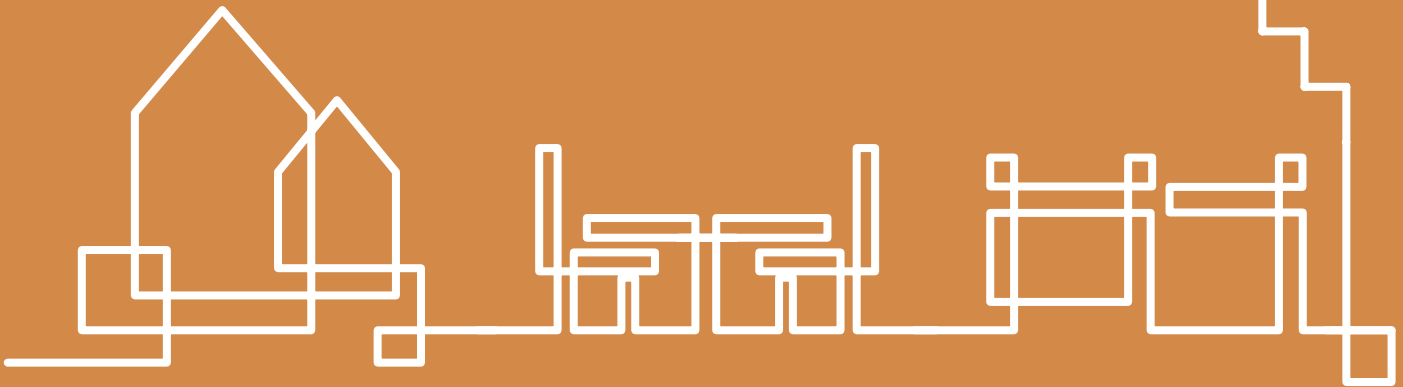




Happy Accidents

Eveline Scheffel



DESIGN AND RESEARCH BOOKLET

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Eveline Marlies Scheffel
5025133

TU Delft - Architecture
Advanced Housing - Dwelling

Harald Mooij - Architecture
Robbert Guis - Research
Elina Karanastasi - Building Technology
Silvia Naldini - Exame committee

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INTRODUCTION

The goal of the municipality of Amsterdam is to build 150.000 houses before 2050 within the borders of Amsterdam, combined with the growing number of loneliness in Amsterdam, could result in both mental health problems and social problems. When these new houses are not planned properly, the quality of living in Amsterdam will drastically lower. Due to these problems, this research will focus on the relationship between neighbours and residents of large-scale city blocks. This will be done by researching and improving

the social interaction between neighbours to lower the levels of loneliness and ensure a feeling of 'home' within a large-scale city block. The main research question will therefore be: How can large-scale city blocks be improved to create more opportunities for social interaction between neighbours?" . Ultimately, this research aims to find design guidelines that can be used to design a large-scale city block without undermining the unique qualities of the project.

PROBLEM STATEMENT

In cities all over the world, many people want to move houses, but they are unable to due to a shortage of housing and high rental prices. This widespread issue is referred to as the "affordable housing crisis" (Henley, 2024). To counteract this housing crisis, the Netherlands set the ambitious goal to build 1 million new houses before 2050. This initiative aims to address housing shortages and meet the growing demand for residential properties in the country (Ministerie van Algemene Zaken, 2023).

The Netherlands has faced this national housing crisis before, in the 1970's. The solution then was to build large monotonous apartment blocks. These apartment blocks could be built quickly and could be copy pasted anywhere in the Netherlands, making the design very cost-effective. However, the uniformity and often bland, grey appearance of these structures led to residents feeling disconnected and contributed to a rise in loneliness among them.



Figure 1: Apartment blocks built in 1970 (Van Den Hoven, J., 2025)

Due to the national housing crisis, the municipality of Amsterdam has set the goal of building 150,000 houses before 2050, within the city's borders. This would result in an increase of 250,000 residents in Amsterdam (Municipality of Amsterdam, 2021). Along with housing, these projects will include shops, connections to public transport, bicycles, and cars, with an emphasis on sustainability, greening, and primarily preserving the quality of life in Amsterdam.

The municipality of Amsterdam plans to distribute these 150,000 houses among four areas within the city: Northwest, Northeast, Southwest and Southeast. The historical city centre of Amsterdam will not be densified with these new plans.

However, the plans for the other four areas of Amsterdam will lead to a densification of approximately 40% and a transformation of about 60% (Municipality of Amsterdam 2021). Most of the transformation will occur in the North, where industrial zones will be converted into residential and mixed-use spaces. Whereas already existing housing areas in the South of Amsterdam will mostly be densified (Municipality of Amsterdam, 2021).

The municipality of Amsterdam is planning to expand and increase the density of the city by constructing large-scale apartment blocks. These buildings will be multifunctional, with commercial spaces and offices on the lower levels and residential units

on the upper levels (Municipality of Amsterdam, 2021). This design aims to accommodate a significant number of people in a compact area without the need for tall towers. However, one downside of these blocks is that they can feel relatively closed off due to the separation of functions, and the high density may contribute to a sense of anonymity among residents (Next-Door Strangers, z.d.).

Even though the distribution of these 150.000 new houses is planned by the municipality, there is still little planning around the quality of homes and living environments. If there is no proper consideration of how these new homes will integrate into the existing city network, many social problems will arise, same as with the apartment blocks in the 1970' s. (Wagemakers, 2025).

This research will focus specifically on the mental health problems that can occur when these 150.000 houses are not planned carefully. Research has shown that many different factors can influence mental health (Mental Health foundation, 2025). However, many of these cannot be addressed within the built environment. One that both can be addressed within the built environment and has shown significant influence on the mental health of residents is the relationship between people, for this research specifically neighbours (Mental Health foundation, 2025).

Research done by the municipality of Amsterdam shows the levels of loneliness among the inhabitants of Amsterdam (Municipality of Amsterdam et al., 2017). Figure 2 and 3 show that almost 50% of the inhabitants of Amsterdam felt lonely in 2016. This number has risen over the years, and when this trend is projected to continue until 2025, the number is expected to exceed 50%. When 150.000 houses are added to Amsterdam without careful planning, this number is expected to rise even faster (A. Baum & Valins, 1977).

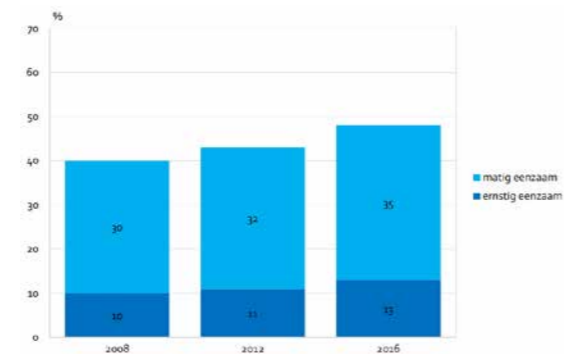


Figure 2: Levels of loneliness in Amsterdam (GGD Amsterdam, 2018)

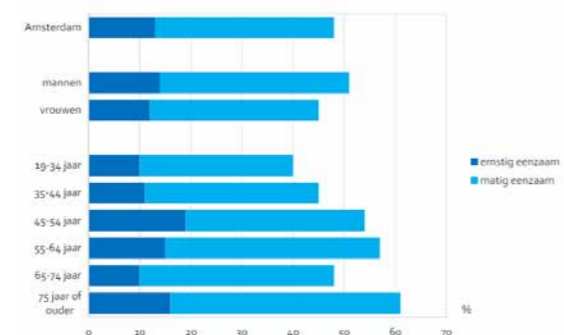


Figure 3: Loneliness across age groups in Amsterdam (GGD Amsterdam, 2018)

RESEARCH QUESTION

The goal of the municipality of Amsterdam is to build 150.000 houses before 2050 within the borders of Amsterdam, combined with the growing number of loneliness in Amsterdam, could result in both mental health problems and social problems. When these new houses are not planned properly, the quality of living in Amsterdam will drastically lower. Due to these problems, this research will focus on the relationship between neighbours and residents of large-scale city blocks. This will be done by researching and improving

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THEORETICAL RESEARCH

SOCIAL WELL-BEING

Social well-being is one of the four types of well-being, along with emotional well-being, physical well-being, and workplace well-being. All four of these are in relation to each other, and a decline of one of them could mean a decline of all of them (Sinclair & BetterUp, 2025).

Social well-being can be seen as the ability to participate, feel valued by others and feel connected to a wider social group (Stride Mental Health Charity, 2023). Our social well-being is not only affected by the social groups around us, but mostly by the interactions we have with these social groups or individuals and the way we can have an influence on these groups (Stride Mental Health Charity, 2023).

In conclusion, social well-being is the ability to maintain healthy relationships and have meaningful interactions with others (Boston University Student Wellbeing, z.d.).

Social well-being significantly impacts both our physical health and emotional well-being. Our limbic system drives our desire to connect and bond with others. When we engage socially, this system produces hormones that promote feelings of safety and happiness (Sinclair & BetterUp, 2025). As a result, individuals with strong social networks tend to live longer, enjoy better immune function, and experience lower stress levels (American Counseling Association, 2024; Communications, n.d.).

In addition to the physical benefits, social interactions offer emotional advantages. Improved social well-being can lead to higher self-esteem, decreased depression and anxiety, and reduced feelings of loneliness (Stride Mental Health Charity, 2023).

When a person isolates themselves, it can lead to feelings of loneliness and social isolation. Social isolation often creates a negative cycle of fear and can result in even more withdrawal from social interactions (Sinclair & BetterUp, 2025). In this context, loneliness is not simply having an off day; it is a persistent feeling of being alone and not belonging anywhere (Pearson & New York Times, 2022).

When this feeling of loneliness becomes a daily experience, it can be more harmful than smoking, high blood pressure, or obesity (Seppala & Stanford Medicine, 2023). Ultimately, social isolation may increase the risk of serious health issues such as heart disease, type 2 diabetes, depression, anxiety, suicidality, self-harm, and even dementia (U.S. Centres for Disease Control and Prevention, 2024).

According to research done by Seppala and Stanford Medicine (2023) and the U.S. Centres for Disease Control and prevention (2024) there are five keys to having a good social well-being:

1. Integration in a community, feeling part of something bigger and feeling at home when being with other people.
2. Acceptance of other people, being able to fully be yourself and that you do not have to hold back.
3. Perceived contribution to the community, feeling like you could actively help within the community.

For example, by organising events or by helping your neighbour with their groceries.

4. Actualisation or belief in the community' s evolution, seeing a future with the group and having a common goal. When hope in a good future is lost the motivation to participate within the community is also lost.
5. Perceived coherence of the social world, not feeling stressed about the formation of your community. Knowing everyone is happy and will stay within the community, and no one is missing.

STRONG VS WEAK BONDS

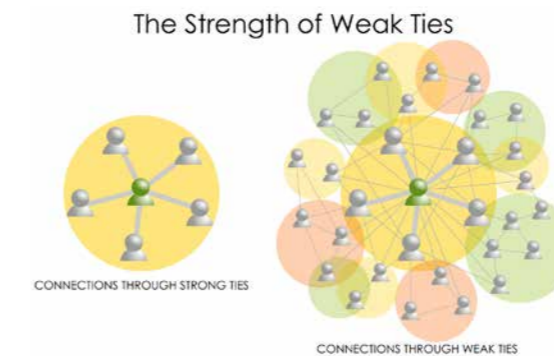
The people you interact with in your life can be categorised into two groups: strong bonds and weak bonds. The difference between these two types of bonds lies in the frequency of your interactions, the emotional intensity and intimacy of the relationship, and the number of roles that person fulfils in your life (Wool & BetterUp, 2025 and Rademacher et al., 2013).

Strong bonds include family, close relatives, and good friends. These individuals share similar cultural, demographic, and attitudinal traits with you, and you depend on them for various reasons (De Witte & Stanford University, 2023). An average person has about 5 strong connections (BBC, 2022). You may not see these people

daily; however, they are the ones you rely on emotionally.

Weak bonds are formed with colleagues, neighbours, and friends from school or sports. These people often have diverse cultural, demographic, and attitudinal backgrounds, and the emotional intensity of your connections with them is lower (De Witte & Stanford University, 2023). Typically, you may have around 150 weak connections (BBC, 2022). Although you may not see each of these individuals every day, these weak connections collectively account for the majority of our daily interactions.

Both strong and weak bonds are important for a person' s well-being; however, they both fulfil different functions within someone' s life. Where your friend with the same music taste is fun to go to a concert with, your close family member is the one you call for advice on your new job offer (Wool & BetterUp, 2025).



Your strong ties give you a stronger sense of belonging and are more likely to help than weak ties in case of an emergency or if you are moving places (Rademacher et al., 2013). Weak ties, unlike strong ties, can provide you with broader access to various resources due to differences in culture, demographics, and attitudes. Because weak ties connect you to a wider range of individuals, there is a higher likelihood that these connections will overlap with both weak and strong ties from different groups (Rademacher et al., 2013).

This overlap can lead to more opportunities, as a new connection is often just one person away. Research shows that weak ties are actually more helpful in finding a new job than strong ties are, thanks to their ability to bridge gaps between different groups (Granovetter & Johns Hopkins University, 1982). Moreover, weak ties could offer a different point of view and could challenge your way of thinking, ultimately resulting in better decision-making.

Both strong and weak ties are crucial for an individual' s social well-being. Strong ties provide emotional support and foster long-term connections, while weak ties facilitate daily interactions and discussions on specific topics. However, since weak ties are more prevalent in everyday life, enhancing these connections could have a significant impact on reducing feelings of loneliness, thereby improving overall social well-being.

INTERACTION TRIGGERS

In examining the sociology of interaction, several triggers emerge. These triggers do not guarantee interaction, but they can increase the likelihood of interaction and make individuals more receptive to it.

The spatial proximity between people significantly influences the likelihood of interaction. For interaction to occur, individuals need to “collide” with one another. This can happen in two ways: either by being in the same space at the same time or by visiting a space at different times while having the ability to connect online or offline.

To facilitate these interactions, it is essential to provide areas where these “collisions” can happen naturally. For example a common rooms, galleries, walkways, or a courtyards. It’s important that these extra spaces are not positioned within regular pathways, ensuring that people standing still do not obstruct the normal flow of movement.

The visibility and accessibility of a space are crucial for encouraging interaction among its users. An open layout enhances visibility, allowing more people to observe the area, which can contribute to a greater sense of social safety. When a space is open, individuals are more visible, and the ability to see into adjacent areas or across longer distances helps people feel safer by allowing them to notice ‘potential dangers’ early on. In addition, the accessibility of a space

can increase the likelihood of people crossing paths. Situating a common room in a central location or next to frequently used pathways not only encourages more people to use the space but also raises the chances of interaction between those inside and passersby. When individuals walk by a common room regularly, their natural curiosity often leads them to stop and see what’s happening inside, whether it’s reading a poster on the door or joining in on an activity. Ultimately, frequent exposure to these common areas lowers the barrier to participation, making it easier to meet new people.

The accessibility and design of shared spaces are crucial for maximising social interaction. To foster interaction, a space should accommodate groups of up to 30 people and serve as a gathering area with a specific purpose. This could be a living room, kitchen, art room, or sports centre. By assigning a specific purpose to each room, it becomes easier for people to understand when and how to use these spaces, thereby encouraging their use.

However, it’s important to allow for some flexibility in these functions. By incorporating a degree of openness in the space’s intended use, individuals can personalise their experience and feel less restricted. For example, take a large, open kitchen. Its primary purpose is clear: cooking and dining together. However, how this space is

utilised, whether for a formal dinner, a study session, or casual gatherings with friends, remains open to interpretation, accommodating the unique needs of those using it.

Additionally, the design of a building or space can negatively impact the level of interaction. Features such as long, dark corridors or a lack of shared areas can create an anonymous and unwelcoming atmosphere. This cold ambience can affect how users engage with each other and the environment. Long corridors encourage a faster pace, as people tend to hurry to the end, seeking a safe spot more quickly and reducing opportunities for encounters.

In conclusion, careful design of spaces can contribute to the number of interactions happening in these spaces. Spatial proximity, visibility and accessibility and space design can contribute positively.

SOCIAL OVERLOAD

A study conducted by Dennis McCarthy and Susan Saegert in 1978 examined the relationship between residential density and social interaction, as well as social overload. The research found that individuals living in high-rise buildings tend to experience higher levels of stress and social overload.

16 Additionally, these residents also report lower levels of social interaction and social inclusion. Residents of the high-rise section of the building were reported to come into contact with more people in common areas, such as stairs, elevators, and the lobby, due to the larger number of individuals sharing these spaces. This increased density can exceed a person's social capacity, leading to a phenomenon known as social overload. As a result, people may perceive these areas as crowded and may attempt to withdraw, which can lead to fewer social interactions and increased anonymity.

When looking into high-density urban spaces, we could see these same phenomena. The more people there are in one place, the more people will try to withdraw from the situation due to too many sensory triggers perceived as overcrowding, resulting in social overload (Boelen et al., 2020).

When an individual finds themselves in an overcrowded situation, they will feel less in control. In order to get this control back, they try to withdraw, put headphones in or try to exit

the situation. When designing for interaction, this feeling to withdraw is not beneficial. In order to overcome the urge to withdraw, there needs to be another suitable option. One where social overload can be avoided without having to withdraw (Boelen et al., 2020 and Vessel, 2025).

When translating this to the built environment, this could mean a secondary route that is as well-thought-through as the main route. Not a fire escape that is there by accident, but a quieter main route or back-alley route. By giving people a full-fledged second option, they do not have to cross through the more crowded area when they do not feel like it, avoiding social overload and resulting in less need to withdraw.

In conclusion, study shows that when people have more control over when to engage in social interaction, they actually interact more than when they are forced to due to crowding. When people are given the option to interact, they will feel more in control, lowering the chances of social overload even when group sizes or social triggers are the same (Dang-Van et al., 2025). People are inherently social creatures and therefore always have a need to interact, as long as they feel in control, safe and not stressed.

THE IMPORTANCE OF SCALE

When walking around a new environment, people tend to navigate this new space with their eyes, more even than with their nose or touch (Architect Knowhow, 2023). We rely heavily on past experiences and our subconscious decisions that can be made within the first few seconds of entering a room. We tend to compare the size of the room with our own body and act accordingly. For example, feeling calm in an enclosed courtyard, looking at a picture frame or feeling tiny compared to a skyscraper.

Different spaces can have an immediate impact on our emotions, creativity, and thinking. High ceilings often inspire feelings of freedom and creativity, while lower ceilings promote focus and analytical thinking (Zhang et al., 2023). Understanding these emotional responses can help us design environments that either foster a sense of privacy or encourage social interaction.

Research shows that open spaces, with high ceilings, activate our brain region associated with visual exploration and attention. On the other hand, enclosed spaces with lower ceilings could evoke an urge to exit (Ghisleni, 2025). Within the built environment, we can find four different types of scale. Each with their own proportions, comfort and experiences.

The natural scale makes use of the human predominant field of vision, 50-55 degrees, to refer back to the human proportions. Spaces that are designed with the natural scale in mind often align with proportions found in either nature or the human body. This can ensure a sense of familiarity and belonging while encouraging organic connections.

The monumental scale is significantly larger than the human scale and is mostly used for public buildings, religious buildings or governmental buildings. Historically, these types of buildings are used to show power, assert dominance and make people feel small. However, nowadays these types of buildings are also used to ensure a collective feeling of belonging.

The intimate scale is a sub-category of the human scale, designed to provide comfort, privacy, and a sense of retreat. These spaces are typically smaller, featuring lower ceilings and fewer openings. These architectural characteristics contribute to an enhanced feeling of cosiness and security.

The shock scale is designed to surprise people and challenge their perceptions. It is primarily used in experimental or artistic projects and plays with exaggerated proportions, both small and large. This scale sparks curiosity because of its unpredictability. Jan Gehl emphasises the importance

of eyesight in urban design, noting that at a distance of 25 meters, one can distinguish the expression on a person's face. As the distance increases to 40 meters, individuals can still be identified. When translating this to the built environment, this could mean that a comfortable distance between access points lies somewhere between these two distances.

Furthermore, Jan Gehl also looked into the predominant field of vision of a person, finding that a connection from the ground floor up until the fifth floor is still possible. Anything higher than that has more of a connection to the sky. When standing in front of a large building, we could feel overwhelmed and tiny; however, when a building is lower, it is better for our own body, and we can look up to the fifth floor without stumbling over.

In conclusion, human-scale design can evoke emotions that enhance interaction. Large open spaces or openings, like windows and doors, create a more inviting atmosphere, making people more receptive to interaction.

Proportions found in nature make people feel more at home, lowering their stress levels and opening them up for interactions. The intimate scale, on the other hand, could maintain privacy and the possibility of retreat. This ultimately opens people up for more interaction due to the lower stress levels and possible options.

Buildings should consist of blocks with a maximum height of five stories. These blocks can be stacked as long as there is sufficient differentiation between them, making it clear from the ground floor that certain blocks do not require interaction. The design should allow for engagement with the first five floors without feeling overwhelming, while still maintaining a high density.

Galleries and hallways should include an access point or a deviation every 25 to 40 meters to ensure that people feel comfortable. These distances are proportional to the human body, allowing individuals to recognise a friend rather than just their unfamiliar neighbour.

To encourage opportunities for interaction, it's essential to create spaces where people can stand without obstructing others who are walking by. This additional space can be designed as a small nook or a wider walkway that allows conversations while still facilitating the movement of those passing by.

PSYCHOLOGICAL OWNERSHIP

Psychological ownership is the feeling of owning an object, thought or practice. Psychological ownership, most often, follows legal ownership, but this can deviate (Morewedge, 2020). Within the literature, we can find three main reasons for someone to feel ownership over an object, thought or practice:

1. Perceived control: Having physical control over an object, therefore feeling ownership. For example, feeling ownership of a borrowed pen or having the right to own an object because you were the first to touch it. It could be a very strong sense of ownership; however, it could also disappear quickly when not touching the object anymore.
2. Self-investment: owning your labour and feeling that you own what you produce. Feel more ownership of something you invest resources in, time, money, or materials. In some cases, self-investment is even grounds for legal ownership.
3. Intimate knowledge: developing an intimate knowledge of the object or having a meaningful memory connected to an object.

Psychological ownership is based on feelings rather than facts, which can create a stronger connection to a place or object. This not only increases the likelihood of taking care of it, but it can also enhance self-esteem and encourage people to be less selfish (Jami et al., 2020). These benefits

could, in turn, enhance the levels of physical ownership.

As a designer, there are a few things that can be done to promote psychological ownership, or when speaking about a specific space, place attachment. First of all, it is important for people to spend a prolonged period of time within the space. This self-investment not only promotes a stronger connection to the place but also gives the opportunity to meet people and make memories in the space. Within the built environment, this can be done by ensuring good walkability (Li et al., 2025). By promoting walkability, instead of going by car or bicycle, people spend more time within the space and take better notice of the space, increasing their knowledge.

Another option is thinking about the furniture that is placed within the space. For example, placing chairs instead of benches, or placing round tables instead of rectangular ones. By making these executive decisions, social stigmas can be reduced, the chance of interaction grows, and people are more likely to use the space and make attachments (Gryp et al., 2025).

Ultimately, higher psychological ownership leads to a greater sense of belonging and stronger feelings of community within a neighbourhood.

ROUTING THROUGH THE BUILDING

The literature says a lot about how people interact and how designs should be shaped for these interactions. However, the literature mostly talks about interaction and design in a vacuum. When designing, however is never a vacuum. There are

always other factors in play, location, program, or municipality restraints. For this research, I focus on one programme type, high-density city blocks, and therefore the interactions between neighbours within these blocks.

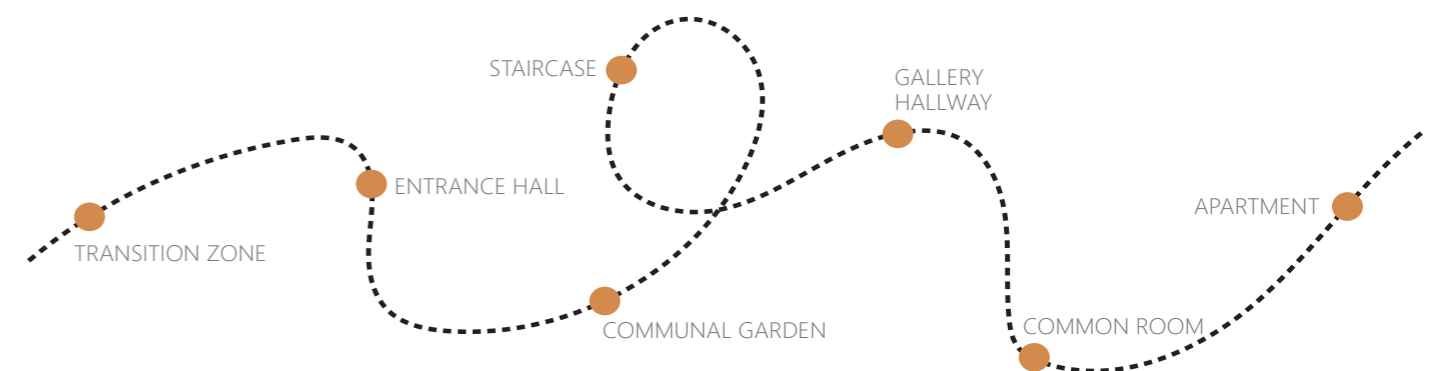
When looking into the interaction types that happen between neighbours, we can identify two types: planned and unplanned encounters.

Planned encounters are organised events in places designed for interaction. This could be a communal gym, communal living room or communal garden. These events can be organised by professionals or by the residents themselves and can differ in group size from a few friends to a block party in the communal garden. These encounters last for an extended period of time, typically a set duration, and involve a predetermined or planned activity.

Unplanned encounters are brief interactions that can occur throughout the building. This can be in front of the building, in the entrance hall, on the staircase, on the gallery or in the hallway, or even in front of your apartment. These encounters do not need a predetermined space and can range from quietly waving hello to chatting with your neighbour about your weekend plans.

Where unplanned encounters are happening with both people you know quite well and with neighbours you only recognise by face, planned encounters are mostly happening with people you previously knew. Both types of encounters are important for the social cohesion in a city block and the social well-being of its residents; however, they serve a different purpose and have a different iteration. The difference in interaction options and place options is also important due to the differences in needs of the residents and to avoid social overload.

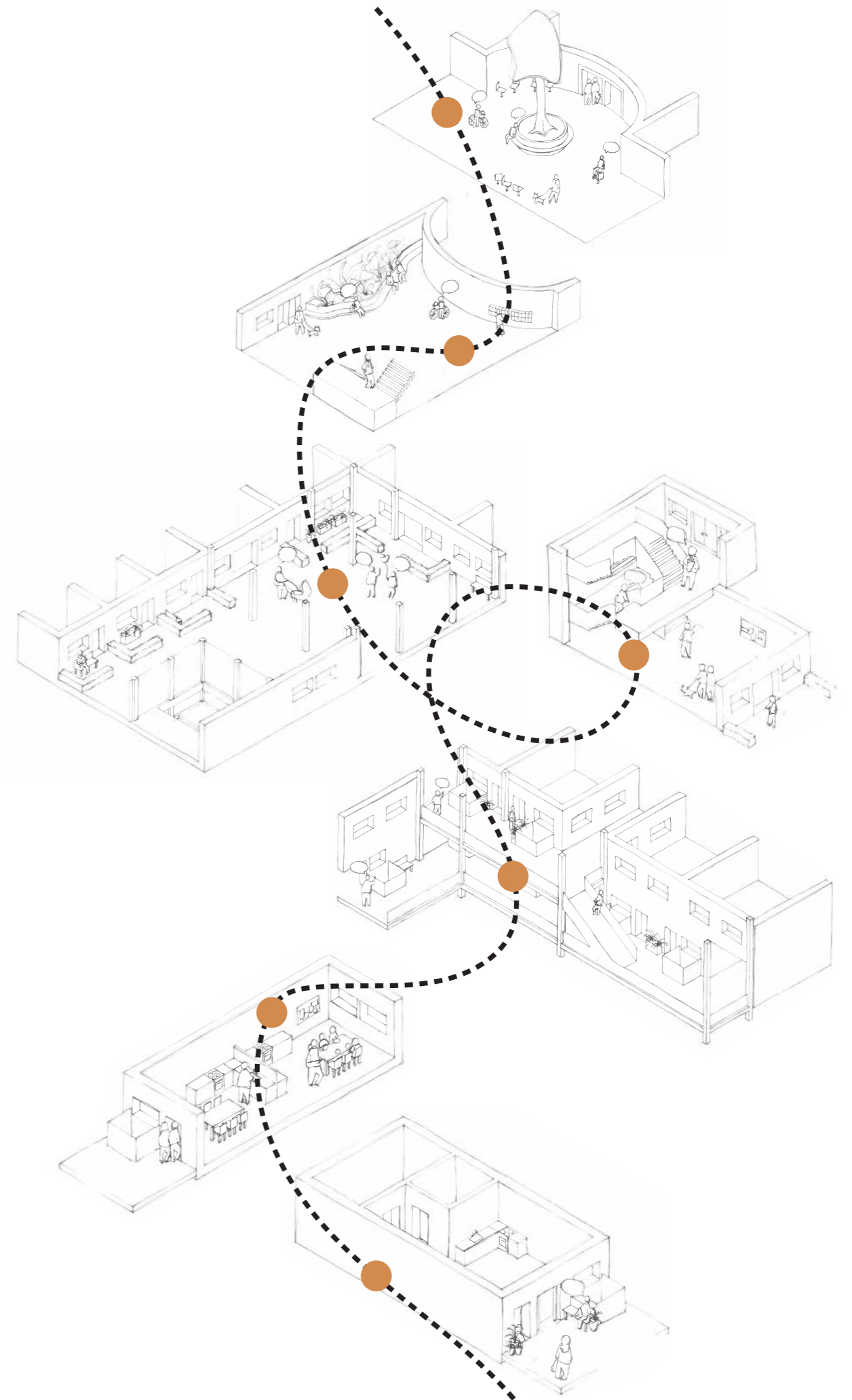
When examining a building block, seven key areas can be identified: the transition zone, the entrance, the communal garden, the staircase, the gallery or walkway, the common room, and the apartment. Each of these areas holds significance along the journey from the street to your home. Although the opportunities for interaction vary in each place, every area serves a purpose. This results in various interaction possibilities for everyone, allowing for both planned and unplanned encounters at different levels.



CASE STUDY RESEARCH

After exploring the theoretical significance of social interaction and identifying seven key areas within a building where interaction can occur, this collection of case studies provides real-life examples of each of these areas. They illustrate how various buildings and architects tackle the same design challenge, highlighting the multiple ways to promote interaction within these seven spaces.

To support these case studies, I aimed to synthesize the theoretical research and the findings into several guidelines, which are presented alongside the case studies. These guidelines serve as an abstraction of the findings, allowing this research to be applied to the future design of buildings. While the case studies exemplify these seven areas and offer different interpretations, the guidelines function as foundational elements for learning from this research and examples, enabling their use in future designs.



TRANSITION ZONE

The interaction between neighbours already starts before entering the building. The area in front of the building, the transition zone, can be an area for neighbours to meet each other or for people from all over the neighbourhood to come together.

The entrance area should be prominently visible in the façade and offer ample space for seating, waiting, and moving in and out of the building. By enlarging the entrance, individuals can avoid stepping directly onto the sidewalk when leaving, creating a transitional space that promotes safety and reduces social overload. Moreover, having front doors facing the street increases visibility, allowing more people to keep an eye on the area, which enhances safety.

In the transition zone, the interior design and the outdoor square are vital. For example, a communal function in the plinth encourages diverse activities and draws various target groups, fostering collaboration and

organised activities. This visibility from the transition zone sparks curiosity, due to people walking by daily, and reduces barriers, encouraging people to enter and participate.

In the transition zone, it's crucial to have enough space so that people can converse, browse the stores, or enjoy communal areas without feeling cramped as they walk by. To encourage passersby to stop and engage, the transition zone should feature various activities and plentiful greenery, along with diverse seating options.

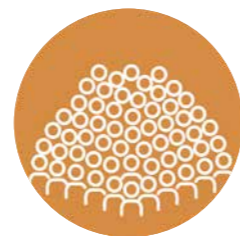
The greenery not only enhances the human-scale environment but also serves as an eye-catching element. Additionally, offering adjustable seating can foster a sense of psychological ownership and facilitate 'collisions' among people due to the inviting atmosphere and presence.



EXCESS SPACE



MIXING TARGET GROUPS



100P. PER SHARED SPACE



FUNCTION MIX



(ADJUSTABLE) SEATING



EYE CATCHER

Little C, Rotterdam - JVST architects

The design for Little C consists of both architectural and urban elements. JVST not only created the building designs but also developed the master plan, which includes several small squares nestled between the building blocks, as well as a large waterfront park. By addressing the urban plan as well, JVST ensured that the architectural designs integrate seamlessly into the broader city landscape, creating a transitional zone between the bustling city and the quieter residential areas.

The front side of the plot features small squares with shops and cafes alongside the waterfront park. These establishments have additional space in front of their entrances, which can be used not only for displaying merchandise but also for outdoor terraces. By offering a variety of functions in this area, it will become more appealing to a diverse range of target groups, fostering interactions among people from different backgrounds.



De Opstap, Amsterdam - Toko Fuze

Toko Fuze, similar to JVST's Little C, has designed both the architecture and the urban environment for de Opstap. They have created a spacious square in front of the building that serves not only as an entrance but also as an interactive space for the neighbourhood. This square is designed with a focus on both people and biodiversity, featuring a wide variety of trees and plants. Additionally, the square functions as a water reservoir, benefiting the urban environment during heavy rainfall.

The square is designed to accommodate multiple activities simultaneously, creating a diverse mix of visitors and ample space for individual interpretation. The variety of functions available attracts many people to the square, not only for accessing the building's entrance but also for participating in organized activities.



ENTRANCE HALL

When entering the building, you will come into the entrance hall. This will be more of an intimate scale, especially compared to the transition zone, fostering a safe space where people start feeling at home and can decompress from the social overload of the city.

To create a welcoming atmosphere in the entrance hall, it's essential to ensure a good indoor climate. This involves considering factors such as light, heat, sunlight, greenery, and airflow. For the entrance hall to be more than just a passageway, it should provide ample space for seating, checking mail, and waiting for friends. Similar to the transition zone, adjustable seating is recommended to enhance the sense of psychological ownership, as it gives individuals a feeling of control over their environment.

The stairs in the entrance area should be clearly visible and serve as an eye-catching element. Stairs not only facilitate movement and the crossing of paths but also encourage a healthy lifestyle. However, when designing the stairs, it's crucial to consider the target audience. For elderly homes or care facilities, an escalator may be more important and should be designed as a focal point and a place for interaction.

An entrance hall serves not only as a space for physical and verbal interactions but also as an ideal setting for facilitating non-physical and non-verbal communication. This can include features like a neighbourhood library, bulletin board, or other exchange spaces. These non-physical interaction venues provide a low-barrier way for individuals to connect. Additionally, the physical engagement with these objects can foster a sense of psychological ownership.



EXCESS SPACE



MIXING TARGET GROUPS



100P. PER SHARED SPACE



FUNCTION MIX



(ADJUSTABLE) SEATING



EYE CATCHER

VIA 57 West, New York - BIG

VIA 57, designed by BIG Architects, combines the towering skyscrapers of New York with the courtyard buildings of Europe. The building's façade and shape are angled to ensure that all the apartments have views of the Hudson River.

The entrance hall of VIA is designed to invite the courtyard into the building. Its large glass façade and opening doors lower the threshold between the lobby and the courtyard, making entry easier and enhancing safety through increased transparency.

Inside, the entrance features a large staircase that serves as a focal point, encouraging conversations among residents and visitors. The size of the staircase creates ample seating space, which promotes social interaction. Additionally, the entrance hall leads to various communal rooms and facilities, mixing functions and facilitating encounters, as everyone must pass through the same space.



Kronlobe Island, Copenhagen - COBE

Kronlobe Island is a completely man-made island in Copenhagen, designed by COBE architects. The island features multiple building blocks arranged around a public courtyard and is accessible only by foot or bike via one of two bridges.

The bridges serve as the entrance to the project, demonstrating that an entrance does not always have to be an enclosed space; it can also be an urban or architectural intervention. In the case of Kronlobe Island, the entrance is defined by a narrowing of the path and a change in pavement. This transition leads to the opening of the path, marking the end of the entrance and the beginning of the courtyard. Together with the act of crossing the bridge, this design creates a clear distinction between the residential areas on either side of the river.

The bridges serve as the entrance to the project, demonstrating that an entrance does not always have to be an enclosed space; it can also be an urban or architectural intervention. In the case of Kronlobe Island, the entrance is defined by a narrowing of the path and a change in pavement. This transition leads to the opening of the path, marking the end of the entrance and the beginning of the courtyard.



COMMUNAL GARDEN

A communal garden is a shared space for residents to relax and connect with nature. It should have ample greenery and open areas for activities and picnics, allowing residents to personalize the space. Incorporating multifunctional elements will encourage interaction and attract diverse groups, fostering community connections.

To ensure the communal garden is effectively utilized, it should feel safe and defensible. It should accommodate a maximum of 130 people and not exceed 25 meters in width. This allows residents to organize activities independently. If it exceeds these limits, the garden can be divided into smaller areas to maintain a human scale.

To enhance the safety of the garden, the front doors of the first-floor residents should be situated within the garden area. Ideally, these residents would have a private front garden that is within the communal garden, serving as a transition zone between

their private home and the shared garden space.

To create a functional transition zone in the front garden, it should be one to two meters deep with a low separation for easy visibility when seated. Incorporating large openings in the façade will help the zone feel like an extension of the living space, encouraging residents to use it and engage with passing neighbours.

To make the communal garden more accessible, the designated route must pass through the garden. By walking through the garden daily, the barrier to using the space for activities like having a picnic, reading a book, or simply enjoying the surroundings is lowered. Ensuring presence, chances of collision and increasing the psychological ownership due to the time spent in the garden.

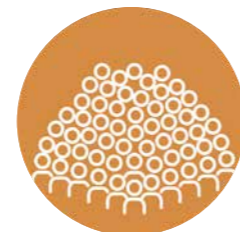
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EXCESS SPACE



MIXING TARGET GROUPS



100P. PER SHARED SPACE



GARDEN < 25M WIDE



OPENING WINDOWS AND DOORS



FRONT DOOR ON THE STREET

De Kuil, Rotterdam - ROFFAA architects & FLUX

The communal garden of De Kuil is surrounded on three sides by apartments. The main access is through the garden. This ensures not only a lot of people in close proximity in the garden, but also the garden being part of the daily route.

The ground floor apartments have a small front garden within the communal garden as a transition zone to ensure a soft barrier for privacy.

The garden is made up of a lot of small areas and with a high level of greenery and biodiversity. This ensures a nice inner climate and a place people want to be in their free time.



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Oosteinde, Rotterdam (own apartment)

Oosteinde is a closed building block with a shared courtyard accessible through the staircases of approximately 100 dwellings.

The courtyard is mainly used by kids playing or people BBQ'ing in the summer, but otherwise, it feels underutilized due to its size and lack of defined spaces for sitting or playing.

Accessing the courtyard through separate stairs means residents don't cross it to reach their apartments, making it feel less like part of home. If residents walked through the courtyard daily, they

might be more inclined to use it, making it feel less intimidating and more integrated into their living space.



STAIRWELL

Traditionally speaking, stairs are a very efficiently designed space. However, due to the large number of people who cross this space, it could also be a good place to foster interactions.

However, a staircase can feel cold and anonymous, typically located in darker areas of a building. It often resembles a no-man's land where no one feels responsible for its upkeep. Without proper cleaning and maintenance, this space can become one that people are eager to exit quickly rather than linger in.

Nevertheless, there are a few things that can be done by the architect in order to improve the quality of the staircase and make it more inviting. When placing the stairs centrally, and the escalator second, the staircase itself can be designed as an eye catcher, triggering interaction. On the other hand, the target group of the building should be considered in this part. When designing for the elderly, an escalator could be more important.

The staircase could also give more space for both verbal and non-verbal interaction. Verbal interaction in the form of excess space for people to stand still, linger around or sit down without being in the way of someone trying to get down. And non-verbal interaction in the form of, for example, a bulletin board or neighbourhood library. In this way, neighbours can interact day round and on different threshold levels.

Lastly, the indoor climate. When the staircase is treated more as a living space and less as a traffic space, we could steer away from the dark and cold staircases and more towards a light and open staircase. For people to enjoy a space and for them to want to spend time there, sunlight, airflow, temperature and greenery are important factors to take into account when designing.



EXCESS SPACE



30P. PER COMMON ROOM



1 BLOCK < 5 STORIES



> 2 ROUTE OPTIONS



EYE CATCHER

Linck, The Hague – JVST architects

Linck is designed to connect the vibrant city centre of The Hague with its more relaxed social scene. The project aims to foster connections among residents and visitors, as well as with nature, through its staircase.

The architects have created an open façade, allowing greenery to flow from the outside in, which softens the building's boundary.

The staircase functions as an open atrium, enabling residents to see and greet one another,



thereby facilitating spontaneous encounters. Additionally, the large green landings provide ample space for residents to pause, sit, or chat.

The open-concept staircase, along with ample natural light and good airflow, creates an inviting place where people want to be, rather than just a pathway to their apartments.



Oosteinde, Rotterdam

The staircase at Oosteinde connects to ten apartments across five floors. It is quite broad and illuminated by natural light. However, the materials used, concrete and steel, create a cold and harsh atmosphere. The windows in the staircase can be opened, which is a nice feature that allows for fresh air and enhances a sense of ownership and feeling at home. Although the stairs themselves are wider



than usual, there is minimal space to stand or chat. Each apartment has a small landing in front of its front door; however, standing there can feel intrusive to the privacy of residents. Most residents placed doormats in front of their doors to assert a sense of ownership. However, due to the limited space, this actually works counter-productively, as it creates the feeling of entering a private area.



GALLERY OR HALLWAY

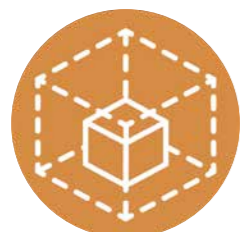
Exiting the staircase, you enter either a gallery or a hallway to get to your apartment. When designing for interaction, an open gallery is preferred over a closed hallway, as it enhances the overall living experience. An open atrium can serve as a good compromise for more enclosed building designs, providing better indoor quality and the potential for the atrium to function as a living space rather than just a transit area.

To maximize interaction, it's essential for the people sharing a gallery to recognize one another as neighbours rather than strangers. To facilitate this, each gallery block should have a maximum of 6 to 10 front doors. Encountering fewer front doors on the way to the staircase creates a less anonymous atmosphere and reduces feelings of social overload.

To further reduce social overload, it is essential to provide multiple routing

options. Ideally, these options should include both horizontal and vertical pathways, as well as varying levels of interaction. This can be achieved by positioning the staircase in the centre of the gallery or by incorporating smaller stairs that connect one story between galleries. By offering these two routing options, we not only lower the social overload but also enhance a sense of control, fostering a feeling of psychological ownership.

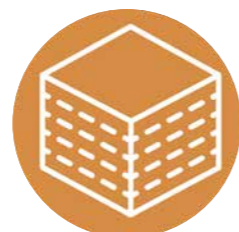
To maintain a human scale, it is essential to consider a person's eyesight and their predominant field of vision. Therefore, a gallery block should ideally have a maximum length of around 25 meters, and any block should not rise more than 5 stories directly above one another. While the total length of the gallery can exceed 25 meters, there should be a turn, stair, or other deviation every 25 meters to ensure a human scale and promote a sense of safety.



EXCESS SPACE



1 BLOCK < 25M



1 BLOCK < 5 STORIES



> 2 ROUTE OPTIONS



VARIABLE ROUTE



FRONTDOOR ON THE STREET

Justus van Effenblock, Rotterdam – Michiel Brinkman

The Justus van Effen complex in Rotterdam, designed in 1922, is a pioneering example of social housing design. The layout features a communal courtyard and an "upper street" in the form of a gallery. Comprising 264 dwellings, this complex was unique for its time, thanks to its shared amenities, green courtyard, and extra-wide gallery.



Gallery flats 1970s

The 1970s in the Netherlands are marked by the construction of high, monotonous gallery flats. These buildings were designed to address the housing shortage and typically feature a simple layout that includes a central staircase, a fire escape, and long, narrow galleries along one side of the structure. These flats were designed to be generic, allowing them



The gallery was intended to function like a street and had to accommodate the delivery of milk directly to residents' doors, including those on the first floor. To achieve this, an extra-wide gallery was designed. This feature also provided enough space for neighbours to stop and chat without blocking the walkway. Resulting in not only a functional design choice, but also a social one.



to be placed anywhere. Consequently, the long, narrow galleries create a cold exterior with little possibility for personalisation. The galleries feel endless, contributing to a rushed feeling for those walking through them. There is no place for people to stand still, and due to the narrow galleries, you look straight into the apartments when crossing them. Resulting in closed blinds at all hours of the day.



COMMON ROOM

When walking across the gallery towards your apartment, you will pass by a common room. This space is available for all residents to use as an extension of their living areas, allowing them to organize activities or events that are too large to host in their own homes. It is important for residents to walk through this common room daily, as this sparks curiosity and increases the likelihood that people will stop in or join an activity. To enhance this curiosity, it's essential to have large windows and doors that can be opened. This improves visibility and lowers the barrier for people to walk in and join one day.

It is essential to ensure that the common room can be used differently from day to day and for various events. This flexibility allows individuals to have their own interpretations of and purposes for the space, fostering a sense of psychological ownership. Additionally, the multifunctionality of the area can attract a diverse range of user groups. By accommodating

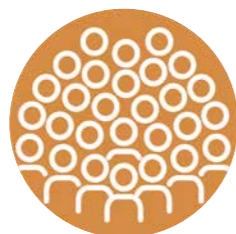
multiple groups in the same space, these users can meet and interact, ultimately leading to a stronger sense of community within the building.

The common room should be designed to comfortably accommodate up to 30 people. This number is too high for a typical living room in an apartment; however, it remains manageable enough for individuals to host their own events. To ensure the common room retains a cosy and inviting atmosphere, it's advisable to allocate one square meter per person as a guideline. Additionally, connecting the common room to the garden can add an extra dimension to the space. This transition zone between the common room and the garden lowers the barrier to entry, effectively serving as an extension of the common room.

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MIXING TARGET GROUPS



30P. PER COMMON ROOM



EYE CATCHER



(ADJUSTABLE) SEATING



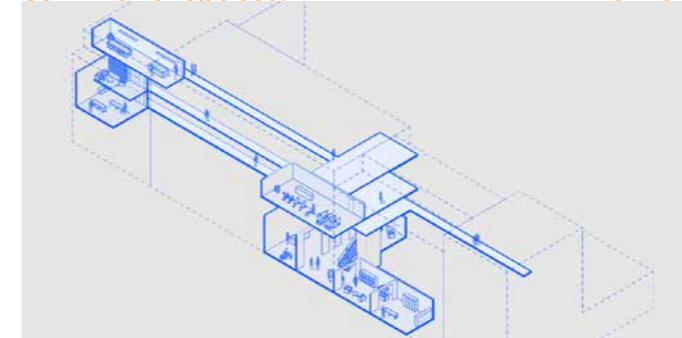
OPENING WINDOWS AND DOORS



FUNCTION MIX

Stadsveteranen, Amsterdam - SOME architect

Stadsveteranen is both a research project and a design solution. Researchers and architects studied how elderly individuals could live independently for as long as possible and discovered that the surrounding community plays a significant role in this. Consequently, they designed a building that incorporates numerous communal spaces.



The communal areas of the building include laundry rooms, music rooms, and kitchens where residents can come together. The distribution of these facilities throughout the space encourages movement. The architects aimed to create a variety of spaces, ensuring that all residents are within reach of at least one facility. However, to access other facilities, residents must navigate through the building, which promotes further interaction among them.



The City, Tilburg - Faam architects

The city is a new student complex located in Tilburg, featuring over 450 student apartments. Most of these apartments come with their own kitchen and bathroom, alongside a variety of shared facilities throughout the building. These amenities include laundry rooms, a gym, and leisure options such as a cinema and cafés. The common areas are strategically distributed around the building to

encourage movement and interaction among residents.

However, while the design caters to students and promotes community, the abundance of common rooms leads to relatively high rent prices for the apartments. As a result, although the concept of common rooms is appealing and has potential, the financial implications of these amenities should be carefully considered during the design process.



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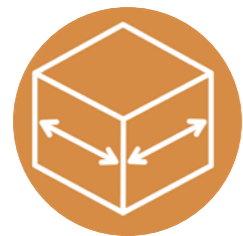
APARTMENT

80% of interactions happen in front of a front door. This is what makes this area within the building such an important place to think about when designing for interaction. Even though this is also the place where people want the most privacy, it is also the place with the most potential for architectural intervention.

To maintain privacy within the home while fostering openness toward neighbours, a transition zone can be established. This zone, which extends 1 to 2.5 meters in front of the dwelling, can be used for placing benches, flowerpots, or even a table. By creating this transition space, it becomes more challenging for passersby to look directly into your apartment, thereby preserving privacy. At the same time, this area provides a spot for residents to spend time outdoors on their private property, visible to neighbours. This arrangement increases the potential for encounters and interactions with the community. To increase the chance of residents using the transition space,

large opening windows or doors can be implemented into the façade. By doing this, the transition zone will feel more like part of the living room or dining room, and the chances of people taking ownership of the transition space will be higher.

To enhance the interaction in front of the apartment, architects should thoughtfully consider the layout of the dwelling. Certain rooms, such as bedrooms and bathrooms, require more privacy than areas like kitchens or living rooms. The activity or level of privacy directly behind the façade can influence the acceptable degree of social interaction in the transition zone, as well as the sense of ownership individuals feel toward that space. Consequently, positioning more open-function areas—such as dining rooms, kitchens, or living rooms—toward the front of the apartment could positively impact the use of the transition zone.



1 BLOCK < 25M



1 BLOCK < 5 STORIES



> 2 ROUTE OPTIONS



OPENING WINDOWS AND DOORS



FRONTDOOR ON THE STREET

Delftse stoep

The Delftse stoep is an alternative term for the transition zone, which originated when Delft introduced separate roads. People had to walk along the narrow stoep right in front of their homes. To maintain some distance, residents began placing small fences or decorative poles in front of their houses.

This term is still used today to refer to a transition zone that measures about one meter and can still be seen in the center of Delft. Currently, these areas are often filled with benches, plants, and, of course, the original poles. In times when space was even more limited, people would remove stones from the stoep and replace them with plants, creating a softer barrier between the public street and their private homes.



Brekersveld, Zuidwijk Rotterdam – Zijdekwartier Architecten

Zijdekwartier Architecten created individual entrances with small staircases leading to the green space, allowing residents to personalize their transition space with stools or plants. This change has turned the area into a friendly environment where neighbours recognize each other and often chat, emphasizing the value of transition zones.



CONCLUSION

This graduation research explored the architectural possibilities for enhancing social interaction between neighbours. It specifically examined how large-scale city blocks can facilitate this social interaction while preserving the unique qualities of the project.

The focus of the research was on the importance of weak ties, rather than strong ties. This means emphasising interactions between neighbours—individuals we see frequently—rather than interactions with close friends or family members. Strong ties tend to meet up regardless, while weak ties, such as those with neighbours or co-workers, are the more day-to-day interactions. These short, daily interactions can significantly impact feelings of loneliness. Brief daily interactions can also play a crucial role in fostering a sense of community and a feeling of home.

To increase the likelihood of interaction between neighbours, an architect should pay careful attention to the pathways that people take as they walk through the building to reach their apartments. This includes focusing on seven key areas: the transition zone, the entrance, the communal garden, the staircase, the gallery or walkway, the communal rooms, and the apartment itself. By considering these areas, the architect can create opportunities for social interaction throughout the building, each with varying levels of intensity.

While interaction cannot be forced, an architect can design spaces that make it easier and more enjoyable for residents to engage with one another. At all of these areas' four main design principles should be taken into consideration: ensure a feeling of home, ensure collision, ensure space and ensure alternatives. Even though not all four of these principles can be applied with the same intensity at all seven areas' it is important to carefully consider all of these principles for all seven areas.

ENSURING A FEELING OF HOME

The most important factor in encouraging interaction among people is their comfort within a space. To foster this, it's essential for individuals to feel at home. This can be achieved by providing adequate privacy in their own homes and fostering a sense of ownership over the space.

Privacy allows individuals to retreat and choose when to engage with others, which increases the likelihood of interaction compared to situations where they feel compelled to engage. Achieving privacy involves understanding the functions behind the facade and emphasizing the intimate scale of spaces close to the dwelling to help reduce stress levels.

A sense of ownership can be cultivated by allowing people to personalize their space, which gives them a perceived control over it. Additionally, prioritizing human-centric design can contribute to this feeling of ownership and comfort.



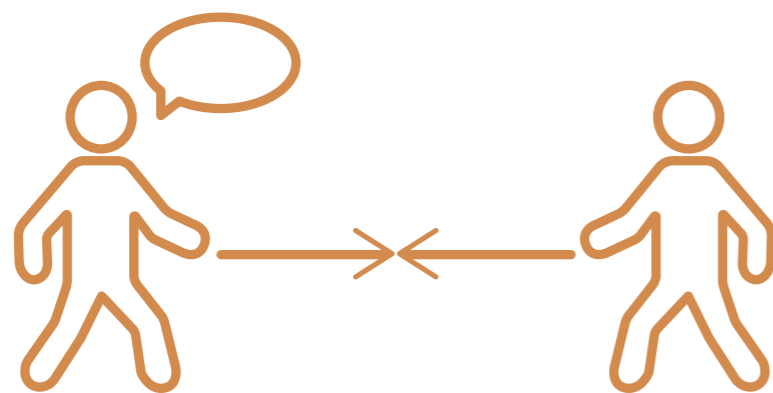
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ENSURING COLLISION

By designing multiple intersecting paths, an architect can facilitate encounters among residents. For instance, simply walking into your neighbour's can lead to conversations or greetings, thereby strengthening existing connections.

Another effective strategy is to distribute common rooms and communal areas throughout the building, ideally along a central circulation route, to encourage movement throughout the space.

By creating various routes and stopping points, residents from different sides of the building can still have the opportunity to meet one another.



ENSURING SPACE

It is essential not only to provide opportunities for interaction but also to create spaces that facilitate it. Having a designated spot to stand, sit, or chat encourages people to linger. If individuals are forced to stand in the middle of a walkway to have a conversation, they may feel uncomfortable and rushed, often leading to shorter chats, even when no one is passing by. These spaces should be comfortable and inviting, with ample natural sunlight, good airflow, effective temperature control, and greenery. Focusing on human-scale design and proportions found in nature can help reduce stress and make people feel more at home.



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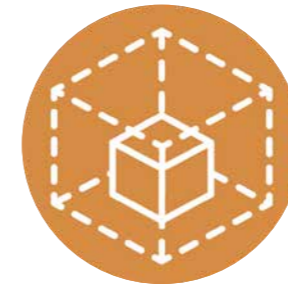
ENSURING ALTERNATIVES

It is important to provide people with different options when navigating the building, similar to the considerations for privacy. One major reason people may avoid interaction is due to an overload of social stimuli. By reducing this social overload, individuals are more likely to engage with one another. This can be achieved by creating alternative pathways to the same spaces or by adding additional stairways that allow people to traverse different galleries.

Moreover, these alternative routes give individuals the flexibility to avoid encountering specific neighbours or to meet up with friends in the building without having to go out of their way for a different path. It's essential that these alternative routes be thoughtfully designed rather than treated as secondary or afterthought options.



GUIDELINES



EXCESS SPACE

Excess space refers to areas where individuals can stand, sit, or converse without obstructing the main access route. The main access route should be wide enough for three people to walk side by side or for one person to pass another who is using a stroller or a wheelchair. The recommended width for this main access route ranges from 150 to 180 cm. For comfortable conversations, a width of about 130 cm is ideal, while a bench requires approximately 85 cm. While it is not necessary to have a total of 380 cm of space everywhere, these measurements highlight the additional space needed to facilitate interaction.



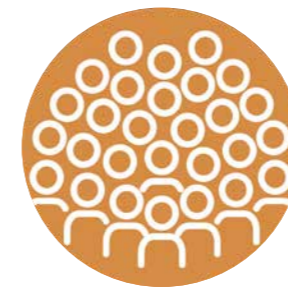
MIXING TARGET GROUPS

Mixing target groups could ensure people from different paths of life interact, broadening someone's groups of weak bonds. In order to mix target groups, it is important to have multifunctional spaces and objects. By having a space where people from different target groups could come together and all interact with the space in their own way, it is more likely for the different target groups to also interact with each other. More people will be present, and the activity of the other target group could work as an eye catcher and start a conversation.



6-10P. PER BLOCK

Organising a small gathering for a group of six to ten people is quite simple. For instance, you could host a dinner party at someone's house. A separate space is not necessary for this group size. When visualising this group in a block, they can be seen as part of a gallery or hallway. These are the individuals you encounter daily, and it's relatively easy to reach an agreement on matters like noise levels and cleanliness.



30P. PER COMMON ROOM

For groups of 30, a separate space is needed in order to host gatherings or organise activities. For these kinds of spaces, a minimum of 1 m² per person is recommended. However, it should not be pre-determined who can and who can't use the space. The space should be organised in such a way that it can host up to 30 people at once. In order for these spaces to work as a trigger for interaction, a multitude of functions should be possible within the same space to attract a mixed target group.



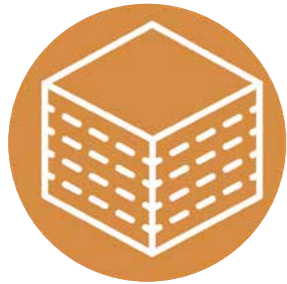
A shared space can be an entrance or a communal garden. Mostly a place where you see people 'accidentally' and have a small interaction with. For organised events, there needs to be a dedicated person or group that does the organisation; however, a professional is not yet needed.

30P. PER COMMON ROOM



1 BLOCK < 25M

In this case, a block can be defined as a separated part of the gallery or hallway. It does not mean a building can't be more than 25 meters long. It does, however, mean that every 25 meters there needs to be a differentiation within the building. This could be a turn in the gallery, a main stairwell, a smaller staircase or a different gallery hooking on. The main idea is that every 25 meters there is a 'way of escape'.



1 BLOCK < 5 STORIES

The relationship between the ground floor and the upper levels extends up to the fifth floor. These first five floors create a cohesive visual block that promotes social safety and allows for verbal and visual interactions with the ground floor. This doesn't imply that a building cannot exceed five stories. However, any difference in design beyond the fifth floor should be clearly defined. This can be achieved through techniques such as setbacks, changes in materials, variations in window styles or balcony designs, or by relocating the gallery from the front to the back of the building.



GARDEN < 25M WIDE

Same as for the galleries and hallways, it is also important to create social safety by not having the garden exceed 25 meters in width. When a communal garden exceeds these dimensions, the garden could feel like too big an open space and people could feel lost, resulting in people avoiding the garden. The garden, in total, can be more than 25 meters. However, same as with the block length, it is important that there are separations to ensure a safe feeling and to ensure people are close enough to interact.



> 2 ROUTE OPTIONS

To avoid social overload, it is important that people have a choice in which route they want to take home. This could be done by having one main route that goes through all the interaction zones and a quieter route. However, it is important that the quieter route is full-fledged and not a fire escape route, so that people do not feel burdened to take the quieter route.



VARIABLE ROUTE

In order to maximise interaction possibilities and to minimise social overload, it is important to have connections both horizontal, galleries and hallways, and vertical, open stairs and voids. This way, there are more options to choose your route and more places you could come across to meet someone. Maximising the 'collision' possibilities.



(ADJUSTABLE) SEATING

One of the biggest triggers for interaction is 'presence and context'. Therefore, it is very important to have people stay in one place for an extended period of time and not only pass by. To accommodate this, seating can be placed within any of the seven areas. Especially for the more public places, it is important to have different seating options and maybe even adjustable seating options to accommodate a larger target group.



EYE CATCHER

An eye catcher, especially in a more public area, can act as an element of surprise, triggering interaction. This eye catcher could be a stairwell, a piece of art or even a bulletin board or neighbourhood library. The important thing is that people stop to look at the eye catcher, making people present in the space and increasing the chance of collision.



OPENING WINDOWS
AND DOORS

Opening doors and windows are important in 2 main ways. First to have an interaction from outside the space to inside the space. For example, someone walking by an apartment and saying hi to the person cooking inside. Secondly, it is important to lower the threshold. When you walk past a common room every day and can look inside, you are more likely to stop one day, see what they are doing and maybe even join. When a common room has a fully closed exterior, the threshold to go inside, see what they are doing and maybe join is much higher.



FUNCTION MIX

In order to attract a large target group, a large number of functions is important. Especially in the plinth, this can be important to attract as many people as possible. Whenever someone is already in the area because of one specific function, they are much more likely to also go to the other functions. Increasing the chance of interaction since there are more people present in one area and for an extended period.



FRONTDOOR ON THE
STREET

Research shows that 80% of the interactions between neighbours happen in front of the front door. This is mostly due to the number of people going in and out of the apartment, and therefore also using the area in front of their apartment, making it easier to personalise the area in front of your front door. Personalisation increases the chance of people staying in an area, and a personal item can act as an eye catcher to start a conversation between neighbours.

DESIGN

To evaluate the conclusions and guidelines for promoting interaction among neighbours, I designed a large-scale city block in Amsterdam. The objective of this design is to address the housing shortage in the Netherlands while also prioritising social sustainability and biodiversity.

The next part of this research will detail the design of my city block in Hamerkwartier, Amsterdam, The Netherlands. The narrative will follow the routing developed from the

theoretical research, further explaining the choices made and their impact on social interaction. By applying the theoretical conclusions and guidelines to a case study, the research is grounded in reality and examined alongside building regulations, design concepts, and other pertinent guidelines. This approach results in not only standalone guidelines but also a comprehensive design that fosters social interaction throughout the space.

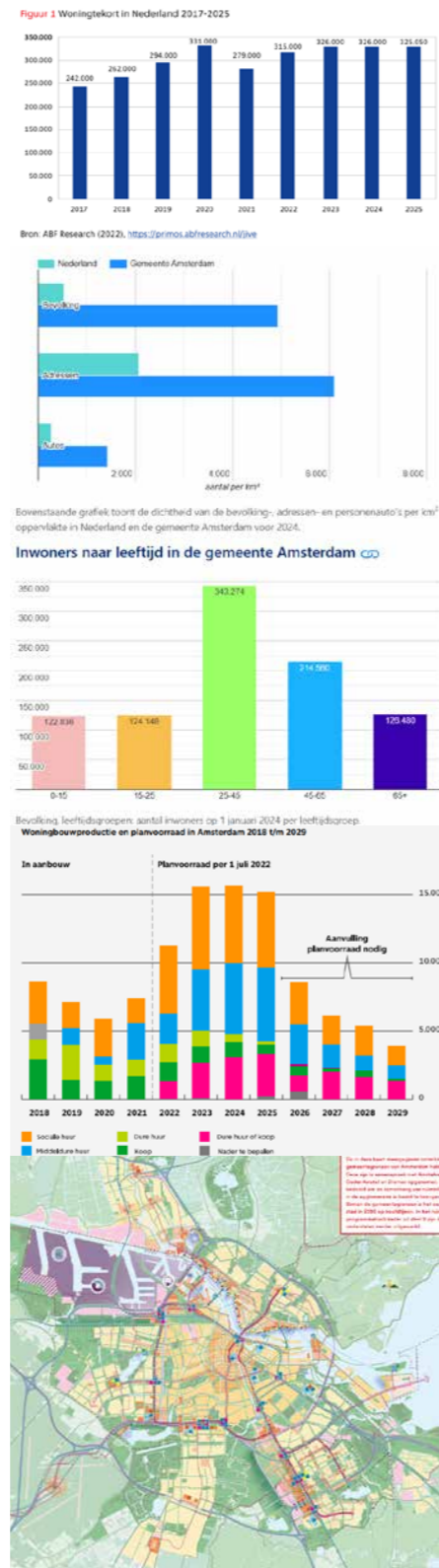
DEMOGRAPHIC OF AMSTERDAM

The demand for housing has always been high, but it has increased rapidly in recent years, especially in Amsterdam. Currently, the majority of Amsterdam's residents are between the ages of 25 and 45. This demographic mainly consists of former students, professionals, and expats. Many young families are moving out of the city, and elderly residents are not returning.

The housing landscape in Amsterdam is primarily made up of individuals living alone or with friends, as well as couples without children. As you move further away from the city centre, there is a noticeable increase in the number of families and older residents.

To address the housing crisis, the municipality of Amsterdam has developed a multi-year plan to construct 150,000 new homes. The majority of these new homes will be designated as social housing units and middle-class rental units. This strategy is based on the housing demands in Amsterdam and the current housing availability.

Amsterdam aims to evolve into a more polycentric city rather than remain monocentric. Several new centres are planned for Amsterdam North, which will address the housing crisis by combining living, working, and leisure spaces, alongside a mix of shops, cafes, and offices in a high-density residential area.



LOCATION - AMSTERDAM NORTH, THE NETHERLANDS

The Netherlands is facing a housing shortage of around 1 million homes, prompting Amsterdam to plan the construction of 150,000 new residences, primarily in Amsterdam North. This area, where former industrial sites will be transformed into multifunctional living spaces, aims to create a more multi-centred city that serves residents rather than just tourists.

Several new centres will combine living, working, and leisure environments with shops, cafes, and offices in a high-density setting. Amsterdam North has a history of rapid transformation, making it an ideal location for innovative housing solutions. This context presents an opportunity to design a multifunctional, high-density apartment building to address the rising demand for new homes in combination with the aim to design for interaction between neighbours.



LOCATION - HAMERKWARTIER

Hamerkwartier is one of the new major centres in Amsterdam, situated in the lower part of the IJ alongside the waterfront. The area is primarily accessible by car, with the Gedempt Hamerkanaal serving as the main access road. Additionally, Hamerkwartier can be reached on foot within a 10-minute walk from the metro or by bike. However, the current bike route is somewhat confusing and challenging to navigate. The municipality plans to create a bike ring road throughout Amsterdam, connecting Amsterdam North—specifically Hamerkwartier—with the historic centre and other new districts.

Up until the 1950s, Hamerkwartier was primarily wetlands and farmlands. After that, it was developed quickly into one of Amsterdam's largest harbours at the time. The area was divided, and waterways were created to allow ships to reach their docking stations. The relationship between Hamerkwartier and the IJ River evolved significantly during this period.

Although many former factories have since relocated outside the city, Hamerkwartier is still known for the Draka factory, a cable manufacturer, as well as for its repurposed factory buildings. As a result, the area retains a strong industrial character. Additionally, due to its location along the IJ River, Hamerkwartier offers beautiful views of Amsterdam's historic centre.



HISTORY OF HAMERKWARTIER

1875

Until 1875, Amsterdam North was a wetland with natural banks. The shape of these banks does not represent the current form of Amsterdam North, and Hamerkwartier was still part of the IJ.



1900

Around 1900, people started to reclaim parts of these wetlands for agriculture. The banks were straightened out, and the first roads were made. It was also around this time that the first harbour on the North side of the IJ banks was built.



1950

The development of Hamerkwartier went rapidly. A lot of factories and storage docks were built. The harbour became bigger, and a lot of waterways were made in order to get the ships towards the docks. Roads were developed to transport all of the goods from the harbour into the city.



2024

Large parts of the canals and waterways made for industry were closed up again. A lot of the factories and storage docks changed into offices, excluding the Draka area. Hamerkwartier became the mix of large-scale industry buildings and mismatched offices and stores we know today.



SITE ANALYSIS

Hamerkwartier is situated in northern Amsterdam, between the Motorkanaal and the Ponthaven, next to the IJ Canal. Known for the large Draka factory, a cable manufacturer, and other heavy industries. Due to this, the area has a strong industrial feel. However, due to the location alongside the IJ, Hamerkwartier has a beautiful sightline of the Amsterdam city centre.

The architecture is characterised by large, irregularly shaped buildings resulting from expansions to original factory halls and offices. Due to relaxed building regulations, factory owners have been able to easily extend their operations. Around Hamerkwartier and on Java Island, you'll find smaller courtyard and apartment buildings.

Surrounded by water on three sides, Hamerkwartier has a strong visual connection to the water; however, physical access to the water is limited by the factories. Green spaces consist mainly of small grass fields and tree-lined streets, while larger parks and private gardens are found nearby.

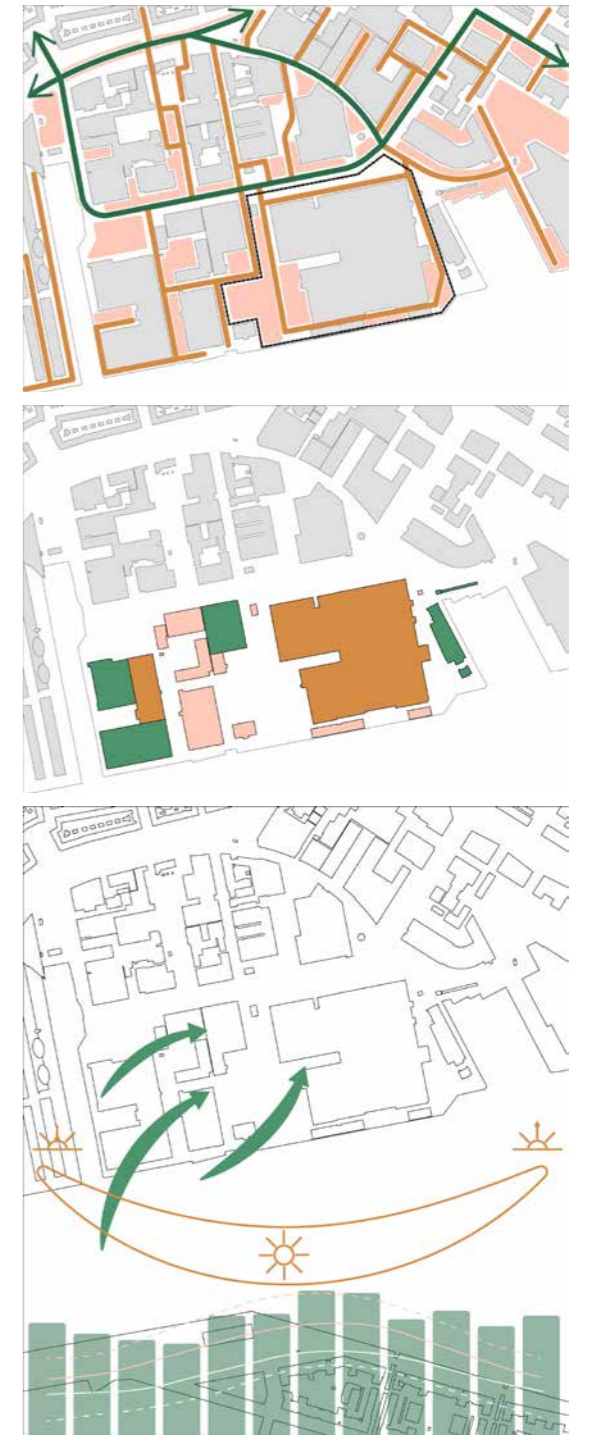
Hamerkwartier includes large factories, shops, and offices, with Draka planning to relocate. The southwestern section features a Jumbo supermarket and several creative companies, while most of the area consists of office buildings. Hamerkwartier is encircled by residential areas. All shops in the area are in Hamerkwartier, and all dwellings are located outside this area.



Hamerkwartier is primarily designed for cars. While most streets are pedestrian-friendly and have sidewalks, there are no dedicated pedestrian facilities. To reach the Draka factory and offices on the south side, the Gedempt Hamerkanaal is used. All vacant spaces in the area are utilised for car parking, typically in designated parking lots alongside the streets. The Draka factory site is enclosed by a fence and is not accessible to the public.

I recommend keeping four buildings in Hamerkwartier. First, the Jumbo, which serves the daily needs of residents and visitors from across Amsterdam North. Second and third are the Lowlander brewery and the social hub, the only places in the area that foster community interaction. Lastly, the Veerhuis, a harbour building on the east side that manages the small harbours around Hamerkwartier.

The wind primarily comes from the southwest. Although this area is over water, the wind speeds are generally not exceptionally high since this direction also faces the city center. The waterfront on the south side of Hamerkwartier enjoys sunlight all day long, as the sun rises in the east and sets in the west. Precipitation occurs year-round, and temperatures remain fairly steady, with the monthly average never dropping below 0°C or rising above 25°C.



BUILDING PRESERVATION

Four former buildings and functions remain in Hamerkwartier: Jumbo, Lowlanders Brewery and Café, the Social Hub, and Veerhuis. Jumbo is not only an important amenity for Hamerkwartier but also for the surrounding residential areas. Lowlanders Brewery and Café, located alongside the IJ, features a waterfront terrace that overlooks Amsterdam. It is one of the few places in Hamerkwartier where people gather to meet and spend time together. Currently, access to the terrace is somewhat challenging, but the new road structure is expected to improve this and enhance the brewery's ability to create a vibrant atmosphere. The Social Hub, a transformed former

storage unit, now houses small studio spaces. Many music and dance-related activities have moved into this concrete building, along with several small cafés. The former storage space doors open up the entire façade, fostering significant interaction between the new functions and the street.

Veerhuis plays a crucial role in regulating harbour activities, ensuring both safety and proper usage of the harbour.



PHOTO ANALYSIS

Alongside the Gedempt Hamerkanaal, there are several brick buildings with large, coloured windows. These buildings used to be factories or storage halls, but are now used as cafes, music studios and for other creative industries.

Within Hamerkwartier, more brick buildings can be found. This, for example, is a brick apartment building of four floors. The design is quite strict and straight-lined. However, the building is badly managed, and a lot of the windows seem to be rotten. It also seemed apparent that no one was living here anymore.

Same as the brick building alongside Gedempt Hamerkanaal, this concrete building is also used by creative industries. Furthermore, this building seemed to function as a social hub where people from all over the area came together for a coffee or to chat. The building houses a marketing firm, music studio, dance studio and multiple cafes and restaurants.

The entire facade on the ground floor of this building can be opened. These spaces seemed to be a garage space that is now transformed into a small café. The former garage doors can open fully, extending the café onto the street. The rigid concrete construction is leading for the visual impact of this building.



When trying to enter the Lowlander brewery from the main road, you come across a large closed-off gate. Because of this, there is no pedestrian access to the Lowlander brewery from the main road, and you have to walk around quite a long distance to enter.



The brewery is located in one of the old brick factory buildings is accessible on foot when walking alongside the harbour on the west side of Hamerkwartier. The building has large windows with a slight curve on the top end. Parts of the large steel docking constructions are still visible and give the area its distinct atmosphere. From the terrace, there is a nice view overlooking the IJ and the skyline of Amsterdam.



The backside of the Lowlander brewery also has a brick façade with a lot of openings. However, the windows are a lot smaller than on the front side, but still have a slightly curved top. On this side, the former steel construction is also still visible. Even though this construction has not been in use anymore.



The newer factories and storage halls are made out of corrugated metal sheets. These buildings have been added to the side in a later period than the brick buildings. Furthermore, these buildings are placed outside of the former grid and therefore ensure a hard-to-navigate area with a lot of dead-end streets. Especially due to the large fenced-off areas.



It is possible to walk alongside the banks of the harbour of Motorkanaal, on the west side of Hamerkwartier. However, it is not possible to actually get to the water due to the fence. This is possible done to ensure the safety in the harbour. Due to the high plants and brought deck the distance to the water is quite big. This results in a lack of connection.



Opposite Motorkanaal, there are multiple new brick apartment blocks. These apartment blocks feature a simple façade with large windows. To refer back to the former function of this area a bit, a hoist system is added onto the roof. The neighbourhood on this side of the water is solely housing and relies on the public functions and facilities of Hamerkwartier.



On the north side of Hamerkwartier you will find Kievietstraat, a former working-class neighbourhood. This neighbourhood consists of small, brick houses with a lot of windows and detail in the façade. The neighbourhood is quite green and you can see a lot of people talking to each other on the street or kids playing. This shift could come because of the smaller scale of the area, it being almost car-free or the many small public squares.



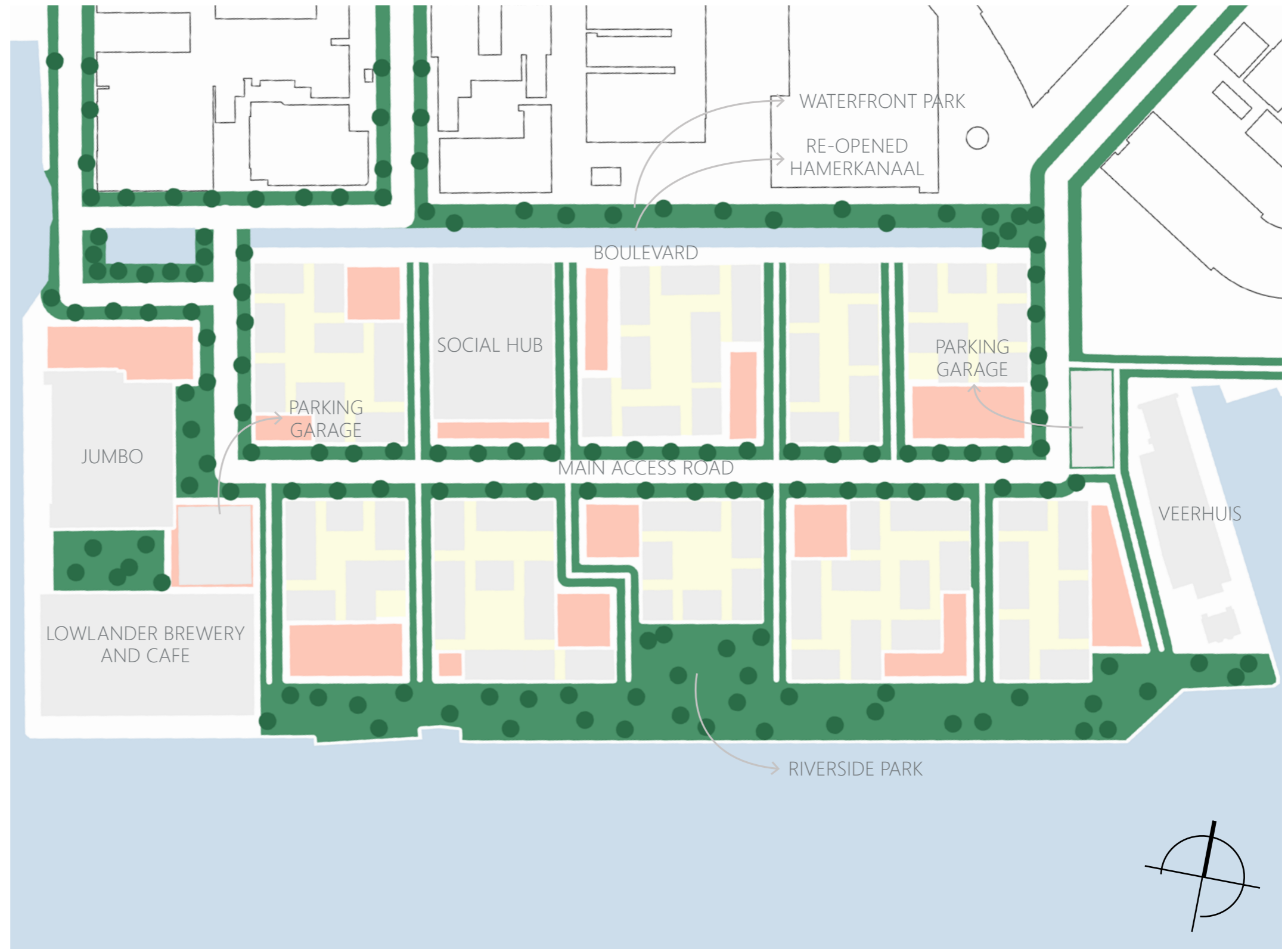
MASTERPLAN

The Hamerkwartier redesign starts with a new master plan that relocates the main access road, Gedempt Hamerkanaal, to the centre of the area. This enhances accessibility and allows for the reopening of the former Hamerkanaal, restoring the connection to water and facilitating the creation of a waterfront park.

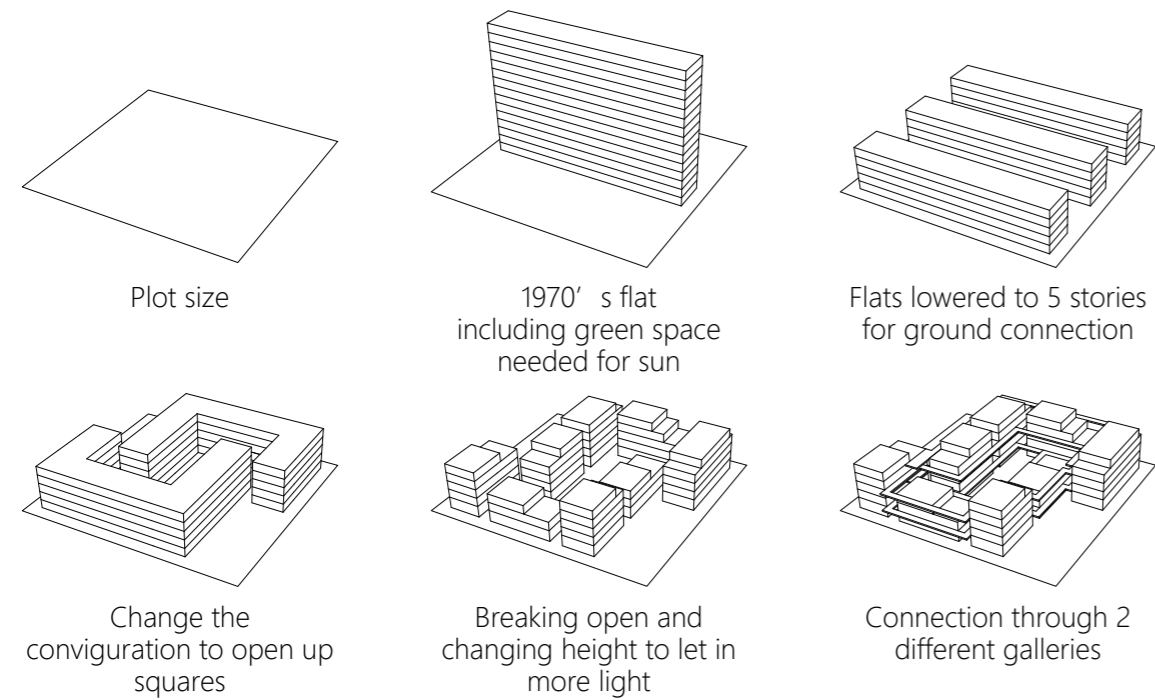
To further enhance accessibility in Hamerkwartier, several secondary streets have been created. These streets are designated for pedestrians and cyclists only, excluding cars, and provide a north-south connection.

Additionally, the planned riverside park along the IJ has been made smaller. This adjustment creates smaller, more intimate spaces within the park while freeing up additional areas in the rest of Hamerkwartier. Much of the greenery has been redistributed throughout the neighbourhood, including along the main road, secondary roads, and across various small public squares.

Lastly, two parking garages have been added to accommodate the new residential complexes. Each garage is designed to provide enough space for one car per unit. Furthermore, additional parking spots for guests, extra vehicles, or for when you come home with heavy groceries have been incorporated along the main access road.

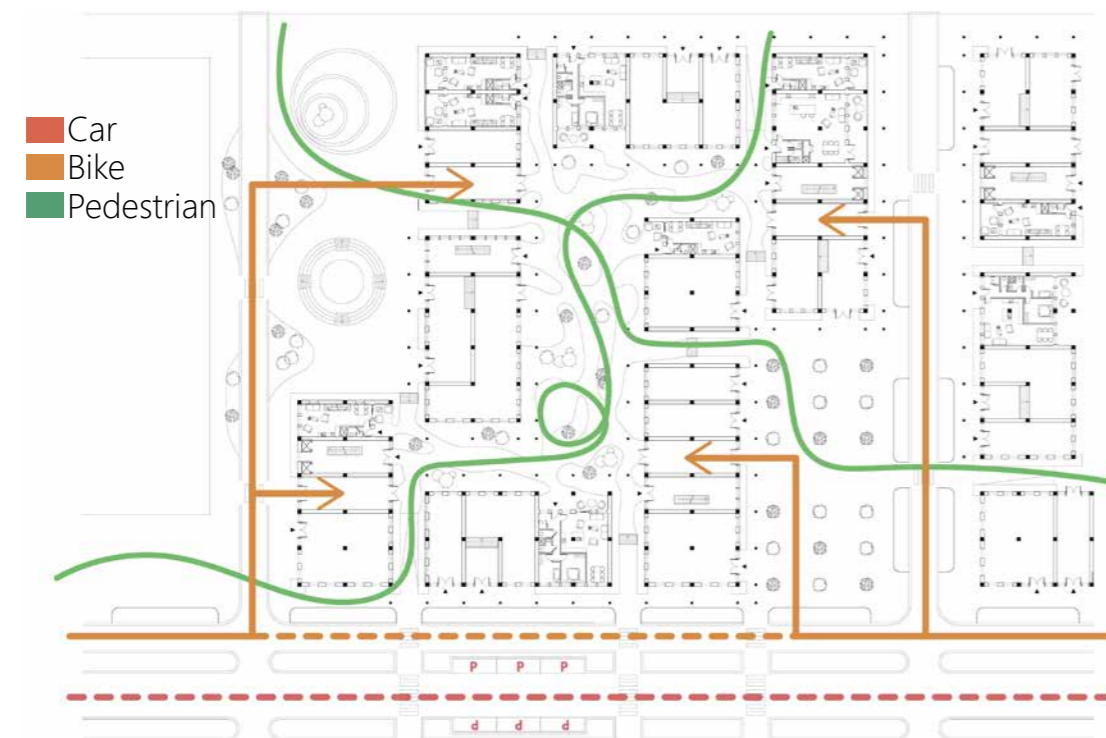


BUILDING VOLUME

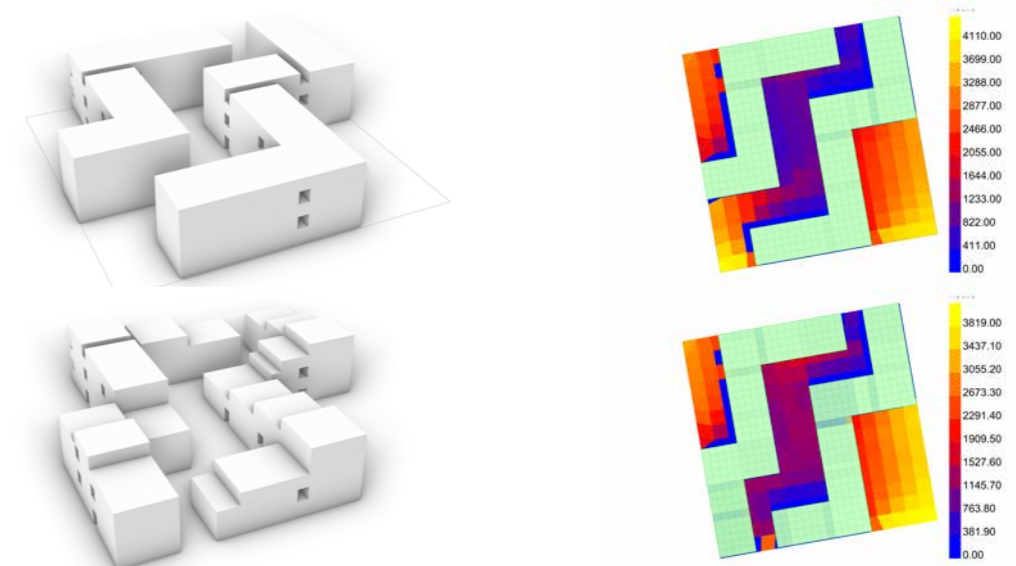


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CONNECTIVITY



SUN ANALYSIS

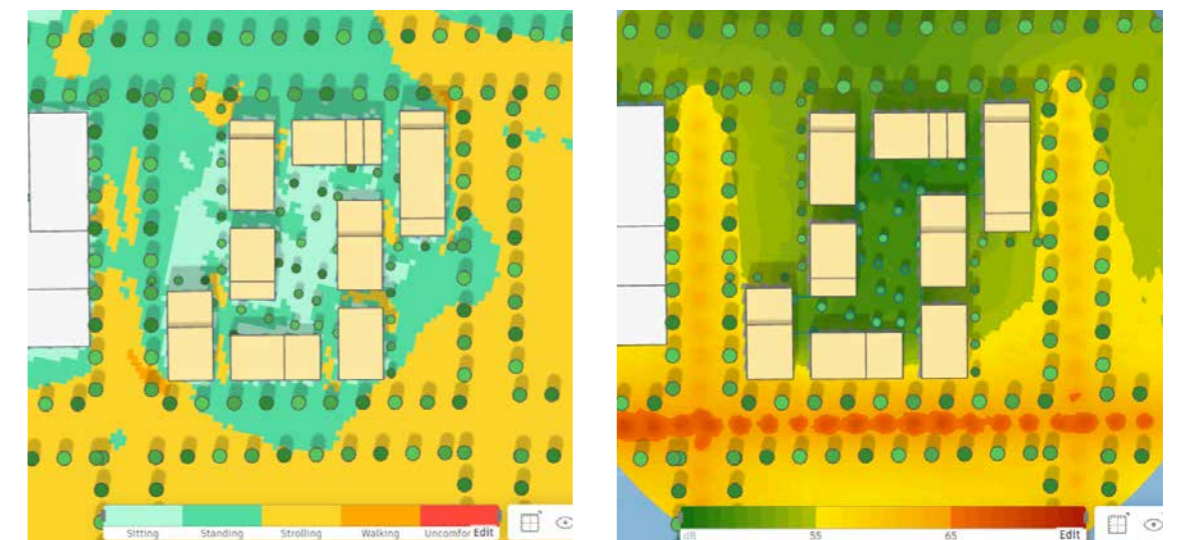


The building height differs between 2 and 5 stories to ensure enough sunlight within the communal garden. The 5-story building would have

ensured areas without any sunlight, which would have made the garden an undesirable place to spend time.

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WIND AND NOISE ANALYSIS



The building blocks are designed not to create wind corridors in order for the wind speeds to stay low. the outdoor areas are designed with the wind levels in mind.

Almost all facades have a green noise level, only the south facade has a orange level. The apartment layout on this side is altered to still ensure comfortable living.

MASTERPLAN

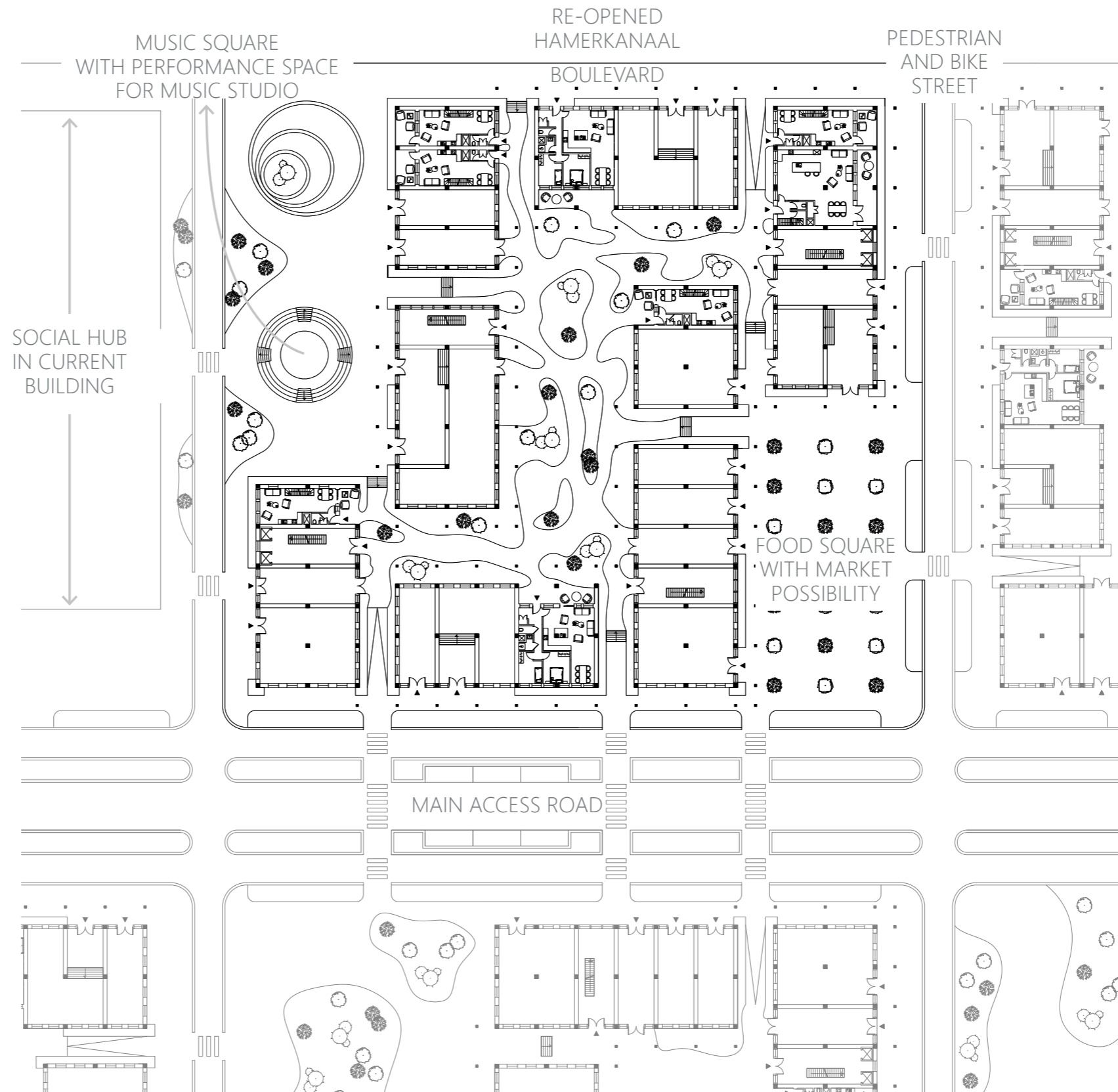
I selected a specific plot for this case study, located next to the social hub and alongside the reopened Hamerkanaal. This plot showcases the most diversity, positioned between an old building, a new building, the main road, two secondary roads, the boulevard, and the reopened Hamerkanaal.

Rather than having one main public square in Hamerkwartier, I decided to distribute several smaller public squares throughout the area. This design promotes more movement and interaction, as it facilitates increased foot traffic across the neighbourhood. Additionally, the smaller size of these squares allows for specific functions that can be tailored to align with the surrounding activities.

62

For my chosen plot, the square on the northwest side could be designated as a music square, which would resonate with the music and dance studios in the social hub, as well as the sports centre located in the new building. This square could feature a multifunctional podium with integrated seating, along with various greenery elements.

On the southeast side of my plot, I envision a food square. This square is strategically located along the main access road, ensuring better accessibility for food trucks or vans catering to the cafés and restaurants on the ground floor of the new building. It will be designed in a grid layout with tree planters, creating the possibility for a weekend market while preventing the square from being empty and unused during the week.



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TRANSITION ZONE

In my design, I chose to create multiple smaller squares within Harmerkwartier instead of one large square. This approach allows each square to serve a specific function that aligns with the ground-floor activities surrounding it. By ensuring a distinct function, the routing becomes clearer, and people are forced to move more throughout the area, resulting in more collisions and a higher mixture of target groups.

My plot consists of two squares. The first square, located on the north-west side of the building, is the music square. It connects the music school and dance studio in the Social Hub to the music production studio and practice spaces in my new building. This square features several seating arrangements, including one designed to double as a podium for dance or music recitals.

The second square, situated on the south-east side of the building, is designed to reflect the more urban feel of the main road it borders. The layout of this square accommodates outdoor terraces for the cafes and restaurants on the ground floor, as well as the potential for a food market with stalls and food trucks. Its location alongside the main road ensures easy access for vendors to reach the market, cafes, and restaurants.

ENTRANCE

The building can be accessed by car, bike, and on foot. If you're arriving by car, you have the option to park in one of the two parking garages or along the main road. For those arriving by bike, you can enter through both the main road and one of the side roads. There are four bike parking spaces located on the ground floor, each next to a staircase. The bike storage area can be accessed from both outside the building and from the communal garden.

When entering the building on foot, you can use any of the several passageways. All shops, offices, cafes, and restaurants are accessible from outside the building. To reach the staircase or the apartments, you will first need to cross a passageway to enter the garden before proceeding further.

The entire plot is pedestrian-friendly and open to the public, yet the design of the entrance creates a sense of entering a more private space.

The communal garden is elevated one meter above the surrounding streets, accessible via a ramp or small stairs, establishing a distinct threshold. The upper galleries, positioned above the entrance, require you to pass beneath them, forming a gateway despite the lack of a roof. This design subtly separates the public street from the communal garden ensuring more privacy and less social overload.



COMMUNAL GARDEN

The communal garden is designed to serve as a park, contrasting with the strict design of the main road. This contrast, along with the layout of the squares, creates a transition from a formal, public space to an organic, communal environment, resulting in a different pace and atmosphere.

The garden features numerous small paths and seating areas spread throughout the space. These winding paths provide various options, helping to reduce social overload. By encouraging a meandering route rather than a straight path, visitors are likely to slow down, which increases the chances of encounters and interactions.

While the squares primarily consist of large, open spaces with ample seating, the garden offers smaller seating niches nestled within lush greenery. This design fosters a more private atmosphere, ideal for reading a book or enjoying a coffee with a friend or neighbour. The garden is intended as a leisure area where people are encouraged not just to pass through but to spend time enjoying the space.

Additionally, all ground-floor apartments open directly onto the garden. This design feature enhances social control, creates a safer environment, and fosters a sense of ownership among residents, encouraging them to extend their activities into the garden.



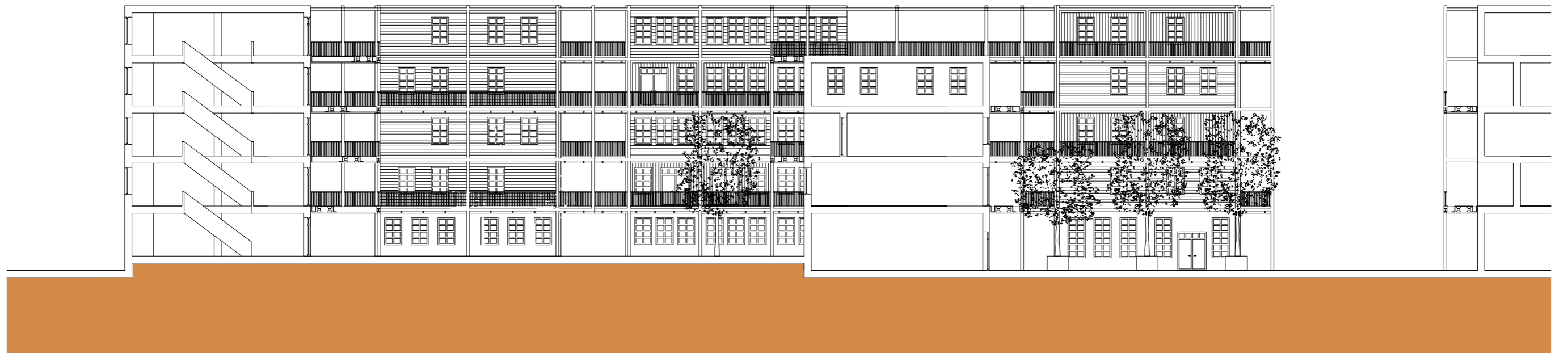
SECTION A

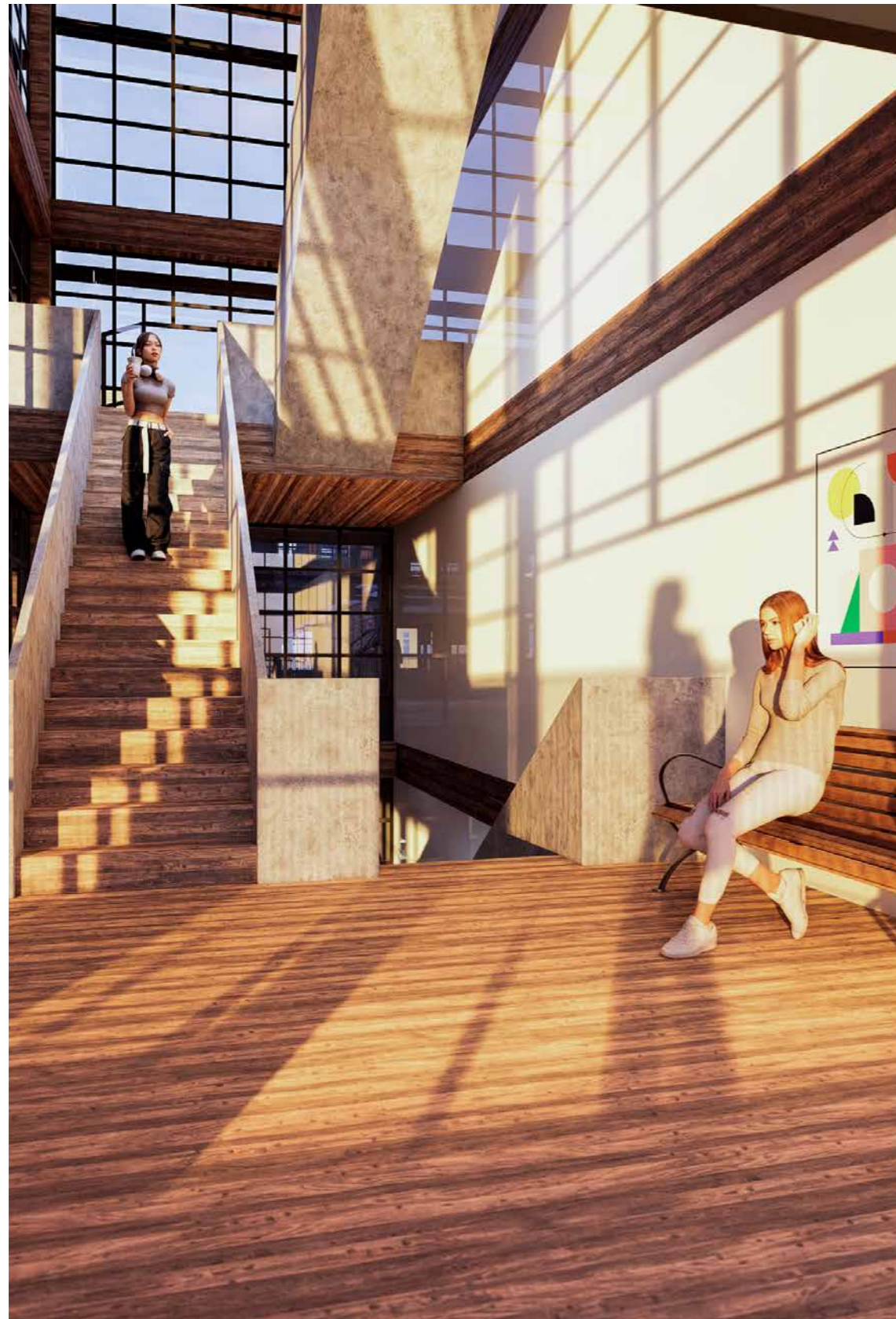


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SECTION B





STAIRCASE

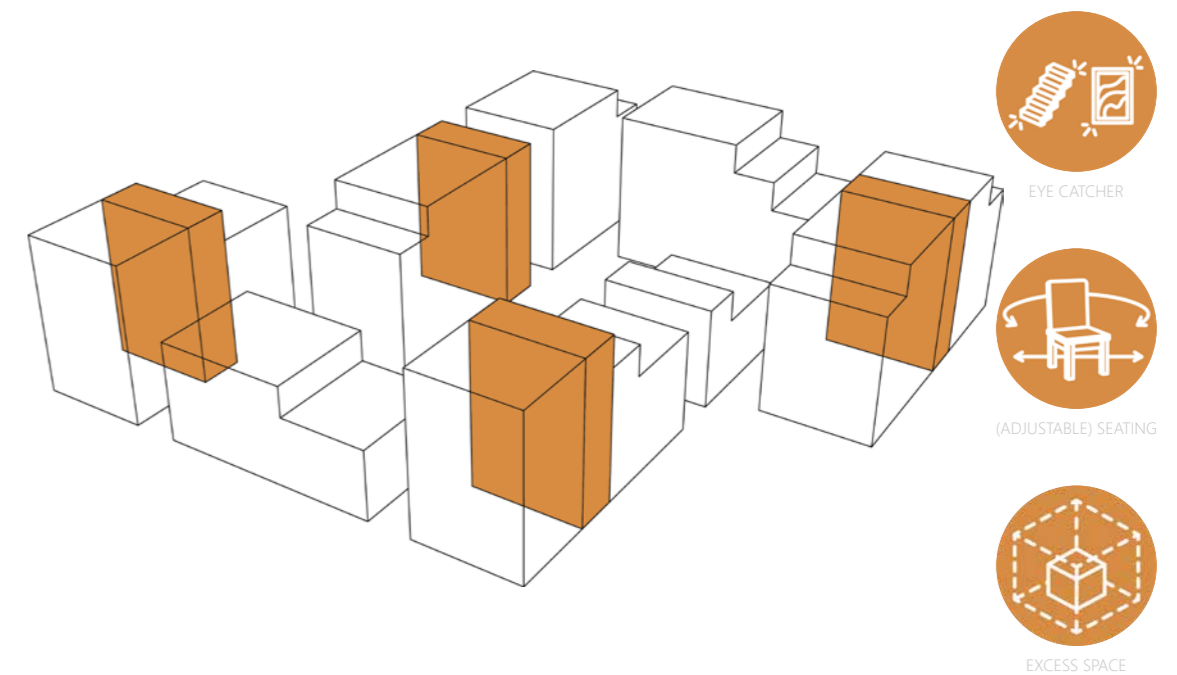
As you exit the garden, you enter a staircase that can only be accessed through it. This design encourages people to pass through the garden, effectively lowering the barrier to its use.

The staircase alternates between floors, mirroring the layout of the galleries. This design creates double-height ceilings, resulting in an impressive view of the staircase. The effect is further enhanced by floor-to-ceiling windows and glass doors, allowing ample natural light to flood in. By making the staircase a focal point, it becomes a great conversation starter.

Designed with ample space, the staircase allows people to pause or chat with neighbours as they ascend or descend. This excess space also

contributes to a better indoor climate, making it more comfortable for people to linger.

The landings of the staircase feature a bench, as well as a bulletin board or a small library. This seating option is particularly beneficial for elderly residents or those with injuries, providing a place to rest between floors. Additionally, it encourages people to sit down and engage with neighbours instead of awkwardly standing on the stairs. The bulletin board serves as a platform for residents to promote social events in the common areas or the garden, providing an offline means of communication. The small neighbourhood library offers a reason for individuals to pause, ensuring that they spend more time in the staircase, thereby increasing the likelihood of interactions.





GALLERY

The gallery is designed as an extension of the garden. Featuring a winding path embedded in greenery, it serves not just as a means of getting from one place to another, but as an enjoyable destination in itself. Similar to the garden, the gallery's meandering path encourages visitors to slow down, creating more opportunities for interaction.

This gallery acts as a bridge between the former industrial Hamerkwartier and the new residential area. Its steel construction pays homage to the steel transport systems that were once used in the docking stations, remnants of which can still be seen, such as at the Lowlander brewery. Meanwhile, the concrete floor enhances the industrial feel, while the wooden path and abundant greenery soften the space, connecting it to the more residential atmosphere of Hamerkwartier.

The gallery has a total depth of 2.5 meters, although the path does not utilise the full width at all points. The extra space is used for the path's meandering design and to allow for greenery to flourish in the open areas. In certain sections, such as outer corners, in front of stairs, or near common rooms, the path does extend to its full width. This expansion creates areas where people can pause, enjoy the view of the garden or public square, or wait for a friend.

The gallery features two distinct routes that weave around the various building blocks. These routes offer several commuting options from ground level to your apartment, allowing for diverse pathways and minimising social overload. To enhance flexibility in navigation, multiple small staircases are incorporated into the galleries, connecting different sections. The different circulation routes and small staircases create a lot of different sightlines across the plot, providing a sense of social security through Jane Jacobs principle of 'eyes on the street' .

The gallery design effectively breaks up the building mass by creating criss-crossing pathways that extend both inside and outside the structure. This design strategy allows ample natural light to enter and creates numerous corners and stopping points. As a result, the routes are

winding, encouraging people to slow down and preventing overly long sightlines. Research indicates that sightlines should ideally not exceed 25 to 40 meters. The numerous turns in the gallery layout help maintain these sightline limits, making the space feel less daunting and more welcoming. Ultimately, this design contributes to a more enjoyable environment.

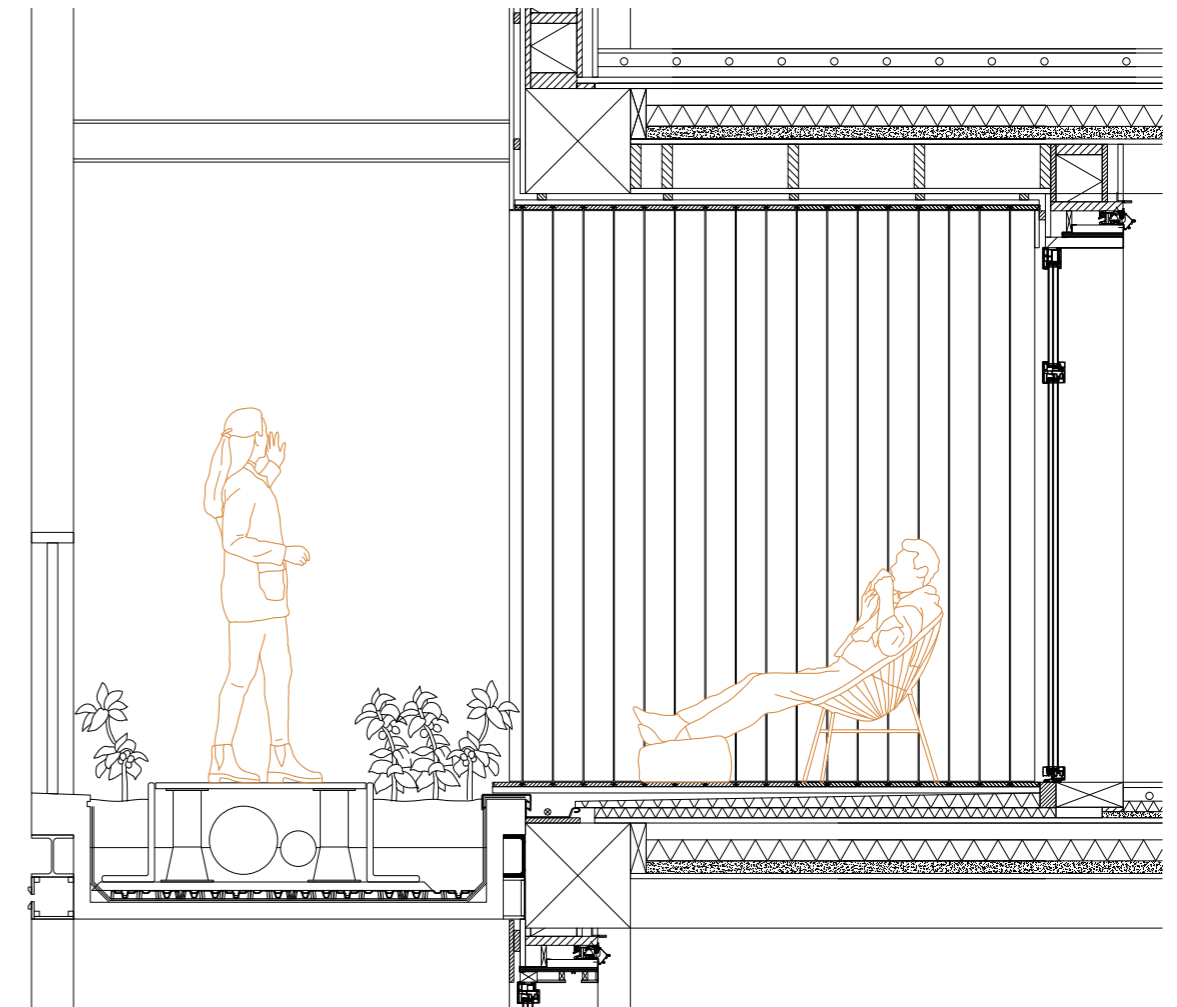
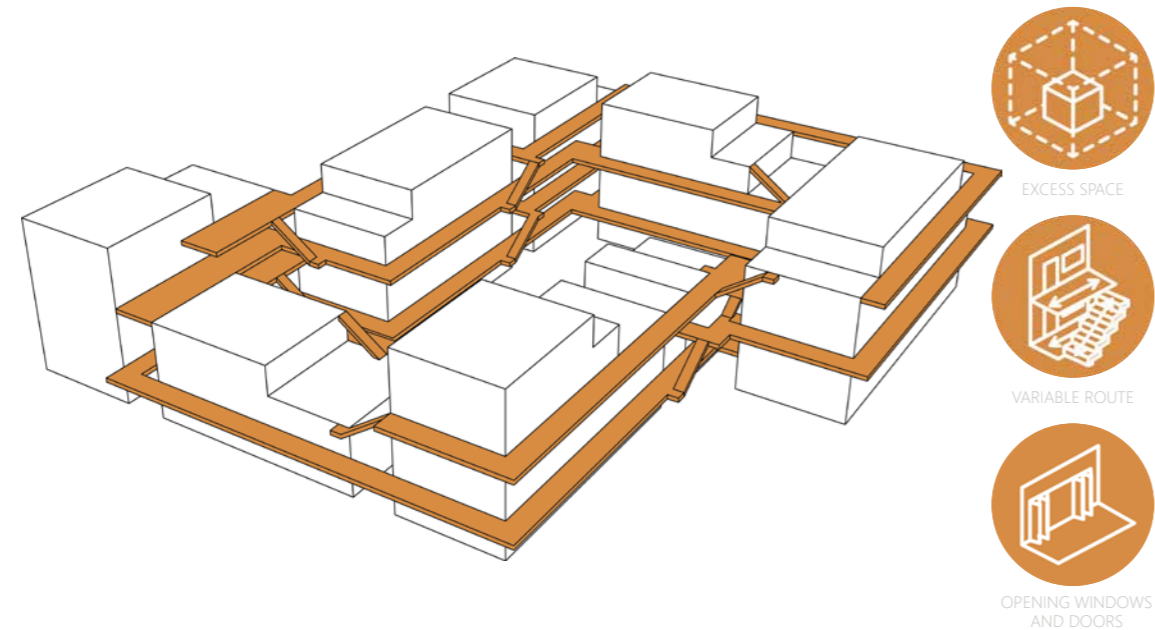
The gallery construction is designed specifically for this project and features a load-bearing steel framework, hollowed-out concrete slabs, a raised wooden walkway, and integrated greenery with a drainage system. The steel framework consists of 200 mm I-beams and 200 mm O-columns for the support structures. The hollowed-out concrete slabs are made from ultra-high-strength concrete (Ultra Hoogsterkte Beton) produced by the Dutch manufacturer Hi-Con. This concrete is reinforced with steel

fibres instead of traditional steel rods, resulting in exceptionally strong slabs without the usual thickness. This innovative approach allowed me to design a 2.5-meter-wide gallery slab that can also serve as a planter box.

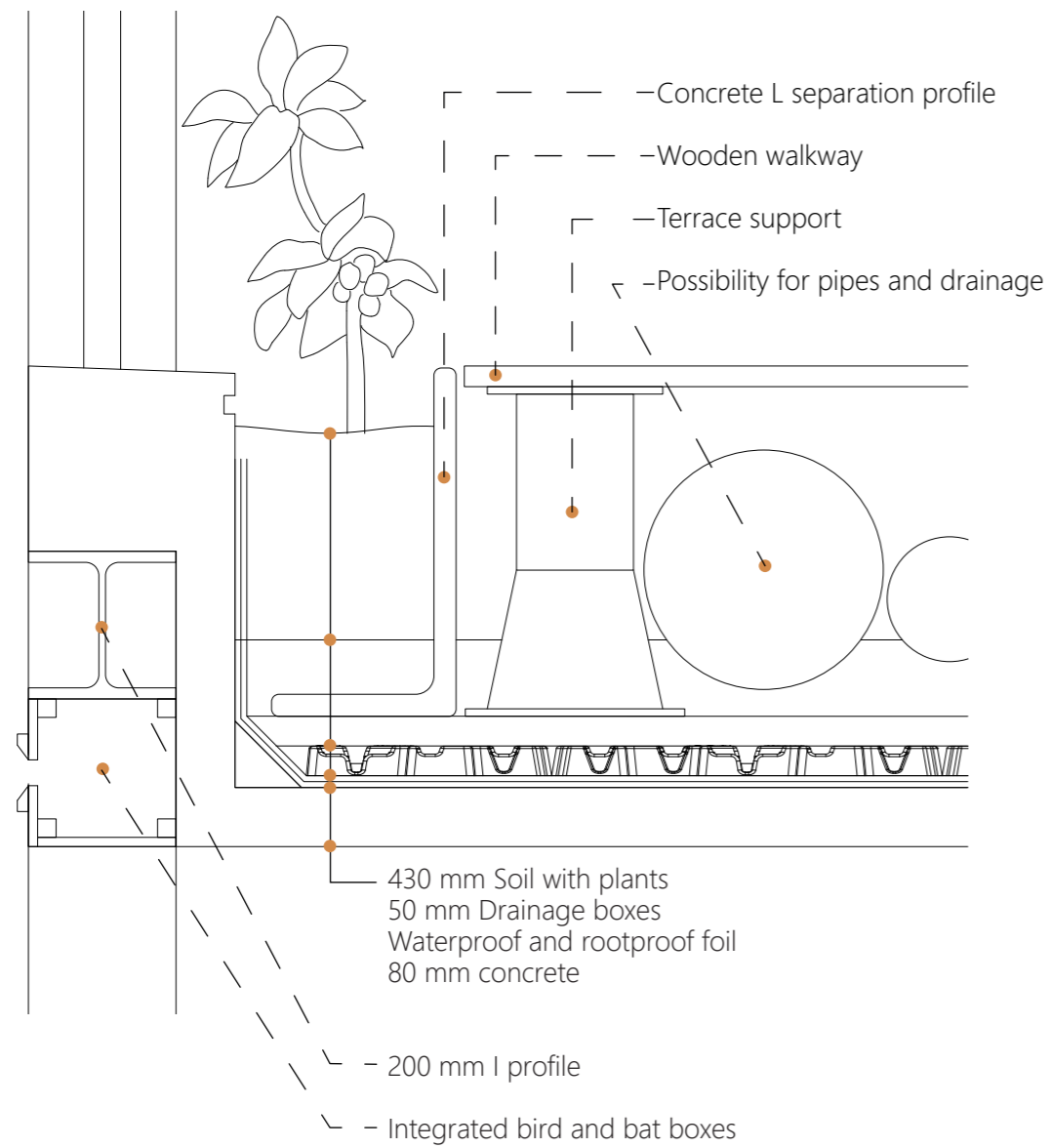
The concrete boxes have a U-shaped profile when viewed from the short side, with extensions on each side. This design enables the boxes to rest on top of the steel framework while primarily lying between the beams. The base of each box is lined with a waterproof and root-proof inlay,

topped with a drainage system to protect the concrete from water damage and root growth.

On the long sides of the boxes, the walls are intentionally lowered, with the extensions and steel beams being 200 mm lower than those on the short sides. This feature allows for soil and plants to span across multiple boxes, creating a seamless appearance. Each box is equipped with its own drainage system, including a rainwater pipe running along the vertical steel construction.

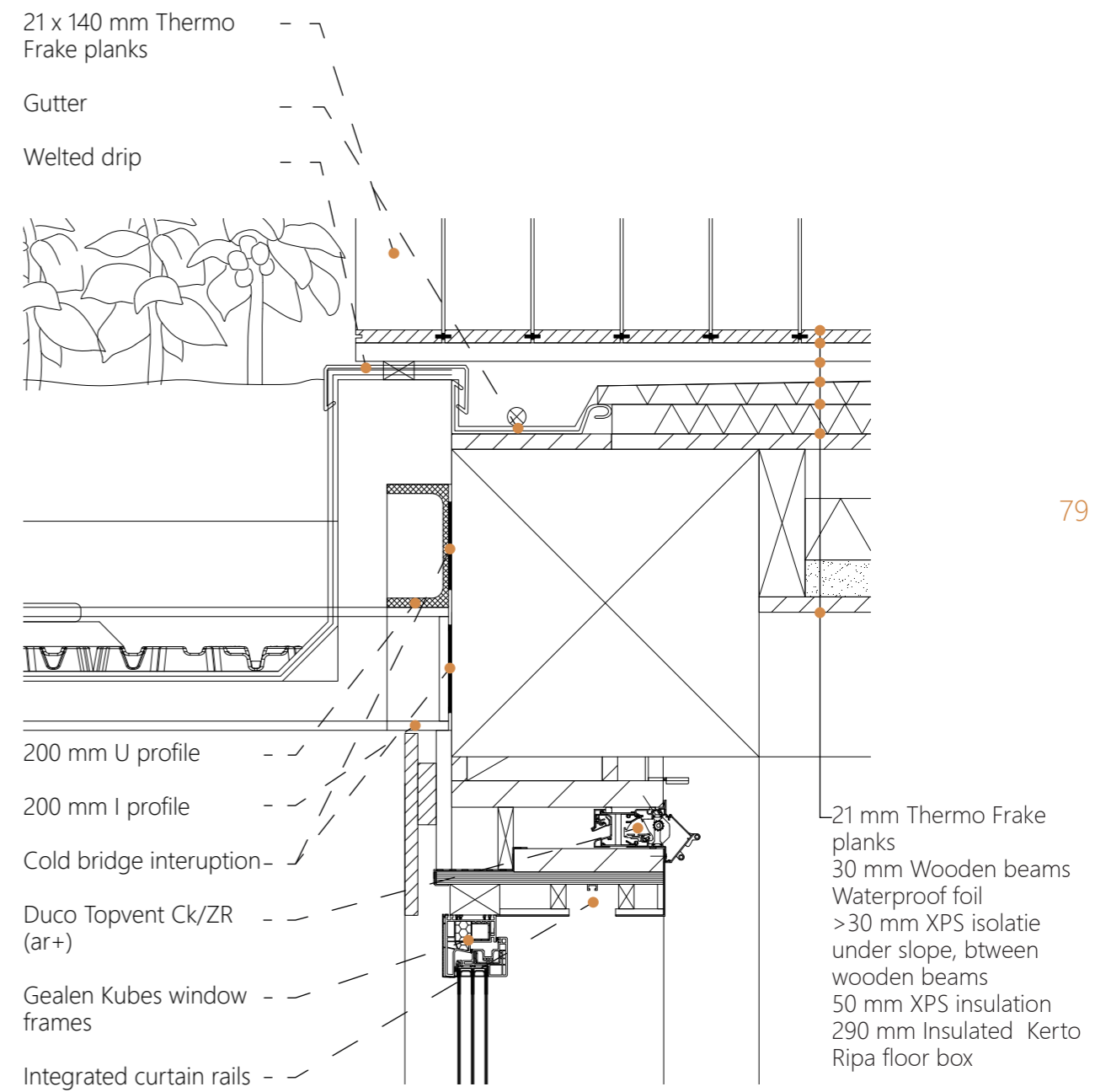


DETAIL 1: VERTICAL GALLERY OUTSIDE 1:5 (SCALED 50%)

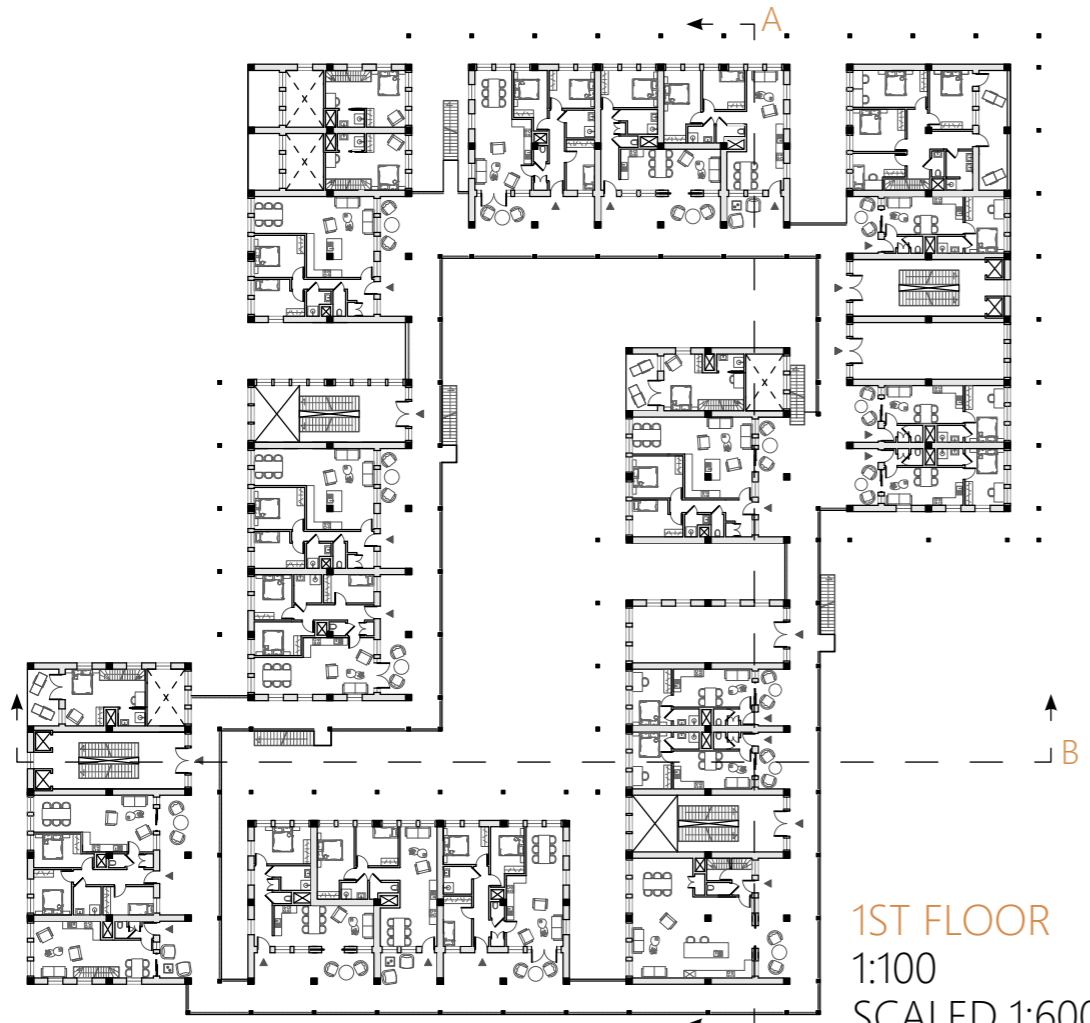


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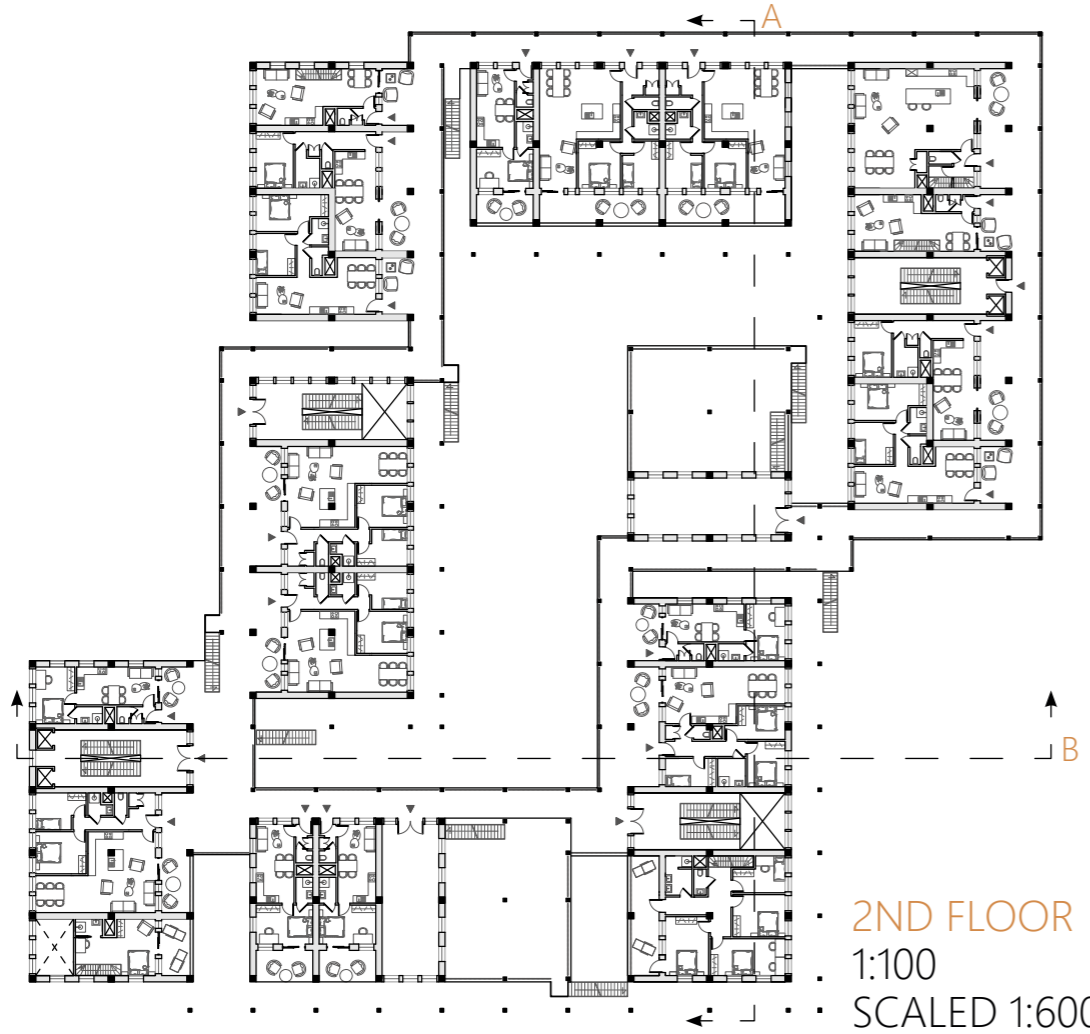
DETAIL 2: VERTICAL GALLERY - BALCONY 1:5 (SCALED 50%)



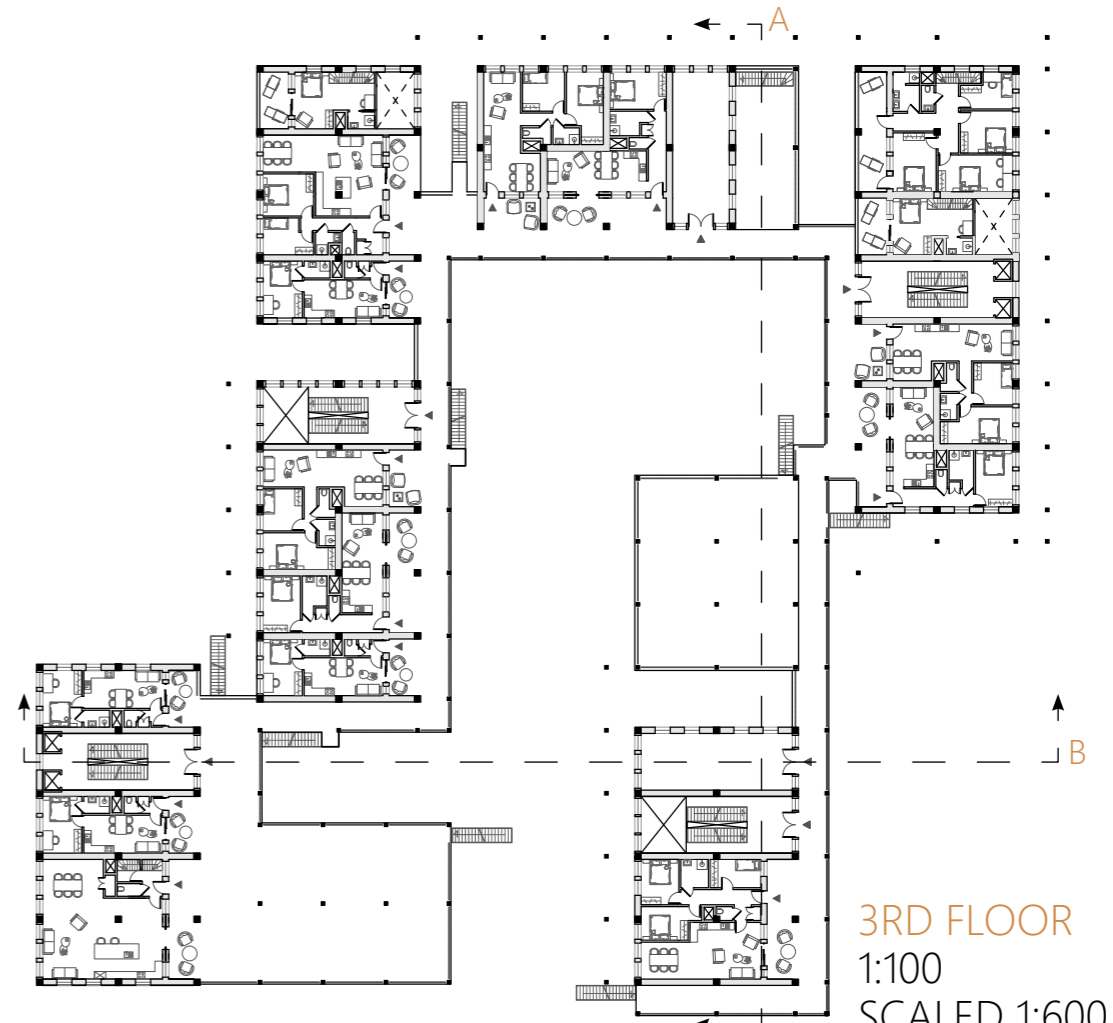
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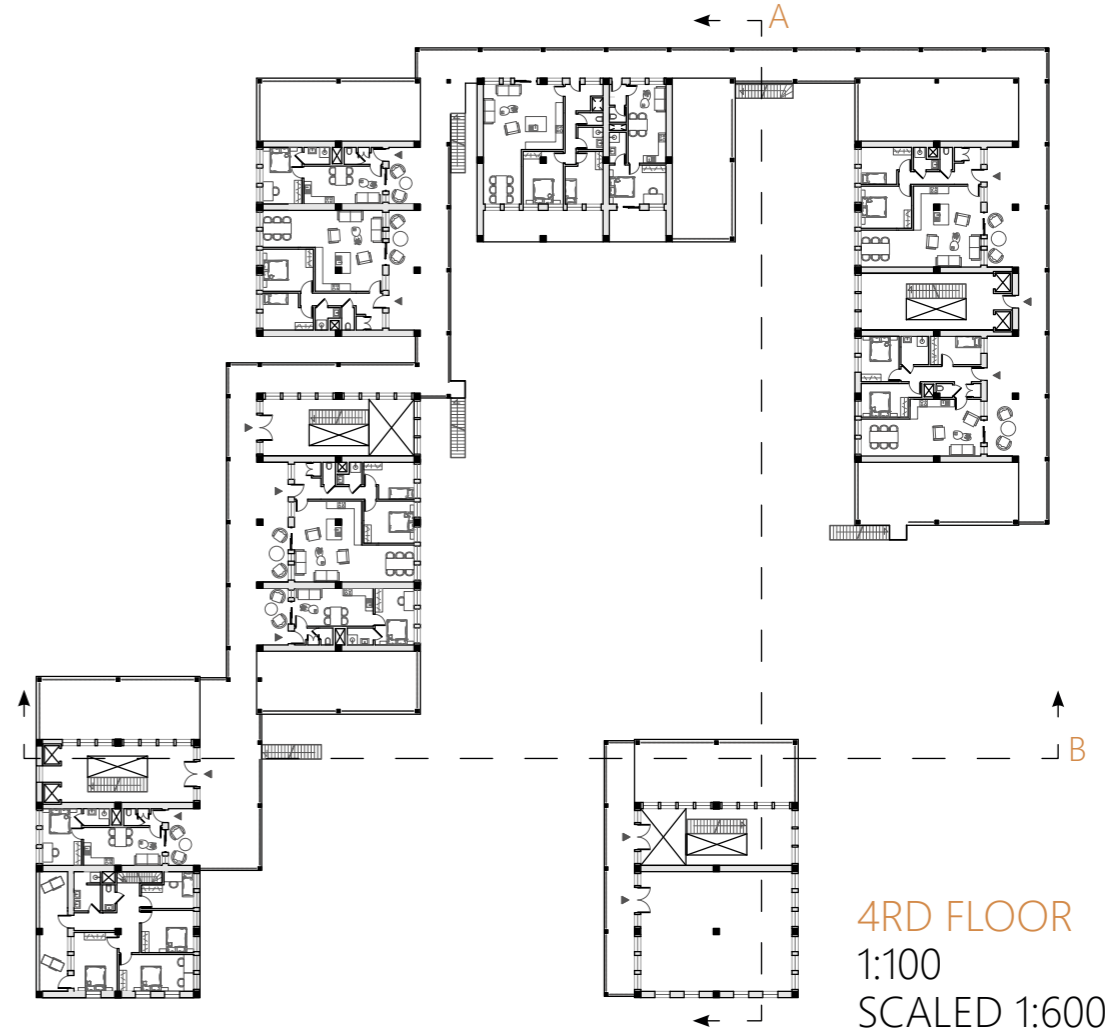
1ST FLOOR
1:100
SCALED 1:600



2ND FLOOR
1:100
SCALED 1:600



3RD FLOOR
1:100
SCALED 1:600



4RD FLOOR
1:100
SCALED 1:600

COMMON ROOM

Each floor features two common rooms, each serving a distinct purpose; such as a kitchen, living room, gym, or art studio. These common rooms are strategically distributed throughout the building to encourage movement and enhance opportunities for interaction. While there is always a common room close to your apartment, exploring the other common rooms will allow you to fully experience all that the building has to offer.

The function of the common room is closely tied to its location within the building. Some common rooms are situated right next to a large communal roof terrace, making them ideal for kitchens equipped with outdoor seating and BBQ options. Other common rooms are designed to receive either morning or afternoon sunlight, which is perfect for a quieter living room where residents can enjoy a morning coffee or afternoon tea.

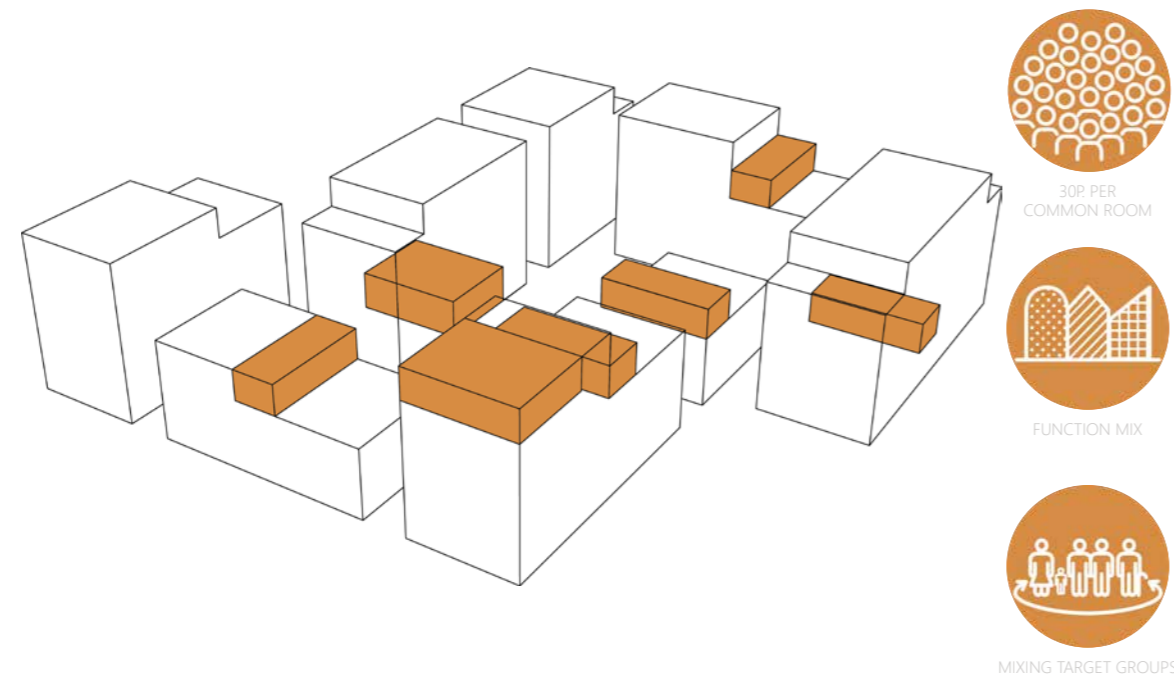
The common rooms are designed without a front terrace adjacent to the galleries, setting them apart from the residential apartments and enhancing the interior layout. The façade of the common rooms is designed with a lot of windows, ensuring the space is filled with natural light to create a welcoming and vibrant atmosphere. Glass sliding doors provide access to the roof terraces, allowing for a smooth transition between indoor and outdoor environments.



The large windows and transparent facade not only improve the overall ambience within the common rooms but also increase curiosity from people passing by. With the ability to glance inside, pedestrians can observe the activities taking place inside, whether it's a group engaging in a game, a workshop in progress, or simply friends enjoying a chat. This visibility encourages a sense of community and lowers the barrier for entry, making it easier for people passing by to feel invited to join in, participate in organised events, or explore the space for their own purposes.

The steel structure of the galleries extends onto the communal roof terraces, allowing for the installation of hanging sports equipment, climbing plants, or sunshades. This design not only enhances the aesthetic appeal of the terrace but also creates a more personalised environment, making it a more inviting space for residents. As a result, people are likely to feel more at home, which encourages social interaction.

Overall, the common rooms are designed to foster interaction, collaboration, and a sense of belonging among residents.



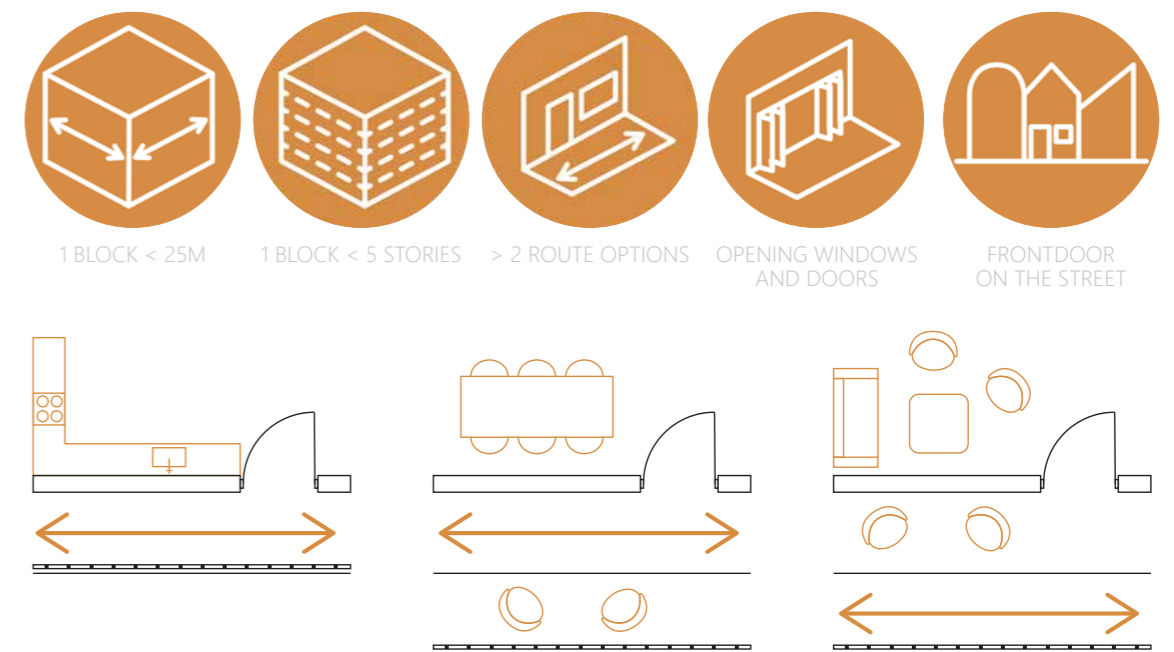
APARTMENT

For this project, I designed seven apartment types, ranging from a small one-bedroom apartment to a large four-bedroom family home. All seven apartments are designed to optimise light and usability. The layout follows the principles of the Dutch 'Doorzon woning', where light shines in from both ends of the apartment. The extra light coming in ensures that the apartment feels bigger, and the extra windows create sightlines to both ends.

To maintain privacy within the apartment, the functions directly behind the façade correlate with the different gallery types. Due to privacy reasons, bedrooms and bathrooms are not placed next to a gallery. If a gallery runs directly in front of the façade, the area behind it should be less private, making a kitchen a suitable

choice. When a terrace is opposite the gallery, people tend to focus on the terrace rather than looking inside, enhancing privacy and allowing for a dining room alongside the gallery. The best setup for privacy is placing the terrace between the façade and the gallery, as it creates more distance from passersby, making it ideal for a living room.

The balcony is positioned between the facade and the gallery on the south, east, and west-facing sides of the building. By relocating the balcony from the more private rear of the apartment to the front, it fosters opportunities for interaction while creating privacy inside the apartment. On the north-facing facades, the gallery is directly in front of the facade, with the balcony located at the back, to maximize sunlight on the balcony.



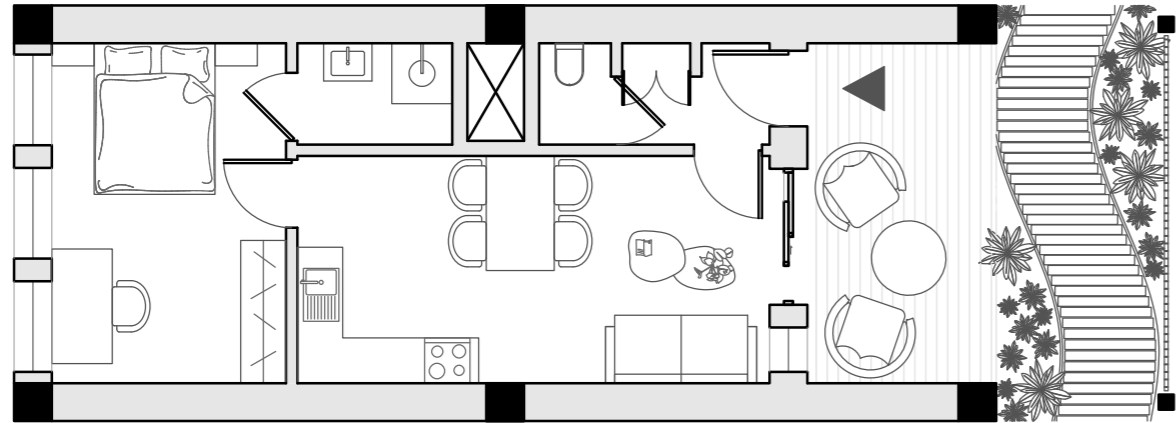


The balcony adjacent to the gallery is designed by pushing back the façade by 2.5 meters. This distance creates enough space for chairs, benches, and other personal touches without making the balcony feel like a front garden, thus reducing the desire to close it off. The balcony is constructed entirely of wood, with the planks laid horizontally along the façade and vertically on the sides. This design fosters a cosy and enclosed atmosphere where people feel safe and at home while still encouraging interaction with the gallery.

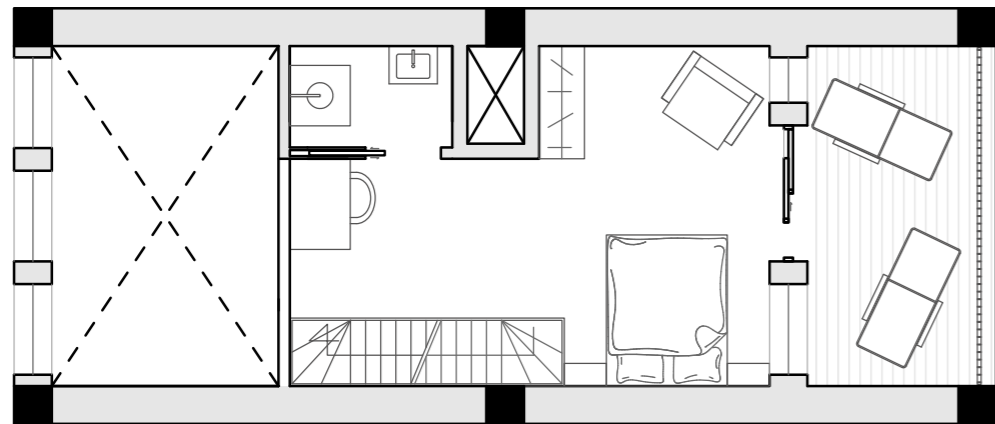
By enjoying your morning coffee on the balcony next to the gallery, rather than on a private balcony that offers no visibility, you have the opportunity to greet a neighbour as they pass by on their way to work. With the balcony positioned at the front and fully open to the gallery, the likelihood of social interaction is increased.

The façade next to the gallery features large windows and sliding glass doors, creating a visual connection between the interior and the balcony. This design ultimately enhances the sense of ownership and encourages residents to view the balcony as an extension of their apartment, increasing the chances of personalisation and use.

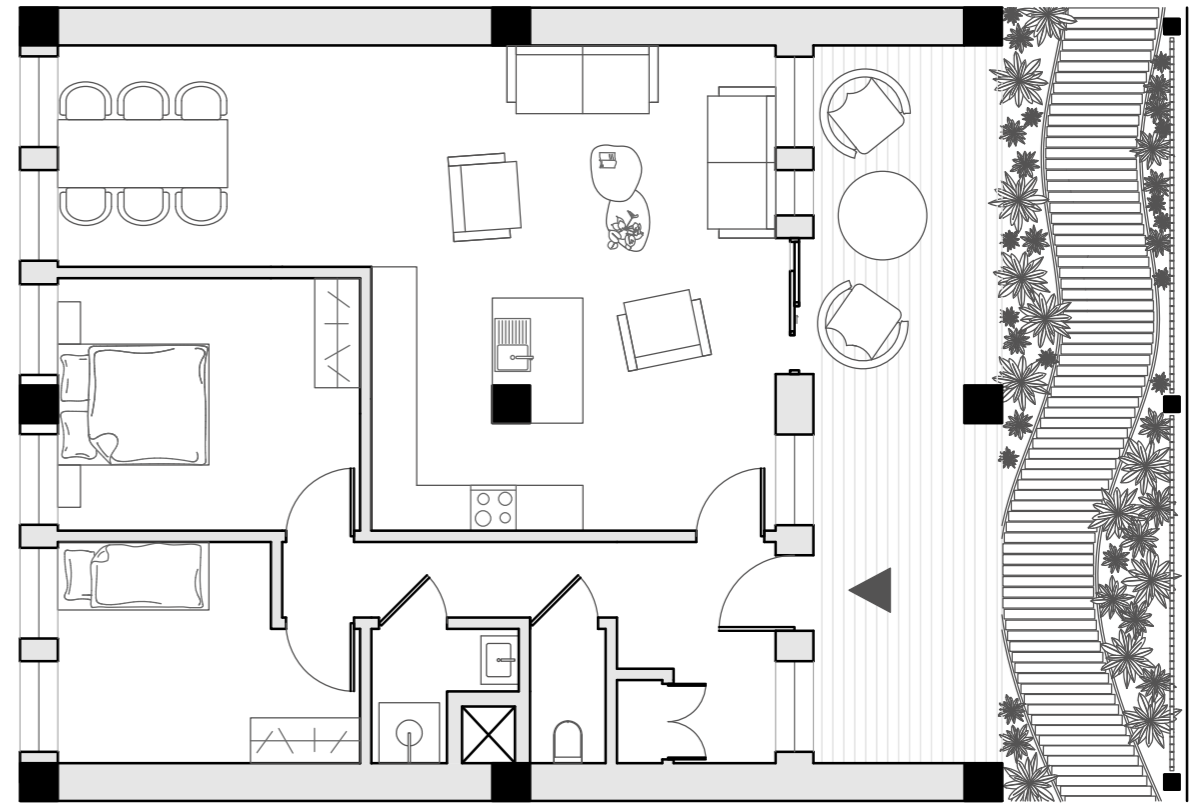
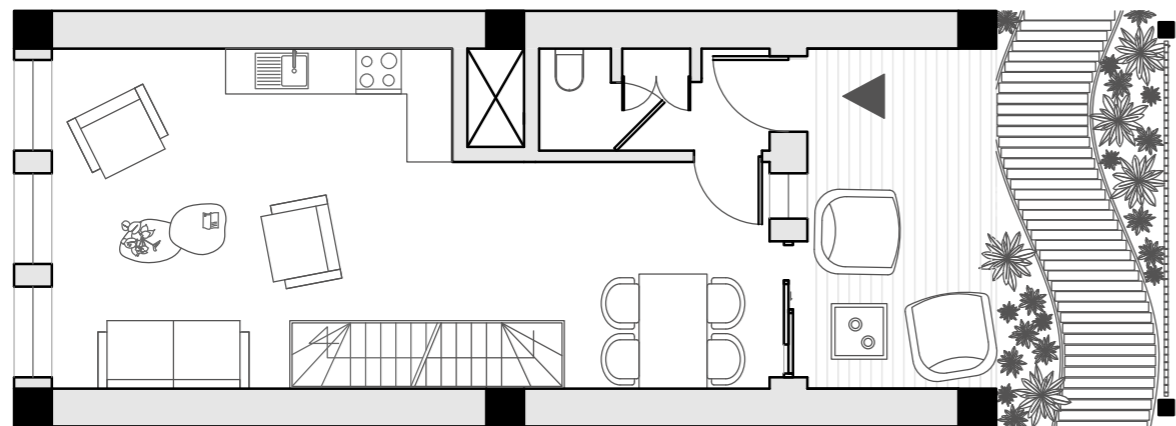
The gallery design, with the addition of all the plants, ensures something nice to look at, even when having your balcony on the street side of the building. This creates a more enjoyable balcony and further increases the use of the balcony and therefore the chances of collision.



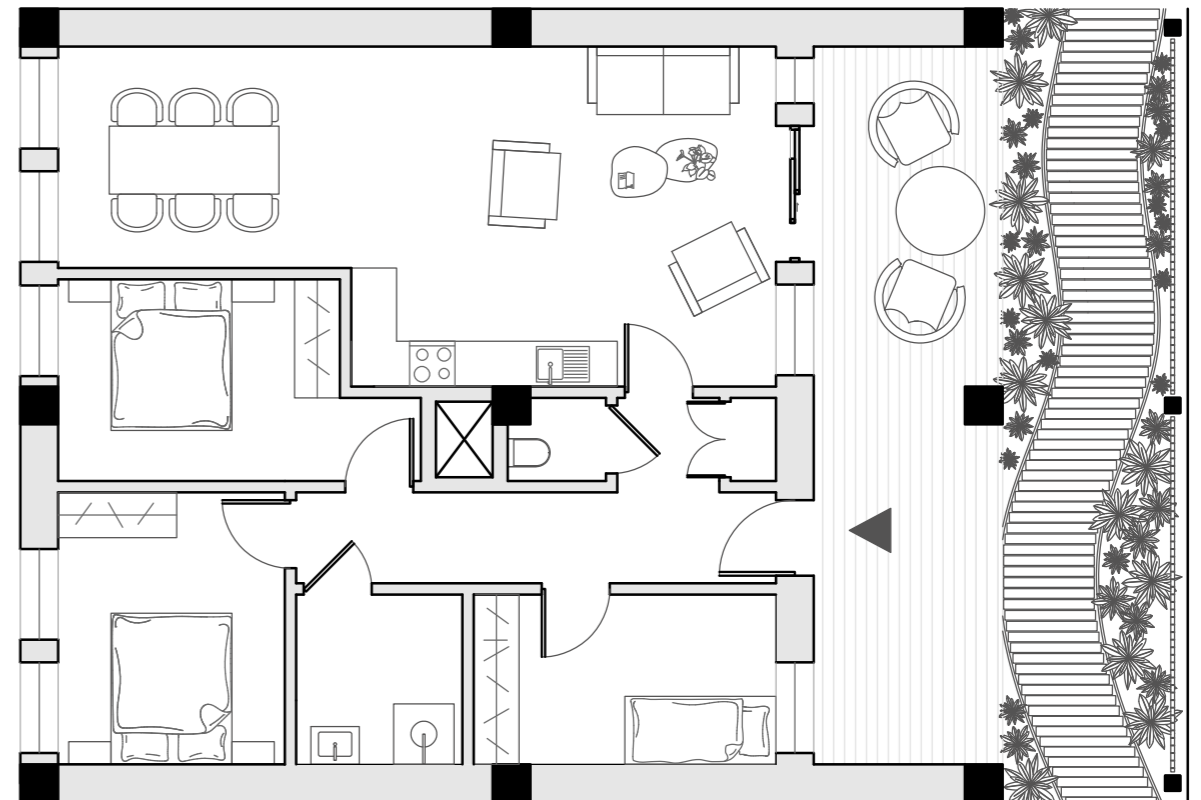
Apartment type 1:
42 m²
1 bedroom



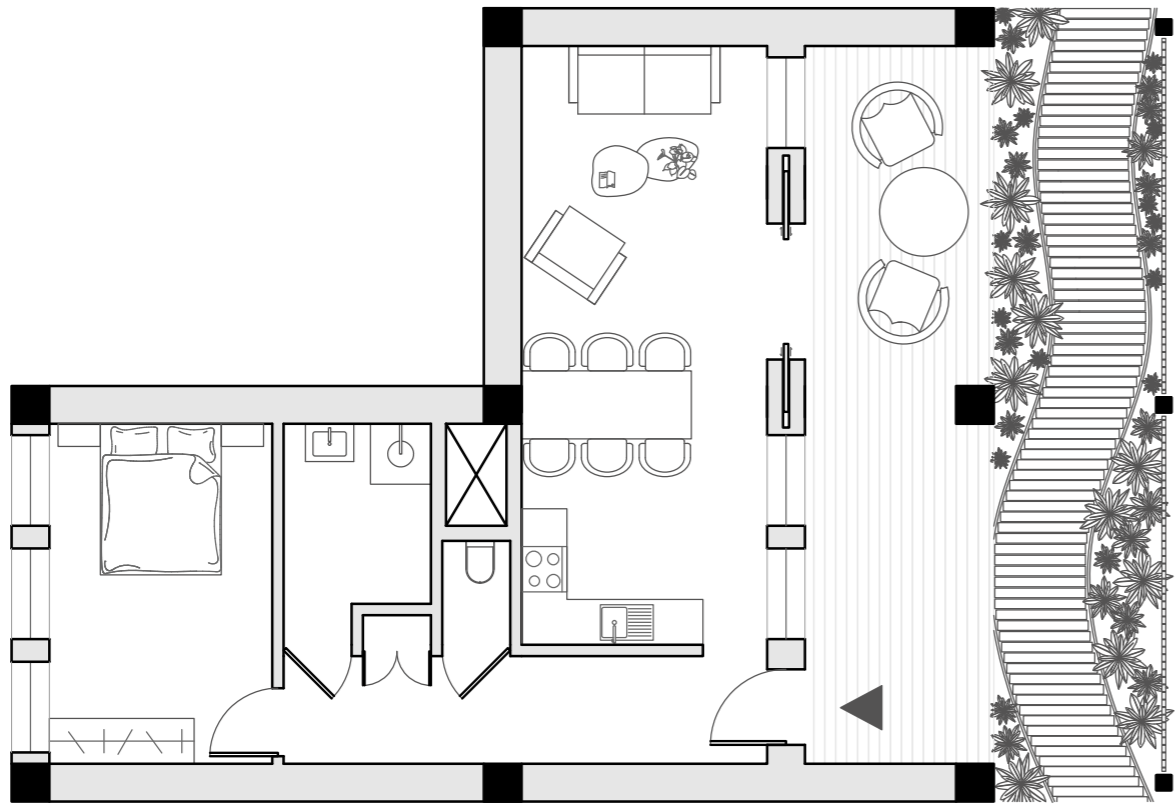
Apartment type 2:
71 m²
Loft
2 Floors



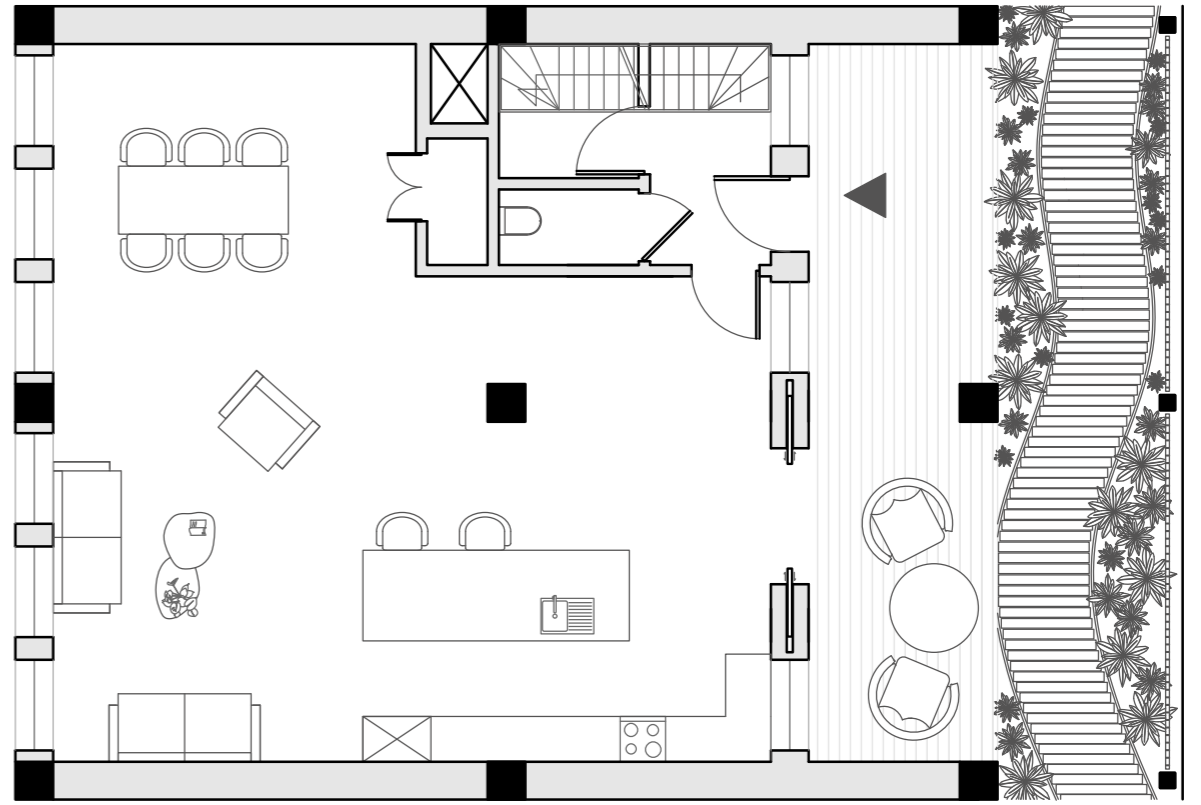
Apartment type 3:
90 m²
2 bedrooms



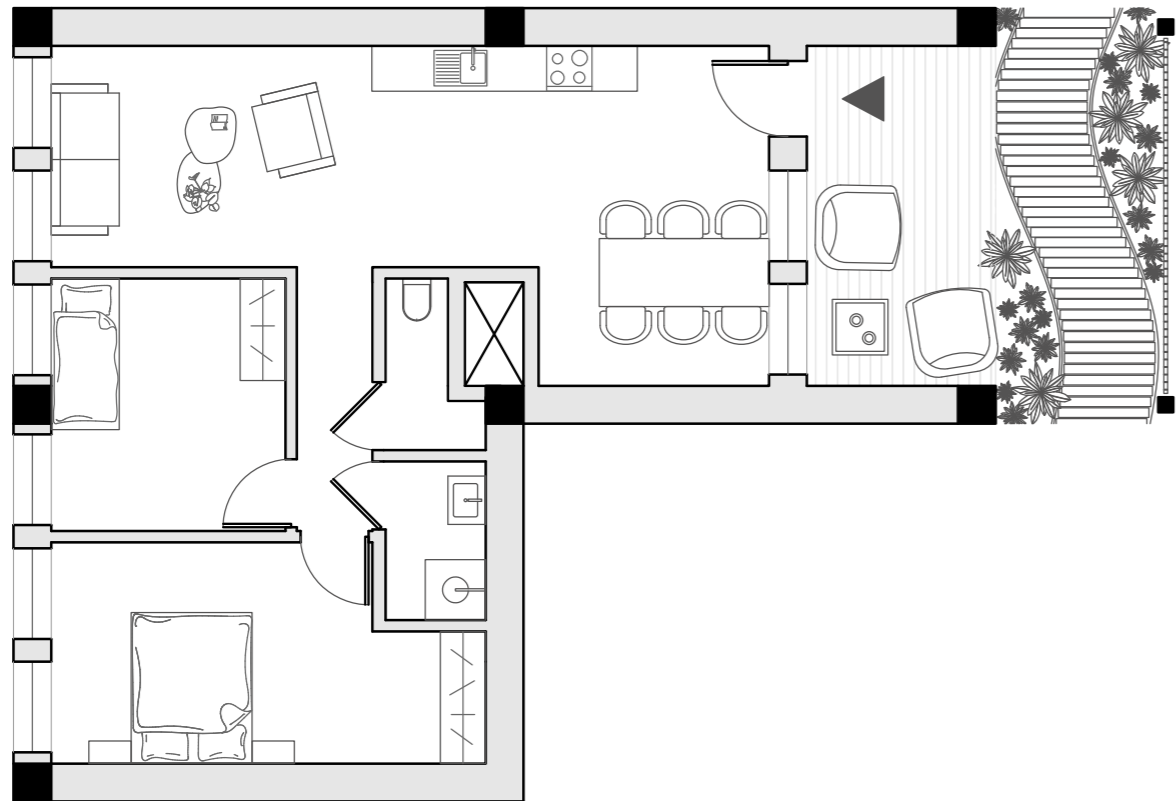
Apartment type 4:
90 m²
3 bedrooms



Apartment type 5:
59 m²
1 bedroom



Apartment type 7:
90 m²
4 bedrooms
Family house
2 floors



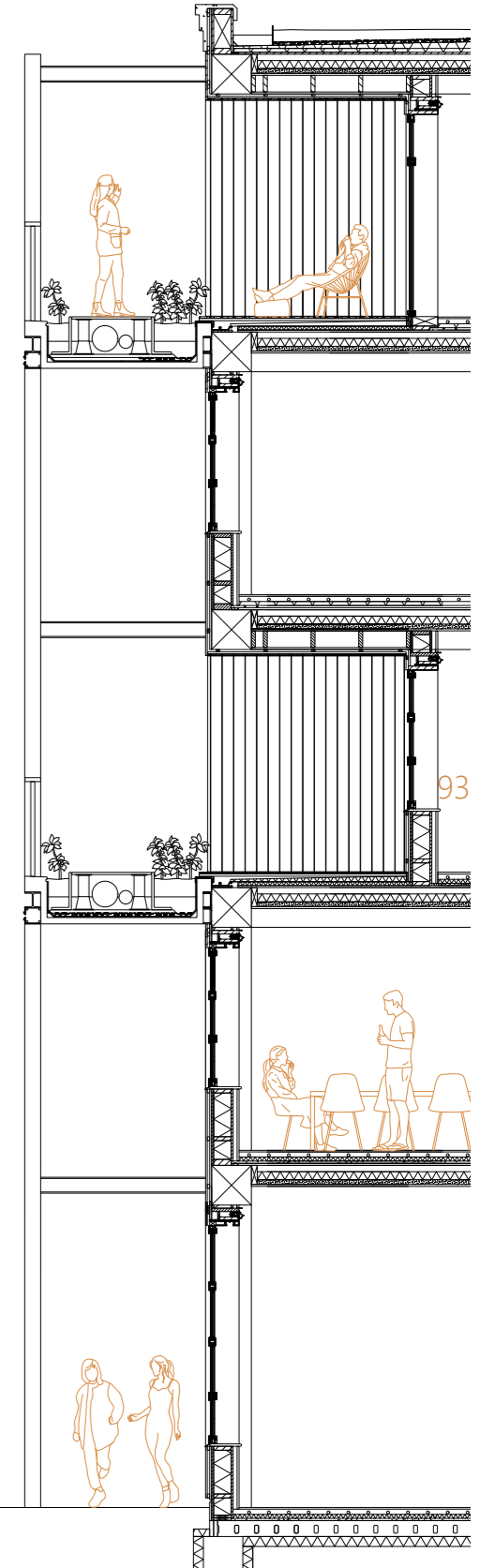
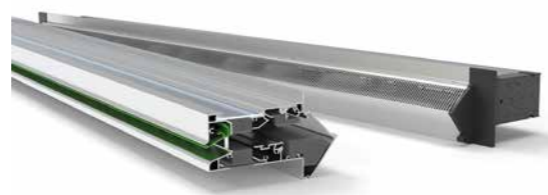
Apartment type 6:
72 m²
2 bedroom

FACADE AND CONSTRUCTION DESIGN

The building is constructed entirely from wooden columns and beams, incorporating an HSB infill. The walls are insulated with Cellulose, a sustainable insulation material made from recycled paper and hemp. Kerto Ripa floor elements are used, resting on top of the beams and positioned between them.

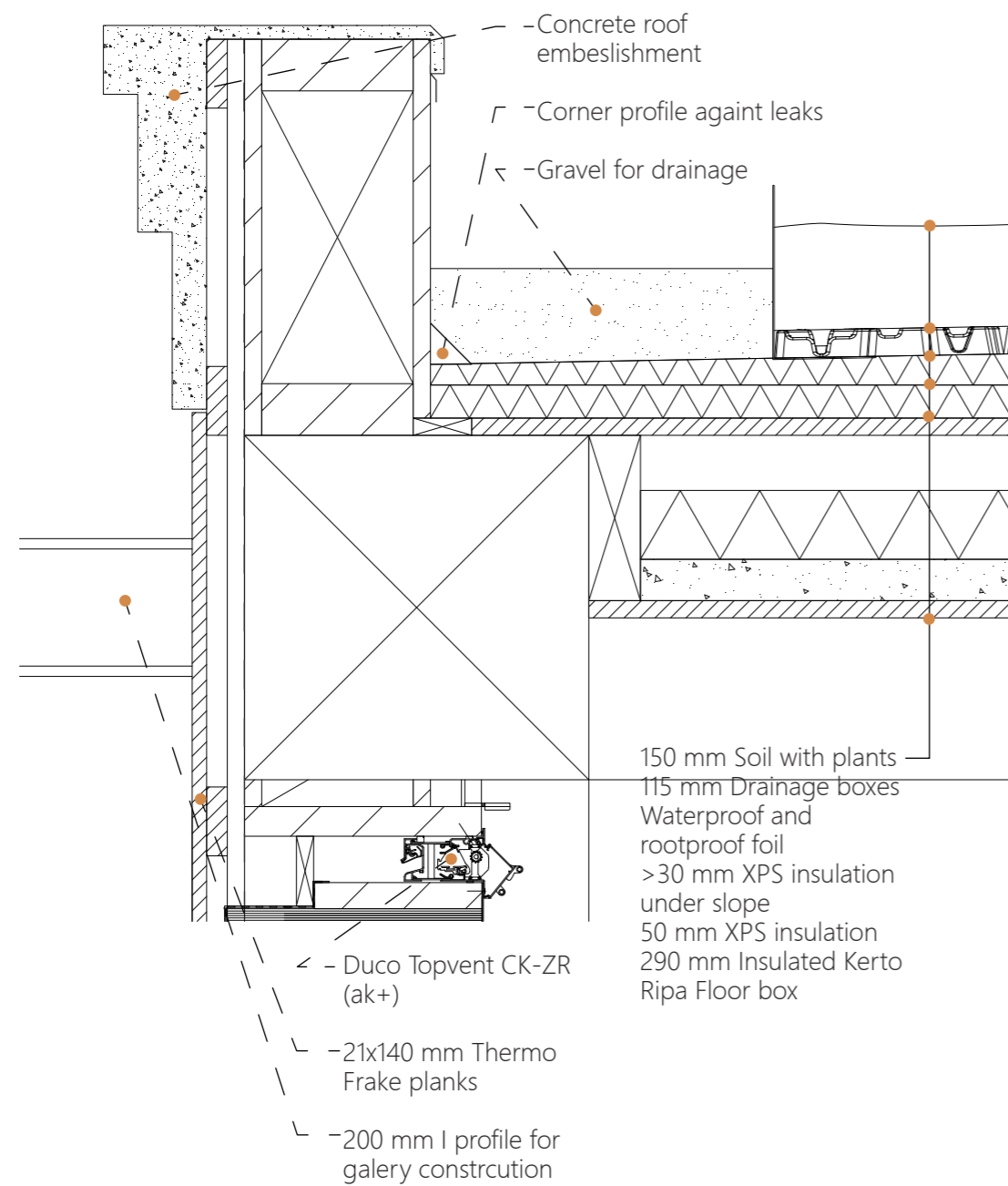
The façades of the shops and cafes on the ground floor are made from reused bricks, reflecting the design of the former Hamerkwartier buildings. In contrast, the façades of the apartments feature wood panelling, which is also used for the flooring and walls of the balconies. This panelling consists of 21x140 mm Thermo Frake planks connected using a B-fix system designed by GevenHout. To prevent the wood from turning grey, it is treated with oils and UV protection, requiring minimal maintenance over time.

To complement the sleek look of the gallery construction, Gealen Kubes window frames are used. These square window frames are 100 millimetres wide and conceal the glazing bead, resulting in a uniform appearance. A Duco Topvent CK-ZR (ak+) is positioned on top of the window frames and is hidden within the HSB wall. This design ensures a nearly invisible appearance, as the vent is integrated within the insulation and covered by the wooden wall panelling while still allowing air to flow in.



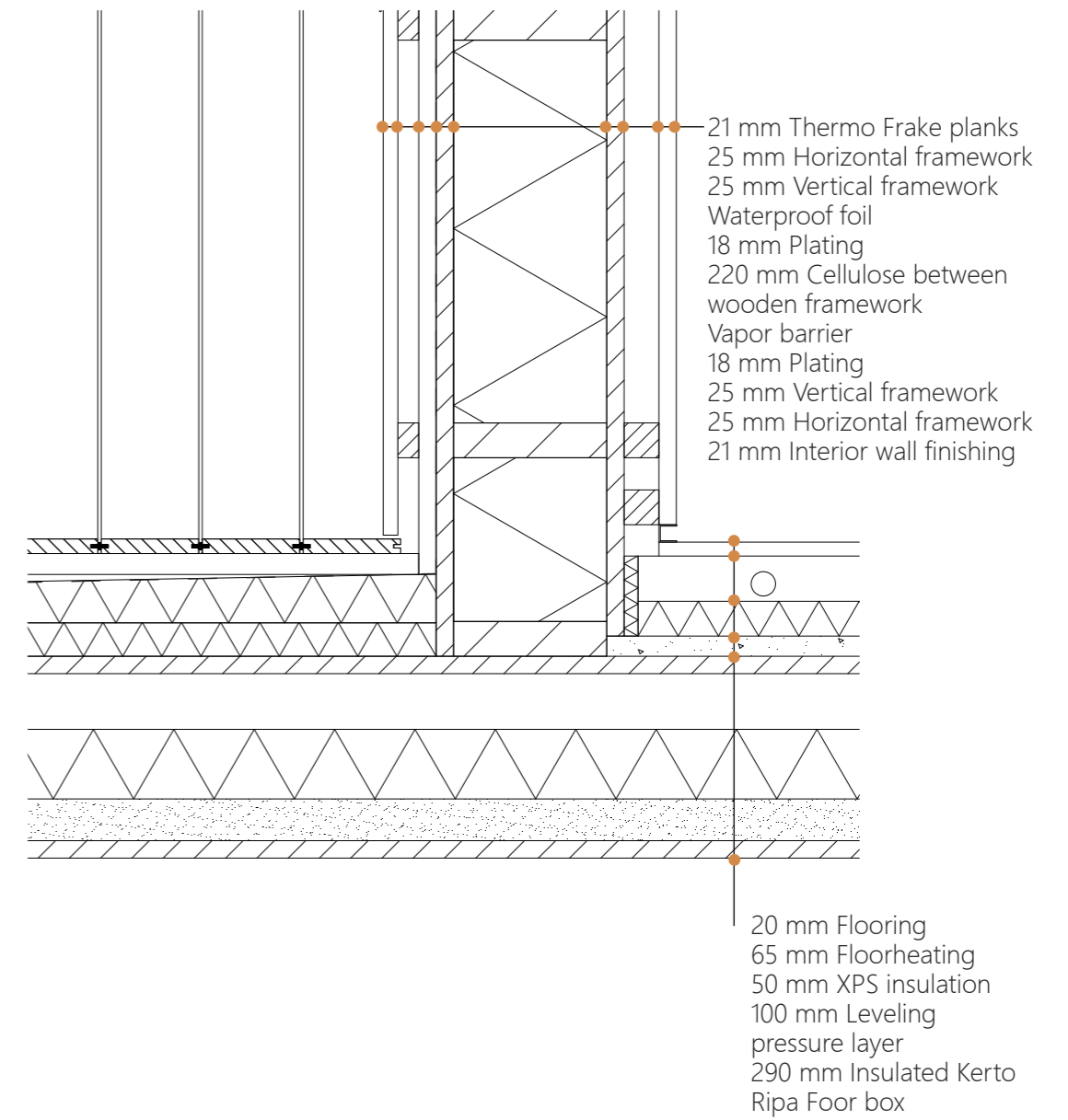
DEATIL 3: VERTICAL ROOF 1:5 (SCALED 50%)

94

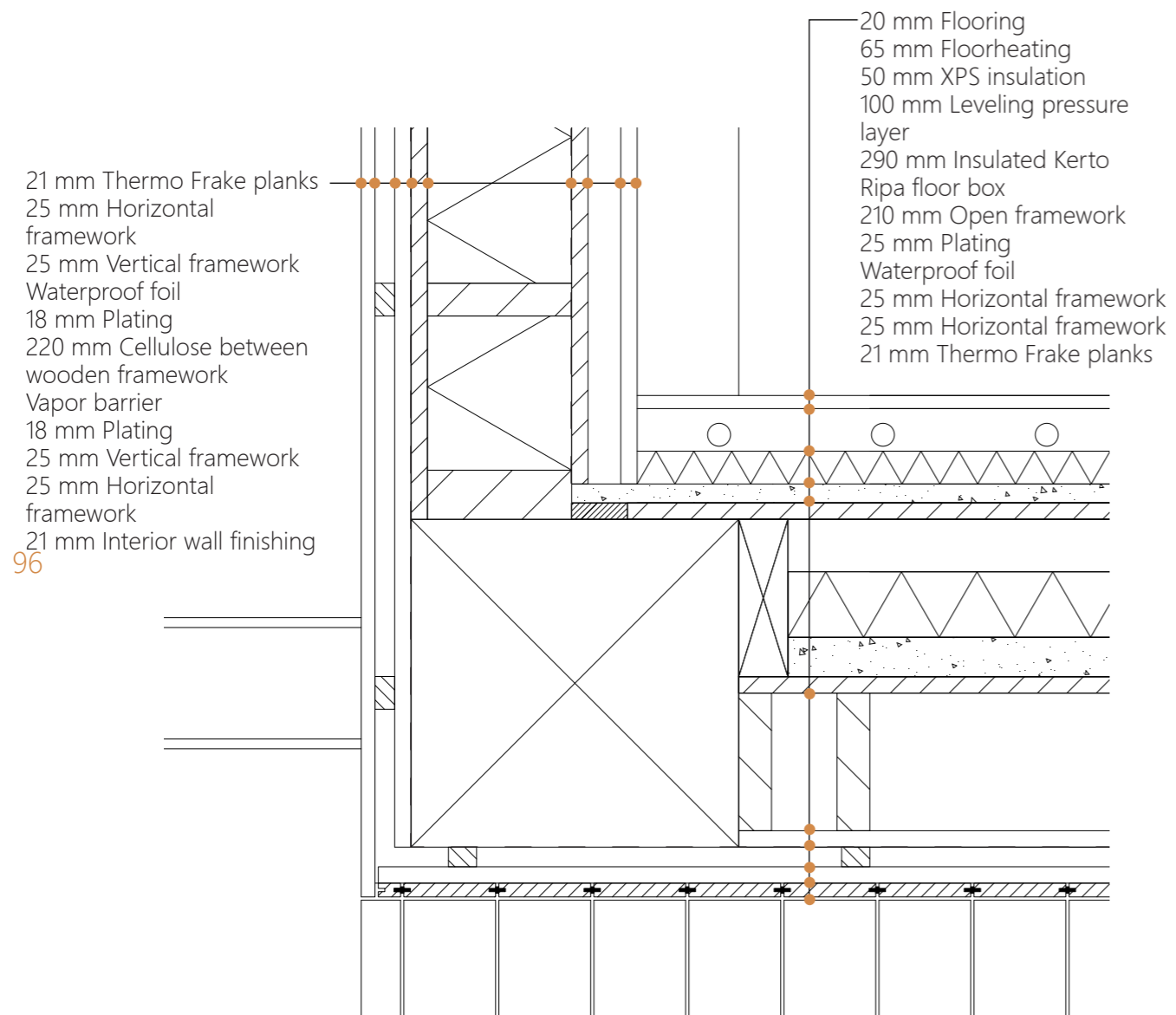


DETAIL 4: VERTICAL MEZZANINE FLOOR 1:5 (SCALED 50%)

95

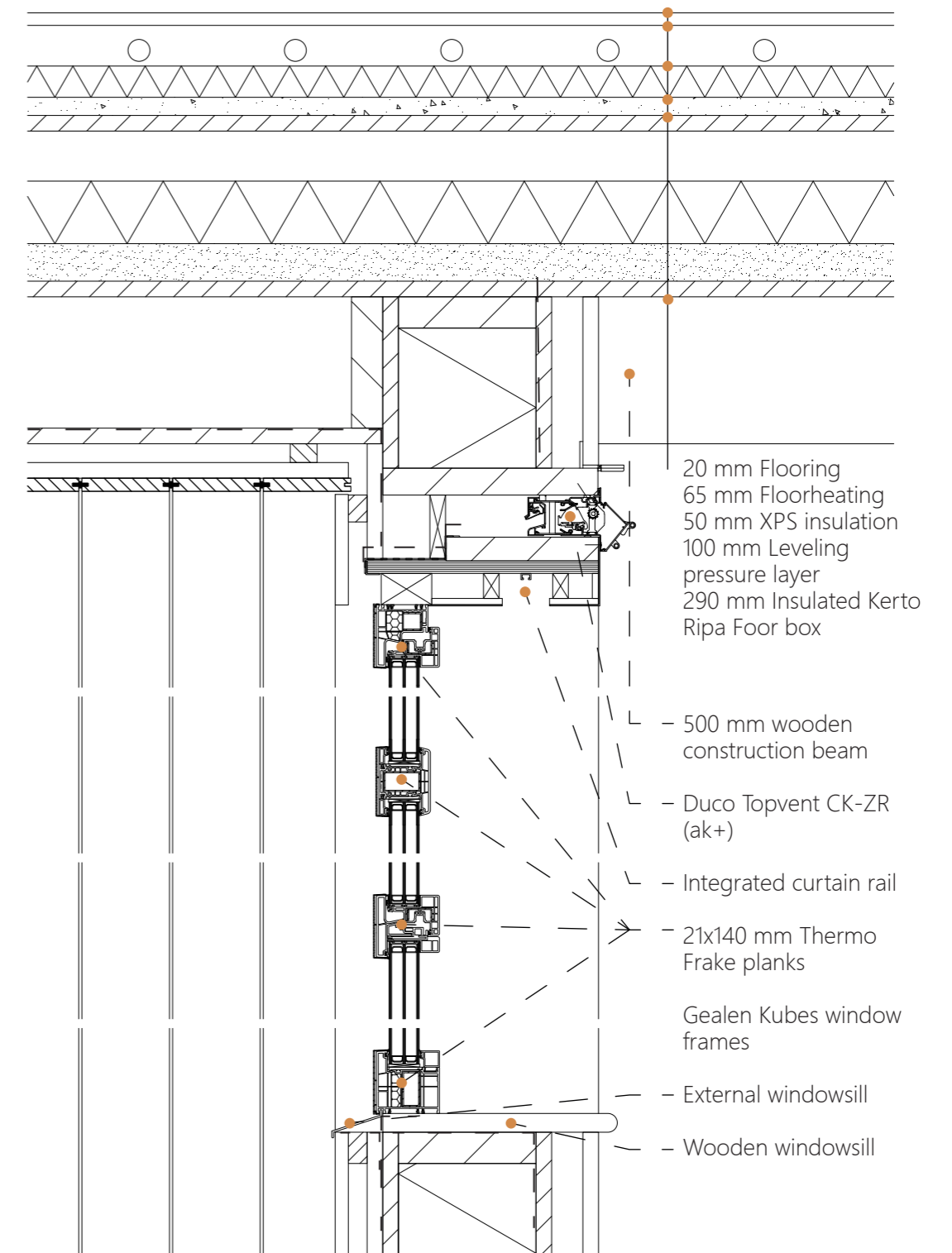


DETAIL 5: VERTICAL FACADE + BALCONY ROOF 1:5
(SCALED 50%)



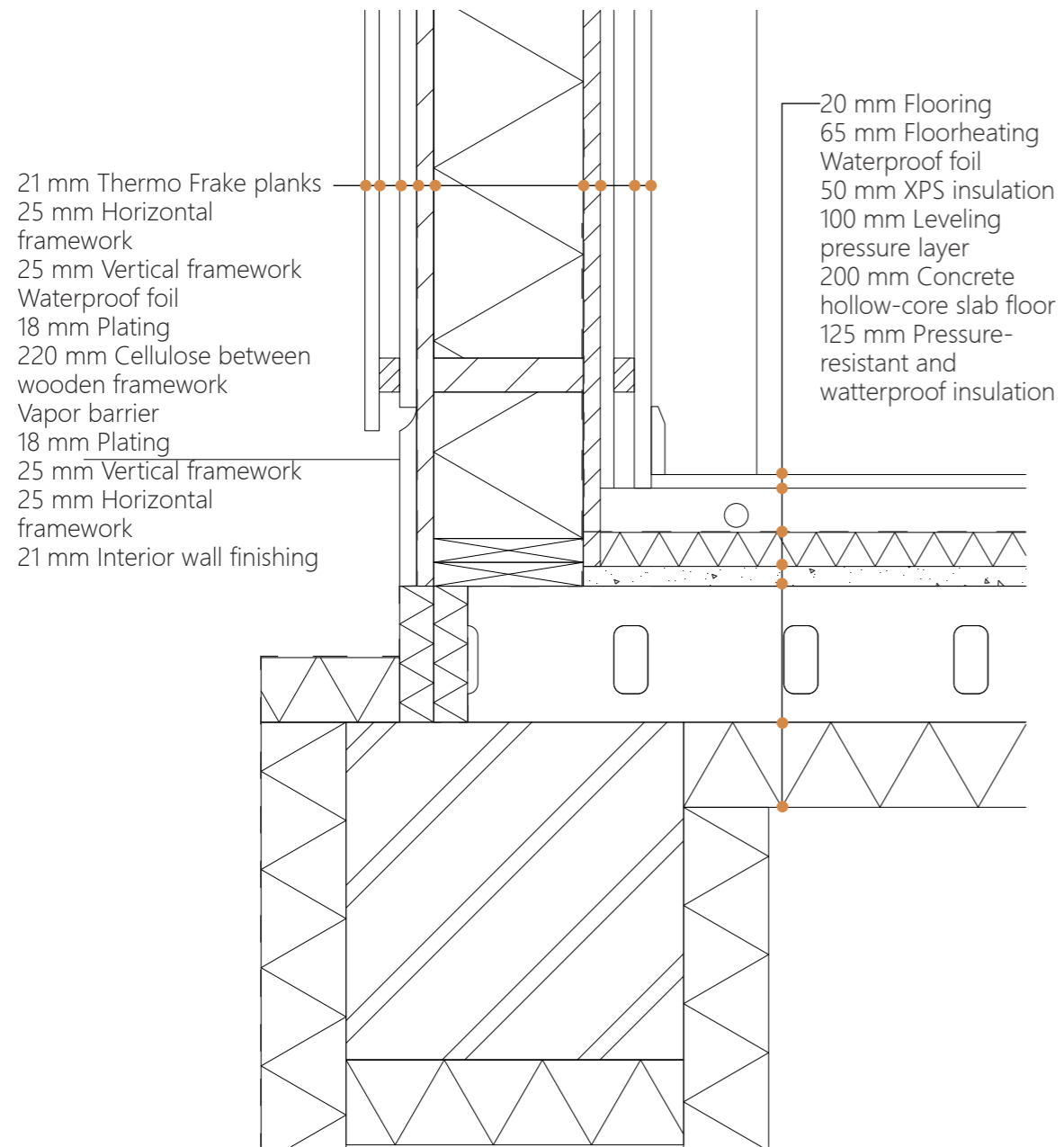
96

DETAIL 6: VERTICAL WINDOWS 1:5 (SCALED 50 %)



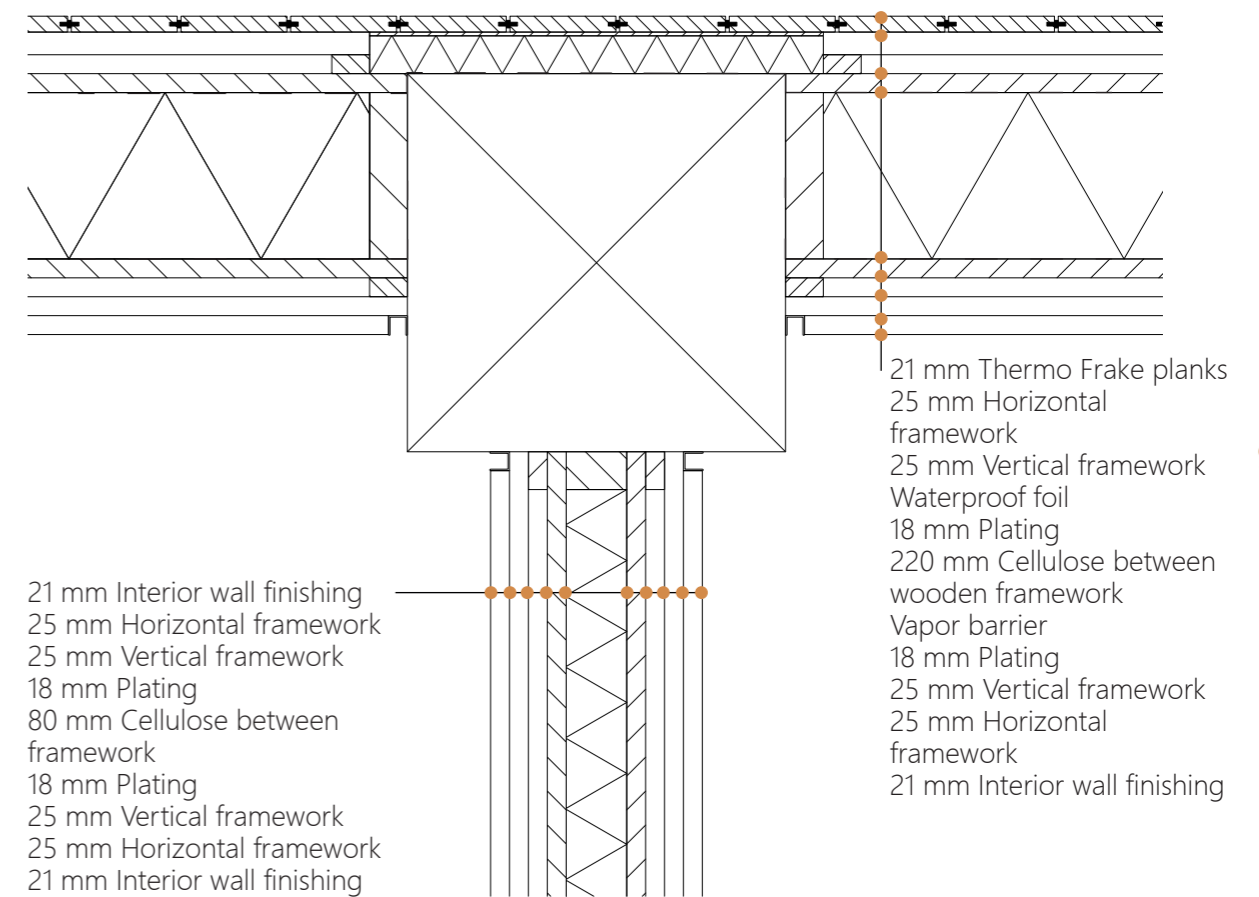
97

DEATIL 7: VERTICAL FOUNDATION 1:5 (SCALED 50%)



98

DETAIL 8: HORIZONTAL RESIDENTIAL DIVIDING WALL 1:5 (SCALED 50%)



99

SOCIAL ASPECTS

For the success of this project, not just the seven individual places are important; the continuation throughout the entire project actually ensures all places work optimally. Within my research, I found that, even though all seven places have a different interaction intensity, all seven of them are important to create opportunities for interaction for everyone. By having multiple places with different interaction levels, there are opportunities for everyone depending on their needs, preferences or just on their day.

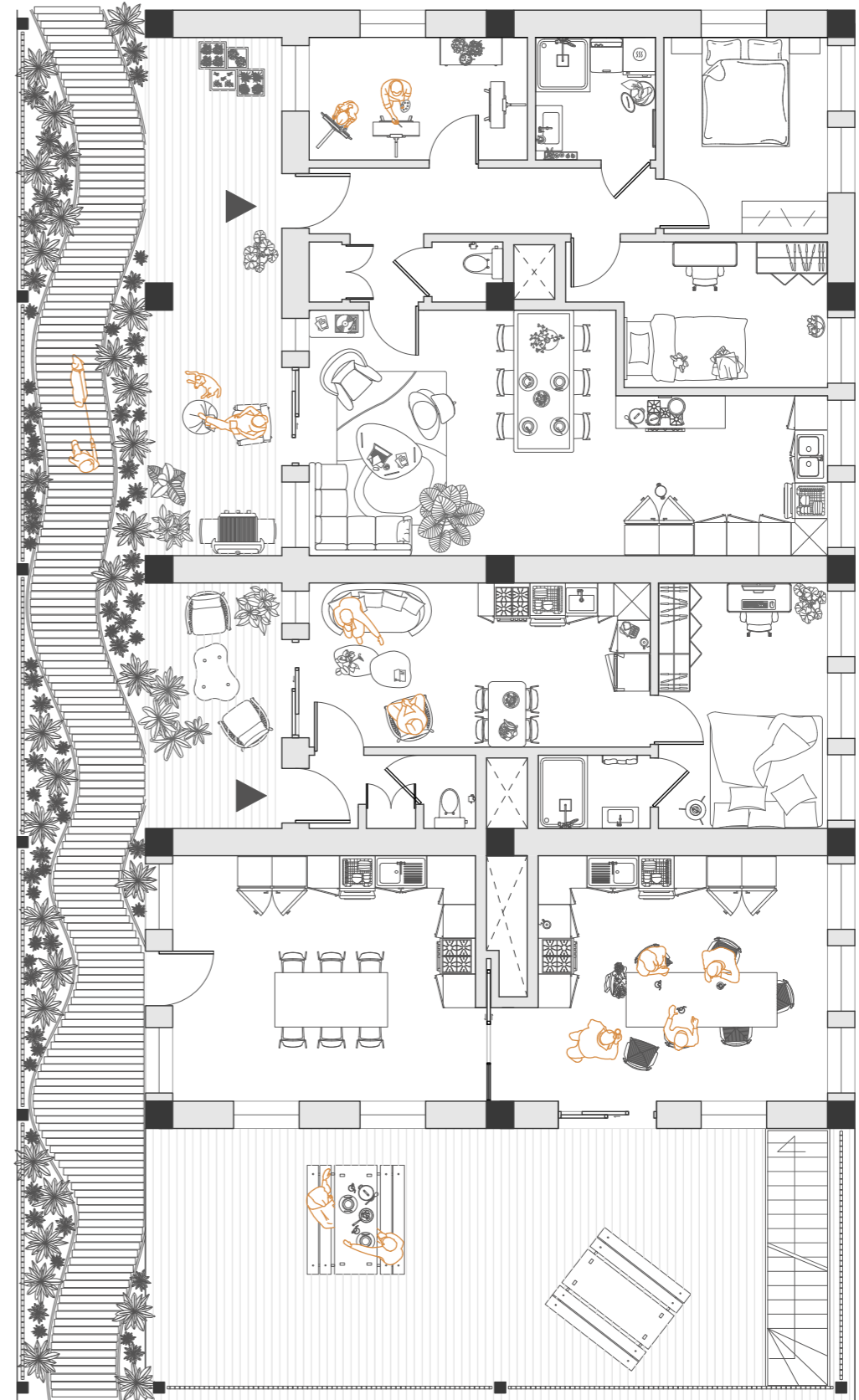
Moreover, the opportunities for interaction should extend beyond the boundaries of the site. By applying the insights gained from this project to the broader Hamerkwartier area—both within other buildings and through urban design—interrelated projects can enhance one another, resulting in a more robust design and concept. For instance, the reopening of the Hamerkanaal serves as a critical interaction point for the entire Hamerkwartier, rather than just the adjacent building, and could even establish a connection between Hamerkwartier and the rest of Amsterdam North.

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MAINTENANCE

I intentionally did not specify whether the apartments would be for sale or for rent, as this project serves as a case study that should be applicable to both scenarios. In the Hamerkwartier area, some buildings may be entirely for sale while others may be completely for rent, and there may even be variations in the distribution of apartment types. Additionally, it could be possible to combine both sale and rental properties within a single building.

Given the presence of a large communal garden, balcony plants, and a wooden façade, regular maintenance will be necessary. This maintenance, along with the use of common areas, can be managed through a Homeowners' Association (HOA), known as a VVE in Dutch. This arrangement would require residents to collectively assume responsibility for the upkeep of the building and garden. In a building that includes both sale and rental apartments, the rental units would have representation in the HOA through the rental organization.



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CLIMATE ADAPTATION AND BIODIVERSITY

The integration of greenery can be seen throughout the entire building. This is done not only to ensure a nice living environment for its residents, but also to bring back some plants and animals that used to live within the area.

The surrounding neighbourhoods of Hamerkwartier and the IJ-lands have quite large green structures and even parts of the former wetlands are still visible in the north. Within Hamerkwartier these green structures have disappeared due to the former industrial harbour function. By bringing back green and blue structures to Hamerkwartier the surrounding green structures are connected, improving the biodiversity in the entire Amsterdam North.

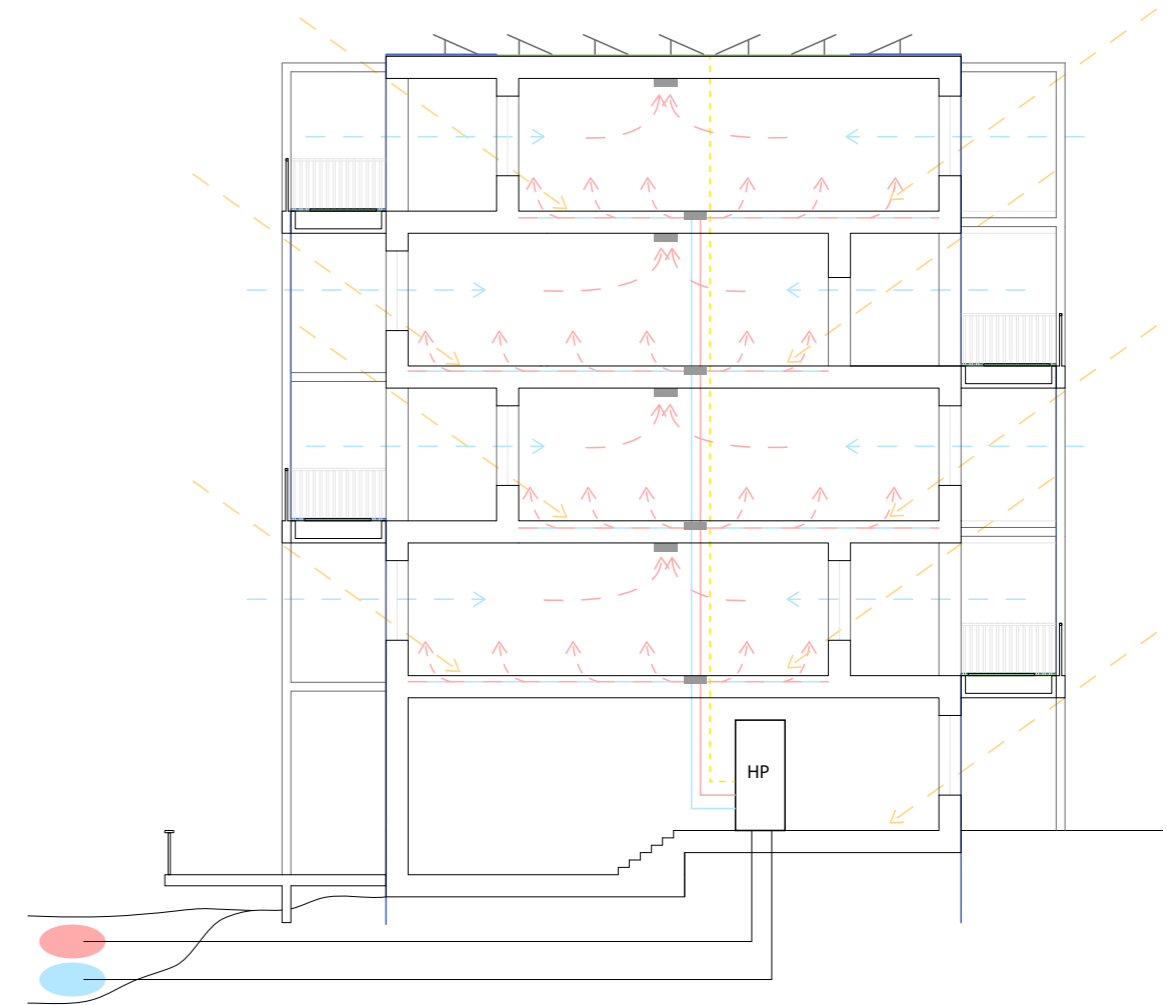
The greenery chosen for this project consists of low-maintenance plants that are native to the Netherlands. This selection will attract local wildlife, including species that already inhabit the surrounding green spaces. Additionally, the use of these low-maintenance plants and trees will simplify the upkeep of the garden, galleries, and public squares, making maintenance more manageable and cost-effective.

The main buildings are constructed using a demountable wooden design, which allows them to be taken apart and relocated if necessary. The HSB walls, integrated within the column and beam framework, also provide

the flexibility to move or replace walls. Additionally, these walls are insulated with cellulose, a sustainable insulation material made from natural fibres like recycled paper and hemp, further enhancing the eco-friendliness of the construction.

To enhance the biodiversity of the project, bird and bat boxes are incorporated into the gallery's design. These boxes are seamlessly integrated into the walkways, making them nearly invisible. To provide suitable habitats for various bird and bat species, boxes of different sizes are installed at various heights and orientations. The greenery chosen for this project also improves the habitat of these birds and bats by providing ample food and further shelter.

The building is heated using a floor heating system connected to a heat pump and a TEO (Thermal Energy from Surface Water) installation. This system harnesses energy from the walls of the reopened Hamerkanaal and the IJ River. The building is also cooled in the same way, with floor cooling implemented. Additionally, the cooling needs are reduced by natural shading from the galleries and balconies. During the summer months, trees and plants on the galleries provide extra shade.



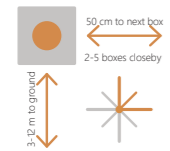
The building employs ventilation type C, which includes natural air inlet and mechanical exhaust. The air inlet is positioned above all the windows through Duco Topvent CK-ZR (ak+) grilles, while the exhaust takes place in the kitchen and bathroom.

Solar panels are installed on the non-accessible green roofs to generate the building's electricity needs. This electricity powers both the residents' usage and the building's systems, such as the heat pump and ventilation system.

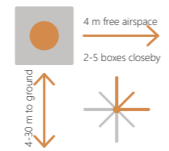
Rainwater collected on the roofs is redirected to the galleries through drainage pipes along the steel gallery structure and eventually flows to the garden and sewage system. To prevent overload in the sewage system, water drainage is slowed down by drainage boxes in the galleries and by the garden's deep grounds. During peak periods, excess water is also redirected to the reopened Hamerkanaal.

ANIMALS HOUSED WITHIN THE DESIGN

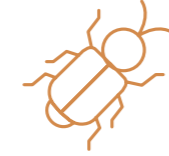
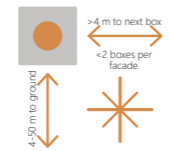
House sparrow



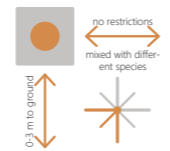
Common swift



Pipistrelle bat



Insects / butterfly



TREES FOR IN THE GARDEN

Picture	Name	Height	Location	Fruits, flowers or leafs
	Wilde appel (Malus sylvestris)	max. 10	-	Fruits and flowers
	Jeneverbes (Juniperus communis)	max. 10 m	-	Fruits and flowers
	Lijsterbes (Sorbus aucuparia)	max. 9 m	-	Fruits and flowers
	Hazelaar	max. 6 m	-	Leafs

HIGH PLANTS FOR IN THE GARDEN

Picture	Name	Height	Location	Fruits, flowers or leafs
	Bosrank (Clematis Vitalba)	max. 30 m	Climbing plant	Flowers
	Aalbes (Ribes Rubrum)	180 cm	Half shade	Fruits and flowers
	Valeriaan (Valeriana officinalis)	100 - 120 cm	Half shade	Flowers
	Zwarte Toorts (Verbascum Nigrum)	100 - 150 cm	Sunny	Flowers
	Gelderse roos (Viburnum Opulus)	max. 3 m	Sunny	Flowers
	Vlier (Sambucus Nigra)	max. 7 m	-	Fruits and flowers
	Sleedoorn	2 - 6 m	-	Fruits and flowers
	Haagbeuk (Carpinus Betulus)	1 - 3 m	-	Leafs
	Hulst	max. 10 m	-	Fruits and leafs
	Boswilg	max. 10 m	-	Leafs

LOW PLANTS FOR IN THE GARDEN OR GALERY

Picture	Name	Height	Location	Fruits or flowers
	Vrouwenmantel (Alchemilla Mollis)	20 cm	Ground cover	Leafs and flowers
	Vaarsbek (Geranium Sanguineum)	20 cm	Ground cover	Leafs and flowers
	Tongvaren (Asplenium Scolopendrium)	50 cm	Shade	Leafs
	Naaldvaren (Polystichum Setiferum)	90 cm	Shade	Leafs
	Hemelsleutel (Hylotelephium Telephium)	60 cm	Sunny	Flowers
	Vetkruid (Sedum Matrona)	60 cm	Sunny	Flowers
	Lavendel	90 cm	Sunny	Flowers
	Bvertjes (Briza media)	50 cm	Sunny	Grass
	Bochtige Smele (Avenella Flexuosa)	70 cm	Half shade	Grass
	Bermzegge (Carex Spicata)	60 cm	Shade	Grass

