CONTENTS

This research plan is part of the graduation studio Designing for Health and Care in an Inclusive Environment at the Faculty of Architecture, TU Delft. The research plan aligns with the theme of the graduation studio and focuses on the designated design location: the Tarwewijk in Rotterdam. The research plan includes an introduction, theoretical framework, research questions, and research methods, which outline the motivation and approach of the final research that is meant to ultimately provide design guidelines.

2 INTRODUCTION

The current Dutch society is struggling with major problems in healthcare. There are major shortages of employees working in healthcare and also a serious lack of suitable living environments that can accommodate vulnerable groups of people. In addition, it also appears that current living environments of people can be better designed in order to prevent this. On the one hand, the aging population requires a living environment that is social, in which co-reliance plays a sufficient role. On the other hand, according to the CBS (2024), feelings of strong loneliness are subject to almost 11 percent of the Dutch society. Feelings of strong emotional loneliness (absence of

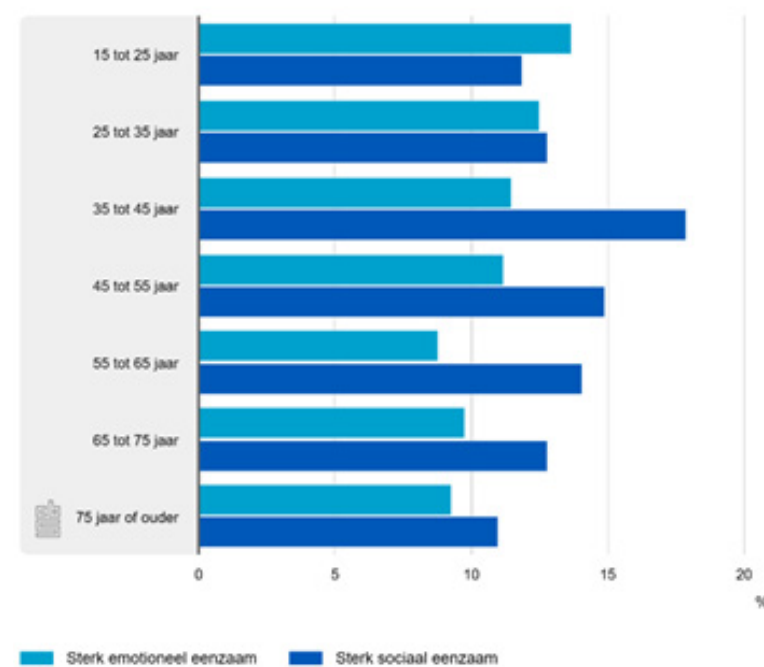Sterke sociale en emotionele eenzaamheid, 2023

Figure 1: Centraal Bureau voor de Statistiek. (2023). *Sterke sociale en emotionele eenzaamheid [Strong social and emotional loneliness]*. Retrieved November 1, 2024, from https://www.cbs.nl/nl-nl/nieuws/2024/39/1-op-de-10-mensen-sterk-eenzaam-in-2023

close relationships) in the year 2023 appears to be greatest (14%) among young people between the ages of 15 and 25. On the other hand, feelings of strong social loneliness (shortage of social contact) in the same year is the greatest (18%) among people between 35 and 45. (Centraal Bureau voor de Statistiek, 2024) People that suffer from severe loneliness incur up to 50 percent higher healthcare costs than people who do not feel lonely, according to research by Maastricht University among 350,000 adult Dutch people. Loneliness therefore plays a major role in healthcare costs, especially among young adults (19-40 years in the study of Maastricht University). According to the researchers, loneliness costs society approximately 2 billion euros in additional care every year. (Van Der Poel, 2021)

As mentioned before by CBS (2019), almost 11 percent of Dutch people experience strong feelings of loneliness. If that feeling lasts for a very long time, it leads to worrying, stress, poor sleep and depression. Loneliness appears to be most frequent among people with a low level of education and residents of non-Western origin, but in the end: loneliness affects all ages, both men and women. (Vriesema, 2019)

According to Hollak (2020) loneliness occurs anywhere, but especially in big cities. This is urgent, since shown by research almost 70 percent of the world's population in 2050 will live in cities. Hollak therefore argues that the impact of the city on our emotional health is therefore of great importance. The more dense the city is populated, the more civility among people decreases. The social energy of people appears to be depleted when sharing space with so many people. The natural reaction of people is to then isolate themselves even more. Instead of opening up to others, people tend to withdraw emotionally.

This highlights why it is crucial to consider the effects of architec-

ture on people's living environment. When you currently look around in the built environment, you mainly see apartment complexes and terraced houses. Because of the pressure that stems from the housing crisis, the type of housing that is currently being built is in danger of becoming even more uniform. (Klumpenaar and Van Noort, 2024) When the aim is to develop sustainable and future-proof housing, the issue of social isolation in cities should not be neglected, as thoughtful design may have the potential to help prevent it. This research contributes by exploring how architectural design can foster social interactions, with the goal of alleviating social isolation. Social encounters naturally occur at various scales within the built environment — inside buildings, just outside homes on the street, and on a larger scale in parks or public buildings. These interactions may be influenced by conditions in the immediate environment, which are shaped by the surrounding architecture. Therefore, this study focuses on how architectural design can encourage social interactions across different scales, from interior spaces, to domain of the street and neighbourhood, exploring the relationship between architectural design and the ways people connect with each other in these domains.

Figure 2: Facade benches as design feature in the newly built houses in the Tarwewijk which may create oppurtunities to enhance social encounters among neighbours. (own work)

3 THEORETICAL FRAMEWORK

HELP PREVENTING SOCIAL ISOLATION AND
LONELINESS BY ARCHITECTURAL DESIGN

ARCHITECTURE THAT STIMULATES SOCIAL
ENCOUNTERS BETWEEN PEOPLE

DOMAINS

INTERIOR	STREET	NEIGHBOURHOOD
SEMI-PRIVATE SPACES	*PUBLIC SPACE*	*SEMI-PRIVATE + PUBLIC SPACE*

LITERATURE

LITERATURE ABOUT THE WORK OF HERMAN HERZBERGER

'RADICAL CO-HOUSING' BY CAROLINE DOVE

'SOFT CITY' BY DAVID SIM AND JAN GEHL

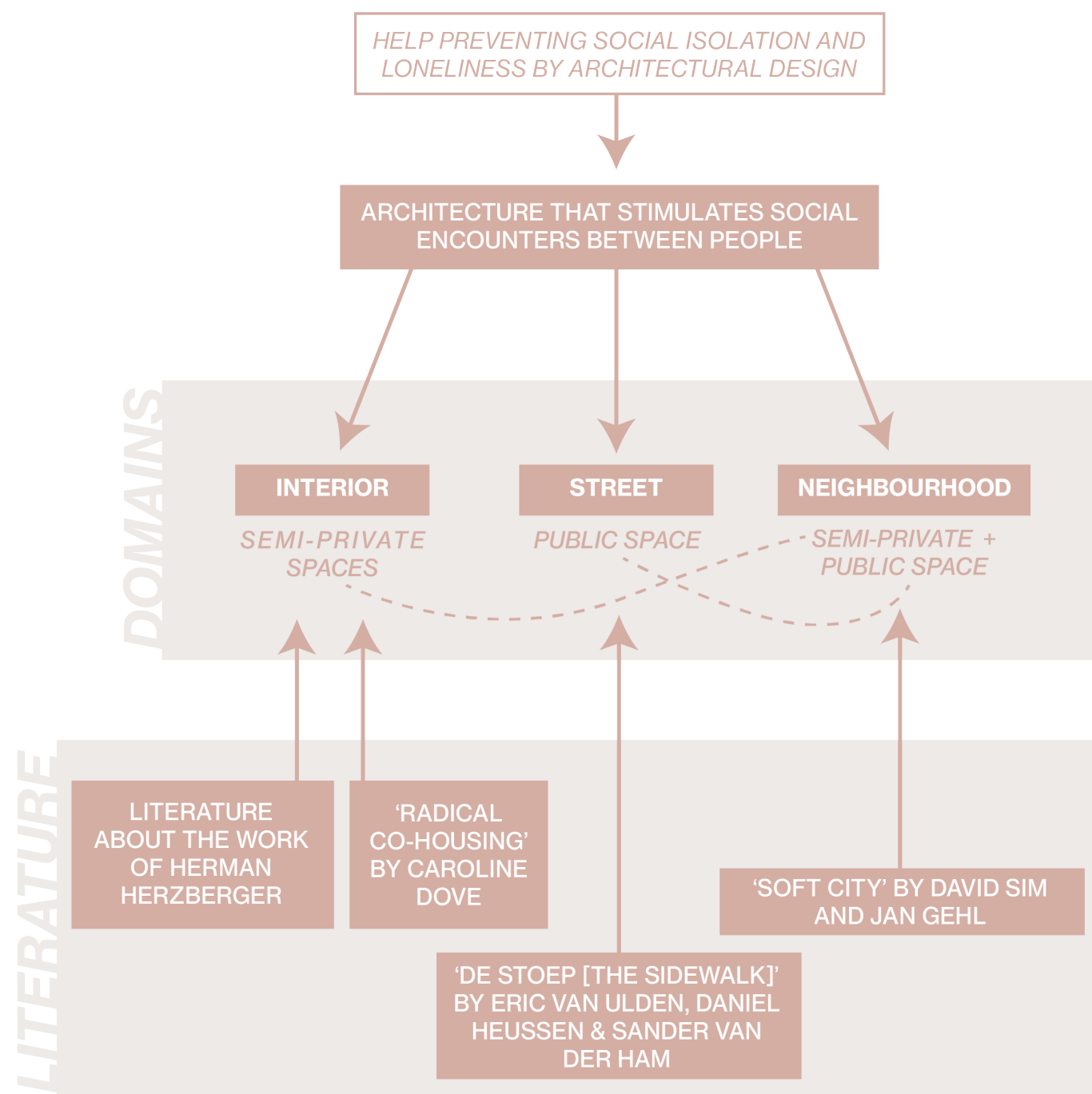'DE STOEP [THE SIDEWALK]' BY ERIC VAN ULDEN, DANIEL HEUSSEN & SANDER VAN DER HAM

Figure 3: Schedule of the theoretical framework. (own work)

In response to the growing issue of social isolation in cities, this research examines how architectural design can influence opportunities for social encounters at various scales: interior, street, and neighborhood. Each of these three scales will be supported by one or two literature frameworks that connect social interaction with architecture at the relevant scale.

Starting with the scale of the interior, this research first examines literature focused on semi-private areas within buildings, such as communal spaces and hallways. Two frameworks are introduced to explore social interaction at this scale, each offering a different perspective on the relationship between architecture and social interaction. The first framework centers on the work of the architect Herman Herzberger, whose ideas are highly relevant to this study. Herzberger emphasized the importance of designing spaces that foster encounters, since it is the social contact that turns collective space into a social space (McCarter, 2015). His projects often focus on creating opportunities for interaction within interior spaces at the building level. Consequently, McCarter's book '*Herman Herzberger*' (2015) will serve as a primary source, as it examines Herzberger's architectural projects and outlines his key viewpoints on architecture's role in facilitating social interactions.

The second framework on social interaction within interior spaces offers a distinct approach that broadens this research. Caroline Dove's *Radical Housing: Designing Multigenerational + Co-living Housing for All* (2020) explores multi-generational co-housing. Although co-housing is a broad topic and not all aspects are relevant to this research, its focus on architecture's role in creating spaces that foster connections between people is particularly valuable. Dove, an architect with over 30 years of experience, addresses global housing pressures, the impact of aging populations, and the need for affordable housing, aligning with this research's goal of mitigating loneliness. By presenting diverse housing models, from multigenerational

homes to community-led co-housing, Dove offers valuable insights into creating inclusive spaces that encourage interaction, which will serve as an additional foundation for practical design solutions in this study.

The next literature framework supporting this research focuses on the domain of the street, in other words the relationship between architecture and the adjacent public space. The book supporting this is '*De Stoep: Ontmoetingen tussen huis en straat*' written by Eric van Ulden, Daniel Heussen and Sander van der Ham (2015). This literature framework is particularly relevant for this research for two reasons. First, it addresses essentially the same topic this research is all about; how the sidewalks adjacent to buildings can facilitate social encounters between people. Second, the book is based on a detailed analysation of over 6000 streets in Rotterdam, the same city the neighbourhood Tarwewijk is situated in for which this study will ultimately provide guidelines. In addition, all of the three Dutch authors bring different expertise to the subject; Eric van Ulden is an urbanist and garden designer, Daniel Heussen has a background as architect and Sander van der Ham is an urban sociologist. Besides the analysation of 6000 streets in Rotterdam, their book also includes interviews, case studies and essays, offering a rich foundation for this study.

The final framework being discussed in this research is the book '*Soft City*' by David Sim and Jan Gehl (2019). Their purpose of writing the book '*Soft City*' also partly aligns with the motivation of this research, as he mentioned that the densification of cities forces people to live into smaller spaces which consequently makes balancing privacy as well as sociability more difficult. Gehl notes that there is an epidemic of poor health in cities due to people living their lives indoors and depression and loneliness have become normal phenomena. Due to these issues, Gehl mentions:

"Soft City is about moving closer together, connecting people to one another and to all of the aspects of life around them... I would like, instead to focus on how potentially conflicting aspects of everyday existence can be brought together and connected to deliver better quality of life." (Jan Gehl, 2019, p. 3)

The perspective of this books aligns with the purpose of this research, as well-designed physical conditions in the living environment facilitate social connections and foster bonds that can enhance quality of life. *Soft City* is particularly valuable to this study because it advocates for simple, small-scale, low-tech, affordable, and human-centered solutions – approaches that are especially relevant for neighbourhoods like Tarwewijk. Sim's and Gehl's work also covers multiple scales, from home and workplace to neighbourhood, city, and beyond, offering insights that could connect his ideas to the in this research discussed scale levels of neighbourhood, street, and interior. This makes his approach a strong contributor to this study and consequently gain knowledge of understanding and improving living environments in a way that positively impacts people's lives.

Exploring literature on the relationship between social interaction and architecture at these different scales can provide new perspectives on creating high-quality spaces in neighbourhoods. This research aims to explore how residential architecture can be designed to reduce loneliness among people while remaining inclusive and accessible for all, attempting to design spaces that can foster connections among diverse groups of people. Therefore, this research also aims to investigate how residential architecture can connect across different scales – interior, street, and neighborhood – to encourage social interaction.

4 RESEARCH QUESTIONS

Leading question

Can a residential building in inner-city neighbourhoods, such as Tarwewijk in Rotterdam, create opportunities for social encounters across different spatial scales (of the interior, street, and neighbourhood) to contribute to the prevention of loneliness?

The research will be limited by only focusing on what aspects of the design of (residential) buildings are related to creating opportunities for encounters between people, while also emphasizing how this could sustain these social connections. The research should also be limited by only addressing information related to architectural (housing) projects located in neighbourhoods that are situated, in inner-city residential areas, such as Tarwewijk.

Sub-questions

1.   Who suffers from loneliness and what role plays architectural and urban design in this issue of loneliness?

This sub-question is meant to gain a deeper understanding of the issue of loneliness and what groups are prone to social isolation. When being aware of which groups of people deals with loneliness more often or/and substantially this will be fundamental for an outcome that is inclusive and actually effective. Also understanding how the built environment may (have) influence(d) social isolation and loneliness, is the foundation for finding solutions through this research

that may work for people nowadays and also in the future.

2.   How could the interior of a residential building create opportunities for encounters between people?

This sub-question explores in what ways the interior of a residential building could be designed in a way it is able to create opportunities for people to meet each other and foster connections between them. The focus is limited to the semi-private spaces inside a residential building, only accessible for the residents of the building(s) themselves, such as hallways or communal spaces.

3.   How could the street adjacent to a residential building create opportunities for encounters between people?

This sub-question addresses the relationship between the exterior of the residential building and the public space adjacent to it, and how social encounters could be encouraged in this domain. This can include the design of the façade of the building, the sidewalk as part of the building design, or even the entire street relating to the architectural building.

4.   How might a residential building be physically and socially connected to the neighbourhood to create opportunities for encounters between people?

This sub-question attempts to relate architecture to a wider context, specifically on the scale of the neighbourhood. It is therefore interesting how to attract and invite people to a building and the space around it, from the neighbourhood itself or even anywhere else, creating more diverse opportunities for encounters between different groups of people. This may create a stronger social cohesion in the area and therefore a healthier neighbourhood. There are various ways to approach this, from connecting the residential building to

outdoor public spaces such as parks or squares that are always accessible for anyone as well as establishing a relationship with semi-private community-related spaces accessible for the public.

5 RESEARCH METHODS

SELECTING THE CASE STUDIES

(residential) buildings with a clear focus on fostering social connections at the level of the interior, street, or neighborhood + preferably situated in a context of similar scale compared to the Tarwewijk in Rotterdam

literature frameworks				CASE STUDIES RELATED TO ONE OF THE THREE SCALE LEVELS		site visit's including observations / interviews

CONCEPT + VISION	*FUNCTION + PROGRAM*	*PHYSICAL CONDITIONS*	*SOCIAL CONDITIONS*
• *ideas & intentions of the architect* • *context of the place* • *type of users* • *summary of history*	• *organisation of program* • *private, semi-private, public areas* • *accessibility* • *connection between spaces* • *flexibility of space*	• *materialisation* • *cultural elements* • *light* • *greenery* • *climate* • *(human) scale of spaces*	• *possibility/chances of social encounters* • *frequence/duration of social interaction* • *social visibility & privacy* • *social relation towards interior, street & neighbourhood* • *atmosphere*

A foundation of theoretical and practical knowledge in enhancing social interaction through architecture

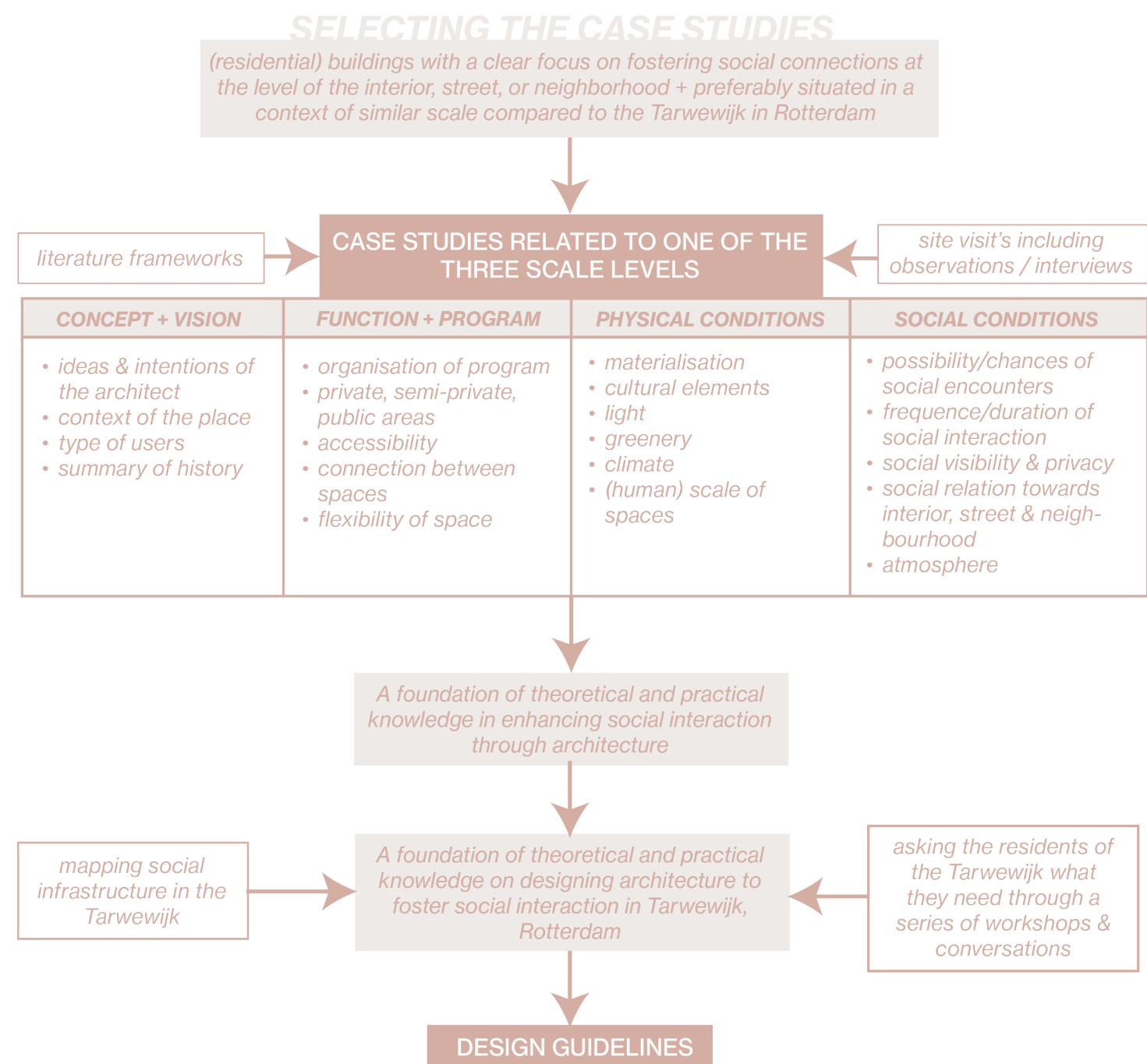| mapping social infrastructure in the Tarwewijk		*A foundation of theoretical and practical knowledge on designing architecture to foster social interaction in Tarwewijk, Rotterdam*		asking the residents of the Tarwewijk what they need through a series of workshops & conversations

DESIGN GUIDELINES

Figure 4: Schedule of the researh methods and output. (own work)

This research uses two main approaches to gain the knowledge needed to answer the research questions and develop design guidelines. This knowledge is gathered through a combination of case studies and the input from local residents of Tarwewijk. Case studies serve as examples of how to design architecture that fosters social interaction in inner-city residential neighbourhoods like Tarwewijk. These cases are selected based on whether they were designed to intend the stimulation social connection through architecture at the scale of interior, street or neighbourhood and ideally are comparable to the scale and context of Tarwewijk.

While theoretical and practical insights from case studies may provide answers to the research questions, it is also essential to understand the needs and preferences of the local residents from the Tarwewijk, who are the future users of the spaces designed according to these guidelines. The following paragraphs explain in more detail how each sub-question will be addressed.

The first sub-question will be answered only through literature research, by reviewing scientific articles that explore social isolation and loneliness, as well as the connection between loneliness and the living environment.

For the second sub-question, which focuses on the building's interior, the approach will involve a review of case studies, guided by the literature frameworks of Caroline Dove and Herman Herzberger. Some case studies will be explored in more depth through site visits and conversations with individuals involved in the management of the building, and if possible, also a range of users (varying in age, gender, and health profiles) will be talked to. It will be especially insightful to learn whether and how (often) the architectural features facilitate social encounters for these users, and to find out if there are any differences between the architect's intentions and the actual experience. Through a critical analysis of multiple architectural

projects, both positive and negative aspects of the design will be highlighted, with the idea that successful features can serve as inspiration for constructing the design guidelines.

The third sub-question, which focuses on the scale of the street, will similarly be addressed through a review of case studies, guided by the literature framework of a Eric van Ulden, Daniel Heussen and Sander van der Ham. The approach to this sub-question will involve site visits, to observe whether, how often and in which way people use the street. Also the aim is to have conversations with the residents or individuals involved in the project's design process about the use of the space. Observations and interviews will provide insights into how people use the space at street level, offering a deeper understanding of how social encounters occur and can be encouraged on this scale.

Finally, the fourth sub-question examines the relationship between architecture and the neighbourhood. For this topic, it is essential to start by mapping existing social connections in the Tarwewijk and how they behave. Additionally, engaging with local residents provides valuable insights into their needs and preferences, which could help improve the neighbourhood's quality. By organising several workshops where residents can creatively map out their neighbourhood (see Figure 5 as an example), there will be attempted to raise discussions on how they perceive their neighbourhood and what improvements they believe would foster stronger connections among residents. This part of the fieldwork may reveal gaps in the existing structure of social cohesion of the Tarwewijk, making it useful to incorporate certain case studies in the research that successfully provide functions or community dynamics that the Tarwewijk currently lacks. These case studies may include community-oriented buildings, public spaces designed to bring people together or something else. An important aspect of this research will be to explore how these functions could connect or relate to residential buildings.

Ultimately, together with the input of local residents from the Tarwewijk, these projects should offer inspiration for developing design guidelines that enhance social cohesion within neighbourhoods, and specifically Tarwewijk.
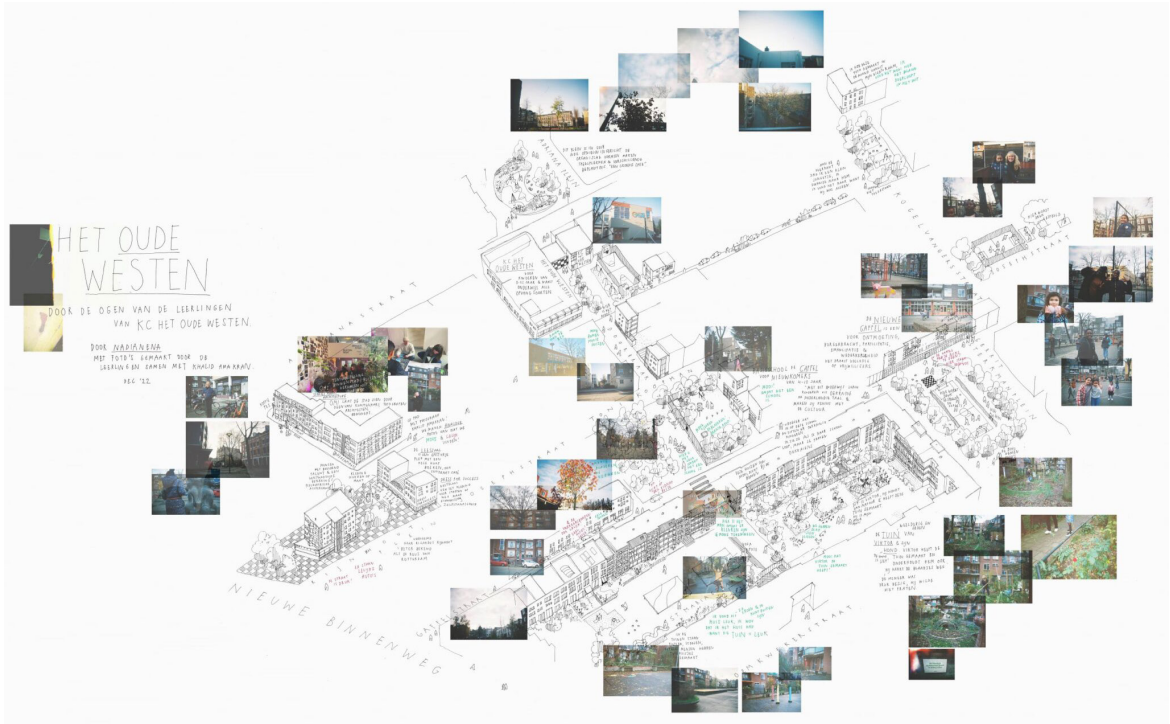

Figure 5: Studio NadiaNena.(n.d.). *Zachte kaart van het Oude Westen [Soft map of the Old West]*. Architectuur Instituut Rotterdam. Retrieved November 1, 2024, from https://airrotterdam. eu/2023/03/14/stadmaken-vanuit-verhalen-uit-de-buurt/

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