idea of designing with walking routes is based on the downscaling the criteria of Sim (2019) from city to building scale. The principle of walkability on city scale is in my opinion translatable to building scale with walking routes through the building.

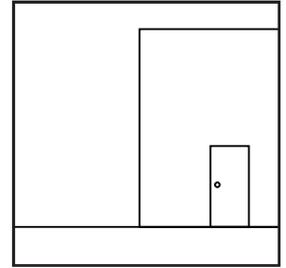
Practical implication

At Centraal Wonen, the main entrance leads into the common room and kitchen, see big orange arrows in figure below. However, residents on the ground floor also have the option to enter their homes through their garden, see smaller orange arrows, allowing them to bypass the common areas if they prefer. Krabbendam explained that some residents choose the private route over the shared one. This is an example of where the attention to walking routes contributes to the comfort of the residents.



Key words: walking routes, must and may spaces, social interaction, balance public private, walkability

Border between Public and Private



In the built environment of the Tarwewijk, there is often a stark divide between public and private spaces. This clear separation leaves little incentive for people to linger or engage with the street unless absolutely necessary. By focusing on designing inviting and functional transition zones such as, stoops, or shared front gardens, residents and visitors can feel more encouraged to spend time in the public realm, fostering social interaction and a more vibrant street life.

Theoretical back-up

In an interview, Krabbendam explained that modern city design often overlooked transition zones between public and private spaces, resulting in anonymous and empty streets. He emphasized that these zones, such as porches or courtyards, are crucial for fostering interaction and creating vibrant, connected neighborhoods (2024, Oktober).

Practical implication

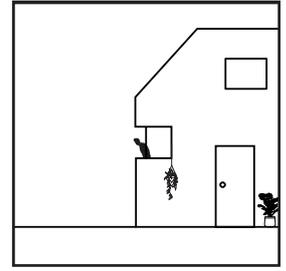
The image below illustrates the minimal transition zone between the house and the street, where the intended green strip is entirely overgrown. Additionally, the absence of windows in the facade likely discourages the owner from maintaining this piece of greenery. Moreover, the entire street lacks proper pedestrian infrastructure, creating an unwelcoming environment. It is a clear example of a stark divide between public and private space that leads to little incentive for people to linger on the streets, at least I felt very unpleasant walking here.



Key words: border between public and private, transition zone, balance public private, walkability, identity

Transition Zone

To create a softer boundary between public and private spaces, a transition zone is essential. The size of this zone can vary depending on the context of the surrounding environment. Generally, a larger transition zone offers greater comfort, though this effect diminishes once the zone reaches a certain size.

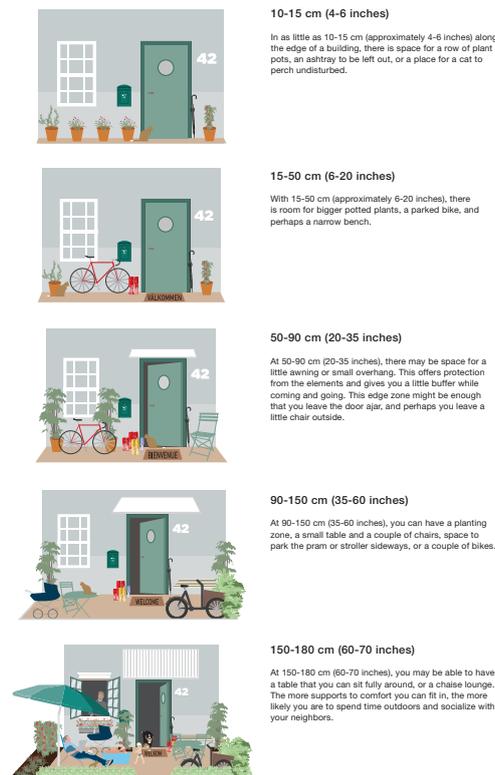


Theoretical back-up

Sim (2019) underscored the critical role of the transition zone in shaping a sense of control and identity. Similarly, Gehl (2010) highlighted the significance of street-level details in enhancing the user experience. Both perspectives emphasize that the visual experience at eye level is crucial for fostering identity and creating an engaging, comfortable walking environment.

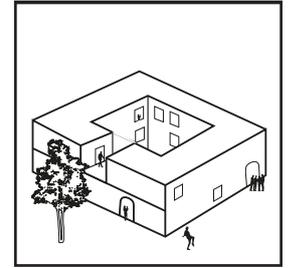
Practical implication

Sim (2019) provides a comprehensive overview of what can be achieved within the transition zone, depending on its size. Logically, more possibilities arise as the space increases, as illustrated in the image below.



Key words: transition zone, border between public and private, balance public and private, identity

Vital Community Principles



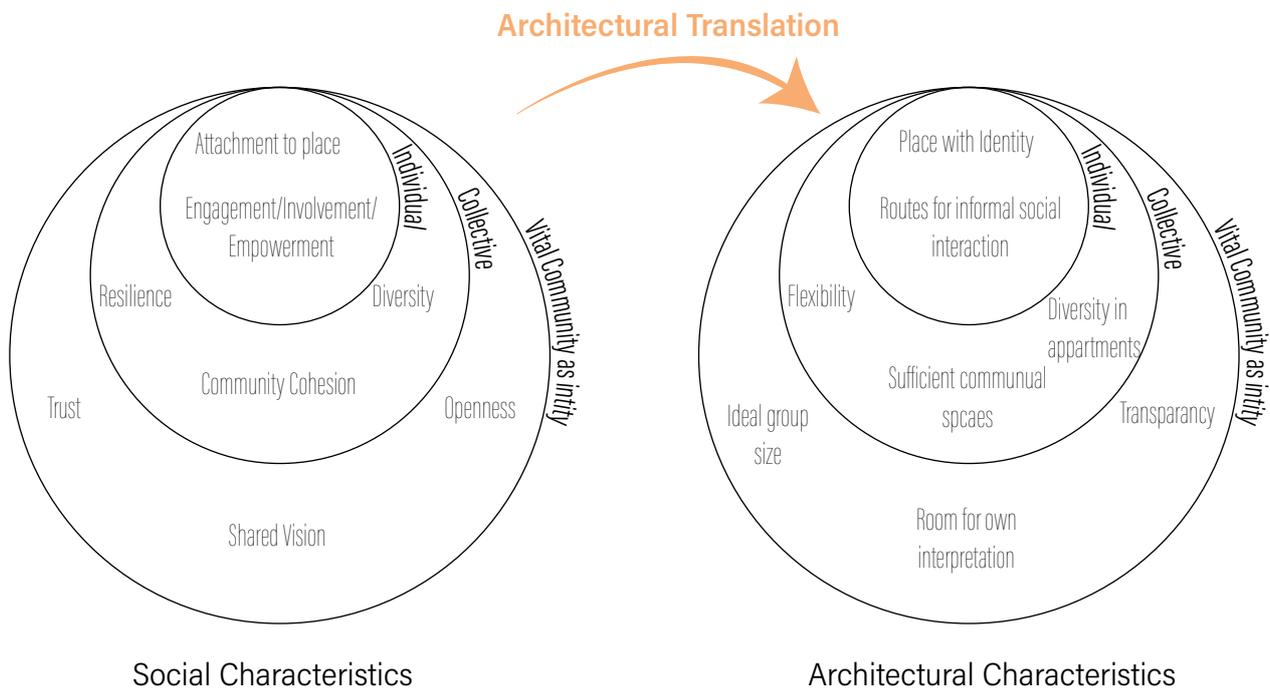
To get a grip on how design could facilitate a long term vital community 8 social principles of a vital community are translated to 8 design principles; place with identity (1), routes for informal social interaction (2), flexibility (3), sufficient communal spaces (4), diversity in apartment (5), ideal group size (6), room for own interpretation (7), transparency (8).

Theoretical back-up

K. E. Pani-Harreman developed a conceptualization based on earlier done research in vital communities. In doing so she first made a to the point summary of the characteristics of a vital community which she divided into three layers, the individual, the collective and the community as entity. These combined characteristics on the three layers than should lead to a vital community (2022). These social characteristics are then translated to design principles by me.

Practical implication

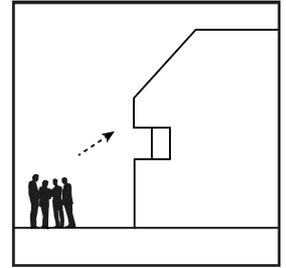
Attachment to a place can be fostered through thoughtful design that emphasizes identity and uniqueness. When a space reflects local culture, history, or natural surroundings, it becomes more relatable and meaningful to its users, encouraging a sense of belonging and connection. Which will eventually lead to people feeling more connected to the community itself and the probability that they want to leave will be smaller.



Key words: vital community, identity, social interaction, flexibility, diversity, group size, leave space, transparency

Importance of Shared Vision

Nearly every interviewee or text on collective living highlights the crucial role of a shared vision. This vision is deeply shaped by the individuals within the community and can take many different forms. Examples include practicing faith, raising children, or leading a sustainable lifestyle.

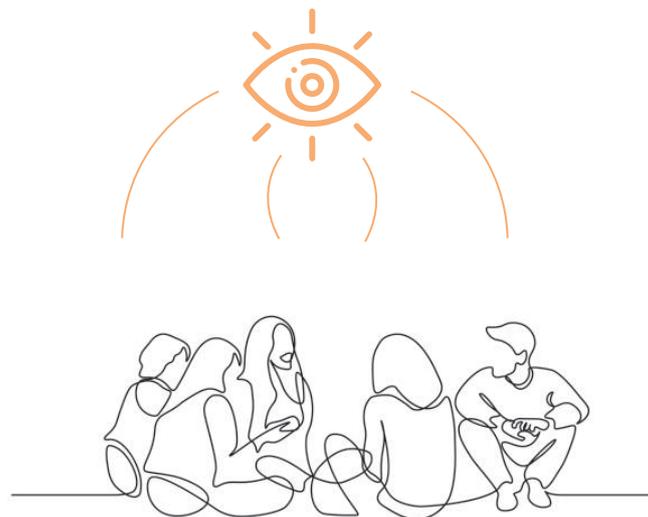


Theoretical back-up

Czischke (2024) states emphatically, "Collective living is about people coming together with a shared vision of how they want to live." This sentiment was echoed by de Vogel and Kuyper. After delving deeper into the topic and engaging in conversations with individuals, it became abundantly clear that a community can only thrive if it consists of people who share a common vision and are fully committed to living in that specific way.

Practical implication

During the interview with Bouwen (2024), he emphasized that there needs to be a higher purpose than simply living together and enjoying a cozy time. Conflicts are inevitable, and when the sole goal is to live harmoniously, any disruption caused by conflicts can make you lose sight of the original reason for choosing this way of living. Therefore, there must be a greater purpose to guide the community.



Key words: shared vision, higher purpose, conflicts

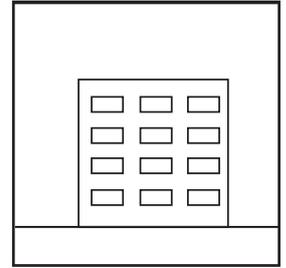
Czischke, D., & van Bortel, G. (2024). Collectieve woonvormen: Samenwerken aan huisvesting door adaptief hergebruik. In H. Remøy, G. van Bortel, E. Heurkens, & R. van Venrooij (Eds.), Transformatie naar Woningen (pp. 121-132). Delft University of Technology, Faculteit Bouwkunde.

Kuyper, T. (2024, november) Interview

Vogel, J. (2024, november) Interview

Bouwen, D. (2024, december) Interview

Shift towards Anonymous Agencies



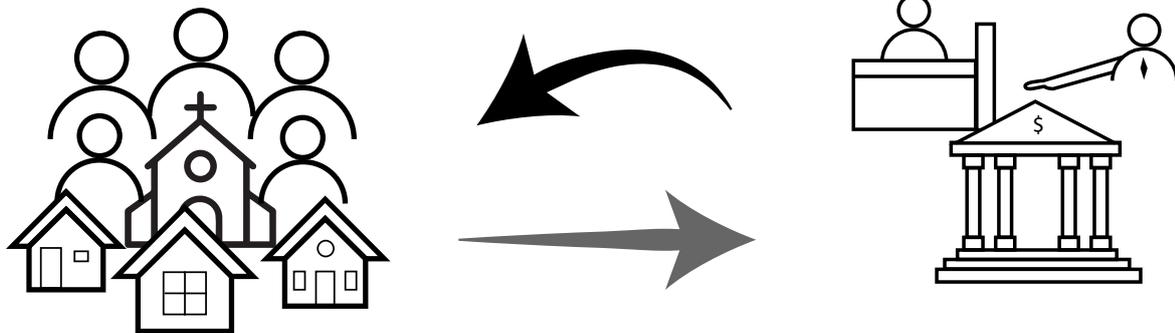
The shift from collectivism to individualism has not resulted in people having less need for that collectivity and undertaking activities together, and thus a "social safety net," but that this need has shifted to more anonymous agencies. However it is not clear how many people don't want to live this way and if people know that there could be

Theoretical back-up

J. W. Duyvendak argues that while material dependence on collectivity has decreased as people have distanced themselves from family, church, neighbors, and community, this need has not disappeared. Instead, it has shifted to more anonymous institutions, such as employers, insurers, and the government (2004). This highlights the ongoing need for collectivity, suggesting that while people may not be fully aware of it, there are still opportunities to live in alternative, more community-oriented ways.

Practical implication

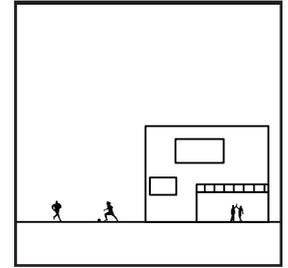
Caring for the elderly was traditionally the responsibility of the family or charitable organizations, and it wasn't until after World War II that nursing homes became common. Now, as these facilities have become too expensive, (anonymous) agencies such as the municipality are attempting the "longer home" method, which often proves ineffective. However, if the elderly were to live within a community, this approach could be more successful, as there would be a larger network of people available to assist with everyday tasks and provide the necessary support.



Key words: collectivity, community, needs of residents

Social Space without Consumerism

Outdoor socializing is often linked to consumerism, with people gathering in commercial spaces like cafes and shopping areas. However, in neighborhoods like the Tarwewijk, where residents may have limited finances, there is a need for spaces to connect without the pressure to consume and spend money.

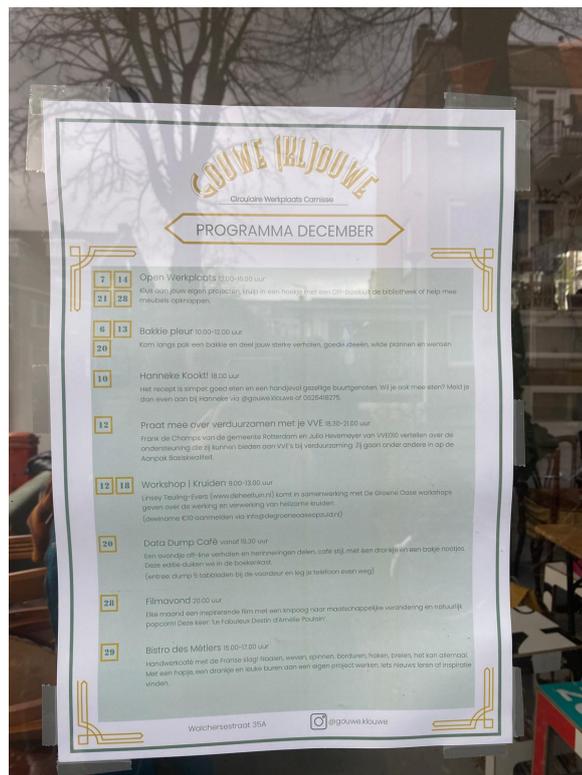


Theoretical back-up

Welp & de Haan (2024) shared in an interview that although they organize numerous successful social initiatives, the moment money becomes involved, many participants disengage. This is often due to the financial barriers it creates, which can alienate individuals who may not be able to afford the costs or feel uncomfortable in settings where spending is expected. They emphasized that this shift underscores the importance of offering spaces or activities where people can participate freely, without the pressure to spend, to maintain inclusivity and ensure that everyone in the community feels welcome and valued.

Practical implication

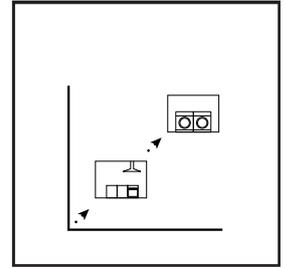
Gouwe (kl)ouwe serves as a social hub for the neighborhood by offering a space where community members can engage in sustainable practices, such as giving objects a second life or receiving guidance on repairs. The image below shows other activities on their agenda. In the agenda you can see that out of all activities only one involves money, it an inclusive and accessible community gathering point.



Key words: consumerism, social interaction, activity's, needs of residents

Private to Public Scale

People associate different feelings with rooms based on their level of intimacy and public exposure. Therefore, it is helpful to establish a hierarchy from intimate to public spaces, which can serve as a guideline during the design process.

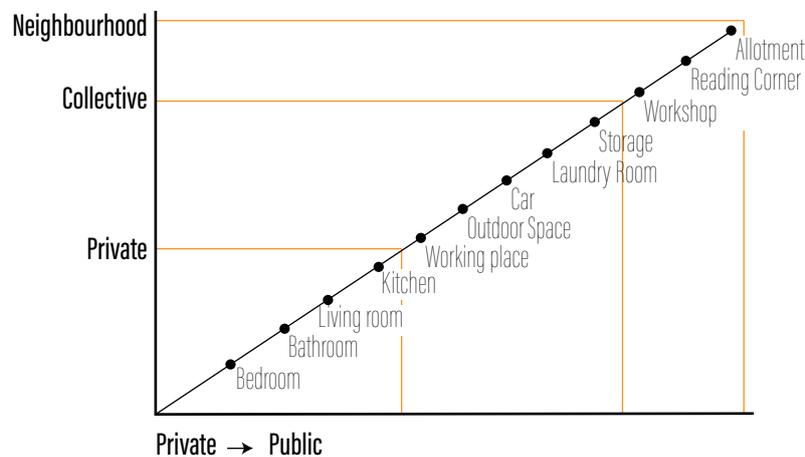


Theoretical back-up

Building on earlier research by Kuyper (2025) and Buiter (2022), as well as insights gathered through interviews facilitated by the discussion board, a customized hierarchy of spaces ranging from private to public has been developed, see image below. This hierarchy reflects the varying levels of intimacy and openness associated with different spaces, taking into account both theoretical frameworks and practical perspectives shared by participants.

Practical implication

People are more open to sharing a car than a bedroom because a car is a functional, temporary space, while a bedroom is deeply personal and tied to privacy, requiring much greater trust to share.



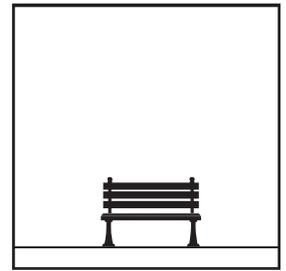
Key words: balance public private, needs of residents, privacy, collectivity, neighbourhood

Kuyper, T. (2025, January) *Architecture for Community, a cohousing pattern language*. Faculty of Architecture and the Built Environment, Delft University of Technology.

Buiter, A. (2022, May 11). "Capturing wishes". Faculty of Architecture and the Built Environment, Delft University of Technology.

Benches with a view are more used

Benches with a view of others engaging in activities are used more frequently than those without such a perspective. This indicates that people enjoy observing others, as it can be both inspiring and entertaining. Watching activities in public spaces creates a sense of connection and liveliness, making these benches more appealing and fostering a dynamic, interactive environment.



Theoretical back-up

Gehl (2010) observed in his research that benches offering a view of other activities are used more frequently than those without such a vantage point. This suggests that people enjoy watching others, finding it engaging and entertaining. This insight is valuable for design, as incorporating seating with views of active spaces can encourage social interaction and make public areas more lively and appealing.

Practical implication

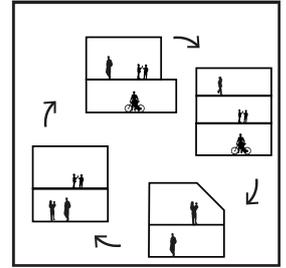
Gehl's (2010) observation is to strategically position benches in public spaces where they overlook active areas, such as playgrounds, plazas, or pedestrian pathways, like the image below which is a bench looking out over a part of Mijnsherenplein.



Key words: social interaction, resting places, vibrant community

Flexibility costs Space

To allow spaces to adapt over time, they often need to be designed with extra room. If a space is precisely tailored to its current function, there is no additional flexibility for adjustments or reconfigurations in the future.

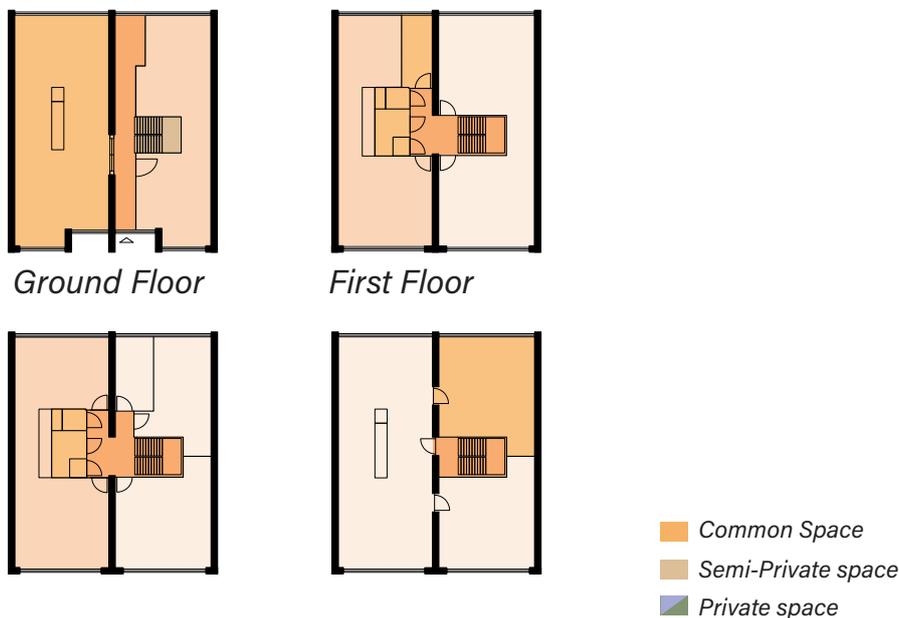


Theoretical back-up

This insight came from the case studies of Taste and Samenhuis Ernaast. While Samenhuis Ernaast was initially well-designed for its residents, as families grew with children and partners, there was no space left to expand. Every square meter had already been assigned to daily functions. As a result, a family of five ended up living in a 50 m² home.

Practical implication

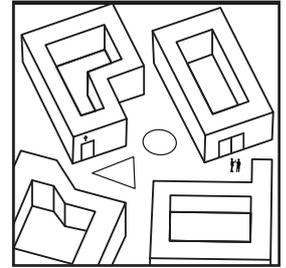
The floorplan of Samenhuis Ernaast below illustrates that each apartment roughly occupies half of a storey, regardless of whether the residents are a family or a single person. On average, each individual has 25 m². At Taste, the average area available per person is 38 m², which is more than sufficient. From this, it can be inferred that at least 30 m² per person is necessary to maintain a level of flexibility.



Key words: flexibility, scale, space

Existing non-consumerism

To identify existing non-consumerist social spaces, five categories were mapped: (1) community centers, (2) green spaces, (3) churches, (4) schools, (5) supermarkets, which, while primarily commercial, can still foster social interaction. These categories represent spaces where people can connect without the emphasis on consumption.



Theoretical back-up

The need for spaces that don't require consumption was highlighted by Welp and de Haan, making it essential to have an overview of the Tarwewijk.

Practical implication

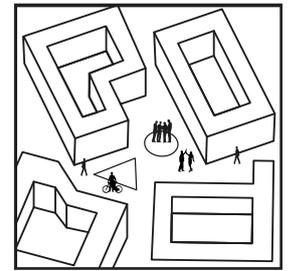
The map in the figure below illustrates the locations of all these non-consumerist spaces.



Key words: non-consumerism, social interaction

Social Cores Tarwewijk

Based on the non-consumerist spaces in the Tarwewijk, two social hubs have been identified: one in the Tarwebuurt and one in the Millinxbuurt. For my collective to be accessible, it needs to be visible; therefore, it is most effective if it is located within or adjacent to one of these social cores.



Theoretical back-up

Gehl (2010) asserts, "if people don't see a place, they will not visit it." This is a reasonable assumption, yet it remains important to highlight, as it significantly influences the decision of whether or not to choose a particular location for the collective. Visibility is a key factor in ensuring accessibility and fostering engagement within a community space.

Practical implication

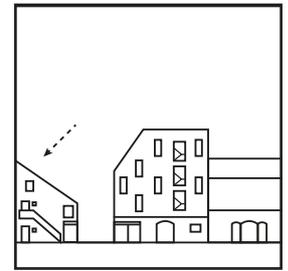
Attachment to a place can be fostered through thoughtful design that emphasizes identity and uniqueness. When a space reflects local culture, history, or natural surroundings, it becomes more relatable and meaningful to its users, encouraging a sense of belonging and connection. Which will eventually lead to people feeling more connected to the community itself and the probability that they want to leave will be smaller.



Key words: social core, visibility, non-consumerism, location

From City to Building Scale

Principles that promote social cohesion at the city scale can be applied to fostering social cohesion at the building scale, as both involve groups of people working towards creating a sense of community within a smaller, shared environment.

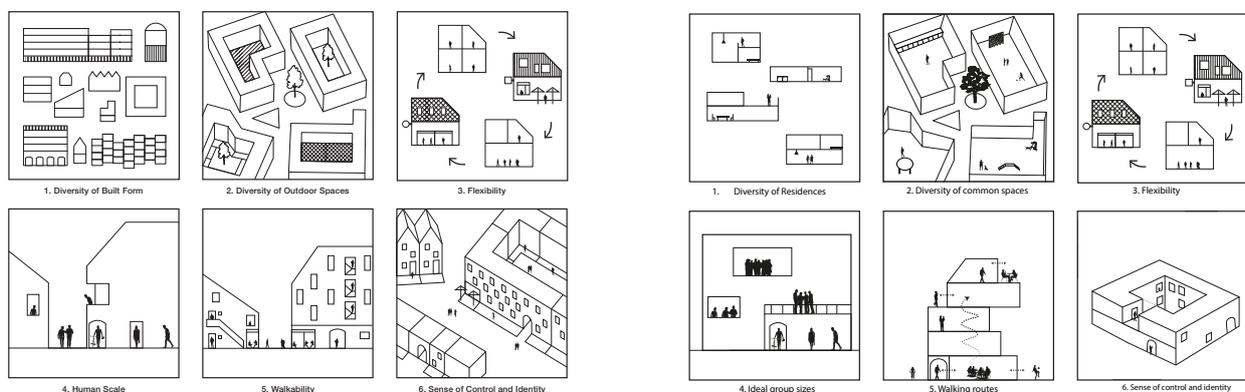


Theoretical back-up

Sim (2019) developed principles for fostering social cohesion in urban environments, which I have adapted for smaller-scale settings, see image below. By applying these principles to residential buildings or neighborhoods, the aim is to create spaces that encourage meaningful connections and community engagement on a more localized level.

Practical implication

Some principles remain applicable across scales, such as flexibility and a sense of control and identity. However, concepts like the diversity of built form were adapted to the diversity of residences. While diversity in urban built form fosters a variety of people and functions, diversity in residential types directly influences the diversity of individuals within the community, enhancing social interaction and inclusivity.

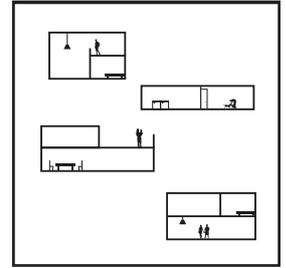


Downscaling Principles

Key words: scale, diversity, flexibility, group size, walkability, sense of control and identity

Diversity of Residences

A diverse range of residences fosters a diverse community, which in turn enhances the resilience of that community. The greater the diversity, the more varied the skills, talents, and perspectives, allowing for a broader range of needs and interests to be met. This inclusivity not only strengthens the community's capacity to adapt and thrive but also makes it more inviting, as there is something for everyone, creating a sense of belonging and shared value.

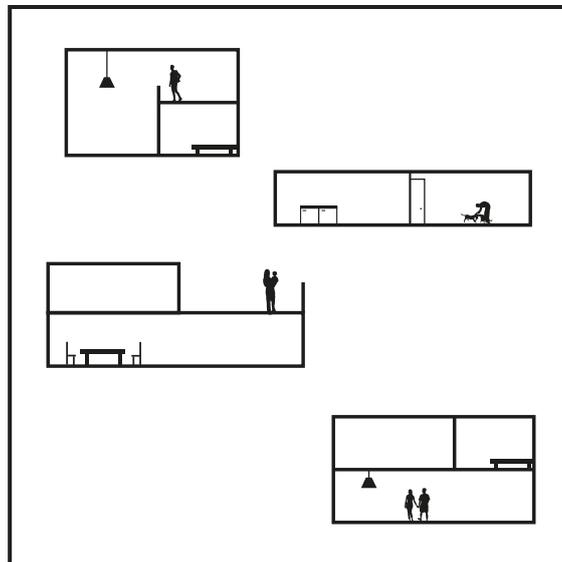


Theoretical back-up

Diversity fosters resilience and makes a community more inviting to a wider range of people, a point also highlighted by de Vogel (2024) during the interview. He noted that the more homogeneous a group is, the less welcoming it becomes for newcomers, making it harder for strangers to engage and get involved. A diverse community, by contrast, creates an environment where people feel more included and encouraged to participate.

Practical implication

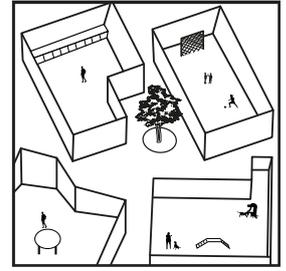
For instance, a bridge club consisting solely of people over seventy may not be very appealing to younger individuals. However, if the group were more diverse, including people of all ages, the barrier to participation would be significantly lower, making it more welcoming and accessible to a broader range of people. This inclusivity encourages greater interaction across generations and fosters a stronger sense of community.



Key words: diversity, resilience, inclusivity,

Diversity of Common Spaces

A diverse public requires a range of offerings to meet the varying needs and desires of both residents and people from the neighbourhood. By providing this variety, the space can contribute to the unique identity and recognition of the area, creating a place that resonates with a broad audience while fostering a strong sense of local character.

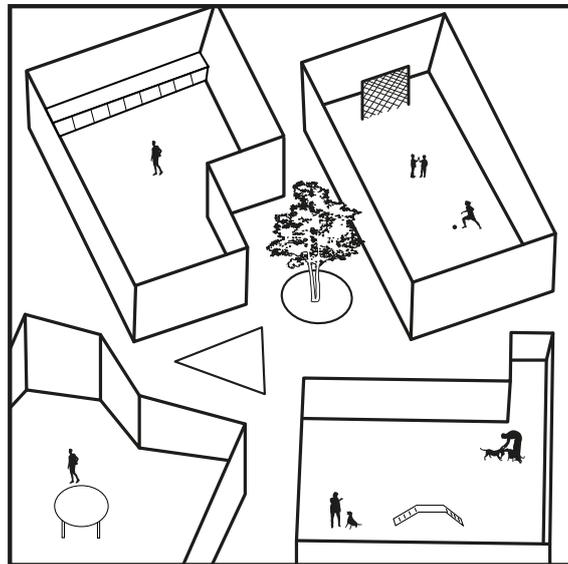


Theoretical back-up

The likelihood of people gathering in a space purely for social interaction is often quite low. When there is an activity or purpose to engage in, it helps reduce awkwardness and creates a more comfortable environment for people to connect. This idea is supported by Kuyper (2024), who emphasized in an interview that having a shared activity or task in a space makes socializing more natural and less forced. Providing a purposeful activity offers a reason for people to interact, breaking down barriers and fostering genuine connections.

Practical implication

The image below illustrates the minimal transition zone between the house and the street, where the intended green strip is entirely overgrown. Additionally, the absence of windows in the facade likely discourages the owner from maintaining this piece of greenery. Moreover, the entire street lacks proper pedestrian infrastructure, creating an unwelcoming environment. It is a clear example of a stark divide between public and private space that leads to little incentive for people to linger on the streets, at least I felt very unpleasant walking here.



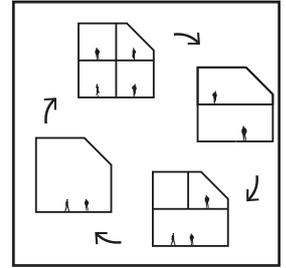
Key words: diversity, identity, inclusivity, recognition, social interaction

Kuyper, T. (2024, november) Interview

Sim, D. (2019). *Soft City: Building density for everyday life*. Island Press.(blz 165)

Flexibility

Of course, flexibility is essential. It means that living spaces should be easily adaptable, with rooms that can be added or downsized. This allows space to be reconfigured as needs change, such as when children move out, a new child is born, or extra workspace is needed. This flexibility ensures the environment remains responsive to residents' evolving needs.

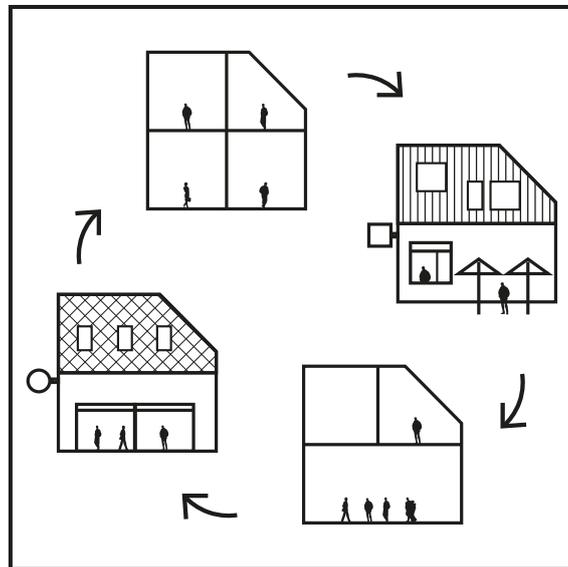


Theoretical back-up

In an interview with Bouwen (2024), he shared the case of a family of five living in a 50 m² home, with no option to expand. This highlights a critical design consideration: without the flexibility to grow or adapt living spaces, residents may be forced to move out as their needs change. Such limitations can lead to long-term dissatisfaction and displacement, which should be avoided in community-oriented design. Providing room for future expansion is essential to ensure that homes can continue to meet the evolving needs of their occupants.

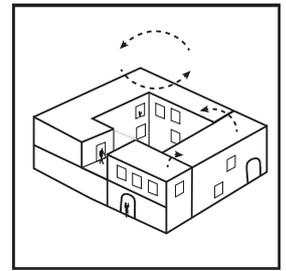
Practical implication

Attachment to a place can be fostered through thoughtful design that emphasizes identity and uniqueness. When a space reflects local culture, history, or natural surroundings, it becomes more relatable and meaningful to its users, encouraging a sense of belonging and connection. Which will eventually lead to people feeling more connected to the community itself and the probability that they want to leave will be smaller.



Key words: flexibility, vital community, group size

Household, Cluster, Community



Collectivity takes many forms, so it's crucial to define how the community design will function for this specific project. The community will consist of approximately 96 adults, organized into four clusters of 24 people each. Each cluster will be further divided into three households, each with around eight people.

Theoretical back-up

This structure is inspired by Centraal Wonen Delft, which effectively integrates various scale levels and group sizes. This approach creates dynamic interactions and interesting walking routes, enhancing the community's spatial experience. By varying group sizes and scales, it fosters engagement and a sense of discovery among residents.

Practical implication

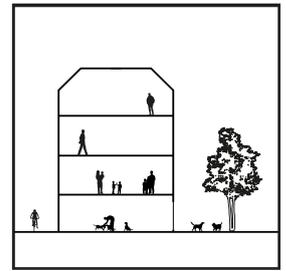
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Key words: household, cluster, community, community structure, scale, group size

Layering Life

The theory of "Layering Life" suggests that an urban environment becomes more resilient when different functions, facilities, and social classes are horizontally layered across the city, rather than being clustered in specific areas of the urban fabric.

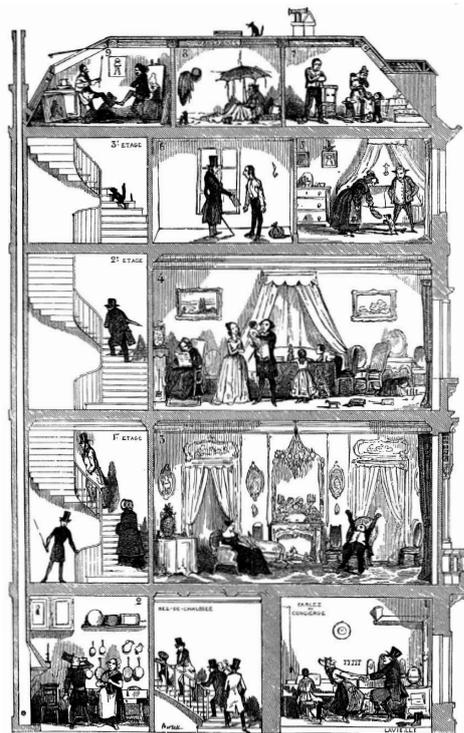


Theoretical back-up

Sim; 'It was while reading about the differences between natural forests and planted woodland that I was struck by the possible parallel in the built environment. Are there towns and cities that have the resilient characteristics of natural forests and others that are more like vulnerable plantations?' With this he argued that the city becomes more resilient when the different functions facilities and social classes are horizontally layered within the urban environment.

Practical implication

Sim uses Paris as an example, where the upper social classes were typically found living on the ground floors. In contrast, servants and lower-class residents, who had to climb more stairs to reach their homes, were housed on the upper floors. This arrangement dispersed social classes throughout the city, creating a more balanced distribution than would occur with entirely separate working-class neighborhoods, as has happened in the Tarwewijk (NPRZ, 2023).



Cross-section of a Parisian house around 1850 showing the economic status of tenants varying by floors.
(Edmund Texier, Tableau de Paris, Paris, 1852)

144 Soft City

Key words: layering life, resilience, mixing functions, social classes, diversity

Appendix 2

Summary of the conducted interviews

Dennis Bouwen

Initiator and resident of Samenhuis Ernaast, a collective in the Tarwewijk Rotterdam

Dennis Bouwen describes the collective next to Samenhuis as a success at the building level but acknowledges its limited impact on the wider neighborhood. The group faces challenges in expanding their project and managing internal conflicts, which, according to him, require professional mediation, such as a coach. The financial feasibility of the project heavily depended on municipal support through a self-renovation housing program, where the property was acquired at no cost. However, he emphasizes that without this support, the barriers would have been too high, and the collective likely would have disbanded.

Job de Vogel

Resident of Taste, a collective in the Voorhof Delft

Job de Vogel highlights the importance of time in building a strong community. In his experience, it took about two years for the group to establish mutual trust and begin contributing to the neighborhood. He also stresses the critical role of resident selection: a poor choice can lead to persistent tensions. To mitigate this, the group conducted a personality test, which revealed that a shared open-mindedness was a crucial unifying factor. Job notes that diversity within the group is essential, as homogeneity, whether in age or language, discourages new participants and hinders inclusivity.

Sander de Haan & Karen Welp

Two of the founders of Buurtklimaatje, an organization focused on greening the neighborhood and fostering connections within the Carnisse neighbourhood.

Sander de Haan and Karen Welp argue that financial independence is key to successful community initiatives: when money becomes involved, many residents disengage. They advocate for increased self-reliance among residents, criticizing urban spaces that foster dependency on external authorities. For example, residents might report problems, such as overcrowded bike racks, to the municipality rather than finding solutions with their neighbors. Their mobile pizza oven, the "buurtoven," serves as an example of a successful, resident-initiated meeting place. They conclude that social cohesion is best promoted by giving residents control over their neighborhood, focusing on non-commercial, freely accessible spaces.

Tijmen Kuypers

Co-owner of cowonen.com and recently graduated on the topic of co-living

Tijmen Kuypers asserts that human happiness is strongly tied to social interaction and that a mix of "must" and "may" spaces fosters spontaneous encounters. According to him, cohousing works best when there is a balance between planned and unplanned interactions, as many people already have busy schedules. He emphasizes that cohousing is not suitable for everyone and is certainly not the only solution to loneliness. Diversity in age, gender, and background is less important than sharing a common vision of communal living. He also highlights the importance of spatial design: shared gardens and a mix of rooms and apartments contribute to a dynamic community.

Philip Krabbendam

Architectural researcher, resident and expert on in the field of co-living

Focuses on group dynamics and spatial organization. He emphasizes that meetings are most effective with no more than eight participants (Pattern X); larger groups often leave individuals feeling unheard. For daily interactions, he

considers thirty people the maximum before anonymity sets in. He notes the decline of traditional binding elements, such as the shared living room with a TV, and calls for new ways to bring residents together. Architecturally, he advocates for transparent partitions, such as windows between kitchens and living rooms, to foster openness while maintaining functionality for families. Additionally, he stresses the importance of a community, a “village”, for raising children as exposure to multiple role models benefits their development.

Annet Akkerma

Policy Advisor Housing @ Municipality of Rotterdam | Social Policy, Urban Development

Draws attention to the decline of existing housing collectives, such as the Vlindergroep and woongroep Hillegersberg. She highlights the lack of research into the demand for collective living and how many people would genuinely consider it. In her view, many projects fail primarily due to financial obstacles; securing the necessary funding remains a recurring challenge. She also mentions Woonbron’s initiative to create a collective rooftop terrace in Carnisse as an example of new experiments in this domain.

Appendix 3

Urban analysis Tarwewijk



PUBLIC BUILDINGS

Community centres



Speeltuivereniging Tarwewijk (2)



Speeltuivereniging Millinxbuurt (3)



Cultuurwerkplaats (4)



PUBLIC BUILDINGS

Churches



Victory's Outreach (4)



Square in front of Victory's Outreach



PUBLIC BUILDINGS

Schools



Basisschool het Kompas (5)



OBS de Globe (1)



Elout van Soeterwoude School (4)



PUBLIC BUILDINGS

Green spaces



Footballfield (6)



Millinpark (9)



Speeltuin Tarwewijk (2)



PUBLIC BUILDINGS

Supermarkets



Dirk van den Broek (1)



Livio Sklep (2)



Zeko (3)



GATHERING SPACE

NON-COMMERCIAL



Playground from Basisschool het Kompas



Play equipment at Millinxpark



Graffiti at Mijnerenplein

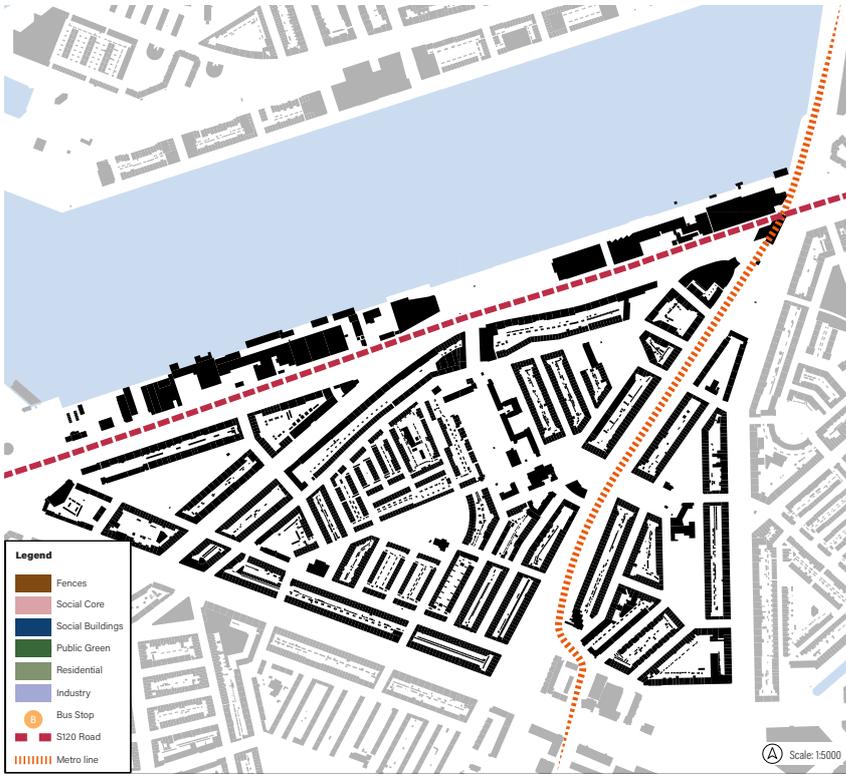


NEIGHBOURHOOD ANALYSES

Metroline border



Metroline on the left



NEIGHBOURHOOD ANALYSES

S120 border



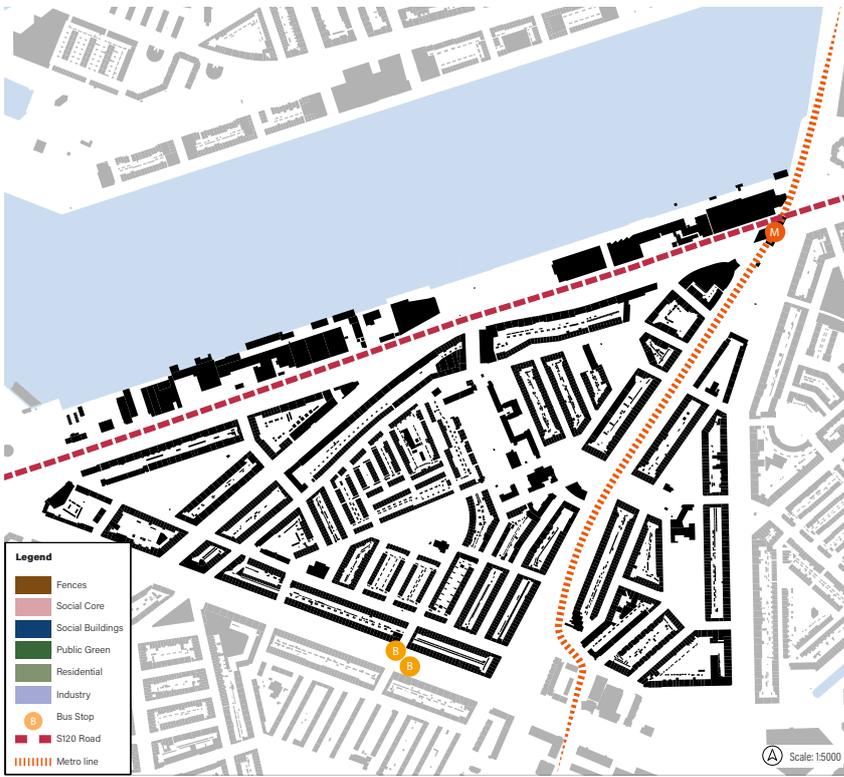
S120 as border

NEIGHBOURHOOD ANALYSES

Public transport



Metro station Maashaven



NEIGHBOURHOOD ANALYSES

Industrial area





NEIGHBOURHOOD ANALYSES
residential areas



Playground with residences



Typical residence of the Tarwebuurt



New built residents Tarwebuurt



NEIGHBOURHOOD ANALYSES
Public space Millinxbuurt



Samenhuis Ernaast



Cultuurwerkplaats



Millinpark



NEIGHBOURHOOD ANALYSES
Public space Tarwebuurt



Playground in front of Sonnevanck



SBO Sonnevanck



Speeltuinenvereniging Tarwewijk



NEIGHBOURHOOD ANALYSES
Fences around playgrounds



Speeltuinenvereniging Tarwewijk with fence



Speeltuinenvereniging Tarwewijk with fence



Millinpark fence

NEIGHBOURHOOD ANALYSES

Social cores



NEIGHBOURHOOD ANALYSES

Suitable Location

