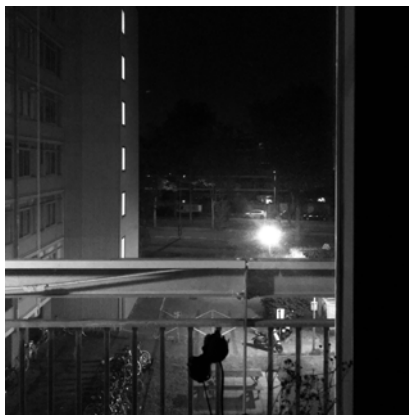# City Loneliness.

by Yu-Ching Huang

"We are in the midst of a global loneliness crisis. None of us, anywhere, are immune."
Noreena Hertz, The Lonely Century

PREFACE

Remember those days I stood by my window, looked at the street lights shining with no one on the street, and got lost in thoughts with a sigh. I ask myself why and how I am here. But obviously, it is not a question asking about my past but rather doubting the future: when can I belong here.

In August 2020, it was my first time coming to this foreign country. Everything is so fresh for me; new environment, new people, new language, and new life. However, it is not so much expectation but more uncomfortable feelings of the unknown. I know it is normal for a newcomer, and it will be fine after months. I tried to overcome this alienation by becoming a social and outgoing person who is different from who I am.

Day by day, I met some people, talked to some people, and met some people. Everything becomes normal: riding a bike to school, speaking English to others, and having Dutch food. In autumn, I saw street views of trees without leaves. In winter, I experienced the canals freezing over and the streets covered by snow. When it comes to spring and summer, cherry blossoms and things grow. Yet, after ten months of living in the Netherlands, the desolate feeling still exists, and the otherness still shrouds. I wonder how long does it take to belong somewhere? A year? A lifetime?

I believe that this is not just me, but plenty of people who suffer from this no belonging, and sometimes, it carries with certain constant loneliness. So, this is how my research began.

This book gathers stories of my two years in the Netherlands. The first chapter tells my feeling about moving here and reveals what this city makes people, at least me, feel lonely through my experience. Besides, it shares parts of my findings on loneliness in artworks. It is not a collection of pieces in loneliness but a way of exploring and healing. I was trying to alleviate my loneliness by looking at these works. Then, they lead me to further research on loneliness which becomes my graduation project. So, the second and third chapters are my graduation research and design project at TU Delft. The research part references the psychological theories of loneliness and belongingness and further targets Amsterdam because it is the city that represents the Netherlands. After that, the third chapter shows my architectural design proposal for reducing loneliness in Amsterdam. The fourth part is my reflection report on the graduation project. For me, the graduation research and project are also processes of healing myself. Although I still don't know where it will lead me, this experience and approach are valuable and inevitable.

Delft, the Netherlands
from August 2020 to June 2022

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CHAPTER I
A Lonely Journey

BEGINNING

I see it as a journey.
And this is a short record of my journey.

In March 2020, I received an offer from TU Delft when the COVID-19 broke out and brought panic worldwide. It was a difficult decision to move to the Netherlands, especially since I was in Taiwan, which was a safe country then. However, I came here because I think it's a great opportunity for a different experience in a lifetime, and I should not give up for any reason. But with a bit of excitement about the unknown and many uncertainties, actually, I was not looking forward to moving here.

The Netherlands is a well-known friendly and happy country that attracts many people to work and live. The beautiful city views and well-organized streets are attractive, creating iconic imageability. However, after what I experienced as a newcomer, I think it is not true as what it presents.

On the day when I came, it was a beautiful sunny day. I took the tram to my place and settled. I live in a two-room apartment, so I suppose to have another housemate. Yet, due to the pandemic of COVID-19, fewer students came, and more vacancies of rooms. Therefore, I lived alone at that time, and I enjoyed it. But things always have two sides. While I enjoy my quiet paradise, I experience quiet days without anyone to talk to or chat with. This quietness gradually brings emptiness and loneliness. Besides living alone, I think more is about no connections and no belongings that affect these feelings.

I believed that as more people I met and knew, I would have more connections. I tried to talk to people and integrate, but it wasn't easy. I have a few assumptions about this. First of all, I think most people

I met were focusing on their own affairs. Everyone was busy with their studies and life and didn't have much time for new social interactions. Second, I presented as a person who doesn't want to talk to others. But actually, it is just because I'm afraid of socializing and talking to new people. The last assumption is that people in this country probably tend to be indifferent.

So, after a few months of discovering, these feelings still exist. The other way I deal with these unpleasant feelings is to explore new things or places. I explored Delft city center and places which close to my neighborhood. My first image of Delft is the canals. It is imageable because Delft was an industrial city that relied on these canals; thus, the cityscape of Delft is now recognized and created by these canals. They go everywhere in the city center. For me, these canals make every street the same. I can't even recognize which is which, although I think I have a good sense of direction. After almost two years of living here, I still can't tell correctly. It does not happen only in Delft but also everywhere in cities in the Netherlands. Streets look the same, and buildings are similar.

Sometimes, I went to places nearby my neighborhood. They are mainly housing areas and natural areas. I biked in the natural area, and sometimes, I walked there. What was my eyes was a large scale of Dutch polder and cows in those tracts of greens. The bike route leads people somewhere. People bike passing by, and some ride horses. As you can imagine, it is not crowded as it is in the city. What

shows more is wilderness and lonesome feelings.

Sometimes, I liked to spend time in public spaces in the neighborhoods. They are playgrounds for kids. I enjoy sitting on the swing and thinking, trying to figure out things about my study, my life now, and my future. However, this also brings lonesome companying with me. I wonder how I can end this feeling.

Sometimes, I went for a walk at night. The street lights shine in the neighborhood with great silence. People were sleeping. I was walking. But I enjoyed walking in the lonesome.

Before sleeping, I wished everything would be fine tomorrow.

Then, in the morning, I wake up and see it as a new day, but it is just a new routine.

I CAN SEE

Have you ever felt lonely?

Before I came to the Netherlands, I never had this feeling. I enjoy being alone but not being lonely. Loneliness is a new emotional experience and a new fight for me.

One day, my friends took me to a restaurant close to the university, which is owned by an old Cantonese couple and sells Chinese and Dutch food. I saw a painting hanging on the wall of the restaurant, which has green neon lights decorated. I recognized the painting and thought that this combination of painting and neon light was pretty cool. It is a copy of an American painter Edward Hopper's (1882-1967) work, *Nighthawks* (1942). The copy version presents happiness with people laughing, while the original one shows a more gloomy feeling. With four people enclosed in a diner without any entrance reference,

compared to the dark and empty street, the original one illustrates the gloomy and depressed feelings which reflect the real sense of living in a big city. At that moment, I realized I had never had these dull feelings about this painting before, and now I could see what it expresses. The feeling of loneliness emanates from Hopper's version of the painting and shows the beautiful and peaceful serenity. I felt so released. It is like someone else who understands me and brings the company to my lonely world.

Now, I think I can see the beauty of loneliness.

I explored more works that relate to loneliness. I found new perspectives about loneliness in paintings, photography, films, and literature. As Arthur Schopenhauer (1788-1860) had said, "A man can be himself only so long as he is alone; and if he does not love solitude, he will not love freedom; for it is only when he is alone that he is really free." Loneliness might be painful, but sometimes, it is more beautiful than we think. It presents the beauty, the truth, and the depth of life.

Now, I think I can see the beauty of loneliness.
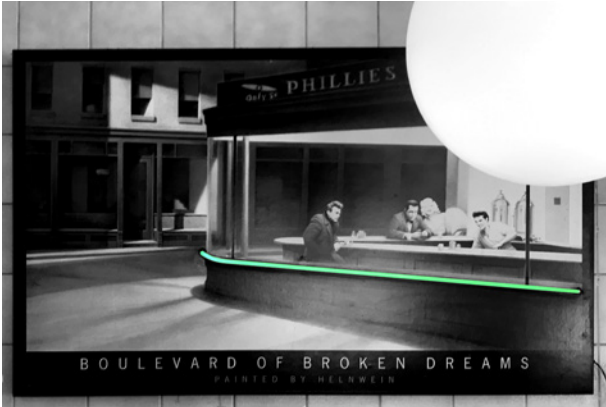
ACTION

After one year of fighting, I'm getting better and have more connections. Once I asked my friend how she felt about living in the Netherlands. She is also an ex-pat and came to this country to work four or five years ago. She said, "Well, although I have lived here for a long time, I still feel I do not belong here. The working environment is good, and the colleagues are friendly. However, you can feel that the relationship between people is superficial. It is hard to make a real friend here." I was surprised that she thought the same as me. People seem very friendly, but they are indifferent. Also, the cityscape is too well-organized to have a surprise when experiencing it. In other words, it is boring when walking in the city. For us, this country is a bit lonely.

I wonder how that can happen in this fascinating country. As an architectural student, it attracts my interest. I tried to do the observation in Amsterdam and target the specific district, Amsterdam southeast. This district faces the most significant loneliness in Amsterdam. Besides, the development history is quite interesting that brings the differences. I tried to catch the feeling of loneliness in the city space and reveal what I felt when walking there.

The elevated roads make it difficult to connect with different users. You need to climb up a bit to reach the bus stop and wait there with only cars passing by. When you walk on these elevated roads, you can see the housing areas underneath, but you can not reach them. It creates more distance between you and the people who live there. The iconic high-rise buildings in Bijlmer bring unique features to this district, but at the same time, they are the reasons that create lonesome here. There are tracts of green between these buildings. When you walk between them, you feel you are isolated with no one around you.

After this city loneliness collection, I can see that loneliness actually happens quite often in the cities. It may not only be caused by personal reasons but also by the condition of city space. The environment indeed influences our feeling and psychological state. Therefore, I introduced loneliness topic to my graduation project, aiming to explore more in loneliness and find out how to alleviate this feeling.

CHAPTER II
City Loneliness: A Healing Practice in Amsterdam

ABSTRACT

As cities densify around the world, the quality of city spaces increasingly shows its importance, influencing citizens' mental health. Loneliness has become a normal phenomenon in the city along with its development and can affect every person for different reasons and cause serious problems. This research targets Amsterdam and argues why a well-being city such as Amsterdam also suffers from loneliness, aiming to explore the relationship between loneliness and architecture and find architectural solutions to reduce loneliness in Amsterdam. The existing research has shown that belongingness can act as a way to reduce loneliness. Thus, the main research question is:

How can architecture create a belongingness environment to alleviate and heal the feeling of loneliness in Amsterdam?

This research focuses on the theory of human relationship belonging, the place belonging, and the construction of belonging, searching for architectural strategies that can alleviate loneliness. Further analysis of Amsterdam and Amsterdam southeast's city space answers the question and raises the opportunities to improve and solve the problems. Creating a belongingness environment with architectural strategies, based on the research, in city public venues provides a way to heal this unpleasant loneliness in Amsterdam and leads to a better well-being future.

Keywords:
Loneliness, Belongingness, Amsterdam, Architecture

City Loneliness
A Healing Practice in Amsterdam

INTRODUCTION

Loneliness is a global epidemic that affects people of ages, genders, and ethnicities. As the reports, 55% of Londoners felt lonely (Parsons, 2017), 52% of New Yorkers said their city was desolate (Hertz, 2020), and 47% of the population in Amsterdam was said to be lonely. (OIS Municipality of Amsterdam, 2018) Moreover, the lonely number was 50% for Dubai, 46% for Hong Kong, and 46% for Sao Paulo, showing that almost half of the population in the cities suffer from loneliness. (Hertz, 2020) Loneliness not only hits individuals but also enlarges its influence on the whole world, which directly links to the future city development in relation to social health and living satisfaction, which fits in City of the Future studio's theme. Besides, according to the UN, the world population living in urban areas is expected to grow to 68% in 2050. It challenges the city space and architecture strategies to build higher and denser than before but provides a high quality of life and sustainable city environments, which means that not only the functioning of the urban systems matters but also the well-being and mental health of the inhabitants are essential. Undoubtedly, the lonely subject of architecture is pressing and inevitable.

This research carries on loneliness studies to the city space, aiming to explore the relationship between loneliness and architecture, which relates to the belongingness in Amsterdam. The theoretical references introduced from the psychological studies of human relationships, sense of place, and city experience perspectives frame the research, helping a comprehensive understanding of city loneliness, then

translating into architectural languages. Compared to those cities which suffer from loneliness in a similar number, Amsterdam is the city that ranks highly in both happiness and loneliness. Amsterdam has one of the highest percentages of people that feel lonely. (NLTimes, 2017) Besides, the number of loneliness has increased, from 40% in 2008, 43% in 2012, to 47% in 2018. (OIS Municipality of Amsterdam, 2018) However, contradictorily, Amsterdam is the capital city of the Netherlands, which ranks as the 5th happiest in the world. (World Happiness Report 2021)[1] Meanwhile, according to the Healthy Lifestyle Cities Report 2021[2], Amsterdam ranks as the best city for a happy and healthy life across all 44 cities. It raises the question of how Amsterdam can be the most healthy city for living; at the same time, it has almost half of the percentage of the citizen who suffers from loneliness. As the article written from the survey says, "While the Netherlands ranked highly as a great place to work, the survey also found that life as an expat here can be lonely and hard to settle into." (Lorimer, 2021) Also, the other article highlights the dichotomy of economic differences and the gap in happiness and loneliness in Amsterdam. "As a big city as Amsterdam, it attracts many loners, such as students, expats, and migrants, to live and work." (Couzy, 2017) Surely, Amsterdam is a functioning well city that attracts people to work and live, but in the mental aspect, people can not feel a connection and belonging to the city. Therefore, the main research question is:

How can architecture create a belongingness environment to alleviate and heal the feeling of loneliness in Amsterdam?

To answer the main research question, there are sub-questions to be investigated.

1. Why do people feel lonely in the notion of psychology?

2. What is it about the contemporary city that creates loneliness?

3. How do people create belongingness in the city?

4. How do city spaces in Amsterdam have an impact on being unrooted and unconnected, making people feel lonely?

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1 In World Happiness Report, the researchers rank 153 countries on factors like prosperity, social support, healthy life expectancy, freedom to make life choices, generosity, perceptions of corruption, and trust.

2 HEALTHY LIFESTYLE CITIES REPORT 2021 (https://www.lenstore.co.uk/research/healthy-lifestyle-report/)

LONELINESS

Humans are inherently social beings; the need for meaningful social connection, and the pain, which refers to loneliness, we feel without it are defining characteristics of our species. (Cacioppo & Patrick, 2009)

Loneliness is a common experience; every person is more or less familiar with the feeling of being lonely. But what exactly is loneliness? Is it the state of being alone? Since loneliness is a complex psychological subject, which comes from various reasons, this section is going to clarify what loneliness is, how loneliness happens, and what are the consequences of loneliness, aiming to give a comprehensive understanding of loneliness.

1.1 Definition of loneliness

Loneliness is defined as the pain of insufficient social connection and belonging. Humans are inherently social beings; the need for meaningful social connection, and the pain, which refers to loneliness, we feel without it are defining characteristics of our species. (Cacioppo & Patrick, 2009) Thus, "loneliness signals a need to form a meaningful connection with others, motivating the development and maintenance of social relationships that facilitate survival." (Lim et al., 2016) However, there are individual differences in the strength and intensity of the need to connect and belong, as well as individual variations in how people express and satisfy the need. (Baumeister & Leary, 1995) Therefore, loneliness happens when there is a discrepancy between desired and actual social needs, according to individual differences. (Cacioppo et al., 2015; Lim et al., 2016; Allen & Furlong, 2021)

1.2 Loneliness and solitary

Loneliness is not necessarily a state of physically being alone but a state of mind making people feel unpleasant and distressing. "In reality, loneliness has less to do with being alone and much more to do with the experience of feeling unseen. It is the quality, not quantity, of our relationships that fulfills our need for connectedness." (Kirmayer, 2021) Being alone is yet distinct from being lonely. Solitary is an objective condition of being apart from others and does not always lead to a subjective feeling of loneliness. However, loneliness can be felt when surrounded by crowded people. "It's possible - easy, even - to feel desolate and unfrequented in oneself while living cheek by jowl with others." (Laing, 2016) Compared to the unwelcome feelings of loneliness, solitary tends to be a spontaneous state that is willing to be alone. Also, the effects of solitary and loneliness are opposite. Solitary has benefits, allowing better concentration and self-recharging, while loneliness may cause unhealthy mental and physical issues.

1.3 Antecedent of loneliness

Loneliness is a multidimensional construct and complex issue that results from various factors, which can be distinguished in two aspects. From the subjective feelings' perspective, the discrepancy between social connection and actual needs leads to loneliness. It also refers to being unsatisfied with the sense of belonging to a group. "Loneliness is posited to arise from a human need to belong." (Baumeister & Leary, 1995) According to Peplau and Perlman's research, self-experience in changing events[1], like losing existing relations and increasing desired relations, and various predisposing factors, including quantity and quality of social contacts[2], cultural

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1 Changing events includes two aspects, one is losing the achieved social relations, including termination (widowhood, divorce, and break-up), physical separation (moving to a new community), and status change (retirement and unemployment), whereas the other one is increasing desired relations, which are developmental changes (age-related changes), situational changes (moods), changes in expectations.

2 The quantity of social contacts relates to how the frequency of social connection and interaction is, while the quality of social contacts refers to peWrsonal attachment (as in intimate relations), social integration, the opportunity to receive nurturance, re-assurance of one's worth, and guidance.

values[3], situational constraints[4], and individual characteristics[5], are factors that result in loneliness. (Peplau & Perlman, 1981)

On the other hand, loneliness can also come from the environment, which means the society as a whole. "I define loneliness as both an internal state and an existential one - personal, societal, economic and political." (Hertz, 2020) Loneliness is more than an absence of personal mental reliance but is also a state of being socially, spatially, technologically, economically, and politically isolated. The "intellectualistic character" of the metropolis brings individuality, impoliteness, and indifference toward others. It is contrary to more feelings and emotional relationships in small towns. (Simmel, 1903) Moreover, not only the fast pace and living habits in cities but also the politics impact loneliness. The technology also takes into account being lonely while public space condition undoubtedly plays a vital role in the city experience and influences the human sense of belonging to a place.

1.4 Consequence of loneliness

Loneliness matters not only in personal issues that affect mind and body health but also in causing social crises. From an individual health perspective, it directly results in mental problems, such as depression and anxiety; moreover, it alters brain function and increases stress. Loneliness, especially for those who suffer for a long time, results in chronic body inflammation, which leads to a host of diseases. For example, it causes the progress of Alzheimer's, damages tissue and blood vessels, and increases the risk of heart disease, diabetes, and stroke. The researches show that the impact of loneliness is more significant than smoking 15 cigarettes a day. (Cherry, 2021; Knebler, 2019) Further, "at the extreme, loneliness can lead to suicide." (Hertz, 2020)

Yet loneliness has greater matters that affect society; it significantly impacts our brain, influencing body reactions and performance. Numerous researches show that there is a link between loneliness and hostility toward others. Some studies found that loneliness reduces the level of empathy, losing the ability to understand others and stand at other perspectives. The emotional reactions of loneliness, including anger, hostility, untrust, and no empathy, engender a dangerous implication for all of us. (Hertz, 2020)

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3 Culture value emphasizes competition, individualism and personal success increase the incidence of loneliness. These values affect the behaviour of individuals, and are reflected in the structuring of social institutions.

4 Factors that increase the frequency of interaction and foster group cohesiveness should affect the incidence of loneliness. For example, physical proximity fosters liking. The individual who lives or works in a physically isolated location may tend to be socially isolated as well.

5 Individual characteristics, like shyness, self-esteem, similarity with others, demography, and childhood antecedents, can affect one's social desirability, behavior, and personal qualities and further impact loneliness.

LONELINESS TO BELONGINGNESS

"Helping individuals to foster their sense of interpersonal connections and belonging across micro and macro social domains may well offer essential strategies to the global loneliness epidemic." (Allen & Furlong, 2021)

This research aims to address loneliness through belongingness with architectural strategies. As psychological studies, loneliness is closely related to belongingness, sharing the subjective perception of connectedness. The failure of reaching connections and belonging needs, including belonging to relationships and belonging to places, leads to loneliness. (Mellor et al., 2008) Therefore, "helping individuals to foster their sense of interpersonal connections and belonging across micro and macro social domains may well offer essential

strategies to the global loneliness epidemic." (Allen & Furlong, 2021) In this section, the discussion focuses on how belongingness is defined and sorted in this research. Then, the application in architectural practices of creating belongingness bridges loneliness studies and architectural design.

2.1 Definition of belongingness

Satisfied belongingness indeed leads the way in reducing loneliness. As most scholars' definitions, belongingness is the human emotional need to be

accepted as a member of a group, which links to interpersonal attachment and relationships. Nevertheless, there are more sources that can influence the sense of belonging. (Franklin & Tranter, 2021) "A sense of belonging - the subjective feeling of deep connection with social groups, physical places, and individual and collective experiences - is a fundamental human need." (Allen et al., 2021) In this research, besides the sense of belonging to a relationship, the belongingness also consists of place belongingness and the construction of belongingness. The place belongingness is a personal and intimate feeling of being "at home" in a place (Antonsich, 2010), sharing similarities with the place attachment, while the construction of belongingness relates to everyday experiences and practices. Similarly to Fenster's definition, "belonging is also associated with past and present experiences and memories and future ties connected to a place, which grow with time." (Fenster, 2005) Therefore, this research introduced theories from three perspectives: human relationship, sense of place, and city experience, aiming to find out the ways of alleviating loneliness through belongingness.

"A sense of belonging - the subjective feeling of deep connection with social groups, physical places, and individual and collective experiences - is a fundamental human need." (Allen et al., 2021)

"A need to belong, that is, a need to form and maintain at least a minimum quantity of interpersonal relationships, is innately prepared (and hence nearly universal) among human beings." (Baumeister & Leary, 1995)

2.2 Three perspectives of belongingness

2.2.1 Human relationship

As inherently social creatures, each person strives to build up relationships of sufficient number and depth to meet their social needs. "A need to belong, that is, a need to form and maintain at least a minimum quantity of interpersonal relationships, is innately prepared (and hence nearly universal) among human beings." (Baumeister & Leary, 1995) The first theory related to loneliness and belongingness was John Bowlby's "attachment theory"(1969). From the view of attachment theory, the performance of one's relationship formulates from the infant stage. But attachment behavior is not only a part of infancy but also happens in other stages of life. Those who lack secure attachment tend to be vulnerable to loneliness, depression, and psychological distress. (Ouellette and Diplacido, 2001) Besides, people who lose their attachment figures, such as romantic partners and close friends, also experience loneliness regardless of the reason. (Erozkan, 2011) Bowlby's theory posited the need to form and maintain social relationships. In "Maslow's hierarchy of needs" (1943), "belonging and love needs" is ranked in the middle of the motivational hierarchy, which emerges after the satisfaction of physiological needs and safety needs. It explains that the craving for connection and belongingness to a group of people is a part of foundational human needs. (McLeod, 2020) Therefore, when people's belongingness needs are being insufficiently met, they would feel lonely. (Baumeister & Leary, 1995) Meanwhile, the

fulfillment of relationship belongingness works to reduce loneliness.

Belonging to a relationship creates through qualified social connection and interaction. As Baumeister and Leary's research, there are two main features of the need to belong. First is the frequent personal contact or interactions with the other person, which are positive and pleasant. Second, people need to perceive the relationship with stability, affective concern, and continuation into the foreseeable future. (Baumeister & Leary, 1995) It means that creating belongingness is a process through time rather than an action which expected to have immediate results. Thus, the possibility of frequent connection and interaction plays a role in establishing relation belongingness.

2.2.2 Sense of place

Sense of place matters in relation to one's experience, mental health, and life satisfaction of living in the city. The concept of sense of place consists of rootedness, belonging, place identity, meaningfulness, place satisfaction, and emotional attachment. (Prieto-Flores, 2011) It links closely to place belongingness and place attachment, which is a cognitive-emotional bond that individuals develop towards places with the feeling of being "at home." (Antonsich, 2010; Scannell & Gifford, 2014) Besides, "topophilia" (1974), meaning love of place, is also often defined similarly to place belongingness. Contrary to those who perceive a city from social aspects among people, another regards exploring the environment as building up their sense

Place belongingness is a cognitive-emotional bond that individuals develop towards places with the feeling of being "at home." (Antonsich, 2010; Scannell & Gifford, 2014)

of place. It does not mean identifying the geographical space but constructing emotional attachment to a place through experience.

The place is a central part of the human experience; it provides belonging when it symbolizes one's social group or offers a venue conducive to meeting up with others. (Scannell & Gifford, 2014) In order to understand place attachment and place belongingness, David Seamon's research examines six processes that generate place, including place interaction, place identity, place release, place realization, place creation, and place intensification[1], which also provides ways that place attachment can be strengthened. Developing a sense of place or place attachment is an unconscious process that happens through everyday experience. According to these six processes, in short, a place that can be participated, be distinct, fits the activities' needs, and provides frequent and pleasant happenings for a person creates the relationship between that person and the place, known as place belongingness.

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1 Place interaction refers to the usual happenings and routines in a place, which come together give the place meaning. Then, frequent place interaction with time makes place identity, which is a merge of self and environment. Place release emphasises the pleasure unexpected occurrences that give the place meaning and memory. Further, place realization refers to the distinctiveness and character of a place. Finally, place creation occurs though design, building, personalisation, and hosting events, while place intensification is the design of the place which serves the needs of the human activities. (sort by Scannell & Gifford, 2014)

2.2.3 City experience

There is no doubt that the city environment impacts people's feelings, attitudes, and performance, affecting the city experience and relating to loneliness and belongingness. As Merleau-Ponty's "Phenomenology of perception" (1945) addressed, one's perception toward the environment is how the body structures the situation in the world. Human behaviors and movements are strongly affected by their surroundings. Therefore, in other words, experiences construct what we are and how we belong. Besides, the city experience matters because it acts to create belonging to someone and somewhere. In de Certeau's words: "space is a practical place." walking in the city and experiencing everyday life practices are the ways to overcome alienation and create belongingness. It marks territorialization and appropriation and the meanings given to a space. (de Certeau, 1984) "Belonging and attachment are built here on the base of accumulated knowledge, memory, and intimate corporal experiences of everyday walking. A sense of belonging changes with time as these everyday experiences grow and their effects accumulate." (Fenster, 2005)

The experiences not only create the chance for encounter and connection but also build up our knowledge and attachment to a place. However, different spaces carry different meanings, which mean different things to different people. It both exists objectively but is subjectively shaped by our experiences. (Brown, 2020) Thus, belongingness is created by one's own experience and daily routine. It cannot be unified.

"Walking in the city and experiencing everyday life practices are the ways to overcome alienation and create belongingness."

Nevertheless, in Allen et al.'s research of belonging, there are four interrelated elements - competencies, opportunities, motivations, and perceptions[2] - that arise from and are supported by the systems in which individuals reside and can be used to build up the sense of belonging. However, within these four elements, competencies, motivations, and perceptions tend to be self-controlled, while opportunities are the only thing that can be provided through architectural strategy.

2.3 Belongingness in architecture

Bringing methods of creating belonging from psychological studies to architectural design, it comes out that focusing on how a place displays and presents is a foundational step for creating belongingness. From the psychological research on belongingness, the relationship between these three belongingness categories - human relationship, sense of place, and city experience - consists of one another.

Human relation belonging is the basic aspect of belongingness, which establishes in a place. Further, place belongingness is not only established from people's experience of a place but also consists of relationship belongingness in that place. Then, the construction of belongingness is a daily interpersonal experience and includes the creation of relation belonging and place belonging. The place stands as an essential element for strengthening the feeling of belonging.

In architectural research of loneliness, public space and local services, including transport infrastructures, local amenities, and green spaces, are proposed as social resources[3], which relate to the capability of building a sense of belonging. Public spaces and local services not only offer sites for individuals to do leisure, exercise, and shop but also take roles in creating shared experiences between friends, relatives, and colleagues, giving them a place to interact and connect. Similar to the concept of "third places" from Ray Oldenburg, a socially enhanced public space should be a place where you relax, encounter familiar faces, and make new acquaintances, such as cafes, retail, markets, gardens, plazas, parks, and playgrounds. (White, 2018) It is also considered as having the capacity to establish a sense of community, giving people a place to explore social experiences and a chance to feel like they belong. "The third place is often

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2 Competencies for belonging means having a set of skills and abilities. Skills enable individuals to relate with others, identify with their cultural background, develop a sense of identity, and connect to place and country. Opportunities to belong is the availability of groups, people, places, times, and spaces that remove and reduce barriers and enable belonging to occur. Motivations is an inner drive, a need, or a desire to connect with others. People motivated to belong will actively seek similarities and things in common with others and connect with a place, their culture or ethnic background, or other belonging contributors. Finally, perceptions refers to a person's subjective feelings and cognitions concerning their experiences when connecting.

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3 Kinship in the City: Urban Loneliness and the Built Environment
(https://www.futurespacesfoundation.org/our-work/kinship-in-the-city-report/)

more homelike than home."(Oldenburg, 1989) Therefore, investigating how a place suffers from loneliness can begin with analyzing local services and public spaces in that place. Furthermore, from the view of architect Peter Greaves, urban loneliness is a response to the scale. "For 500,000 years, humans lived in small, close communities where we were regularly meeting the same people. [...] There's been a fundamental change to the number of people in one space and how all those people interact."[4] It means that the proper scale for people's interaction capacity also plays a role.

In conclusion, from the psychological studies and architectural research on belongingness and targeting the public venues; there are some key points that can be emphasized in spatial design strategy:

1. A public venue for frequent encounters and contacts: physical accessibility and stay-ability

A public venue with physical accessibility allows multiple ways of entering and participation, while stay-ability leads to more happenings. Physical accessibility means the capability of accessing the physical environment. It consists of the number and availability of entrances, the connectivity capacity to nearby paths of circulation, and the variety of mods of access to the space. (Aelbrecht & Stevens, 2019) Stay-ability is essential for further

interaction and integration. Seats are the most common elements for stay-ability, whereas a comfortable environment is also important. Physical accessibility and stay-ability together support the frequent contact and interactions with people in a place, helping create relationship belongingness.

2. A public venue that is multi-functional to fit the different needs: activity accessibility

Everyone's need is different; thus, the greater variety of facilities a public venue provides, the more inclusive it is. "As societies become highly diversified and differentiated and the distance between social groups widens, the need for multi-functional public spaces arises." (Aelbrecht & Stevens, 2019) Activity accessibility means a place that provides multiple activities for various preferences.

3. A public venue that is distinctive: distinctiveness

Place distinctiveness can refer to the imageability of that place. As the definition by Lynch, "it is that shape, color, or arrangement which facilitates the making of vividly identified, powerfully structured, highly useful mental images of the environment." (Lynch, 1960: 9) A public venue where either the building out-stands its environment or the programs are different from its surroundings can be distinctive.

4. A public venue can be easily participated: physical accessibility and spatial connectivity

Physical accessibility, which is discussed

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4 Kinship in the City: Urban Loneliness and the Built Environment
(https://www.futurespacesfoundation.org/our-work/kinship-in-the-city-report/)

in the first point, and spatial connectivity enhance the possibility and willingness to get into a place, bringing more people to participate. Spatial connectivity allows high visibility and high accessibility between spaces. It relates to the transparency of building materials, openness of the facades, the organizing of volumes, and the blurring edges between spaces and interior and exterior.

5. A public venue in daily life experience: activity accessibility

From the second point, activity accessibility means that a public venue has various programs to fit people's different needs; also, as many as a place's activity, it attracts people to come frequently and find their needs.

LONELINESS IN THE CITY: AMSTERDAM

Amsterdam is always seen as a well-being city that attracts many people to move in and live; nevertheless, it faces almost half of the percentage of lonely people. (NLTimes, 2017) How does that happen? As discussed in the first section, several antecedents subjectively and objectively cause loneliness, and every person has a difference in the reason. In this section, the examination will focus on how a city space concerning social and spatial aspects in Amsterdam affects loneliness in the further step, analyze the characters in the southeast of Amsterdam, find the development opportunities, and investigate how architecture can be a tool to reduce loneliness.

3.1 Social and spatial conditions in Amsterdam

From the loneliness research, the known knowledge is that various factors result in loneliness. Some people are more vulnerable to loneliness, such as the elderly in retirement, unemployed people, newcomers, people who are different from others, and people who live or work isolated. Besides, the research in the second section on belongingness, public space and local services, including transport infrastructures, local amenities, and green spaces, act as important spatial elements for loneliness. These different factors from social and spatial aspects are investigated in this section.

From the loneliness report of Amsterdam in 2018, the southeast and new west districts face the most significant loneliness. (OIS Municipality of Amsterdam, 2018) (figure 01) What happens in these two districts? In the social aspect, the map shows that most non-western ethnicities live in the
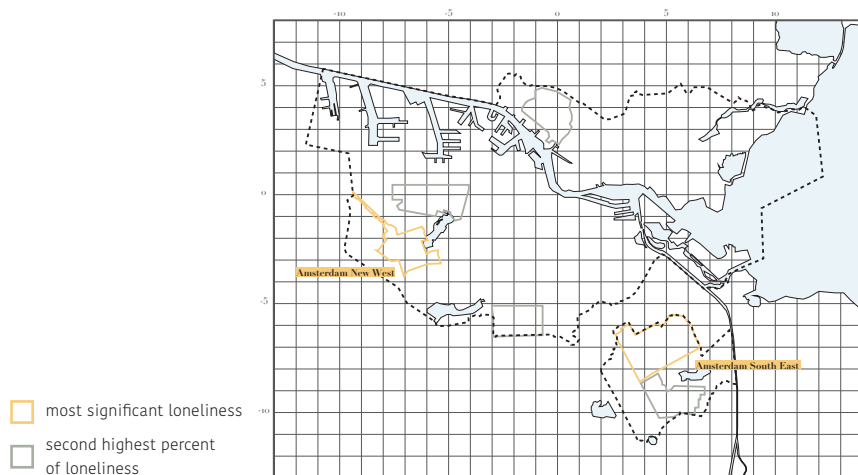
figure 01. Loneliness in Amsterdam
(OIS Municipality of Amsterdam, 2018)(redraw by the author)

southeast part (figure 02), which might be the main reason for loneliness in Amsterdam. Then, the maps illustrate that the places with the largest elderly population (figure 03) and with the single household are not mainly in the southeast and new west districts (figure 04), which means the elderly and living alone might not be coherent.

On the other hand, Amsterdam's spatial factors analysis shows that the transportation network is well-connected (figure 05), allowing people to travel easily and connect to other places. The green space is sufficient (figure 06), providing enough open spaces for gathering. At the same time, the low density of retails (figure 07) and mono-function (figure 08) in the southeast and new west districts, which reduce the chance of encountering, could cause loneliness.

From the analysis of Amsterdam, the proportion of non-western ethnics, the mono-functional city space, and the density of retails or places for encounters are the main reasons that bring loneliness to these two districts. Plus, the research shows low satisfaction in living in these two areas, especially in the southeast part. (Leefbaarometer, 2018) (figure 09) It means that to have equal development to the well-being future of the city of Amsterdam, tackling the loneliness problem in Amsterdam-southeast is pressing.
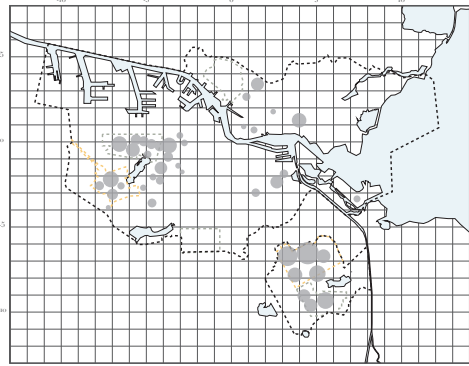
figure 02. Above 50% of population of non-western ethnicities
(https://www.nrc.nl/nieuws/2012/02/14/statistiek-saai-cbs-cijfers-
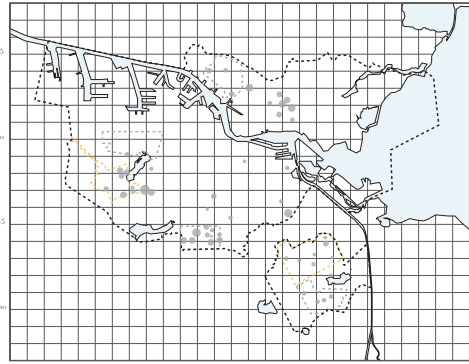komen-tot-leven-op-een-kaart-a1447709?t=1638825171)
(redraw by the author)

figure 03. Above 30% of population of elderly and retirement
(https://www.nrc.nl/nieuws/2012/02/14/statistiek-saai-cbs-cijfers-
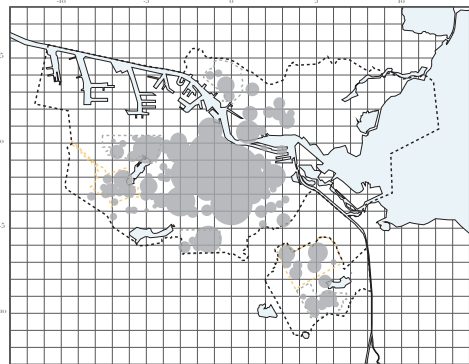komen-tot-leven-op-een-kaart-a1447709?t=1638825171)
(redraw by the author)

figure 04. Above 40% of households of Single household
(https://www.nrc.nl/nieuws/2012/02/14/statistiek-saai-cbs-cijfers-
komen-tot-leven-op-een-kaart-a1447709?t=1638825171)
(redraw by the author)

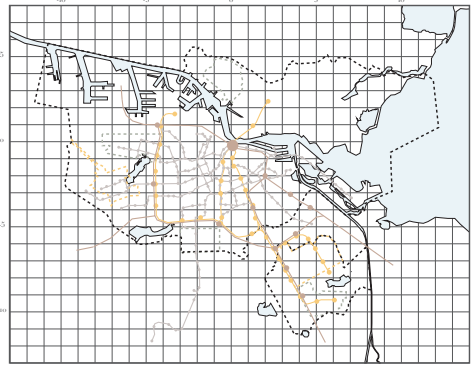NS railway/
station

metro line/
station

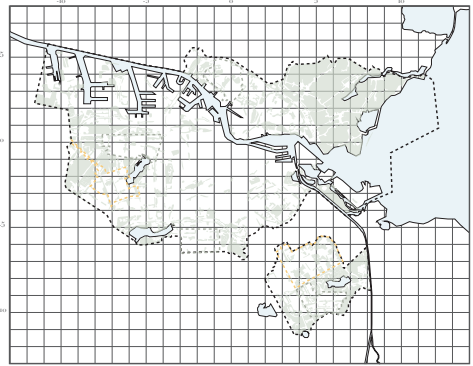tram line/
station

figure 05. Transportation network
(https://maps.amsterdam.nl/trammetro/?LANG=en)
(redraw by the author)

figure 06. Green space
(https://maps.amsterdam.nl/stadsparken/?LANG=en)
(redraw by the author)
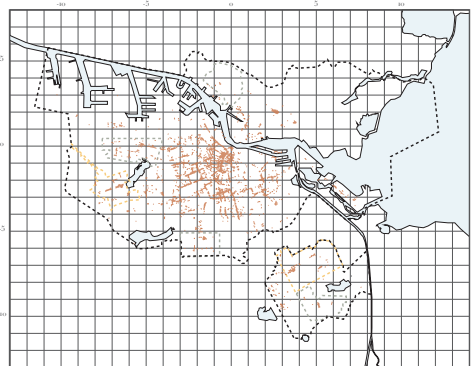
figure 07. Retails
(https://maps.amsterdam.nl/functiekaart/?LANG=en)
(redraw by the author)

homes

services

work

services – homes

work – services – homes
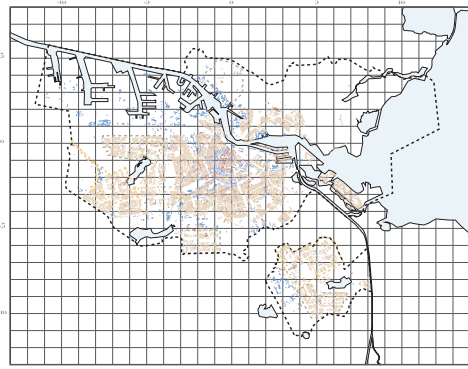
figure 08. Mixed function
(https://maps.amsterdam.nl/functiemix/?LANG=en)
(redraw by the author)

good

sufficient

weak

largely insufficient

figure 09. Life satisfication
(https://www.leefbaarometer.nl/kaart/#kaart)
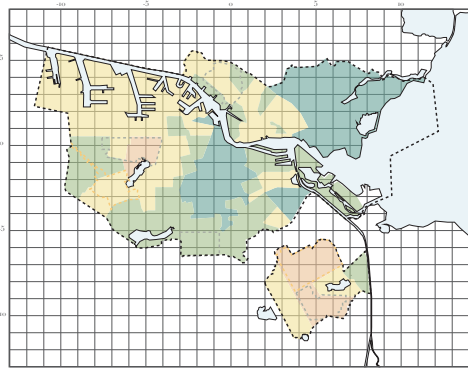(redraw by the author)

3.2 Southeast of Amsterdam

Amsterdam southeast - also referred to as Bijlmer - is well-known for three significant characteristics: mono-functional honeycomb high-rise housing, cultural diversity, and large-scale entertainment. These features make Amsterdam southeast unique, but they also act as the loneliness factors, affecting residents' living satisfaction and well-being.

3.2.1 Mono-functional housing and its development history

The Bijlmer was built up in the 1960s and 70s as a residential utopia of sorts with apartment blocks separated by tracts of green. It was planned as a modern, high-rise concrete building, with roads elevated above the ground and separate routes for cars, buses, bicycles, and pedestrians. (figure 10)(figure 11) (figure 13) But with 31 buildings holding 13,000 apartments, it turned out that its functional and monotone housing was not as popular as expected and presented many vacancies. Thus, in the 1970s, more than 100,000 Surinamese left for the Netherlands and lived in the Bijlmer, which attracted people who couldn't afford a house anywhere else. Over time, thousands of immigrants from places like Turkey, Morocco, and Ghana who came to the Netherlands for work settled[1].

Nevertheless, by the end of the 1980s, the Bijlmer had the distinct profile of a poor neighborhood, and around 50 percent of

figure 10.
(https://failedarchitecture.com/the-story-behind-the-failure-revisioning-amsterdam-bijlmermeer/)

figure 11.
(https://failedarchitecture.com/amsterdam-bijlmermeer-a-reputation-blown-to-smithereens/)

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1 Blood, Sweet & Tears
(https://99percentinvisible.org/episode/blood-sweat-tears-city-future-part-2/)

the residents were unemployed, relying on social benefits and the informal economy to make a living[2]. In 1992 the municipality of Amsterdam, the city council of South East, and the social housing corporations decided on a large-scale renewing operation of the Bijlmer area. (figure 12) The new plan focused not only on the dissolution of the physical borderline but also on the divide created by the social bordering. Today, 31 honeycomb flats were removed, and only a few were left (figure 14). Also, the organizations are working on social concerns. However, although it has improved a lot and is still improving, there is no doubt that its development history influences its building environment regarding zoning issues and social composition with cultural diversity.

2   The Bijlmer: a Dutch Approach to Multiculturalism (https://www.humanityinaction.org/knowledge_detail/the-bijlmer-a-dutch-approach-to-multiculturalism/)

figure 12. Renewal of the Bijlmer
(https://failedarchitecture.com/amsterdam-bijlmermeer-a-
reputation-blown-to-smithereens/)

figure 13. The Bijlmer in 1966 to 1992
(Bijlmermeer Renovation Planning Office, 2014)

● new buildings

● renovation

● to be constructed

figure 14. The Bijlmer 2013
(Bijlmermeer Renovation Planning Office, 2014)

3.2.2 Cultural diversity: persona

Nowadays, there are over 130 nationalities in the southeast of Amsterdam. Cultural diversity brings unique features to this area; however, while some people are attracted and move in, some suffer from the differences. This section investigates how people from different cultural backgrounds think about living here and can be sorted into two perspectives: neutral or positive and negative, including the lonely reason.

From the neutral or positive perspective, people like cultural diversity, which attracts them to move in. Some from other cultural backgrounds, such as Africa, feel they belong here because they can easily find the same culture, feelings, food, and products. (see *persona)

On the other hand, people, no matter western or non-western ethnicities, who live in Bijlmer more or less feel misunderstood by others because of the differences in skin color. Besides, the unsatisfied feelings also come from unemployed status, the lack of Dutch language, low-income status, no time for socializing, living alone and no company, and being indifferent by the neighbors. (see *persona) The analysis of persona helps the understanding of how people feel and think of living in the Bijlmer and what these people really need in terms of solving the on-site social problems and proposing programs of the final design for these residents.

*Persona

36, Turkish, live in the flat
He is in unemployed status. He doesn't want to live in the flat, but he has no choice because he cannot afford better quality housing. He has the feelings of being disadvantaged due to the colour of his skin and the lack of literacy of the Dutch language.

33, Ghanaian, single mom of two
She is lacking time of socialising due to working and caring for kids. She complains that a few "rotten apples" in the flat ruining the reputation for the rest of the residents by demolishing public properties. Also, she is negative about the quality of the flat. She feels misunderstood by others. "They have a distorted image of the people from the Bijlmer, especially people of colour from the Bijlmer. [...] People seriously have the idea that, we as black people don't work, don't go to school, that we're all single parents, drop-outs, and who knows more negativity. While that is simply not the case."

67, from Bonnaire 30 years ago, live alone
"Life is hard and evenings are so lonely!" Her husband has passed away, and her sons all have families and live far away. Although she feels well looked after in the Netherlands, the

older she gets, and especially since the coronavirus pandemic, the lonelier she feels. She is on a waiting list to move to an elderly home, in the hope of having more company.

58, Dutch

"I saw the deterioration of the neighbourhood, with the influx of more African residents, who in his experience 'don't even greet you'." He thinks his neighbours are indifference to him.

63, Dutch, moved here two years ago

"Not everybody looks at you, because some people I think they are not used to be greeted by white people, so they just look the other way." She feels irritated when people treat her differently, due to her skin colour.

42, Nigerian

He thinks that there's a ethnic segregation which reltes to socio-economic status. "There are a lot of white people, now in the neighbourhood. It's for white people, because they sell it.The Blacks don't have that kind of job, to afford to buy a house. […] I was almost thinking, 'ok, they wanna take the Bijlmer back'. A lot of Blacks are now moving to Almere and many places outside Amsterdam to look for a cheaper apartment."

34, Dutch

He describes the neighbourhood as the 'place to be' when you like to discover and are curious about different cultures and ethnic backgrounds. He enjoys the possibility to learn about different cultures without having to travel somewhere else and sees the ethnic diversity of the population in the neighbourhood as a great value.

28, Dutch, lives in the flat

He lives in the flat which has been renovated in 2010. At the time, the flat was described as one of the 'worst' places in the neighbourhood, while now he describes the neighbourhood as a 'fun' and 'cozy' place to be. While enjoying the influence of other cultures than the Dutch one, he feels like there needs to be a certain balance however. "Melting pot is good, but it shouldn't be like going on a holiday in your own country, I guess. You should recognize some typical Dutch things."

66, Finnish

She remarked that she had to get used to the predominantly black population of the neighbourhood, which was new and different to them. It illustrates the level to which skin colour still is perceived as social

barrier. Also, she participate in community work, cleaning the area or investing in a better participatory structure. She takes pride that she and her neighbours won the prize for the cleanest street in Amsterdam Zuidoost in 2012, which illustrates her personal connection to the area.

47, Cameroonian

He describes an 'African' feeling of life and his feeling of belonging within the neighbourhood, being able to connect to people and culture that remind him of his own Cameroonian background, where he lived until he moved to the Netherlands 14 years ago. "Here is like Africa, Suriname or Morocco. It has nothing to do with Dutch, really. […] You have African food, African supermarkets, fried African food, Surinamese fried food, everything made, everything. This is really Africa, it's a small Africa.

58, Suriname

Although she criticizes much of what is happening in the neighbourhood, she is 'one of them'. She doesn't want to put herself on another level and even reasons that due to her feeling of solidarity with the neighbourhood, she stayed there for so long and didn't move away. She still feels different, but she uses it as a cultural concept and not merely as materialization of skin colour.

3.2.3 Large-scale entertainment

As the report in Amsterdam[3], the southeast is called a "cultural melting pot with large-scale entertainment." The entertainment facilities, like the football stadium Johan Cruijff Arena, and cultural institutions, including AFAS Live and the Ziggo Dome, are mainly in the Bijlmer-West, separated from the living area (Bijlmer-East). The large-scale facilities are mainly for the whole city of Amsterdam, servicing people from a broader area, while there are institutions in the neighborhood for smaller gatherings. From the investigation, Amsterdam southeast lacks facilities in-between scales for different neighborhoods. This problem matters because, from the previous studies, the misunderstanding between different groups is one of the reasons that make people feel lonely. Therefore, a place for different neighborhoods and different groups is vital. The in-between scale of public space within the living neighborhoods is important for enhancing residents' sense of belonging. It provides a chance for frequent encounters in daily life experience and for people to interact with and understand others.

3 https://www.amsterdamsights.com/about/zuidoost.html

CONCLUSION

This research aims to explore the relationship between loneliness and architecture and investigate how architecture can create a belongingness environment to alleviate and heal the feeling of loneliness in Amsterdam. Loneliness is a complex psychological term that can subjectively and objectively result from various reasons. Besides one's discrepancy between desired and actual social needs, our building environment indeed is also a factor that influences loneliness. The local services and public spaces act as social resources for people to encounter, gather, and interact, creating their sense of belonging to others or a place. Also, how these places present and what is the spatial condition of these places play essential roles in creating belongingness. Based on the research, some spatial principles can be applied in architectural design, which are:

1. A public venue for frequent encounters and contacts: physical accessibility and stay-ability
2. A public venue that is multi-functional to fit the different needs: activity accessibility
3. A public venue that is distinctive: distinctiveness
4. A public venue can be easily participated: physical accessibility and spatial connectivity
5. A public venue in daily life experience: activity accessibility

Furthermore, the research in Amsterdam tells the reason why Amsterdam is a well-being city while facing a large amount of loneliness, especially in the Amsterdam southeast. The reasons could be related to the non-western ethnics proportion of the residents, the mono-functional city space, and the density of retails or places for encounters. These problems directly link to the characters in Amsterdam Southeast: the cultural diversity, the mono-functional high-rise housing areas, and large-scale entertainment, which is not for frequent encounters. At the same time, these features act as opportunities to solve the problems in Amsterdam southeast by integrating with the architectural ways from previous research of creating a belongingness environment.

This research carries on psychological loneliness and belongingness studies to the spatial field in order to explore how architecture can act to solve this pressing global issue and lead to a more well-being future, filling the limited research between loneliness and architecture. It also focuses on the problems specifically in Amsterdam southeast, showing how loneliness happens in both theoretical and practical aspects. However, although loneliness is a common global issue, it is difficult to directly apply the provided ways from the research to solve lonely problems in all cities. Instead, further on-site studies are needed to understand the region's loneliness problem and address local problems with more precise design solutions. Also, this research does not provide a final answer on reducing loneliness with architectural design but a further step that stands on the shoulders of giants and a spark of the idea that needs to be continuously re-thought, re-treated, and re-directed to create a better future.

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CHAPTER III
Design

RESEARCH TO DESIGN

The design proposal aims to provide a possibility that reflects on the outcome of the theoretical research and site analysis to reduce loneliness. From the previous research on belongingness (chapter II), there are five principles that can be applied to the architectural strategy: distinctiveness, physical accessibility, stay-ability, activity accessibility, and spatial connectivity. Below are how I translate the principles into the design, and I will explain them through different scales.

Distinctiveness
Place distinctiveness can refer to the imageability of that place. It is the mental images that create from the environment. In this project, the distinctiveness is created by the building form, arrangement, and material. With a cluster of buildings and a big platform covering them, it is recognizable from a distance. It out-stands its environment, and the programs are different from

its surroundings. On a smaller scale, distinctiveness also refers to the place a person always stays. It links to the memory of experiencing the place. It means that distinctiveness also links to the stay-ability of a place.

Physical accessibility
Physical accessibility consists of the number and availability of entrances, the connectivity capacity to nearby paths of circulation, and the variety of modes of access to the space. Thus, rather than a big volume, the building is designed in a cluster with smaller volumes, creating multiple entrances and enhancing accessibility. The entrances are on the same floor level, allowing people to enter through multiple mods. On a broader scale, the routes in the site are connected to the existing ones and create circulation for accessibility.

Stay-ability

Stay-ability allows people to stay as long as they want in the building and provides happenings. The building volumes arrangement creates those in-between spaces for wandering around, staying, and encountering. Different stay places are introduced in the project to fit different preferences and enhance stay-ability. Some of them allow different groups of people, while some places are for people who like to stay alone.

Activity accessibility
Activity accessibility means a place that provides multiple activities for various preferences. From the persona research (chapter II), the lonely reasons, the problems, and the positive thoughts people mentioned create possibilities, leading to the solutions and programs in the final proposal. The programs consist of needs and supplies exchange and cultural exchange. For the needs and supplies, there is a function of caring, social, and education, serving people from neighborhoods nearby. For those people who like cultural diversity in this area, the project provides activities that are art, food, and product-related. The more programs provided, the more inclusive the building is. Besides, the project creates flexibility with the in-between spaces for more uses to enhance activity accessibility.

Spatial connectivity
Spatial connectivity allows high visibility and high accessibility between spaces. In this project, the building facades are mainly glass windows, providing transparency to the building and openness to the facades. The platform of the building, floor materials, and landscape design create the blurring edges between spaces and interior and exterior, connecting different groups. On a bigger scale, the project also acts as a connection to the urban context.

MASTER PLAN

With the research in the context of Amsterdam southeast, my project aims to reduce the physical barrier and social barriers, which are the reasons that create loneliness in the southeast. My site location is different in-between neighborhoods and where lacks different facilities. It is surrounded by three different housing which developed at different times, and there is a new developing housing area in the north of the site. In a broader context, it is also in-between city (development) and nature area (west-east), and shopping and living area (south-north). Therefore, my project can act as a connection to connect different neighborhoods, blur the line between nature and developed areas, and extend the activities from the shopping district.

Spatial connectivity
The master plan illustrates the connection from different directions between bike routes and pedestrians. On the urban scale, the spatial connectivity presents through bicycle routes in two dark grey lines which connect south-north and west-east parts. They reduce barriers from the elevated roads and the high-rise building. The existing one (west-east) connects the natural park and city area, while I create the north-south one with the bridge and route on my site, leading people from the north part and extending the activities from the shopping district. Besides, the pedestrian (light grey color) on the site connects to the existing one, leading people from the metro station and bus stops.

Physical accessibility
My project enlarges the physical accessibility to service people from different neighborhoods and distances. In mater plan, the physical accessibility is also presented through bike routes and pedestrians. It creates a possibility for people to access it from a different direction in different ways.

Distinctiveness
The project is designed close to the existing three stories housing, leaving a distance from the border (elevated road) and creating a buffer zone for the natural area to extend. The gird system is following the existing building pattern but trying to make a difference with different pieces of the landscape tile and rotated building volume. The cluster of volumes creates distinctiveness of the building from its context. Also, the project is distinctive with its functions in this housing area.

Stay-ability
Compared to the surroundings, the project provides comfortable and multiple places for people to stay and have activities.

Activity accessibility
On the urban scale, with the multiple functions in the project, it provides activity accessibility in the housing area. It contracts the surroundings with vivid activities.

*new developed
housing area*

bridge

*shopping
district*

bike routes
pedestrian
grass
vegetable garden
flower garden
playground
wood
ceramic tile
ceramic tile
concrete

Chapter III

grass
vegetable garden
flower garden
playground
wood
ceramic tile
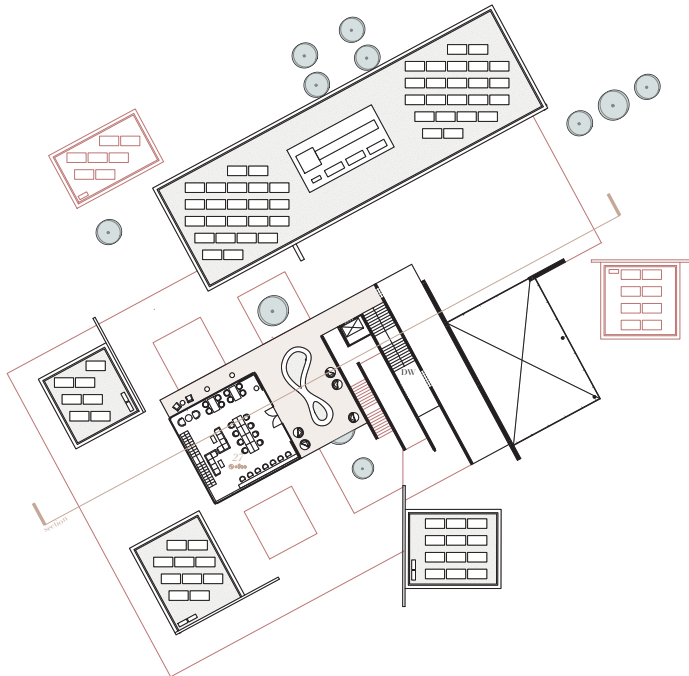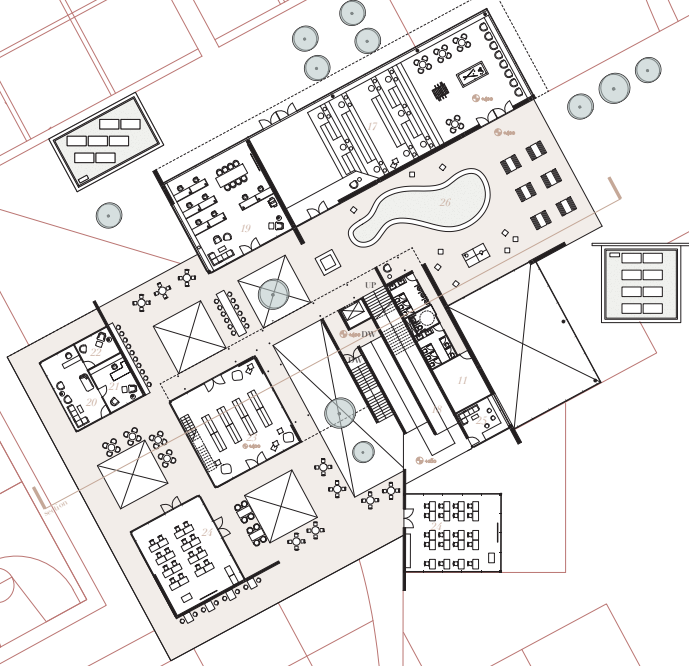ceramic tile
concrete
red asphalt

GROUND FLOOR PLAN

My project aims to provide a variety of staying places to fit the different needs and create connectivity and interaction between these places. It is built with different volumes covered by a big canopy. The volumes create different entrances and those in-between spaces for wandering around and staying. The routes connect people from different directions, and they can have different experiences of entering the building with different walkways. These routes also create circulations. There are elements, like walls, to lead people into the building. In the outer part of the building, the landscape is also designed with various functions, like grass, flower gardens, vegetable gardens, playgrounds, and staying places. They are for people who prefer to spend time in nature and open spaces.

Physical accessibility
The arrangement of the building creates multiple entrances and enhances accessibility. The entrance pathways are made of different materials but extend from the outer area to the inner area and are at the same floor level to lead people, showing the accessibility.

Stay-ability
The goal of the project is to minimize walkways and enhance stay-ability in every corner. Stay-ability in this project creates through those in-between spaces. With different floor materials, like wood and ceramic tile, and function, people can choose where they like to stay. Also, the columns of the platform define the in-

LEGEND
01 wood craft workshop
02 volunteer's room
03 drawing workshop (for kids)
04 playgound
05 library (for kids)
06 kids caring
07 terrace
08 information
09 coffee bar
10 storage
11 techical room
12 dressing room
13 multifunctional hall
14 pottery workshop
15 open kitchen
16 dancing and yoga room
17 staircase with seats
18 ramp with exhibition wall

FIRST FLOOR PLAN
SECOND FLOOR PLAN

between spaces into different areas. Some for a large group of people and some for people who like to stay alone. Stay-ability also refers to activity accessibility which fits people's different preferences and makes them want to stay for a longer time. Besides, the walkways are combined with other functions, like a staircase with seats and a ramp to the first floor with an exhibition wall. The landscape design tries to increase stay-ability.

Spatial connectivity
The glass window building facade provides transparency for visual connectivity. The platform creates semi-open spaces, blurring edges between spaces and interior and exterior. Also, the activities in the volumes can extend to those in-between spaces/ semi-open spaces, enhancing spatial connectivity and integrating different users. For example, people can grab a coffee in the coffee bar and drink in the kitchen area; then, they can chat with people who are having lunch there.
For those lonely people who are shy and don't like to stay with the crowd, there are some spaces for them, allowing them to stay alone but still have visual connectivity with other people.

Activity accessibility
Activity accessibility can refer to the programs in the building.

Distinctiveness
In the building, people can find their preferable spaces to stay. From time to time, people can create memories when experiencing these places. Then, that place becomes distinctive for that person.

LEGEND
11 techical room
17 staircase with seats
18 ramp with exhibition wall
19 office + meeting room
20 waiting room
21 consulting room
22 consultant's room
23 library
24 classroom
*25 control room*
26 garden
*27 library (for reading)*

ELEVATION

In the project, the idea of volumes is to show the diversity and dynamics and also reflect the site context. The volumes are designed in different heights and different colors of wood cladding. Since there is a high-rise building on the south side, the taller building volumes are put on the south, while shorter volumes are in the north. So the height of volumes is growing gradually from the north to the south.

Distinctiveness
The elevation is chosen in wood material to present a warmer feeling of the building and also provide distinctiveness from its context. Different colors of wood claddings on the building facade present diversity and be distinctive from each volume.

Spatial connectivity
With a large number of glass windows on the volumes' facade, it creates visual connectivity between the exterior and interior.
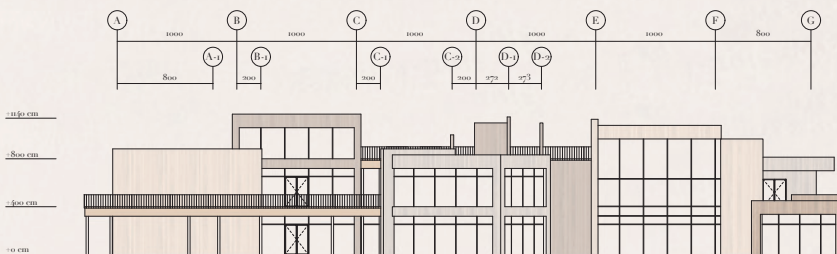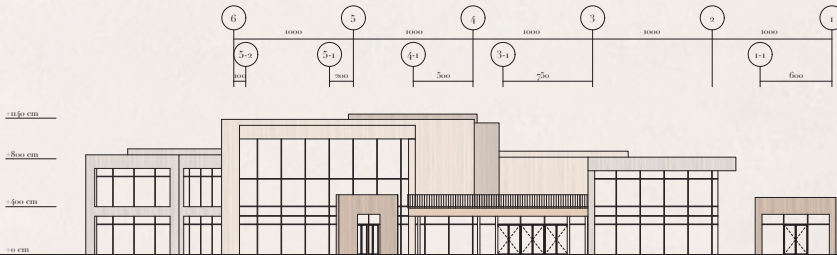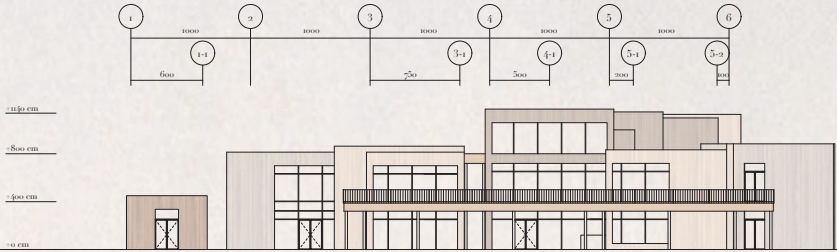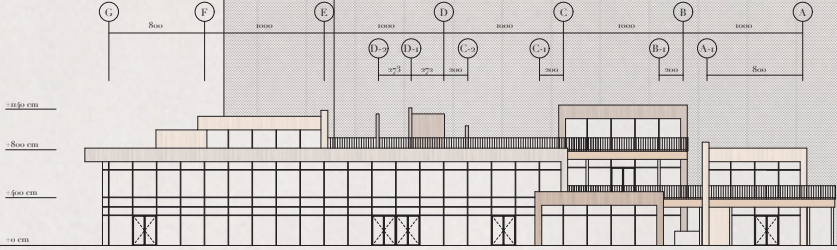
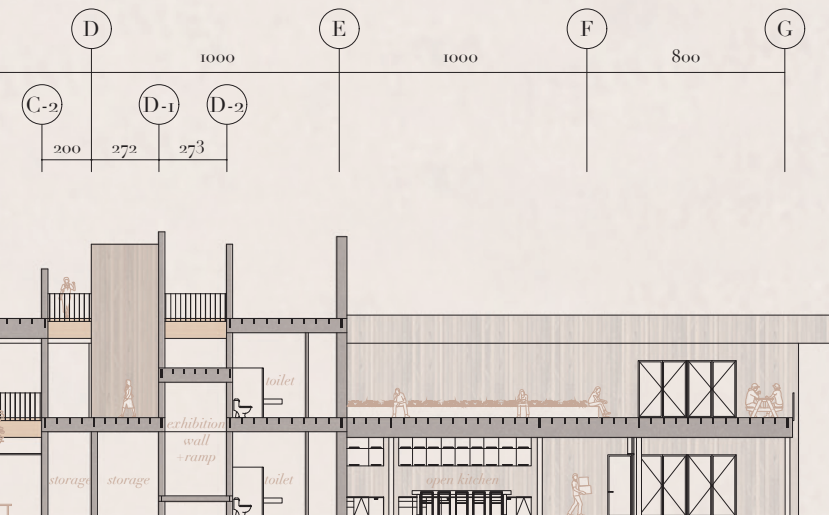# SECTION
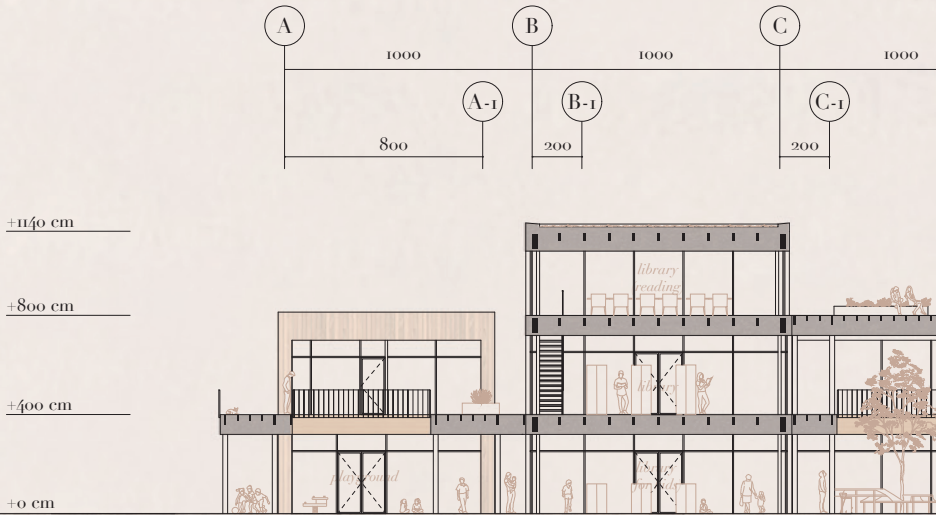
Spatial connectivity

The platform connects different volumes and creates semi-open spaces/ in-between spaces for different activities. It also acts as a protection for ground floor users, providing safety feelings, and is an extension element from the interior to the exterior and from the inner area to the outer area, creating spatial connectivity. The building also has a vertical visual connection with the void space.

Activity accessibility

The section shows various activities and how they connect together.
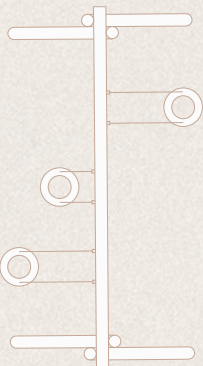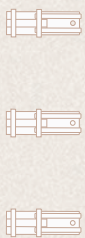
Stay-ability

The section also shows places where people can stay. Some are for small groups, and some are for bigger groups.
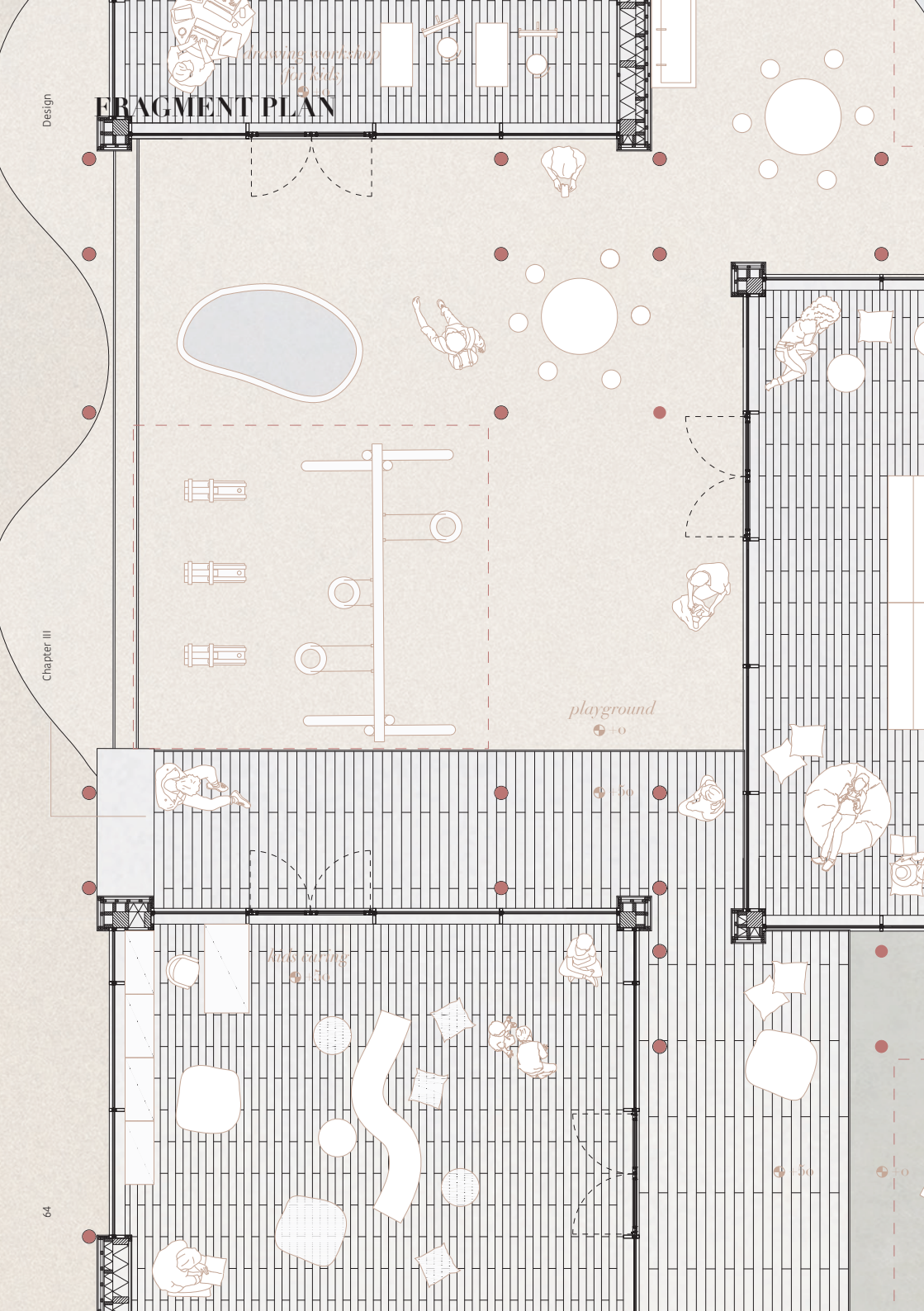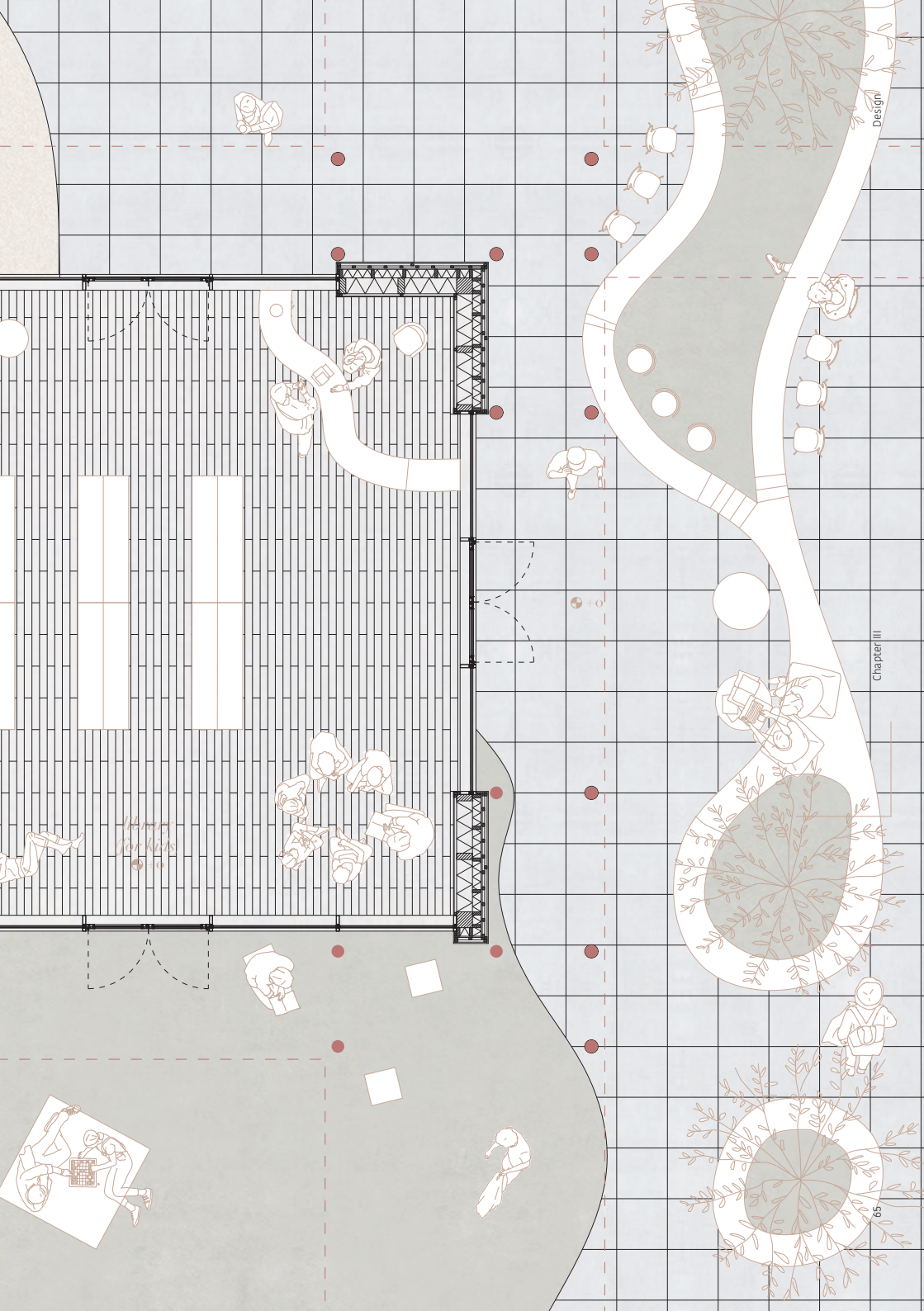
FRAGMENT PLAN

drawing workshop for kids

playground
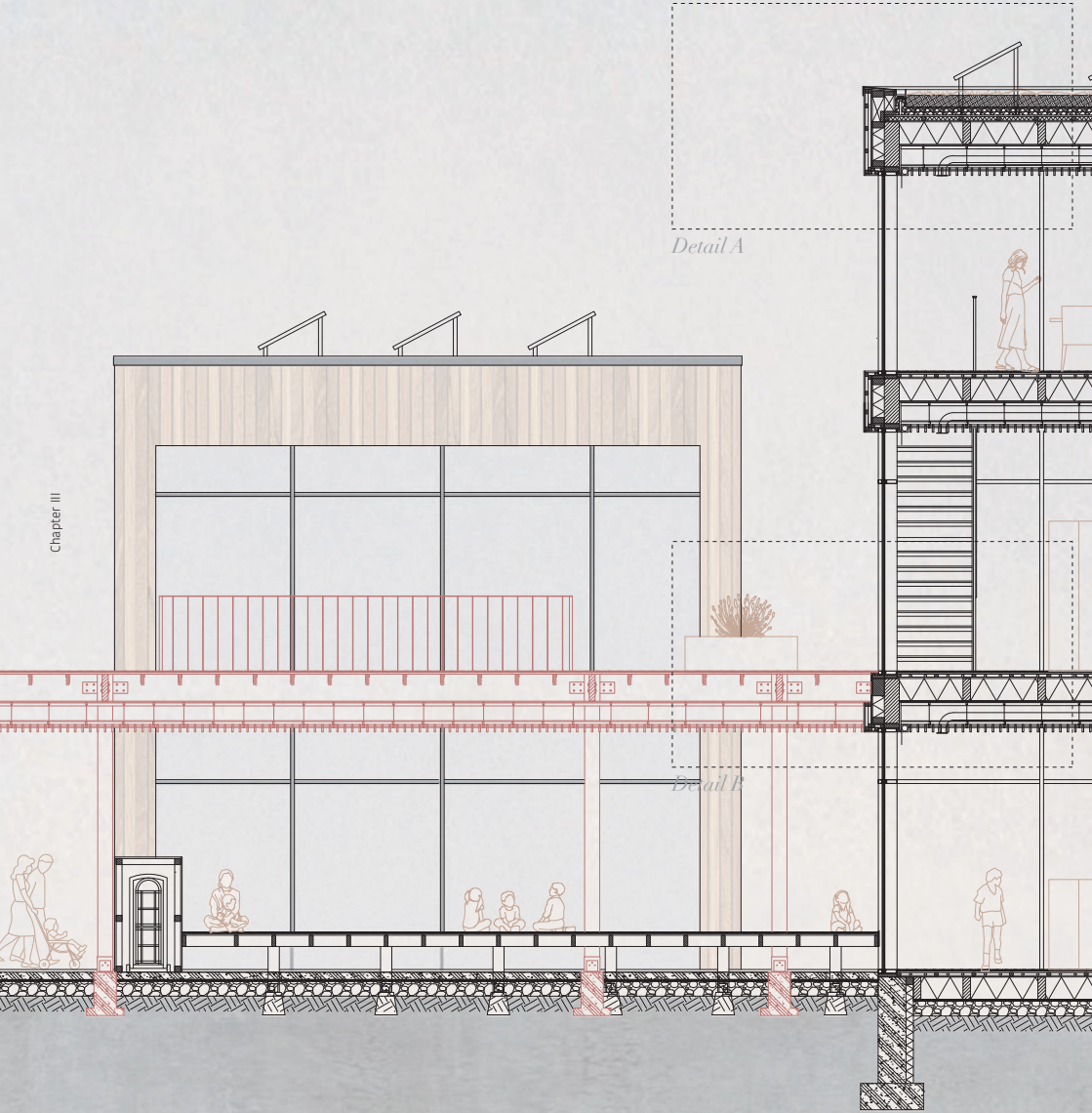+0

kids caving
+50

+50

FRAGMENT SECTION

Detail A

Detail B

Detail E

Detail D
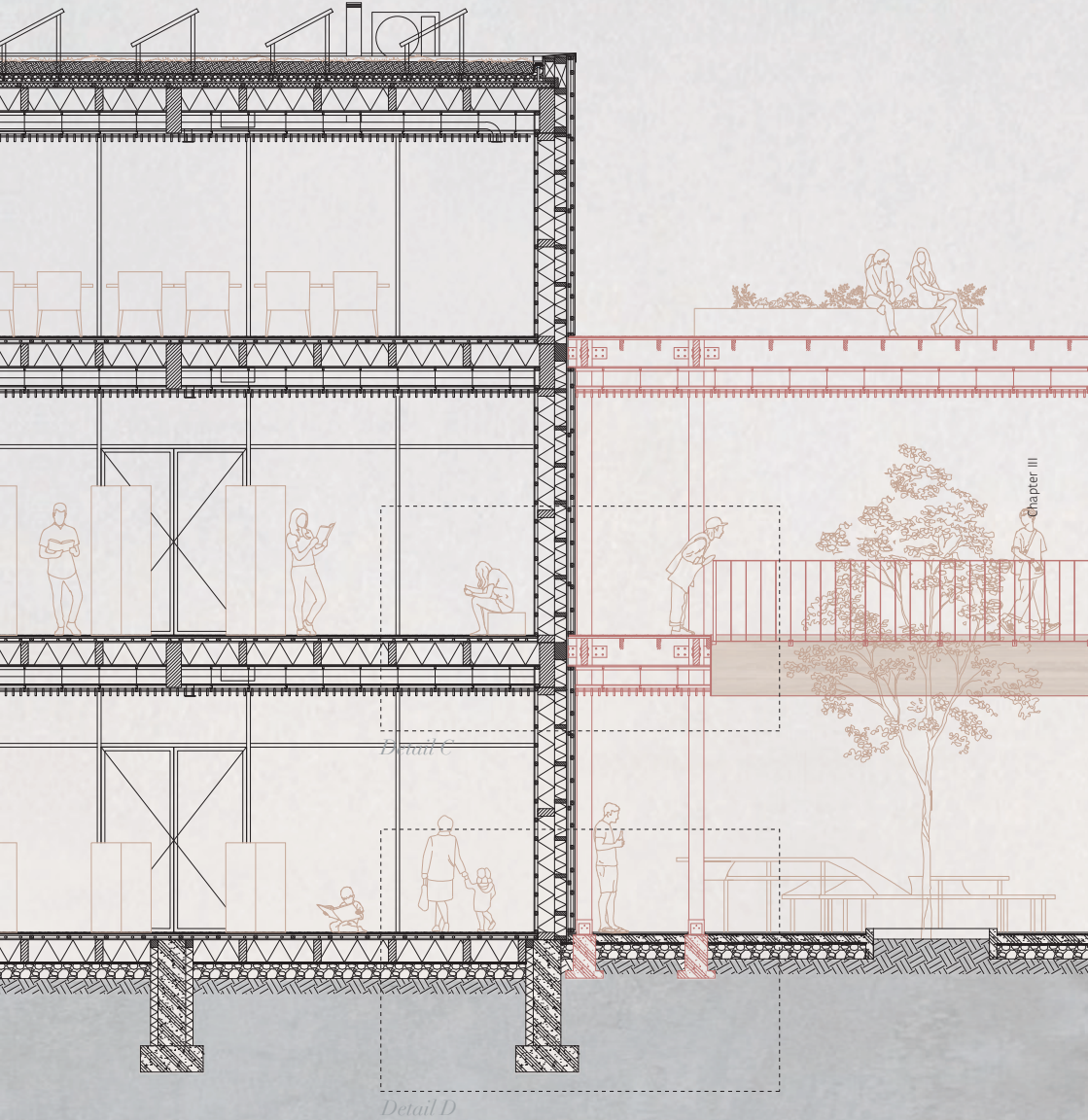
STRUCTURE

VOLUME'S WALL
01 main timber column, 250x250mm
02 main timber beam, 200x600mm
03 wood fibre insulation, 250mm
04 secondary structure + wood fibre insulation, 135mm
05 wood fibre insulating board, t=18mm (air tight)
06 exterior: wood cladding, t=12mm, with horizontal and vertical battens
07 interior: wood cladding, t=12mm, with horizontal battens
08 fixed double glazing with aluminium frame

PLATFORM
09 timber column, Ø=200mm
10 main timber beam, 80x360mm (fixed to the wall with steel plates)
11 secondary beam, 50x150mm
12 plywood board, t=12mm
13 plywood board flooring, t=25mm
14 decking board finishing, 18x150x2400mm
15 plywood panel, t=12mm
16 steel railing

INTERIOR FLOOR
17 secondary beam,100x300mm + wood fibre insulation, 300mm
18 plywood board, t=12mm
19 radiant tube
20 floor finishing: plywood, 18x120x1000mm

DETAIL

Detail A

growth medium, d=155mm
filter fabric
drainage layer, d=100mm
waterproof membrane
plywood roof deck

solar panel
steel beam, 100x100mm

wood cladding, t=12mm
horizontal battens, ventilation cavity, 38 mm
vertical battens, ventilation cavity, 38 mm
waterproof membrane
wood fibre insulating board, t=18mm (air tight)
wood fibre insulation, 160mm
main timber beam, 200x600mm

Detail B

decking board finishing, 18x150x2400mm
plywood board flooring, t=25mm
main timber beam, 80x360mm
plywood board, t=12mm
timber column, O=200mm

fixed double glazing
with aluminium frame

floor finishing, plywood, 18x120x1000mm
moisture retarder
plywood subfloor, t=20mm
plywood board base, t=20mm
wood fibre insulation, 300mm
plywood board, t=12mm
aluminium primary support of grill ceiling finishing
aluminium secondary support of grill ceiling finishing
aluminium bolt
grill ceiling finishing

internal lining, 12 mm
horizontal battens (services), 38 mm
wood fibre insulation, 250mm
wood fibre insulation, 135mm
wood fibre insulating board, t=18mm (air tight
waterproof membrane
vertical battens, ventilation cavity, 38 mm
horizontal battens, ventilation cavity, 38 mm
wood cladding, t=12mm

plywood panel, t=12mm
steel railing

Detail C

floor finishing: plywood, 18x120x1000mm
moisture retarder
plywood subfloor, t=20mm
radiant tube
plywood board base, t=20mm
wood fibre insulation, 300mm
waterproof membrane
plywood board, t=20mm
gravel layer, d=100mm

ceramic tile, 20x800x800mm
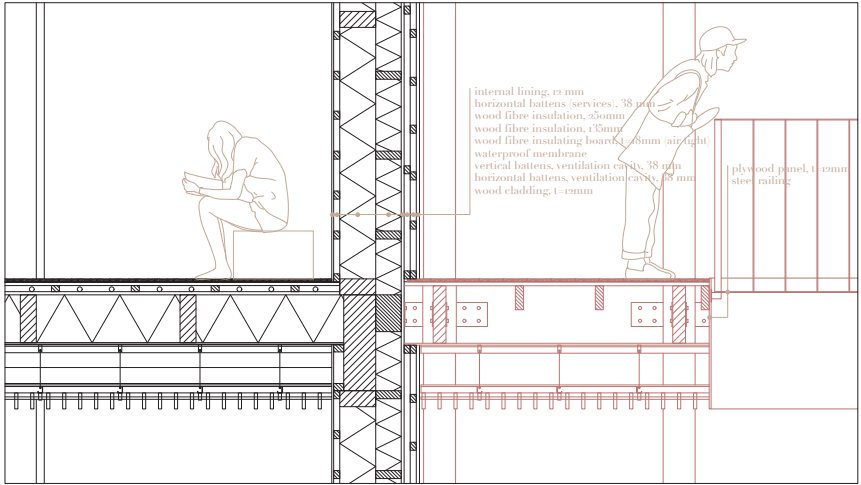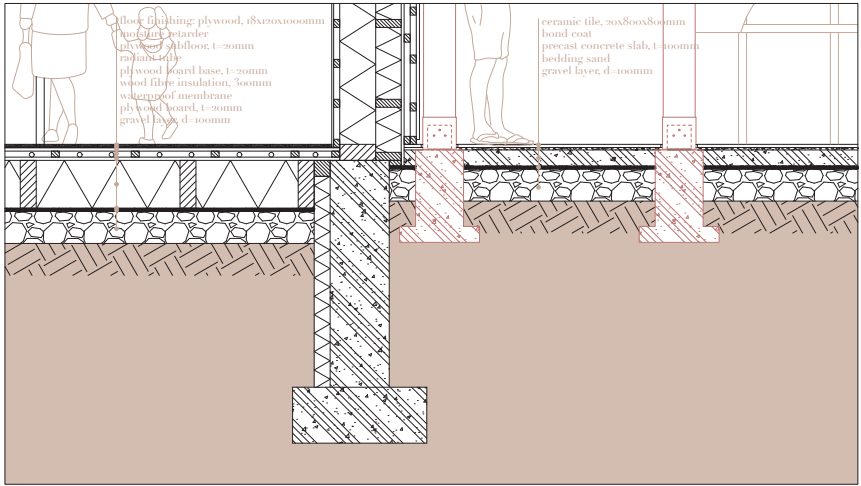bond coat
precast concrete slab, t=100mm
bedding sand
gravel layer, d=100mm

Detail D

VISUALIZATION

CHAPTER IV
Reflection Report

INTRODUCTION

Loneliness is a global chronic for millions from ages, genders, and ethnicities. From London to New York, Amsterdam to Dubai, and Hong Kong to San Paulo, almost half of the population in the cities suffer from loneliness. (Hertz, 2020) Loneliness not only hits individuals but also enlarges its influence on the whole world, which relates to social health and living satisfaction. Therefore, from my perspective as an architectural student, the topic of loneliness is vital to be solved in relation to build a well-being living environment for the future. How can architecture help to alleviate the feeling of loneliness is the direction that what I want to approach in this graduation project.

From those cities which suffer from loneliness in the similar number, I target Amsterdam as a further research site because of its contradictory fact: it ranks highly in both happiness and loneliness. As the article written from the survey says, "While the Netherlands ranked highly as a great place to work, the survey also found that life as an expat here can be lonely and hard to settle into." (Lorimer, 2021) Also, the other article highlights the dichotomy of economic differences and the gap in happiness and loneliness in Amsterdam. "As a big city as Amsterdam, it attracts many loners, such as students, expats, and migrants, to live and work." (Couzy, 2017) After the investigation of loneliness reason in Amsterdam and Amsterdam Southeast, Bijlmer is chosen for my project's location. The assignment of my graduation project is to examine the loneliness reasons and solutions from people who live in Bijlmer and explore the developed opportunities in Bijlmer's building environment.

This reflection paper aims to see if my approach worked, how I reflect on and translate the feedback into my work, and how and why I have learned. Besides, this paper answers questions which list below:

I. What is the relationship between research and design?

II. What is the relationship between my graduation topic, the City of the Future studio topic, my master track, and my master programme?

III. How do I elaborate on research method and approach chosen in relation to the graduation studio methodical line of inquiry, reflecting thereby upon the scientific relevance of the work?

IV. How do I elaborate on the relationship between my graduation project and the wider social, professional and scientific framework, touching upon the transferability of the project results?

V. Discuss the ethical issues and dilemmas I may have encountered in (i) doing the research, (ii) elaborating the design and (iii) potential applications of the results in practice

I.

The relationship between research and design

Several research approaches, including literature research, site analysis, case study, and research by design, are introduced in my graduation project to clarify the complex issue of loneliness, understand the on-site problems, and answer the main research questions: how can architecture create a belongingness environment to alleviate and heal the feeling of loneliness in Amsterdam? (figure 01) As the diagram, each phase of research can provide me the hint of making decision and help me go further to the next step, until the final design part.

The main challenge in my graduation project of loneliness is to translate the psychological problem into an architectural solution by research and design. Loneliness is an individual's inner feeling that differs from everyone, but in general, the feeling merges due to the lack of sufficient social connection and belongingness. By looking into the literature of loneliness and belongingness, it provides some spatial principles of how to create a sense of belonging, including relationship belonging and place belonging, for reducing loneliness. The principles include:

1. A public venue for frequent encounters and contacts: physical accessibility and stay-ability
2. A public venue that is multi-functional to fit the different needs: activity accessibility
3. A public venue that is distinctive: distinctiveness
4. A public venue can be easily participated: physical accessibility and

spatial connectivity
5. A public venue in daily life experience: activity accessibility

The second part of the research focuses on Amsterdam. By analizing the social and spatial aspects of Amsterdam, I can further target in the southeast of Amsterdam because it faces the most significant loneliness and insufficient life satisfaction. The three main characters of southeast of Amsterdam are mono-functional housing area (Bijlmer), cultural diversity, and large-scale facilities. They highlights the on-site problems for the future development. Furthermore, the research on people who feel lonely living in the Bijlmer, which reflects on the feedback from my tutors, helps me come up with the programs of my project and make my project more precise. The analysis on the specific site location,

Bijlmer, leads me to my project's spatial concept, reflecting on the site spatial condition and the previous research on belongingness. Moreover, the case study provides ways to achieve my goal.

During the final part of the research, research by design, is the best way to approach the final proposal for the solution and reflection. "In the current timeframe, many problems are complex. [...] There is no single accepted formulation of these problems. [...] Design is a very suitable approach for these types of problems because it makes creative jumps in thinking and solving possible." (Roggema , 2016) From the literature research, site analysis, and case study, I get some principles and the direction of how to create a belongingness environment to alleviate loneliness, then apply them to my project.
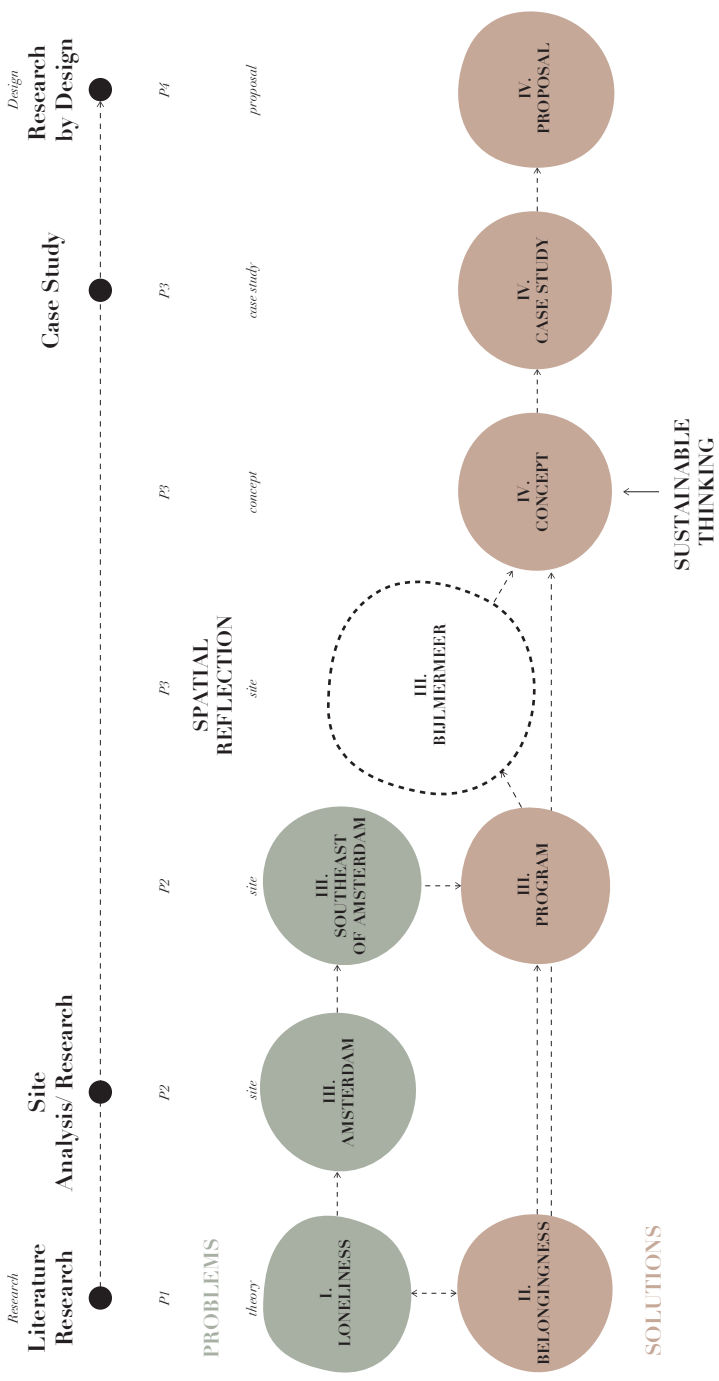
figure 01. Research to design diagram

II.

The relationship between my graduation topic, the studio topic, my master track, and my master programme

Winston Churchill once said: "We shape our buildings; thereafter they shape us." The building environment we live and work in undoubtedly have an impact on us. As an architect, what is my position? What should I bring to the society? How can I contribute to our building environment?

In my past experience of architectural studies and practices, the training always focused on designing a well-functioning space. However, for me, architecture is not only a functional space but a place that provides happiness, comfort, and even emotional attachment. The chosen studio, Cross Domain City of the Future MSc3 Graduation Lab, gives us the freedom to choose our scope within the city of the future framework and provides a multi-disciplinary approach, helping develop our own projects. Thus, to implement my thought of what architecture should preach for, I introduce loneliness in my graduation project, aiming to explore the relationship between loneliness and architecture and achieving architectural projects in multi-disciplinary construct. The loneliness issue not only directly links to social health but also relates to living satisfaction in terms of future city development, which fits in the theme of Cross Domain City of the Future MSc3 Graduation Lab.

Besides, the realization of architecture not

only needs to be considered in humanity, cultural, and social aspects but also needs sustainable thinking, which applies to architecture itself, urban environment, and building engineering. The research in loneliness focuses on social challenges and how the building environment has an impact on people's mental health and emotion. My graduation project aims to deal with this social problem encountered from time to time in our daily life and our living environment with architectural design. Also, how this architectural project reflects on sustainable development is what I want to achieve. Within the Architecture track, it encourages us to develop building projects to deal with various challenges and provides me the learning environment to explore the topic. My master programme emphasizes on creating more sustainable development, which gives me the different direction of learning architecture than before.

III.

Elaboration on research method and approach chosen in relation to the graduation studio methodical line of inquiry, reflecting thereby upon the scientific relevance of the work

City of the Future is a multidisciplinary graduation studio focusing on various pressing matters and on other questions related to the transformation of our cities towards attractive and inclusive future urban environment. Within this studio, several workshops, lectures, and master classes inspire students with the diverse approaches of future city development and help me come up with the theme of

graduation project. After that, we have freedom to develop our research method and choose our approach in terms of our own topic. My research includes historical, qualitative, and case studies approaches. The selected methods are mainly in the description, mapping, and photographing aspects. These different approaches and methods help to have an understanding of the psychological issue of loneliness and how the city space has an impact on it. Then, the case study benefits the transition from psychological theory to architectural practice.

IV.

Elaboration on the relationship between the graduation project and the wider social, professional and scientific framework, touching upon the transferability of the project results

According to the UN, the world population living in urban areas is expected to grow to 68% in 2050, which means that not only the functioning of the urban systems matters but also the well-being and mental health of the inhabitants are important. Loneliness is undoubtedly a global issue and becomes more and more important for creating a future well-being city. My graduation work carries on the loneliness research and fills in the limited study in city space and loneliness through belongingness. It provides the ways of how architecture strategies address loneliness problems, and can further apply in this pressing issue in many cities. Furthermore, as a well-known happy city, Amsterdam also faces loneliness. My research focuses on spatial reasons and looks for a proposal

to combat loneliness in Amsterdam-southeast, the district that meets the most significant loneliness. It turns out that the loneliness reasons act as opportunities for improvement and offer possibilities for the residents to have a different experience in public venues. My graduation project is also relevant in relation to arguing the existing relationship between housing buildings and open public spaces in the Bijlmermeer, and proposing a different thinking of public venues. Finally, the design objects will reflect on building science, which considers the material, sustainability, and construction.

V.

Discuss the ethical issues and dilemmas you may have encountered in (i) doing the research, (ii) elaborating the design and (iii) potential applications of the results in practice

In architectural education, asking why and how plays an essential part and leads to the result. In my graduation project, I begins with the question of "why" the well-being and happiness city as Amsterdam is can also faces significant loneliness and "how" can architectural design help to reduce this problem. The research, which is done through different methods, is trying to understand loneliness in theories and in physical spaces and how to go further into architectural practice. Indeed, the theory and site analysis only provide the answer of "why". Without the direct answer of how the architecture can reduce loneliness, belongingness is introduced. However, the research in belongingness

also only gives some principles and keywords, such as connection, accessibility, and distinctiveness. Thus, I need to further define what does these words mean and try to apply them into architectural elements. From the research to design, it is not a one way line that directly leads to the final answer. When doing design, sometimes, I need to go back to the research to think again why and how the decision is made and what is the most important thing in my project. Then, doing this stepping back again and again makes me closer to my approach. However, it is difficult to examine whether the final proposal actually works for alleviating loneliness or not because loneliness is an inner feeling that happens subjectively. The only thing we check is what my project brings to the southeast of Amsterdam. The way I see my project is not a finished building but a process and a spark which need to be continuously treated and directed to create a better future.

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