# Degrees of Encounter

## Densification Strategies To Alleviate Urban Loneliness In Post-War Neighbourhoods

Masters of Architecture Graduation Thesis
Alaa El Din Hendi / 5599466

**TU Delft**
**Graduation Report**
**AR3AD100 - Architecture and Dwelling**
Advanced Housing Design
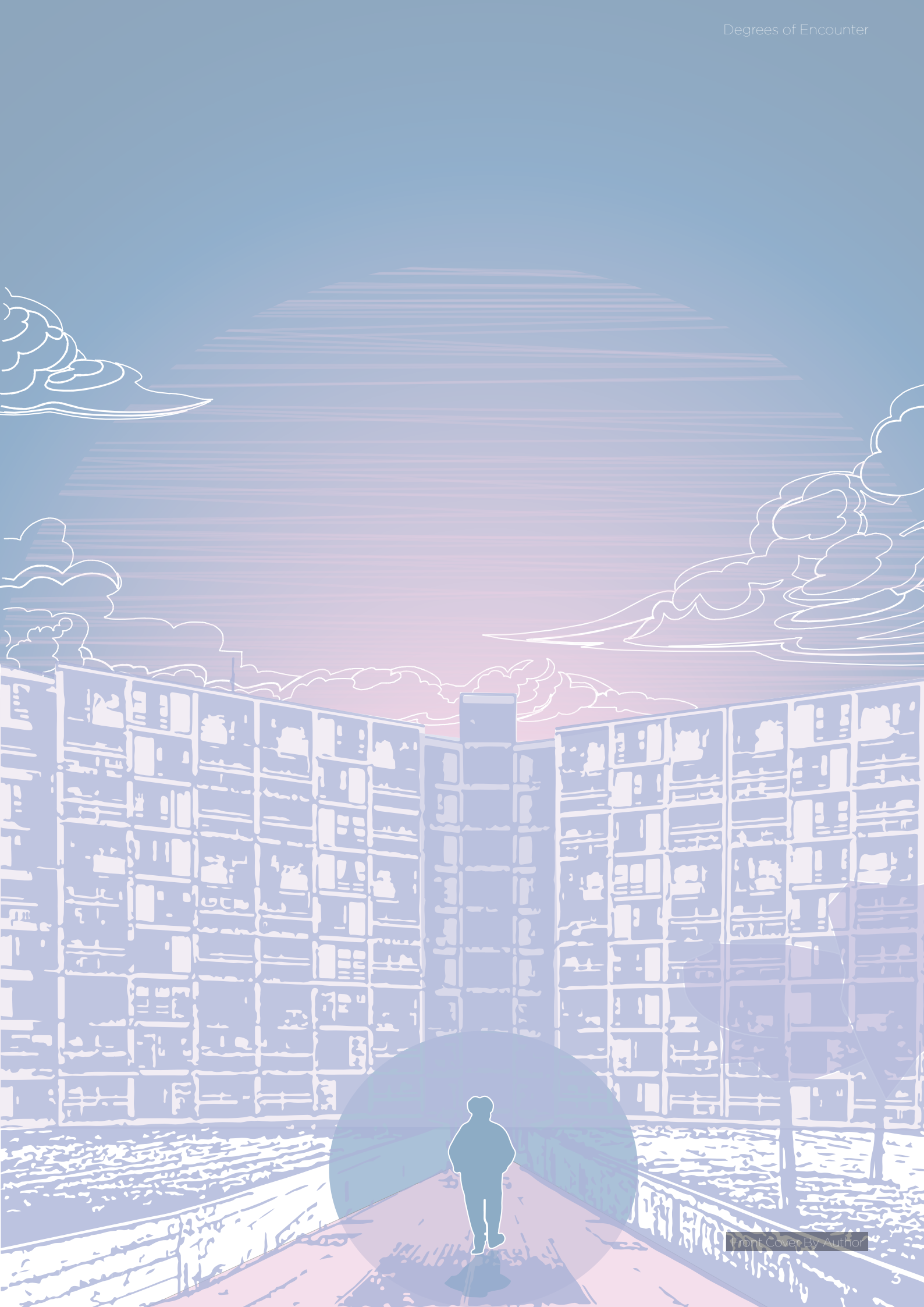Densification Strategies: Invigorating Contemporary Urbanities

**Alaa El Din Hendi**
**5599466**

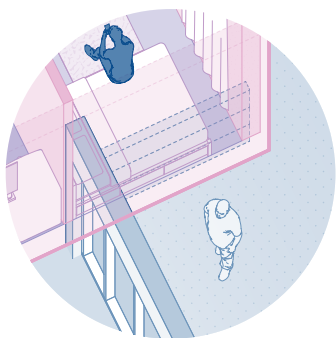17th January 2024

Tutors:
Harald Mooij
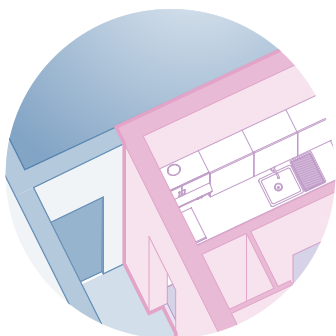Robbert Guis
Florian Eckardt

# Contents

Alaa Hendi

# Prologue

**1.** There is no lobby or front desk but I can hear people go in and out, with no organic meeting places in the building



**2.** Two years living here and I still wonder who lives next to me, despite the narrow corridor that we both share.



**3.** Bed placed in full view on the ground floor directly in front of the main street. I have to keep my curtains closed with privacy sheets.



**4.** Study table placed in front of radiator, decorated with a poster from one of my previous studio submissions (a picture of Thamesmead)

**Fig. 1.0:** My student room in London, 2019 (By Author) Pg. 6

I decided to pursue a Master of Science in Architecture, as architecture has the power to change people's lives. During my Bachelor's thesis at Kingston School of Art where I explored the idea of 'Luxury of Space' in the post-war neighbourhood of Thamesmead and my previous studios and electives throughout my Master's degree at TU Delft; I have concluded that architects should always carry a sense of responsibility in producing architecture that makes a difference in people's lives for the better. Additionally, we should design spaces that resonate with architects and regular people alike; rather than producing empty spaces that serve no purpose or function or are being sold only for profit.

I gained a fascination in finding the interrelation between psychology and architecture on its users; through my personal experience of loneliness for the first time despite living in a densely populated city such as London and later living in The Netherlands. This led me to choose the Advanced Housing graduation studio that tackles the housing shortage in The Netherlands and the reinvigoration of a post-war neighbourhood in Inner-city Randstad through densification strategies. The studio considers a new approach in dwelling typologies, social inclusion due to the increased diversification of target groups, biodiversity, affordability, and the reduction of our ecological footprint.

Loneliness is increasing at an alarming rate throughout the world, posing a risk of early mortality equal to or larger than obesity and air pollution (Soós, 2019). Additionally, housing is a basic human necessity. Through the urgency in densifying our cities, there is an importance in investigating strategies that care to contribute "a little bit more" positively to the mental health of its users and do not repeat the mistakes of the modernist movement's disregard of the human experience.

**Fig. 1.1:** My student room in The Netherlands (By Author)
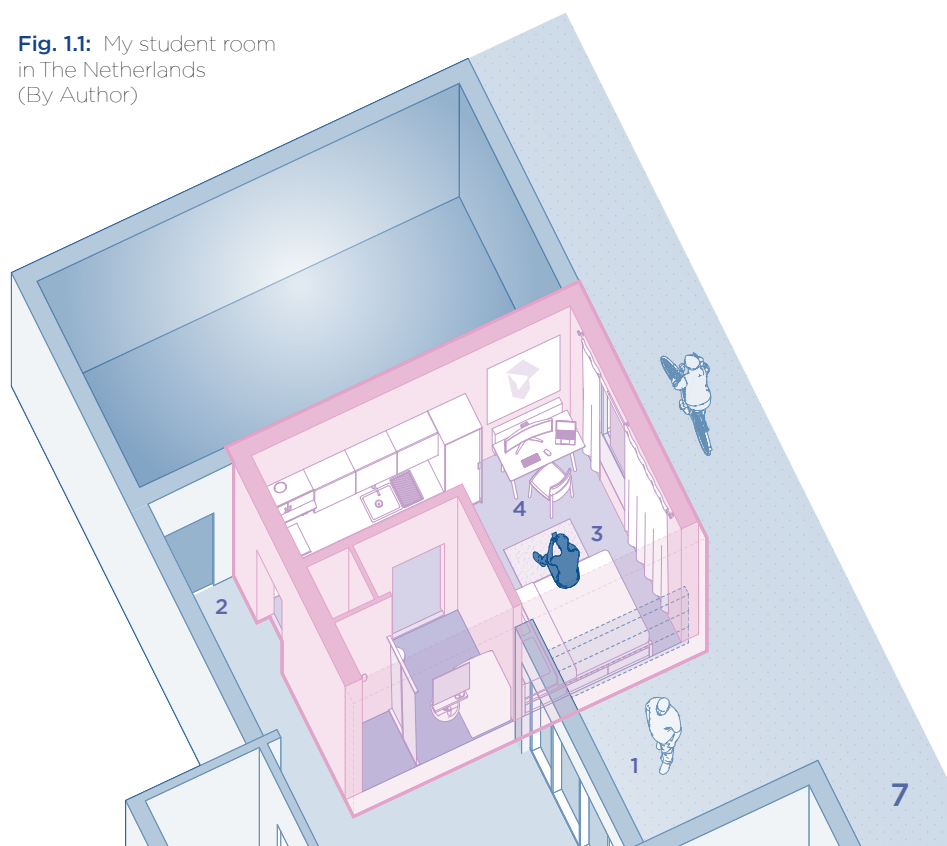
# Introduction
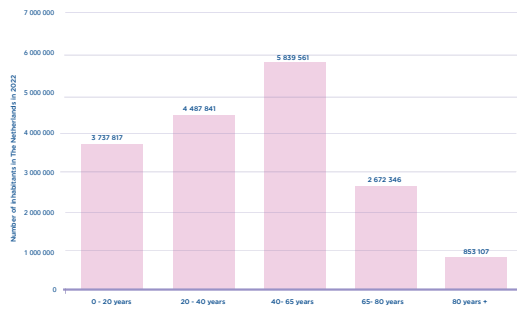
**1**

# 1.1
# Problem Statement



**Fig. 1.2:** Population by age in The Netherlands 2022 (Centraal Bureau voor de Statistiek, 2022) (By Author)
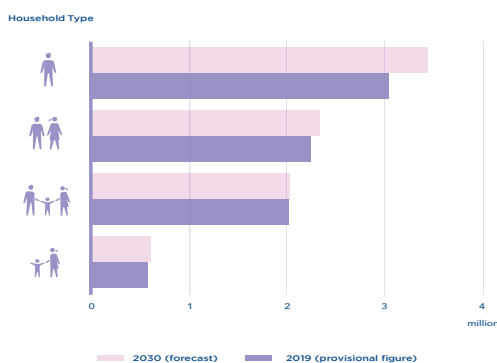


**Fig. 1.3:** Household by type forecast showcasing the increase in people living alone in The Netherlands (Statistics Netherlands, 2019) (By Author)
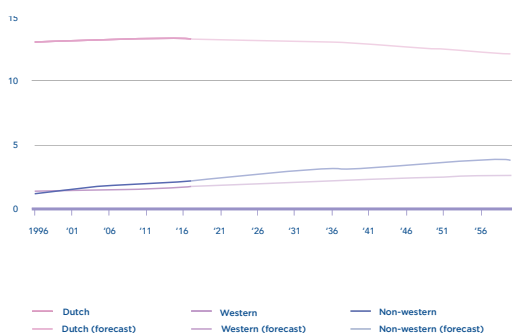


**Fig. 1.4:** Migration by background forecast in The Netherlands (Statistics Netherlands, 2017) (By Author)

The housing shortage has become a major topic of discussion in The Netherlands and primarily the proposed building of one million homes in the next ten years to help eradicate the crisis (Caroline, 2021). Statistics indicate that currently 390,000 units considering adults under 25, are needed to meet the demand of the housing market (Boztas, 2023). Nonetheless, the issue can be traced back to 100 years ago after World War I when many homes were damaged during the war. However, World War II saw a sharp demand for housing as major parts of cities predominantly in Rotterdam were destroyed and temporary housing was needed (Van Gameren, 2023). Densification strategies employed by the Dutch government were that of a standardised system of construction which resulted in the creation of post-war neighbourhoods (1945-1965), Bloemkoolwijken 'Cauliflower districts' (1970 – 1995) and Vinex Housing (1995-2005) in the outskirts of cities (Boeijenga & Mensink, 2008). Despite the change in the political context, the housing shortage continued to remain on the rise due to multiple factors such as the rising ageing population, population growth due to migration and an increase in single households in all target groups.

The Netherlands is currently facing an ageing population where more than half of the population is above the age of 40 and 3.5 million Dutch citizens are at the age of retirement (Centraal Bureau voor de Statistiek, 2022). Furthermore, the number of Dutch households is expected to grow from 7.9 million to 8.5 million by 2030. In particular, forecasts show an increase in the number of single-person households with the majority being elderly living alone (Statistics Netherlands, 2019). This affects the greater housing market due to the limited availability of space and many of the elderly are living alone in houses that are too large and do not meet their needs and wants; with loneliness levels growing rapidly within this target group.

Despite the growing ageing population affecting the housing market, another factor is the increasing trend of living alone in single households in all target groups. Statistics show that from 2019 to 2030, the number of single-person households is expected to increase by 406,000 with a total of 3.5 million homes, in addition to a rise in the number of childless couples increasing by 102,000 (Statistics Netherlands, 2019).

Nonetheless, the population is expected to continue to increase in the Netherlands due to an increase in foreign migration. It has been reported that migration trends from EU countries, Asia and traditional countries of origin such as Surinam, Morocco and Turkey have shown a decline with an increase in asylum seekers (Statistics Netherlands, 2017). In addition, it is predicted that by the year 2060, an estimated 34% of Dutch citizens will have one parent from a foreign background, which is an 11% increase from the year 201 7 (Statistics Netherlands, 2017). This influences the housing shortage figures due to the lack of accommodation that can house the new inhabitants. Furthermore, many of the

housing made available for asylum seekers are considered unsuitable due to the lack of opportunities that allow for integration with the existing community, with studies "that being a migrant is predictive of loneliness" (Kearns et al., 2015).

In parallel with the growing need to densify our cities, a looming mental health crisis has become a pressing issue in our societies worldwide. Statistic gathered by the World Health Organisation (WHO) shows that an estimated one billion people suffer from one or more forms of mental illness such as depression, anxiety, social isolation, eating disorders or substance abuse (Naím, 2023). Particularly in crowded cities, statistics gathered by the TimeOut City Index that in major cities such as London and New York 55% of Londoners and 52% of New Yorkers indicated their cities are rather lonely places to live in. (Molzner, n.d.).

The change in living trends beyond the typical nuclear family structure, where more people prefer to live alone, led to increasing levels of social isolation or loneliness dubbed the "loneliness epidemic" (Rodriguez et al., 2020). While loneliness is known to primarily affect older adults, it also impacts people from all age groups. A 2019 study in the Netherlands shows that 1 in 10 Dutch citizens frequently feel lonely with single parents and people being mostly affected (Statistics Netherlands, 2020). Furthermore, the COVID-19 pandemic in 2020 which forced people to self-isolate and change to a 'work from home' lifestyle further exacerbated loneliness levels globally; this could potentially lead to a public health crisis by 2030 if proper action is not taken (Mechelli, 2022).

**Fig. 1.5:** The Global Mental health crisis highlighted by media outlets worldwide (By Author)

# 1.2
# Specific Problem Statment
## Groot- IJsselmonde



**Fig. 1.6:** General site plan of Groot-IJsselmonde (By Author)



**Fig. 1.7:** Figure Ground of Groot-IJsselmonde (By Author)



**Fig. 1.8:** Road And Parking Spaces Of Groot-IJsselmonde (By Author)
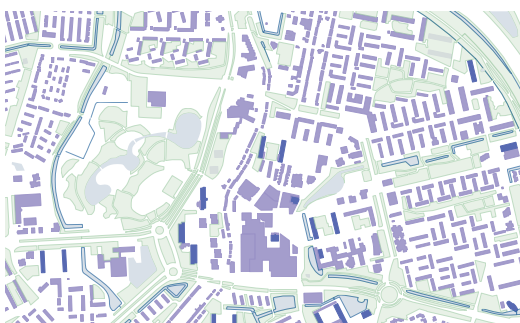


**Fig. 1.9:** Green and Blue Spaces Of Groot-IJsselmonde (By Author)



**Fig. 1.10:** Map Of Rotterdam Highlighting Groot-IJsselmonde (By Author)

Groot IJsselmonde is a post-war neighbourhood in inner-city Randstad in the southeast of Rotterdam; it was initially designed to be temporary housing for families that lost their homes after the bombing of the city during World War II. The Dutch architect Peter Van Drimmelen envisioned the neighbourhood in the 1950s where he drew inspiration from the Garden City of Ebenezer Howard where families can overlook the development of children (Europan 15 Rotterdam, 2019). The borough takes the form of a flower petal with an overabundance of green space that separates the seven different neighbourhoods Groenenhagen-Tuinenhoven, Zomerland, Sportdorp, Kreekhuizen, Hordijkerveld, Reyeroord and De Veranda from each other, which was intended for locals that can unwind following a long day at work. Furthermore, many of the principles of the modernist post-war movement applied within the district's design, such as the concept of air, light and freedom and the importance of having streets that are accessible by car (Europan 15 Rotterdam, 2019). This was made for port workers who were the main demographic of the borough at the time, so they could commute to their occupations.

The master plan is a mix and match between a repetition of stamp design for the many housing units. Aesthetically, the buildings were designed where nothing stood out from the rest, which provoked a feeling of anonymity within the different neighbourhood's vicinities. According to sociologists and psychologists, this design choice hindered the formation of a sense of community and social interaction within IJsselmonde; as "our very own home serves as the boundary for social distinctiveness just as the body does for personal identity" (Jansen & Ruitenbeek, 2004).
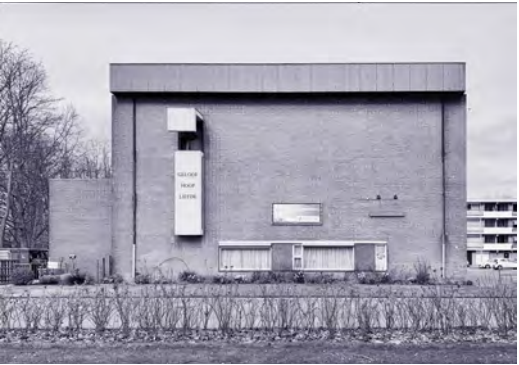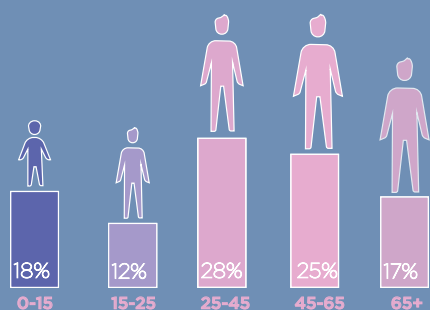
**Fig. 1.11:** A Dérive through Groot- IJsselmonde (By Author)

In terms of demographics, the larger majority of the residents in IJsselmonde adults who are 21% seniors, 19% between the ages of 27-39; with 45% of the entire neighbourhood living alone which is higher than that in the rest of Rotterdam (Wonen in Rotterdam, 2023). Loneliness in turn has become a major issue in all target groups within the neighbourhood with no effective intervention for those in younger age groups from reports gathered by GGD Rotterdam-Rijnmond, (2010).

**Fig. 1.12:** Demographic Composition That Indicate Levels Of Loneliness (By Author)

## Age composition

| 0-15 | 15-25 | 25-45 | 45-65 | 65+ |
|---|---|---|---|---|
| 18% | 12% | 28% | 25% | 17% |

## Family composition

| Couple with Children | Couple Without Children | Single-person |
|---|---|---|
| 35% | 22% | 43% |

## Nationality

| Western | Moroccan | Antillean | Surinamese | Turkish | Other Non-western |
|---|---|---|---|---|---|
| 20% | 9% | 13% | 19% | 14% | 25% |

Dutch — 50%
Western — 10% — Europe, North America and Oceania or Indonesia or Japan
Non-Western — 40% — Turkey, Africa, Latin America and Asia (except Indonesia or Japan)

## Income

| Groot-IJsselmonde | Rotterdam (average) | Rotterdam-Centre |
|---|---|---|
| €21.900 | €25.100 | €32.900 |

ISOLATION

Alaa Hendi

home for all

this drawing is made by a child
from refugee camp moria

JOIN WWW.HOMEFORALL.NL    DOWLOAD THE POSTERS

Wij filmen voor uw
en onze veiligheid

Community

DON'T EVEN
THINK OF
PARKING
HERE

GROOT - IJSSELMONDE
Rotterdam

Fig. 1.13:  Comparison Of Groot-
IJsselmond And A High Functioning
Neighbourhoods (By Author)

The Thamerdijk stamp that lies on the periphery of Hordijkerveld is chosen as the specific site for this research and design experiment. It was selected due to its mostly poor liveability rating on the Leefbaarometer Home (n.d.) prepared by the Dutch ministry of interior and kingdom relations. The location scores low on aspects such as social cohesion and neighbourhood security that are indicators of high loneliness levels. In addition, due to its repetition in varies parts in Groot-IJsselmonde and other post-war neighbourhoods elsewhere; design aspects can potentially be easily transferred.

**Fig. 1.14:** Stamp Of Hordijkerveld (By Author)

**Fig. 1.15:** Liveability of Thamerdijk, map retrieved from: Leefbaarometer Hom (n.d.)



Very Insufficient
Largely Insufficient
Insuficent
Weak
Enough
Ample
Good
Very Good
Excellent
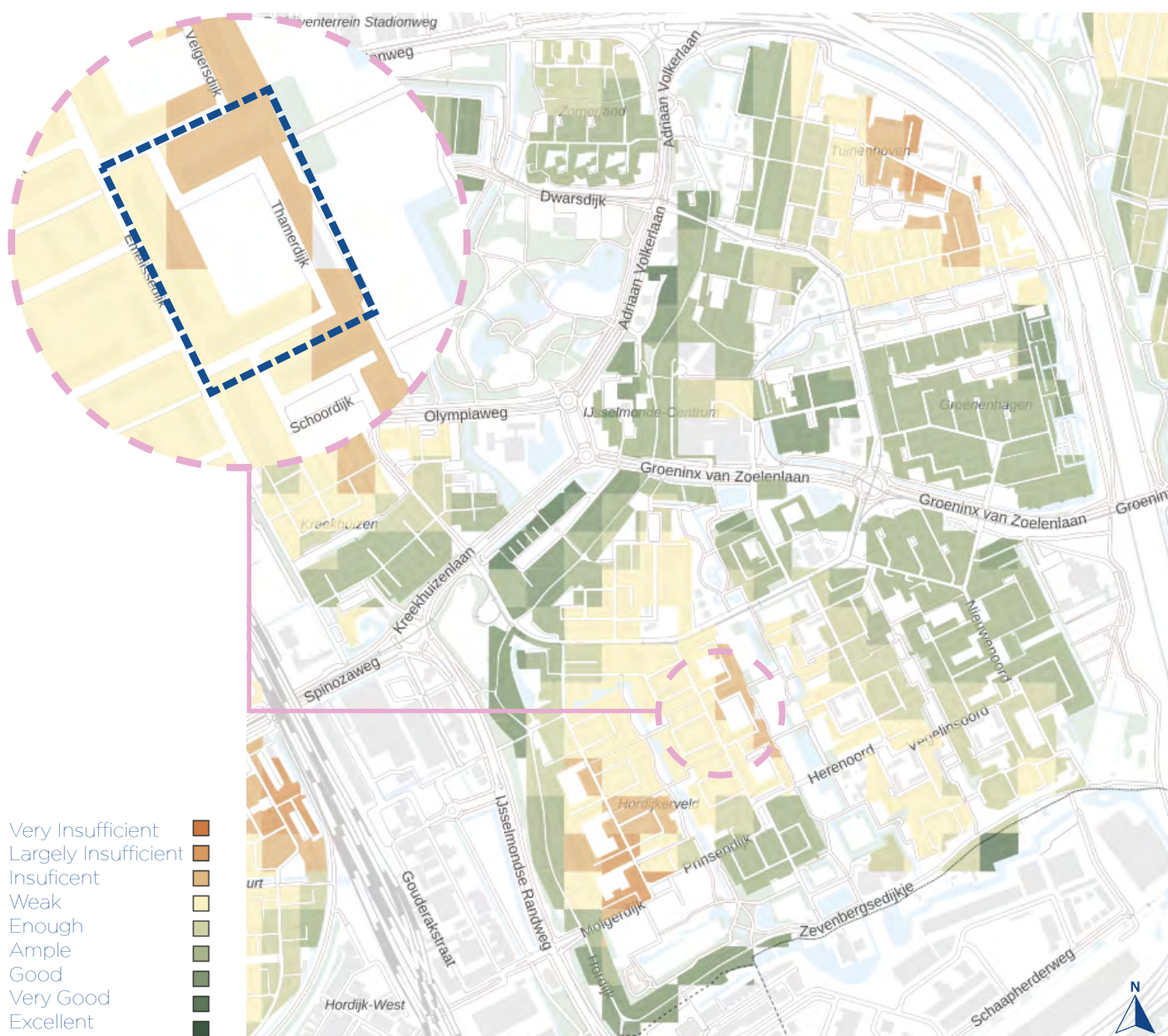
# 1.3
# Research Framework



**Fig. 1.16:** Hypothesis Of The Current Housing Market That Allows For Urban Loneliness To Manifest (By Author)
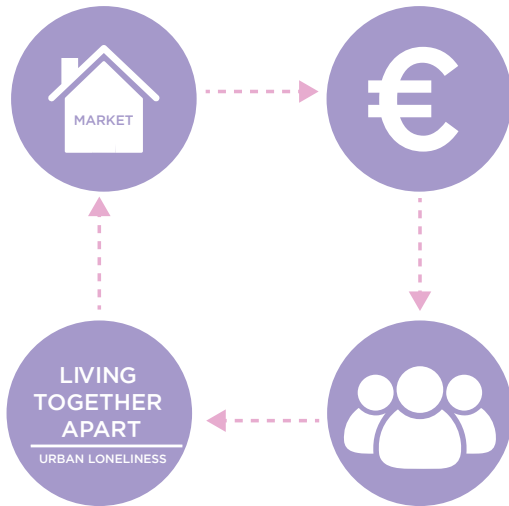
## Hypothesis

The growing concern about a mental health crisis and a looming threat of the loneliness epidemic worldwide was further escalated by the COVID-19 pandemic that forced people into isolation and a new form of 'work from home lifestyle'. Nonetheless, the loneliness epidemic can be traced back to the 19th-century design principles that designed our current cities with reference to industrial tools such as the car instead of the 'human scale. Many of these modernist ideals had negative implications on the mental health of the residents in post-war districts. Moreover, with the need to build more homes, the current Dutch housing market values densification strategies that are primarily for profit and not for the needs of the people, which continues the pattern of 'living together apart'.

Consequently, there is an urgency to tackle urban loneliness among the inhabitants of the post-war neighbourhood Groot-IJsselmonde, specifically Thamerdijk. Interventions are therefore required to encourage degrees of social encounter within three scales, urban, building and dwelling that allow for more positive densification for both current and future residents. Therefore, the following main question will be answered in this research:

## Which design strategies can be utilized to alleviate the effects of urban loneliness on different target groups in existing post-war neighbourhoods?

### Sub - Questions

It is important to first look at urban loneliness through a historical lens as it would provide insight into where the issue of certain design strategies became a problem and what should be avoided to reinvigorate urban life in Thamerdijk. Additionally, the following insight will help identify the appropriate site location for this design experiment. Therefore, the following two sub-questions will be answered, **What were the conditions that allowed for urban loneliness to begin? Which modernist design strategies provoke urban loneliness?**

As we get older our needs and wants become different. Additionally, different types of households, lifestyles and incomes impact the way we prefer to live. Therefore, it is important to understand what design practices play a role in reducing or increasing urban loneliness within the different types of target groups found in post-war neighbourhoods. Hence, it is vital to answer the sub-question: **How does urban loneliness impact different target groups in post-war neighbourhoods?**

Green spaces provide many general and mental health benefits and give the potential for social interaction to take place. Studies indicate that people with 30% or more green space within 1600m of their home feel less lonely than those with less than 10% (van den Berg et al., 2017). However,

IJsselmonde has a surplus of non-fully utilized green areas despite many attempts to create communal led garden spaces between the housing blocks, loneliness is still an issue. Urban loneliness can be then tackled on an urban scale in the post-war neighbourhood if these green belts' connection between the different blocks is strengthened through more community-building initiatives. Therefore, the fourth sub-question is: **How can the existing green space in IJsselmonde be revitalized within a housing scheme to create a sense of community?**

Many of the housing schemes designed during the post-war period lacked the sense of the 'Human scale' due to the prioritization of more car-based roads. Furthermore, the excessive ordering and designing of these districts, particularly in IJsselmonde, created a sense of urban anonymity in the neighbourhood that provoked a sense of loneliness within its residents. Thus, densification strategies could alleviate urban loneliness on a building scale by answering the fifth sub-question: **How can the 'human scale' be used to help reduce the feeling of anonymity through spatial design practices?**

As emotional connectivity between city dwellers began to grow apart due to mass migration, loneliness levels continued to increase within cities. This in turn resulted in co-housing being introduced as a possible solution to help combat this problem (Winston, 2019). Co-housing is a housing typology where private living quarters are combined with shared spaces such as communal leisure rooms or kitchens. It essentially functions as a tool that can promote social connectivity and break social barriers between residents of the same housing estate, as it provides the opportunity to get to know your neighbours through shared living experiences. This will then provide insight into how urban loneliness levels can be reduced through the dwelling scale by assessing the sub-question: **How can the diversification of target groups through Co-Housing be used as a tool to break social barriers?**

**Which design strategies can be utilised to allevate the effects of urban loneliness on different target groups in existing post war neighbourhoods ?**

Aesthetic
Co-Housing
Public Functions
Green Spaces

Future Proof

Elderly
Starters
Singles
Students
Migrants

Densification

**Fig. 1.17:** Research Question Breakdown (By Author)

# 1.4
# Theoretical Framework

In this theatrical framework, a collection of both books and journal articles are collected to help support the conduction of the research and to help answer the six sub-questions to alleviate urban loneliness in post-war neighbourhoods. The literature is divided into four lenses Historical, Urban scale, Building Scale and Dwelling scale.

### History of Urban Loneliness and Target Groups

For the sub-questions that deal with the history of urban loneliness, research on modernist design strategies and target groups many books and essays access this subject. For example, Onslow (1990) wrote a book discussing the history of Garden cities and Ebenezer Howard's design strategies for garden cities that will enrich the research with understanding Peter Van Drimmelen's vision for Groot-IJsselmonde. Moreover, the book offers case studies on two garden cities in the UK Hertfordshire and Letchworth that could be used as a comparison with IJsselmonde. The book by Al-Sabouni (2021) will be used as a critique on garden cities through the lens of philosophy by the Arabic sociologist Ibn Khaldun, in addition to her understanding of garden cities of Damascus, Syria with a particular focus on ways to tackle urban loneliness for future rebuilding of the capital. Besides, the book by Mastenbroek et al. (2021) provides a discussion and precedents between modernism and the diversion from nature-based solutions that are found in indigenous architecture which caused us to "retreat from each other". Finally, 'The Lonely City' by Laing (2017) will aid the research by giving insight into the phenomena of urban loneliness and the different psychological factors that impact those suffering

### Green Spaces

Within the Urban scale, 'The Death and Life of Great American Cities' by Jacobs (1961/2002) will be the main point of reference, as she was the most prominent figure in criticizing the modernist movement despite her lack of architectural education. This will provide the human perspective on design practices of the time and possibilities to promote functional public spaces that work with the local community. In addition, 'A Pattern Language' by Alexander, (1977) will be used as a supporting book due to its extensive public space strategies that help promote community liveability. The strategies are divided into chapters with a list of 'patterns' which tackle the different public tactics to help boost community engagement. Furthermore, for the psychological analysis of green space, Astell-Burt et al (2022) published a journal article on its effect on loneliness in different target groups.

### Human Scale

The research on building scale will use Gehl's (2011) book as the main reference. This is due to his criticism of modernist practices that caused urban loneliness to take form, and case studies showing real-world solutions that relate to the use of the 'human scale' and their positive impact on social inclusion for the collective society. Furthermore, Gehl (2011)

provides guidelines on how to design with proximities to the human scale that will be beneficial in the design phase of the research. Additionally, supporting material from Küller's (1973) collection of research papers from the 2nd international Architectural Psychology conference in Lund, Sweden on June 26-29, 1973 will be utilized to help enrich the exploration. The collection of papers contains psychological studies on the behavioural effect of environmental light, the environmental perception of its users, and a study on how to create therapeutic environments for more emotionally content architectural spaces.

### Co-Housing

Within the scale of dwelling scale on Co-Housing Ahn et al. (2018) conducted research in collaboration with the Royal Institute of British Architects that analyzed the past, present and future of this design strategy and its ability to bring people closer to urban neighbourhoods. Furthermore, the research will be supported by the design handbook written by Plowright (2020) in which he suggests interior design possibilities to allow for social connectivity to take place through the consideration of the 'Human scale' in the chapter Socio-Spatial ideas. This will be supported by the design guidelines provided by Marcus & Sarkissian (1986) which contain an emphasis on the social interaction of residents within dwellings.
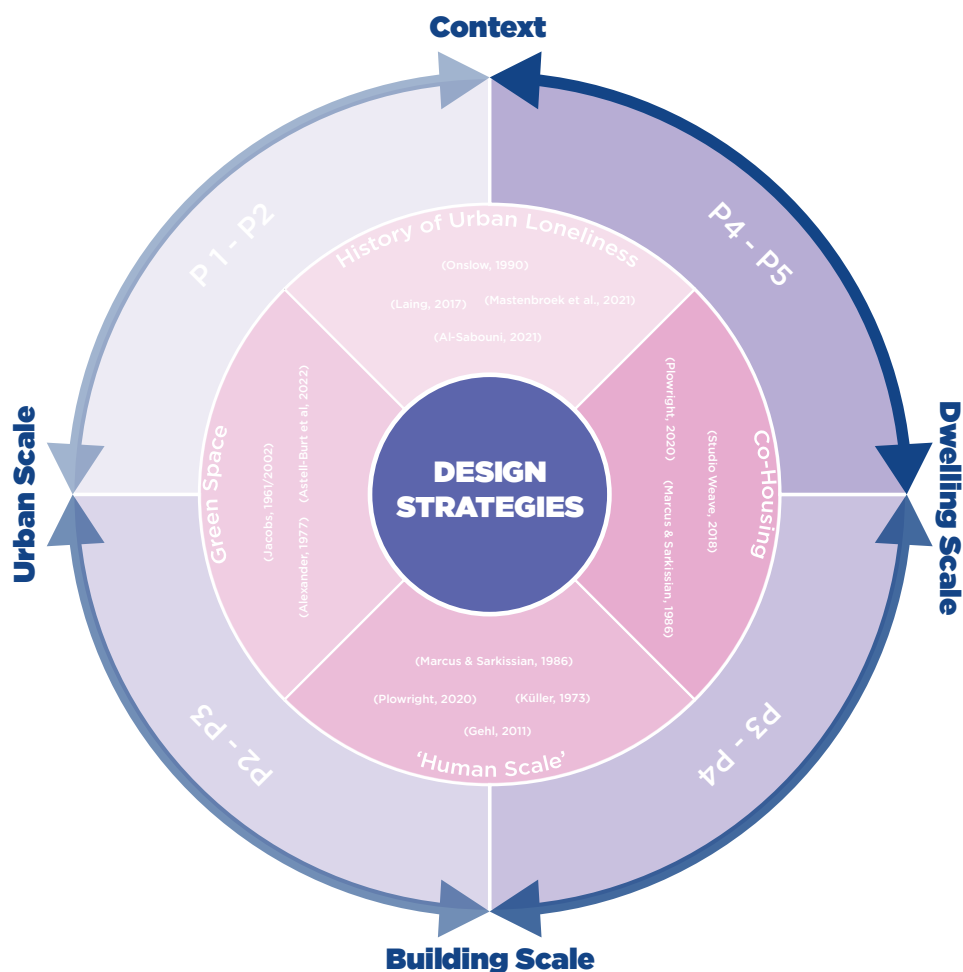


**Fig. 1.18:** Theoretical Framework Diagram In Relation To The Studio Time-Frame (By Author)

# 1.5
# Methodological Approach and Structure

## Methodology

Within the studio, both individual and group analysis will be conducted to further develop the previous years' work on Groot_IJsselmonde that focused on the larger urban scale. Therefore, a more detailed study will be conducted on the human preceptive of building and dwelling typologies, differentiation of the different types of green spaces found in the neighbourhood, and historical analysis of the year 1950 and the future. To tackle the issue of urban loneliness through an effective methodology in investigating degrees of encounter, the research has been divided into three sections 'quantitative', empirical observation and case study analysis. The following three methodologies will be utilized to help answer the three sub-questions that deal with urban, building, and dwelling scales.

## 'Quantitative' Methodology

Due to the nature of this experiment, it is essential that a degree of participation is needed by both existing and new target groups to help define the design objectives of the project. Therefore, an ethnographically inspired 'quantitative' research will be first conducted through the use of both an online questionnaire (in English and in Dutch) and informal interviews of residents in Groot-IJsselmonde by utilizing the research conducted by (Kearns et al., 2015). Kearns et al. (2015) analyzed loneliness levels in several deprived post-war neighbourhoods in Glasgow, Scotland due to the rise of feelings of isolation in industrial countries such as the UK and in target groups such as students. The paper breaks down the different variables into five categories; Loneliness, Housing Factors, Neighborhood Physical and Service Environment, Neighborhood Social Environment and Confounders which results in a numerical value given to the level of loneliness experienced in that neighborhood. In addition, supporting research articles conducted by Hammond et al. (2021) and De Jong Gierveld & Van Tilburg (2010) that deal with both loneliness levels and densification will be used to add additional questions. The questions examined by category are:

**-Context**: questions that deal with participants area of residents will be through:
1. Which city do you currently live in? Being asked in a short answer response
2. Do you live in IJsselmonde? Multiple choice answer with the options being Yes, No or I live outside of The Netherlands format.

## Urban loneliness parameters
**- Loneliness:** loneliness levels will be measured through a series of 4 questions in a Yes, Sometimes, No or Prefer not to say format. With Yes being given the value of '0' and No being '2'. A prefer not to say response will be given the value 0. The following questions are:
1. Do you feel like you are part of a community?
2. Do you agree with this statement? There are plenty of people that I can lean on in case of trouble (in the area you currently live in).

3. Do you feel welcomed amongst your neighbours?
4. Do you agree with this statement? Someone in my neighbourhood would be willing to help me if I experienced antisocial behaviour.

**- Age**: The following age groups will be evaluated in the questionnaire 18 – 25, 26–35, 36-45, 46-55, 56–64, 65+ to allow for a variety of responses.

**- Migrant statues:** questions that deal with whether they are a migrant will be asked in "Is your current country of residence your birthplace?" answer in a yes, no or prefer not to say

**- Occupation:** What is your current occupation status? Multiple choice answer Employed, Student, Stay at home parent, Retired, Unemployed or Prefer not to say.

**- Financial situation:** Thinking of your household's total income, is your household able to make ends meet? Multiple choice question in Yes, No, Maybe or Prefer not to say format.

**- Dwelling typology**: What type of house do you currently live in? Multiple choice question with the options being High rise (13+ floor building), Medium rise (Ex. apartment - maisonette), Gallery flat, Ground bound dwelling (Ex. Town house, Villa, Bungalow) or prefer not to say.

**- Living situation:** Do you currently live alone? Multiple choice question in Yes, No or Prefer not to say format.

**- Overcrowding:** Does it feel overcrowded where you live? Yes or No format.

**- Neighbourhood characteristics:** Do you require a car to reach local amenities in your current place of residence? Yes, No, Maybe or other format.

**- Safety:** How frequent are there instances of antisocial behaviour in your neighbourhood? though a multiple choice: Frequently, Sometimes, Never, Prefer not to say format.

**- Access to nature:** access to both blue and green spaces are through the following three questions:
1. In your current place of residence, can you see plants, trees, or bodies of water?
2. If yes, how often do you use these green spaces?
3. In your current place of residence, can you hear the sound of birds?

**- Neighborhood Social Environment:** How often do you walk or participate in neighbourhood activities?

**Shareability within the dwelling scale and public functions:**
**- Shared common spaces:** What housing facilities would you be willing to share?  With the options being: All, Stor-

age space, Garden-Land, Play spaces, Studio – Workshops, Guest Rooms, Living Rooms, Meeting Rooms, Kitchens, Childcare, Shared Shower rooms, Shared Toilets, Bathrooms, Bedrooms or Non

**- Public Amenities:** Can you list all the possible amenities (ex. Gym, supermarket, library etc.) used within the past week?

The use of the investigation by all three research articles would thus give an insight into social and physical factors in the urban and building scale that contribute to levels of urban loneliness in Groot-IJsselmonde. Nonetheless, more questions will be added that consider the resident's lifestyle and income, based on the literary study of Liang's (2017) book, which will give further discernment into understanding how urban alienation impacts the dwelling scale.

## Empirical Observation

A possible issue during the 'quantitative' study, is that some residents would hesitate to respond to the questionnaire. Therefore, a more empirical observation will be conducted. The research will use the method adopted by Whyte's (1980) book 'The Social Life of Small Urban Spaces', in which people-watching will be used to record where individuals gathered, avoided and what sort of social activities took place within the public space. In addition, the exploration will also be supported by sensory/perception mapping methods proposed by Canter (1977) that will help give a psychological understanding of the neighbourhood and its residents. The combination of both approaches and multiple visits to IJsselmonde under different weather conditions will help assess the successfulness of the public space on an urban and building scale in bringing the neighbourhood together. By utilizing this method opportunities may also arise where semi-structured interviews of the inhabitants can take place.

## Case Study Analysis

Finally, a case study analysis of different precedents that deal with topics of co-housing, social inclusion and medical therapeutic environments will be used to help answer the three design sub-questions in different scales.
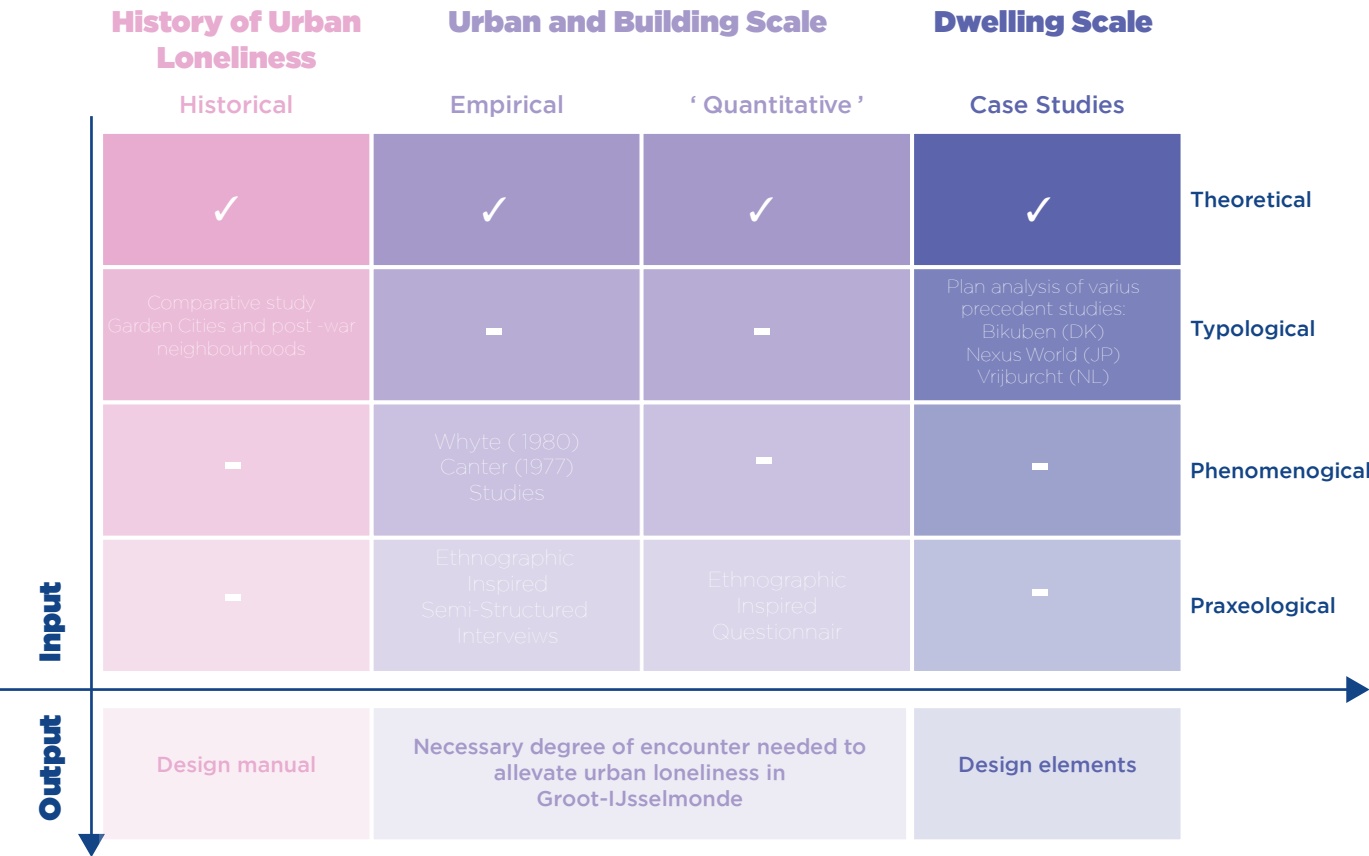
| | History of Urban Loneliness | Urban and Building Scale | | Dwelling Scale | |
|---|---|---|---|---|---|
| | Historical | Empirical | ' Quantitative ' | Case Studies | |
| | ✓ | ✓ | ✓ | ✓ | Theoretical |
| | Comparative study Garden Cities and post -war neighbourhoods | - | - | Plan analysis of varius precedent studies: Bikuben (DK) Nexus World (JP) Vrijburcht (NL) | Typological |
| | - | Whyte ( 1980) Canter (1977) Studies | - | - | Phenomenogical |
| | - | Ethnographic Inspired Semi-Structured Interveiws | Ethnographic Inspired Questionnair | - | Praxeological |
| **Input** / **Output** | Design manual | Necessary degree of encounter needed to allevate urban loneliness in Groot-IJsselmonde | | Design elements | |

**Fig. 1.19:** Methodology Overview Diagram (By Author)

**Main Question**

Which design strategies can be utilised to allevate the effects of urban loneliness on different target groups in existing post war neighbourhoods ?

**WHAT**

| Sub- Question 1 | Sub- Question 2 | Sub- Question 3 | Sub- Question 4 | Sub- Question 5 | Sub- Question 6 |
|---|---|---|---|---|---|
| What were the conditions that allowed for urban loneliness to begin? | Which modernist design strategies provokes urban loneliness? | How does urban loneliness impact different target groups in post-war neighbourhoods? | How can the existing green space in IJsselmonde be revitalized within a housing scheme to create a sense of community? | How can the 'human scale' be used to help reduce the feeling of anonymity through spatial design practices? | How can the diversification of target groups through Co-Housing be used as a tool to break social barriers? |
| Historic | Historic | | Urban Scale | Building Scale | Dwelling Scale |

**WHY**

**Problem Statement**

Loneliness has become a new norm in our current society, it commonly seen in the elderly however it something that effects every target group. Loneliness is a leading cause in the worsening mental health conditions over time worldwide.

**HOW**

| | Historical | Empirical | 'Quantitative' | Case Studies | |
|---|---|---|---|---|---|
| | ✓ | ✓ | ✓ | ✓ | Theoretical |
| | ✓ Modernist design practices | – | – | ✓ Plan Analysis | Typological |
| | – | Whyte ( 1980) Canter (1977) Studies | – | – | Phenomenogical |
| | – | Ethnographic Inspired Semi-Structured Interveiws | Ethnographic Inspired Questionnair | – | Praxeological |

**PRODUCT**

Framework for design strategies that consider the necessary degrees of encounter that alleviate urban loneliness

Framework that considers the needs and wants of the community

**Final Project:**
Densification strategy that alleviates urban loneliness in Groot-IJsselmonde

**Fig. 1.20:** Research Plan (By Author)

# History of Urban Loneliness

The following chapter introduces the mental state of being lonely through a historical lens and how it connects towards the built environment. Furthermore, it is imperative to assess the conditions to prevent concluding on design strategies that may provoke feelings of isolation on its users.

# 2

"Hell is if you are frozen in isolation into a block of ice. That is where I have been."
Schizophrenic woman suffering from loneliness in Laing (2017)

# 2.1
# Loneliness and The Built Environment

The word 'loneliness' not to be mistaken for the term 'solitude', is defined as a non-voluntary mental state where a person experiences long terms of isolation due to a perceived notion of unsatisfying social interactions (Mind Help, n.d.). While 'solitude' is a voluntary state in which a person chooses to remain in short periods of isolation that is mentally beneficial (Rodriguez et al., 2020).

The first instance of loneliness being defined as its own unique psychological experience was in 1959 by German psychiatrist Frieda Fromm-Reichmann. In her study, she details how it is more damaging than other mental illnesses such as anxiety and depression. Laing (2017) elaborates, that the distress of loneliness drives individuals to go to great lengths to evade it; distinguishing it from other emotional experiences that can be shared through empathy. Furthermore, the experience often carries a sense of shame, making it difficult for those who suffer from it to acknowledge or disclose it to those around them (Laing, 2017). People afflicted by this condition often develop a heightened state of hypervigilance causing them to perceive the world in a more negative perspective; where they tend to anticipate and remember acts of exclusion and impoliteness rather than regular friendly interactions (Weiss, 1970). This results in inadequacy in navigating social interaction that traps the person in a constant cycle of social isolation (Laing, 2017).

Loneliness can be divided into four subcategories: Emotional, Situational, Chronic and Social. Part of situational loneliness is a phenomenon called urban loneliness in densely populated cities. The term was first coined In the book 'The Lonely City: The Art of Being Alone' by Laing (2017) where she states that "cities can be lonely places, and in admitting this we see that loneliness doesn't necessarily require physical solitude, but rather an absence or paucity of connection, closeness, kinship: an inability, for one reason or another, to find as much intimacy as is desired." (Laing, 2017). According to a study conducted by Hammoud et al. (2021), perceived overcrowding tends to induce a sense of disconnectedness among individuals due to the lack of personal space. This then leads to heightened feelings of social isolation, vulnerability, and reduced willingness to assist others.

Many visual artists throughout the twentieth and twenty-first centuries attempted to capture urban loneliness through multiple mediums. For instance, the oil painting 'NightHawks' by American painter Edward Hopper is a prominent example of this (fig. 2.4). (Mirkovic, 2020). The painting was completed on January 21, 1942; a few weeks after the attack on Pearl Harbour during World War II, and for this reason, it is often associated with "wartime alienation" (Mirkovic, 2020). The painting exhibits the interior of a diner that is illuminated by a single light source on the deserted street of Manhattan. Four characters are highlighted in the scene, who appear to be disconnected from each other despite their physical proximity, which symbolises that each of us "are completely
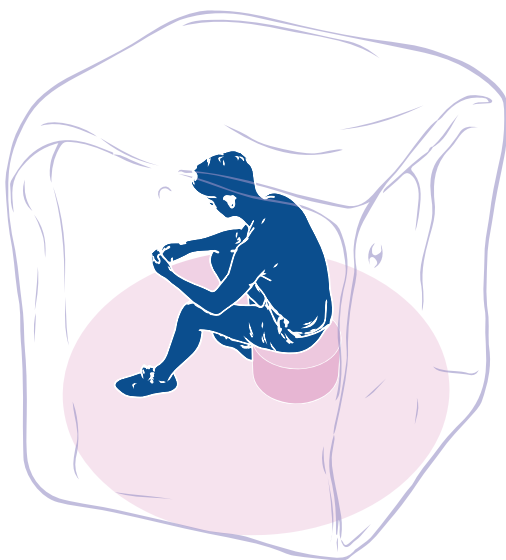


**Fig. 2.1:** Diagram of Loneliness (By Author)

**Fig. 2.2:** Japan Portrait- Shinjuku, Tokyo (2011) by Carl Randall. Retrieved from Randall (n.d.)



**Fig. 2.3:** Joseph,88, Les Espaces d'Abraxas, Noisy-le-Grand (2014) by Laurent Kronental. Retrieved from Kronental (2015)

alone in the world" (Mirkovic, 2020). This is similarly seen in the 2011 painting by Randall (n.d.) in his Japan portraits exhibition in London that depicts the monotonous urban life in Tokyo. In the painting (fig. 2.1), multiple people are seen commuting to their occupations where none of the individuals illustrated can be seen interacting with one another. Using shades of grey, the painting captures the feeling of urban alienation among Japanese city dwellers.

Another example of this would be the film photo captured by Kronental (2015) of the Parisian post-war Neighbourhood Espaces d'Abraxas in Noisy-le-Grand, which was designed by Ricardo Bofill in 1983 (fig 2.2). The image highlights the urban loneliness experienced by the elderly in post-war housing despite their utopian visions. In the photograph, a single 88-year-old man named Joseph who had resided in the neighbourhood for many years overlooks an isolating large-scale concrete building that dominates much of the frame. The picture is described as post-apocalyptical by Kronental (2015) where he imagined the man as a sole survivor who lives in a "titanic" like structure that has eradicated human life.

**Fig. 2.4:** NightHawk (1942) by Edward Hopper. Retrieved from Mirkovic (2020) Below

**Fig. 2.5:** Diagram of Urban Loneliness (By Author ) Pg. 27

* Situational Loneliness

# URBANisation
## Densification

PERCEIVED OVERCROWDING

# LONELINESS

BUT HOW DO YOU FEEL?

Negative Perspective

Inadequacy In Navigating
Social Interaction

Hyper Vigilant

Sense of shame

# 2.2
# Industrialisation To Utopia



**Second Industrial Revolution (1870– 1914)**

First oil refinery built in Pittsburg by Samuel Kier (USA)

Oil hand- dug (Poland)

Development of the telephone by Alexander Graham Bell (UK)

Building of the First High-Rise 'The Home Insurance Building' by William le Baron Jenney in Chicago (USA)

Release of the book 'Looking Backward' by Edward Bellamy (USA)

Development of the first garden city in Hertfordshire 'Letchworth' by Ebenezer Howard (UK)

First manned flight by the Wright brothers (USA)

Start of Dutch Housing Crisis

End of World War I

**1853**   **1876**   **1885**   **1888**   **1903**   **1918**

**1867**   **1879**   **1886**   **1898**   **1914**   **1919**

of the amuel

Redevelopment of Paris by Barron Haussmann exhbited in Exposition Universelle (France)

First Automobile patented by Carl Benz (Germany)

Development of 'The Garden City' movement by Ebenezer Howard (UK)

Start of World War I

Creation of a perfected Incandescent light bulb by Thomas Edison (USA)

Start of Bauhouse movement by Walter Gropius (Germany)

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**Industrial Revolution and mass migration towards cities (1760 – 1840)**

**Second Industrial Revolution (1870– 1914)**

Invention of the first steam engine by Thomas Newcomen (UK)

Invention of the power loom by Edmund Cartwright (UK)

Invention of the steel plow by John Deere (USA)

First oil refinery built in Pittsburg by Samuel Kier (USA)

Development of the telephone by Alexander Graham Bell (UK)

Oil hand- dug (Poland)

Building of the First High-Rise 'The Home Insurance Building' by William le Baron Jenney in Chicago (USA)

Release of the book 'Looking Backward' by Edward Bellamy (USA)

Development of the first garden city in Hertfordshire 'Letchworth' by Ebenezer Howard (UK)

First manned flight by the Wright brothers (USA)

Start of Dutch Housing Crisis

End of World War I

Le Corbusier the "Air, Light Freedom" m

**1712**   **1785**   **1837**   **1853**   **1876**   **1885**   **1888**   **1903**   **1918**   **1935**

**1769**   **1801**   **1844**   **1867**   **1879**   **1886**   **1898**   **1914**   **1919**

Improved redevelopment of the steam engine by James Watt (UK)

Development of the steam-powered Locomotive by Richard Trevithick (UK)

Development of the Telegraph by Samuel Morse (USA)

Redevelopment of Paris by Barron Haussmann exhbited in Exposition Universelle (France)

First Automobile patented by Carl Benz (Germany)

Development of 'The Garden City' movement by Ebenezer Howard (UK)

Stars of World War I

Creation of a perfected Incandescent light bulb by Thomas Edison (USA)

Start of Bauhouse movement by Walter Gropius (Germany)

Disc Sa

The beginning of the loneliness epidemic can be traced back to the 19th-century industrialisation (Winston, 2019). The preconditions that led to Industrialisation began with the invention of the first steam engine by Thomas Newcomen in 1712, which was consequently followed by multiple technological advancements through two industrial revolutions in all sectors (Cohen, 2009). This led to labour reforms where people moved from the countryside to work in factories, which resulted in multiple densification strategies to accommodate the influx of new labourers. (Avermaete et al., 2009). Mastenbroek et al. (2021) state that countries such as the UK saw their population double every fifty years throughout this era.

This led to rapid densification of cities that resulted in overcrowding, spread of diseases due to poor air quality and mass unemployment (Mastenbroek et al., 2021). According to Sanders et al. (2012), the poor living conditions influenced many architectural movements that placed ethics and social concerns at the forefront of their practices. For instance, in 1833, the Select Committee on Public Walks recommended to the British Parliament the introduction of public green parks within the city to serve as "lungs" that would improve air quality (Sanders et al., 2012).

Nonetheless, the 'dystopian' residential settings of the 19th century inspired novelist Edward Bellamy to write "Looking Backward" in 1888 (Tagliaventi, 1994). Al-Sabouni (2021) describes that Bellamy outlined in his book a socialist manifesto of a utopian future in the year 2000, which inspired an influx of multiple social reformers and urban planners to reimagine future cities as 'perfected' societies.

**Fig. 2.6:** Timeline of Urban Loneliness (By Author )
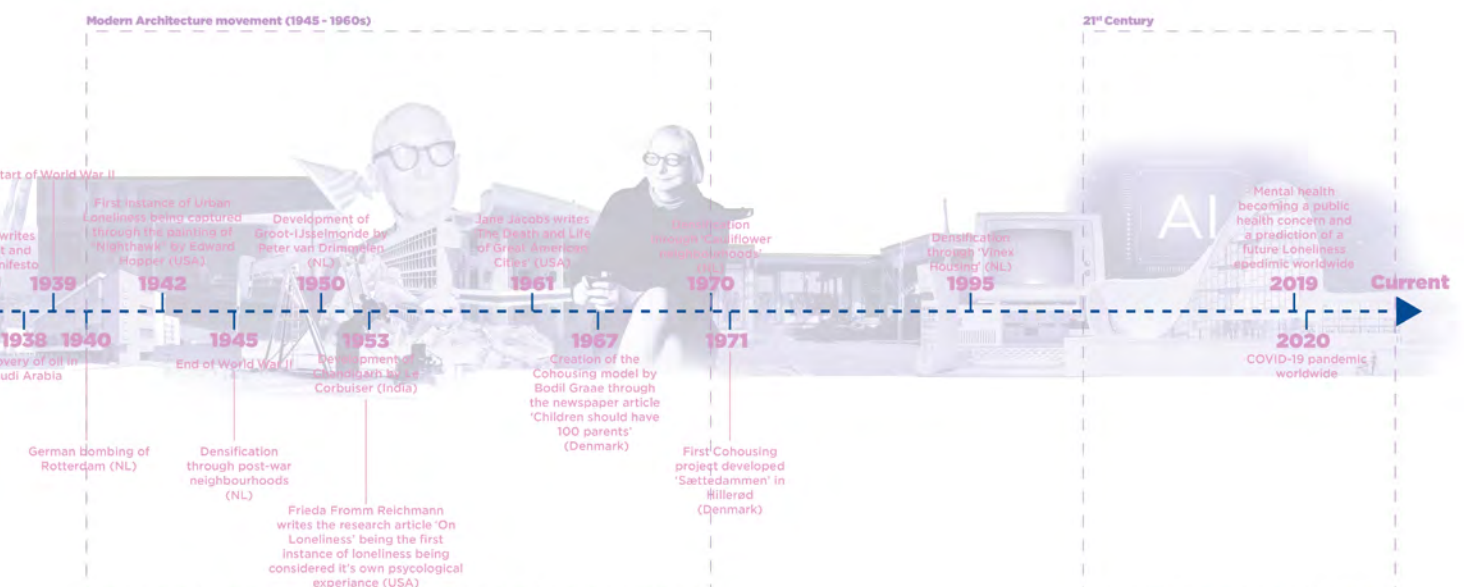
# 2.3 Utopias and The Garden City

Towards the end of the 19th and 20th centuries, a surge in utopian architectural ideologies in the global north as a means of escaping the dreary living conditions brought about by industrialization, often referred to as the era of the "golden age of communities" (Ahn et al., 2018). Many of these philosophies intended to enforce order and control of both the human and natural environment (Felton, 2012). One of such principles was the Garden City movement by Ebenezer Howard in 1902 (Al-Sabouni, 2021).
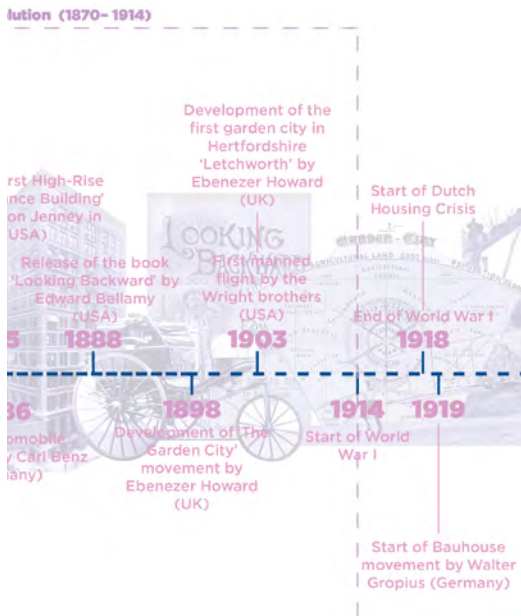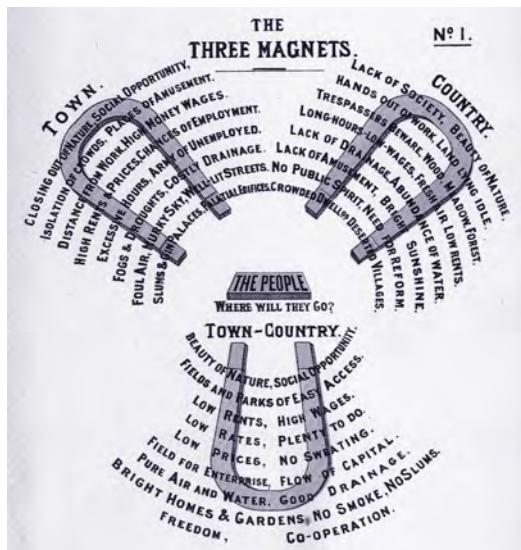
The book "Garden Cities of Tomorrow" by Howard conceptualises his utopian ideologies as principles that socially reform neighbourhood characteristics such as agriculture, town-building, local government, and land management (Hardy, 2003). He displays this in a diagram of three magnets that represent both the positives and negatives of urban and natural environments and ways to combine them (Parsons & Schuyler, 2002). Onslow (1990) mentions that Howard took deep regard for the "human basic interests" in terms of needs and wants and how that could take form in the built environment. The concept was essentially a manifesto that would "restore the people to the land" (Parsons & Schuyler, 2002).

According to Onslow (1990), the garden city was founded upon several key principles, ensuring a human scale within building height, accessibility to nature, employment areas civic centres, and the surrounding countryside. Each city in Howard's concept was intended to house an exact population density of 32,000; 30000 in urban enclaves and 2000 in agricultural areas that provide food to their respective community (Onslow, 1990). Land ownership and resources would be cooperatively owned allowing for the potential for collective self-sufficiency (Mastenbroek et al., 2021). Once a city has reached maximum density, a new garden city can be established forming multiple communities around a central green area; known as the social city concept.

Despite Howard's revolutionary intentions, the project faced multiple criticisms. For instance, when the principles began to be applied in practice many of these projects remained unaffordable; with cities such as Letchworth and Welwyn being examples of this (Mastenbroek et al., 2021). Al-Sabouni (2021) states that due to financial realities, it became evident that the shared cooperative facilities connecting the various cities together did not function as it intended, because they were owned by seprate individual investors. Furthermore, the realised towns lacked social sustainability within their communities, as described by Roe & McCay, (2021). Due to civic and cooperative neighbourhood functions being socially engineered without the participation or the opportunity for users to shape their own urban environment (Al-Sabouni, 2021). This resulted in high levels of social isolation and crime in towns such as Radburn in New Jersey (Al-Sabouni, 2021).



**Fig. 2.7:** Timeline of Loneliness in relation to the Garden City Movement (By Author)



**Fig. 2.8:** Diagram of the three magnets by Ebenezar Howard (1902). Retrieved from O'Donnell (2020) (Edited By Author)
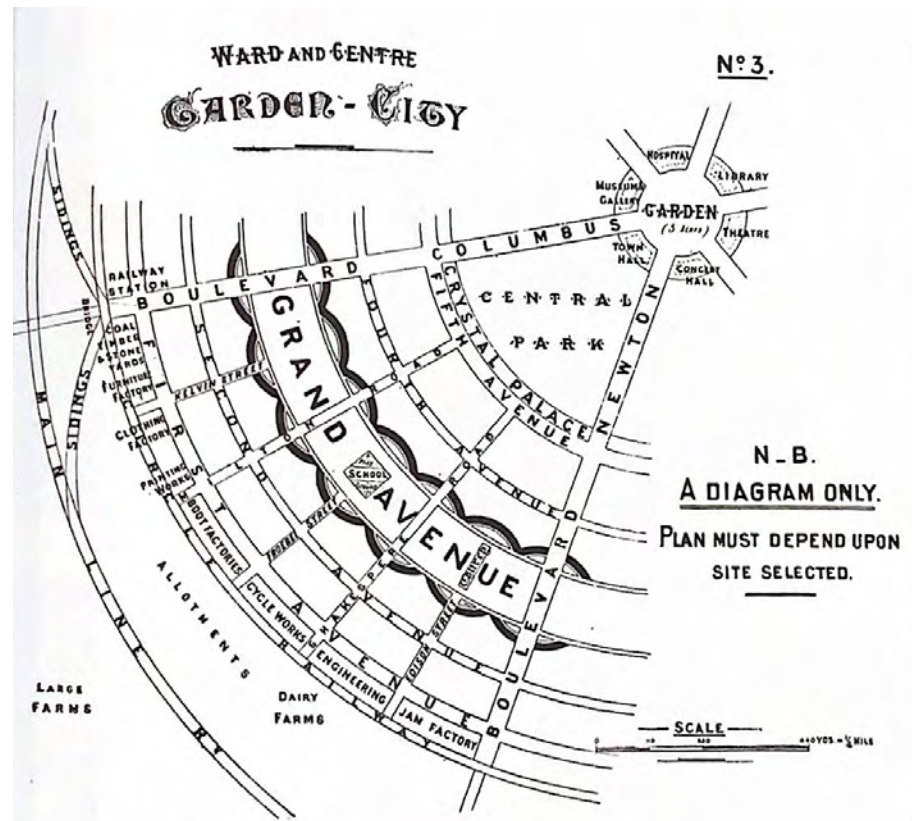
**Fig. 2.9:** Diagram of a plan of a garden city by Ebenezar Howard (1902). Retrieved from Mastenbroek et al. (2021) Right

**Fig. 2.10:** Birds eye view of the first garden city Lecthworth, UK Retrieved from Jeffers (2023) (Edited By Author) Below

# 2.3
# Distance, Monotony, and Isolation

A defining era in utopian ideologies would be the modernist period in the 20th century, which was charactarised by multiple technological advancements and the intertwining ideology that rationalises humans, technology, and nature into order (Mastenbroek et al., 2009). This was evident in Avermaete et al. (2021) who describe that modern society attempted to eliminate any anomalies that diminished the impression of a perfectible world.

Le Corbusier was one of the pioneering figures of this movement. He introduced concepts such as "Air, light and freedom", where a series of tower blocks on a strict urban grid are placed on stilts to have a more spacious open ground floor (Mastenbroek et al., 2021). Furthermore, technological advancements enabled scientists to discover bacteria and miasma as the root cause of airborne illnesses, replacing the earlier misconception of polluted air being responsible for these diseases, thus encouraging the construction of taller buildings as a design solution. (Mens & Wagenaar, 2010).  Additionally, high-rise typologies were maximised during this period to rapidly re-densify cities after the two world wars (Mastenbroek et al., 2021). The concept deterred from ideologies such as the garden city on its views on nature. This was seen in Corbusier's (1987) manifesto "A city! It is the grip of man upon nature. It is a human operation directed against nature, a human organism both for protection and for work. It is a creation".

Automobiles became more affordable to the middle class which resulted in multiple urban developments that prioritised roads and highways (Mastenbroek et al., 2021). In an essay written by architects Smithson & Smithson (1967/2009) who designed Robin Hood gardens, that due to the shift in our transportation preference, our sense of scale should be revised to accommodate this change. For instance, more distances between urban blocks, lower densities in residential areas and larger more standardised



**Fig. 2.11:** Timeline of Loneliness in relation to the modernist movement (By Author)



**Fig. 2.12:** Sketch by Le Corbusier (1935) displaying the concept of air, light and freedom in modernist architecture. Retrieved from Mastenbroek et al. (2021)



**Fig. 2.13:** Le Corbuiser's Ville Radieuse and Radient City concept. Retrieved from Kohlstedt (2018) (Edited By Author)

construction methods.

Nonetheless, many town planners criticised this mode of thinking. The most notable example of this was activist Jane Jacobs, who reprimened the modernist design principles that failed to understand the individual preferences and desires of society, which resulted in the loss of the social vision of the architectural practice. (Sanders et al., 2012). In her book "The Death and Life of Great American Cities" she states"

" Look at what was built with several billions; low-income projects that become worse centres of delinquency, vandalism, and general social hopelessness than the slums they were supposed to replace.
- Middle-class housing that are "truly marvels of dullness.
- Luxury housing projects mitigating their inanity.
- Cultural centres that can't hold a good bookstore.
- Civics centres "that are avoided by everyone but bums.
- Commercial centres "that are lacklustre imitations of standardized suburban chain stores.
- Promenades that go from no place to nowhere and have no promenades.
- Expressways that eviscerate great cities**"**

**(Jacobs, 1961/2002)**

Pallasmaa, (2007/2009) further argues that modernism's focus on prioritising technological advancements rather than the 'human' aspect in architectural design led to the failure of socially engaging spaces. This is further supported by Danish architect Gehl (2013) who states that man was made to walk. Besides, a return for more 'human scale' cities gives rise to valuable opportunities for social and recreational activities to come to natural fruition within neighbourhoods.

Overall, by using Illich's (1990) book 'Tools of Conviviality' he defined advanced technologies that no longer serve a community but instead politically affiliated individuals as "convivial". The city in this regard can be viewed as a 'convivial' tool; as people are forced into organised neighbourhoods and standardised housing instead of allowing for communities to naturally come together to shape their urban environment (Illich, 1990). This led to the 'instrumental' function of the city not contributing positively to the needs of the collective society; as densification strategies developed on the concepts of individualism, self-sufficiency and economic gain which allowed for urban loneliness to manifest (Winston, 2019).



**Fig. 2.14:** Robin Hood Gardens by Alison and Peter Smithson (By Author)



**Fig. 2.15:** Gallery Spaces in Robin Hood Gardens (By Author)

# Urban Scale

The model sequence of transitional thresholds in housing schemes is through public space, collective space, and private space (Ford, 2000). As previously mentioned, Peter Van Drimmelen drew inspiration from the Garden City concept by Ebenezer Howard when designing Groot-IJsselmonde. This resulted in an overabundance of underused green space that separates the different neighbourhoods from each other. In this chapter, a focus will be given to the first sequence 'public space' on an urban level. A discussion will be made on the various mental health benefits that green spaces provide which will follow with a site observation of the Thamerdijk stamp in Hordijkveld. Finally leading with possible design solutions that will revitalise the existing green spaces that can facilitate for moments of encounter or community lead initiatives.

# 3

"The spontaneous movement of the people from our crowded cities to the bosom of our kindly mother earth, at once the source of life, of happiness, and of wealth of power"
(Howard, 1902)

# 3.1
## Site Observations
# The Green Square Of Isolation



**Fig. 3.1:** Sketch of the Open Square (By Author)

An article published by Hammoud et al. (2021) where they assessed 756 individuals from April 2018 to March 2020 that loneliness levels vary throughout the day depending on the person's surroundings. The study indicated that interaction with nature improved feelings of inclusion and reduced loneliness levels as it provided chances of encounter with those in their neighbourhood. Roe & McCay (2021) also mention that future mental health implications can be reduced through repeated interaction with nature in children. This is due to feelings of acceptance, belonging and trusts enhanced through green spaces due to their contribution to promoting psychological well-being, which indirectly increases social cohesion (Hammoud et al, 2021). Through my own research (appendix 1) I was able to arrive at the same conclusion as those who frequently (3.1) use their neighbourhood's green space have lower levels of urban loneliness than those who have none (3.3).

Even though nature brings multiple positive side effects in terms of mental health and social cohesion, residents in Thamerdijk still have high levels of loneliness despite their proximity to neighbouring parks and green fields; as indicated by statistics in the Leefbaarometer Hom, (n.d.).

Within the centre of the stamp exists a large green space (approximately 6113 m2) that contains a football pitch, a playground with two benches and walking paths that are shared between the four concrete building blocks. Additionally, there exists several parking spaces and a single road that connects to the main street of the neighbourhood. From my very first impression, the shared public space evokes feelings of isolation due to its vastness and unnaturalness because of its lack of use. However, in my perspective, the residential area is rather unique due to the lack of bikes and cyclists that you often find in many parts of the Netherlands.

Through multiple visits under different weather conditions, my observation remained unchanged. The central area only functions as a transitional space that you walk through or to park your car before you reach your own building block. Minimal instances of social interaction took place; except on the existing urban furniture being the most used function to either have a quick meal or phone call. The existing children in Thamerdijk attempt to make use of the pavements then the intended playing area. Ultimately, this is due to the function of the central space being rigidly defined which lacks opportunities that allow for the residents to shape their own space.

More insights were provided from speaking to the existing residents, many of the elderly complain that children and teenagers create a nuisance at night, with multiple instances of gang behaviour that makes it unsafe to walk outside at night. They added that they have become desensitised to the shouting and screaming at night that they no longer question it. This can be explained by Roe & McCay's (2021) study of nature within cityscapes, that large parks dividing neighbourhoods become "territorial boundaries"

which intensify antisocial behaviour and violence. My ethnographically inspired questionnaire (appendix 1) indicates that a correlation can be drawn between urban loneliness and neighbourhood safety. Those who replied frequently (3.04) experienced higher levels of loneliness than those who said never (2.69).

To further understand the urban green space of Thamerdijk. I utilised Gehl's (2013) study on the human scale. In his analysis, he defines the following lists of distances and their relation to the human senses:

- 500-300m – humans can be identified (partially)
- 100m – body language and movement in broad outline
- 50 – 70m – gender and age, hair colour and characteristic body language (can hear shouts for help)
- 22 – 25m – accurately read facial expression and dominant emotion
- 35m – one-way communication in a loud voice
- 20-25m – short messages
- 7m – 0.5m – genuine conversation, smell of perfume

Thus, by measuring the distances between buildings A-A and B-B and placing them on the human scale, residents from the neighbouring blocks lack the chance for natural social encounters or to assist one another in case of danger. In addition, the current building blocks only allow for four access points within the existing neighbourhood, with the southernmost flats being a barrier from the larger park space that separates Hordijkveld from Reyeroord.

**Fig. 3.2:** Axonometric of Thamerdijk (By Author)

Comfortable distance for short converstations

*Shouts for help can be heard in this distance

Gender, age, hair colour and charactaristic body language can be identified

Distance for genuine converstations. Smell can be identified

In broad daylight general body language and movement can be identified

Humans can be partially identified

Distance for Loud one way converstation

0 7 20 35 50 70 100 300 500m

**Fig. 3.3:** Thamerdijk's distance measured on the Human scale (By Author)



B

A A

B

≈ 85 m

SECTION A-A

≈ 101 m

SECTION B-B

Neighborhood   Thamerdijk   Single Stamp   Main Facade   Private Green
Same Stamp   Same Stamp   Stamp Variation   Parking   Collective Green

④ ③ ② ①
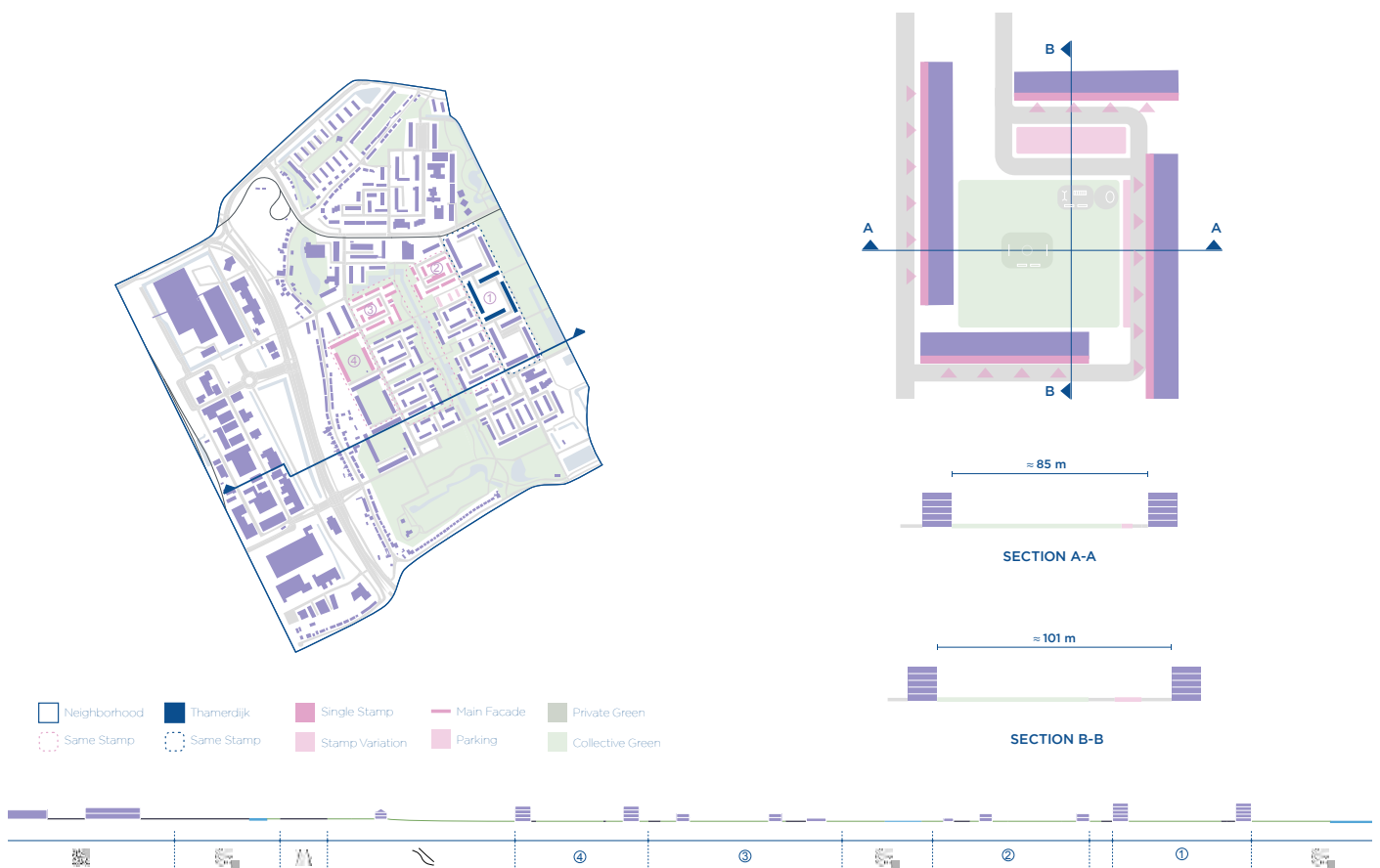
**Fig. 3.4:** Thamerdijk's Stamp Anaylsis (By Author)

# 3.2
# Urban Design Solutions



**Fig. 3.5:** Day and Night Strøget, Copenhagen (By Author)
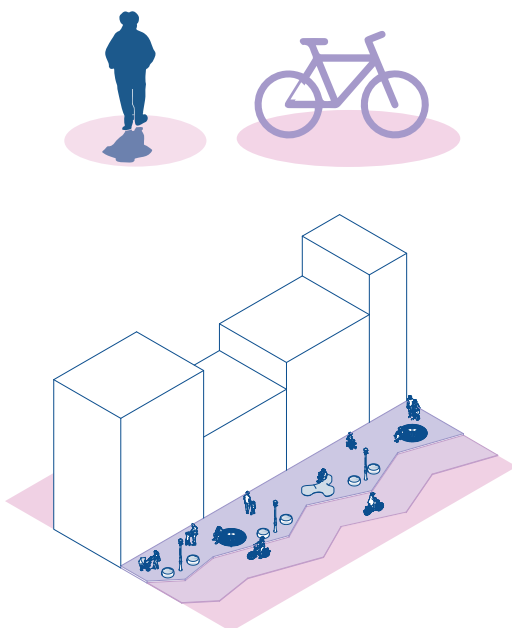




**Fig. 3.6:** Playful walk able streets (By Author)

It is essential to recognize that space and place are not passive backdrops like those produced during the Garden City movement; they actively mould interactions among individuals and are integral to this dynamic (Felton, 2012). Therefore, after assessment of the site on an urban level, it is imperative to reframe the public green space as an asset, rather than a liability, to enhance their appeal for organic moments of encounter.

## Green mobility

The first possible design strategy that would advance social sustainability in the central space is by using Gehl's (2013) "green mobility," which encourages modes of transportation such as walking and cycling. This then involves the removal of all parking spaces within the existing stamp and being pushed to the periphery of the housing scheme. This creates more child-friendly walking paths within the housing scheme, in agreement with Durrett (2022) who considers children as playing a key role in bringing the community together. Prioritizing walkability would also contribute positively to both the physical and mental of the current residents of Thamerdijk. An example of this is Strøget (walking street)
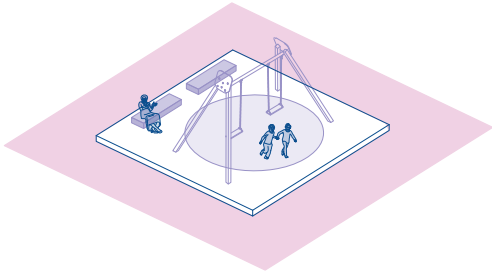
**Fig. 3.7:** Play Space for Children and Elderly (By Author)
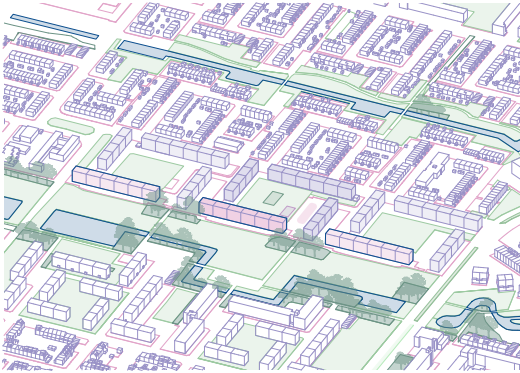


**Fig. 3.8:** Building blocks act as barriers towards the larger green space (By Author)

**Fig. 3.9:** The Human Scale (By Author)
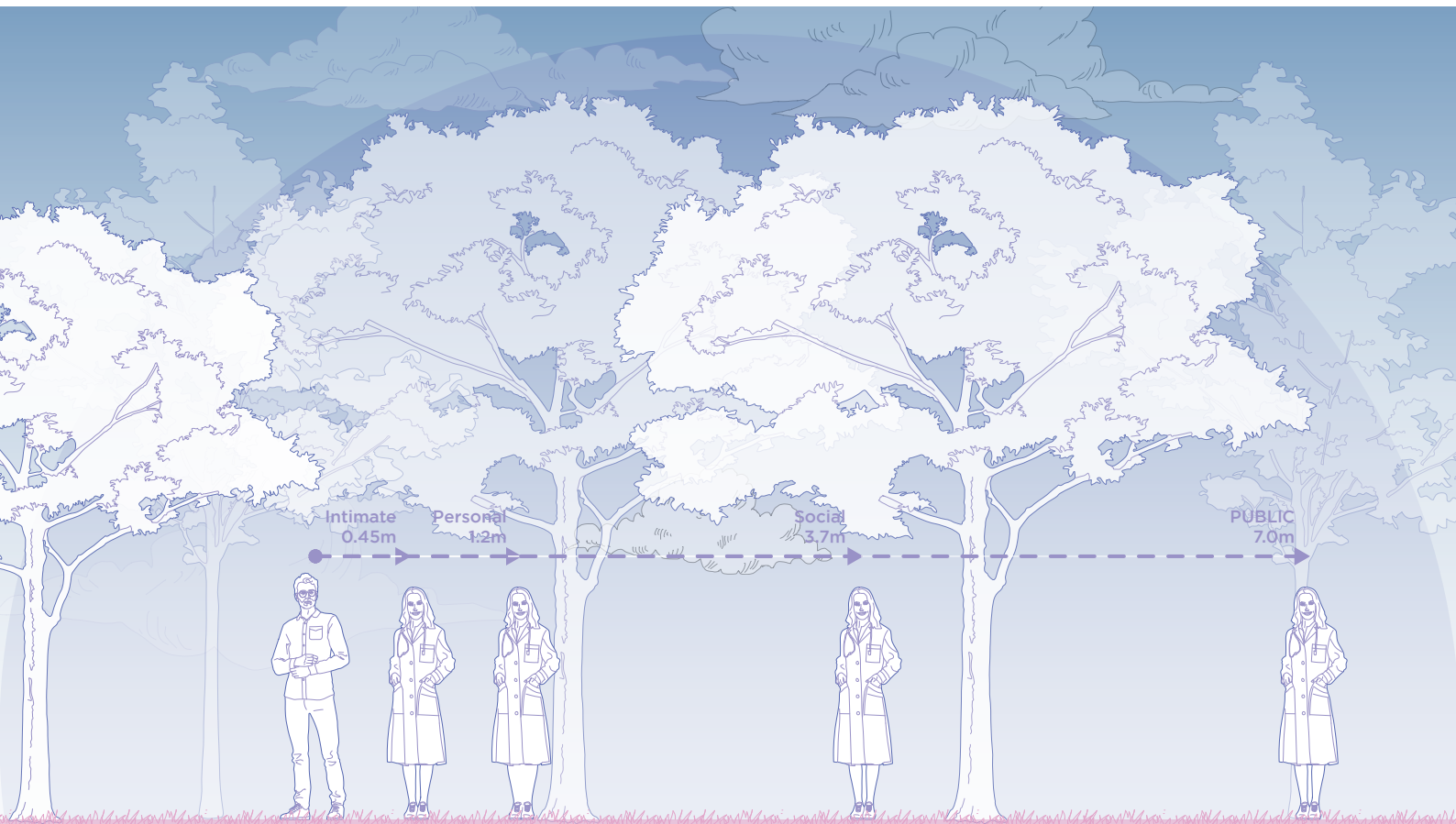
in which social interaction was reinvigorated by prioritizing more pedestrian-friendly roads instead of cars in the city centre of Copenhagen, Denmark (Gehl, 2013). Additionally, by utilising Gehl's (2013) human scale study, the total width of the new walking paths can be designed to be seven meters in width. This allows for more social spaces to take form within smaller green spaces and squares that redefines the urban tissue.

Furthermore, by using Jacobs's (1961/2002) proposed city planning policies, partial demolition of the existing building blocks is needed to allow for more varied pathways within the residential neighbourhood, and new building blocks to be built in the centre of the stamp. In turn, this offers a variety of experiences for residents to explore their own residential community, potentially leading to new interactions. With the addition of the incorporation of real or symbolic gates, one or two that work in unison can effectively improve the life around buildings (Ford, 2000)

Thamerdijk's current demographic make-up is quite diverse but socially disconnected from one another, as stated by an elderly lady who lives in the neighbourhood. Densifying and bringing new target groups may potentially create more challenges in terms of coexistence within the existing community (Felton, 2012). However, encouraging residents to walk, cycle, or linger within the stamp can amplify the potential for a vibrant urban environment, enhancing the feeling of security, as a sense of community are pivotal components in this process (Gehl, 2013). All of which help alleviate social isolation levels within the neighbourhood.



Intimate 0.45m    Personal 1.2m    Social 3.7m    PUBLIC 7.0m

**Fig. 3.10:** Hofje van Bakenes, Haarlem, 1395. Retrieved from Wagenaar (2010) (Edited By Author)
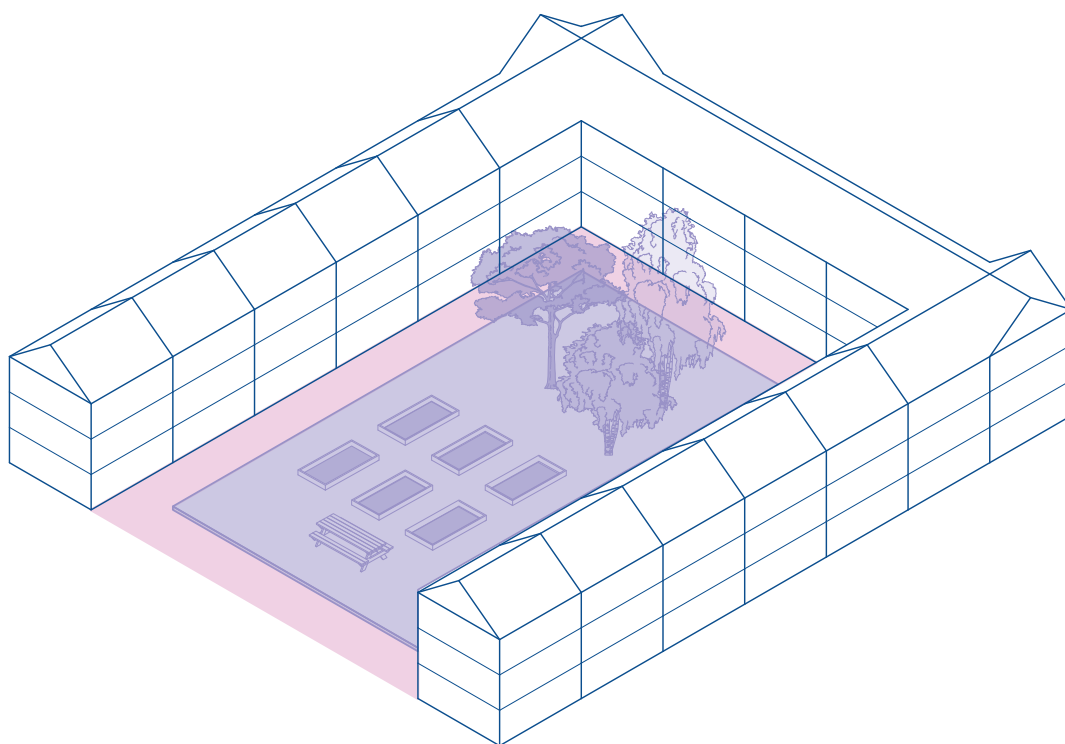


**Fig. 3.11:** Hofje, with collective green space within a cluster of ground bound dwellings (By Author)

### Therapeutic Environments for the Elderly: Hofjes

 Public spaces, when optimized, function as resources that facilitate collective services, security, connectivity, and shared symbolic and emotional experiences (Felton, 2012). In agreement to this strategies might encounter challenges if they do not consider the unpredictable and subconscious emotional dimensions of the current residents (Felton, 2012). Thus, with predominantly elderly single households in Thamerdijk, therapeutic healthcare urban design solutions are a potential solution for densification.

This is historically supported by Mens & Wagenaar (2010), as the development of senior care homes were designed to cater to the specific needs of the elderly demographic by mixing in collective gardens in between their residential clusters. As further elaborated by them, a 13th-century example of this is the development of clusters of Almshouses, with collective gardens known as "Hofjes," which became a notable feature in several Dutch cities, establishing small communities for elderly residents, providing them respite from the densely populated urban life. They continued to evolve during the 17th and 18th centuries, eventually achieving recognition as Dutch cultural heritage (Mens & Wagenaar, 2010). Apart from the the Hofje van Bakenes, designed in Haarlem in 1395 (Mens & Wagenaar, 2010), numerous others emerged in different cities, including the Pepergasthuis in Groningen (1405), Hofjie van Nieuwkoop in Den Haag (1658-61), and DeutzenHofje in Amsterdam (1692).

Hofjes are characterized by small, independent dwellings clustered around open green spaces, often featuring flower gardens, churches, or chapels allowing for the residents to meet one another (Mens & Wagenaar, 2010). Despite the health benefits associated with such design principles, they were accessible primarily to wealthier individuals who anticipated the later stages of life and could finance these projects, with the small dwellings being specifically designed for elderly individuals without physical disabilities (Mens & Wagenaar, 2010).

Nonetheless, similar low-budget community garden design solutions have already been developed by service workers in Groot-Ijsselmonde. From speaking to one of the community workers, who initiated this project to help reduce loneliness and isolation between the elderly residents of Hordijkveld and Reyeroord. She details how community lead initiatives took form by asking residents to bring something small such as water.

Alaa Hendi

# 3.3.1
## Casestudy:
# De Drie Hoven
## Herman Herzberger
## (Amsterdam 1964- 1974)

The healthcare facility designed by Herman Herzberger in Amsterdam is intended for senior citizens with mental and physical disabilities. The concrete block is divided into 5 different volumes that are connected through a series of corridors that function as streets. The circulation spaces are spatially designed to allow for moments of encounter to help tackle loneliness among elderly residents. In addition, they were designed to become wider near the residential units to create small collective forecourts.

The four residential wings are constructed in modules and divided into different dwelling functions. The first wing contains fifty-five residential units for couples. Type two are 171 care homes for the elderly with their own kitchen and bathrooms roughly housing 190 persons. The third zone is nursing homes with 250 beds for the mentally and physically disabled. Patients are placed in units for one, two or four persons. The last set of modules is dedicated to staff buildings, including 16 nursing rooms, 10 managerial staff flats, 3 guest rooms, 21 two-room flats, board rooms and an apartment for the head of technical services. The four residential neighbourhoods connect to a central building that combines a multitude of both collective and public functions. Functions found in the central volume are meeting rooms, hairdressers, bars, shops, library, billiard room, shared kitchen, storage depot and workshops. The main outcome of this case study is the way in which, dwelling modules are designed to create various pockets of different green spaces that allow for different moments of encounter for its users.

\* Project information text references Wagenaar (2010)



**Fig. 3.12:** Elevational View of the Health care facility. Retrieved from Wagenaar (2010) (Edited By Author)



**Fig. 3.13:** Spaces of encounter found on the roof. Retrieved from Wagenaar (2010) (Edited By Author)

**Fig. 3.14:** Plan Underlayed from Mens & Wagenaar (2010)
(Diagram By Author)

## Housing Facilities

1- Central Hall
2- Housing For the Elderly
3- Nursing Homes
4- Family Homes
5- Dormitories



| | Private |
|---|---|
| | Collective / Public |
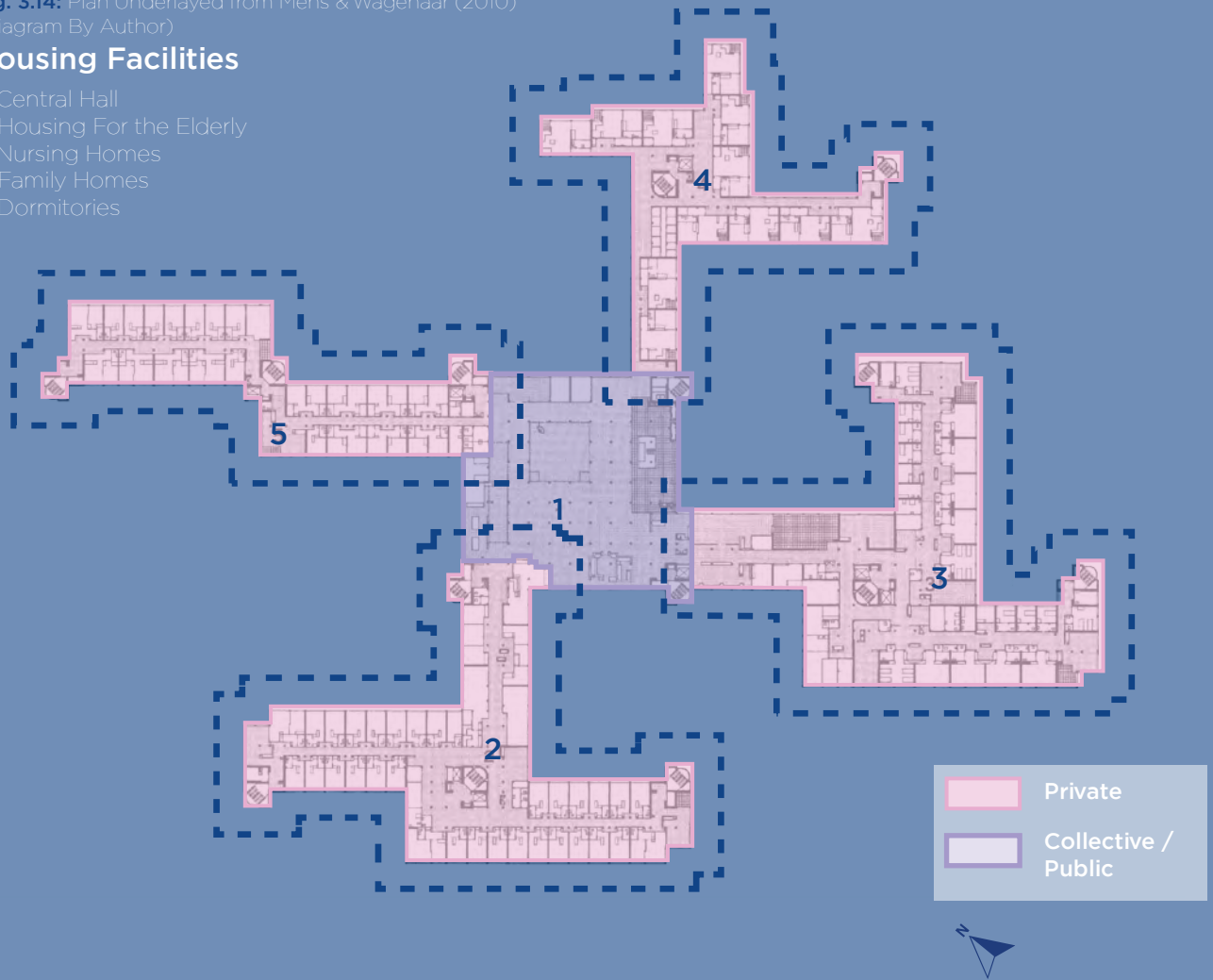
**Fig. 3.15:** Plan Underlayed from Mens & Wagenaar (2010)
(Diagram By Author)

## Circulation Spaces



| | Coordiors |
|---|---|
| | Circulation Cores |
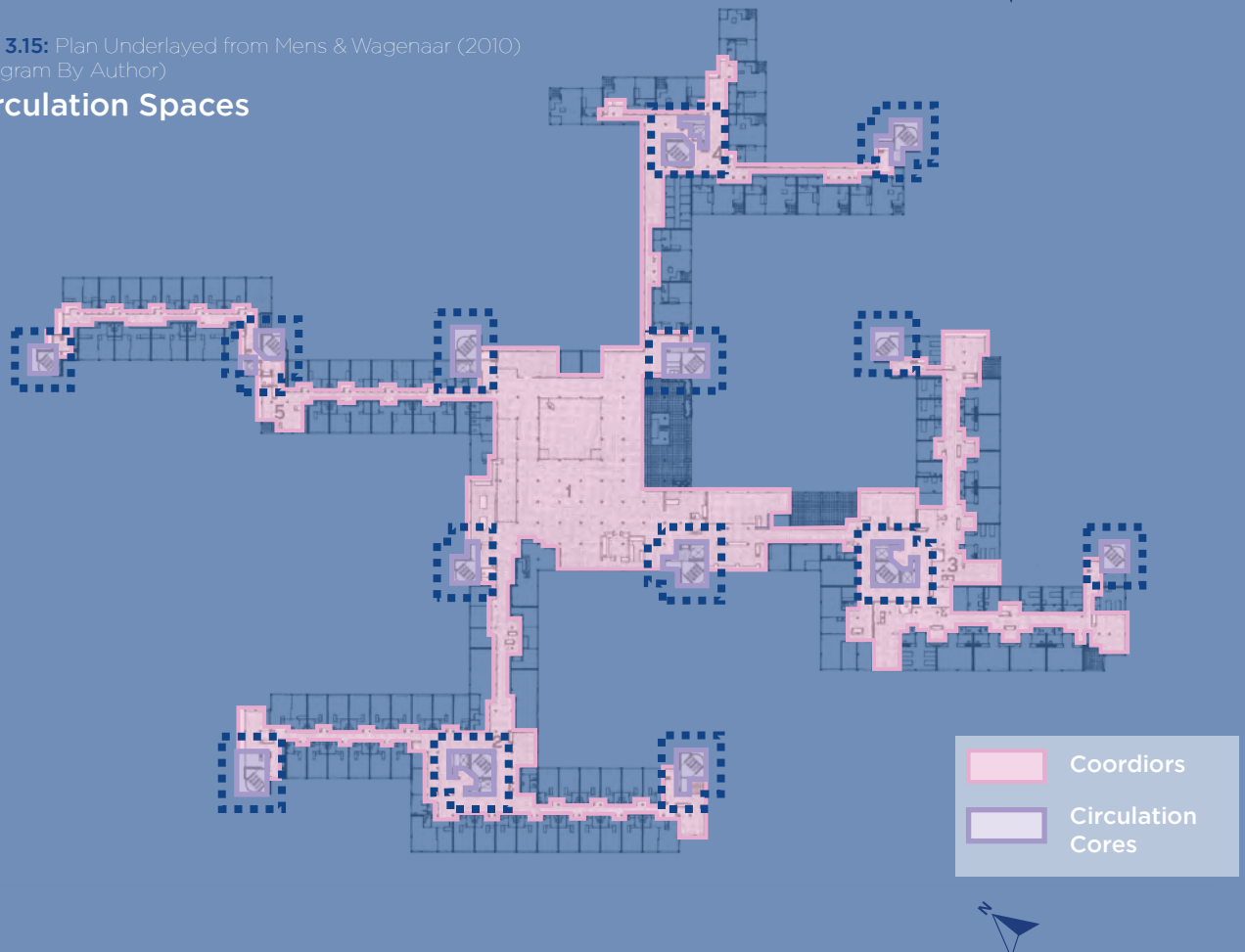
# 3.3.2
## Casestudy:
## De Hogeweyk
## Molenaar & Bol
## & Van Dillon
## (Wesp 2008)

De Hogeweyk stands is a geriatric care facility in Weesp North Holland, which replaces a high-rise nursing home. Despite being a hospice for the elderly with advancing stages of dementia, it resembles a typical modern residential complex that accommodates 23 units with its healthcare functions that blends into its surroundings. The project emphasizes the overarching objective of normalizing the experience of residing in a nursing home for its aging population.

The main takeaway from this project is its urban design that provides a variety of different experiences. The various units are intended to be self-contained districts with streets, squares, courtyards, and parks, each tailored to cater to the unique lifestyles of its residents.  examples of the varied lifestyles are the "Gooi" neighbourhood, which maintains its formality as a care facility. In contrast, to "Indonesia" section places an emphasis on having larger dining rooms at the forefront of its entrance. While the kitchen serves as the inviting entry point in "Brabant." These distinct lifestyle choices introduce architectural diversity that allows for various degrees of encounter within its communal spaces, outdoor areas, and covered squares. Nonetheless, the project provides limited public access to its residents by having one entry and exit point to prevent those suffering from dementia from accidentally leaving the facility.

* Project information text references Wagenaar (2010)



**Fig. 3.16:** Gallery spaces found within the village allowing for various spaces of encounter. Retrieved from (Kuro Kade, n.d.) (Edited By Author)

**Fig 3.17** Plan Underlayed from Adams and Chivers (2021)
(Diagram by Author)

## Master Plan



Private

Collective Garden

Spaces Of Encounter
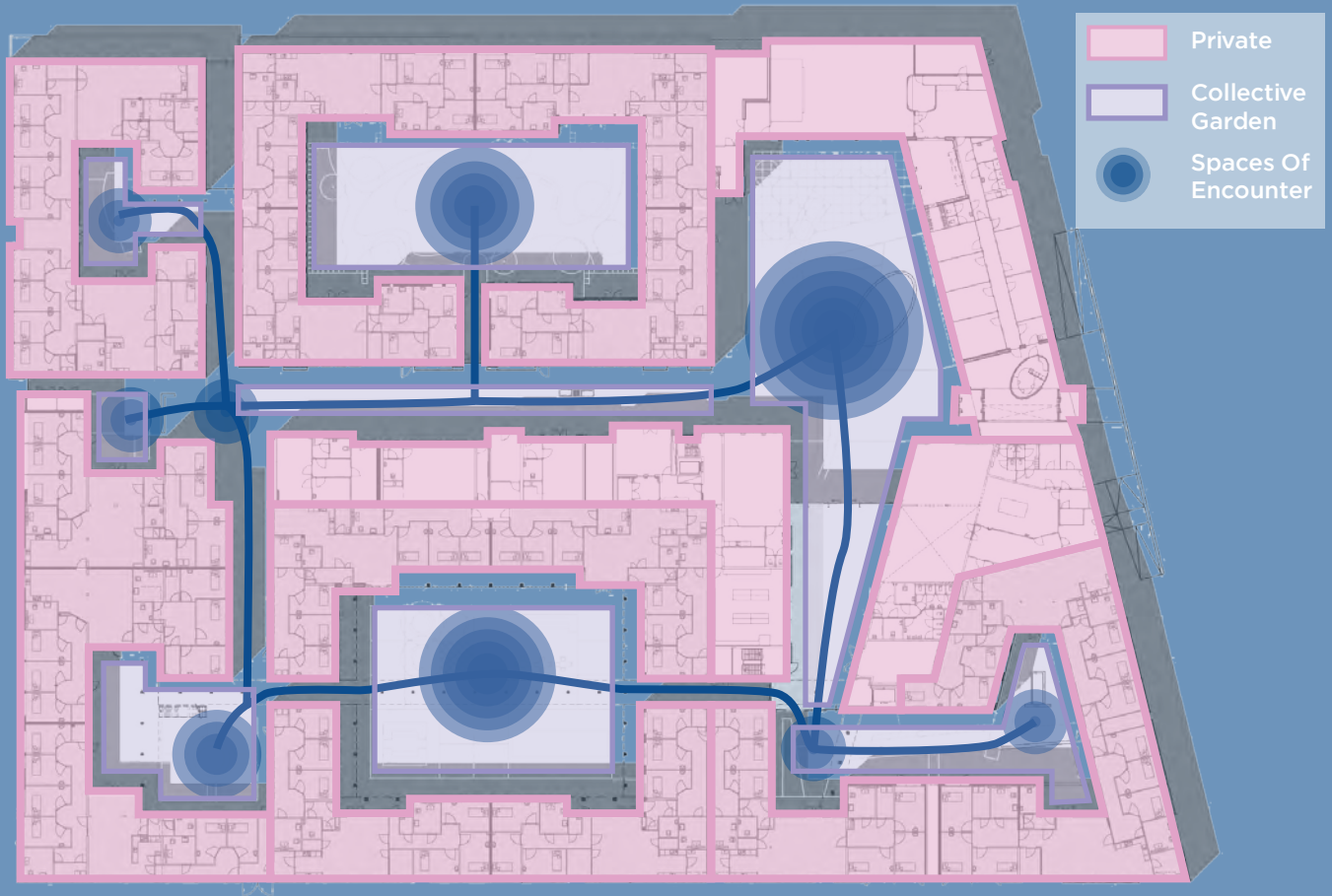
**Fig. 3.18** (Diagram by Author)

## Urban Morphologies For Public Space Variation
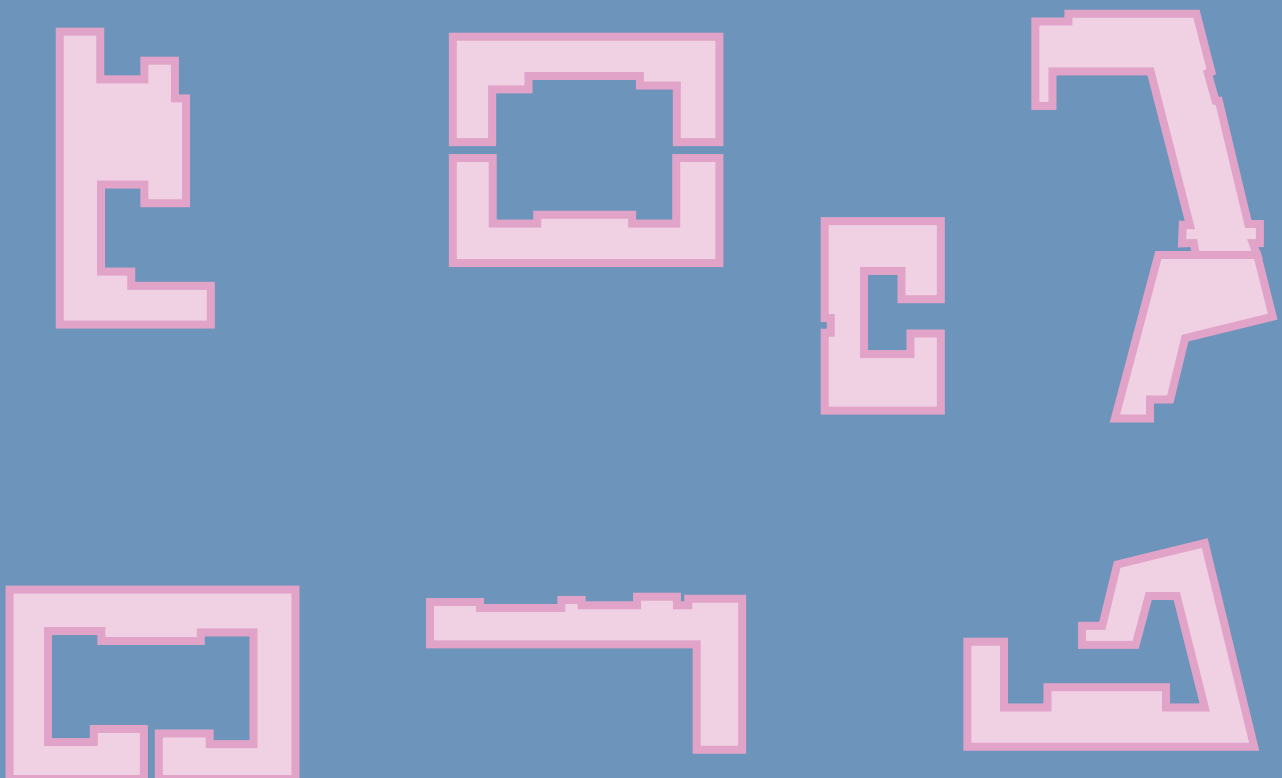
# Building Scale

Groot-IJsselmonde designed
in the 1960s deployed many of
the modernist design principles
such as standardised systems of
construction to rapidly provide
temporary housing to Rotterdam's
residents after the city's bombing
in World War II. In this chapter,
a focus will be given on the
second sequence "collective and
public collective' space through
an analysis of the buildings
found in Thamerdijk in terms of
construction and aesthetics. This
will then follow with a discussion
on possible design solutions within
the building scale that can reduce
feelings of anonymity and break
the architectural homogony of the
existing apartment blocks.

4

"If a building is to function properly, it
must be organized so that people do
indeed encounter one another."
(Hertzberger, 2002/2009)

# 4.1
## Site Observations
# Four of The Same
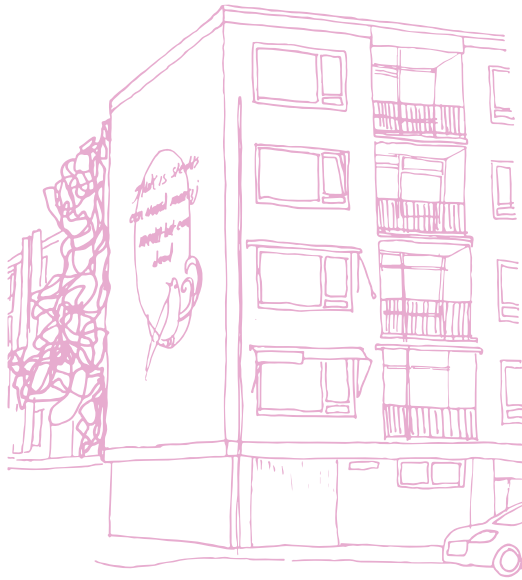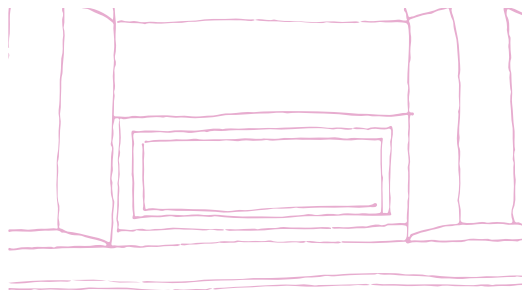
The building blocks found in Thamerdijk are the Dura-Cogniet building system that was first introduced in the 1950s by Dutch contractor Dura to help rebuild the homes in Rotterdam after World War II. The construction method 'Coignet' was imported from France and converted to fit Dutch regulations due to the façade walls being floor bearing which is not permitted under the country's building legislations. The dividing walls were then made load bearing. Many buildings of this type were developed by architect Groosman Architecten in other post-war neighbourhoods in Rotterdam, such as Spijkenisse, Zuidwijk and Vlaardingen. Whilst terraced houses were deemed a luxury during the 50s, due to their cheap construction methods, poor insulation, and ventilation, many of these projects were demolished in the 1990s. However, they were renovated and maintained in Groot-IJsselmode on the building's exterior to help improve the performance of the building (Rotterdam Woont, n.d.).

Aesthetically, Dura-Cogniet deploys many of the modernist design strategies such as standardization of building methods. The building was planned as five-story prefabricated concrete modules, with one unit of the 'Coigniet' consisting of two sets of 2- and 3-bedroom apartments. The pieces are then conjoined together to create 2 variations in Thamerdijk; three units from the street to the separating "leaf" of the neighbourhood, and a smaller two-unit alternative between Schoordijk and Velgersdijk. In addition, the flats currently lack lifts in their circulation space which confides the mobility of many of the elderly residents in their homes which many of them complain about. For this reason, the site and its surrounding buildings provoke a sense of architectural monotony within its urban setting, as all the houses look the same.

Tactical interventions such as changing the colour of the exterior to bright orange and yellow and artistic murals being painted on the side of the flats attempt to tackle the homogony in its design. Nonetheless, a positive aspect of the current building block is its dual orientation allowing for "friendly observation" of the existing public space. During my empirical observation, an elderly man followed me across his house monitoring what I was doing, which greatly harbours a sense of neighbourhood security. However, the ground floors lack collective functions and visual transparency which feels uninviting and unpleasant to walk around. In addition, this was further provoked by signs on the ground floor such as "Close door for your security" and broken windows that resemble bullet holes. Lack of flexibility and rigidly defined collective spaces that prevent alteration leads to problems like vandalism, graffiti, and antisocial behaviour (Ford, 2000). This in turn hinders social cohesion within the community allowing feelings of loneliness to manifest as mentioned in the previous chapter.



**Fig. 4.1:** Sketch of Mural on the side of the building (By Author)





**Fig. 4.2:** Sketch of drawings found on the ground floor (By Author)

Alaa Hendi

Hij schoof zijn gordijn opzij
voor een tel stopte de tijd
terwijl jij naar hem zwaaide
vergat hij even
zijn eenzaamheid

`SMOOJ.

Deur dicht
wel zo veilig!

**Fig. 4.3:** Site findings and observations
(By Author)
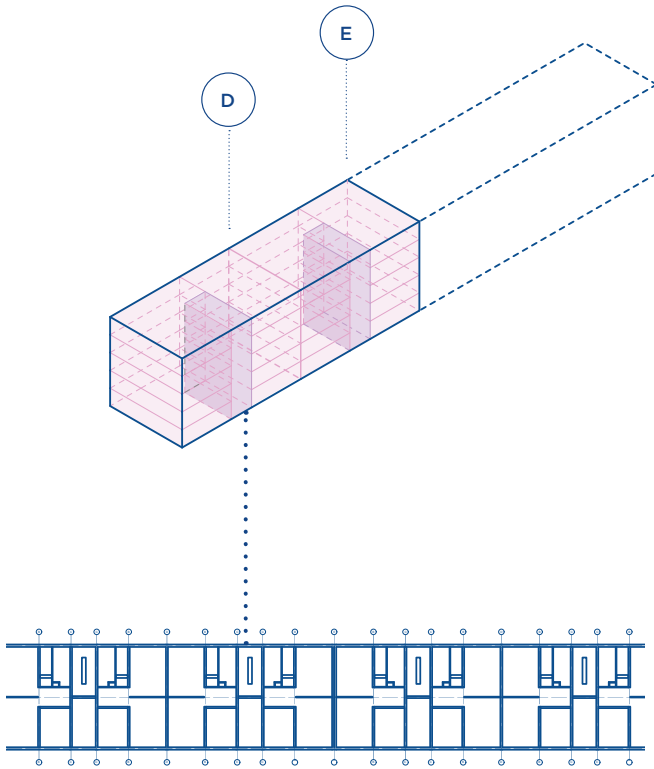
Fig. 4.4: Building construction concept (By Author)



| | |
|---|---|
| Bedroom 15.5 m² | Living 18 m² |
| Bedroom 15.5 m² | Living 18 m² |
| Bedroom 15.5 m² | Living 18 m² |
| Bedroom 15.5 m² | Living 18 m² |
| Storage 15.5 m² | Storage 18 m² |
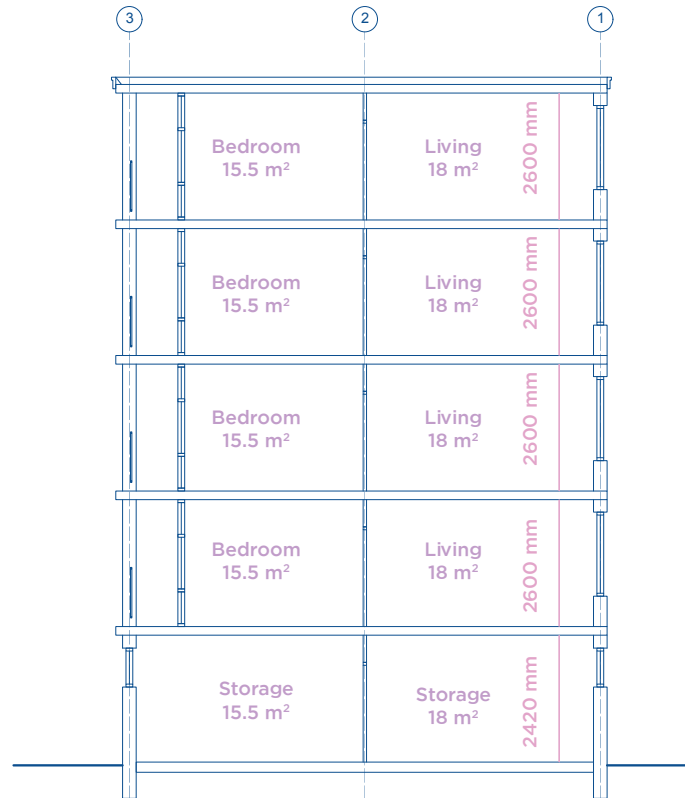
Fig. 4.5: Building Section (By Author)
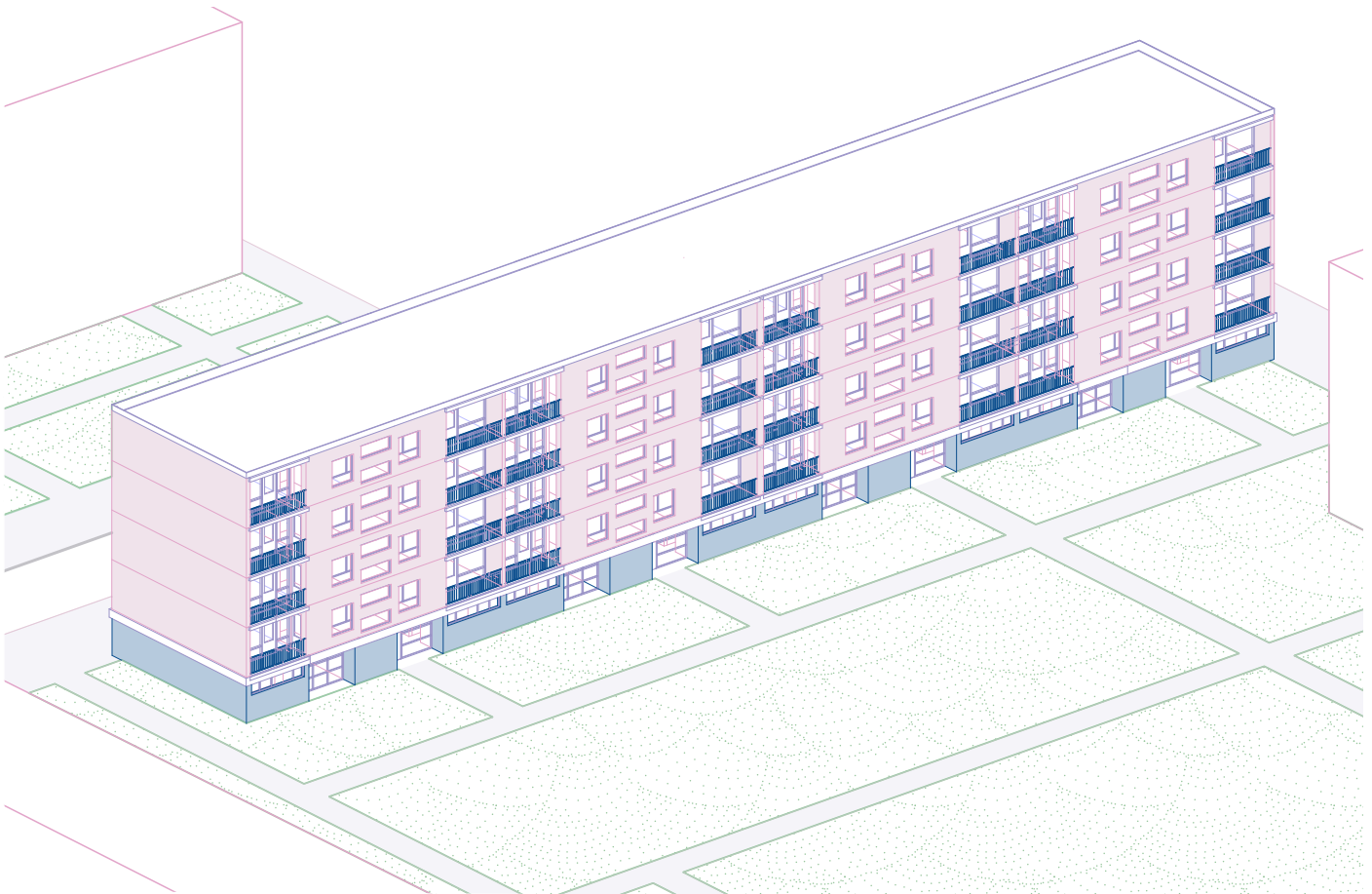


Fig. 4.6 Axonometric of the Dura- Cogniet in Thamerdijk (By Author)

# 4.2
# Building Design Strategies
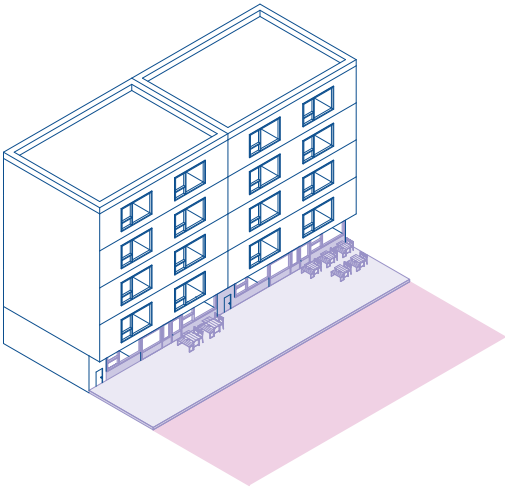


**Fig. 4.7:** Soft Edges (By Author)



**Fig. 4.8:** Sluishus by BIG in Amsterdam, a mix between timber and steel cladding (By Author)
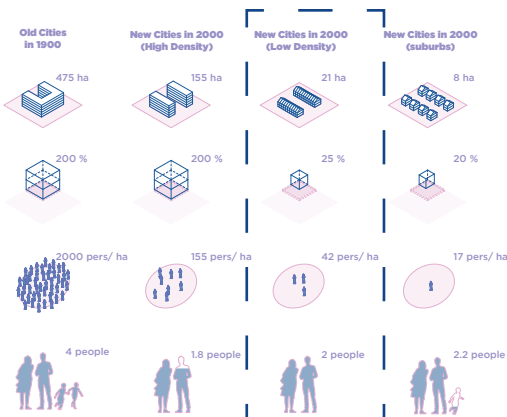


**Fig. 4.9:** Density comparison throughout the years and in relation to Thamerdijk (By Author)

## Soft edges

The lack of appropriate thresholds from the sequence of private to undefined public space increases the likelihood of encountering social and psychological problems that may lead to isolation and antisocial behaviour (Ford, 2000). To help reduce this and to foster a greater sense of community in the surrounding area requires the urbanization of the ground floor. Müller et al. (2017) state that when this space is restricted exclusively for residents, it can lead to conflicts over privacy with their surrounding neighbours. Therefore, it is vital to dedicate public and semi-collective soft edges that serve the greater residential area.

To help guarantee the successfulness of the collective space within the new building blocks, Müller et al. (2017), emphasises the importance of the public ground floor to feature a minimum ceiling height of 3.5 meters, generous glazing, and inviting entrances to encourage use and social encounter. In addition, flexible wall-free layouts can house a variety of different functions that encourage residents to shape their own living environment which may lead to more community-led initiatives.

## Materiality

Hertzberger (2002/2009) highlights the influence of materials and resources on the perception of indoor and outdoor spaces that reduce feelings of anonymity. Not only will this break existing buildings monotonous facades, but by bringing in new materials such as wood or laminates on the external envelope can improve both the mental and physical well-being of its residents. This is supported by Jiménez et al. (2015) who states that some of the healing properties are its ability to naturally refresh indoor air, maintain optimal humidity, and provide warmth, making it an ideal material for promoting human health and comfort.

## Densification and the Human scale

A study on the human scale in terms of height and density is needed to set the parameters that will define the alteration. Utilising Gehl's (2013) study on the perpendicular human scale, strategies should not be used for vertical expansion as residents who live on upper floors compared to those on the lower five levels often have a reduced engagement with the neighbourhood. In addition, the existing building currently stands five stories high; building upwards would lose the positive aspect of "eyes on the street" by doing so. Notably, high-rise typologies are often associated with higher levels of loneliness within their inhabitants (Kearns et al., 2015). This was supported in my ethnographically inspired questionnaire, where urban loneliness levels were highest among those who live in high rise buildings.

Furthermore, a correlation between loneliness levels and an empirical value for densification cannot be made if buildings maintain the human scale. For instance, many of the buildings designed in Downtown Sydney and Manhattan drew inspiration from Le Corbusier's modernist manifestos. Due to their excessively tall buildings within proximity
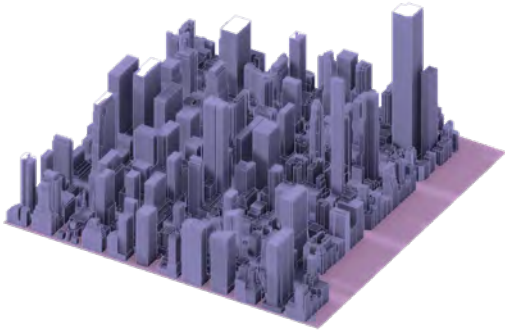
**Fig. 4.10:** Shadow study of New York (By Author)



**Fig. 4.11:** Aker Brygge in Oslo, Norway, Retrieved from VisitOSLO (2023) (Edited By Author)

from one another, it negatively affected social cohesion because of the poorly lit anonymous spaces that deterred people away it (Ford, 2000). Another post-war example of this would be Thamesmead's Southmere tower blocks in east London, which consists of 4 densely inhibited high-rises. during my analysis, I was able to record moments of antisocial behaviour due to the pockets of dark spaces that the architecture cast on the site. In contrast, Aker Brygge in Oslo, Norway still achieves both high building density and social sustainability by featuring shorter buildings along the streets and taller structures set further back (Gehl, 2013). This leads to the following conclusion, that by building a variety of low rises of different heights within the central area can contribute to positive densification in Thamerdijk.



THRESHOLD
13.5m

IMPORTANT THRESHOLD
6.5m
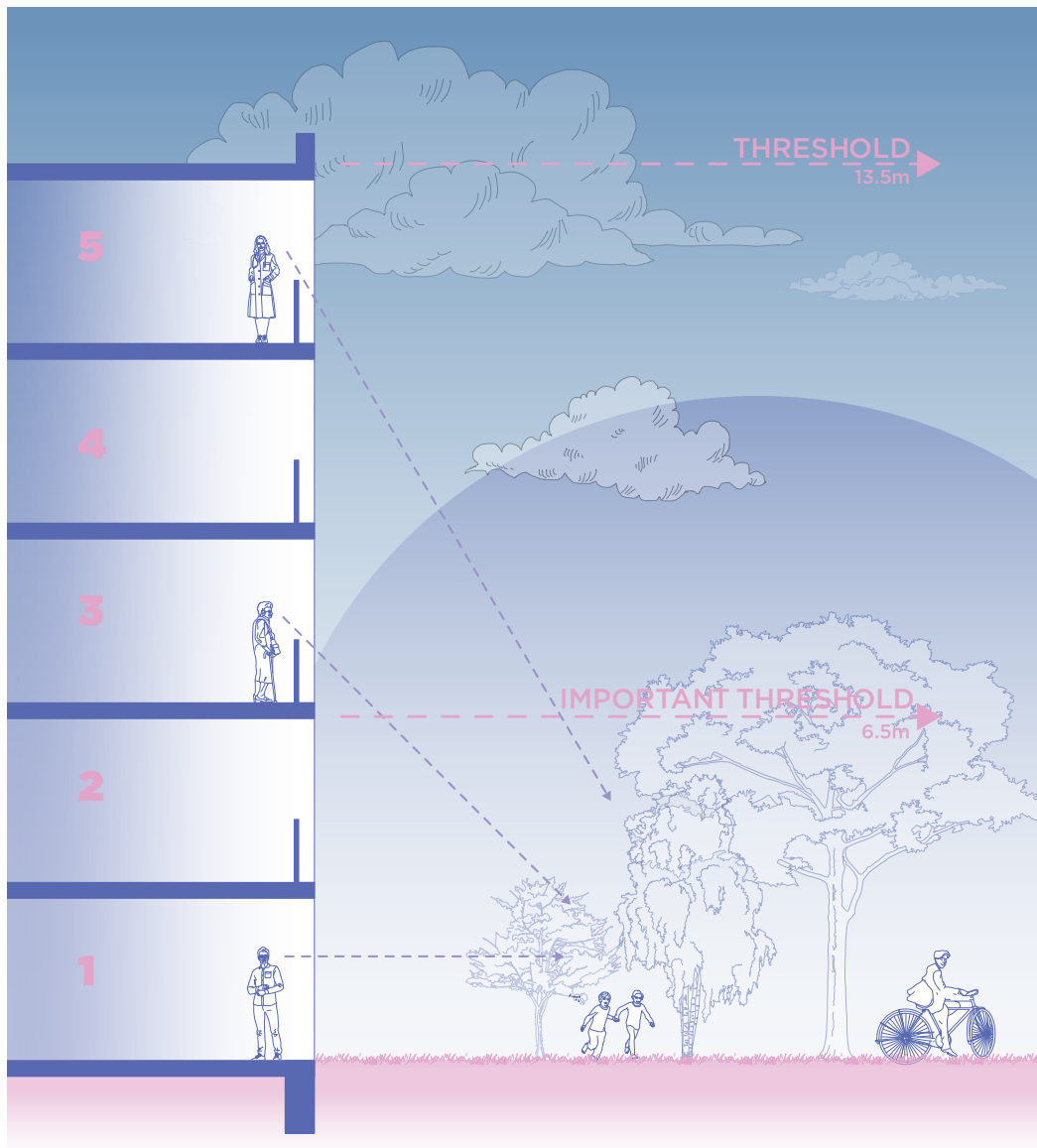
**Fig. 4.12:** Perpendicular human scale based on Gehl (2013) study (By Author)
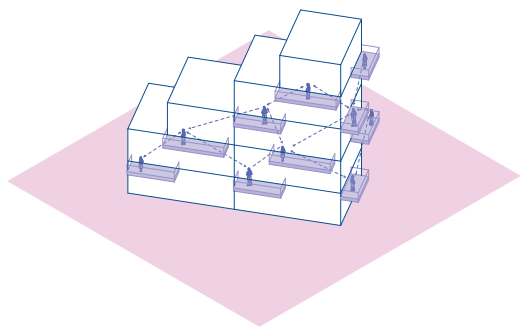
**Fig. 4.14:**  Balcony spaces that allow for visual proximity to their neighbours creates moments of encounter (By Author)
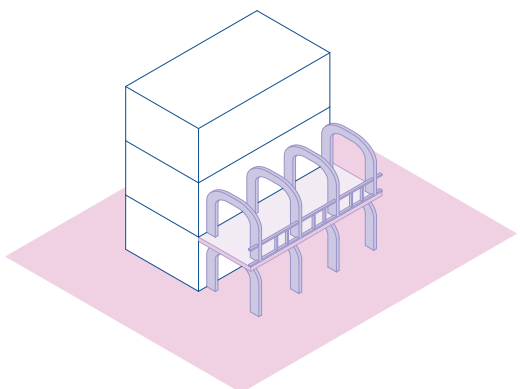


**Fig. 4.15:**  Promenades draws pass byers to locations, repeated encounters can harbour social connections (By Author)

## Transformation

Transformation strategies are required on the existing structures to create more variety in the building morphology. Due to the modularity and systemization of the Dura-Cogniet construction method; partial demolition of the concrete structure is possible. A major advantage of transformation projects is the prevention of the total rehousing of the existing inhabitants, who may have lived in the neighbourhood for more than 50 years.

As mentioned previously, the existing elderly residents complain of the lack of lifts in the circulation space that confines them to their homes. A possible design solution is the attachment of lifts on the edge of the residential block and extending outwards with gallery spaces that both function as shared terraces and arcades on the ground level. Cantilevering floor slabs can extrude outward in varying lengths, which break the architectural homogony of the existing building.

Arcades can be used as both sheltered spaces for social interaction and ensuring comfortable gathering in all weather conditions within the public squares of the new master plan. Spatial solution through 'promenade' architecture, enhances the dynamics of human movement in public space, as it creates more engaging and theatrical situations that naturally bring people to meet each other (Hertzberger, 2002/2009).
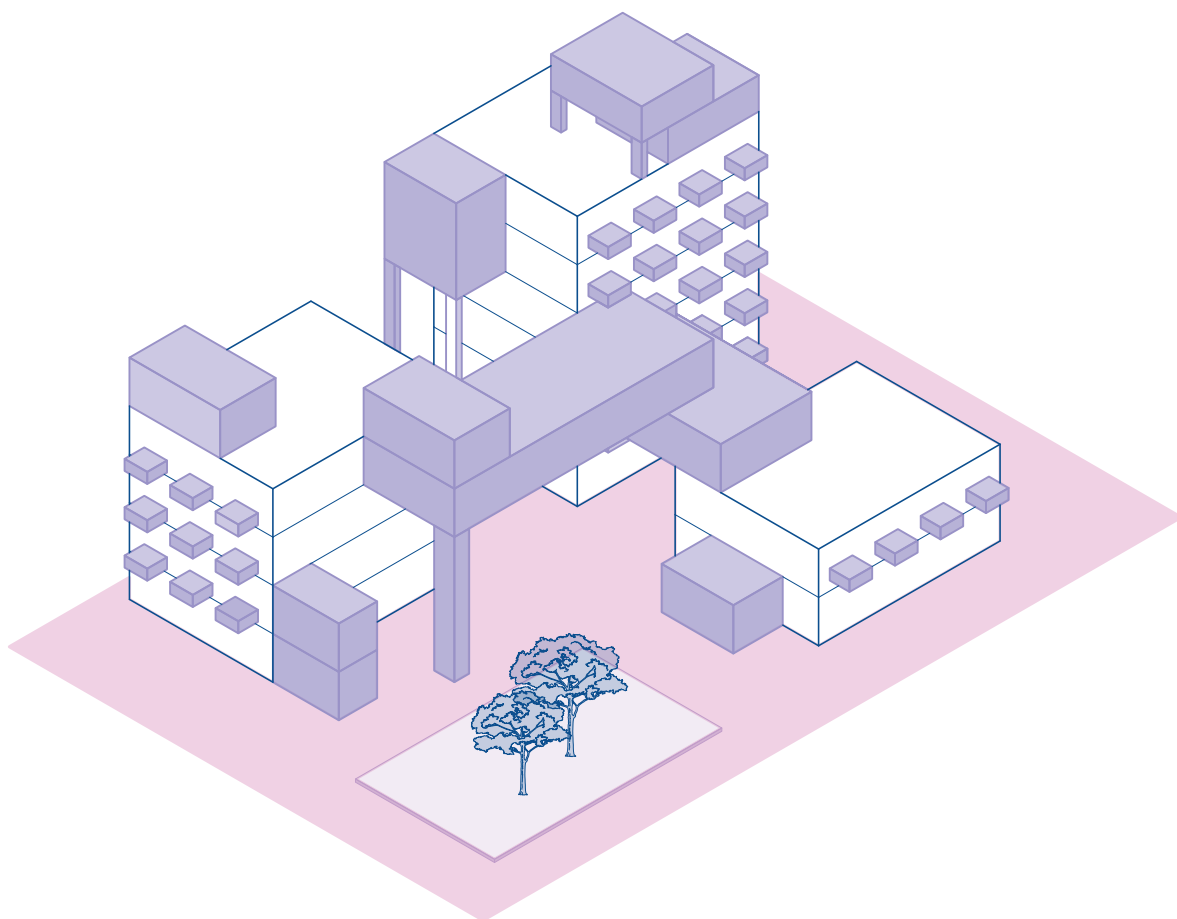


**Fig. 4.16:**  Playful transformation strategies can help break architectural monotony (By Author)

Alaa Hendi

# 4.3.1
## Casestudy:
## Pavilion Typology
## Sir Christopher Wren
(Greenwich, 1694)

In 18th-century Europe, Mens & Wagenaar (2010) state that during the Age of Enlightenment, countries like France, Germany, and Britain introduced the concept of hospitals and mental health institutions as "healing machines." The Enlightenment philosophy emphasized that the built environment should harmonize with the universal laws of nature while refining them (Mens & Wagenaar, 2010).

A notable example of this approach is Sir Christopher Wren's pavilion system at Greenwich Hospital in 1694. These pavilions (similar to galleries) served as circulation spaces around an open courtyard, allowing ample natural light and fresh air to enter the health ward which aided in the recovery of patients (Mens & Wagenaar, 2010). Another instance is the TB Sanatorium, designed by German physician Hermann Brehmer in 1854 in Gorbersdorf, Germany (now Poland). These facilities were in the countryside or near mountains where the air was pure. Patients who suffered from tuberculosis benefited from this building system, as it gave the opportunity to recline in the open air on lounging chairs (Mens & Wagenaar, 2010). The pavilion system within medical buildings has the potential to address issues of loneliness in the existing building blocks of Groot-Ijsselmonde, enabling residents to connect with their natural surroundings by utilising the gallery space as therapeutic seating areas.



**Fig. 4.17:** Waverly Hills TB sanatorium. Retrieved from Sanatorium - From the First to the Last - TBFacts (2022) (Edited By Author)
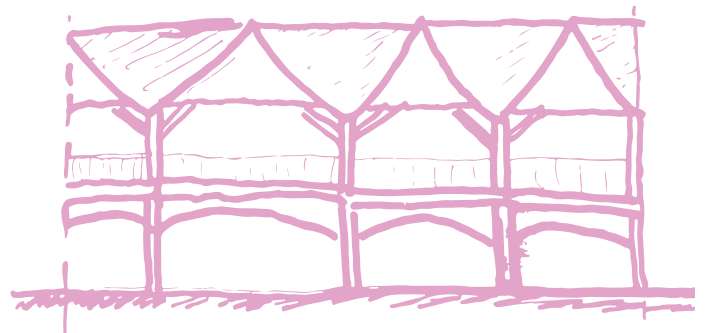


**Fig. 4.18:** Elevation sketch of Oranje Nassau's Oord designed by Roelof Kuipers (By Author)
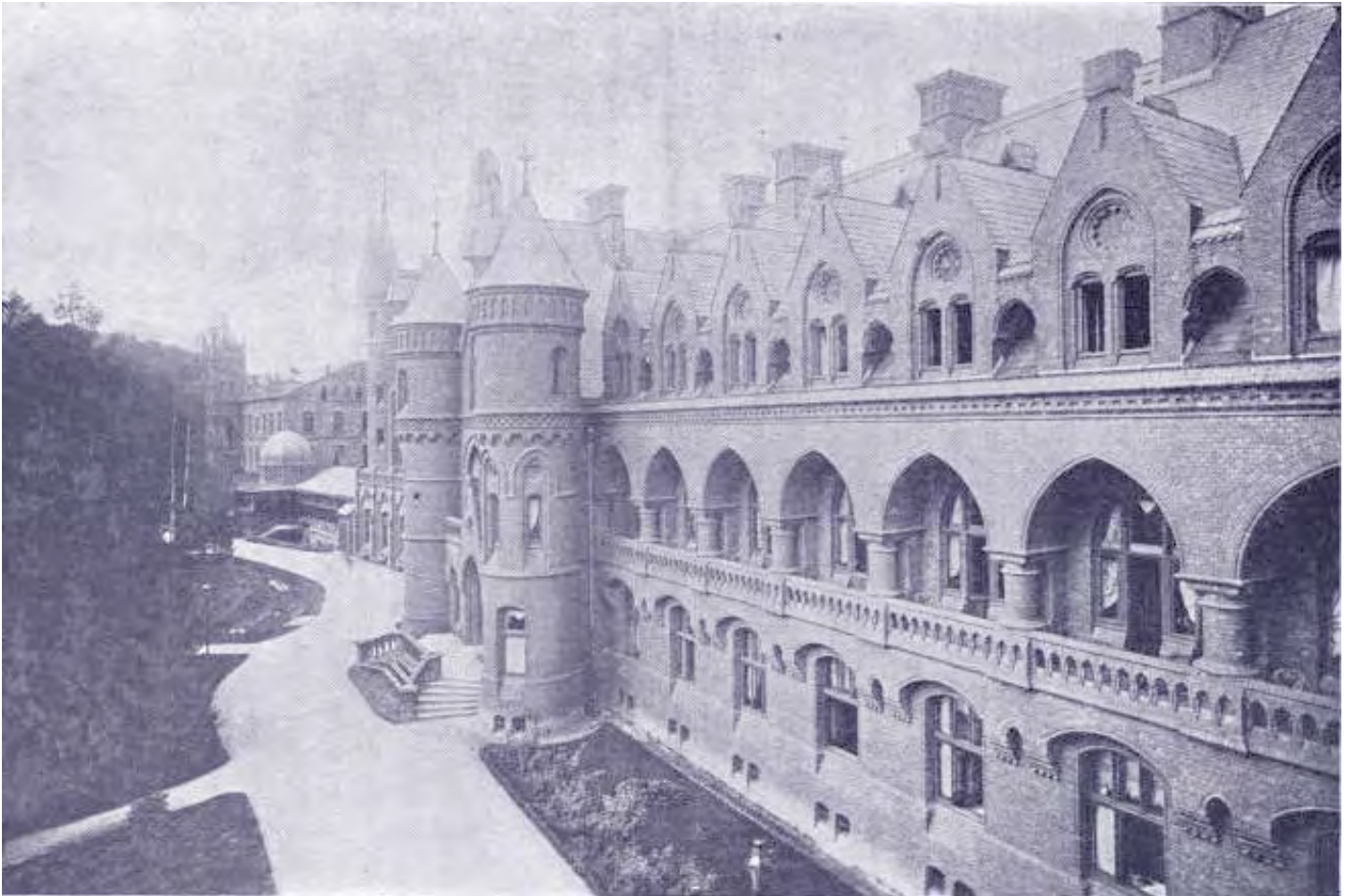
**Fig. 4.19:** TB sanatorium by Hermann Brehmer in 1854 in Gorbersdorf, Germany. Retrieved from Knopf (n.d.) (Edited By Author)

**Fig. 4.20:** Greenwich Hospital in 1694 by Sir Christopher Wren's. Retrieved from (Mens & Wagenaar (2010) (Edited By Author)
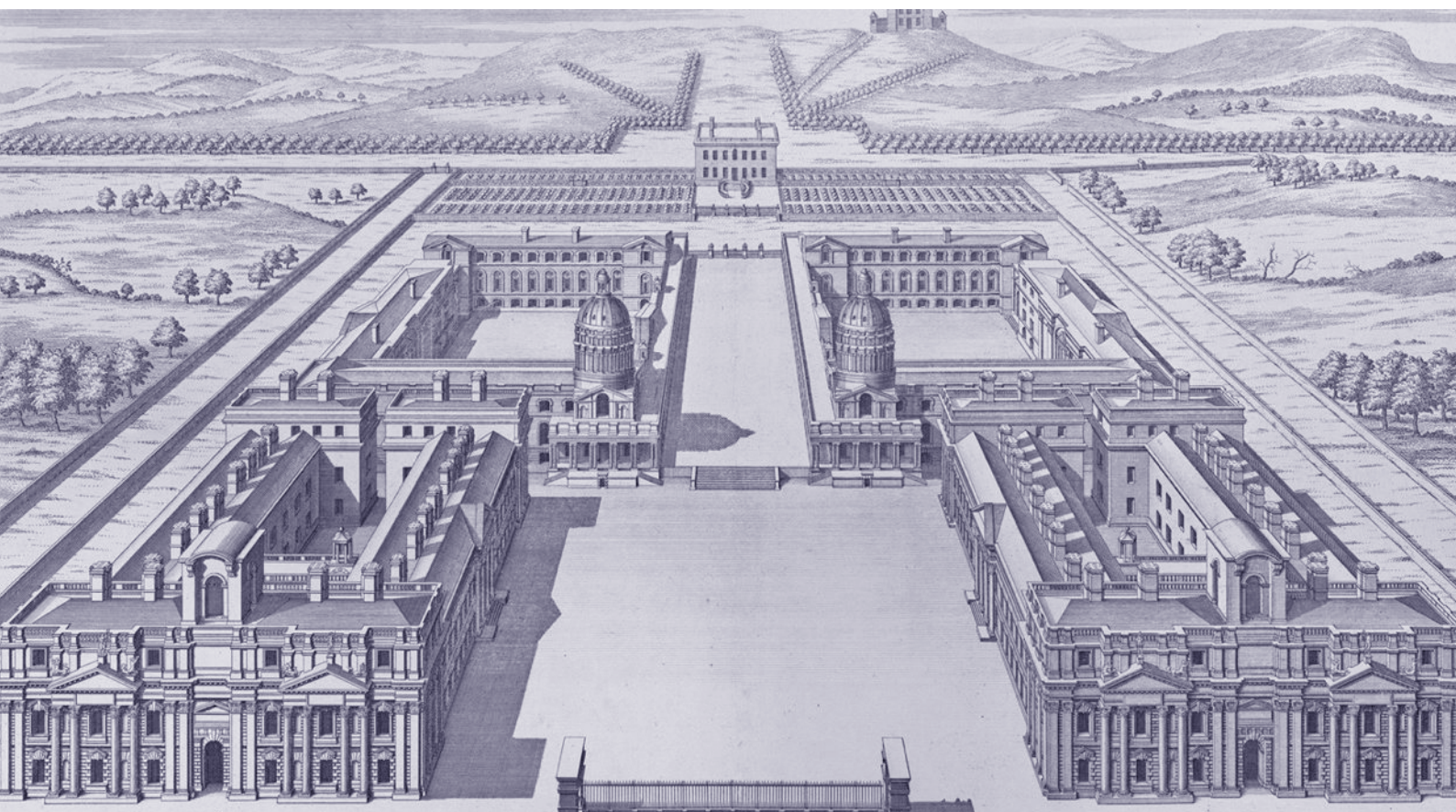
# 4.3.2
## Casestudy:
## Asahi Facilities Hotarugaike Dormitory
## KAEDE / Takenaka Corporation
### (Osaka, 2019)

Asahi Dormitory is situated in an old residential neighbourhood in Osaka, Japan. It is designed by Takenaka Corporation for the Japanese beer company Asahi. The project primarily caters to single employees with a strong emphasis on building connections. The main objective of studying this building is to assess how cavities can be made through the building's morphology, to be able to create more architectural variations through Thamerdijk's urban tissue.

The building encompasses six three-story sections that surround an open central courtyard. It features collective living spaces that serve as living rooms that encourage residents to explore their hobbies, and lifestyles, and establish close relationships with their neighbours and private dwelling units that share a kitchen. The layout promotes natural ventilation and sunlight by having openings from all four sides: including the building's circulation routes.

* Project information text referances Co (2019)



**Fig. 4.21:** Gallery spaces found within the housing complex. Retrieved from Tapia (2022) (Edited By Author)
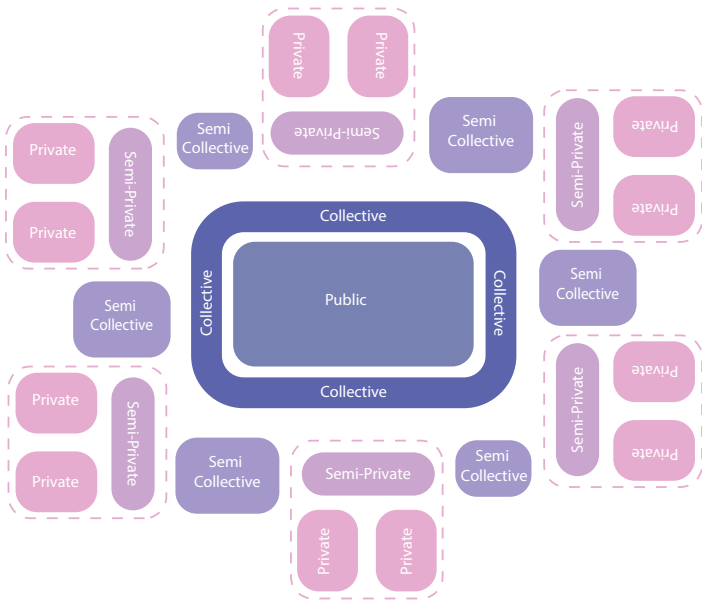




**Fig. 4.22:** Diagram showing the various degrees of thresholds found in dwelling and building scale (By Author)

**Fig. 4.23:** (By Author)
# Floor Plan
Typical Floor Plan
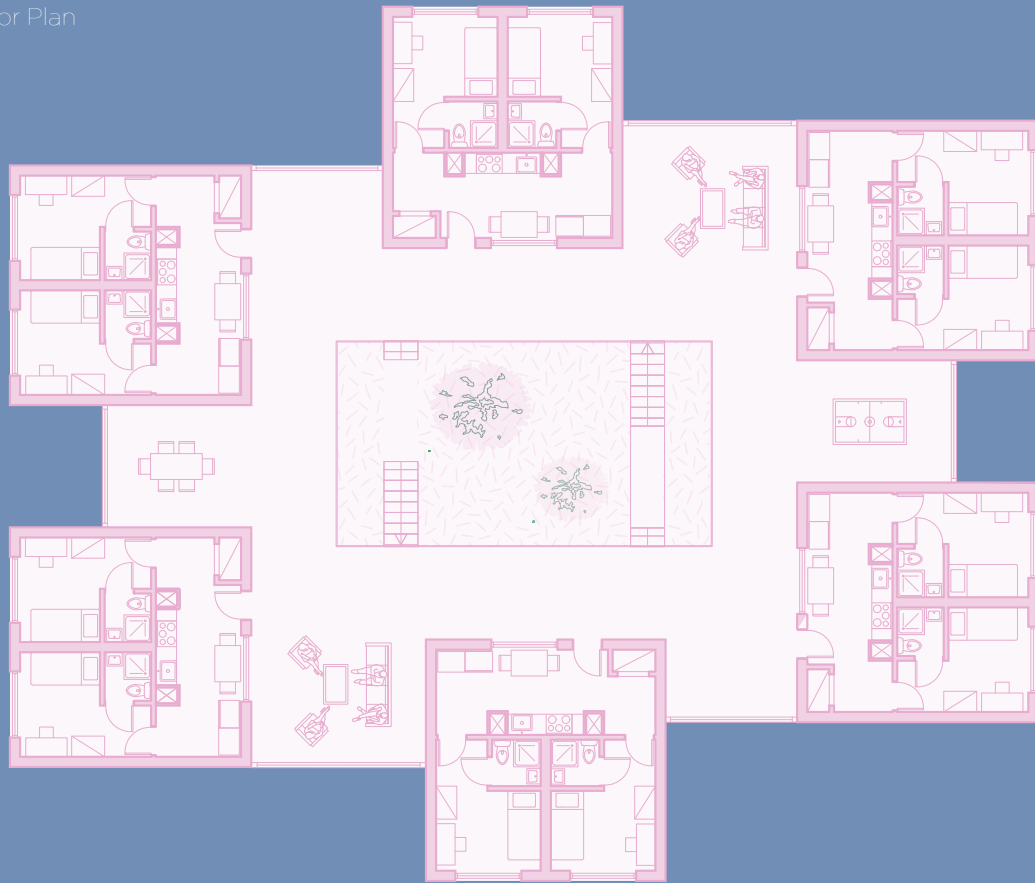


**Fig. 4.24:** Section Underlayed from Co (2019 (Diagram By Author)
# Section

Private Dwellings

Open Courtyard
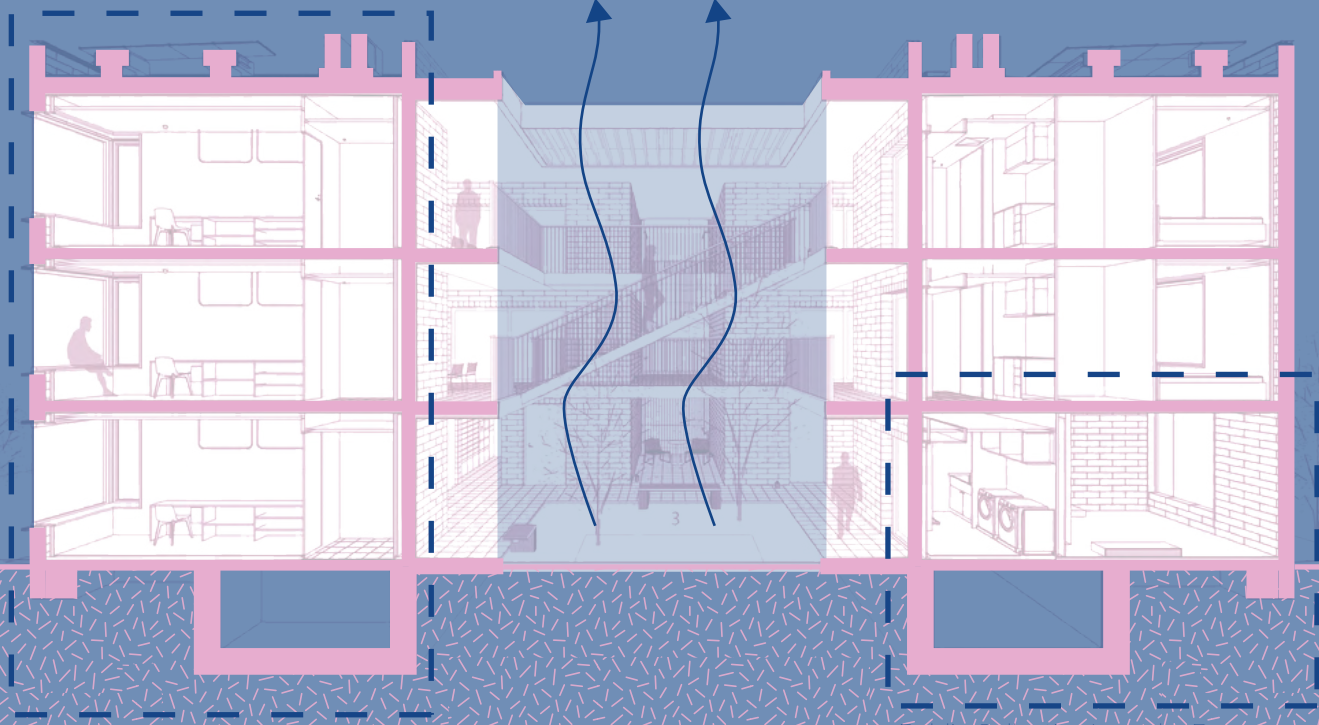


Public Collective Laundry Rooms

# Dwelling Scale

From previous sections, a common theme in harbouring a sense of community within the residents and reducing loneliness is to provide shared spaces that allow for moments of encounter. For instance, communal spaces like gardens have been effective in bringing some of the residents together to help alleviate social isolation. This chapter will then be focusing on the final sequence "private" space through an analysis of the original floor to gain an understand on the architects original intentions and how this relates to feelings of isolation. Additionally, a study on cooperative living solutions within dwelling scale will be discussed to find solutions to integrate new target groups that could potentially alleviate urban loneliness in Thamerdijk.

# 5

"Preservation of our future democratic society could be achieved through cooperative habitation."
(Müller et al., 2017)

# 5.1
## Site Observations
# Double Edged Loneliness



**Fig. 5.1:** Sketch of objects found on the balconies of the residents of Thamerdijk (By Author)
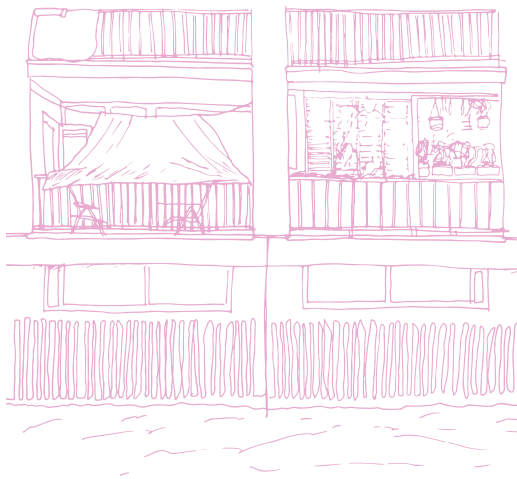


**Fig. 5.2:** Sketch of balconies being converted to extra rooms and decorated with planters in Thamerdijk (By Author)

The analysis of the existing dwelling plans began with a visit to the Rotterdam archives to gain a better insight into the architects' original intentions, as previously mentioned in Chapter 4. Each floor of the Dura-Cogneit construction module consisted of two flats that shared a staircase. Both flats allocated identical household functions like the kitchen, toilets, wet rooms, terraces, and living rooms in terms of space, but they differed in the number of bedrooms. The largest apartment (83.6 m2) consisted of three bedrooms and was intended to house five persons, whereas the other was a two-bedroom flat (70.9 m2) for three persons. This was discovered by examining the number of beds shown in the original drawings.

The dwellings had two drawbacks. The first was that they were under-occupied, which was mentioned by some of the elderly residents during the observation study. Many of them lived alone, and are a significant portion of Thamerdijk's population. On the other hand, many residents with children, including single parents, experienced overcrowding, as observed by the closings of their terrace space to expand their homes or by utilising it for additional storage. This was despite the ground floor providing shared storage facilities and garages.

Keller et al. (2022) conducted a study that assessed 69,136 individuals from three different European countries: Denmark, France, and the UK, during the COVID-19 pandemic. Their objective was to find a correlation between different housing aspects and loneliness. Keller et al. (2022) dichotomized two variables: the average floor space per person in the EU (43 m2) and age (less than and above the age of 25). Concerning household density, they found that both men and women above the age of 25 experienced lower levels of loneliness in dwellings of more than 43 m2 compared to young people who experienced lower levels of social isolation in smaller living spaces. However, all age groups, regardless of their gender identity, experienced high levels of loneliness if they lived alone. When we consider the architect's original intended number of persons per flat type, each person would only have 16.72 m2 in the larger flat and 35.45 m2 in the other, indicating that the design failed to stimulate social interaction.

Another indicator emerged through conversations with the elderly residents in the common garden between Hordijkveld and Reyeroord, who currently lived in the stamp. They stated that they do not properly know any of their neighbours within the building block, except for those living in front of them. They elaborated that they also did not really want to get to know their neighbours, which indicated a sense of hypervigilance provoked by loneliness, as mentioned in Chapter 1 by Weiss (1970). Furthermore, they complained that the children are not looked after by their parents, due to the social disturbances they cause in the neighbourhood.

The assessment and research conducted led to an intergenerational co-housing approach as the appropriate

method for restorative dwelling design in Thamerdijk; due to the psychological benefits that young children have on the elderly. In addition, this technique would not only help foster more positive social relations among the existing residents but also allow for the introduction of new target groups to diversify the community.

Reconfiguring the existing dwellings can potentially be a cost-effective densification strategy, by integrating shared spaces that allows for more people to live per person in smaller more efficient housing. Furthermore, the new buildings can be more unique in spatial configurations in terms of more degrees in shared dwelling functions that are attractive to younger target groups.
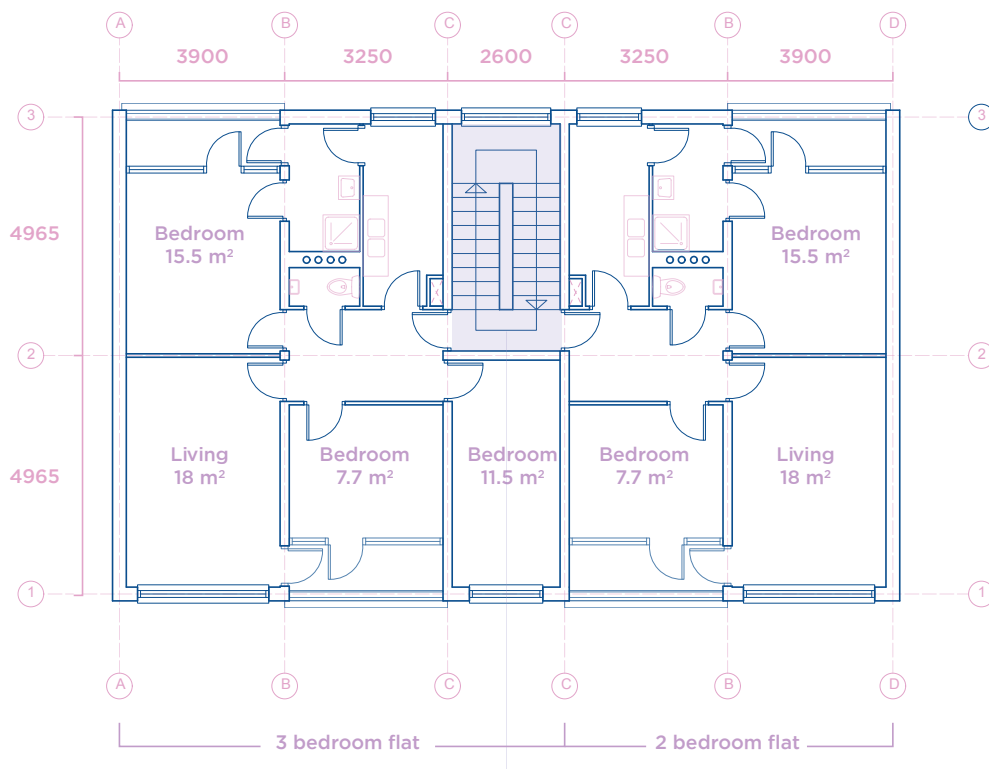


**Fig. 5.3:** Schematic floor plan of the existing situation (By Author)
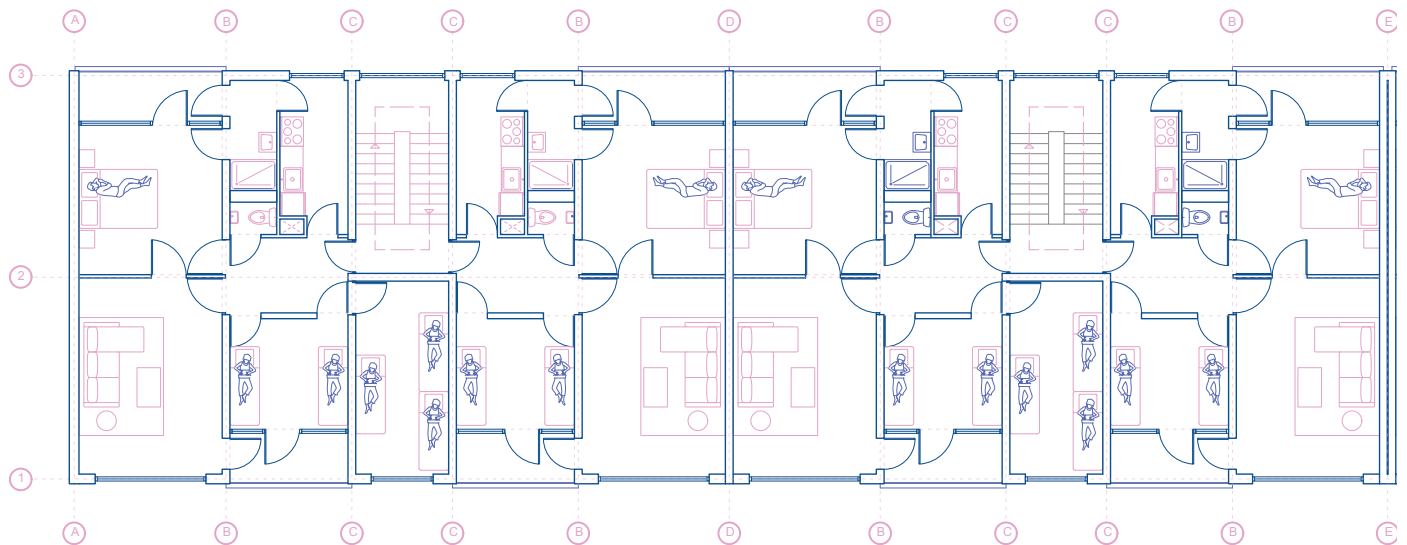


**Fig. 5.4:** Floor plan of the existing situation with the originally intended number of persons (By Author)
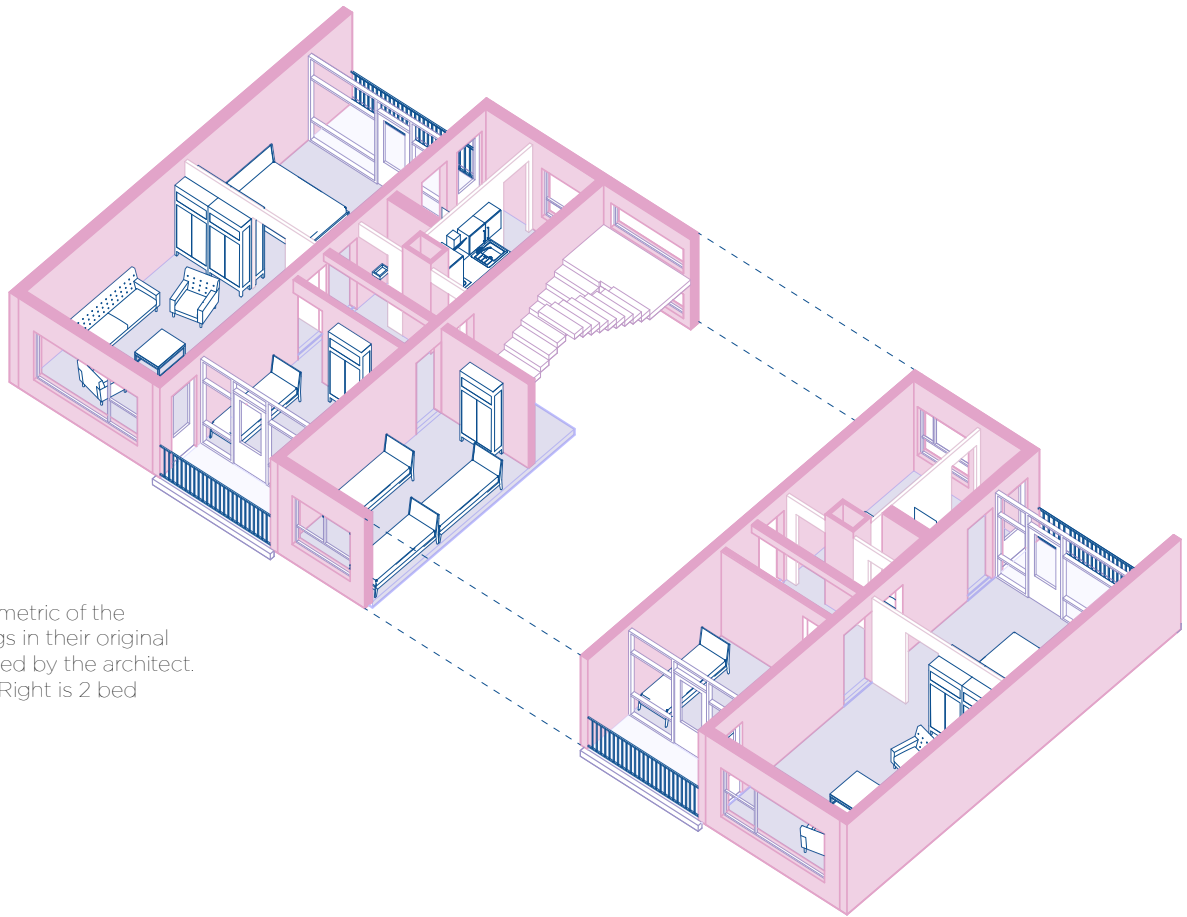
**Fig. 5.5:** Axonometric of the existing dwellings in their original layout as intended by the architect. Left: 3 bed and Right is 2 bed (By Author)
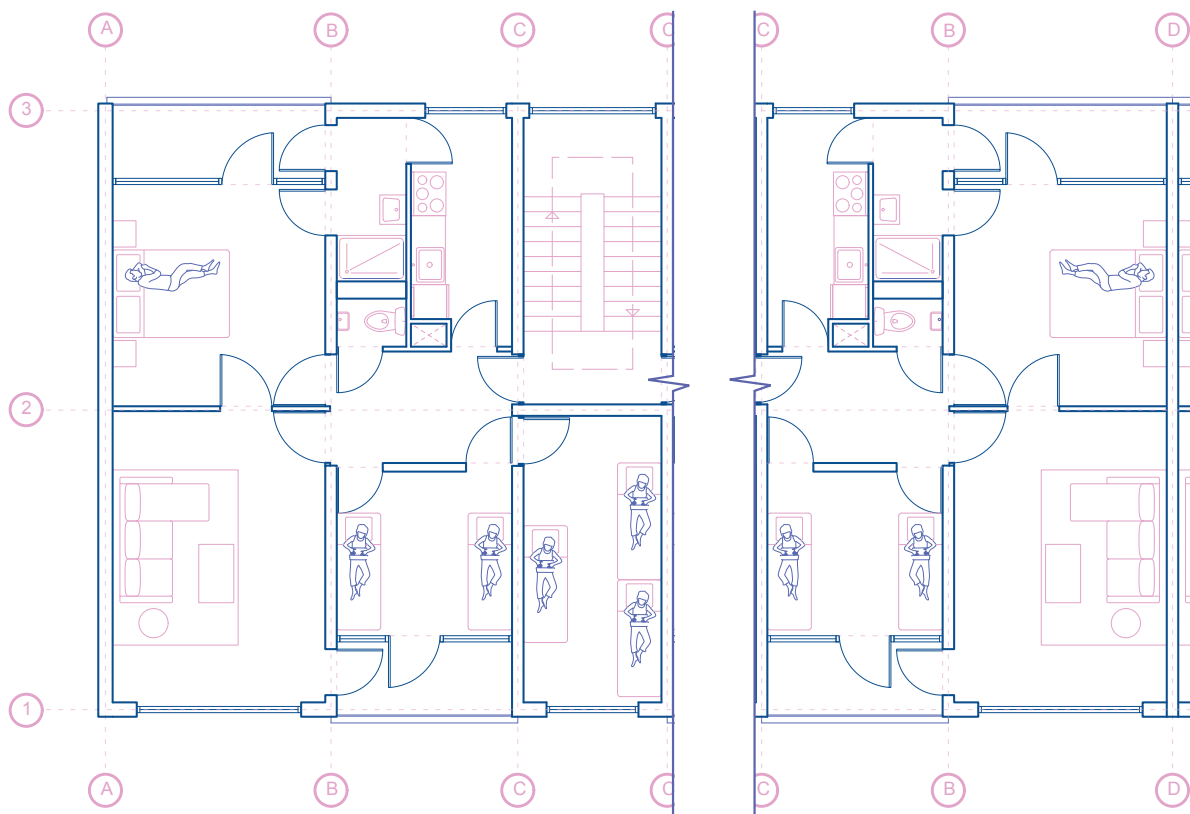


**Fig. 5.6:** Plan of the existing dwellings in their original layout as intended by the architect. Left: 3 bed and Right is 2 bed (By Author)

# 5.2
# Cooperative/ Co-Living Solutions



Storage Spaces

Studio - Workshop

Eating Meals

Carpool

Meeting Rooms

Childcare

Shared Showers

Bedroom

Total Privacy

Sleeping

Bathroom

Kitchen

Guest Rooms

Play Spaces

Shared Toilets

Cooking

Living Rooms

Garden - Land
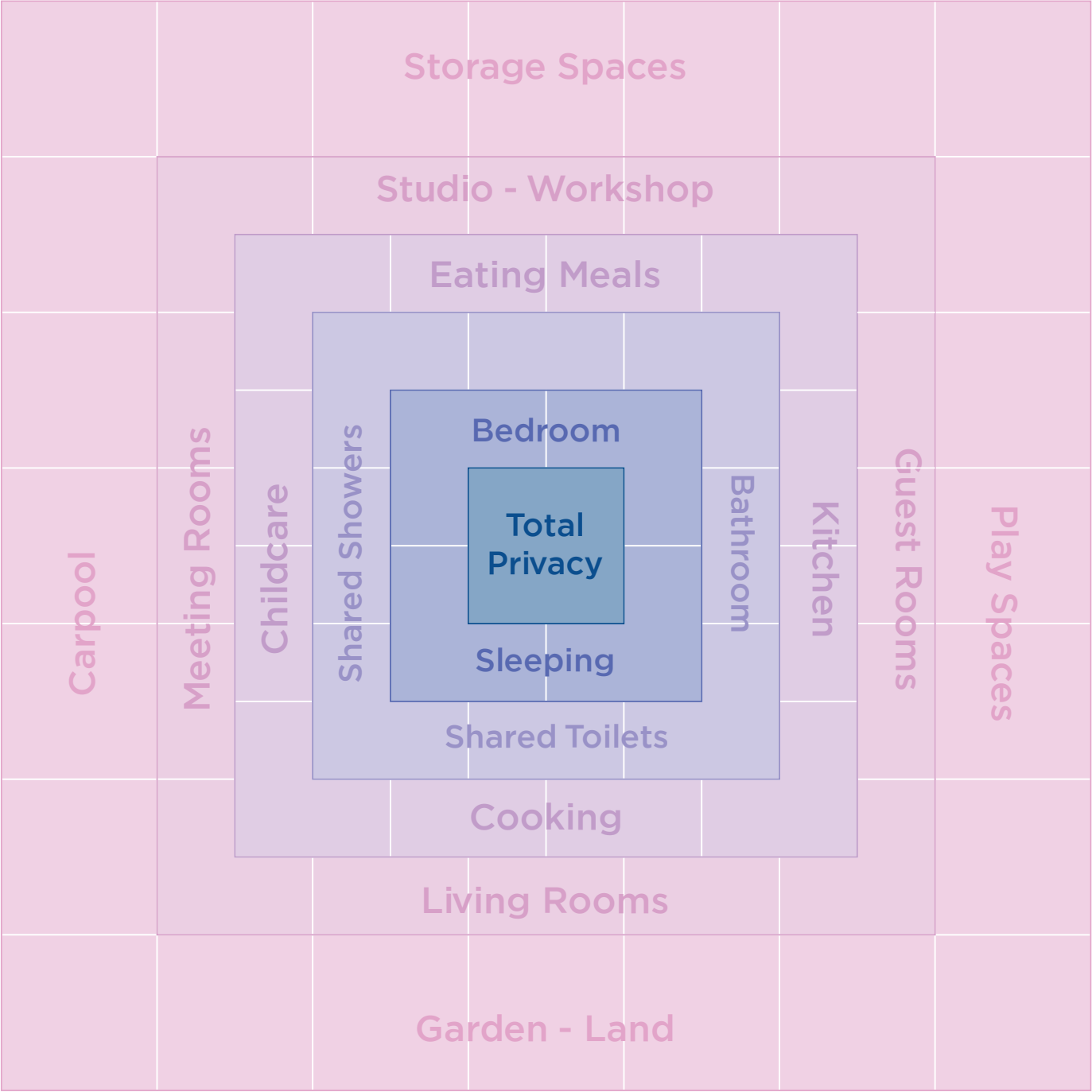
**Fig. 5.7:** Diagram of the various housing amenities placed in various degrees of sharing (By Author)

The ideology behind Co-Housing began in 1967 in Denmark where journalist Bodil Graae advocated for shared child-care responsibilities (Ahn et al., 2018). This idea gained momentum when a group of friends, faced a shared predicament in their living situations; where they faced social issues such as loneliness due to their busy routines that encompassed work, cooking, cleaning, and washing (Fromm, 1991). Furthermore, their children were isolated, as they lived in either remote suburbs or densely populated urban areas preventing them from making friends their age (Fromm, 1991). Over time, numerous projects emerged, shaped by architects such as Jan Gudmand-Hoyer, refined by Tegnestuen Vandkunsten, and guided by the programming expertise of Jan Gehl and Hans Skifter Anderson (Durrett, 2022).

The Danish model inspired similar initiatives in European cities that faced issues like the housing crisis, lack of affordable options, land accessibility issues, or gaps between social and private housing (Ahn et al., 2018). Similarly, in the Netherlands, collaborative living, known as Centraal Wonen, began in 1969 when Lies van Dooremaal's newspaper ad sought housing with shared amenities to alleviate isolation among working mothers balancing childcare and work (Fromm, 1991). This advertisement generated enthusiastic responses, particularly from singles, single parents, and the elderly, who were drawn to the potential of sharing amenities, management, and increased social cohesion (Fromm, 1991). The Dutch version of cohabitation is regarded as a rental alternative that functioned as a tool that reformed society (Fromm, 1991). The National Association questioned the loneliness brought about by the nuclear family structure and often proclaimed that it was "for the emancipation of man, woman and child" (Fromm, 1991).

There are multiple benefits to using shared living solutions for densification. For example, In the United Kingdom, co-living is used to tackle London's housing shortages, high rent and combat the rising levels of loneliness (Ahn et al., 2018). Due to its flexible living solutions, it anticipates shifts in lifestyle trends such as working from home, living alone and single-parent households across various age groups that the traditional nuclear family housing often lacks, and leads to social isolation (Müller et al., 2017) Furthermore, recent cohousing developments prioritize common spaces, which has the effect of reducing the size of individual dwellings by sharing functions like dining areas, kitchens, and living rooms (Fromm, 1991). This change towards more compact individual dwellings and symbiotic interactions with common areas contributes to sustainability efforts, reducing carbon footprints (Durrett, 2022). Cohousing not only empowers residents and alleviates loneliness but also fosters social bonds through collaborative problem-solving (Ahn et al., 2018).

# 5.3
# Creating Socially Sustainable Communities



**Fig. 5.8:** Lively streets for children in Jystrup Savværk. Retrieved from Fromm (1991) (Edited By Author)



**Fig. 5.9:** Diagram of a collective kitchen and dining room (By Author)

## Participation

In collaborative developments, the essence of a community emerges prior to the initiation of the design process, encompassing aspects such as membership, influence, the fulfilment of needs, and a shared history (Fromm, 1991). Per et al. (2011) also state that users have individual and unique needs that should be carefully assessed before designing. So, If the design experiment were to succeed, a degree of participation would be required to avoid socially engineering spaces seen in Modernist design practices.

Due to this, a bottom-up approach was used within the ethnographically inspired research, where one of the questions was "What housing facilities would you be willing to share?". This would then give insights into the degree of sharing needed for every target group. From my own findings, younger individuals are more willing to share household functions such as bathrooms and kitchens, while older people prefer meeting rooms, garden spaces, childcare, or storage spaces. Finally, the elderly preferred to share none. The following then shapes the collective functions that encompass the design. It is also important to note that a similar approach should be given towards the ground floor's public functions.

## Clustering

Clustering is the design practice in which apartments are grouped together around a common shared space.  Müller et al., (2017) suggest that the most effective way to cluster is through subdividing four or five studios that are equipped with their own private kitchen and bathroom ranging from 20 to 35 m2 in a total area of 250 to 400 m2. Furthermore, common areas should then be strategically located to facilitate social interactions while allowing residents the choice to retreat to their private spaces when desired. Apartments must also be grouped around common shared interests to prevent social clashes.  In addition, clusters should maintain the same number of units with the number of individuals to avoid overcrowding. By utilising this model, Müller et al., (2017) states that it enables collective housing to function as self-sustaining micro-communities within the larger urban environments without compromising social sustainability.
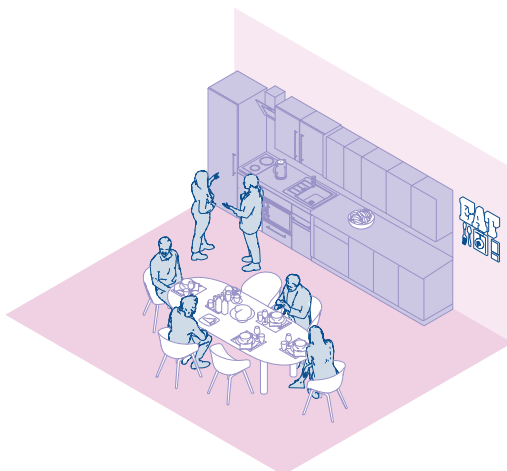
## Cooking and Dining

One of the essential Fundamental elements of creating a strong sense of community is the act of cooking and dining together (Fromm, 1991). To reinforce social bonds and facilitate communal living, housing designs should combine the clustering method and common kitchens into their layouts, this encourages residents to connect while preparing and sharing meals (Müller et al., 2017). From my own experience, common kitchens help break down social barriers with people you would not regularly speak to, which can lead to lifelong friendships. For this reason, a well-ventilated kitchen is instrumental in promoting and nurturing cooking activities (Per et al., 2011).
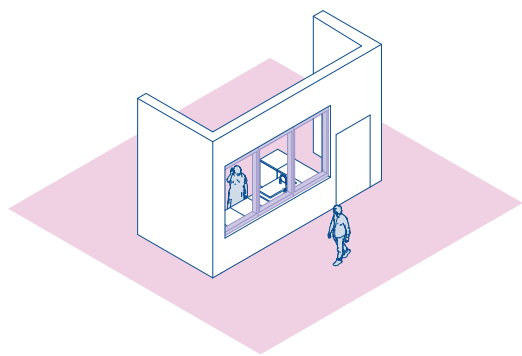
**Fig. 5.10:** Diagram showing visual transparency (By Author)

## Visual Transparency and pedestrian pathways

As explained in Chapter 3, utilising the verticle human scale visual contact can be maintained on the street. Durrett (2022) elaborates that it helps reduce construction costs, and is an inexpensive way to design. In addition, high-functioning intergenerational living is achieved by allowing neighbourhood streets to be more child-friendly, as children play a role in bringing the community together (Durrett, 2022). By dwelling functions such as private and shared kitchens at the front of the dwelling with large windows that monitor circulation spaces and public pedestrian pathways, repeated visual contact may then lead to social engagements that start with a smile, then a wave then finally to a "hey how are you". Thus, improving social sustainability.
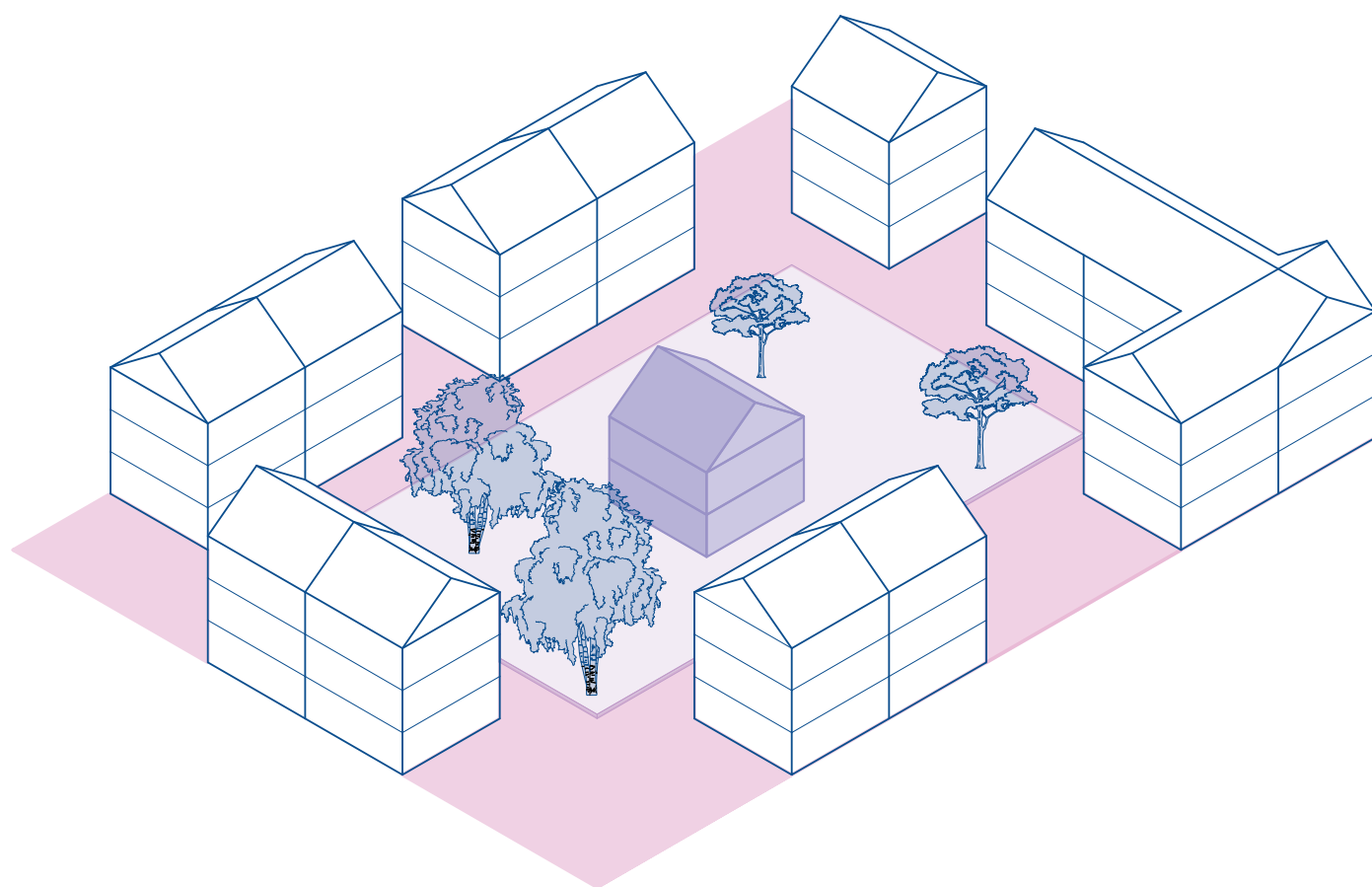


**Fig. 5.11:** Common house allowing for a building that ties the surrounding communities together (By Author)

# 5.3.1
## Casestudy:
# Sættedammen
## Theo Bjerg
(Hillerød, 1969–72)

Sættedammen, designed in 1972, is Denmark's first collaborative development, which consisted of private row houses that surrounded shared facilities in a separate communal building (Fromm, 1991). It was created through the collaboration of 50 families in Hilerod, Copenhagen (Ahn et al., 2018). This project sets itself apart from other traditional affordable housing by incorporating various amenities found in civic centres into collective spaces, such as darkrooms, soundproof music rooms, communal spaces for teenagers, meeting rooms swimming pools, gyms, guest rooms, and tennis courts (Fromm, 1991).

The users' homes are designed to incorporate all the regular features of typical dwellings, such as private kitchens, living-dining areas, bedrooms, and bathrooms. However, a distinctive feature is the strategic position of the kitchens and dining rooms being placed at the front of the house, which provide visual contact to the communal areas (Fromm, 1991). This allows parents to both work in the kitchen and keep an eye on their children. To ensure privacy, bedrooms and living rooms are positioned at the rear of the dwellings (Fromm, 1991).

To promote resident interaction, the project prioritizes walking, requiring residents to park their cars at the site's periphery, which allows for social encounters with neighbours and provides child-friendly streets to both play and freely visit friends in the neighbourhood (Fromm, 1991). Furthermore, a seamless transition is made from public, semi-private, and private spaces, while remaining connected to communal activities using porches and front yards.



**Fig. 5.12:** View of the front porch of one of the row-houses found in Sættedammen. Retrieved from Hawkes (2022) (Edited by Author)
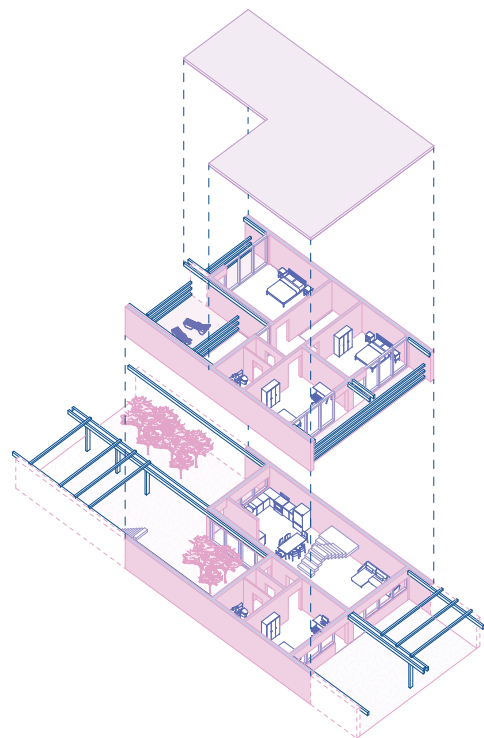


**Fig. 5.13:** Axonometric of a typical row house found within the co-housing community (By Author)

**Fig. 5.13:** (By Author)
## Site Plan:

| | |
|---|---|
| Private | |
| Common House / Collective | |
| Parking | |
| Green Spaces | |
| Spaces Of Encounter | |
| Site Boundry | |
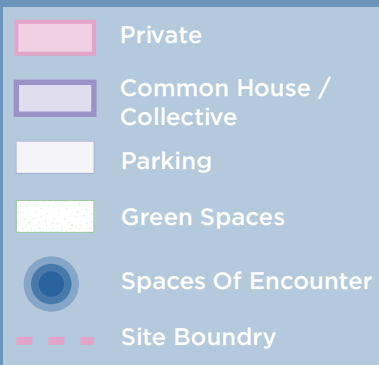
**Fig. 5.14:** (By Author)
## Floor Plans:

Ground Floor

1st Floor

**Fig. 5.15:** (By Author)
## Common House Facilities:

1- Dining/Meeting Room     6- Game Room
2- Common Kitchen          7- Laundry Room
3- Entrance Hall           8- Showers
4- Teen (Billiards) Room   9- Sauna
5- TV Room                 10- Bathroom
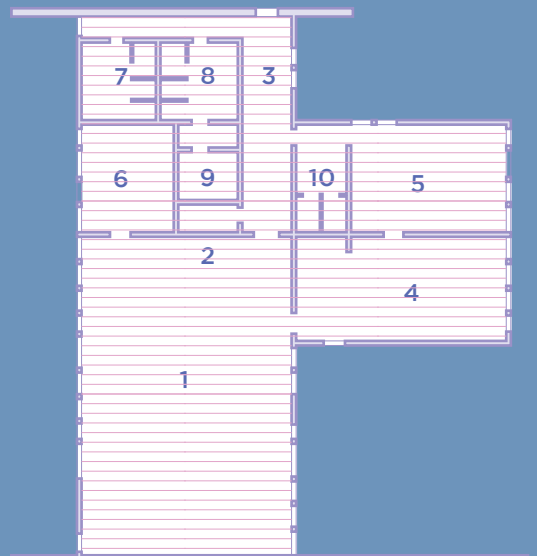
# 5.3.2
## Casestudy:
# Hilversum Meent
## Leo de Jonge &
## Pieter Weeda
(Hilversum, 1970–77)

Hilversumse Meent in the Netherlands' first co-housing project. The concept emerged in the mid-1970s due to public land ownership and a significant portion of social housing stock in Amsterdam (Ahn et al., 2018). It was designed for a community of 24 singles, 11 single parents, 6 couples, and 13 teen couples (Fromm, 1991). It was made on the shared vision of creating a community where the residents could lead less isolated lives (Fromm, 1991). Due to the strong participation of the inhabitants during its development process, it influenced the architectural design to align with their objectives (Fromm, 1991).

The clusters are organized into four or five apartments, with smaller versions of common kitchen and dining facilities shared between these households. By being able to share small responsibilities such as chores in smaller groups, it enhanced the sense of community among residents. However, due to redundancy in the collective functions, the clusters were not efficient which made it difficult to supervise children from this space. This is seen through the presence of 10 common kitchens and the need for two different types of meeting areas, one for the cluster and one for all residents (Fromm, 1991).

The clusters are intentionally integrated with the surrounding neighbourhood and are located along two pedestrian streets that are open to the public, forming a central square on the site (Fromm, 1991). In addition, the project addresses the public street through its facade design that visibly highlights the shared common spaces and the clubhouses (Fromm, 1991).

While residents worked with a non-profit organization during the development, some of their needs were met. This led to the dwellings being designed with the potential to be converted back into regular houses (Fromm, 1991). The clusters have evolved into a form of extended family, offering a sense of sensitivity and nurturing towards individuals, much like traditional families (Fromm, 1991). However, some residents in Hilversum felt confined within their clusters (Fromm, 1991).



**Fig. 5.16:** Project photograph. Retrieved from BV Intersell (n.d.) (Edited by Author)

**Fig. 5.17:** (By Author)
## Site Plan:



Private

Common House /
Collective

Collective Kitchen

Collective Green
Spaces

Spaces Of Encounter

Site Boundry

N
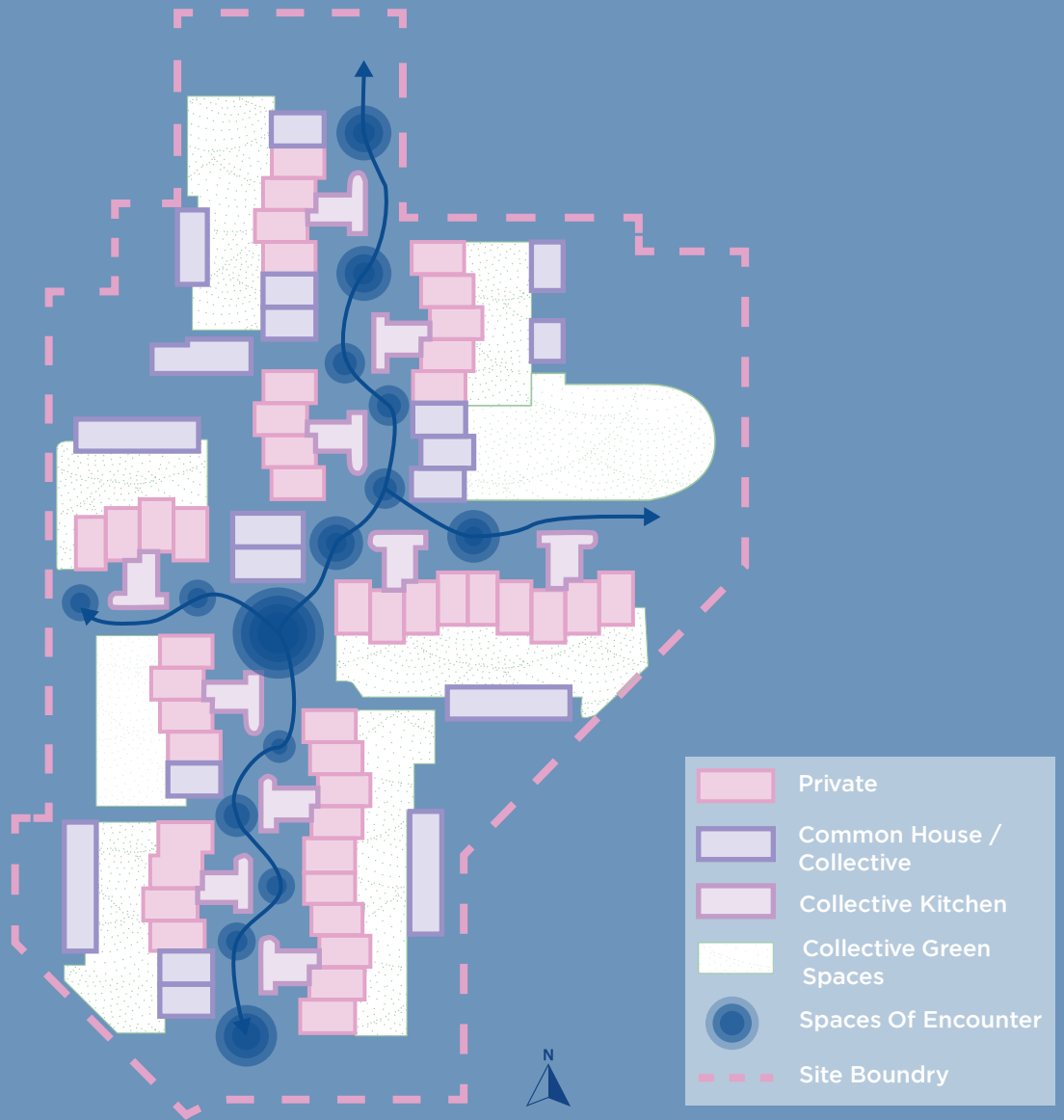
**Fig. 5.18:** (By Author)
## Floor Plans:

Typical Floor Plan
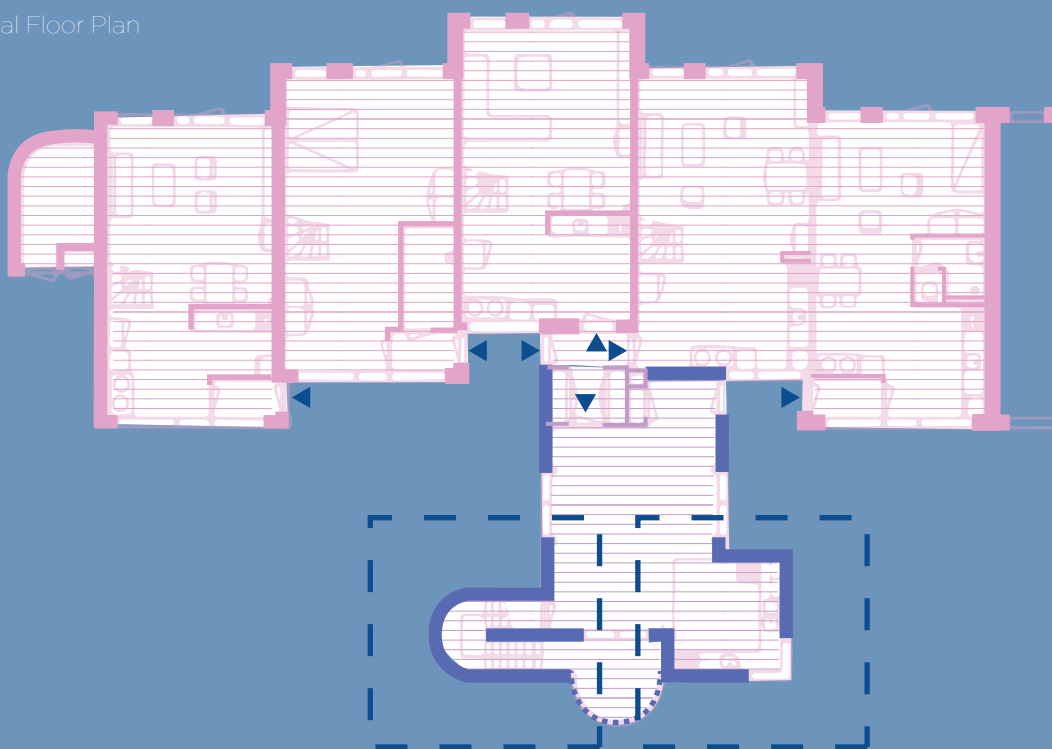


Collective Kitchen and Circulation

# Discussion and Conclusion

The main takeaway from this research is to understand the roles and responsibilities that the architect must follow when designing socially conscious spaces. The architectural discipline in the 21st century, both in practice and education prioritises capitalist approaches by placing the developer as the main and only stakeholder/client when designing both civic and housing schemes. Dwelling efficiency is stressed on quantity rather than quality by favouring high-rise densification solutions that exuberate loneliness levels within the urban grid. The topic of context becomes limited to aesthetical or material values rather than the needs and wishes of the actual users themselves.

# 6

Together, density is home.

# 6.1
# Restorative Densification
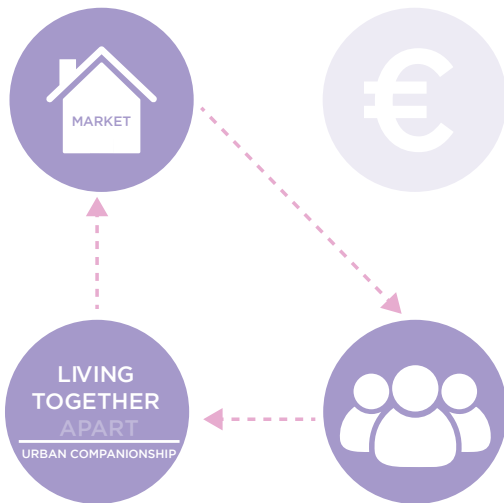


**Fig. 6.1:** Conclusion To Alleviate Urban Loneliness (By Author)
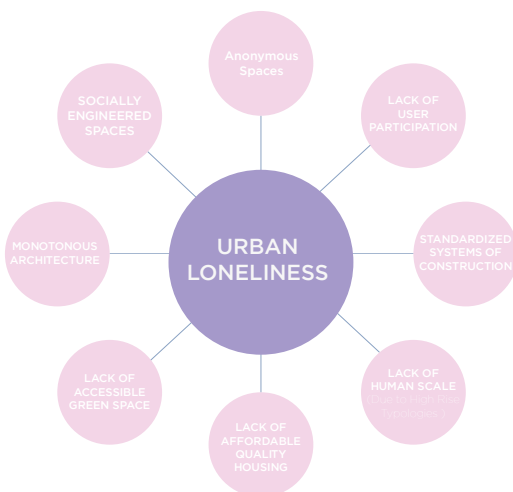


**Fig. 6.2:** Conclusion of History Findings (By Author)

Before the two industrial revolutions, architecture and social values existed in a delicate equilibrium; where design harmoniously embraced nature, leading to improvements in the general health of its users. However, due to the rise of machinery and factory-based labour migration towards cities which resulted in poor living conditions that affected both the physical and mental health of their population. Many historical examples not discussed in this graduation report, such as New Larnak, played a pivotal role in the importance of placing the focal point of design on the user experience. Earlier 20th century utopian ideologies such as the garden city movement attempted to bring this notion back but failed due to ownership and its rigid definition of communal space that didn't allow for communities to form. Moreover, as time progressed, technological advancements evolved and multiple wars occurred later where many of the design principles and strategies favoured by practitioners during the 1960s were standardised systems of construction placed in socially engineered civic spaces. This further increased the distances between individuals which allowed for loneliness to manifest within these new neighbourhoods.

The green space in Groot-IJsselmonde is a perfect example of a socially engineered space that assumes public life can take form by applying a large square between four large building blocks. Within the study, multiple findings in both theory and case study analysis indicated that breaking down the space and creating thresholds of various degrees of privacy is favoured to allow for positive social engagement among its users. Jan Gehl's study displayed that the loss of human scale within the urban tissue can hinder feelings of security and trust among the residents, which is a contributing factor to high social isolation levels. With the existing neighbourhood designed for car-based movement, prioritising short walkable spaces instead for children and the elderly can help stitch the community back together. Projects such as the dementia village or the elderly healthcare facility by Herman Herzberger introduce different possible morphologies for new dwellings to be placed to accommodate this densification-rejuvenation scheme.

Nonetheless, residential units are designed with the very principles of the modernist movement that prevented positive social sustainability for its residents. Feelings of anonymity and monotony provoked by the homogenous façades of the existing building blocks. Both Transformation and new build are favoured in this example if they are built within five floors to maintain the notion of "Eyes on the Street" by Jane Jacobs. Transformation can take form through the attachment of balconies, interplay between materials or attachments of new circulation spaces to add a sense of playfulness within the existing structure. Specifically, in Thamerdijk, due to its predominantly elderly demographic, galleries that are arcades on the ground floor and shared balconies that are easily accessible meeting places in the private living quarters can be a adequate solution. This provides the potential to reduce loneliness and improve their general health. This coincides with the notion that galleries

function similarly to pavilion systems previously used by healthcare practitioners before industrialisation. Projects such as the Asahi dormitory gave insights into the potential in the various ways circulation spaces can inhibit different living spaces around clusters of dwellings.

In this scenario, dwellings are also subject to 'cost-effective' densification through the rearrangement of the floor plan layout of existing buildings, aimed at retaining some of the long-term residents who have likely inhabited the area for most of their lives. Intergenerational cooperative and co-living solutions can then be seamlessly integrated into the new neighbourhood, offering a range of shared living scenarios. The research provides insight that every target group, whether old or young, exhibits preferences for varying degrees of social interaction. The elderly tend to prefer more private spaces and larger dwellings, contrary to younger individuals who experience reduced feelings of isolation when living in closer proximity and engaging in more shared living arrangements.

Loneliness is experienced differently from individual to individual. Despite my own personal 'encounter' with feelings of isolation, a great deal of understanding and literary knowledge is required to reach appropriate design conclusions for the specific target groups you are designing for. For instance, within the study, collaboration and cooperation with the future and old residents was a reoccurring leitmotif throughout the chapters on designing spaces that generate high-functioning communities. It is essential to highlight that the exploration is limited by the time constraints of the educational period and the language barrier that made it difficult to gather more data on the existing target groups. Additional analysis and engaging with more people could still potentially lead to different results due to the subjective nature of the topic.

Overall, post-war neighbourhoods such as Groot-IJsselmonde are being subjected to densification. This is due to the housing shortage and the looming threat of the loneliness epidemic resulting from the global shift from the traditional nuclear family structure. The following investigation attempts to break our current design traditions by calling for a return to a bottom-up approach and social values. Thus, positioning the regular user, such as the student residing in the poorly lit studio, the elderly citizen facing isolation due to the lack of appropriate circulation spaces, or the single parent striving to balance both work and childcare, as the main client. Whilst "architecture and architects cannot solve all world issues", it is a powerful tool that can help benefit society and reduce feelings of isolation.
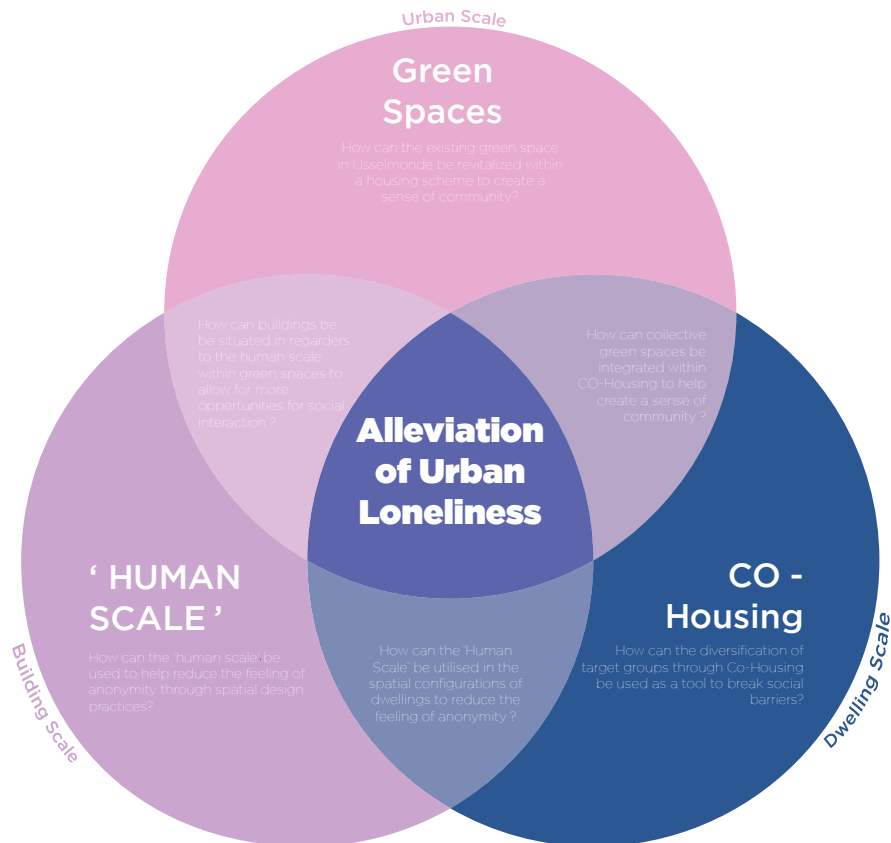
**Fig. 6.3:** Venn diagram showing the relationship between the three scales and alleviation of urban loneliness  (By Author)
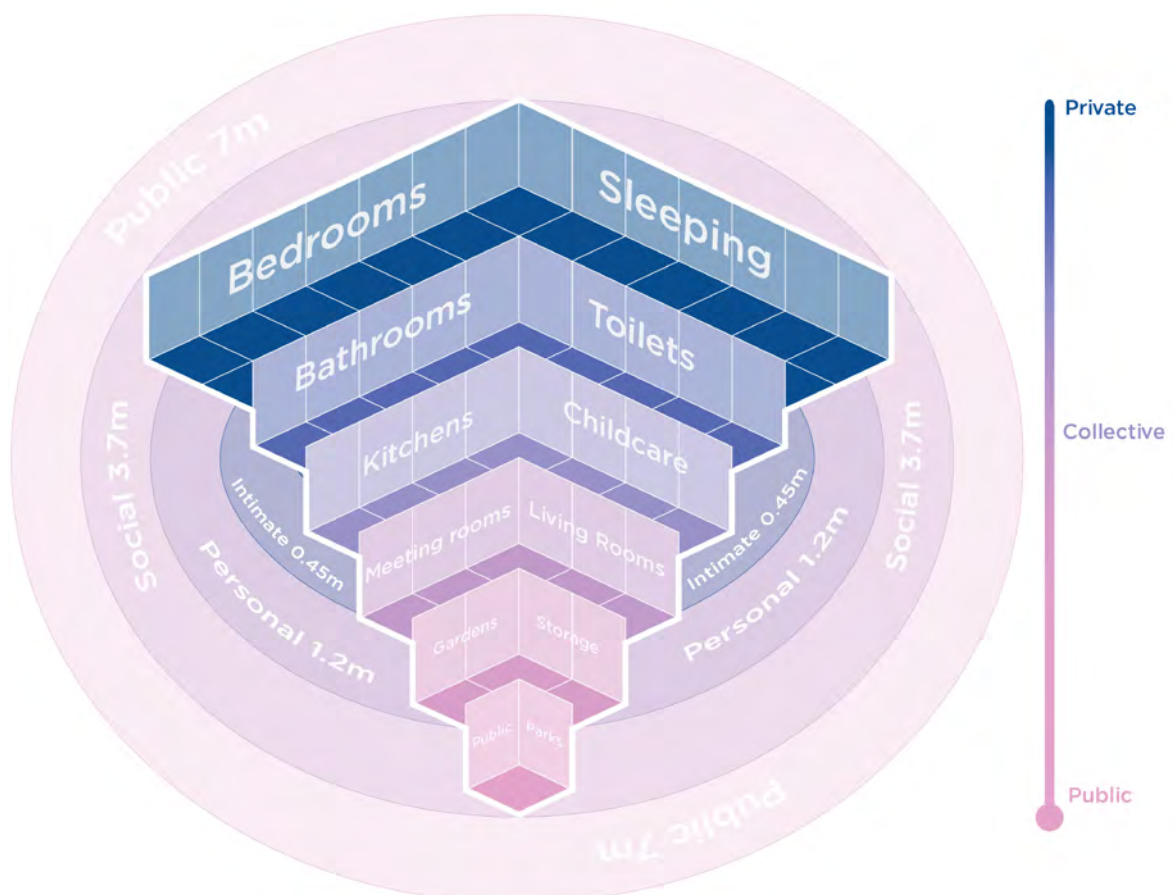


**Fig. 6.4:** Design Hypothesis / Degree Of Encounter Thermometer (By Author)

Wandelstraat

GENERAL LEATHER CO.

**Fig. 6.5 :** Manifesto Collage (By Author)

# Appendix

# 7

# 7.1
## 'Ethnographic' Inspired Questionnaire

https://forms.gle/ccnX3nyPkW3WZpx37

# HOE GOED KEN JIJ JE BUREN EIGENLIJK?

## Zou je soms willen dat je je buren wat beter kende?

Help mee om meer inzicht te krijgen in de leefkwaliteit en het gemeenschapsgevoel van Hordijkerveld !

**\*Scan De QR-Code voor meer informatie:**



'Ontmoetingen in de wijk' afstudeeronderzoek Architectuur aan de TU Delft

**Fig. 7.1: Advertisement** (By Author)

**Do you agree to participant in this voluntary anonymous online survey and consent to this opening statement?**

83 responses

- Yes
- No

100%
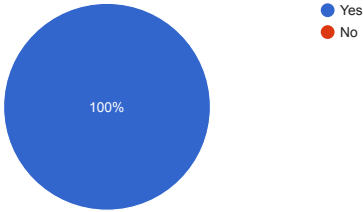
**What is your gender identity?**

83 responses

- Male
- Female
- Other
- Prefer not to say

69.9%
30.1%
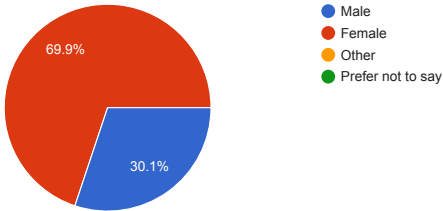
**What age group do you belong to?**

83 responses

- 18 - 25
- 26 - 35
- 36- 45
- 46 - 55
- 56 - 64
- 65+

8.4%
8.4%
28.9%
7.2%
38.6%
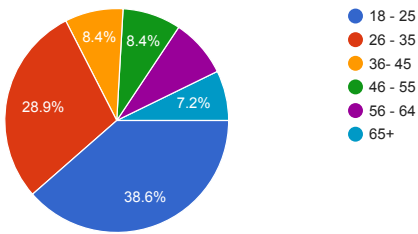
**Do you live in IJsselmonde?**

83 responses

- Yes
- No
- I live outside Netherlands

55.4%
43.4%

**Is your current country of residence your birthplace?**

83 responses

- Yes
- No
- Prefer not to say

59%
39.8%
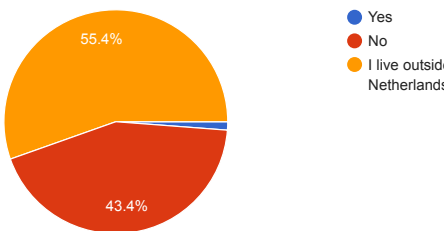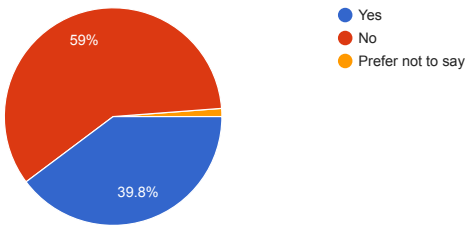
**Do you live in a post-war neighbourhood (neighbourhoods built 1950s to the 1970s)?**

83 responses

- Yes
- No
- Not sure

62.7%
19.3%
18.1%
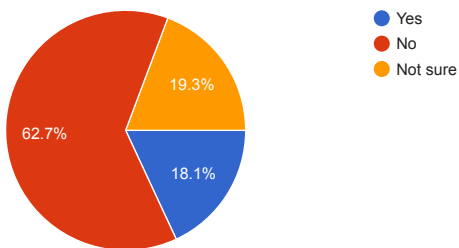
**What is your current occupation status?**

83 responses

- Employed
- Student
- Stay at home parent
- Retired
- Unemployed
- Prefer not to say

45.8%
8.4%
37.3%
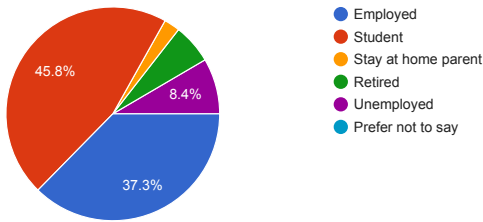
**Thinking of your household's total income, is your household able to make ends meet?**

81 responses
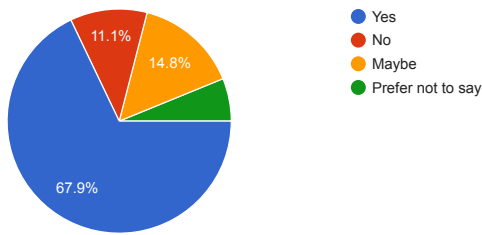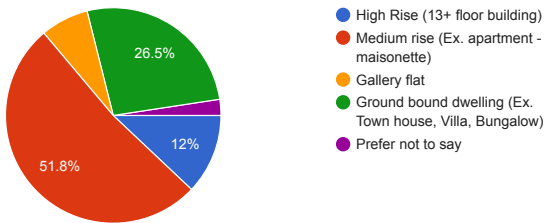
- Yes
- No
- Maybe
- Prefer not to say

11.1%
14.8%
67.9%

**What type of house do you currently live in?**

83 responses

- High Rise (13+ floor building)
- Medium rise (Ex. apartment - maisonette)
- Gallery flat
- Ground bound dwelling (Ex. Town house, Villa, Bungalow)
- Prefer not to say

26.5%
12%
51.8%

**Do you currently live alone?**

83 responses

- Yes
- No
- Prefer not to say

74.7%
25.3%

**Do you currently live alone?**

83 responses

- Yes
- No
- Prefer not to say

74.7%
25.3%
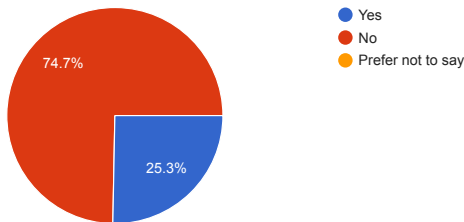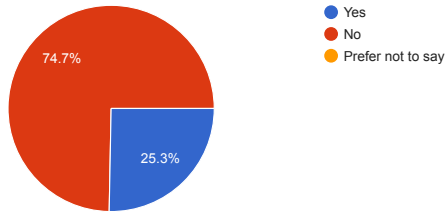
**Do you feel like you are part of a community?**

83 responses
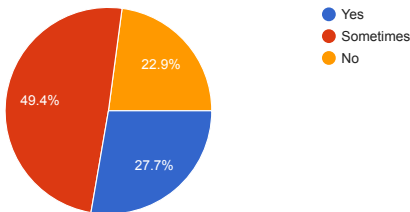
- Yes
- Sometimes
- No

49.4%
22.9%
27.7%

**Do you agree with this statement?**
*There are plenty of people that I can lean on in case of trouble in the area you currently live in.*

83 responses

- Agree
- Neutral
- Disagree
- Prefer not to say

44.6% / 28.9% / 26.5%

**Do you agree with this statement?**
*Someone in my neighbourhood would be willing to help me if I experienced antisocial behaviour.*

82 responses

- Agree
- Neutral
- Disagree
- Prefer not to say

37.8% / 40.2% / 22%
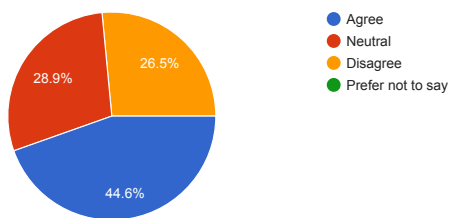
**Does it feel overcrowded where you live?**

83 responses

- Yes
- No

78.3% / 21.7%

**If yes, how often do you use these green spaces?**

83 responses

- Often
- Sometimes
- Never
- I do not live near green o spaces
- Prefer not to say

31.3% / 42.2% / 15.7% / 10.8%
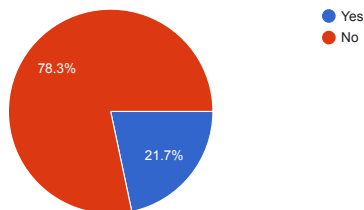
**Do you feel welcomed amongst your neighbours?**

82 responses

- Yes
- Sometimes
- No
- Prefer not to say

40.2% / 47.6% / 12.2%

**In your current place of residence, can you hear the sound of birds?**

83 responses

- Yes
- No
- Prefer not to say

84.3% / 15.7%
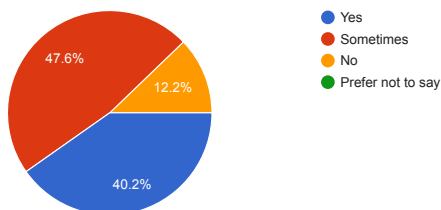
**How frequent are there instances of antisocial behaviour in your neighbourhood?**

83 responses

- Frequently
- Sometimes
- Never
- Prefer not to say

14.5% / 56.6% / 28.9%

**How often do you walk or participate in neighbourhood activities?**

83 responses

- Often
- Sometimes
- Never
- There are no walkable or neighbourhood activities in my area
- Prefer not to say

15.7% / 42.2% / 27.7% / 14.5%
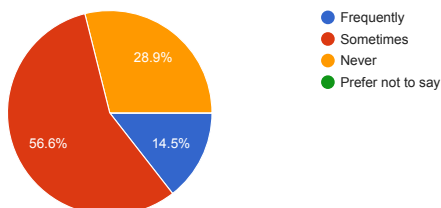
**Do you require a car to reach local amenities in your current place of residence?**

83 responses

- Yes
- No
- Bike

39.8% / 59%
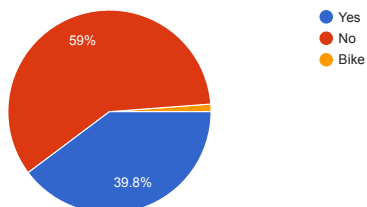
**In your current place of residence, can you see plants, trees or bodies of water?**

83 responses

- Yes
- No
- Prefere not to say

88% / 12%
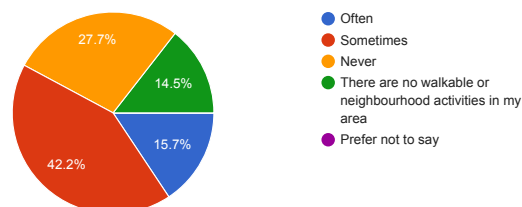
**What housing facilities would you be willing to share? (select multiple)**

83 responses
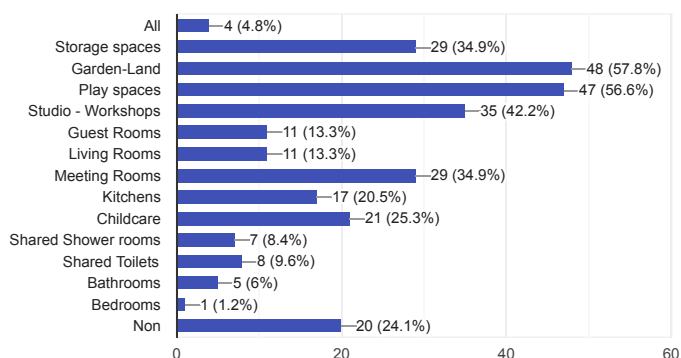


| | |
|---|---|
| All | 4 (4.8%) |
| Storage spaces | 29 (34.9%) |
| Garden-Land | 48 (57.8%) |
| Play spaces | 47 (56.6%) |
| Studio - Workshops | 35 (42.2%) |
| Guest Rooms | 11 (13.3%) |
| Living Rooms | 11 (13.3%) |
| Meeting Rooms | 29 (34.9%) |
| Kitchens | 17 (20.5%) |
| Childcare | 21 (25.3%) |
| Shared Shower rooms | 7 (8.4%) |
| Shared Toilets | 8 (9.6%) |
| Bathrooms | 5 (6%) |
| Bedrooms | 1 (1.2%) |
| Non | 20 (24.1%) |

**Fig. 7.3: Raw Data / 83 Responses** (By Author)

Can you list all the possible amenities (ex. gym, supermarket, library etc.) used within the past week?

78 responses

Supermarket

Supermarket

Gym

Gym, pharmacy, supermarket, gas station

Super market, gym only 😊

supermarket, cafe

library, supermarket, coffee, storage room, garage

Gym and supermarkets

Gym, supermarket, architecture faculty, X facilities

AH(supermarket),basic fit(gym),Delft station, park

Supermarket, studio space at the faculty of architecture

Supermarket, restaurant

Supermarket, bank, bar, cafe, convenience store, dentist, parking, restaurants, train stations, vending machines

supermarket

Supermarket, Gym, Salon

Gym,barber,supermarket,bank,cafe

Gym in our social club

Gym, shops

Gym supermarket cinema mosque

Gym, supermarket, park, strip mall, library

Park, supermarket

Gym, supermarket, shops, cafes, library, restaurants, public transport, parks and water areas

Supermarket, restaurant, uni

Supermarket, cafe, walking path

Supermarket, library, daycare

Supermarket, bus stop, canal, delivery spot

Supermarket, library

Gym, uni and supermarket

Supermarket, faculty, espresso bar, study spaces

Supermarket, faculty, study room, market

Supermarket, library, university faculty, contemplation room.

Gym, university, supermarket, restaurant

Exbition

Nothing

Gym, supermarket, restaurants, social clubs, stores

Supermarket, general practitioner, pharmacy, TU Delft campus and Ikea.

Gym, supermarket, beach, farm

Gym, supermarket, post office, legal authorities, gas station, pharmacy, bank

Weekly

Supermarket, gym

Super market walking

Supermarket, gym

Gym, grocery store, mall, parks

Supermarket, high street, university studio space, cafe

Gym, grocery store, restaurant

gym, supermarket

Gym, market, physio, mosque

Gym

Groceries, library, work, restaurant

Shop

Gym,supermarket

Supermarket, church, library, park, restaurant

Pharmacy - Gym - Supermarkets - Hospital

Supermarket club

Nothing

supermarket, university library, coffee place, university faculty, gym, restaurant

Supermarket, library, public park

Pharmacy, supermarket, stationary and clothes store

Gym, supermarket , clubhouse …etc.

Albert Hein, school, bike, shopping

Supermarket restaurants

supermarket

Supermarket, coffee shop

Supermarket ,

Library supermarket

Supermarket, restaurant, HEMA, bookstore, university

riverside pathway, lake park, botanic garden

Supermarket, shops, school, public parks

Supermarket, gym, dance room, library

Gym, supermarket, study room, Library,

Gym, Supermarket, Library, Movie Theater, Parks

## Respondents Regions



- Asia 1.2%
- North America 14.5%
- MENA 33.7%
- Europe 50.6%
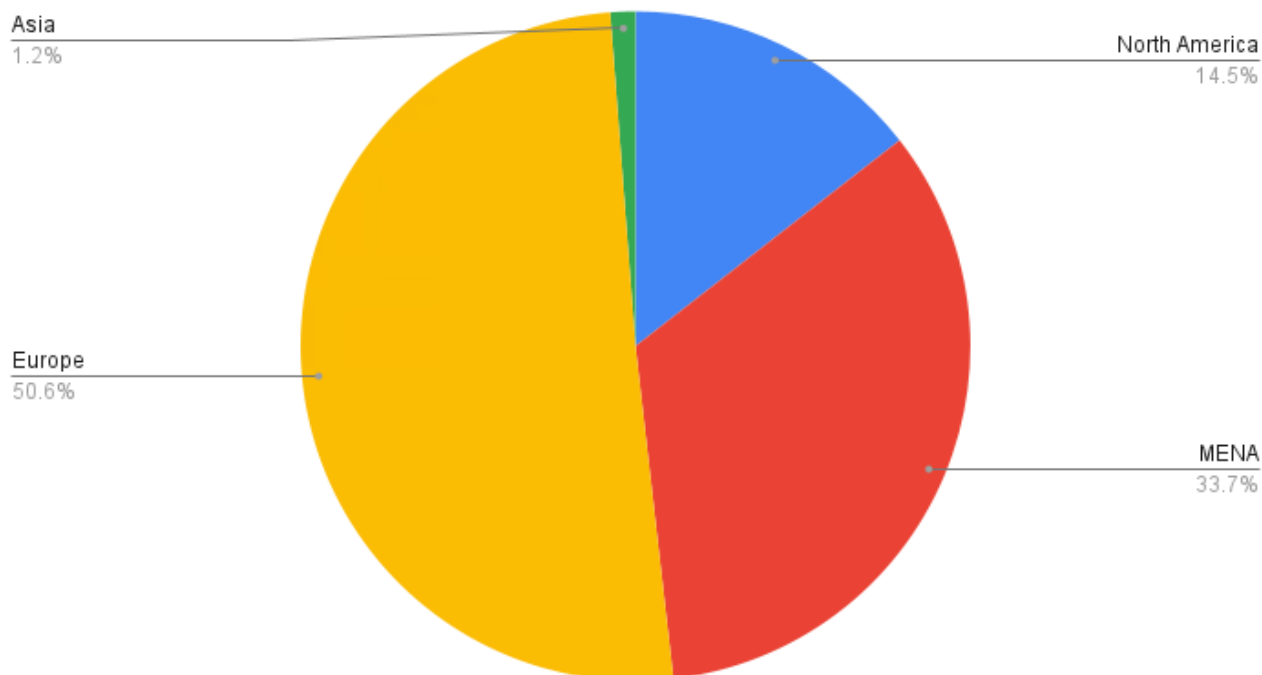
## City of Residence Respondents



- McAllen, Texas (USA) 1.2%
- The Hague 2.4%
- Toronto (Canada) 2.4%
- Rotterdam 3.6%
- Copenhagen (Denmark) 4.8%
- Rijswijk 1.2%
- London (UK) 4.8%
- Hong Kong (HK) 1.2%
- Jeddah (Saudi Arabia) 6.0%
- Montreal (Canada) 1.2%
- Cairo (Egypt) 27.7%
- Mississauga (Canada) 6.0%
- Porto (Portugal) 1.2%
- Delft 25.3%

**Fig. 7.5:** Data Analysis (By Author)
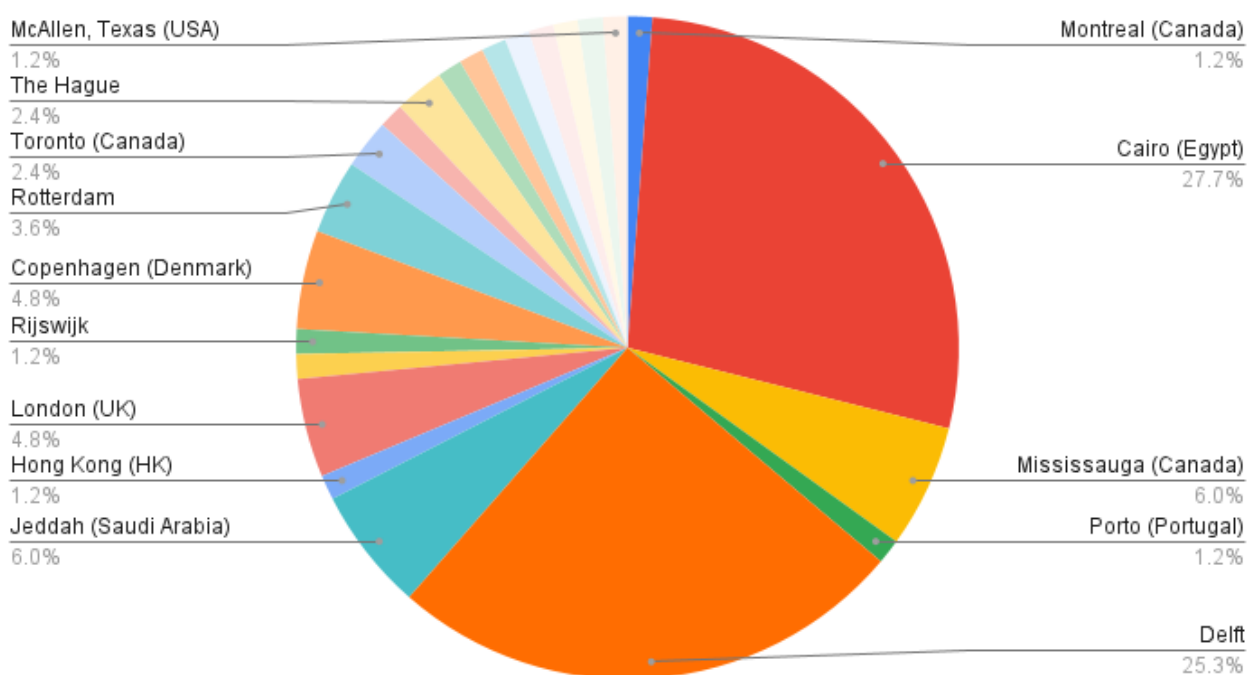
| Age | Average Urban Loneliness Level |
|---|---|
| 18 - 25 | 3.275 |
| 26 - 35 | 3.259 |
| 36- 45 | 3.290 |
| 46 - 55 | 3.000 |
| 56 - 64 | 3.100 |
| 65+ | 2.829 |

| Building Typology | Average Urban Loneliness Level |
|---|---|
| High Rise (13+ Storys) | 3.353 |
| Medium Rise | 3.215 |
| Gallery flat | 3.057 |
| Ground Bound Dwelling | 3.313 |

| Neighbourhood type | Average Urban Loneliness Level |
|---|---|
| Non Post-War | 3.296 |
| Post-war | 3.313 |

| Neighbourhood type | Average Urban Loneliness Level |
|---|---|
| Car Based | 3.238 |
| Non- Car Based | 3.040 |

| Frequency of Anti-Social Behviour | Average Urban Loneliness Level |
|---|---|
| Frequent | 3.042 |
| Sometimes | 3.022 |
| Never | 2.692 |

| Frequency of use of Green space | Average Urban Loneliness Level |
|---|---|
| Frequently | 3.139 |
| Sometimes | 3.263 |
| Never / do no live near Green space | 3.313 |

| Frequency of use of walkable spaces or participation in nei | Average Urban Loneliness Level |
|---|---|
| Frequently | 3.24 |
| Sometimes | 3.30 |
| Never / do no live near Green space | 3.31 |

| Feeling of Overcrowdedness | Average Urban Loneliness Level |
|---|---|
| Yes | 3.263 |
| No | 3.313 |

**Fig. 7.6:** Data Analysis / Loneliness Factors (By Author)

| List of Used Amenities | |
|---|---:|
| Pharmacy | 5 |
| Supermarket | 66 |
| Gas Station | 2 |
| Gym | 34 |
| Library | 14 |
| Cafes | 10 |
| Storage Room | 1 |
| University | 14 |
| Club house/Social club | 4 |
| Public transport (Bus, Train, Metro etc.) | 4 |
| Park | 8 |
| Restaurants | 12 |
| Bank | 3 |
| Bar | 1 |
| Convenience Store | 1 |
| Doctor (GP, Dentist etc.) | 4 |
| Parking | 1 |
| Vending machine | 1 |
| Salon/Barber | 1 |
| shops | 10 |
| Places of worship (Mosque, Church, Synagogue etc.) | 4 |
| Cinema | 2 |
| Mall | 2 |
| Parks | 4 |
| Water areas | 3 |
| Walking path | 3 |
| Daycare | 1 |
| Delivery Spot | 1 |
| Study Spaces | 4 |
| Market | 2 |
| Exbition | 1 |
| Beach | 1 |
| Farm | 1 |
| Legal authorities | 1 |
| Post office | 1 |
| Work | 1 |
| Nightclub | 1 |
| Dance Studio | 1 |

| Frequently Used Amenities | |
|---|---:|
| Pharmacy | 5 |
| Supermarket | 66 |
| Gas Station | 2 |
| Gym | 34 |
| Library | 14 |
| Cafes | 10 |
| University | 14 |
| Club house/Social club | 4 |
| Public transport (Bus, Train, Metro etc.) | 4 |
| Green Spaces | 8 |
| Restaurants | 12 |
| Bank | 3 |
| Bar/Nightclub | 2 |
| Doctor (GP, Dentist etc.) | 4 |
| Salon/Barber | 2 |
| Shops | 10 |
| Places of worship (Mosque, Church, Synagogue etc.) | 4 |
| Cinema | 2 |
| Mall | 2 |
| Parks | 4 |
| Blue Spaces | 3 |
| Walking path | 3 |
| Study Spaces | 4 |
| Market | 2 |

Fig. 7.7: Data Analysis / Amenities (By Author)

**Urban Loneliness Level** (y-axis, top chart)

| | 3.40 |
| | 3.30 |
| | 3.20 |
| | 3.10 |
| | 3.00 |
| | 2.90 |
| | 2.80 |
| | 2.70 |
| | 2.60 |
| | 2.50 |

18 - 25    26 - 25    36 - 45    46 - 55    56 - 64    65+

**AGE**



**Urban Loneliness Level** (y-axis, bottom chart)

High Rise (13+ Storys)    Medium Rise    Gallery Flat    Ground Bound

**Dwelling Typology**

**Fig. 7.8: Data Analysis / Graphs** (By Author)

86

**Shared Facility Favorability (83 Responses)**

| Facility | Value |
|---|---|
| All | 4 |
| Storage Spaces | 29 |
| Garden - Land | 48 |
| Play Spaces | 47 |
| Studio - Workshops | 35 |
| Guest Rooms | 11 |
| Living Rooms | 11 |
| Meeting Rooms | 29 |
| Kitchen | 17 |
| Childcare | 21 |
| Shower rooms | 7 |
| Toilets | 8 |
| Bathrooms | 5 |
| Bedrooms | 1 |
| Non | 20 |

**Most Frequently Used Amenities**

Market
Study Spaces
Walking Path
Blue Spaces
Parks
Mall
Cinema
Places of Worship
High Street
Salon/Barber
Doctor
Bar/Nightclub
Bank
Restaurants
Green Spaces
Public Transport
Club House
University
Cafés
Library
Gym
Gas Station
Supermarket
Pharmacy

**Fig. 7.9:** Data Analysis / Graphs (By Author)

87

# 7.2
# Target Group Analysis
## (In collaboration with Gyeongri Park & Bo Versluijs)



**Single** — Categories: Sustainability, Flexibility, Adaptability, Community, Affordability, Renovation | Age (15-25, 18-25, 25-64, 65+) | Household (Single <35, Single 35-64, Single 65+, Couple <35, Couple 35-64, Couple 65+, Couple with children, Single Parent Family) | Income (Low, Middle, Upper) | Lifestyle (Disabilities, Migrant background, Cultural background, LGBTQ+, Live-Work, Personality) | Ownership (Community, Association, Municipality, Private, Stakeholder)

Rows: Svartlamoen, Asahi Hotarugaike Dormitory, 8 House, Spaarndammerhart, Miss Sargfabrik, Silodam, Wood Housing Seestadt aspern, House for Elderly Alcacer do Sal, Piazza Ceramique, Elsevier Building Dudok, Hatsuse Mita Apartment

#SmallerLivingSpace #Diversity

**Upper Income** — Rows: 8 House, Silodam, Wood Housing Seestadt aspern

#BiggerLivingSpace #LuxuriousTypology

**Community as Part of Ownership** — Rows: Svartlamoen, Spaarndammerhart, Miss Sargfabrik, Vrijburcht

#AdaptibleLayout #Community-orientedLifestyle #PublicPrograms #DesignParticipation

**Change in Size of Household** — Rows: 8 House, Hatsuse Mita Apartment, Calle de Arturo Soria

#VariousHousingTypologies #Adaptability

**Live-Work** — Rows: Svartlamoen, Spaarndammerhart, Miss Sargfabrik, Piazza Ceramique, Vrijburcht

#SeparatedWorkSpace #ChanceofOpeningaBusiness

**Fig. 7.10: Target Group Matrix** (By Group)

| Low Income | Sustainability | Flexibility | Adaptability | Community | Affordability | Renovation | Age | | | | Household | | | | | | | | Income | | | Lifestyle | | | | | | | Ownership | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 15-25 | 18-25 | 25-64 | 65+ | Single <35 | Single 35-64 | Single 65+ | Couple <35 | Couple 35-64 | Couple 65+ | Couple with children | Single Parent Family | Low | Middle | Upper | Disabilities | Religious background | Cultural background | LGBTQ+ | Live-Work | Personality | Community | Assistance | Municipality | Private | Stakeholder |
| New Gourna Village | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Spaarndammerhart | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Elsevier Building Dudok | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Silodam | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Thamesmead | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

#AffordableHousing #OffersBasicNeed #VrietyOfHousingType

| Elderly | Sustainability | Flexibility | Adaptability | Community | Affordability | Renovation | Age | | | | Household | | | | | | | | Income | | | Lifestyle | | | | | | | Ownership | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 15-25 | 18-25 | 25-64 | 65+ | Single <35 | Single 35-64 | Single 65+ | Couple <35 | Couple 35-64 | Couple 65+ | Couple with children | Single Parent Family | Low | Middle | Upper | Disabilities | Religious background | Cultural background | LGBTQ+ | Live-Work | Personality | Community | Assistance | Municipality | Private | Stakeholder |
| House for Elderly Alcacer do Sal | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Silodam | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Thamesmead | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Vrijburcht | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

#SocialSpaceForElderly

| Starter, Young | Sustainability | Flexibility | Adaptability | Community | Affordability | Renovation | Age | | | | Household | | | | | | | | Income | | | Lifestyle | | | | | | | Ownership | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 15-25 | 18-25 | 25-64 | 65+ | Single <35 | Single 35-64 | Single 65+ | Couple <35 | Couple 35-64 | Couple 65+ | Couple with children | Single Parent Family | Low | Middle | Upper | Disabilities | Religious background | Cultural background | LGBTQ+ | Live-Work | Personality | Community | Assistance | Municipality | Private | Stakeholder |
| Svartlamoen | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Spaarndammerhart | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Miss Sargfabrik | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Elsevier Building Dudok | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

#BiggerSharedSpace #SmallerPrivateSpace #RoomForSocialInteraction

| Single Family | Sustainability | Flexibility | Adaptability | Community | Affordability | Renovation | Age | | | | Household | | | | | | | | Income | | | Lifestyle | | | | | | | Ownership | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 15-25 | 18-25 | 25-64 | 65+ | Single <35 | Single 35-64 | Single 65+ | Couple <35 | Couple 35-64 | Couple 65+ | Couple with children | Single Parent Family | Low | Middle | Upper | Disabilities | Religious background | Cultural background | LGBTQ+ | Live-Work | Personality | Community | Assistance | Municipality | Private | Stakeholder |
| New Gourna Village | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Calle de Arturo Soria | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 House | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Spaarndammerhart | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Thamesmead | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Silodam | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Hatsuse Mita Apartment | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Vrijburcht | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

#AtLeast2Bedrooms #Green #Safety #Urban

| Disabled : Mental, Physical | Sustainability | Flexibility | Adaptability | Community | Affordability | Renovation | Age | | | | Household | | | | | | | | Income | | | Lifestyle | | | | | | | Ownership | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | 15-25 | 18-25 | 25-64 | 65+ | Single <35 | Single 35-64 | Single 65+ | Couple <35 | Couple 35-64 | Couple 65+ | Couple with children | Single Parent Family | Low | Middle | Upper | Disabilities | Religious background | Cultural background | LGBTQ+ | Live-Work | Personality | Community | Assistance | Municipality | Private | Stakeholder |
| Miss Sargfabrik | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Vrijburcht | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

#HorizontalGalleryCirculation #Ramp #Elevator #CareService

**Fig. 7.11: Target Group Matrix** (By Group)

# 7.3
# Thamerdijk
# Mapping
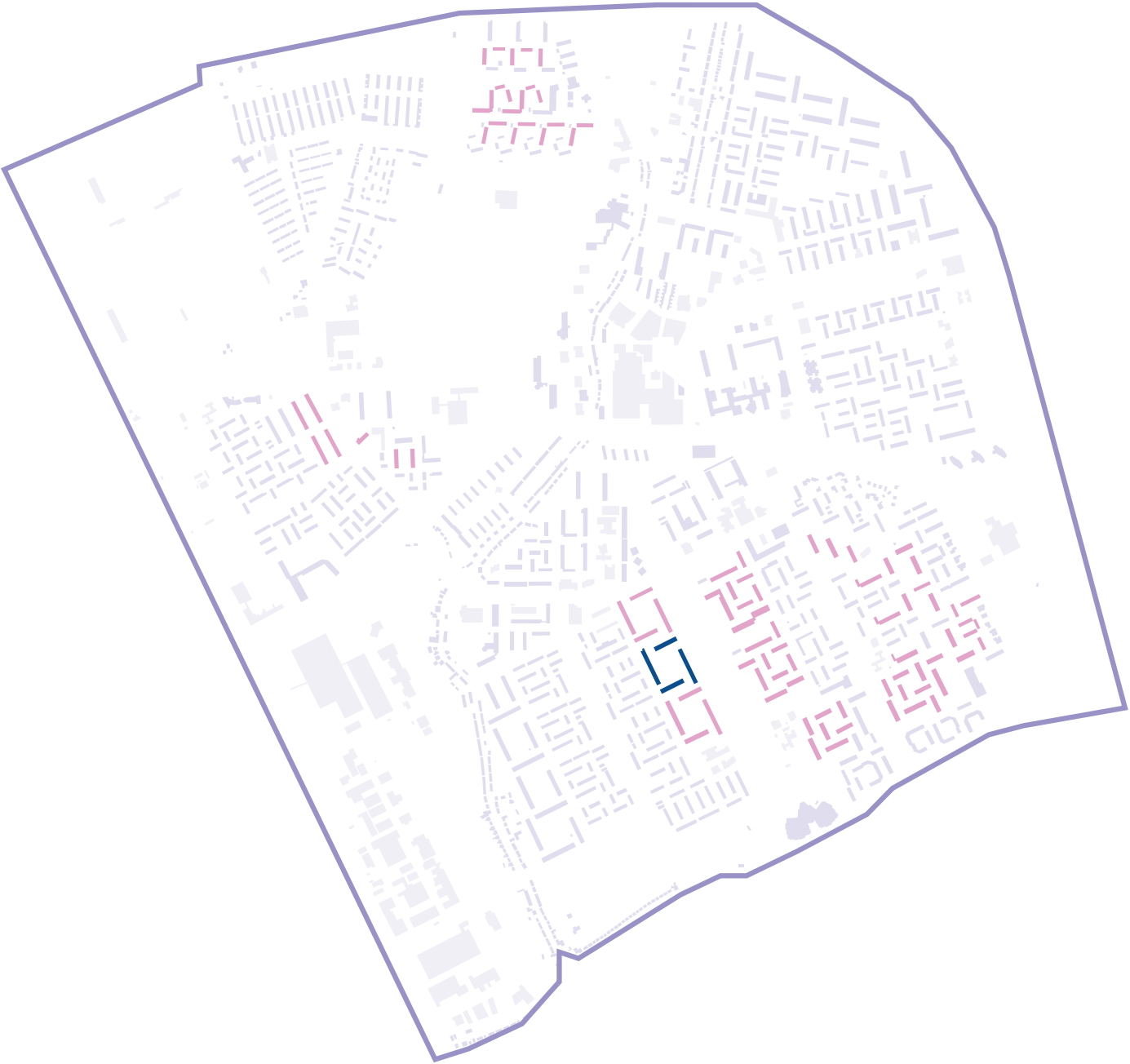


Map of Dura-Cogniet Locations in
Groot-Ijsselmonde

Border

Other

Thamerdijk

Dura-Cogniet

N

**Fig. 7.12: Site Analysis** (By Author)

Figure ground
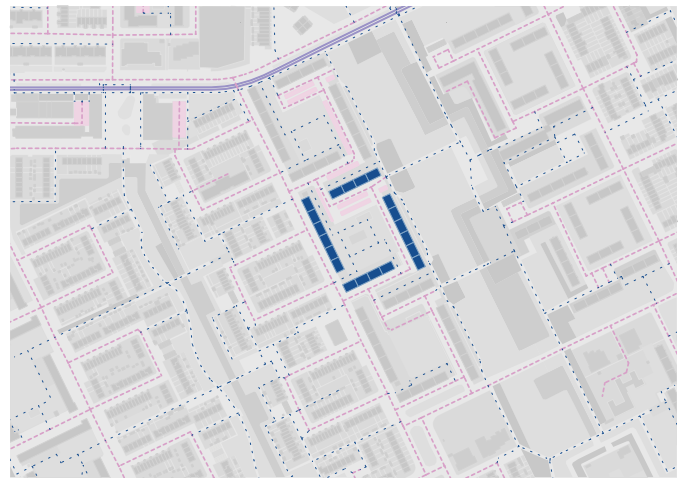


Road Network — — Walkable paths



Border
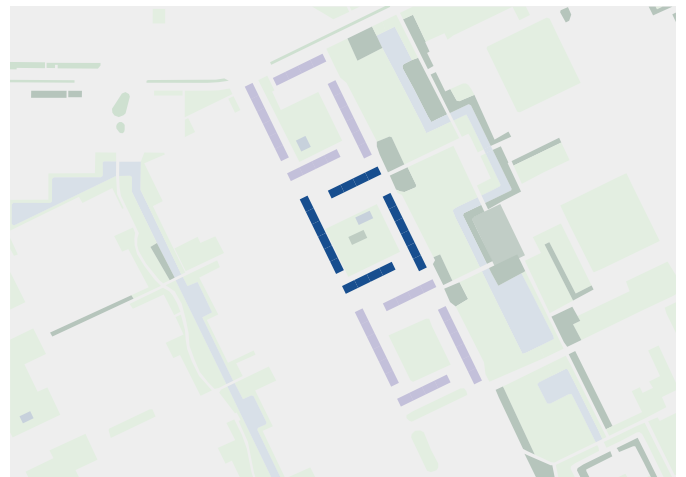


Green Spaces
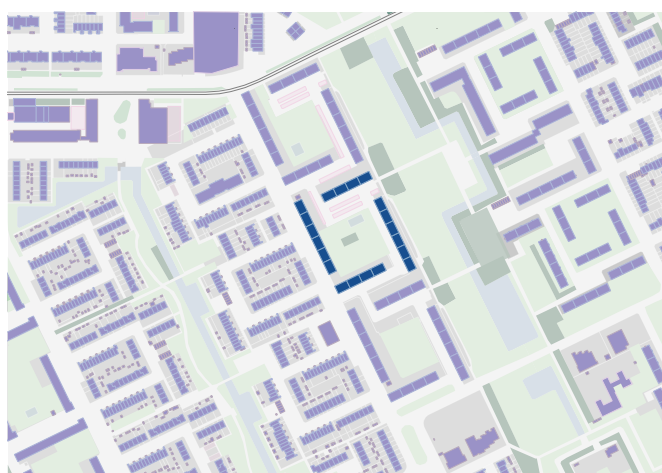


General Site



Local amentieis

Fig. 7.13: Site Analysis (By Author)

Fig. 7.14: 'William Whyte' Moments (By Author)
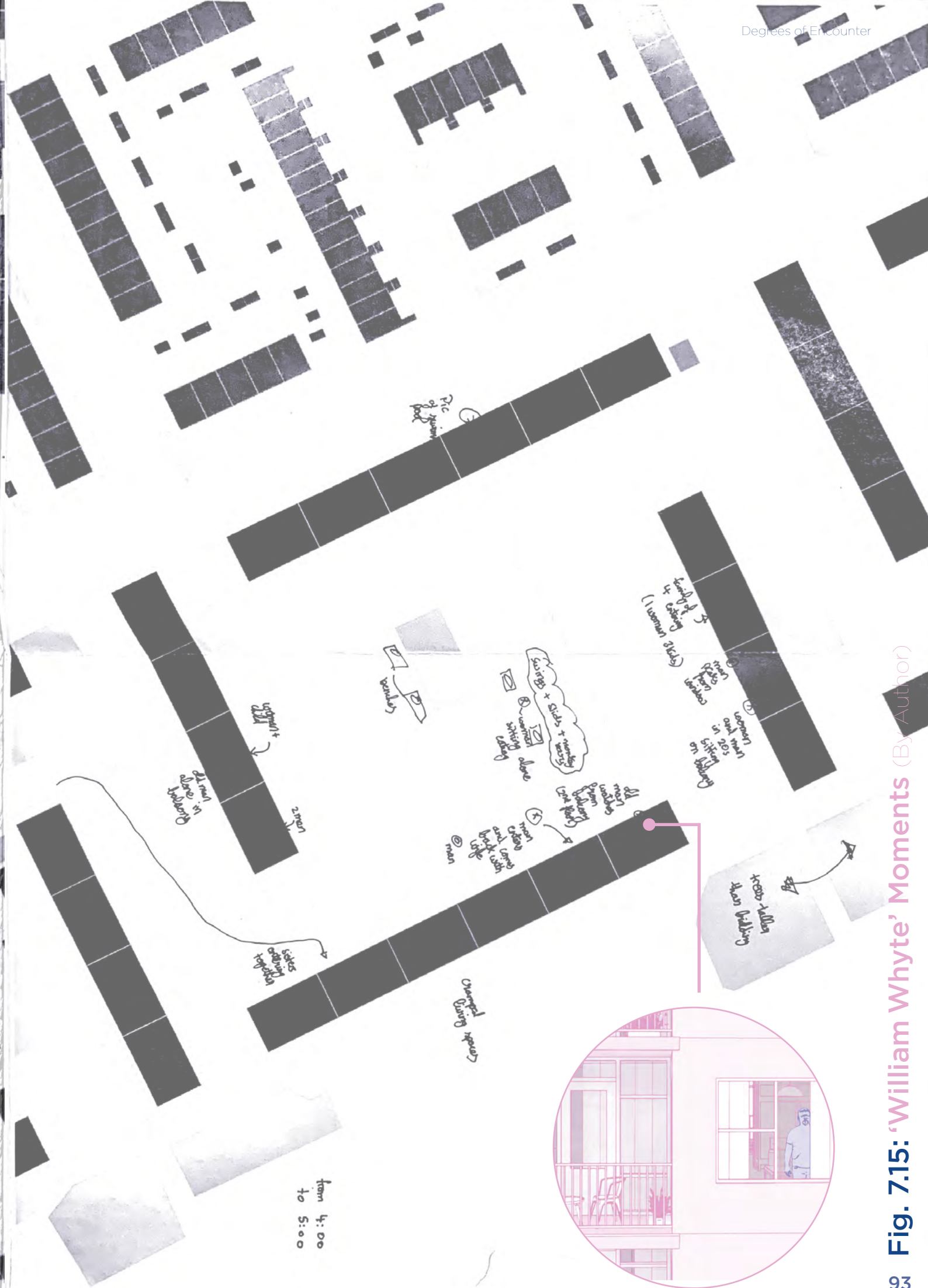
Fig. 7.15: 'William Whyte' Moments (By Author)

# 7.5
# Informal Interviews



woman : herma  (62)                                    20/09/2023
- 56 years in neighbourhood                            * onderdijk
- no lift
- less safe → especially in the night ? "desensitized to it"        ① "people don't want to
           ↳ screaming                                      get to know each other"!
- they don't know neighbour except the one next to
- 6 weeks man died and no one noticed
- woman noticed her neighbour to was not ok because her curtains where open
"Parents don't take care of their children and they cause a lot of problems"

    ② man: 60's
       • Used to play with the woman growing

    ① Disabled man   +  ① 91 year old woman
                          ↳ "they adopted her"

↳ they met through having a dog

       ↳ ① Community Worker (head of the community garden) → initative started to help tackle
          * Club house                                        isolation and loneliness
            ↳ people were asked to bring something small like water
               so they feel important
          * Circular garden "no borders"  so to allow for more
                          ↳ Everyone is welcome
    * They all don't like living there
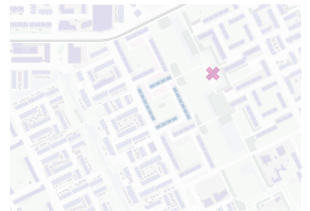
# 7.6.1
## Site Visit - 09/09/2023
## Vrijburcht
### Hein de Haan/ CASA Architecten
(Amsterdam, 2022)





Fig. 7.17: Connection to Nature (By Author)

# 7.6.2
## Site Visit - 09/09/2023
## Sluishus
## BIG
(Amsterdam, 2022)



Fig. 7.18: Materiality and Human Scale (By Author)

# 7.6.3
## Site Visit - 10/09/2023
## Little Coolhaven
### INBO
(Rotterdam, 2020 - 2021)
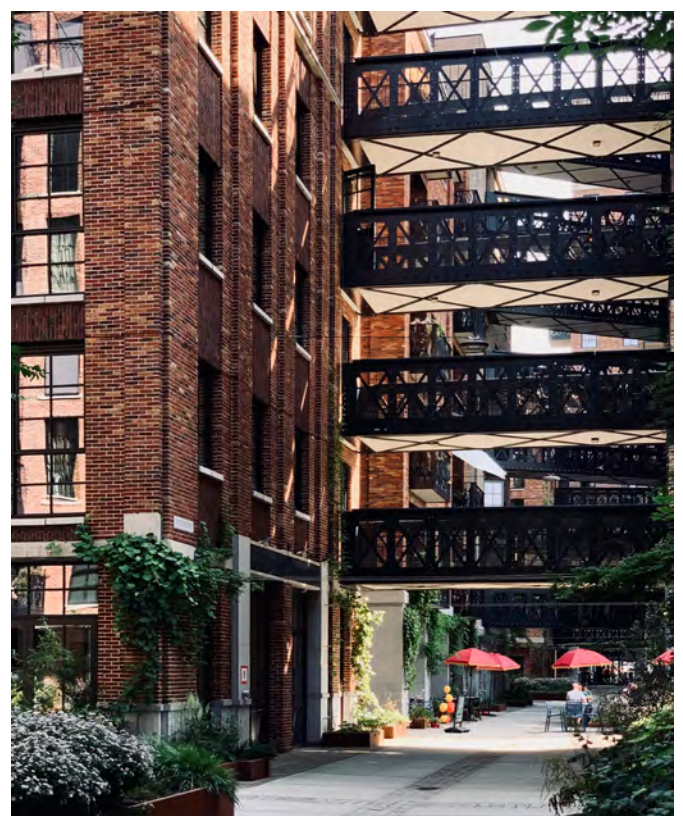






Fig. 7.19: Accessibility and Lively Streets (By Author)

# Reflection

8

## 8.1

**What is the relation between your graduation (project) topic, the studio topic (if applicable), your master track (A), and your master programme (MSc AUBS)?**

From my bachelor thesis that explored the topic of 'Luxury of Space' in the post-war neighbourhood of Thamesmead in the UK, and experiencing loneliness in London during my third year of education despite how crowded the city is, I gained a fascination in investigating the interplay between architecture and human psychology. I choose to explore the topic of producing various degrees of encounter through restorative densification solutions that help alleviate urban loneliness in existing post-war neighbourhoods.

The Architecture master's graduation studio 'Advanced Housing Design - Densification Strategies that tackle the housing shortage in The Netherlands and the reinvigoration of the post-war neighbourhood Groot-IJsselmonde, allows me to investigate this topic. The studio considers a new approach to dwelling typologies, and social inclusion due to the increased diversification of target groups, biodiversity, affordability, and the reduction of our ecological footprint.

## 8.2

**How did the research influence the design and how did the design influence the research?**
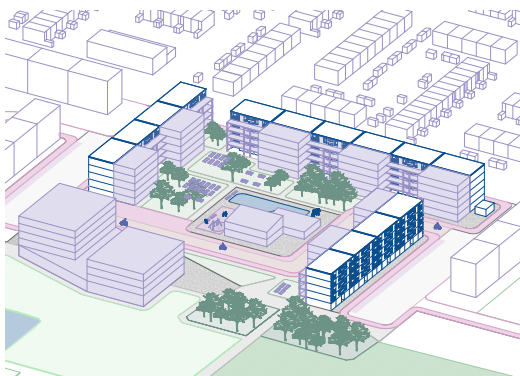


**Fig. 8.1:** P2 Master plan (By Author)

Due to the nature of my thesis topic, research played a more significant role in influencing my design. The theme of loneliness was thoroughly researched through 5 different lenses. The first lens was a sociological and medical understanding of the illness which was followed by a historical overview to help gain a better understanding of the conditions that allowed it to manifest in the built environment. The study then shifted to address the different ways in which feelings of isolation can be triggered through spatial configurations, materiality, and the relationship between public and private space in three scales urban, building, and dwelling scale.

My initial readings played a crucial role that assisted the choice of an appropriate site location. Through readings of literature by Jane Jacobs and Jan Gehl and research articles that discuss loneliness in dense cities such as London and New York social highlighted aspects such as health, crime rate, overcrowding and the users' point of view of the area they live in as aspects that signify high levels of social isolation. This ultimately led me to choose the four Dura-Coignet apartment blocks in Thamerdijk, Hordijkerveld due to its poor liveability rating that was indicated by the Dutch government in the Leefbaarometer.

Studies conducted by multiple peer-reviewed sources indicated that proximity to nature is one of the main ingredients that help improve mental health in a neighbourhood. Despite this, Thamerdijk provides a large green field in its centre that remains underused. Multiple site visits and conducting informal interviews with the current residents gave me a clear indicator that the target groups for my design are elderly or households with children. This then led to the design decision to add four new building blocks in the centre which allow for much smaller pockets of green spaces and courtyards of various sizes where people can gather or meet. I looked at case studies of mental health facilities in the Netherlands for the master planning such as The Hogeweyk and De Drie Hoven by Herman Hertzberger. Using Jane Jacobs's book 'The Death and Life of Great

American Cities' and Jan Gehl's "Cities for People, the existing building blocks were cut in a way to allow for more access ways around the neighbourhood and cars being pushed out to the periphery to promote walking and bike-ability.

In the lens of building scale, Jan Gehl's notion of human scale and study of densification established the rules and guidelines in my restorative densification strategies. For example, buildings on the site do not exceed five stories high so all apartment blocks can maintain eyes on the street. Gehl elaborates that there is no correlation between high building density (quantity) and social cohesion if buildings are not built too high and streets too dark. This was further supported by an online questionnaire where I asked individuals about their living conditions. The study indicated that residents in high-rise buildings exceeding 13 floors feel the loneliest which justified my bottom-up approach. Playful architectural elements that help promote walkability were added, such as the self-supporting galleries of various floor widths that both function as arcades on the ground floor and break the notion of architectural anonymity in the existing building blocks. Multiple literature discuss the positive social impact of the arcades as social spaces as they draw the user to walk underneath them.
The new buildings are designed to allow for a flexible open ground floor that allows for flexibility for various collective and public functions to take place. Additionally, to a vertical façade that allows for moments of social interaction between the current residents and their surrounding neighbours.

In terms of dwelling scale, a solution that helps alleviate loneliness from my literary studies is to provide more cooperative/co-living solutions. From speaking to the current residents and an understanding of the current target group dynamic an intergenerational approach was taken in terms of design. Literature reviews and case studies such as Saettedammen in Denmark and Hilversum in The Netherlands showed that moving household functions such as the kitchen and dining room towards the front of the dwelling can promote neighbourhood interaction. Additionally, due to the introduction of collective spaces around a cluster of flats certain household functions can be reduced or omitted allowing for more people to live in closer proximity thus increasing density without negatively impacting social cohesion. This resulted in the reconfiguration of the existing dwelling plans to be reduced in size and reconfigured to allow for more shared space. Additionally, the questionnaire that I handed out gave me insight into what functions different target groups are willing to share so a variety of different living solutions can be designed.



Dwellings

Public & Collective
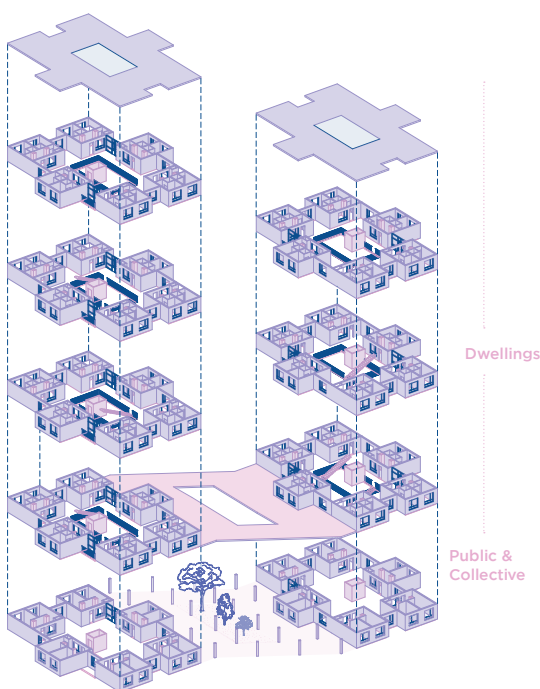
**Fig. 8.2:** P2 Design Hypothesis (By Author)

## 8.3

**How do you assess your way of working (your approach, your used methods, used methodology)?**



**Fig. 8.3:** P2 Design Hypothesis exterior view (By Author)

Within my chosen theme of Urban Loneliness, my method followed a three-stage approach, research, analysis, and design. My methodology consisted of predominantly literary reviews from different scales and lenses to avoid subjectivity due to my own experience of loneliness within a city. Nonetheless, my own understanding of the subject helped guide me to certain sources and approaches that shaped my final design. Additionally, as a group of three, we were able to produce a target group analysis booklet that collated multiple precedents that I can refer to.

An important aspect of my theme is the social lens of the design. Therefore, I applied other ethnographical-inspired methodologies such as a questionnaire both in English and in Dutch to help gain a better understanding of the different target groups. The questions were based on multiple research studies conducted by psychologists and urban planners that assessed urban loneliness in crowded and post-war neighbourhoods in places such as the UK and Denmark. While I was able to acquire 83 responses from individuals of various ages and backgrounds in my own study, it was disappointing that I was not able to reach the residents of Thamerdijk even after I attempted to hang flyers around and in a local community centre in Hordijkerveld. Nonetheless, I repeatedly visited the site and recorded photographs and 'William Whyte moments' (where I people-watched) to help get a better understanding of the area and the existing residents. I also attempted to conversate with a few of the residents but due to the language barrier, the following method was not effective. However, from my final visit with a Dutch-speaking studio mate, I was able to ask many of the questions and receive insight into the neighbourhood that immediately narrowed down my research and target group.

Overall, while all methods and approaches utilised aided in my design, the most effective method was speaking to a few residents directly which would have reduced my research/design effort.

## 8.4

**What is the relevance of your graduation work in the larger social, professional, and scientific framework?**

Loneliness is increasing at an alarming rate throughout the world, posing a risk of early mortality equal to or larger than obesity and air pollution (Soós, 2019). Additionally, housing is a basic human necessity. Through the urgency in densifying our cities, there is an importance in investigating strategies that care to contribute "a little bit more" positively to the mental health of its users. It is important to avoid the drawbacks of the modernist movement, by prioritising the residents needs and wants through participation instead of assumption, to help build a better future.

## 8.5

**How do you assess the value of the transferability of your project results?**

My project is experimental in nature and hopes to alleviate urban loneliness within the stamp of Thamerdijk. The following stamp is repeated in many other post-war neighbourhoods with the same system of construction. From my readings and my own study of Thamesmead during my bachelor, countless existing post-war

neighbourhoods are just demolished and rebuilt with their original residents re-homed in different areas. Many of those people may have lived there for decades which would result in losing valuable memories and neighbours that they have known for their entire lives. While this project places the people first and monetary gain second, minor interventions such as the transformation of improved accessibility or just reconfiguring the existing buildings can significantly improve mental health in the elderly or people with disabilities.



**Fig. 8.4:** P3 Master plan sketch (By Author)

Playful Transformation

Play Space For Children

Communal Gardens

Clustering and Common House

Blue Space and Urban Furniture

Soft Edges

Playful Promenades

Visually Connected Balconies

Symbolic Gates and Multiple Pathways

Common Kitchen And Dining

Visual Transparency

Typology Variation

Playful Streets

Walkability

Bikability

Resident Participation

Soft Sequence of Thresholds

**Fig. 8.5:** Research Outcomes (By Author)

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