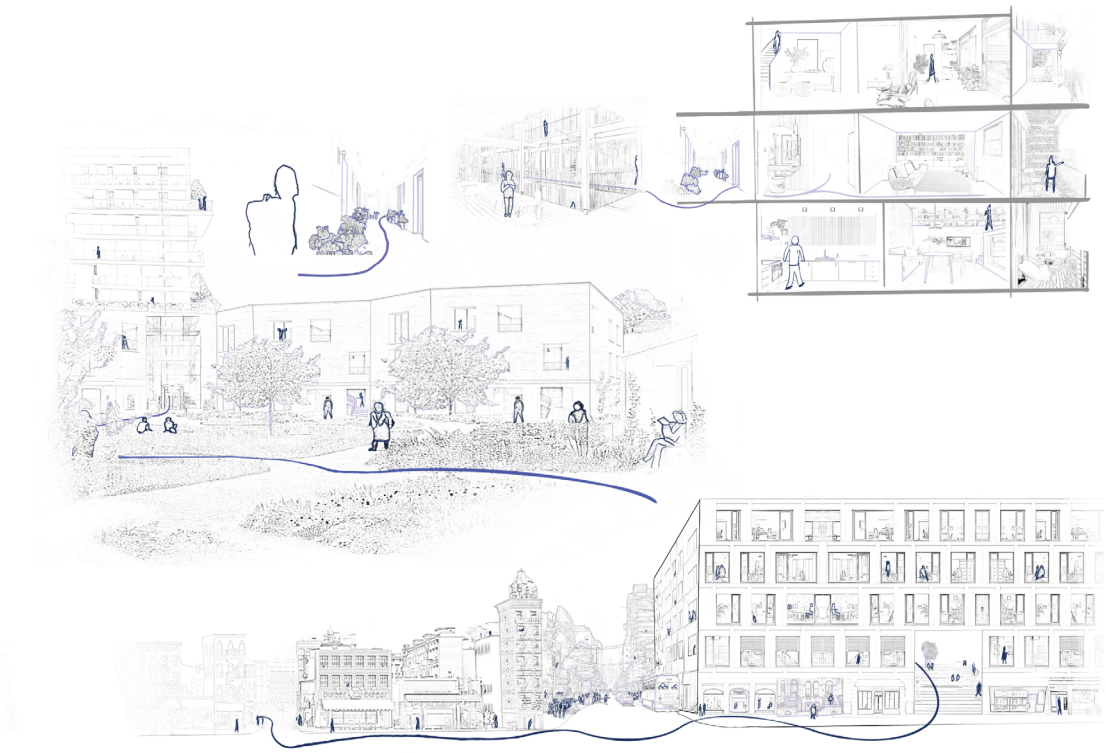

Ryan Daun

Verticalization of density

Exploring the Impact of Density on Social Quality of Life

Advanced Housing Design, Densifying Amsterdam - AR3AD100 Ryan Daun - 5709164

2025

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Keywords

- **Quality of Life**
- **Urban Well-being**
- **Social Inclusion**
- **Social Responsibility**
- **Privacy Management**

- **Quality of Life** refers to the overall satisfaction with one's life, including aspects such as health, education, income, and personal relationships. It is a subjective measure that varies from person to person and can be influenced by a wide range of factors, including socioeconomic status, access to resources, and personal well-being.
- **Urban Well-being** refers to the overall quality of life experienced by individuals living in urban areas. It encompasses various aspects such as health, education, employment, and social connections, all of which contribute to the overall satisfaction and happiness of urban dwellers.
- **Social Inclusion** is the process of ensuring that all individuals, regardless of their background, have equal opportunities to participate in and benefit from society. It involves policies and practices aimed at reducing social exclusion and promoting equal access to resources, services, and opportunities.
- **Social Responsibility** is the informal obligation of residents to care for shared spaces and uphold community values. This emerges through design strategies that promote interaction, visibility, and ownership—especially in collective and transitional zones.
- **Privacy Management** is the ability of individuals to regulate their social interactions and control their exposure to others. In residential architecture, privacy management is facilitated through spatial design—such as window placement, setbacks, or semi-private thresholds—and allows users to choose their level of engagement with the communal environment.

Introduction

The Netherlands is currently facing a significant housing shortage (Ministry of the Interior and Kingdom Relations, 2023). This problem is particularly acute in the Randstad region. The United Nations Department of Economic and Social Affairs predicts that by 2050, 66% of the world's population will live in urban areas (United Nations Department of Economic and Social Affairs, 2014). In high-density urban environments like Amsterdam, characterized by skyscrapers and crowded residential buildings, social interaction among residents present challenges. Currently, nearly half of Dutch adults report feeling lonely, with 1 in 7 feeling very lonely. Among youth aged 16 to 25, this figure is even higher, with 1 in 4 experiencing loneliness (Ministerie van Volkshuisvesting, Ruimtelijke Ordening en Milieubeheer, 2024).

Although studies have not found a direct link between overcrowding and reduced social life, creating socially sustainable environments in high-density settings remains difficult. As more people move to cities and live alone, designing spaces that enhance the social quality of life is becoming increasingly important for residents' well-being.

This research focuses on Amsterdam's densification, aiming to create a high-density environment that promotes social interaction. Case studies provide insights into strategies for designing collective spaces. This study investigates the relationship between high-density urban living, social interaction, with a particular emphasis on how architecture and design can foster social connections. Through a mixed-methods approach, including qualitative research and architectural analysis, the study will offer insights for creating inclusive, socially connected urban environments.

The main research question is: "Which design strategies impact the 'social' quality of life for different target groups within a high density context?" To answer the main question additional sub-questions further support and define the research: "How can 'social' quality of life be measured within an architectural context & what are the primary factors that affect residents in high-density urban environments?", and "How do different target groups consider these elements within their residential housing?" & "Which design strategies are used in the selected case studies to improve the 'social' quality of life of residents?"

01

Introduction

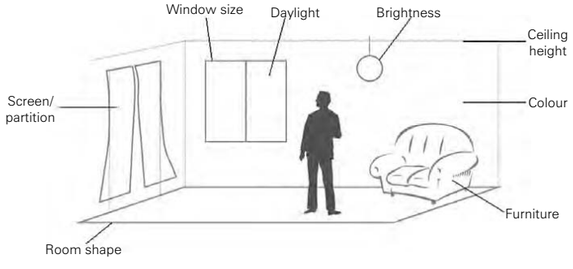
- Problem Statement
- Theoretical Framework
- Research Questions
- Methodology

Problem statement

The Netherlands is currently struggling with a massive housing shortage, according to the Ministry of the Interior and Kingdom Relations there is a shortage of 390.000 houses (Ministry of the Interior and Kingdom Relations, 2023). This problem can be seen extremely well in the Randstad and particularly in Amsterdam, which alone has an estimated housing shortage of 175.000 houses (Kruyswijk, 2022). It is estimated that this national shortage will slowly decline from 390 thousand to 205 thousand by 2038, due to the transformation of offices to residential functions and additional new buildings (Ministry of the Interior and Kingdom Relations, 2023).

Currently, the Netherlands ranks as the 25th most densely populated country on earth (StatisticsTimes, 2024). Healthy housing, which can be defined as a place which supports the physical, mental, and social well-being of its occupants, must meet basic needs. There is increasing evidence to show that lack of space can have an impact on overall well-being where basic lifestyle needs are not met (Lee, 2021). However, due to the small size of the country, it could also be interpreted as an empty city and not a dense country. This is unfortunately not the case for the densely populated areas of the Randstad and Amsterdam. According to Cheng (2010) the term density is familiar at a glance but upon closer examination, a complex concept appears. Cheng states that the term density can be untangled and split into two perspectives.

Firstly, physical density which is a numerical measure of the concentration of individuals or physical structures within a given geographical unit (Cheng, 2010). This can be measured with different factors such as regional density, residential density, occupancy density, plot ratio, density gradient and building density & urban morphology

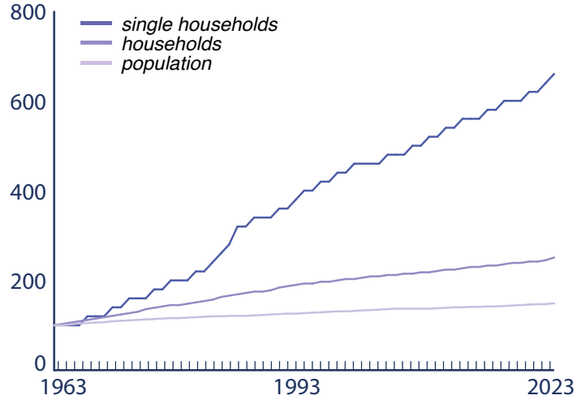


1.1 - Architectural features that influence the perception of density - (Cheng, 2010)

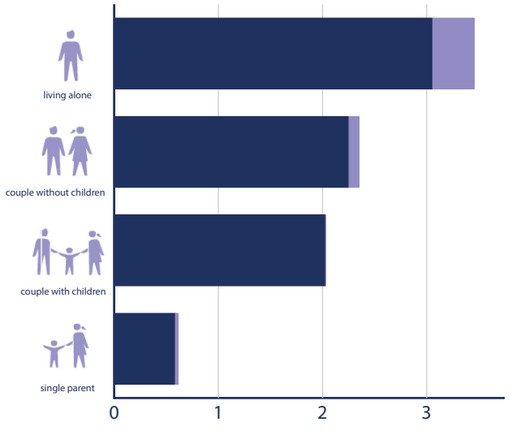
Secondly, perceived density emphasizes the interaction between the individual and the environment; therefore, it is not the actual physical density, but the perception of density through this man–environment interaction that matters (Cheng, 2010).

Additionally, research by Calhoun (1962) & Freedman (1982) studies the aspect of overcrowding. Calhoun analyses the social behaviour of rats; in this experiment, he studies the population whilst removing the usual natural controls on overpopulation. Calhoun observed behaviour among the rats and termed it 'behavioural sink'; "the outcome of any behavioural process that collects animals together in 3 unusually great numbers. The unhealthy connotations of the term are not accidental: A behavioural sink does act to aggravate all forms of pathology that can be found within a group" (Calhoun, 1962).

According to the Department of Economic and Social Affairs, it is expected that 66 per cent of the world's population will live in urban areas by 2050 (United Nations Department of Economic and Social Affairs, 2014). Therefore, within a high-density urban environment characterised by towering skyscrapers and densely packed residential buildings, the issue of social interaction and loneliness among residents presents a significant challenge. Among the Dutch population, already almost half of the Dutch adults feel lonely (48.6%) & 1



1.2 - Population growth in relation to household types: by Author - data: (Centraal Bureau voor de Statistiek)



1.3 - Households by types: by Author - data: (Centraal Bureau voor de Statistiek, 2018)

in 7 Dutch adults feels very lonely. Among young people aged 16 to 25, even 1 in 4 feels very lonely (Ministerie van Volkshuisvesting, Ruimtelijke Ordening en Milieubeheer, 2024).

This is exacerbated by the fact that the number of single households within the Netherlands keeps on growing. Since the 1950s the amount of people living by themselves has increased fourteenfold. A few reasons for this are emancipation, ideals of self-realization, increased prosperity and an ageing population (Leclaire, 2023). This number will keep growing, CBS expects there to be 3.5 million single households by 2030 (Centraal Bureau voor de Statistiek, 2018).

Despite previous studies which have found no direct connection between overcrowding within a densely populated context and a decrease in the quality of social life creating a socially sustainable environment within a high-density context becomes more challenging. Especially in a time when more people are moving and living in cities, there is a need for high-density housing, & more and more people are living alone designing for the social quality of life becomes crucial in the resident's well-being.

"The need for more housing within a already high-density urban environment, increases the issue of social interaction among residents, this decrease in the quality of social life makes creating a socially sustainable environment within a high-density context even more challenging."

Fig. 1.1 - Problem statement



1.1 - visualised problem statement using Photshop AI



Fig. 1.2 - Theoretical Framework

Theoretical Framework

This research aims to explore the social dimensions of community, focusing on social cohesion and its impact on the wellbeing of residents using 'social' quality of life. It investigates the dynamics of community creation and sustainability, examining how residents navigate through communal and social spaces. By examining the social aspects at both individual and societal levels, the study delves into the influence of shared spaces on residents. The integration of personal social aspects, a collective sense of community, and architectural implications seeks to optimize the use of common spaces to enhance social wellbeing.

Research Questions

Main research question:

“Which design strategies impact the 'social' quality of life for different target groups within a high density context?“

Sub questions:

“How can ‘social’ quality of life be measured within an architectural context & what are the primary factors that affect residents in high-density urban environments?“

“How do different target groups consider these elements within their residential housing?“

“Which design strategies are used in the selected case studies to improve the ‘social’ quality of life of residents?”

“Which design strategies impact the ‘social’ quality of life for different target groups within a high density context?“

Human-centred design
Co-Housing
Programm & Typology
Public & Private spaces
Transitional & intermediate spaces

Communities
Influence
Ownership
Participation

Students
Starters
Families
Elderly

Densification

Fig. 1.3 - Main research question

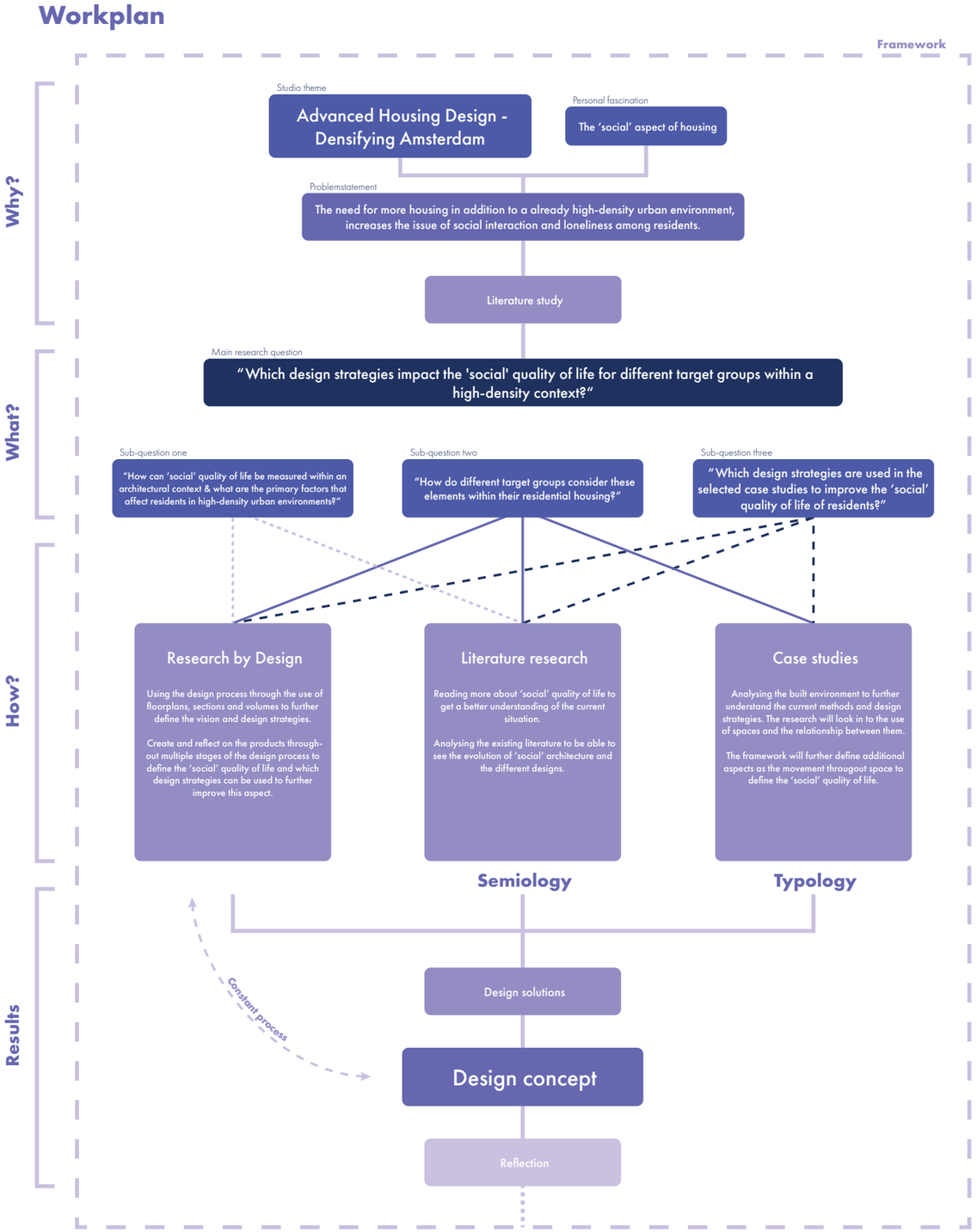


Fig. 1.4 - Methodology

Methodology

The research during the studio will be both an individual and a collective group analysis, where the individual part focuses on a personal fascination and the collective is a general analysis of Amsterdam. This general analysis investigates the following four topics: sustainability, quality of housing, ownership & beauty, and their history within Amsterdam. Additionally, the analysis investigates individual neighbourhoods of Amsterdam whilst describing their character, demographics & qualities.

This process of the research can be seen in the following diagrams research structure and research & design, where the connections between the research questions are visualised. The studio theme and a personal fascination have led to the problem statement which is brought into a relevant context. From here on the main- and sub-research questions are formed.

For the first sub-question literature research will be conducted in which the definition of a 'social' quality of life will be further defined. To be able to measure this aspect the translation from qualities of life to architectural factors will need to take place after which the analysis of these factors within a high-density context is defined. The created framework will assist in assessing these qualities.

The second sub-question will add to the research of the first sub-question and start with identifying these qualities for the different target groups. Due to the differences in these groups, the perception or use of the same qualities can have a different outcome. Therefore, understanding how these groups move through space is crucial. Finally, the third sub-question doesn't look at the target groups but at existing case studies. In which the design strategy will be assessed using the findings and definitions from the first sub-question.

02

Literature Research

- Human-centred design
- Private & public spaces
- Transitional & intermediate spaces

Human-centred design

This chapter delves into the use of Human-Centred Design within various aspects of architecture, aiming to contribute to the clarification of the 'Social' aspect of Quality of Life. The research focuses on the interplay between Human-Centred Design, Transitional & Intermediate Spaces, and Private & Public Spaces, identifying them as central themes. Additionally, considerations such as ownership and co-living are explored to enhance the impact of these overarching themes, thereby improving the Social Quality of Life.

Human-centred design is an approach which prioritizes the needs, desires, and experiences of people who will be affected by a particular solution. Unlike traditional design methods that focus solely on aesthetics or functionality, this approach prioritizes understanding users deeply and applying that knowledge throughout the entire design process. This methodology involves observing, empathizing, defining, ideating, and testing with real users to ensure that the final product or service genuinely addresses their needs and thereby improves the quality of their lives.

It encourages designers to engage with users early and often, incorporating their feedback and insights into every stage of the design process. This collaborative approach helps to identify their needs, uncover hidden opportunities, and develop solutions that resonate with users on a deeper level. Human-centred design is applicable across a wide range of fields but for this research, we will mainly focus on its impact on architecture.

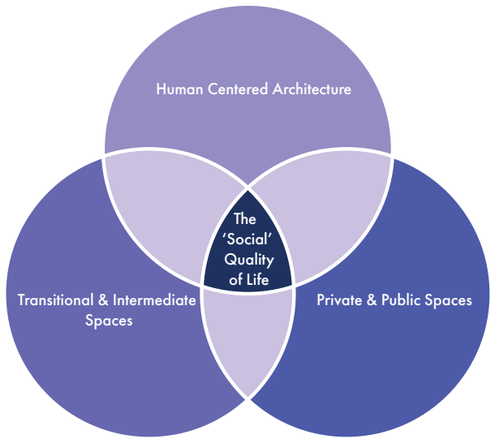


Fig. 2.1 - Scope of Research

Towards human-centred design

The development of human-centred design Human-centred design emerges at the intersection of several disciplines, notably engineering, psychology, anthropology, and the arts, serving as a methodological framework for inventive problem-solving within technological and business contexts.

The terminology also has evolved, initially emerging from the concept of Design Thinking. The term traces back to an associate professor, John Edward Arnold at Stanford University, who previously distinguished himself as an innovative teacher at MIT. Arnold distinguished himself through his innovative approach, termed "creative engineering," a blend of psychology, business, science fiction, invention, and synthesis. His methodologies were considered unorthodox, if not revolutionary, within the engineering discipline at the time (McCarthy, 2022).

One of the first examples of a commercial-oriented human-centred design strategy emerged in the 1950s, as Bell Laboratories embarked on pioneering user experience research. In which the development of the push-button telephone, which would replace the rotary phones. Through the use of user experience research, Bell Laboratories established itself as a pioneer of user-centric product development (Deininger, 1960).

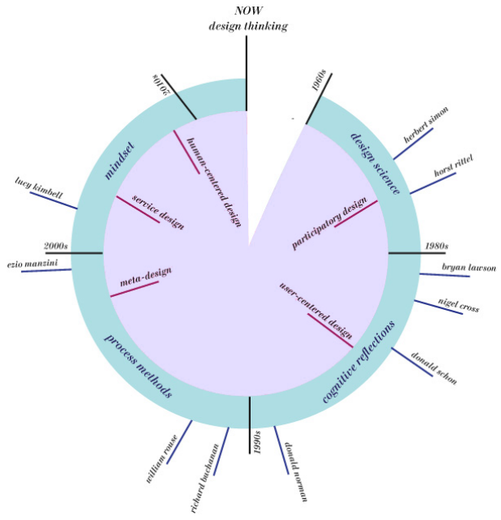
In his work "Architect or Bee?" Mike Cooley introduced the concept of 'human-centred systems,' addressing the dynamic between humans and technology. A primary concern raised was that Computer-Aided Design (CAD) might act as a constraint rather than a medium through which architects could express their visions and concepts. Consequently, CAD risked becoming the defining parameter, limiting the exploration of architectural boundaries to those imposed by the computer program itself, rather than the imaginative and practical possibilities inherent in architectural design.

"The crude introduction of computers into the design activity in keeping with the Western ethic "the faster the better" may well result in a plummeting of the quality of design." Cooley (1982)

Additionally, an assumption persisted that advancements in automation, and computerisation, would liberate individuals from monotonous, physically demanding labour, thereby enabling them to dedicate themselves to more creative endeavours. Furthermore, it was posited that these technological developments would inherently culminate in a reduction of the working week, extended vacations, and increased leisure time, ultimately contributing to an overall enhancement in the quality of life. A benefit often cited was the vast amount of data generated by computers, which could enhance the decision-making processes, rendering them more creative (Cooley, 1982).

Participatory design

The emergence of participatory design is credited to Scandinavian research on design methodologies during the 1960s, signaling a pivotal shift towards user-involvement in the design process. This early work was motivated by a Marxist commitment to democratically empowering workers and promoting democracy in the workplace (Spinuzzi, 2005; Sanoff, 2006). During the early 1970s collaborative effort between computer professionals, union leaders, and members of the Iron and Metalworkers Union aimed to enhance worker influence on the adoption of computer systems in the workplace (Spinuzzi, 2005). Up until then labor unions possessed minimal experience with computers and were compelled by management to adapt to these systems. This workflow resulted in automating substantial portions of the workflow, therefore displacing workers and putting people out of work (Ehn, 1988).



2.1 - Evolution of design thinking - (Di Russo, 2012)

"Participation is a fundamental process, not only for democracy, but also for learning." Bødker et al. (2000)

Numerous projects across Scandinavia were undertaken to identify the most effective methods for collaboration between computer-system designers and worker organizations. The ultimate goal was to design systems that not only enhanced productivity but also significantly improved the quality of work life (Ehn, 1988). Pelle Ehn, Professor at Malmö University who has conducted research of collaborative and participatory design and the integration of design and information technology, proposed a design philosophy referred to as the "tool perspective," which advocates for the design of new computer-based

tools as an extension of the traditional understanding of tools and materials within specific trades or professions (Sanoff, 2006). Ehn emphasized that successful design requires the combined expertise of skilled, experienced users and design professionals. While users possess practical knowledge, they may lack familiarity with technical possibilities. Conversely, designers must grasp the unique labor processes that incorporate a tool, underscoring the necessity for a collaborative design process that harnesses the complementary skills of both users and designers (Ehn et al., 1993; Sanoff, 2006).

User-centred design

User-centered design is a methodology rooted in the belief that the needs and interests of the user should guide the design process. This approach, which places the user at the center of development efforts, aims to enhance the quality of life and work through products, systems, or services designed to meet user needs (Ylirisku & Buur, 2007). The approach was introduced in the late 20th century to address the impact of modern, computerized, and industrial products on their users. Early proponents like Henry Dreyfuss emphasised the importance of designing products that improve safety, comfort, efficiency, and happiness among users (Ylirisku & Buur, 2007). The first international conferences focusing on user-centred design took place in the early 1970s, covering themes such as social technology, participation in planning, adaptable environments, and computer aids (Cross, 1972). According to Donald Norman, a cognitive scientist and usability engineer who has dedicated much of his life's work on research and advocacy for user-centered design, a design should:

- "Make it easy to determine what actions are possible at any moment.
- Make things visible, including the conceptual model of the system, the alternative actions, and the results of actions.
- Make it easy to evaluate the current state of the system.
- Follow natural mappings between intentions and the required actions; between actions and the resulting effect; and between the information that is visible and the interpretation of the system state." Norman (1988)

By facilitating the study of contexts, user participation, and empathic understanding of user perceptions, video emerges as a powerful tool in bridging the gap between theoretical understandings of user needs and the practical application of insights in design processes (Ylirisku & Buur, 2007). This methodological approach aligns with Donald Norman's re-contextualization of user testing, emphasizing the importance of understanding user needs and experiences to inform design decisions. Norman's work, drawing from cognitive science, advocates for a user-centric design philosophy that prioritizes user experience over mere functionality or efficiency (Norman, 1988; Di Russo, 2016).

User-centred design is therefore a comprehensive approach that emphasizes the centrality of the user in the design process. The approach not only enhances the usability and effectiveness of products but also contributes to a deeper understanding of human behavior and interaction with its environment.

Service design

Design methodologies have undergone a significant transformation, the growing emphasis on user-centered approaches is evident in the work of Lucy Kimbell, who explains how service design has evolved

	Design thinking as a cognitive style	*Design thinking as a general theory of design*	*Design thinking as an organizational resource*
Key texts	Cross 1982; Schön 1983; Rowe [1987] 1998; Lawson 1997; Cross 2006; Dorst 2006	Buchanan 1992	Dunne and Martin 2006; Bauer and Eagan 2008; Brown 2009; Martin 2009
Focus	Individual designers, especially experts	Design as a field or discipline	Businesses and other organizations in need of innovation
Design's purpose	Problem solving	Taming wicked problems	Innovation
Key concepts	Design ability as a form of intelligence; reflection-in-action, abductive thinking	Design has no special subject matter of its own	Visualization, prototyping, empathy, integrative thinking, abductive thinking
Nature of design problems	Design problems are ill-structured, problem and solution co-evolve	Design problems are wicked problems	Organizational problems are design problems
Sites of design expertise and activity	Traditional design disciplines	Four orders of design	Any context from healthcare to access to clean water (Brown and Wyatt 2010)

2.2 - Different ways of describing design thinking - (Kimbell, 2011)

User-centred design	**Designing for service**
Value-in-exchange	Value-in-use
Production and consumption	Enquiries into value
Value chains	Value constellations
Designing a toaster	Designing a toaster project
Desirability, usability, usefulness	Relationality, temporality and accountability

2.3 - User-centred design & service-centred design - (Kimbell, 2010)

as a discipline by combining key aspects of product, environmental, experiential, and interaction design. This shift signifies a departure from the traditional perception of products and services as isolated entities, towards an integrated understanding that encompasses the entirety of the user's journey and experience (Kimbell, 2009). Kimbell argues that the line between a service and a product becomes increasingly indistinct, as every component contributes to the generation of value.

Further insights of the development of service design can be found in the work of Fabian Segelström, whose research identifies the 1970s as a pivotal era marked by the differentiation of goods from services (Blomkvist, 2011). Prior to this, services were generally regarded as inferior to goods (Segelström, 2009). Service design began to gain significant recognition and development in the 1990s, with Ezio Manzini playing a pivotal role through his work in service marketing and meta-design. Manzini's methodology is characterized by a focus on resolving service issues with a lens on sustainability, adopting a holistic societal perspective and harnessing "people power" to engender socially innovative solutions (Di Russo, 2016). This approach expands the conventional definition of design to encompass all users and stakeholders as designers, resonating with the tenets of co-design.

Service design methodologies adopt a holistic and visually-oriented approach, incorporating designers, users, and stakeholders who either manage, influence, or are impacted by service outcomes. Visual tools, including journey maps, scenarios, storyboarding, posters, and cognitive walkthroughs, are instrumental in service design practice, serving dual purposes of gathering insights from the user's perspective and conveying user insights. This methodology diverges from participatory methods that concentrate exclusively on interactions between artifacts or technical systems, broadening the inclusivity to encompass financial stakeholders, employees, or customers (Di Russo, 2016).

This transformation in design methodologies reflects a larger movement towards acknowledging human attributes in the design of technologies and systems. Disciplines such as User-Centered Systems Design, User Experience, User-Centered Design, Interaction Design, and Human–Computer Interaction have emerged to meet the challenge of creating efficient technologies for human use.

Private & public spaces

The city is a highly complex subject, extensively examined through theoretical perspectives in disciplines such as urban sociology, geography, and ethnology. However, the performative perspective has not received the same level of attention (Helbrecht & Dirksmeier, 2013).

Exploring the relationship between the city and performance, while incorporating E. Goffman's views of social interactions as theatrical performances, encourages a reconsideration of the social life to get a better understanding of social interactions.

Goffman suggests that social interactions can be understood using a dramaturgical approach, where individuals deliberately manage the impressions they give off to others. He distinguishes between "front stage" (public self) and "back stage" (private self), highlighting how behaviors change based on the context. This concept is central to Goffman's idea of impression management, wherein people, whether consciously or not, adapt their presentation to control how others perceive them (Goffman, 2003).

Social roles are realized through action, meaning that performances actively construct reality through how they are presented, the performers' dramaturgy, and their interactions with the audience. Complex social situations arise from the spatial context created by the presence of individuals. The events that unfold during performances shape and create social reality. A key aspect of this understanding of social action is the acknowledgment of the significance of the moment and the event-like nature of performances (Dirksmeier, 2009).

Blokland builds on this concept by examining the idea of community as an urban practice, whilst analysing and defining these performances. With more people living away from their places of birth and routes of connection becoming vital to fostering togetherness, the definition of 'community' is becoming increasingly diverse, dynamic, and contested (Blokland, 2017).

A typology of social ties

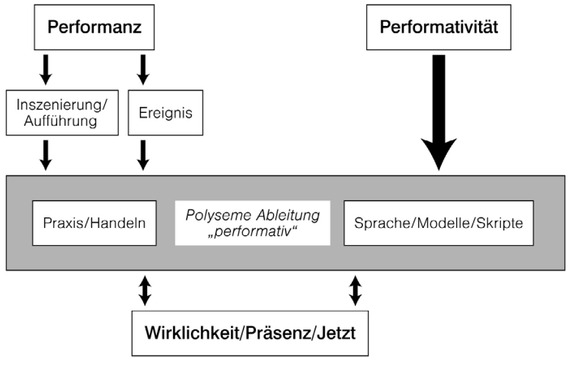
To better understand how social ties contribute to community building, it's essential to differentiate between two main categories: durable engagements and fluid encounters. Durable engagements refer to sustained interactions within personal networks or institutional environments, while fluid encounters are brief, often chance interactions that occur in daily life.

Although fluid encounters tend to be short and lack significant objectives, they still carry social value. Georg Simmel (as cited in Blokland, 2017, p. 71) emphasized their importance, suggesting that these interactions help individuals navigate social spaces and can contribute to a sense of community.

The complexity of social relationships is further illuminated by four ideal types of social ties: transactions, attachments, bonds, and fluid encounters. Transactions are motivated by instrumental rationality, where people engage in interactions to achieve specific goals. On the other hand, attachments and bonds are shaped by value-rationality and emotional orientations. According to Simon (as cited in Blokland, 2017, p. 74), attachments are based on shared values, while bonds reflect emotional connections to specific individuals.

Attachments often form in communal settings, such as religious congregations, where people may feel a sense of belonging without having personal relationships with everyone. According to Fischer (as cited in Blokland, 2017, p. 35), the presence of like-minded individuals in these spaces facilitates attachments, promoting shared experiences and fostering a sense of community.

This typology of social ties underscores the diverse and complex nature of social relationships and their influence on community formation. By recognizing the fluid and context-dependent characteristics of these ties, we can gain a deeper understanding of how people connect with each other and the institutions that surround them.



2.4 - Different dimensions of performance and performativity - (Dirksmeier, 2009)

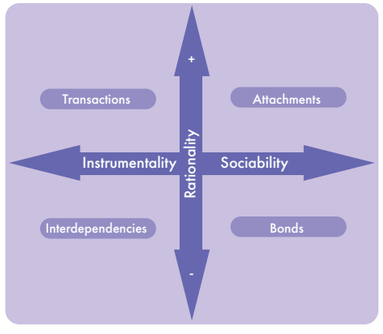
The continuum of privacy and the continuum of access

The ideas of access and privacy are positioned on a continuum that showcases varying levels of openness and protection in different contexts. This continuum includes a range of experiences and interactions, termed encounters, between individuals (Blokland, 2017).

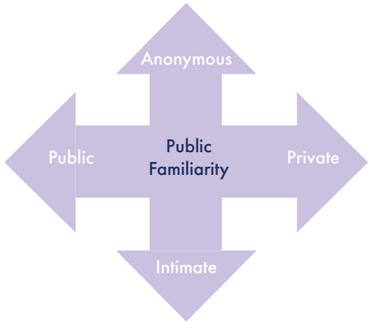
Access is often framed in terms of inclusivity and empowerment. For instance, in educational and organizational environments, enhancing access may involve creating fair opportunities for participation and engagement. This includes establishing user-friendly settings where individuals feel encouraged to interact with available resources, thus boosting their sense of belonging and agency (Blokland, 2017).

In contrast, encounters that focus on privacy prioritize protecting individuals from unwarranted intrusion. These interactions emphasize the importance of establishing boundaries, maintaining control, and fostering trust.

In summary, while the continuum of access and privacy illustrates the interrelatedness of these concepts, the nature of the encounters associated with them can lead to diverse experiences. Access encounters promote a sense of community and inclusion, while privacy encounters underscore the significance of individual autonomy and security. Understanding these distinctions offers a more nuanced perspective, highlighting that both access and privacy are vital elements of meaningful interactions (Blokland, 2017).



2.5 - A typology of social ties - (Blockland, 2017)



2.6 - The continuum of privacy and the continuum of access - (Blockland, 2017)

Transitional & intermediate spaces

How space is used is a visual conclusion of different aspect which together define the type of use by the users of that space. Sidewalks for example, were traditionally viewed as mere pathways to residences, often served as extensions of the living space. In periods characterized by cramped living conditions and high population densities, sidewalks became vital components of domestic life, functioning as gathering spots, play areas, and even dining rooms (Madanipour, 2003). This adaptation underscored the necessity for efficient space utilization and highlighted the sidewalk's role in fostering community and connectivity (Van Manen, 2024).

Ownership

How space is used is a visual conclusion of different aspect which together define the type of use by the users of that space. According to historical records sidewalks for example, were traditionally viewed as mere pathways to residences, often served as extensions of the living space. In periods characterized by cramped living conditions and high population densities, sidewalks became vital components of domestic life, functioning as gathering spots, play areas, and even dining rooms. This adaptation underscored the necessity for efficient space utilization and highlighted the sidewalk's role in fostering community and connectivity.

The symbiotic relationship between households and sidewalks exemplifies the deep-rooted human tendency to claim and cultivate outdoor spaces. Such spaces, visible from the street, were not merely functional but also reflected the owners' character, pride and care.

The visibility and accessibility of spaces significantly affect how they are perceived and managed. Public spaces, such as sidewalks, invite interaction and foster a sense of collective responsibility, whereas semi-private spaces, like inner courtyards, offer a sanctuary for community bonding away from the hustle of the street. These contrasting environments highlight the nuanced ways in which ownership manifests, ranging from collective supervision to individual visions of space use and maintenance.

Initiatives like Klarenstraat demonstrate the potential for enhancing ownership through active community involvement. By empowering residents to shape and maintain their environment, a stronger bond with the locality develops, fostering a sense of pride and responsibility. This participatory approach not only elevates the aesthetic appeal of the neighborhood but also strengthens community ties, underscoring the significance of self-determination in cultivating ownership.

Ownership therefore is of a multifaceted nature and has a profound influence on space utilization and community dynamics. From historical adaptations of living spaces to contemporary initiatives aimed at fostering community engagement, the concept of ownership emerges as a pivotal factor in shaping urban environments. Identifying and classifying the legal, physical, and socio-cultural dimensions of ownership, is crucial for balancing individual rights with communal responsibilities in order to create vibrant and resilient communities.



2.6 - Pentagon, 1984 - (Roël,1984)



2.7 - Public use of the pavement - (Siewe, 2002)



2.8 - Interior courtyard The Whale - (Studio de Nooyer, architectuurfotograaf, 2021)

03

Human Scale

- Personas (Target Groups)
- Personas needs in Case Studies

Personas (Target Groups)

Target groups play a pivotal role in architectural design, providing a clear understanding of who will use the space and how it will be utilized. Designs that accommodate flexible study areas, vibrant social spaces, and convenient amenities can enhance productivity and relaxation for students. For young professionals, modern, tech-friendly features, communal areas for networking, and peaceful retreats for unwinding can greatly improve work-life balance. Family-oriented designs need safe, engaging, and multifunctional spaces with child-friendly areas, practical layouts for daily routines, and communal spaces that foster bonding. For the elderly, designs must prioritize accessibility, comfort, and tranquility, with easy-to-navigate layouts and spaces that encourage socialization and physical activity.

These elements can complement each other by creating versatile and inclusive environments but may also conflict when specific needs are contradictory. Balancing these requirements ensures that spaces are adaptable and meet the diverse needs of all users.

By understanding the unique needs of different target groups, architects and designers can create environments that not only meet functional requirements but also enhance the quality of life for their occupants. This human-centric approach ensures that spaces are inclusive, adaptable, and truly reflective of the people who use them.

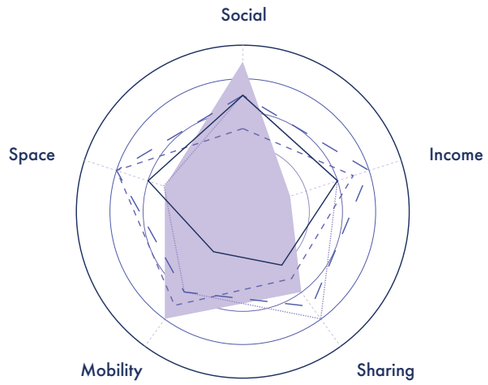


Fig. 3.1 - Values of created personas

Target group: Student
Name: Lucas de Vries
Age: 19
Occupation: Works at a cafe (horeca)

Lucas de Vries is a 19-year-old student living in Amsterdam. He balances his time between studying and working at a local cafe, where he enjoys interacting with regulars and pouring beers. Lucas is passionate about his studies in psychology and spends most weekdays at the university or in the library. His social life is vibrant; he often goes out with friends for drinks and enjoys the nightlife on weekends. Lucas is outgoing and values his friendships, making sure to keep his evenings free for socializing. Despite his busy schedule, he manages to stay organized and focused on his academic goals. His routine involves late-night study sessions and working shifts.



3.1 - AI created images with own dataset, (Picsart, 2024)

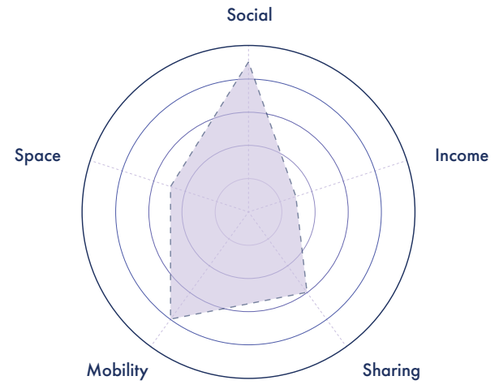


Fig. 3.2 - Values of Lucas

AI Face Generator (Picsart, 2024)

Target group: Starter

Name: Sofia Ivanova (international)
Age: 24
Occupation: Works at a startup

Sofia Ivanova is a 24-year-old professional from Bulgaria who recently moved to Amsterdam to join an innovative tech startup. As a software developer, she is passionate about coding and enjoys the dynamic environment of a startup where every day brings new challenges. Sofia spends her weekdays working closely with her team to develop cutting-edge solutions, often staying late to meet project deadlines. Her weekends are a mix of exploring the city, networking with other young professionals, and indulging in her love for photography. Sofia is adventurous and open-minded, always eager to learn about different cultures and make new connections. Balancing her demanding job with an active social life, she finds joy in discovering Amsterdam through the scope of her lens.



3.2 - AI created images with own dataset, (Picsart, 2024)

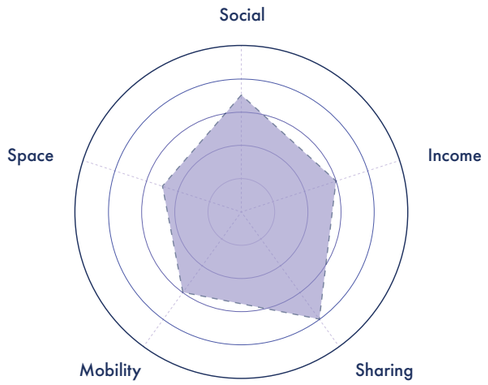


Fig. 3.3 - Values of Sofia

AI Face Generator (Picsart, 2024)

Target group: Family

Name: Mark, Laura & Sophie Kumar
Age: Mark (35), Laura (34) & Sophie (2)
Occupation: Mark (Real Estate Agent) & Laura (Insurance Agent)

Mark and Laura Kumar are a young couple living in Amsterdam with their two-year-old daughter, Sophie. Mark works as a real estate agent, often out and about, showing properties and meeting with clients. Laura, on the other hand, has a thriving career in insurance, which keeps her occupied with client meetings and paperwork during the week. Despite their busy schedules, they prioritize family time and make sure to spend quality moments together.

Their weekdays are filled with work, leaving Sophie in the care of a trusted sitter or at daycare. Evenings are reserved for family dinners and bonding time. On weekends, they enjoy catching up with friends, often arranging playdates for Sophie to socialize with other children. On Saturdays, they might indulge in brunch or outdoor activities while Sundays are reserved for family outings to parks or museums.



3.3 - AI created images with own dataset, (Picsart, 2024)

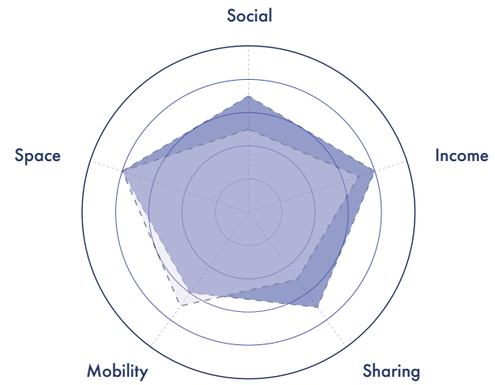


Fig. 3.4 - Values of Mark & Laura

AI Face Generator (Picsart, 2024)

Target group: Elderly
Name: Maria Jansen
Age: 76
Occupation: No occupation (retired)

Maria Jansen is a 76-year-old retired woman living in a cozy apartment in Amsterdam. She enjoys a peaceful and relaxed lifestyle, often starting her week with a bit of grocery shopping on Monday mornings. On Tuesdays, she heads to the local pool for a refreshing swim, which helps her stay active and healthy. Wednesdays and Fridays are her days to relax at home, where she enjoys reading, gardening on her balcony, and watching her favorite television shows.



3.4 - AI created images with own dataset, (Picsart, 2024)

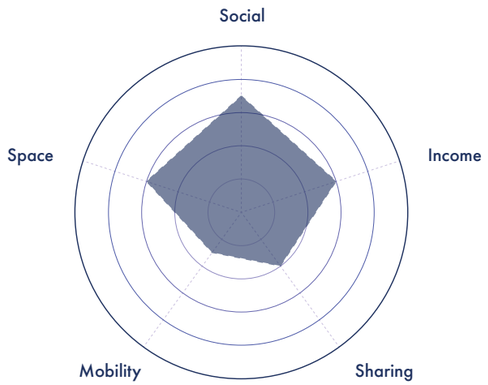


Fig. 3.5 - Values of Maria

AI Face Generator (Picsart, 2024)

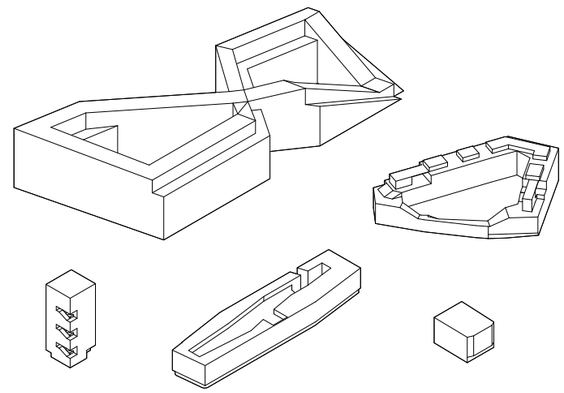
Personas needs in Case Studies

To understand the needs of these personas and target groups, case studies are analysed from their perspectives. By identifying how these needs are met or insufficiently addressed in the case studies, further design strategies can be developed.

Lucas, a 19-year-old student, is often out working and away from home. As a student, he doesn't need or can't afford much space. Additionally, he is a very social person and enjoys using collective spaces for work or socializing.

Sofia, a 24-year-old entrepreneur, focuses primarily on her work, constantly seeking new and innovative ways to grow her startup. She is flexible with her work environment, preferring to work from home or in a nearby café. Although Sofia may appear quiet and reserved, her photography hobby reveals a more adventurous and expressive side.

Despite their different personalities, Sofia and Lucas share needs that are addressed in various case studies. For example, Kalkbreite offers a range of solutions with both small and larger



- Jonas - orange architects
- Torre Júlia - Pau Vidal, Sergi Pons & Ricard Galiana
- La Borda - Lacol
- 8 House - BIG
- Kalkbreite - Müller Sigrist Architekten

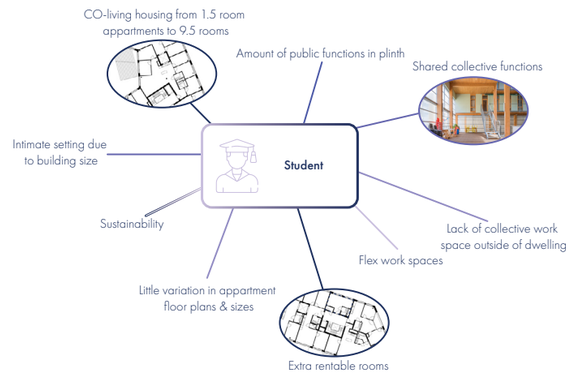


Fig. 3.6 - Case studies bullet points by target groups

co-housing dwellings, featuring collective spaces. Similarly, La Borda emphasizes interaction through its collective spaces and an open interior, while also providing ample semi-private areas.

For the family, Mark (35), Laura (34), and Sophie (2), who live in Amsterdam, busy professional lives are the norm. Mark frequently shows properties, while Laura juggles client meetings and paperwork. Sophie spends weekdays with a trusted caregiver or at daycare. Weekends blend social activities and family time, including playdates for Sophie and brunch or outdoor activities on Saturdays.

Maria, a 76-year-old retiree, leads a tranquil life in her charming Amsterdam apartment. She starts her week with a grocery run on Mondays and stays active by swimming at the local pool on Tuesdays. Her passion for balcony gardening and love of reading reveals a thoughtful and introspective nature. She also enjoys quiet afternoons at home, watching her favourite TV shows.

A further in-depth analysis of these individual case studies, elaborating on how these residential needs are met, can be found in the next chapter.

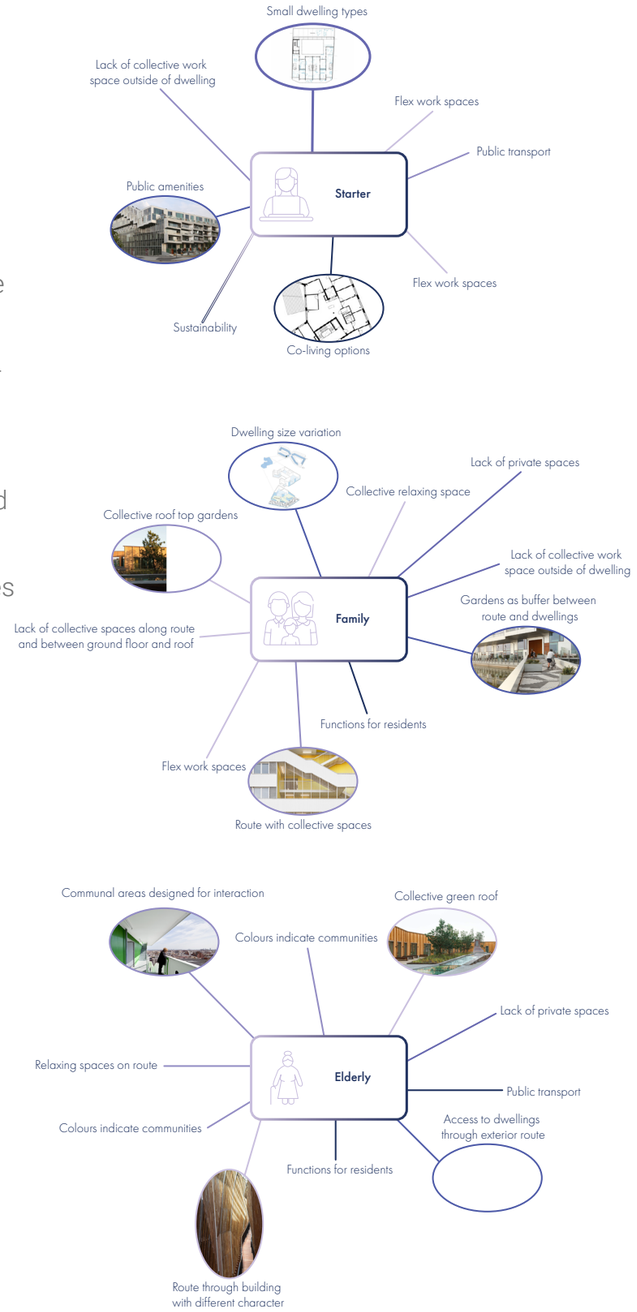


Fig. 3.6 - Case studies bullet points by target groups

04

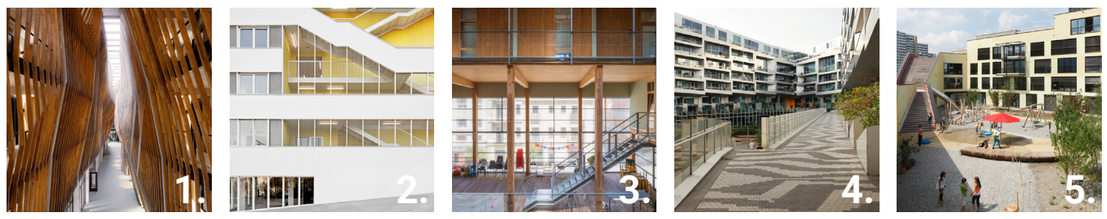
Building Scale

- Case Study Research
  - Jonas - Amsterdam (2020) - orange architects
  - Torre Júlia - Barcelona (2011) - Pau Vidal, Sergi Pons & Ricard Galiana
  - La Borda - Barcelona (2018) - Lacol
  - 8 House - Copenhagen (2000) - BIG
  - Kalkbreite Complex - Zürich (2000) - Müller Sigrist Architekten
- Summary

Building Scale

Case Studies

1. Jonas - Amsterdam (2023) - orange architects
2. Torre Júlia - Barcelona (2011) - Pau Vidal, Sergi Pons & Ricard Galiana
3. La Borda - Barcelona (2018) - Lacol
4. 8 House - Copenhagen (2010) - BIG
5. Kalkbreite - Zürich (2014) - Müller Sigrist Architekten



(1). (Van Damme et al., n.d.)
(2). (Goula, 2012)
(3). (Miralles & Lacol, 2019)
(4). (Luft et al., 2010)
(5). (Egloff & Stollenwerk, 2019)

The investigation through case study methodology will concentrate on the interplay between collective and private domains within architectural contexts. The exploration of how these spaces are interconnected and the roles they play within the overall structure significantly influences their utilization. The chosen case studies vary in scale and typology; nonetheless, they uniformly incorporate collective spaces and employ circulation strategies to enhance access to these areas. Therefore, the objective of this research is to discern the attributes of these disparate spatial configurations, thereby establishing design principles applicable to one's own design practice.

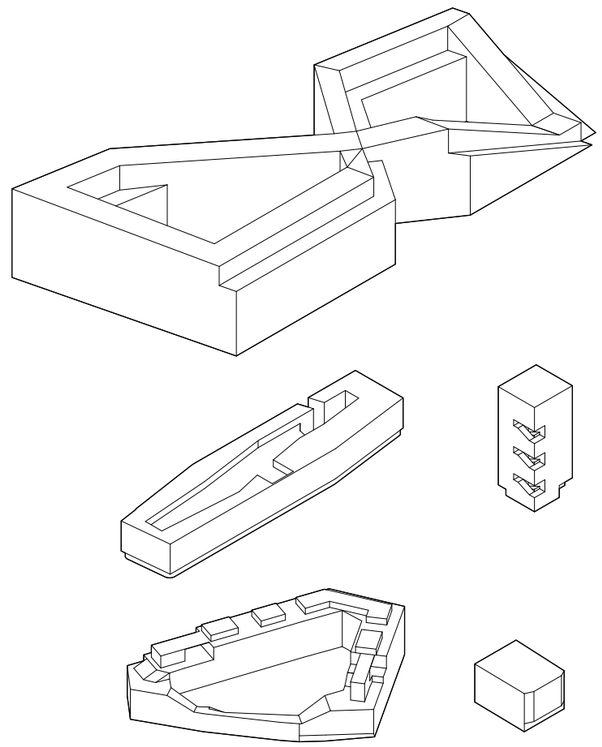
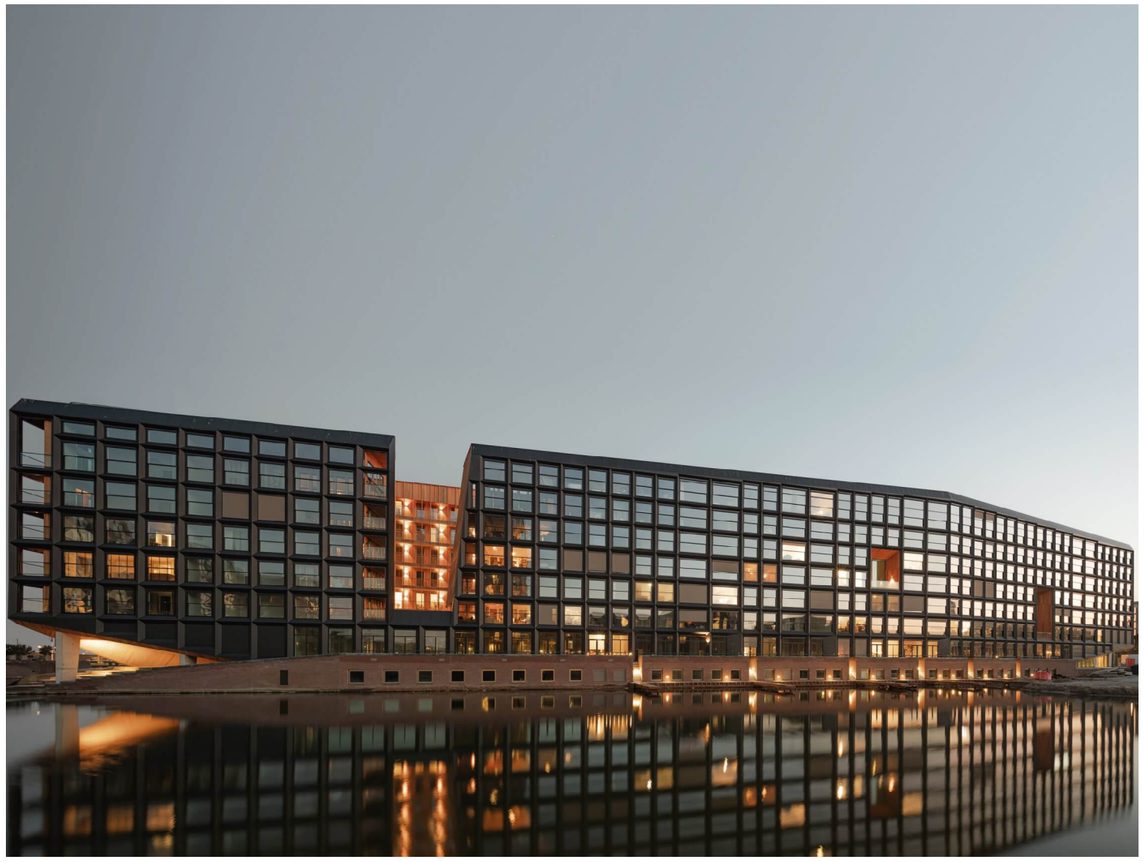


Fig. 4.1 - 3d models reference case studies

Jonas, Amsterdam



4.1 - Jonas - Amsterdam, exterior

Mixed-use - Amsterdam, Netherlands
Architects: orange architects
Area: 29950 m²
Year: 2022

In the heart of IJburg, Amsterdam, stands Jonas—a beacon of innovation and sustainability, designed by Orange Architects and commissioned by Amvest. This mixed-use residential project is not just another housing complex; it's a vibrant community hub aiming to bridge the gap between private residences and public spaces. Inspired by the tale of Jonah and the Whale, Jonas embodies adventure, intimacy, shelter, security, and coziness within a 'large body', reflecting its role as the living room of IJburg (Orange Architects, n.d.).

Situated on Amsterdam's IJburg harbor, Jonas comprises 273 units, including 190 mid-market rental studios and 83 owner-occupied apartments, alongside extensive communal areas and advanced facilities. Its distinctive glass façade, adorned with pre-patinated zinc, conceals a variety of architectural details, including the layout's features with slightly deviated corners and shapes resembling a diamond shape. The building's interior is a marvel, featuring a courtyard dubbed the 'Canyon' that extends and runs through the complex, offering a series of routes open for public access. This shared space includes the living room, cinema, mountain path, forest patio, rooftop beach, and bars, fostering a sense of community among residents and visitors alike (Orange Architects, n.d.).

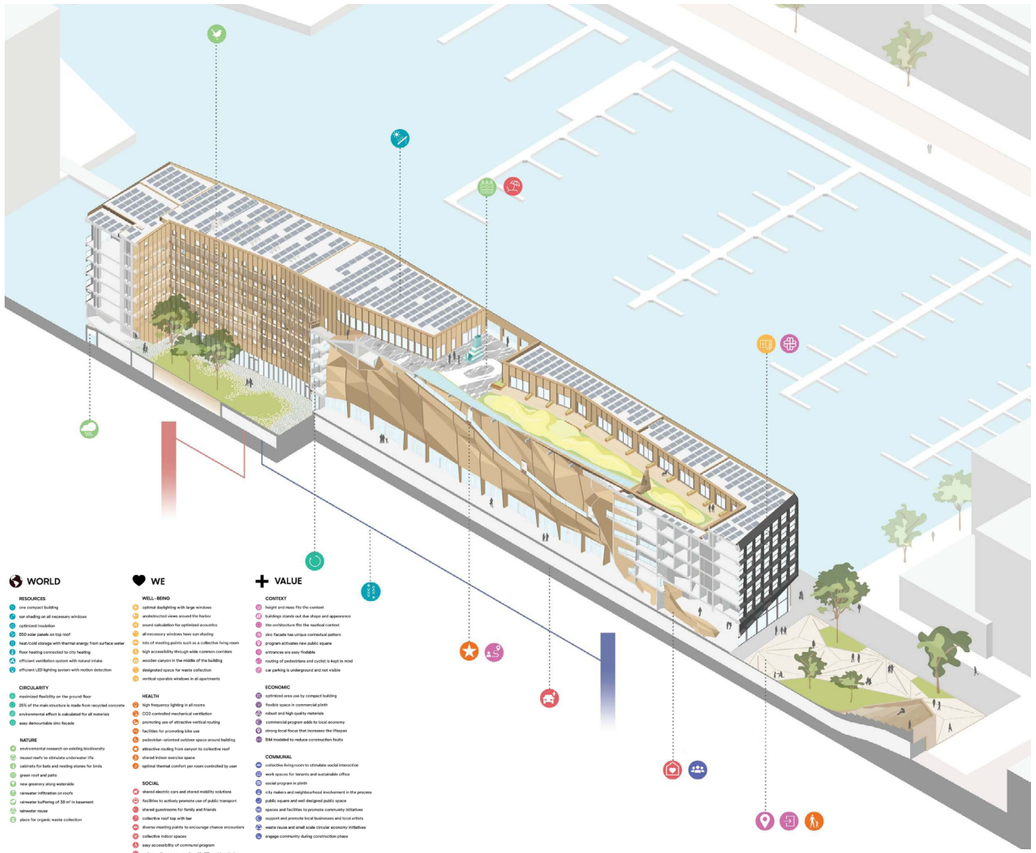
Jonas is a testament to sustainable living, achieving the highest possible sustainability rating, BREEAM Outstanding. It incorporates numerous environmentally friendly features, such as a rooftop garden hosting



4.2 - Jonas - Amsterdam, entrance



4.3 - Jonas - Amsterdam, roof garden



4.4 - Jonas - Amsterdam, section sustainability

trees and plants to slow down water flow during rain, an underground rainwater collection and storage system for reuse, and the inclusion of indigenous plants and large trees to increase green space and shade areas within the landscape .

Jonas emphasizes a residential community approach and architectural design that respects the existing environment. The project's environmental considerations, combined with its focus on human connection, community, social, and environmental responsibility, make Jonas a pioneering example of how developers, architects, and designers can meet the demands of modern living while minimizing the negative impacts on the environment.

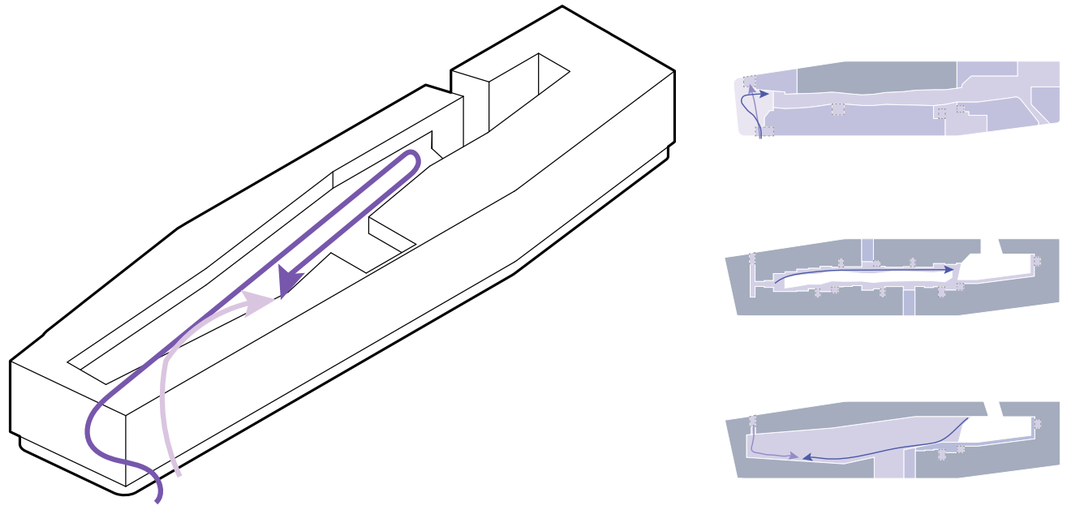
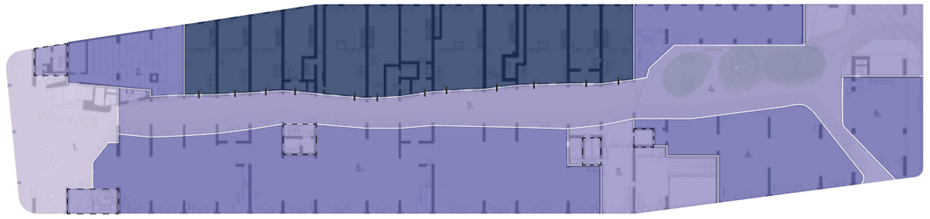
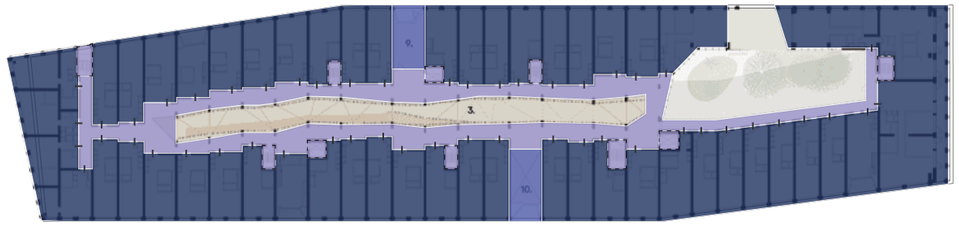


Fig. 4.2 - Jonas - Amsterdam, routing

The routing in the Jonas consists of different design approaches of creating experiences for the end user whilst improving the chance of social interaction. For example, the building doesn't grant public access and therefore a hard cut is already created on the ground floor. From here on the residents can use the large stairs towards the route designed as a canyon experience.

This route runs through the centre over the length of the building and is an alternative to the stairwells and elevators. The route is more of an experience that leads to the communal roof. The use of wood further strengthens the connection between the interior canyon and exterior roof garden whilst maintaining the residential well-being design approach.





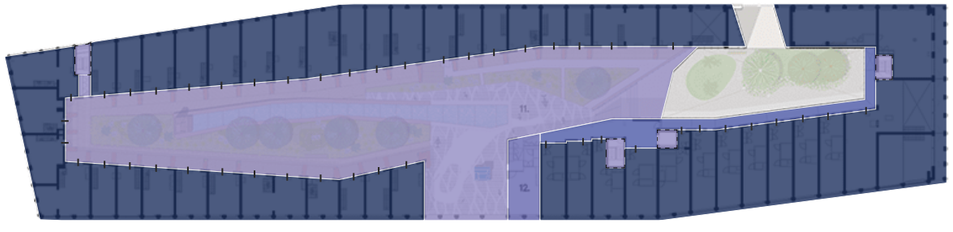


Fig. 4.3 - Jonas - Amsterdam, functions

- Public
- Transitional Space (semi-public)
- Rising points (semi-public)
- Functions (semi-public)
- Semi-private
- Private

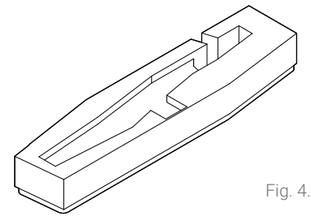


Fig. 4.4 - 3d model Jonas

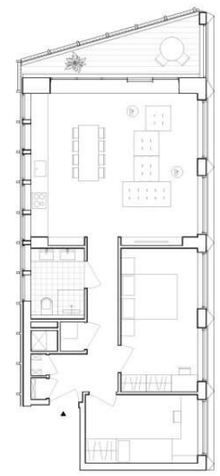
In Jonas, most spaces are semi-private, with residents having access throughout the building, from the collective areas on the ground floor, through the canyon, to the rooftop garden. Breakout rooms, located along the routes on the upper residential floors, act as semi-private collective spaces outside of individual dwellings.

The dwellings themselves vary in type and are dispersed rather than clustered. While Jonas does not feature co-living arrangements, it offers a 'community manager' platform, enabling residents to participate in events and access both private and collective amenities within the building.

This approach centres on creating experiences and activities solely for residents. Since these spaces and activities are not open to the public, the interior is largely semi-private. However, the positioning of collective spaces and the design of the routes highlight the private aspect while still maintaining a communal design philosophy.



studio | S



apartment | M



penthouse | XL

4.5 - Jonas - Amsterdam, residential floor plans

Torre Júlia, Barcelona



4.6 - Torre Júlia - Barcelona, exterior

Residential - Barcelona, Spain
Architects: Sergi Pons Architecte, Paul Vidal & Ricard Galiana
Area: 8391 m²
Year: 2011

Torre Júlia, a landmark in Barcelona's northern quarter, stands as a beacon of community living, specifically designed for independent elderly residents. Rising to 17 floors, this innovative housing block promotes social interaction and engagement among its inhabitants. The project won the 2011 Premi Ciutat de Barcelona d'Arquitectura i Urbanisme (Ferrando, 2022).

Torre Júlia is divided into three communities, each with its own designated space for collective activities, facilitating orientation and social interaction. Bright hues of yellow and green are used throughout the building to guide residents and create an uplifting atmosphere (Frearson, 2012).

These spaces are a central feature of the building, clearly visible on the facade. The colors, chosen for their calming and energizing properties, complement the building's overall aesthetic and functionality.

The design incorporates wide corridors resembling city streets, outdoor stairs, double-height communal spaces, and sun-shaded terraces. These elements encourage residents to communicate with neighbors and engage in community activities, while offering new views of the city from the double-height spaces and terraces.

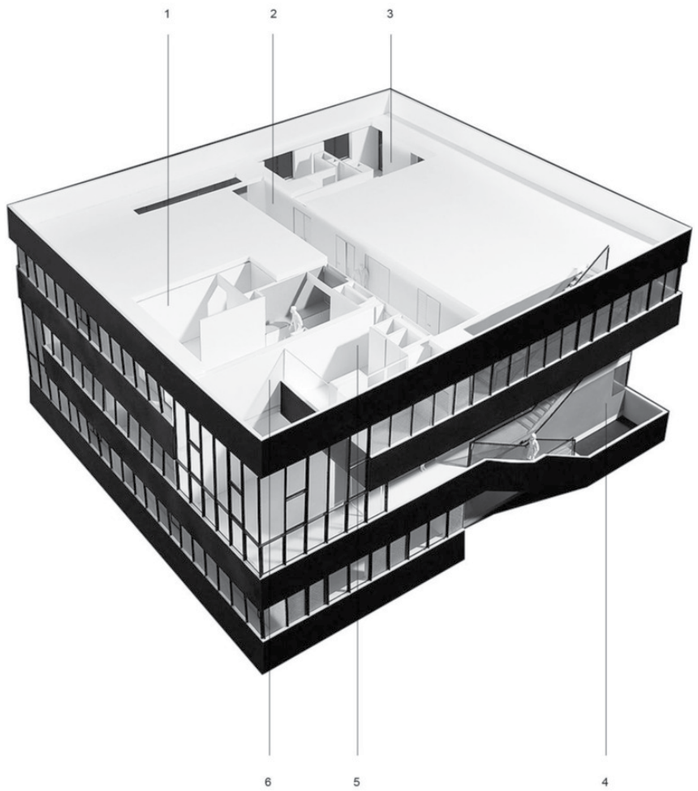
A shared garden on the top floor further fosters a sense of community, providing a space for grandparents and grandchildren to interact.



4.7 - Torre Júlia - Barcelona, communal space



4.8 - Torre Júlia - Barcelona, routing



4.9 - Torre Júlia - Barcelona, typical floors

At ground level, Torre Júlia opens onto a small public square, sharing this space with a new sports center and housing development. This integration with the surrounding area demonstrates the architects' intent to make the building an integral part of the community, promoting social cohesion and accessibility (Faifferi, 2018).

Designed by Spanish architects Pau Vidal, Sergi Pons, and Ricard Galiana, Torre Júlia exemplifies a thoughtful approach to senior housing. By focusing on community, accessibility, and environmental aesthetics, it sets a new standard for elderly care facilities, offering a supportive and engaging living environment.

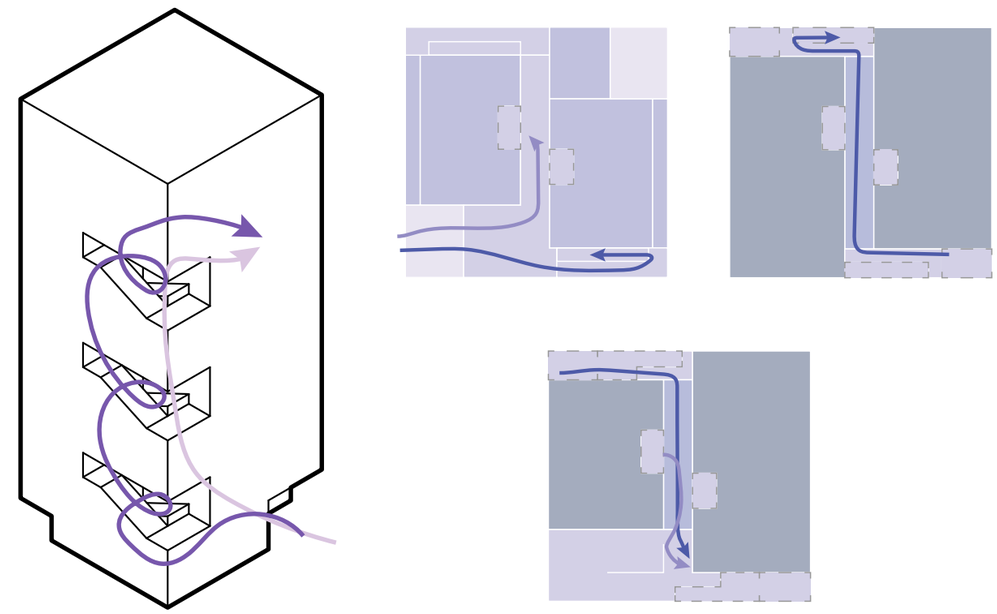


Fig. 4.5 - Torre Júlia - Barcelona, routing

The routing within Torre Júlia is almost the opposite of Jonas; the vertical layout incorporates collective spaces along the route. Although the target group is the elderly, the vertical design does not pose a hindrance due to the intimate collective spaces, which resemble small living rooms. The sense of community within the building is enhanced by the collective functions of the neighbourhood on the ground floor. The space serves as a sociocultural centre and functions as a central hub for municipal services. Its goals are to encourage community involvement and citizen engagement. While the building is not publicly accessible and creates a clear distinction between public and private areas, this does not diminish its role within the community.

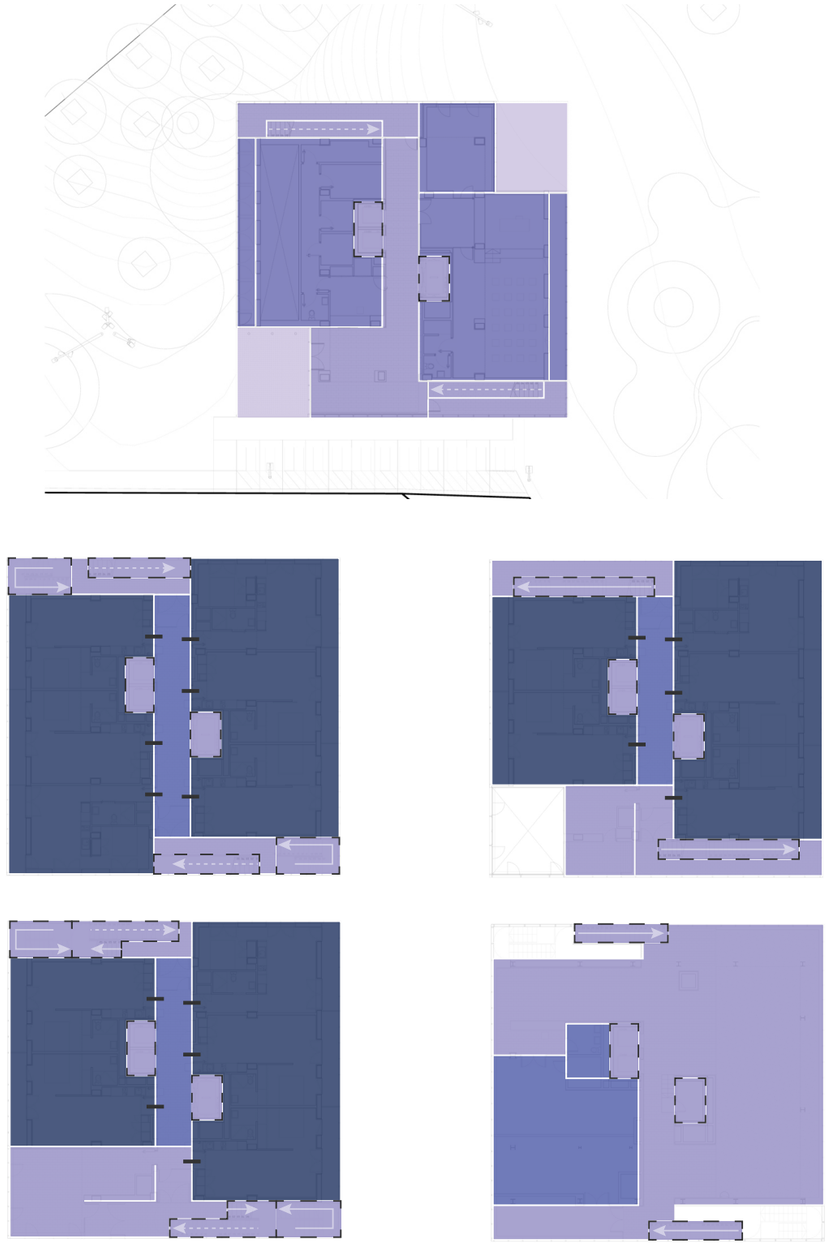


Fig. 4.6 - Torre Júlia - Barcelona, functions

- Public
- Transitional Space (semi-public)
- Rising points (semi-public)
- Functions (semi-public)
- Semi-private
- Private

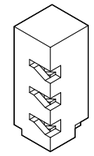
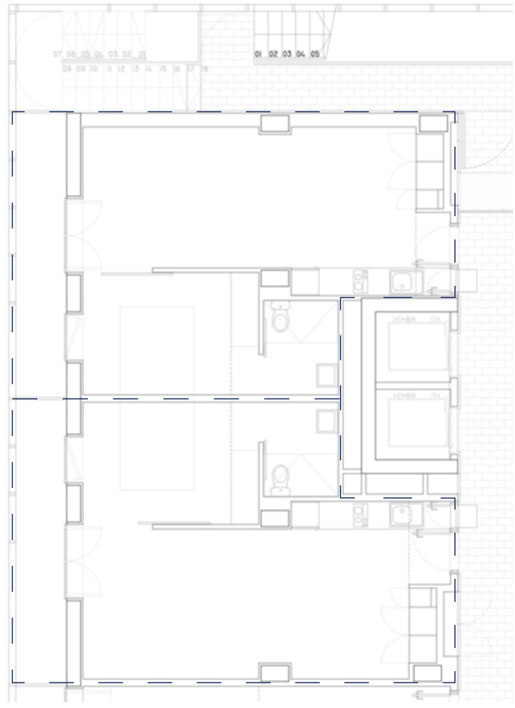


Fig. 4.7 - 3d model Torre Júlia

The public functions on the ground floor are accessible to residents but primarily cater to the surrounding community. Collective functions along the semi-private route are reached via wide interior corridors and exterior double-story staircases, providing new city vantage points and access to shared spaces. The colours in these areas help emphasise their purpose and act as a guide, particularly for elderly residents.

The dwellings are single units that remain consistent throughout the building, offering little adaptability or flexibility for residents, as they are specifically designed for the intended target group. Some of the collective spaces serve as communal living rooms, with each community having one of these larger rooms to facilitate shared activities.

The vertical routes and communal spaces complement each other, enhancing the overall experience within the building. Public and private areas are distinctly separated, yet the design encourages a communal atmosphere. Both the semi-private spaces and the dwellings are tailored to meet the needs of a specific target group.



4.10 - Torre Júlia - Barcelona, typical dwellings

La Borda, Barcelona



4.11 - La Borda - Barcelona, interior

Residential - Barcelona, Spain
Architects: Lacol
Area: 3000 m²
Year: 2018

La Borda, initiated in 2012, emerged as a pioneering housing cooperative in Barcelona's Sants neighborhood, driven by a communityled initiative to address the city's pressing housing crisis. The cooperative, supported by architects Lacol, embarked on a mission to redefine housing cooperatives, emphasizing use value over market value to ensure affordable, non-speculative housing for its members (Divisare, 2020).

Central to La Borda's ethos are three interconnected principles: redefining the collective housing program, prioritizing sustainability and environmental quality, and fostering user participation. The building program innovatively blends private and public spaces, offering 28 units ranging from 40 to 75m² alongside communal areas like kitchens, dining rooms, laundries, guest spaces, and outdoor terraces. This layout encourages a seamless transition from private to public spaces, enhancing community life and interaction.



4.12 - La Borda - Barcelona, walkways

Sustainability is at the core of La Borda's design philosophy, aiming to minimize environmental impact throughout the building's lifecycle. The project employs passive strategies, efficient use of materials, and the adoption of Cross Laminated Timber for the structure. These choices contribute to nearly zero energy consumption, addressing the issue of energy poverty among users (Divisare, 2020).

User participation is another hallmark of La Borda, with future residents actively engaged in every phase of the project from



4.13 - La Borda - Barcelona, communal space



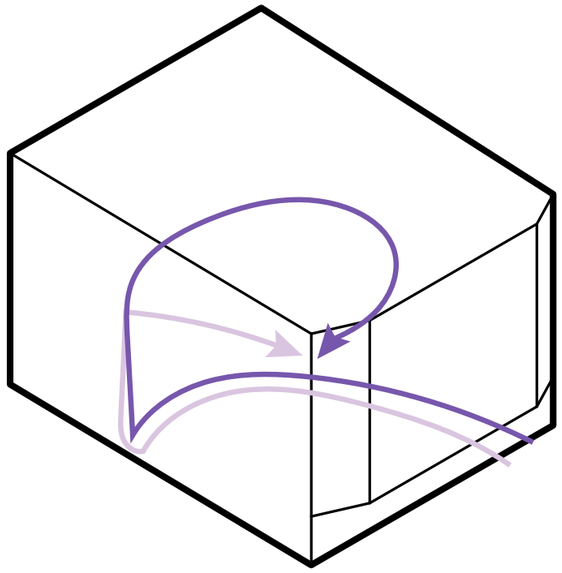
Fourth floor

Fifth floor

4.14 - La Borda - Barcelona, floor plans

design to construction and management. This approach ensures that the building meets the specific needs of its occupants, challenging conventional housing norms and regulations. Through thematic workshops and a collaborative design process, the community shapes the building's architecture, fostering a sense of belonging and community.

In summary, La Borda represents a groundbreaking model of housing development that prioritizes community, sustainability, and affordability. Its innovative approach to housing cooperatives offers valuable insights into how collective action and user-centric design can transform urban living spaces.



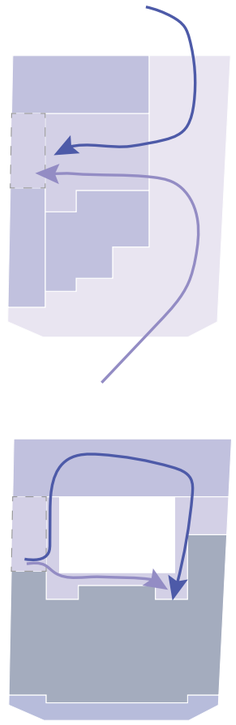
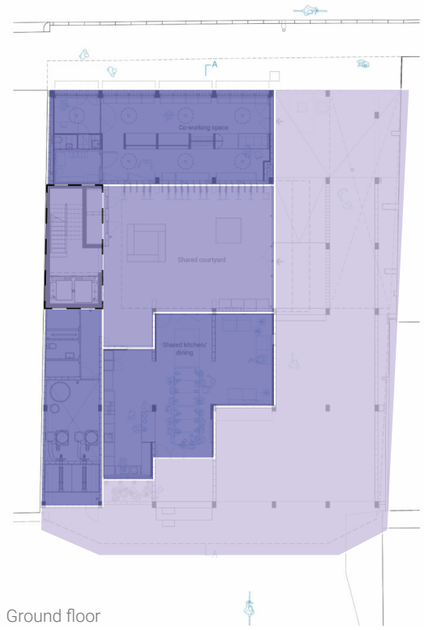
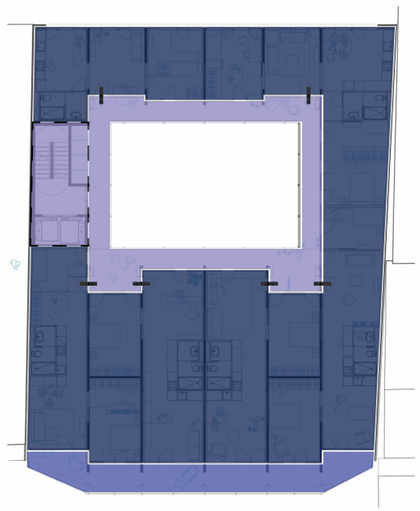


Fig. 4.8 - La Borda - Barcelona, routing

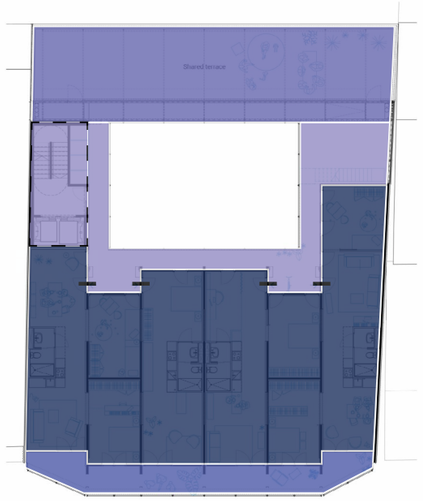
In La Borda, defining the transitional spaces as mere routes might be an exaggeration. The common areas also function as transitional spaces and are strategically located along the route. The kitchen/living room area is integrated into the entrance, while the double-height communal area serves as the heart of the building. As a result, the boundary between public and private spaces becomes blurred. In La Borda, this leads to transitional spaces becoming an extension of both communal and private areas. The walkways evolve from simply being entrances to individual apartments into what feels almost like a front garden. This approach, combined with user participation in the design process, further enhances the sense of community among its residents.



Ground floor



Fourth floor



Fifth floor

Fig. 4.9 - La Borda - Barcelona, functions

- Public
- Transitional Space (semi-public)
- Rising points (semi-public)
- Functions (semi-public)
- Semi-private
- Private

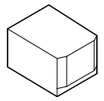
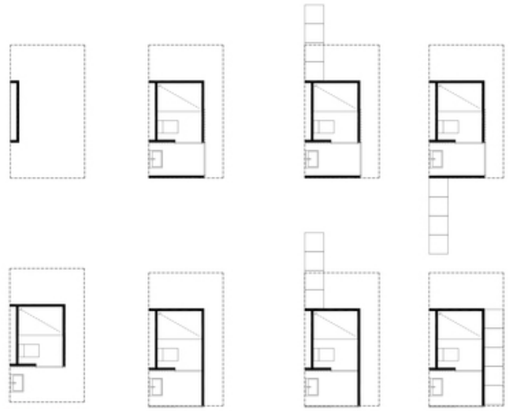


Fig. 4.10 - 3d model La Borda

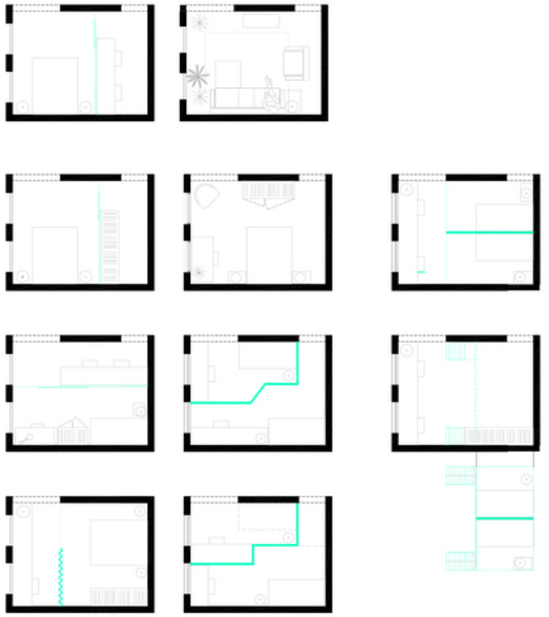
The transitional spaces in La Borda are semi-public and linked to the communal areas. Due to the building's scale, these spaces can sometimes feel more private, allowing residents to express a sense of ownership. The walkways and balconies were designed with this in mind, encouraging personalisation and community interaction.



4.15 - La Borda - Barcelona, sanitary areas

Like the building itself, the dwellings were co-designed with future residents to meet their specific needs. This collaborative approach was crucial throughout the design process and remains important in the building's management. The flexible dwellings, based on a 40m² module, enable residents to add an extra bedroom if necessary. This flexibility allows for various interior layouts and adaptations of the sanitary areas.

The communal design approach helps turn residents into a community outside the dwellings rather than just neighbours. La Borda showcases how alternative ownership and rental models can offer new solutions to the housing crisis while also improving the social quality of the building.



4.16 - La Borda - Barcelona, apartment floor plans

8 House, Copenhagen



4.17 - 8 House - Copenhagen, exterior

Apartments - Copenhagen, Denmark
Architects: BIG
Area: 61000 m²
Year: 2010

The 8 House, located in Southern Ørestad on the edge of the Copenhagen Canal, is a landmark project that embodies Bjarke Ingels concept of “architectural alchemy” (Trost, 2009). Designed by BIG, the 8 House stands as a testament to the power of blending traditional elements—retail, row-houses, and apartments—in unconventional ways to create added value and enhance urban living.

This colossal building, which spans 60,000 square meters, is the largest private development ever launched in Denmark, featuring a mix of residential, commercial, and office spaces.

8 House was envisioned as a three-dimensional neighbourhood rather than a traditional architectural object. It stacks all the components of a vibrant urban district into horizontal layers, connected by a continuous promenade and cycling path that extends up to the 10th floor. This unique design allows for a seamless integration of suburban life with the dynamism of a bustling city, where business and housing coexist harmoniously (BIG, 2009).

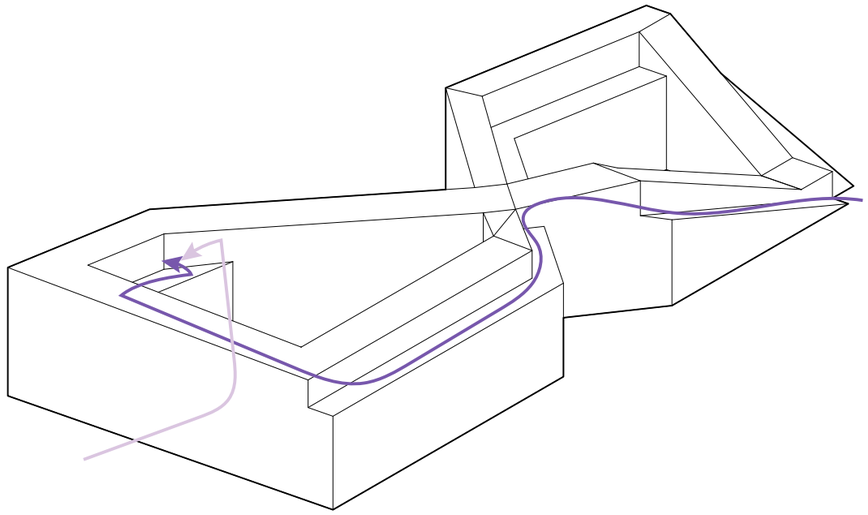
The building’s distinctive bowtie shape creates two intimate interior courtyards and a central passage that facilitates movement between the park area to the west and the canal area to the east. By spreading out the various functions horizontally, the 8 House ensures that the apartments enjoy optimal views, sunlight, and fresh air, while the commercial spaces blend seamlessly with street life.



4.18 - 8 House - Copenhagen, courtyard



4.19 - 8 House - Copenhagen, courtyard



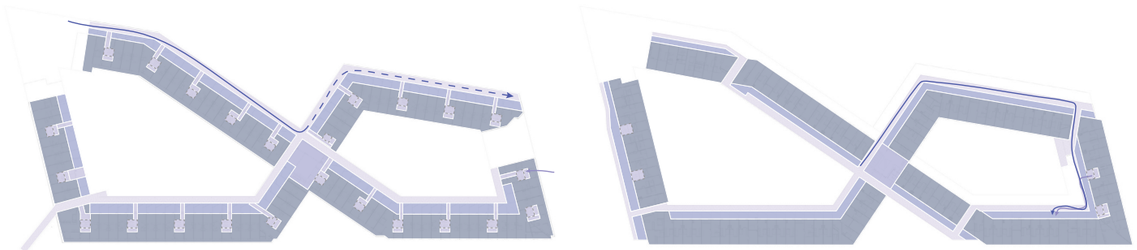


Fig. 4.11 - 8 House - Copenhagen, routing

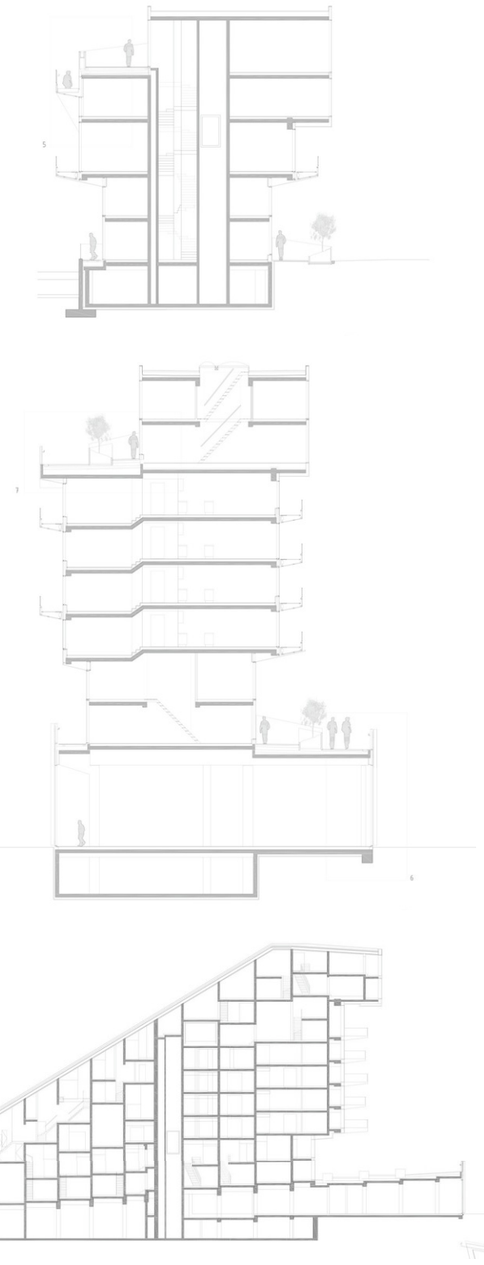
This arrangement also maximizes the quality of life for its inhabitants, offering them a unique sense of community with small gardens and pathways. With 476 housing units, including apartments of varying sizes, penthouses, and townhouses, as well as office spaces for the city's businesses and trade, the 8 House caters to plenty of target groups.

Recognized for its distinctive design and contribution to the city and its surroundings, the 8 House received the 2012 AIA Institute Honor Award for Architecture. In conclusion, the 8 House stands as a beacon of innovation in urban housing, demonstrating how traditional elements can be reimagined to create spaces that are not just functional but also enriching and sustainable.

The route of 8 House is the result of several architectural design decisions, creating a mountain path throughout the building. By stacking public functions on the ground floor, followed by row houses with gardens, apartments, and penthouses with gardens, the public and private realms seem separated.

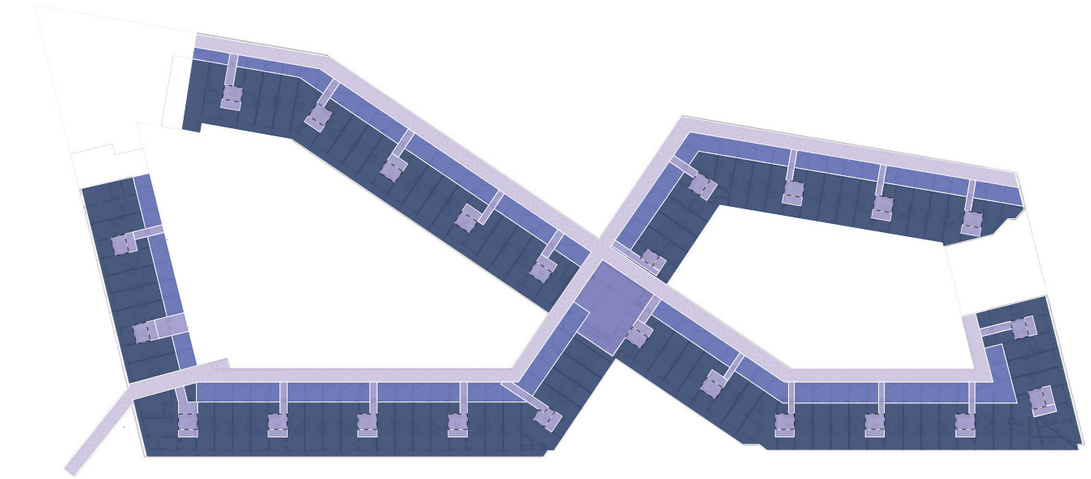
However, by lowering the south-west corner and raising the north-east corner to allow more sunlight for the dwellings, the mountain path enables social life to move upwards throughout the building. Additionally, all communal functions have been placed where the building's figure-8 design intersects, connected by a common stairwell that functions as a social tower at the heart of the building.

Altogether, the plazas, courtyards, stepped streets, and mountain path function conventionally but, due to the composition of the building, they allow social life to extend into the vertical dimension.

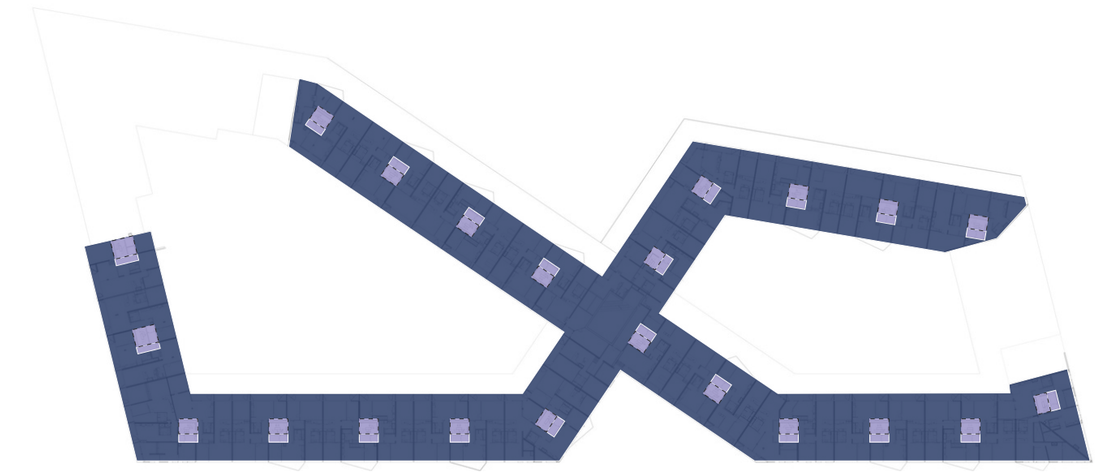


4.20 - 8 House - Copenhagen, sections

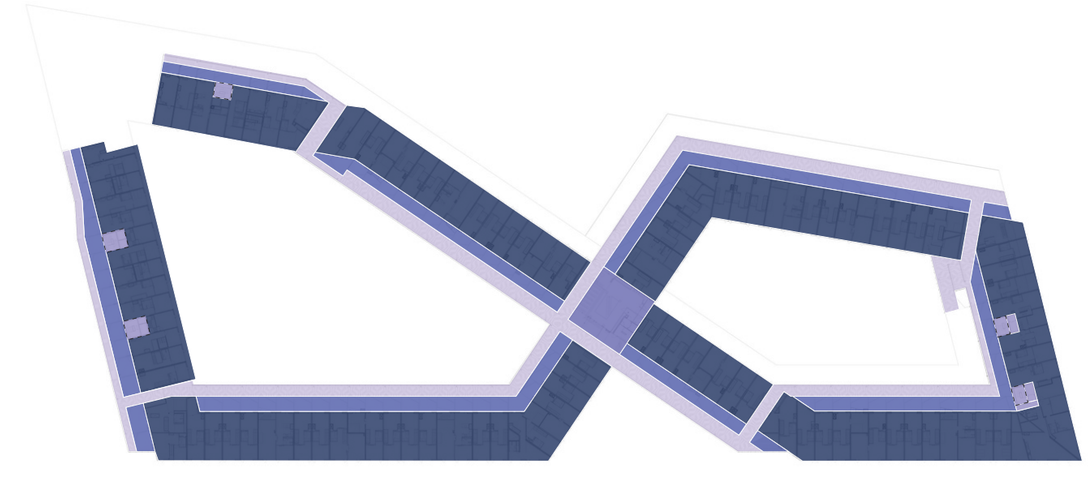
(4). 8 House - Copenhagen (2010) - BIG



Ground floor



Ground floor



Ground floor

Fig. 4.12 - 8 House - Copenhagen, functions

- Public
- Transitional Space (semi-public)
- Rising points (semi-public)
- Functions (semi-public)
- Semi-private
- Private

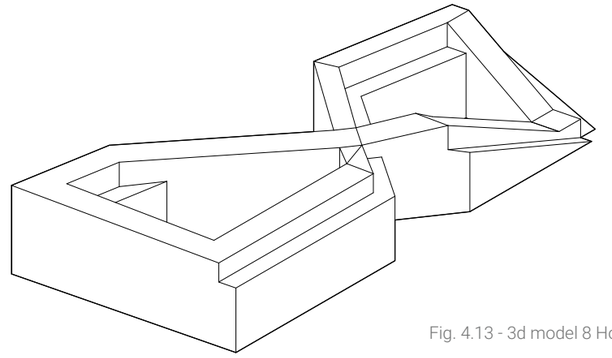


Fig. 4.13 - 3d model 8 House

The routing within 8 House is structured as a series of stacked elements, combining public amenities, row houses, apartments, penthouses, and communal spaces, all linked by a sloping exterior walkway. While this walkway is open to the public, it increasingly feels semi-private as one ascends through the building.

The dwellings themselves feature a variety of layouts within each apartment type, offering a high degree of flexibility and diversity throughout the project. These types are clustered together and stacked, with access provided by the exterior walkway. This allows living in traditional row houses with front gardens within a high-density, large-scale project. However, the scale of the building makes it challenging to create smaller communities within the larger collective.

8 House offers residents a wide range of choices, whether in public amenities, dwelling types and sizes, or communal functions and activities. The design demonstrates how innovative architectural approaches can introduce new opportunities and strategies for tackling the housing crisis.

(4). 8 House - Copenhagen (2010) - BIG

Kalkbreite, Zürich



4.21- Kalkbreite - Zürich, exterior

Residential - Zürich, Switserland
Architects: Müller Sigrist Architekten
Area: 22900 m²
Year: 2014

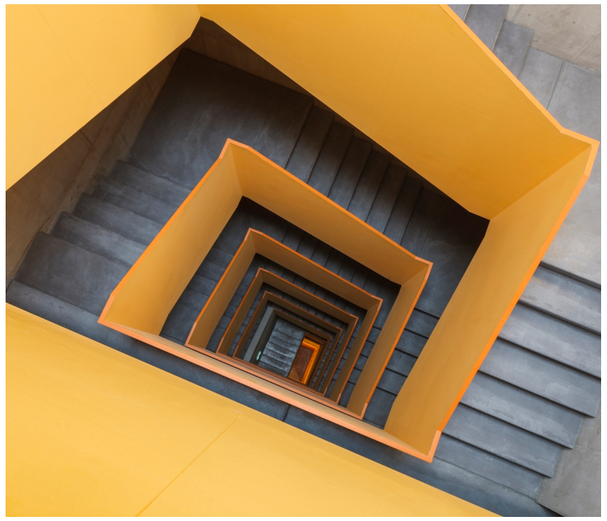
The Kalkbreite Cooperative, a project in Zurich, stands as a beacon of innovative urban living and working solutions. This multifaceted complex, designed by Müller Sigrist Architekten, seamlessly blends residential, service, and commercial spaces. The complex is not merely a building; it's a vibrant community hub that fosters social diversity, promotes sustainability, and encourages cooperative living.

Housing 88 flats, adaptable "joker spaces," communal areas, and facilities catering to the needs of 256 residents, Kalkbreite offers a new standard for urban living. These spaces are complemented by a variety of commercial enterprises, including a cinema, shops and restaurants, offices and studios, a cafeteria, laundromat, daycare center, and meeting and training rooms.

Founded in 2007, the Kalkbreite Cooperative has been instrumental in shaping a lively community that embraces innovative ideas for urban life, urban development, and commercial and residential concepts. The cooperative's vision extends beyond mere housing; it encompasses comprehensive forward-thinking on energy and land consumption, car-free living, and active community participation. Residents benefit from affordable rents, a broad selection of housing options, and the opportunity to live in a socially diverse environment (Wohn- Und Gewerbesiedlung Kalkbreite, Zürich | Müller Sigrist Architekten, n.d.). Strategically located at the intersection of two districts, Kalkbreite acts as a vital link between surrounding neighbourhoods.



4.22 - Kalkbreite - Zürich, exterior



4.23 - Kalkbreite - Zürich, exterior

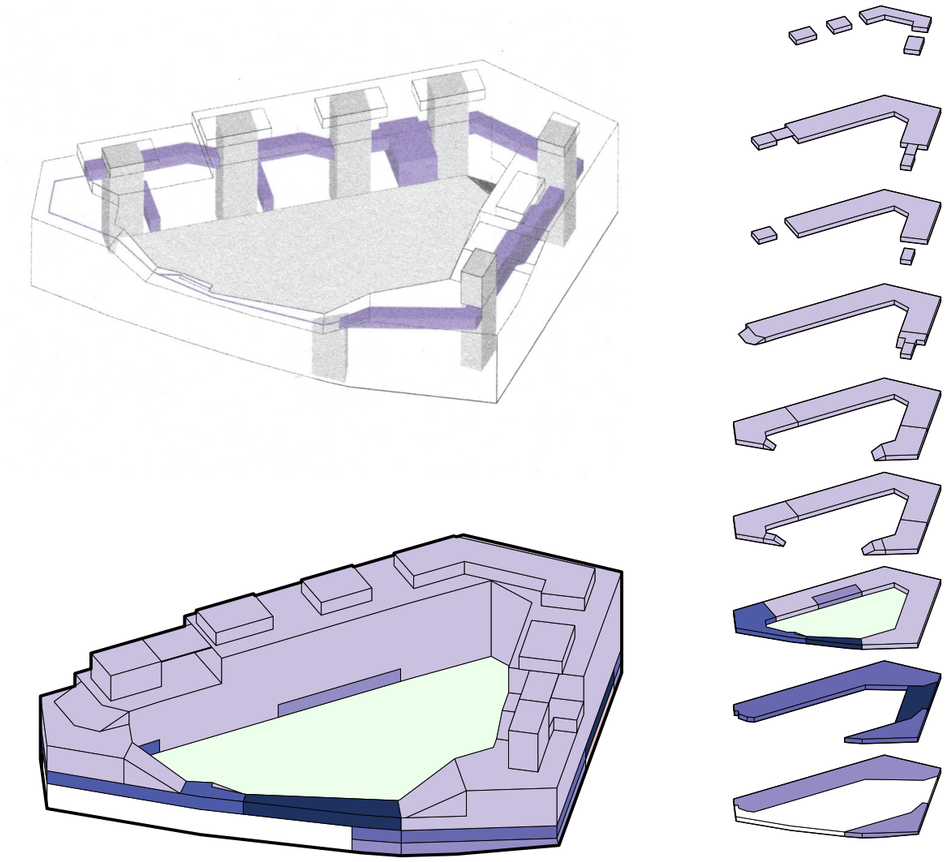


Fig. 4.14 - Kalkbreite - Zürich, routing

The building's design incorporates a covered tram depot of Zurich's public transport system and a generous garden roof terrace, offering residents and the public a green retreat. This use of space not only enhances the quality of life for residents but also contributes to the vibrancy of the local community through additional semi-private gardens.

In summary, the Kalkbreite Cooperative represents a comprehensive approach to urban living, combining innovative design, sustainable practices, and a strong sense of community. Its success is a model for future urban developments, showcasing how urban life can be reimagined to create more than just functional spaces (Genossenschaft Kalkbreite, 2020).

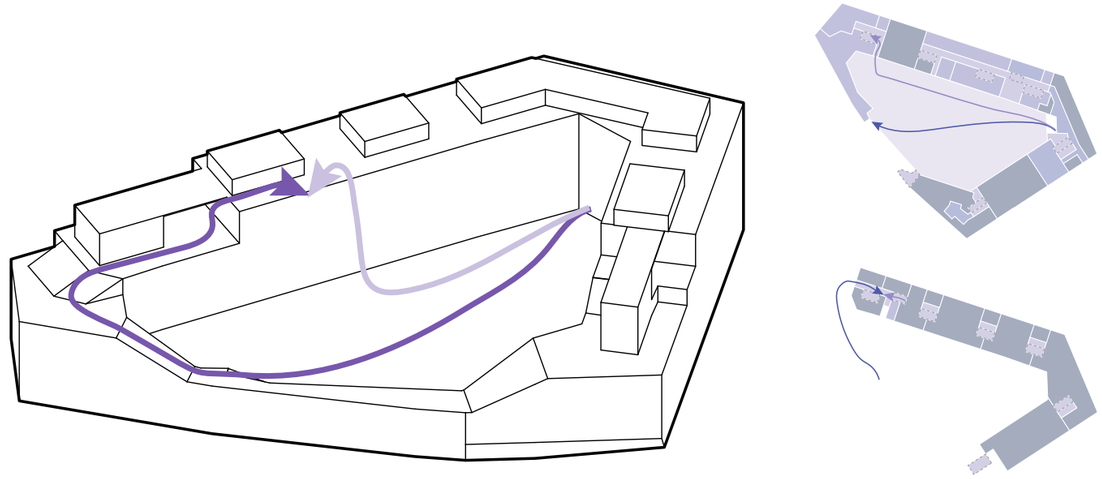


Fig. 4.15 - Kalkbreite - Zürich, routing

The routing within Kalkbreite features the "Rue Intérieure," an internal corridor that serves as the building's central artery. It connects flats, common areas, roof gardens, and commercial spaces. The design transforms the corridors from mere access points into vibrant and well-lit social spaces. By addressing this issue the route creates spaces that encourage interaction among occupants and enhance spatial quality (Bargiel, 2022).

Altogether, the ecological and social design standards have resulted in a blend of public, private, and semi-private spaces in which residents have a stake and a sense of ownership, further strengthening the communities within.

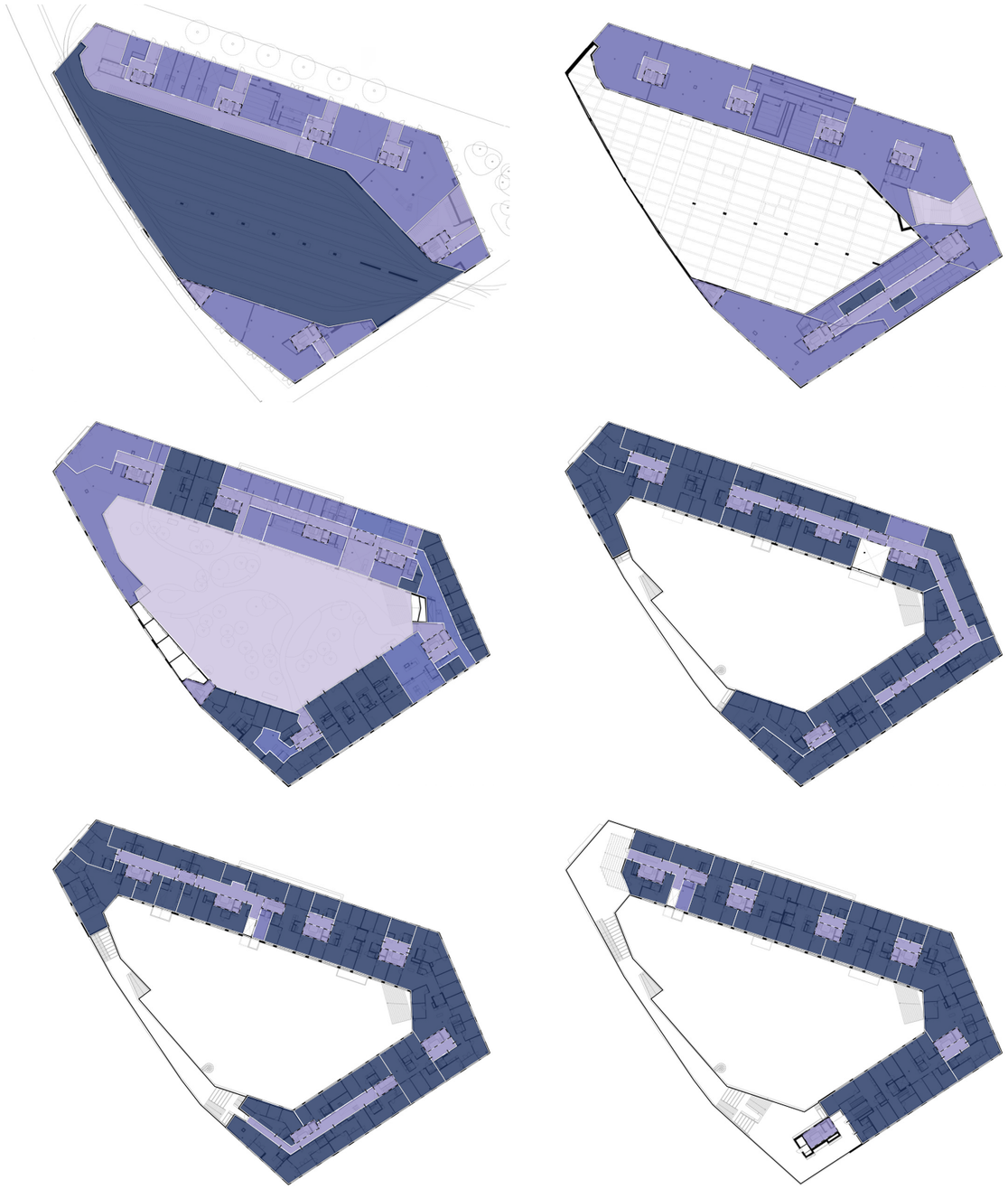


Fig. 4.16 - Kalkbreite - Zürich, functions

- Public
- Transitional Space (semi-public)
- Rising points (semi-public)
- Functions (semi-public)
- Semi-private
- Private

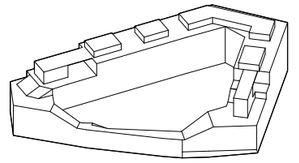


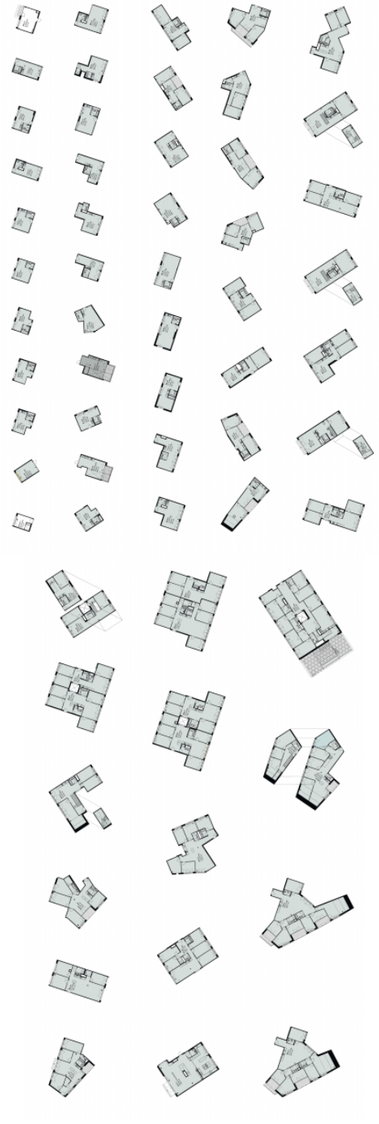
Fig. 4.17 - 3d model Kalkbreite

This building's design and management are driven by a focus on collectivity and a communal approach. The ground floor is dedicated to public functions, fitting the building's prominent location, while the daycare and other courtyard amenities are geared toward the residents.

The co-living units are linked by an interior walkway that prioritizes natural light and the use of colour to enhance transitional spaces, fostering greater interaction among residents. Along this route, collective areas range from exterior balconies and the courtyard to communal spaces that function like living rooms.

The units themselves consist of co-living apartments of varying sizes, from one-and-a-half-bedroom layouts to larger nine-and-a-half-room units. Additional bedrooms can also be rented outside of these apartments to meet specific needs.

Altogether, this creates a communal living arrangement within a large-scale project that encourages social interaction and enhances residents' well-being. The quality of the "Rue Intérieure," combined with communal amenities and well-designed semi-private spaces, further strengthens this communal living approach.



4.24 - Kalkbreite - Zürich, dwellings

Summary

The case studies examined throughout the research have been compared based on their functions, routing, collective spaces, and dwellings. This analysis is presented through drawings and diagrams, which help establish design principles and guidelines.

The functions within these case studies vary, ranging from publicly oriented to residential and semi-private. For instance, Jonas is designed primarily for residents, with minimal connection to its surrounding context. Similarly, Torre Júlia separates public and residential functions but does include publicly accessible amenities. La Borda, being smaller in scale, does not feature any publicly accessible functions. In contrast, 8 House and Kalkbreite integrate public functions into the collective spaces. The main difference between the two is that in Kalkbreite, public functions are spread throughout the building rather than concentrated on the ground floor, separate from the residential areas.

Public
Transitional Space (semi-public)
Rising points (semi-public)
Functions (semi-public)
Semi-private
Private

Functions

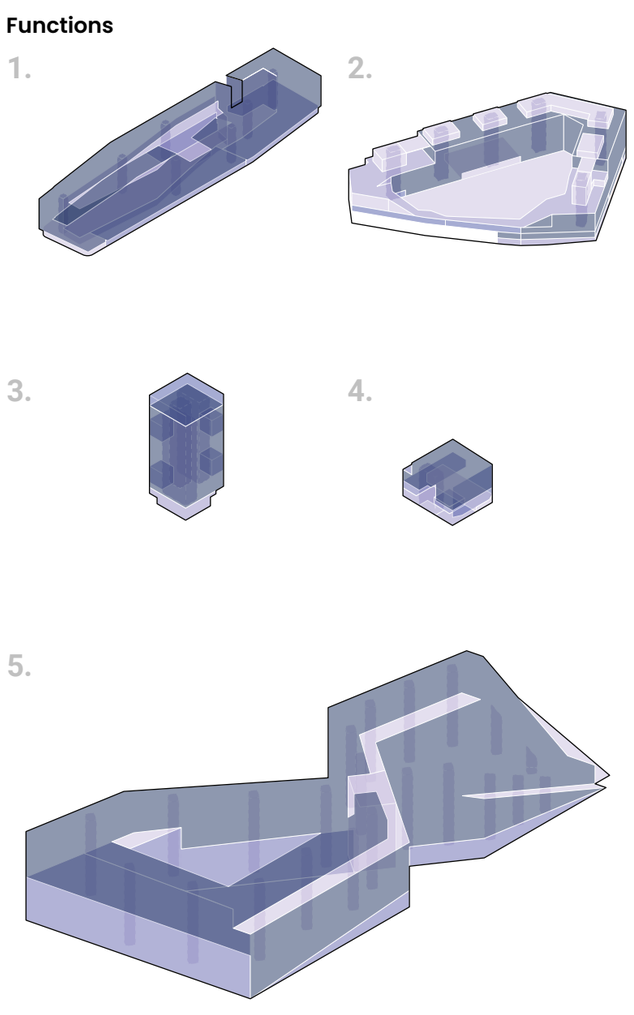


Fig. 4.18 - Kalkbreite - Zürich, functions



Images
(1). (Van Damme et al., n.d.)
(2). (Egloff & Stollenwerk, 2019)
(3). (Ferrando, 2022)
(4). (Miralles & Lacol, 2019)
(5). (Luft et al., 2010)

The routing design varies across different case studies. In buildings like Jonas, Torre Júlia, Kalkbreite, and 8 House, the route is an integral part of the overall structure. However, there are key differences between them. In Jonas, the route plays a more secondary role, while in Kalkbreite and 8 House, the building's experience heavily relies on it. Torre Júlia's route is external and less flexible due to its vertical nature, whereas in La Borda, the routing results from the clustering of the building's functions.

Jonas - orange architects
Kalkbreite - Müller Sigrist Architekten
Torre Júlia - Pau Vidal, Sergi Pons & Ricard Galiana
La Borda - Lacol
8 House - BIG

Routing

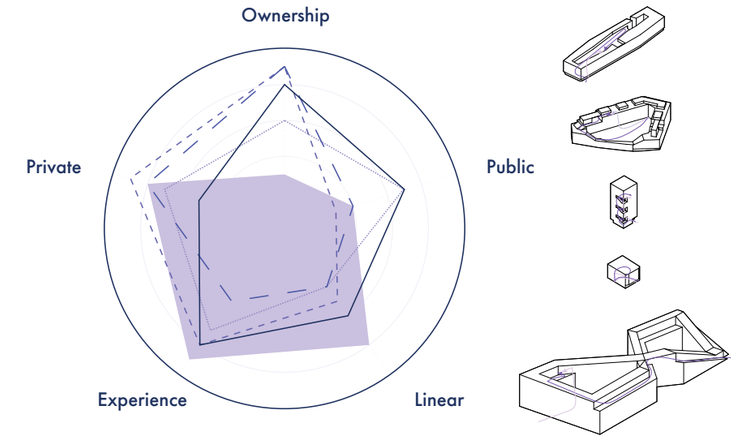


Fig. 4.19 & 4.20 - Values of created personas & Case study routing

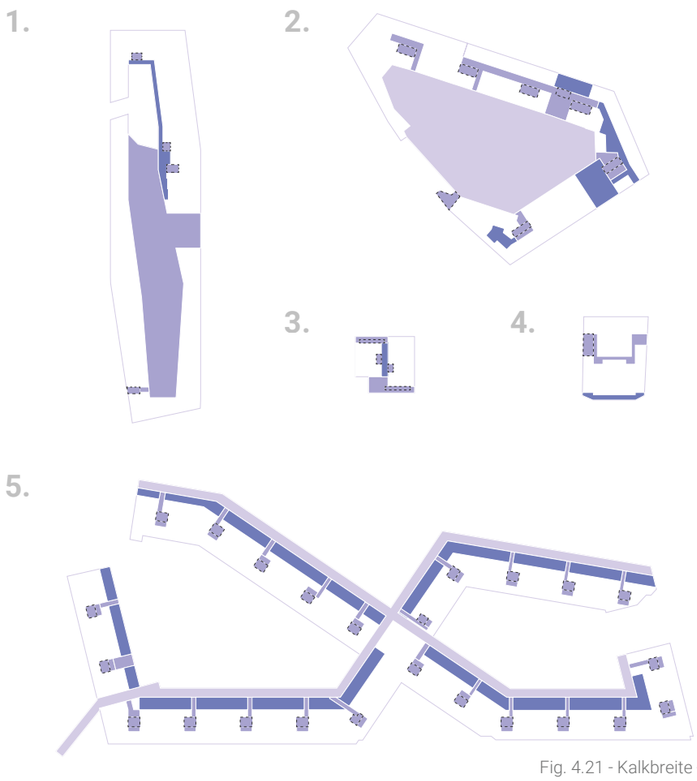




Fig. 4.21 - Kalkbreite - Zürich, functions

Jonas - orange architects
Kalkbreite - Müller Sigrist Architekten
Torre Júlia - Pau Vidal, Sergi Pons & Ricard Galiana
La Borda - Lacol
8 House - BIG

Collective Spaces

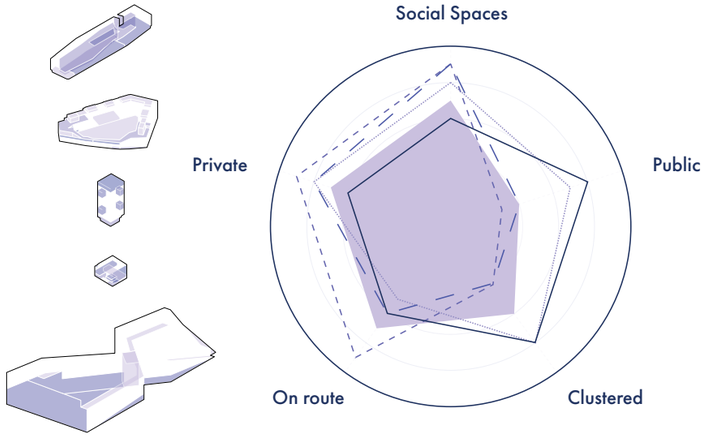
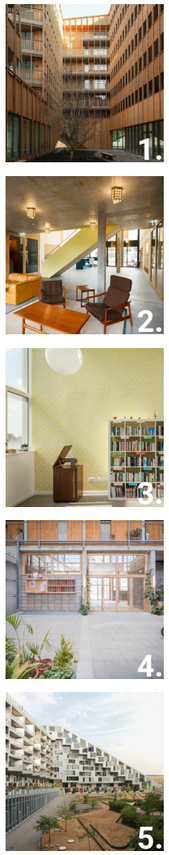


Fig. 4.22 & 4.23 - Values of created personas & Case study spaces

The role of collective spaces within the buildings varies according to the building's needs. In Kalkbreite and Torre Júlia, collective functions are aligned along the routing, whereas in La Borda, the routing is shaped by the collective spaces. At 8 House, these functions are clustered in the heart of the building, while Jonas disperses them throughout the floors and along the route. The scale of the building typically determines both how these spaces are utilised and where they are placed within the structure.



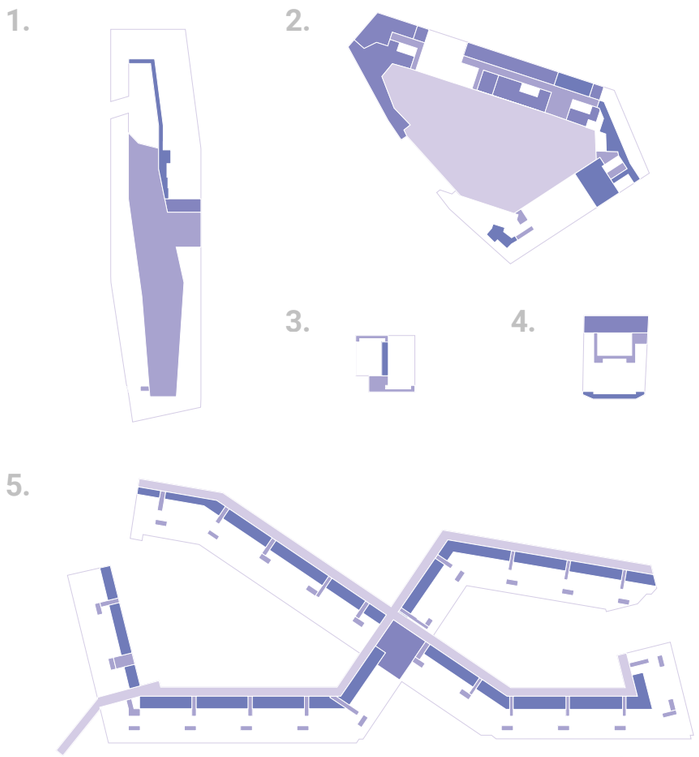


Fig. 4.24 - Kalkbreite - Zürich, functions

Jonas - orange architects
Kalkbreite - Müller Sigrist Architekten
Torre Júlia - Pau Vidal, Sergi Pons & Ricard Galiana
La Borda - Lacol
8 House - BIG

Dwellings

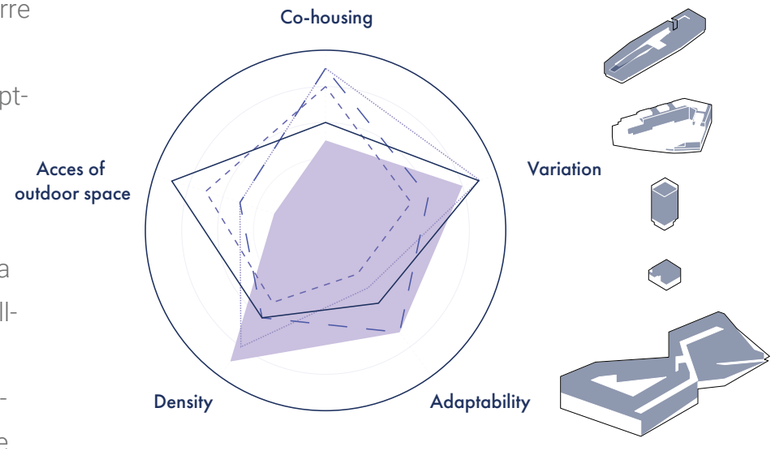


Fig. 4.25 & 4.26 - Values of created personas & Case study dwellings

The type of dwellings varies greatly across the case studies, primarily due to differences in target groups. In both La Borda and Torre Júlia, the units are uniform, but Torre Júlia's units offer little adaptability. Jonas introduces some variation but mostly consists of smaller dwellings. In contrast, Kalkbreite and 8 House provide a broader range of adaptable dwelling types. The key distinction is that Kalkbreite focuses on co-living arrangements, while 8 House incorporates rowhouses, apartments, and penthouses.



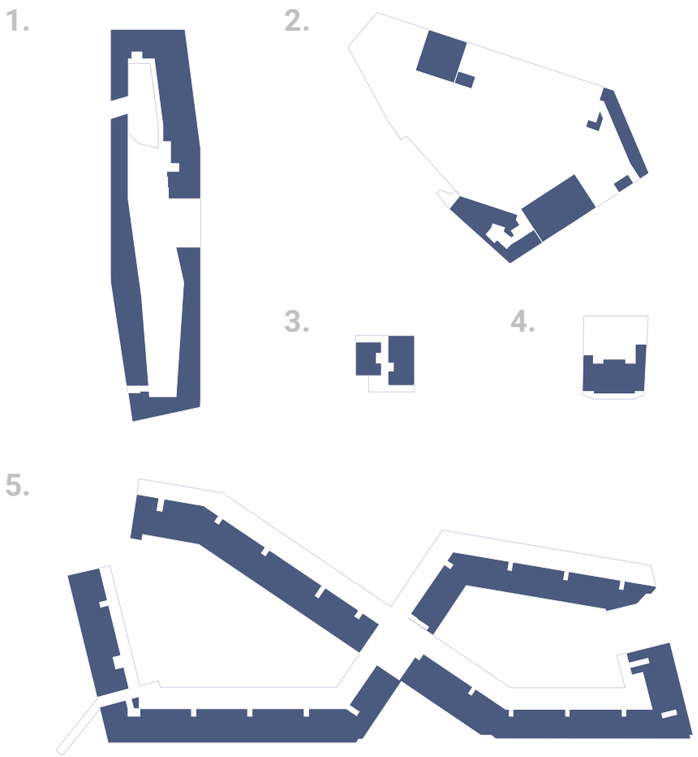


Fig. 4.27 - Kalkbreite - Zürich, functions

The design of dwellings, where residents spend most of their time, is crucial in determining the overall quality of life, extending beyond public and collective spaces or the building's layout. Analysing and comparing these dwellings can help refine existing design principles or lead to the development of new ones.

Each case study showcases dwellings shaped by distinct concepts and principles. For instance, Torre Júlia is designed specifically for the elderly, featuring single-sided units connected by spacious corridors with large, open interiors and minimal doors to enhance accessibility.

While Torre Júlia's dwellings cater to a specific demographic, other case studies focus on flexibility and adaptability. La Borda, although it also uses a single dwelling type, features modular units that allow for flexible layouts and the addition of extra space if needed.

Jonas, Kalkbreite, and 8 House emphasise variety and flexibility in their dwelling designs. Kalkbreite and 8 House offer a wide range of dwelling sizes and types—Kalkbreite focuses on co-living arrangements, while 8 House integrates row houses, apartments, and penthouses. Jonas takes a similar approach to 8 House but with fewer options, offering studios, apartments, and penthouses.

These design choices evolved from initial concepts into fully developed plans, often shaped by user participation. Rather than targeting a single demographic, the design incorporates a blend of approaches: Jonas' variety of apartment sizes, Kalkbreite's co-living arrangements with rentable extra rooms, 8 House's diverse typologies, and La Borda's flexible layout options.

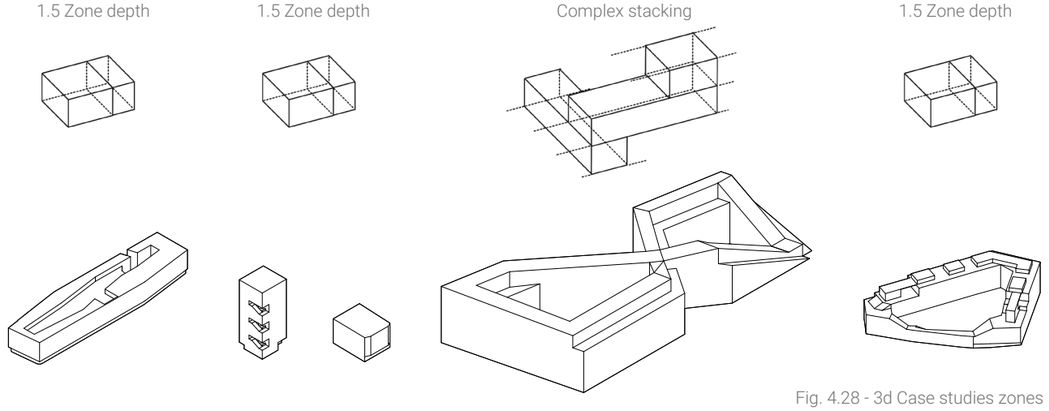
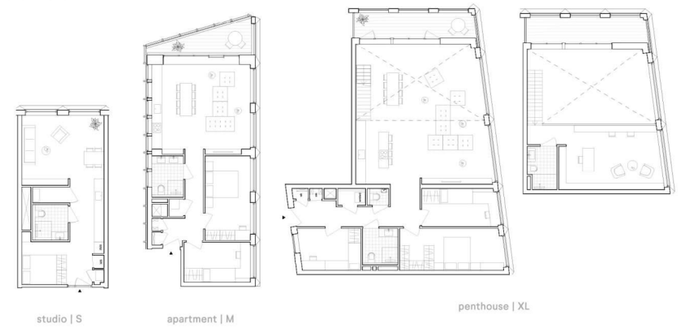


Fig. 4.28 - 3d Case studies zones

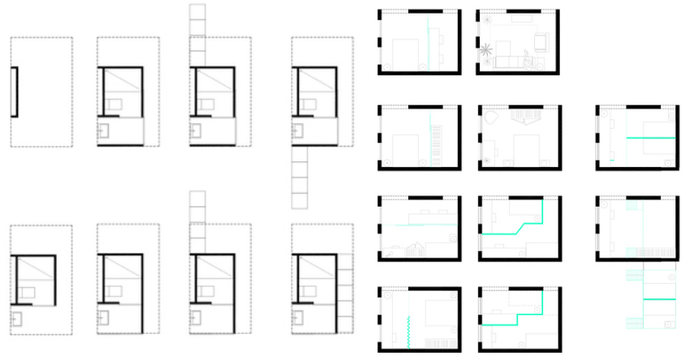
Jonas



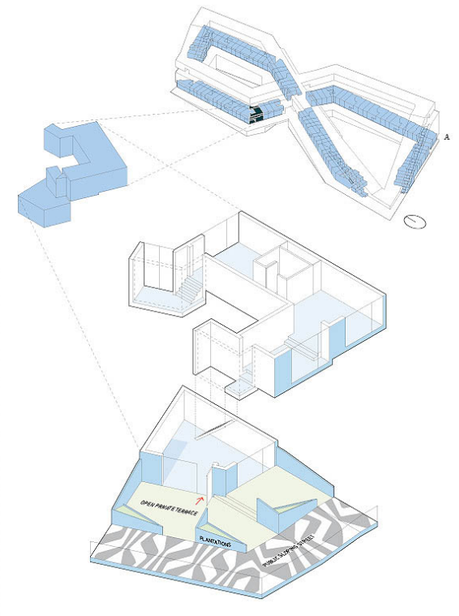
Torre Júlia



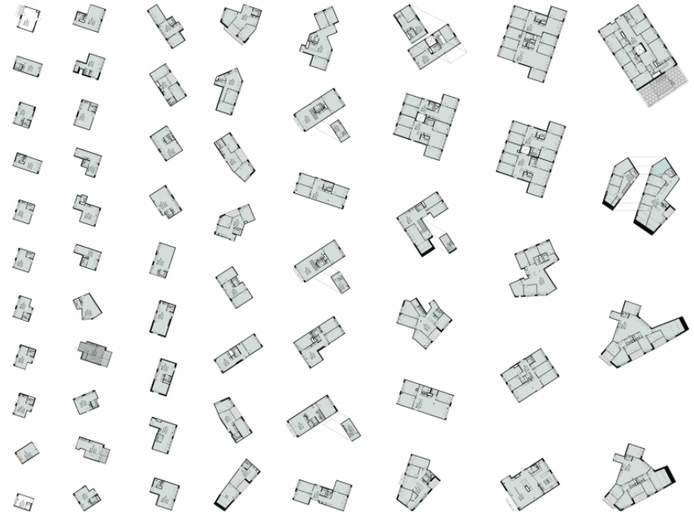
La Borda



8 House



Kalkbreite



Jonas - (Orange Architects, n.d.)
Torre Júlia - (Julia Tower / Pau Vidal + Sergi Pons + Ricard Galiana, 2012)
La Borda (La Borda / Lacol, 2019)
8 House (Luft et al., 2010)
Kalkbreite - (Wohn- Und Gewerbesiedlung Kalkbreite, Zürich | Müller Sigrist Architekten, n.d.)

05

Site Analysis

- Baaibuurt, Amsterdam
- Baaibuurt, Context
- From Context to Concept

Site Analysis

This chapter is dedicated to a thorough site analysis that will lay the foundation for the design process. The analysis aims to uncover the spatial, social, and environmental aspects of the area. By carefully examining the site's potential, challenges, and existing conditions, a design strategy can be developed to integrate new architectural elements into the surrounding urban environment.

The chosen location for this project is Baaibuurt on Zeeburgereiland in Amsterdam. Located on the city's eastern edge, this area presents a distinctive opportunity for development. Baaibuurt lies adjacent to the newly developed Sluisbuurt, a high-rise residential neighbourhood that has significantly altered the landscape of Zeeburgereiland, and Amsterdam. In contrast, Baaibuurt remains largely undeveloped, offering a blank slate for architectural innovation. The absence of detailed future planning for this area grants considerable creative freedom in the design process but also introduces uncertainty about how new projects will align with the area's future development.

This chapter will explore how Baaibuurt's location, existing infrastructure, and proximity to important urban and natural features can shape the design process. It will also address the vision of the municipality and how this affects Baaibuurt.

By considering these elements, the design aims to create spaces that are not only functional and sustainable but also well-integrated into their surroundings, enhancing the overall Quality of Life for future residents.

Baaibuurt, Amsterdam



5.1 - Baaibuurt future development concept - (Gemeente Amsterdam, 2023)

The Baaibuurts, consisting of West and East, are new residential developments on Zeeburgereiland, with Baaibuurt West taking the lead in development. The Environmental Vision Amsterdam 2050 identifies these neighbourhoods as potential mixed urban areas within the expanding city. The Spatial Framework for Zeeburgereiland emphasises creating a multifunctional, sustainable urban living and working environment, focusing on greenery, mobility, and cultural heritage. Baaibuurt West is set to become a unique neighbourhood with its own identity, blending urban facilities with a bike- and walk-oriented environment (Gemeente Amsterdam, 2023).



Fig. 5.1 - Municipal timeline of events for Baaibuurt

Timeline

Amsterdam's Municipal Vision 2050 aims to guide the city's growth in a sustainable, inclusive, and resilient manner. The vision outlines key strategies to ensure that Amsterdam remains a vibrant city for all its residents (Gemeente Amsterdam, 2021).

- **Polycentric Development:** Shift from a central area to a more distributed urban model.
- **Growth Within Limits:** Densification of 150.000 homes within its current boundaries.
- **Sustainable Mobility:** Prioritisation of public transport, cycling, and walking.
- **Radical Greening:** Public spaces will be maximised for greenery and biodiversity.
- **Collaborative City-Making:** Encouraging citizen participation in urban planning and management.

The development of Baaibuurt West is guided by energy efficiency, climate adaptation, nature-inclusive construction, and circularity. The area is expected to transition into a climate-resilient neighbourhood that prioritizes CO2 reduction, material reuse, and energy efficiency (Gemeente Amsterdam, 2023).

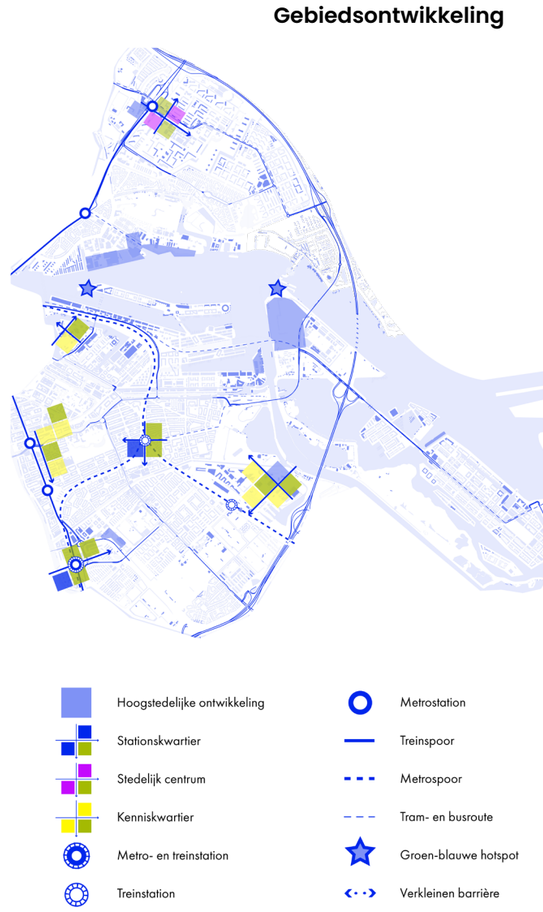
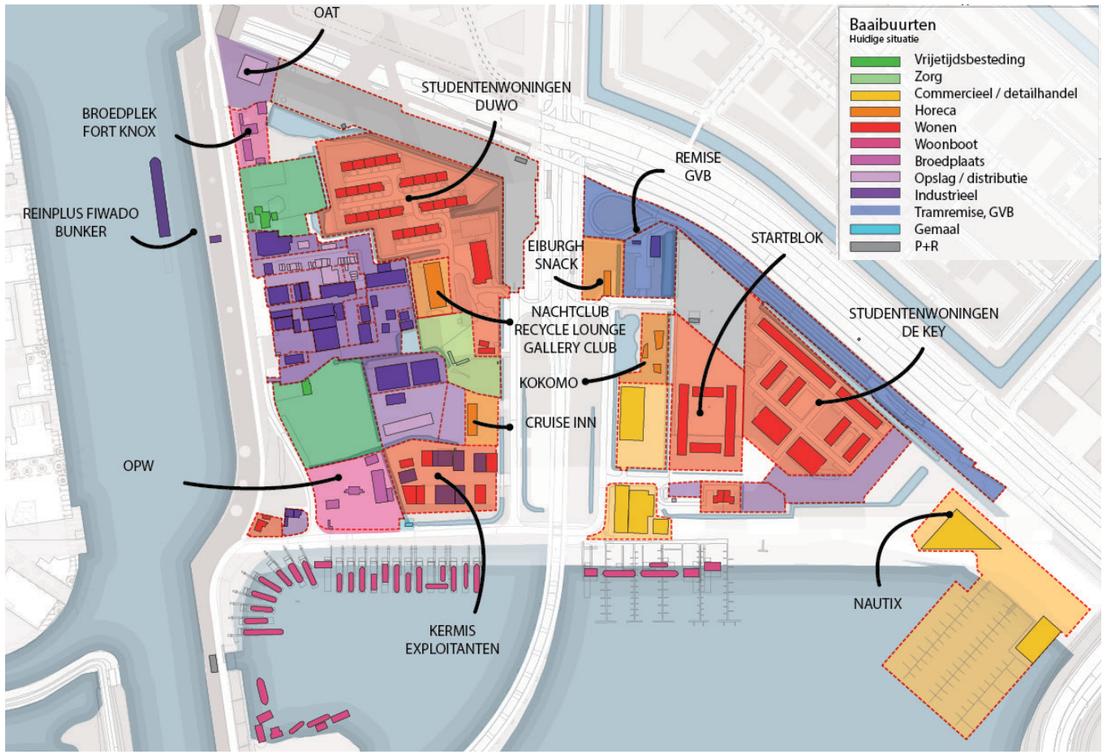


Fig. 5.2 - Future development of Amsterdam - (Student collective research)



5.2 - Baaibuurt current functions - (Gemeente Amsterdam, 2023)



Fig. 5.3 - Baaibuurt context

Public spaces will be of high quality, both urban and green, fitting the street pattern and adjusted to the Zeeburgerbaai and Amsterdam-Rijnkanaal. A green-blue network will be established, with significant investments in greenery and nature-friendly banks to support a climate-resilient neighbourhood. These efforts align with the broader municipal goals of sustainable mobility, with a focus on bike- and walk-friendly provisions and alternatives to car use.

Baaibuurt West will eventually become an eccentric neighbourhood with informal rental options for various target groups, reflecting its role as a mixed urban area that links the island. The spatial framework for Zeeburgereiland emphasizes high-rise development up to 70 meters, with a focus on artistic expression in the northern part of the neighbourhood, while the southern part will remain quieter and more residential. Public space, green structures, and water quality are crucial elements that will define the character of Baaibuurt West, distinguishing it from Baaibuurt Oost in terms of urbanity and overall ambience (Gemeente Amsterdam, 2023).

The planning for Baaibuurt West also includes expanding the current zoning plan to accommodate up to 1,800 homes and 32,400 m² of facilities. The ambition is to create a varied housing offer with 40% social sector, 40% middle segment, and 20% free sector, catering to different generations and housing forms. The focus will be on flexible layouts and communal facilities that stimulate residential interaction. The Baaipark will be developed as a district park for the entire island, contributing to the neighbourhood's green character and providing a space for community activities (Gemeente Amsterdam, 2023).

The existing zoning plan allows for a maximum of 900 homes and 16,200 m² of facilities, but the expansion to 1,800 homes will require a new spatial decision, possibly in the form of a new environmental plan (Gemeente Amsterdam, 2023). The planning aims to start construction in 2025, the area is expected to be functionally free and ready for construction by mid-2028.

Historically, Baaibuurt West has grown organically, with a particularly low density of buildings and population for a neighbourhood within the Amsterdam ring. This slow and spontaneous development has allowed for a diverse and creative community to take root. The neighbourhood is home to various groups, including artists, fairground operators, and students, creating an enclave characterized by artistic expression, scrap sculptures, creative workspaces, small businesses, and various social and societal facilities. The presence of these groups adds a certain charm to Baaibuurt West, giving it a distinctive, if somewhat inward-focused, character (Gemeente Amsterdam, 2023).

The area's current infrastructure, however, reflects its piecemeal development. Public spaces in Baaibuurt West are only partially accessible. Greenery is scattered throughout the neighbourhood, primarily between the various functions, while the public space lacks a cohesive structure. The water management infrastructure is inadequate, with shallow ditches that connect to Sluisbuurt and Baaibuurt Oost.

To address these challenges, the subsurface infrastructure must become an integral part of existing initiatives, such as climate adaptation and the energy transition. This can be effectively achieved through an area-focused approach, as demonstrated in the Centrumeiland and Sluisbuurt areas of Zeeburgereiland.

The aerial photograph dates to early 2024, whereas the selfmade images below show the ongoing progress of the Sluisbuurt development. The current neighbourhood of Sportheldenbuurt exhibits a character that contrasts sharply with the newer developments, while Baaibuurt is predominantly undeveloped and fragmented.

Despite these challenges, recent improvements have enhanced the area's accessibility. The Zuider IJdijk has been raised near the Zeeburgerbaai and the Amsterdam bridge as part of a dike reinforcement project. These developments have improved the cycling connection between Baaibuurt West and neighbouring areas.



5.3 - Aerial photograph Baaibuurt - (Google Earth 2024)



5.4 - Baaibuurt photo's



Fig. 5.4 - Baaibuurt in relation to Amsterdam



Fig. 5.5 - IJburg birds eye view, sketch

IJburg

Bovendiep

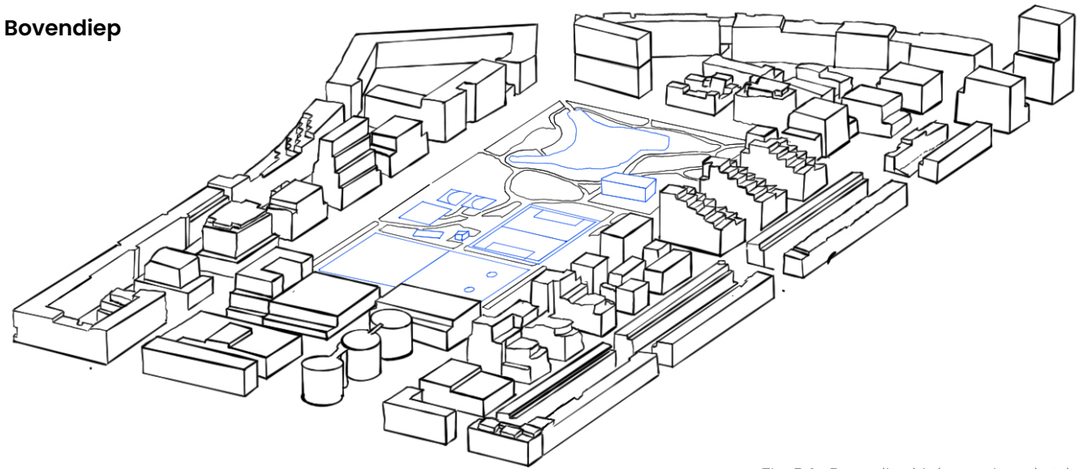


Fig. 5.6 - Bovendiep birds eye view, sketch

Baaibuurt West is well-connected to the city through key infrastructure such as the Piet Heintunnel, tram line 26, and bus routes. Recent additions, like the temporary ferry service from the Zuider IJdijk, further improve access to the Eastern Docklands. The area's connectivity is complemented by cycling paths that link Baaibuurt West to neighbouring areas, including Baaibuurt Oost, IJburg, and the Diemerscheeg.

The planned development of Baaibuurt West aims to address the current infrastructural challenges and enhance the neighbourhood's appeal. With the expansion to 1,800 homes and 32,400 m² of facilities, the area will cater to diverse target groups, providing varied housing options and community-oriented spaces. The focus on sustainable mobility, green-blue networks, and climate resilience aligns with the broader municipal goals, ensuring that Baaibuurt West evolves into a model urban neighbourhood on Zeeburgereiland.

Baaibuurt West is poised to undergo significant transformation in the coming years, transitioning from a low-density, creatively inclined enclave to a vibrant, mixed urban neighbourhood that aligns with Amsterdam's broader vision for sustainable, inclusive urban development. The combination of historical charm, artistic expression, and strategic planning will ensure that Baaibuurt West evolves into a neighbourhood that not only retains its unique character but also contributes to the overall resilience and sustainability of Zeeburgereiland and the city of Amsterdam.

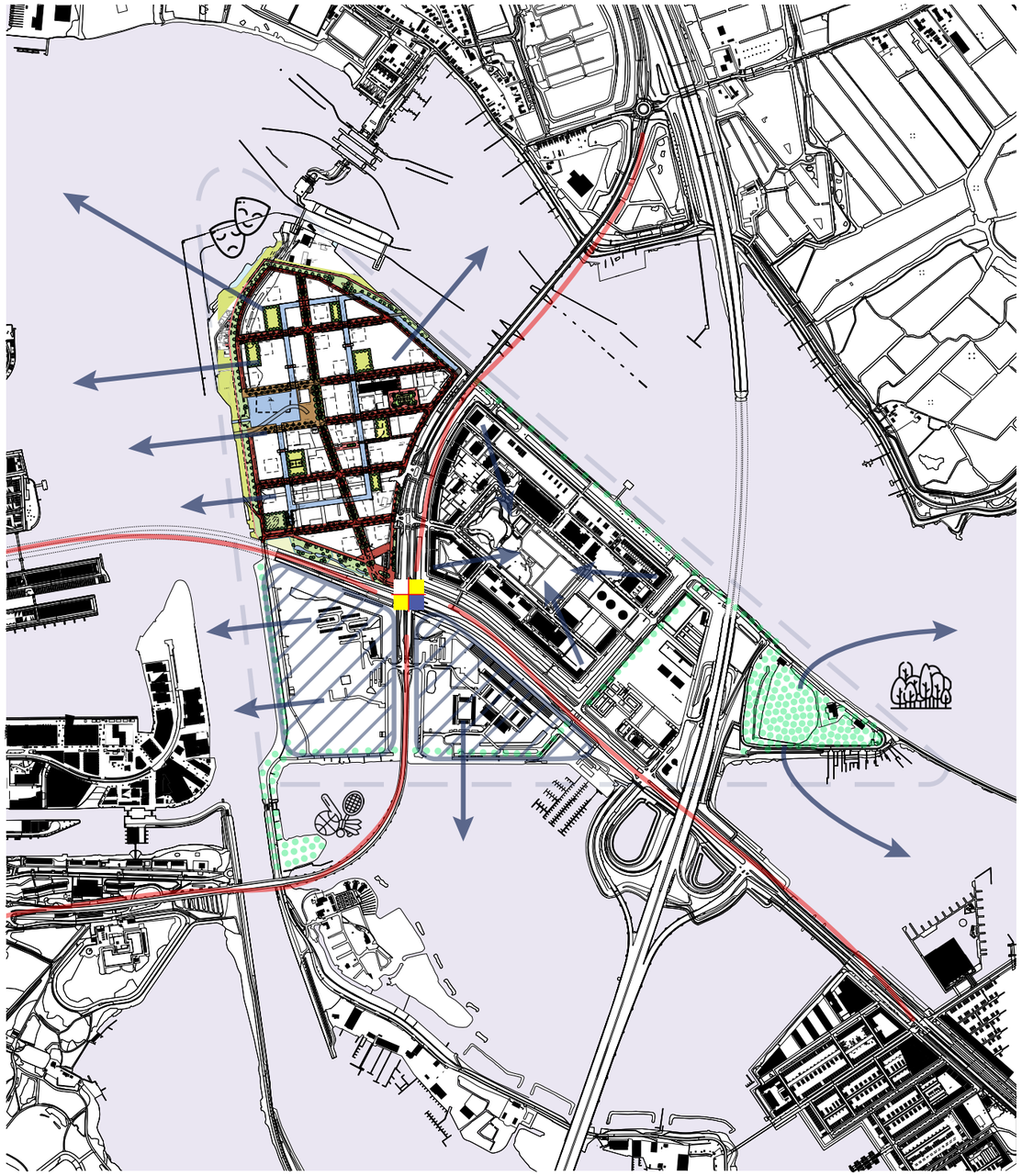
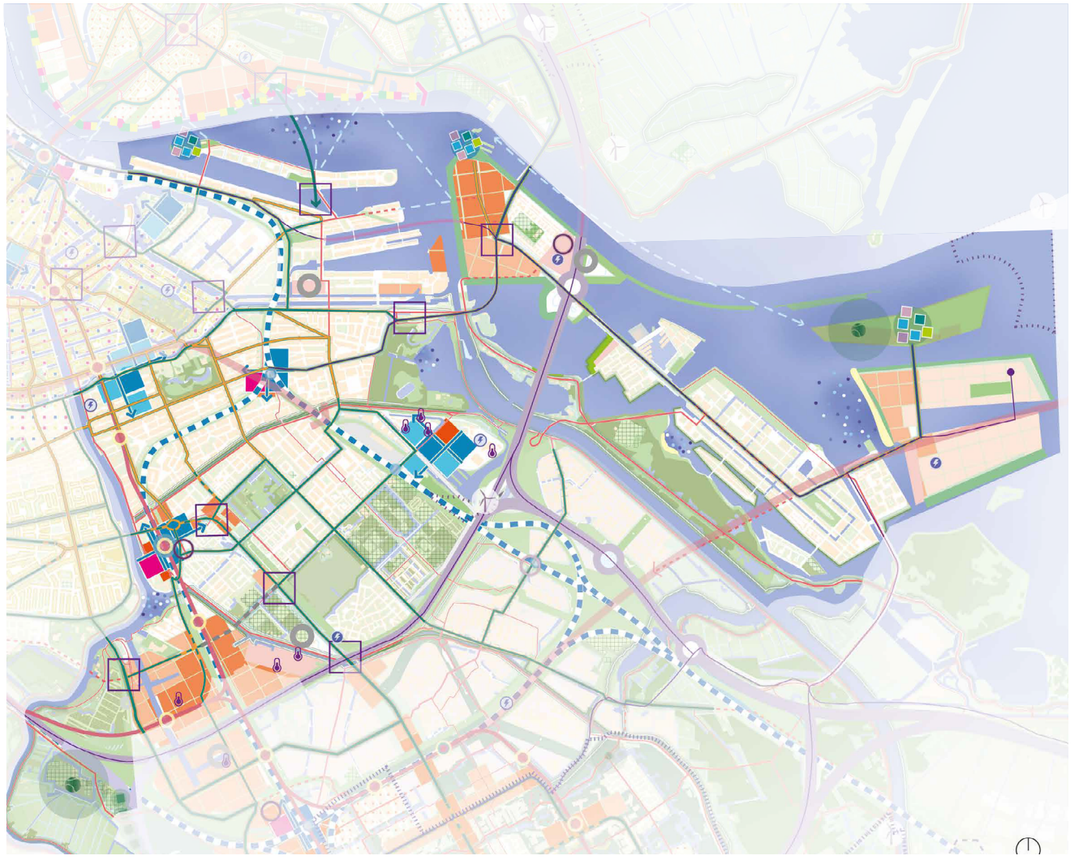


Fig. 5.7 - Baaibuurt future development concept

Baaibuurt, Context



5.5 - Baaibuurt future development concept - (Gemeente Amsterdam, 2021)

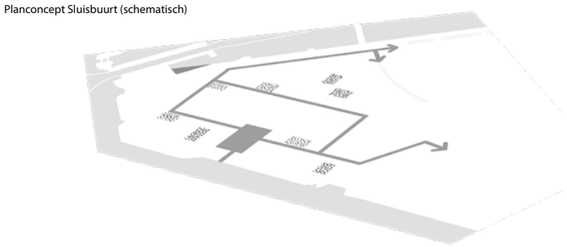
Zeeburgereiland encompasses various areas, each with its unique characteristics and history. The Sportheldenbuurt has been inhabited for some time, development in the Sluisbuurt has begun, and plans for the Bedrijvenstrook are taking shape. Given the persistent housing shortage in Amsterdam, it is crucial to pursue the development of the Baaibuurten while carefully considering the neighbourhood's character. What type of neighbourhood does the Amsterdamer prefer, which type is most future-proof, and how can we best realize this? Such questions are very relevant when formulating the development strategy and ultimately determine the success of the area.

In the development of Baaibuurt, valuable lessons can be drawn from the neighbouring Sluisbuurt. This adjacent area, with high-rise and high-density urban planning, offers significant insights. While Sluisbuurt has a higher overall density, this increased density at the boundary of Baaibuurt requires a similar or even higher density in the transitional area linking to Sluisbuurt.

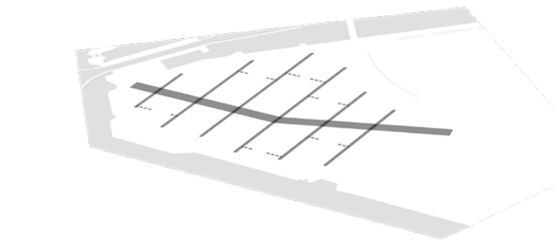
Sluisbuurt's design approach also provides valuable guidance for Baaibuurt. Both neighbourhoods integrate greenery and water, but in Baaibuurt, these elements will play a more central role in shaping its character. Where Sluisbuurt focuses on density, Baaibuurt will prioritize green spaces (Gemeente Amsterdam, 2017a).

Many aspects of Baaibuurt's road infrastructure are still to be determined, except its connections to Zuiderzeeweg and IJburglaan. The layout remains a blank canvas, with the connection between Zuider IJdijk and Zuiderzeeweg being crucial, though the exact plan is still in development.

Planconcept Sluisbuurt (schematisch)



plantsoenen en water



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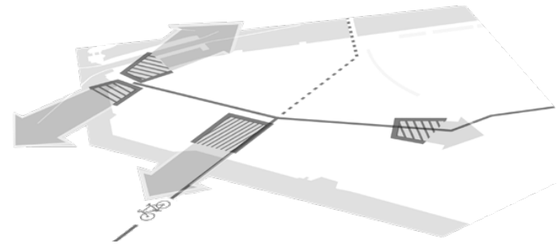
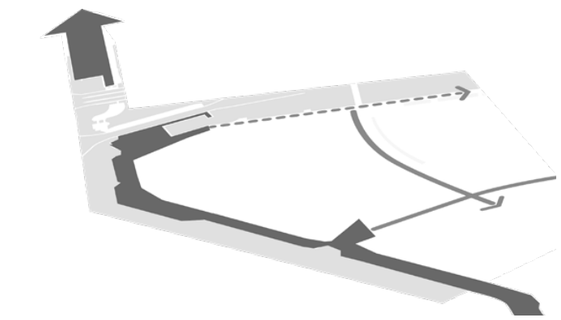
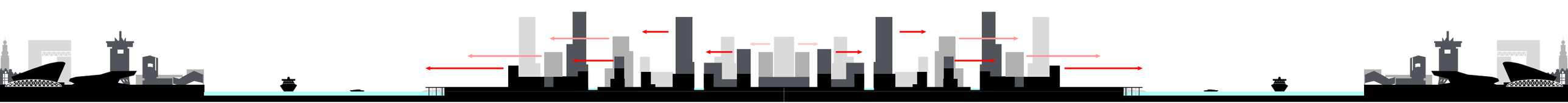


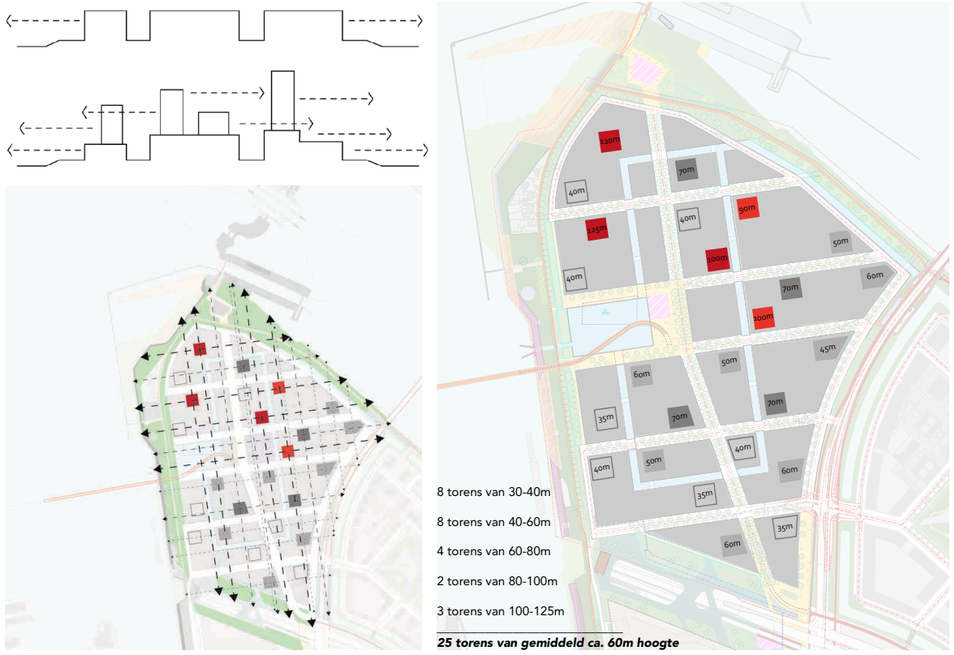
openbare plekken en fietsroute



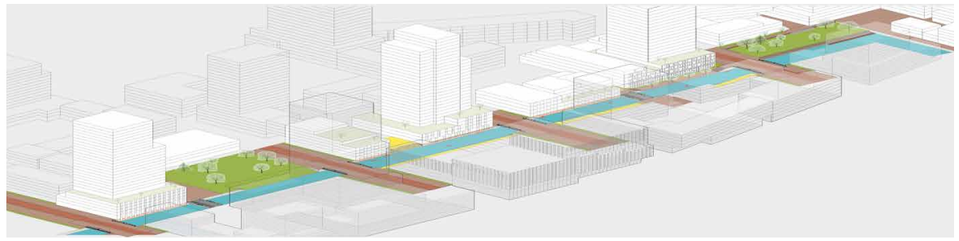
randen

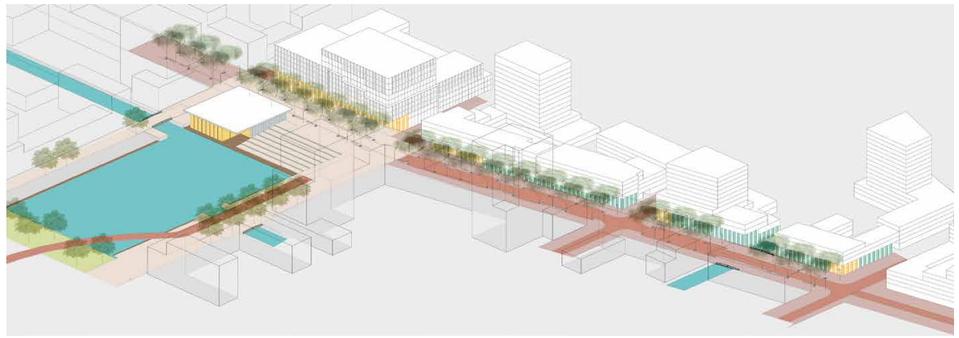
5.6 - Baaibuurt future development concept - (Gemeente Amsterdam, 2019)





5.7 - Baaibuurt future development concept - (Gemeente Amsterdam, 2017b)





5.8 - Baaibuurt future development concept - (Gemeente Amsterdam, 2019)

Improving the connection between Baaibuurt and Sluisbuurt could involve reducing the visual and physical impact of the Piet Heintunnel, potentially through the creation of a green park to link the two areas. Buildings along this boundary would have a more enclosed design compared to those in Baaibuurt's interior.

While Sluisbuurt makes extensive use of high-rises, Baaibuurt will use them more selectively. High-rises will be strategically placed to create high-quality public spaces at the ground level. This new area will strike a balance between Sluisbuurt's density and a stronger connection to the public realm.

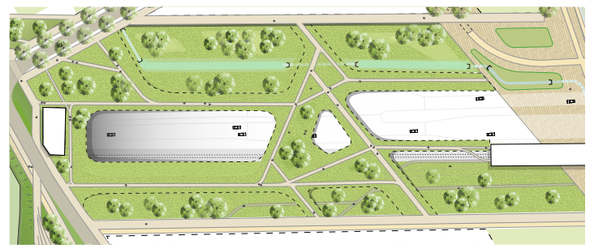
The main street in Baaibuurt could serve as a central axis, connecting key urban areas. Like Sluisbuurt, this street would feature a mix of commercial and community amenities at the ground level, creating a vibrant atmosphere. Thoughtfully designed pedestrian routes would further enhance accessibility throughout this new green neighbourhood.

Wide sidewalks would offer space for public terraces, fostering an inviting and active streetscape. To maintain spatial quality and safety, no storage areas, garage entrances, or blank facades would be allowed. Instead, the focus would be on transparent, ground-floor spaces that encourage social interaction.

Ultimately, Baaibuurt's street design, much like Sluisbuurt's, would prioritize creating a continuous, lively streetscape that promotes a high quality of life and fosters strong community connections, all while supporting future-proof urban living.







5.9 - Baaibuurt future development concept - (Gemeente Amsterdam, 2017a)

From Context to Concept

When selecting a project location, several considerations need thorough research. In established urban environments, the context, combined with an architectural vision, usually guides the final design. However, Baaibuurt is still undergoing a major transformation, offering significant architectural flexibility in both expression and scale.

The design proposal incorporates principles that aim to improve the Quality of Life for both residents and the surrounding neighbourhood. Due to the lower density in parts of Baaibuurt, the location chosen is toward the northern side, where the density is higher. However further analysis is required to determine if the project will be located on the border between Sluisbuurt and Baaibuurt.

While the design principles originated from previous workshops, they will be expanded upon in the design chapter. The primary focus remains the same: balancing public and private spaces, fostering collective and communal areas, creating smaller communities within the larger whole, and ensuring that the dwellings are adaptable to the needs of the residents. These elements are crucial for promoting a sense of ownership and encouraging social interaction among residents.

Overall, the location and its context are not the defining factors of the design. Instead, the structure of Baaibuurt, combined with these design principles, forms the foundation for the proposal.

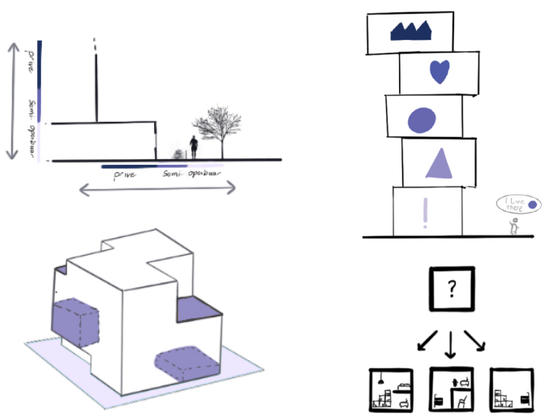


Fig. 5.8 - Design principles

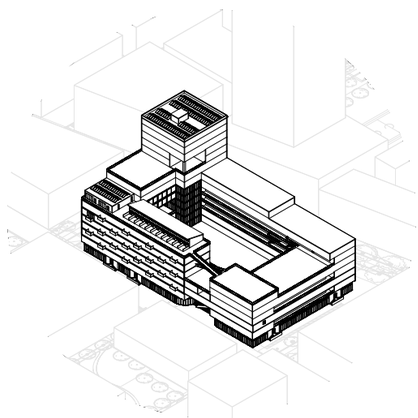


Fig. 5.9 - Vision Baaibuurt future development concept

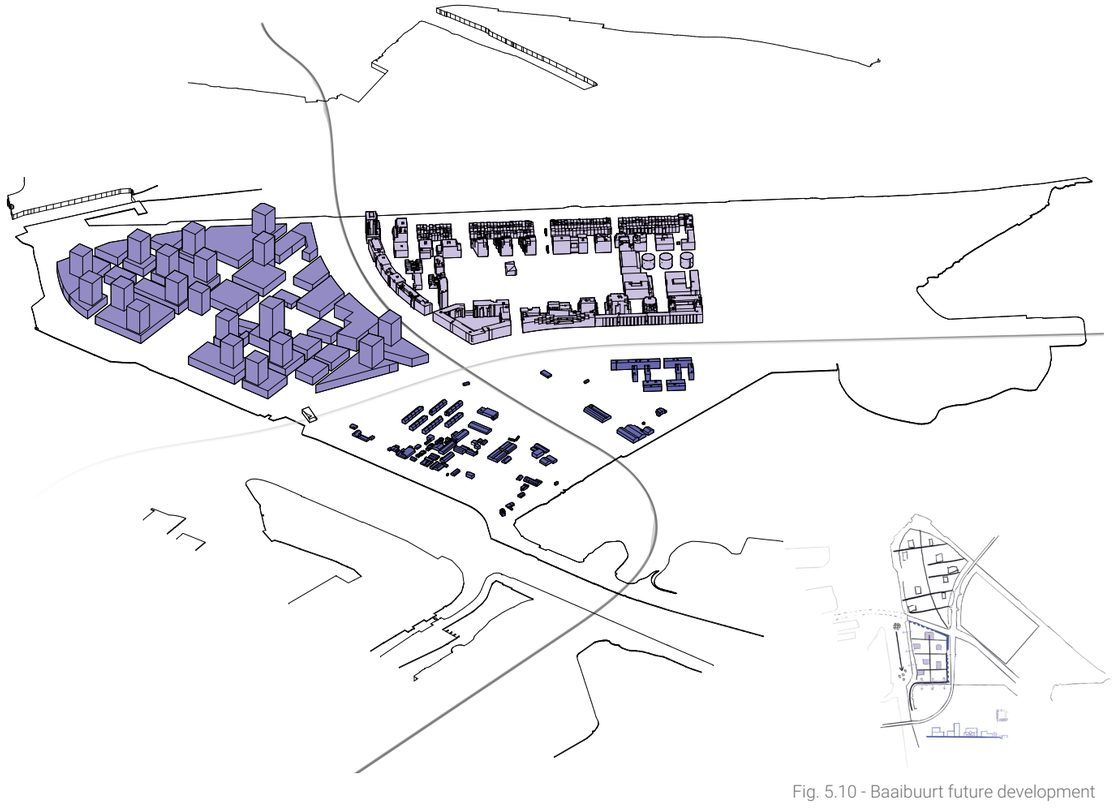


Fig. 5.10 - Baaibuurt future development

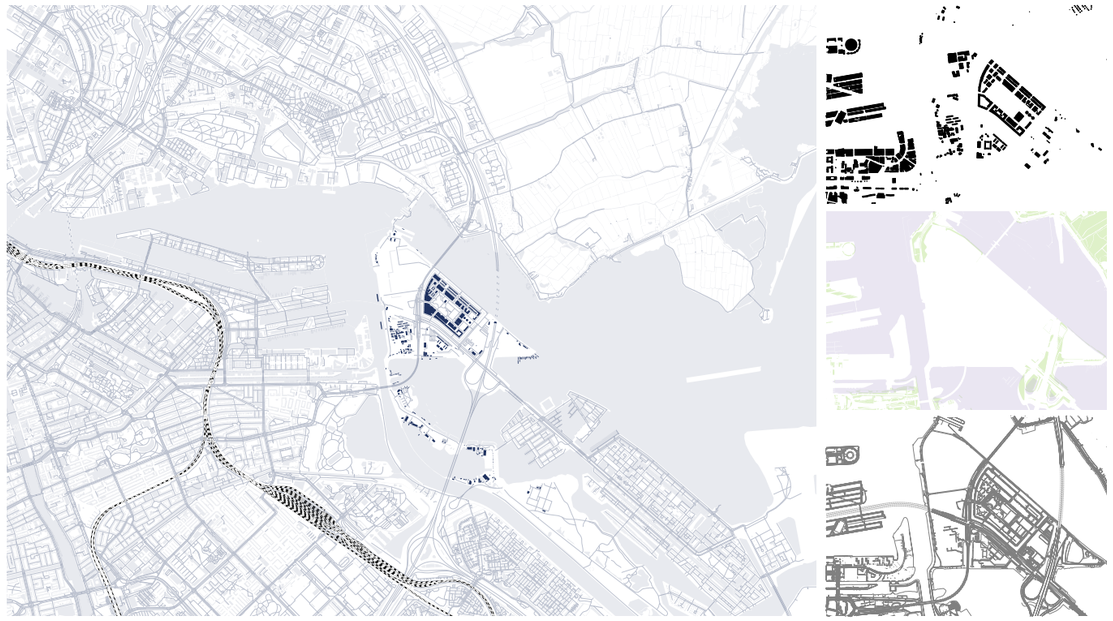


Fig. 5.11 - Baaibuurt context

06

Research by Design

- Learned from workshops
- Program of requirements
- Design principles
- Concept & vision

To evaluate the theories and findings from the literature and case study research, a research by design approach was introduced. This approach began early in the research and has continued to evolve. Throughout this period, it has served as a means to explore design strategies, pinpoint additional research requirements, and develop a design philosophy.

This chapter therefore details the evolution of the design strategies and highlights a particular point in the design process, explaining the thought behind the decisions made.

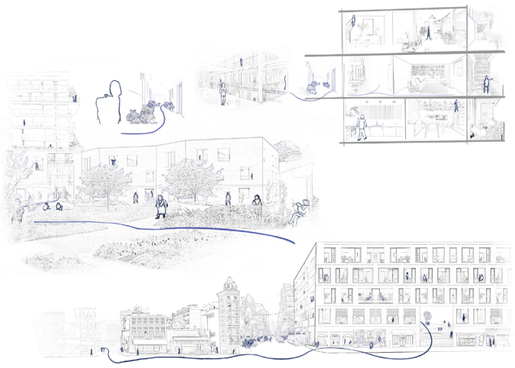


Fig. 6.1 - Conceptual vision drawing

Learned from Workshops

To enhance the design process, workshops are incorporated in the early stages. Two workshops, focusing on housing typologies and collective/public spaces, are among the first steps in developing designs and concepts.

The incorporation of communal spaces and how they function within the building has been a personal interest and a guiding factor for the research. In this initial concept, these collective spaces are integrated between the dwellings to enhance the quality of transitional areas. In these spaces, the interplay between ownership and the balance of public and private areas defines the use of the space. Further exploration through research by design is needed to determine how this can be achieved.

This principle can also be applied to the dwellings. Although the design of the dwellings is still in a very conceptual stage, the underlying ideas can be further developed through research. This includes offering various apartment sizes and typologies, allowing for modifications, utilizing co-living, and combining dwelling functions outside the individual units to create higher-quality living spaces.

In summary, the early-stage design philosophy involves combining neighbourhood qualities into a high-density building. Therefore, the design approach focuses on the communal aspect and improving the 'Social' Quality of Life, encompassing public, semi-public, and private spaces.

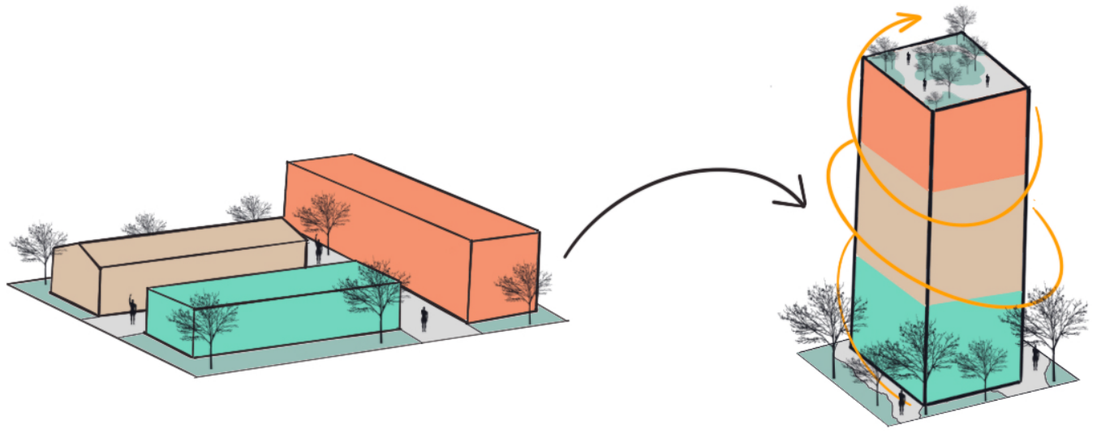
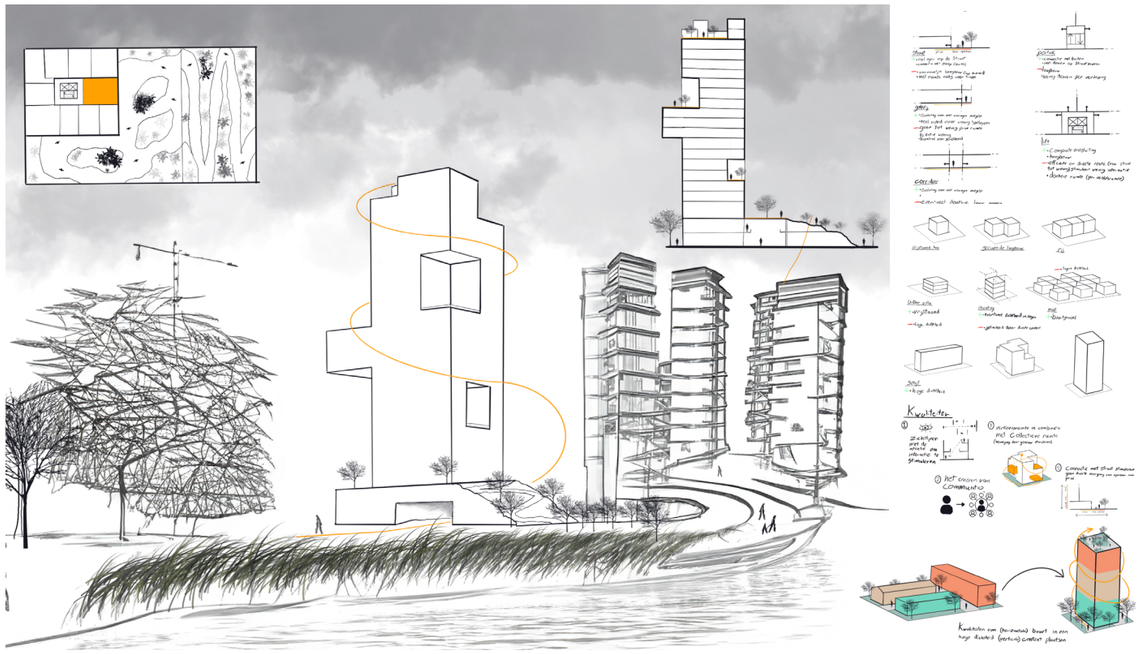


Fig. 6.2 - Design principle



workshop one - housing typologies

Fig. 6.3 - Drawings workshop 1

workshop two - collective/public spaces

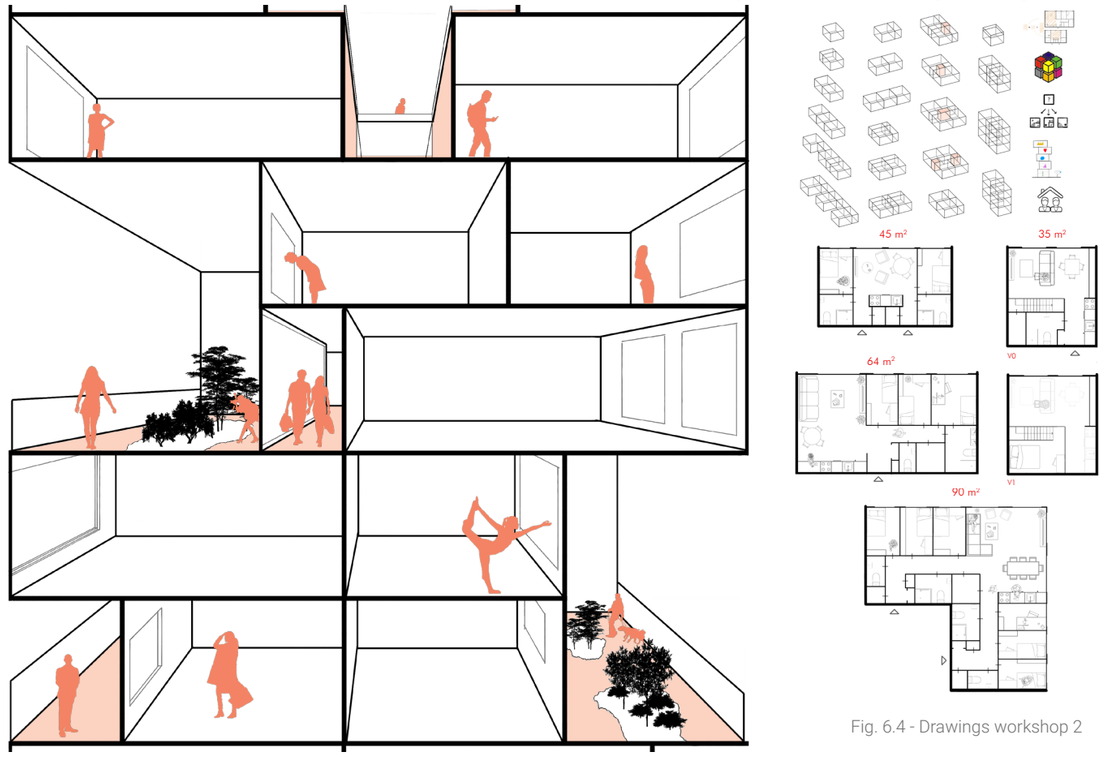


Fig. 6.4 - Drawings workshop 2

Establishing a link between a building and its surroundings is essential. Upon entering the building from the street, the spaces gradually shift from public to more private. This blend of semi-public transitional areas, along with communal spaces and flexible living environments, reflects the approach focused on community-centred design.

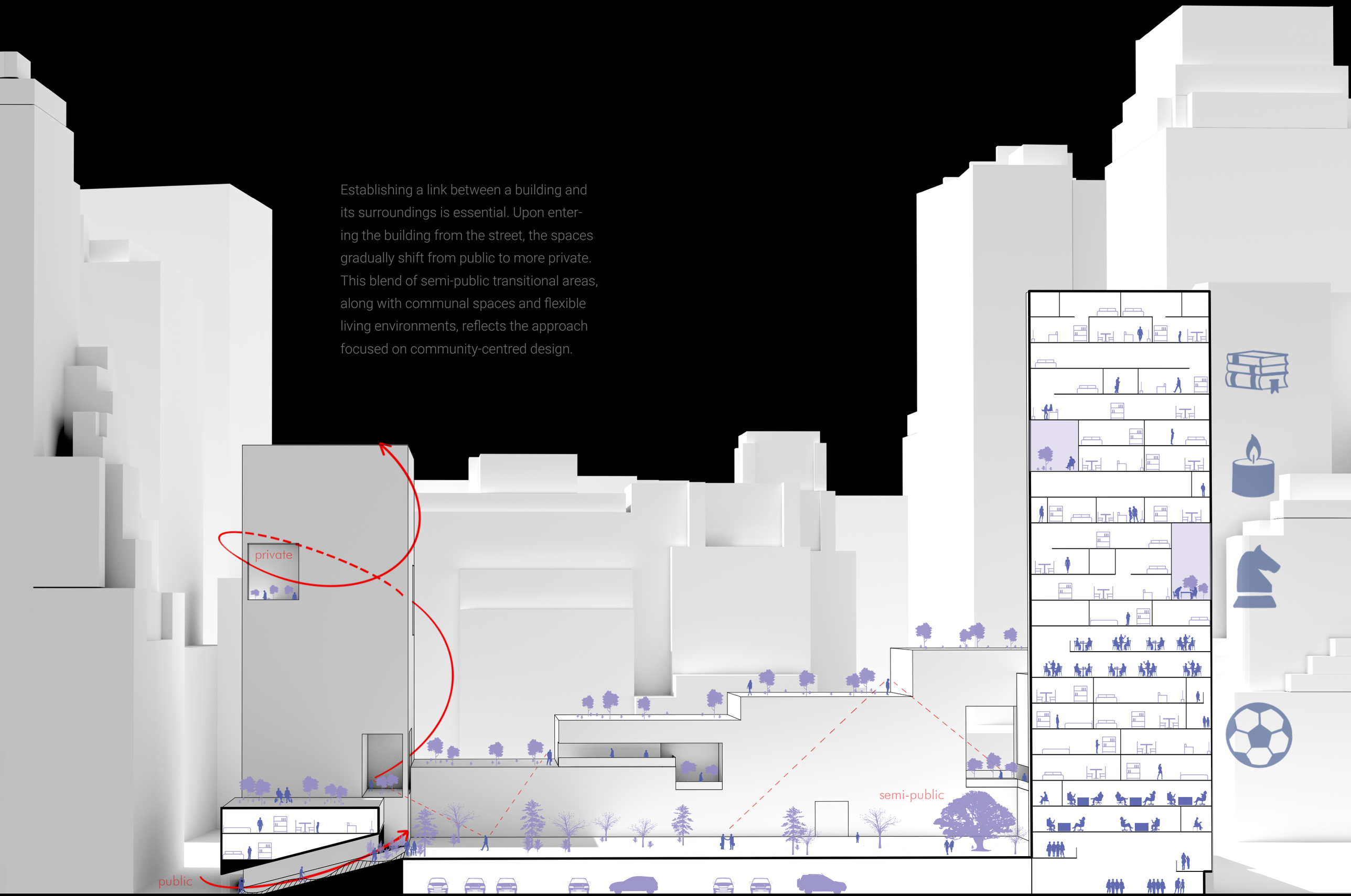


Fig. 6.5 - Vision drawing



Fig. 6.6 - Conceptual vision drawing Baaibuurt

The chosen location for the design proposal is Baaibuurt-West, situated on Zeeburgereiland in Amsterdam. This undeveloped area is adjacent to the newly developed Sluisbuurt, a high-rise neighbourhood in Amsterdam.

The existing buildings and immediate surroundings can be removed or modified to start with a fresh "blank" slate. The municipal requirements for this area are similar to Sluisbuurt requirements but with a lower overall density.

As a result, the area allows for significant personal interpretation and program development, given the lack of existing planning, requirements, and development.

Program of requirements

Creating a Program of Requirements is essential in the design process. Outlining the functions within the building, along with the target groups and residences, provides a written overview of these elements. Throughout the design process, the how, where, and why of these chosen functions, and how they can work together, are explored through research by design.

Therefore, the Program of Requirements is a preliminary version that can evolve throughout the design process if necessary.

Dwellings

- 330+ dwellings
- 200 + dwellings per hectare
- Housing type (average 70m2)
  - S - Studio (<35m2)
  - M - Apartment & Co-living (35-85m2)
  - L - Maisonnete (85>m2)

Target groups

- Students
- Starters
- Families

Program

- Residential
- Shared office space
- Repair cafe
- Daycare
- Gym
- Shops/cafe

Structure







Skin







Services

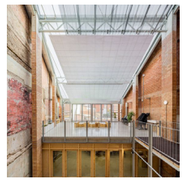






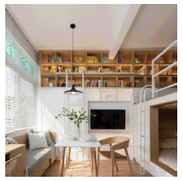
Collective spaces



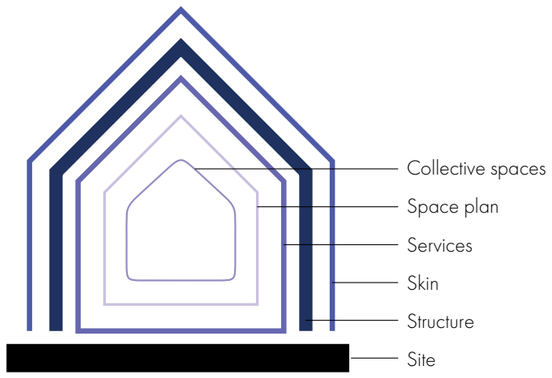




Space plan



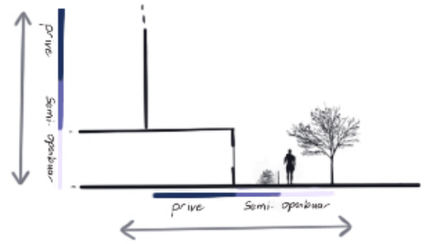



6.1 - Images - Pinterest - (Advanced Housing Layers, n.d.)
6.2 - Brand's six layers of building which age at different rates - (Brand, 1997)

01

Private & public

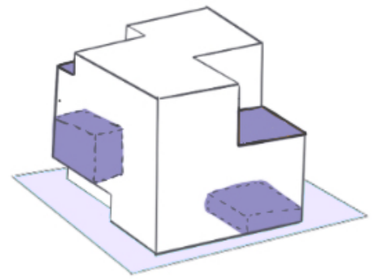
The gradual transition from public to private spaces throughout the building is essential for the utilization of these intermediate areas.



02

Collective spaces

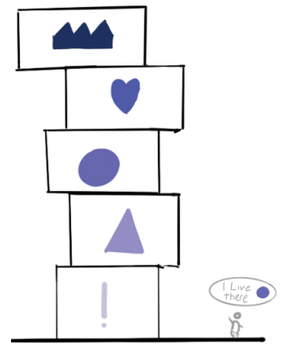
Incorporating collective spaces permits smaller dwellings and the integration of various functions, ultimately enhancing the communal aspects within the building.



03

Communities

In designing a high-density building, it is important to ensure it is not so large that individuals feel lost within the collective but can thrive within smaller communities.



04

Adaptability

Ownership plays a significant role both inside and outside the dwellings. Allowing residents to make changes to their living spaces to suit their needs is crucial for achieving this.

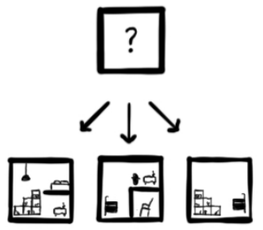


Fig. 6.7 - Design principles

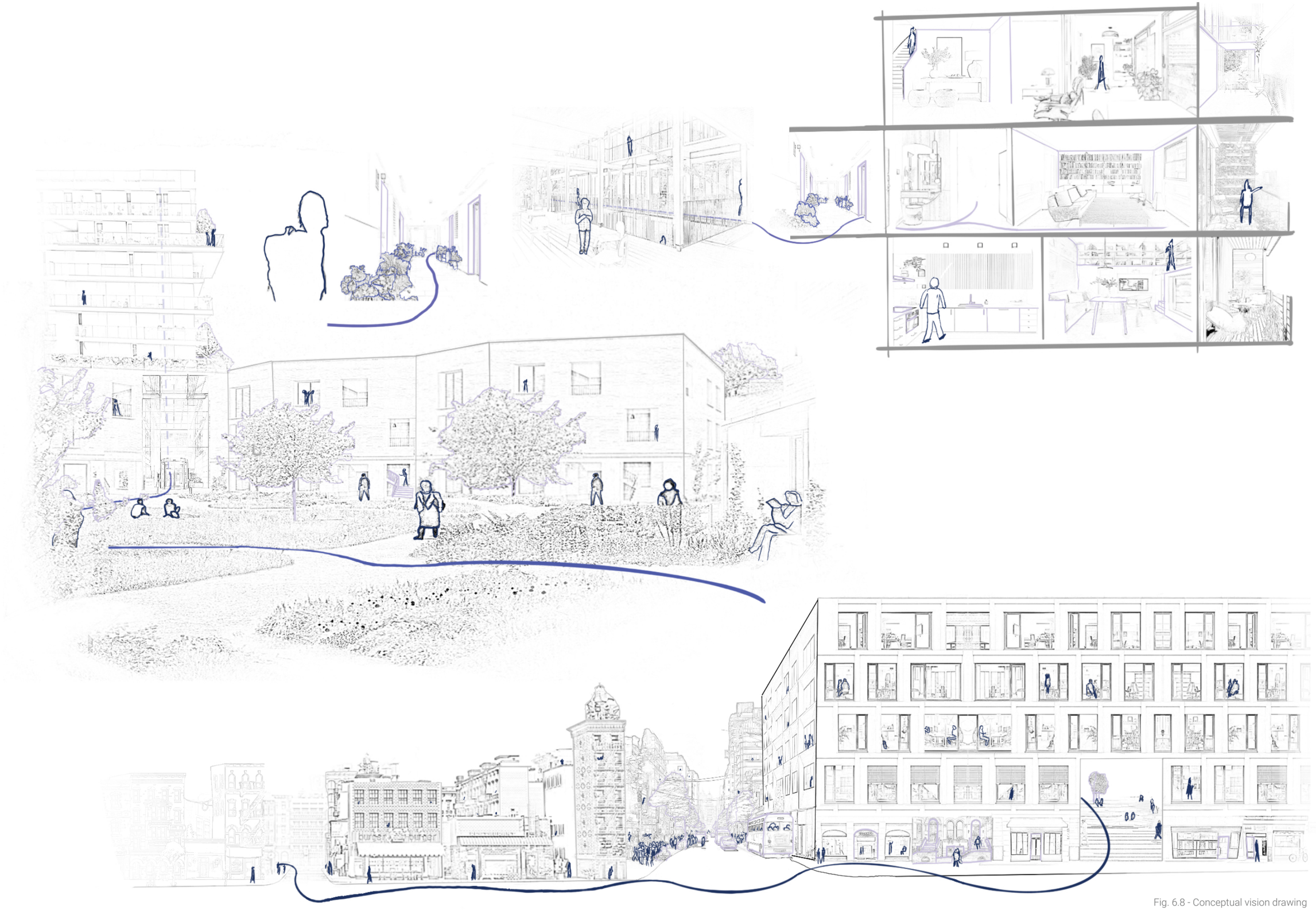
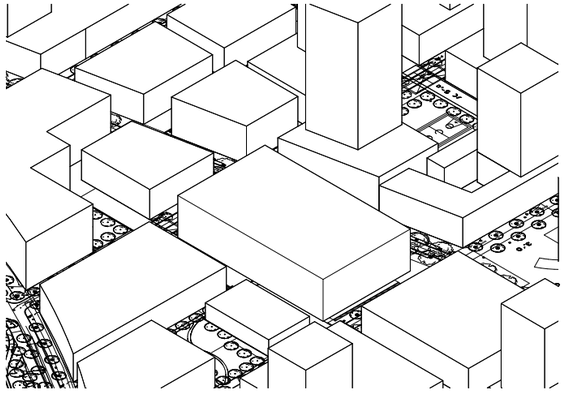
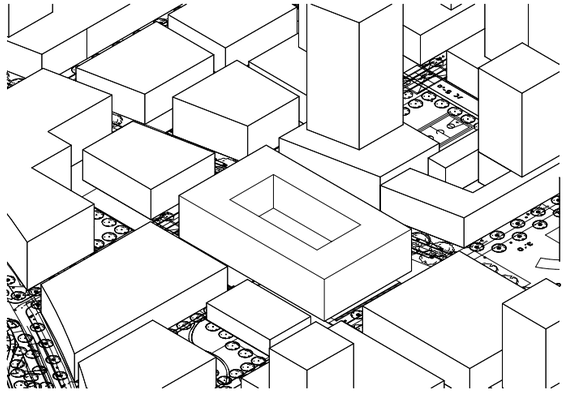


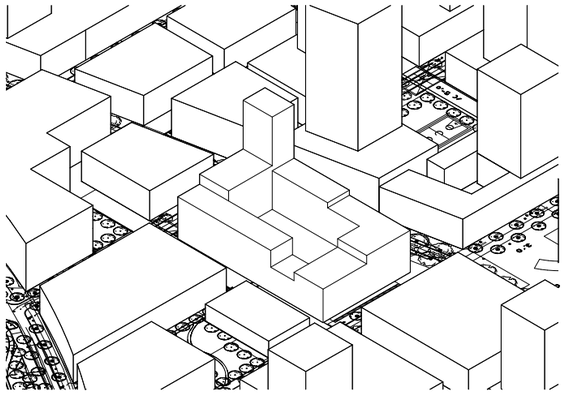
Fig. 6.8 - Conceptual vision drawing



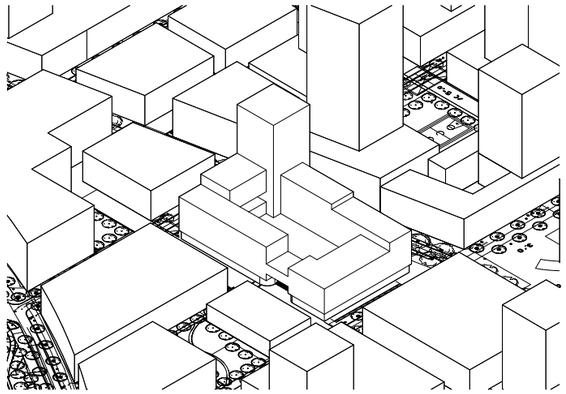
Step 1: Volume studies



Step 2. Adding a courtyard



Step 3. Creating further lines of sight due to extruding and subtracting to the volume



Step 4. Defining social spaces and creating a route through the building

Fig. 6.9 - Design steps

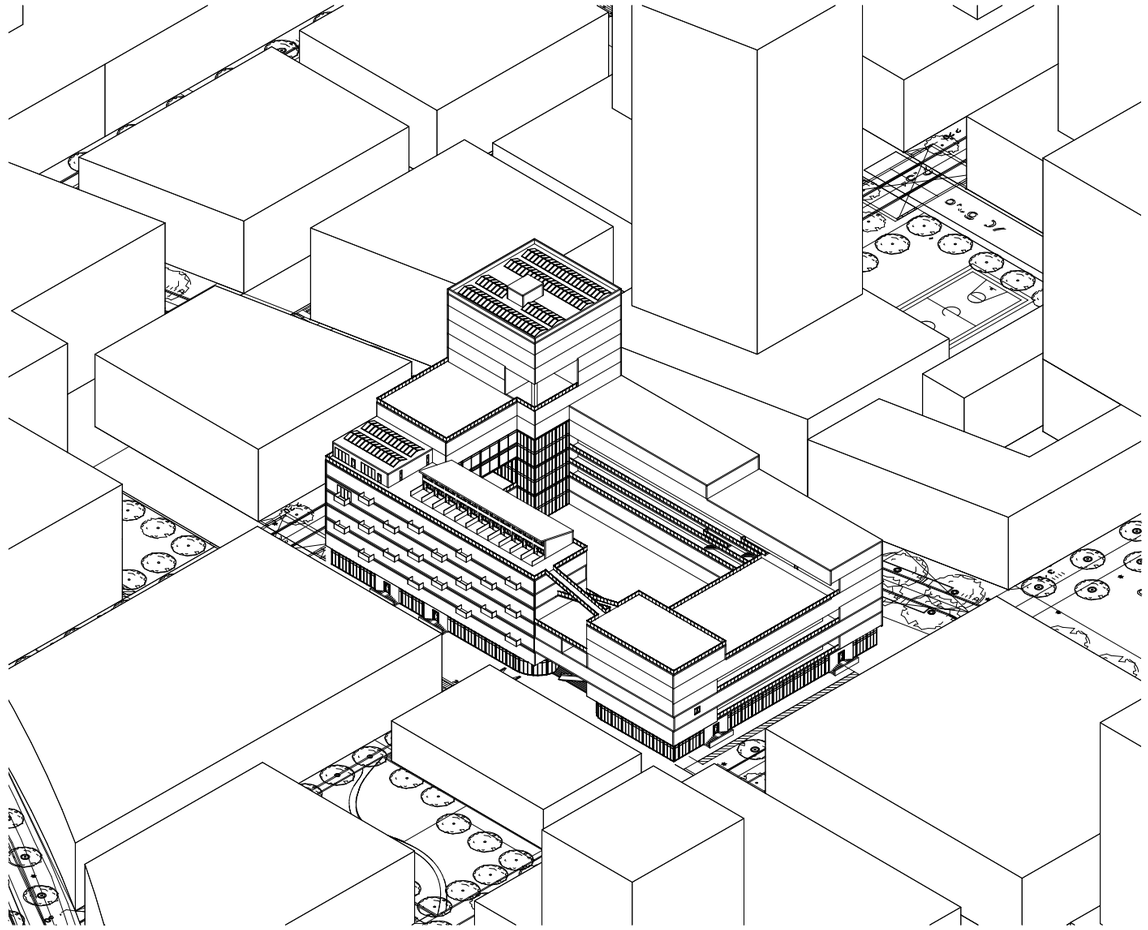


Fig. 6.10 - Conceptual design

In the image above, additional transitional spaces have been incorporated. Although their quality still needs further exploration, they represent a somewhat exaggerated version of the concept.

The image showcases the collective spaces and various housing and routing typologies. The interior of the building and the interaction of these elements still needs further exploration. Additionally, the public ground floor's connection to the semi-public interior courtyard is highlighted. Height differences and lines of sight are designed to enhance the sense of ownership. Together with other design elements for the dwellings and transitional spaces, this aims to foster 'Social' Quality of Life.

Concept & vision

While the conceptual model of the building outlines the characteristics of the spaces, the design principles, mood board, and conceptual drawing work together to capture their quality, therefore, these elements form the first complete concept, marking an important step in the design process. They illustrate how these individual components interact to achieve the intended goals.

The design principles have been further refined but still align closely with the original ideas developed during the workshops. Insights from literature and case study research have further defined these principles, particularly emphasising the importance of the building's internal routes and their connection to both private and public realms.

The mood board interprets these spaces within the building and complements the conceptual drawing. As in the drawing, the colour blue is used to visualise the transition from public to private spaces.

Starting on the ground floor, the public realm is situated within the building's perimeter, with the construction prominently on display. The facade remains open but gains depth by modular elements. Communal spaces are designed for the residents, featuring greenery, ample daylight, and a strong sense of ownership. Co-housing and communal living concepts further support this approach.

In the drawing, elements from the mood board are reflected as you trace the blue lines throughout the illustration. The aim of this diversity in dwelling and routing typologies is to enhance the quality of transitional spaces, thereby improving the 'Social' Quality of Life for residents.

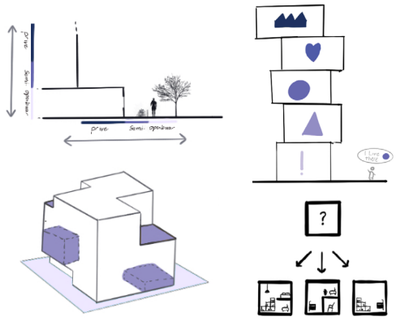


Fig. 6.11 - Design principles

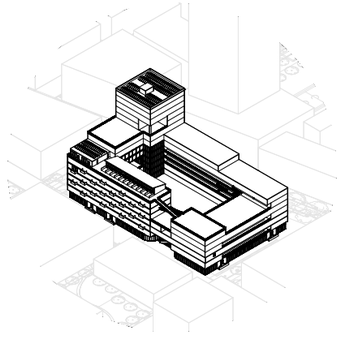
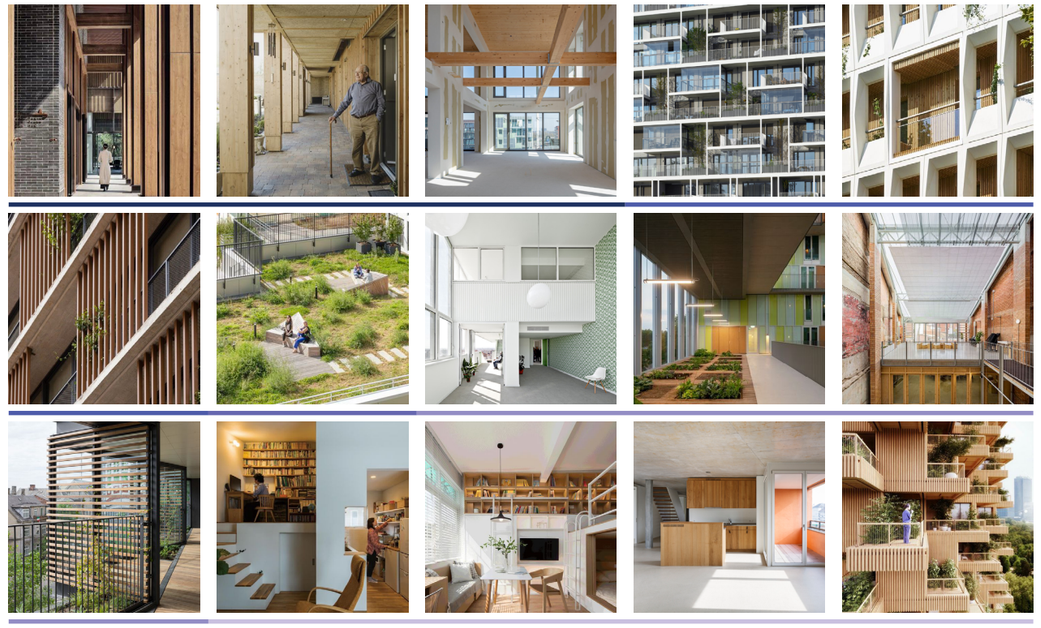


Fig. 6.12 - Conceptual design



6.3 - Images - Pinterest - (Advanced Housing Layers, n.d.)

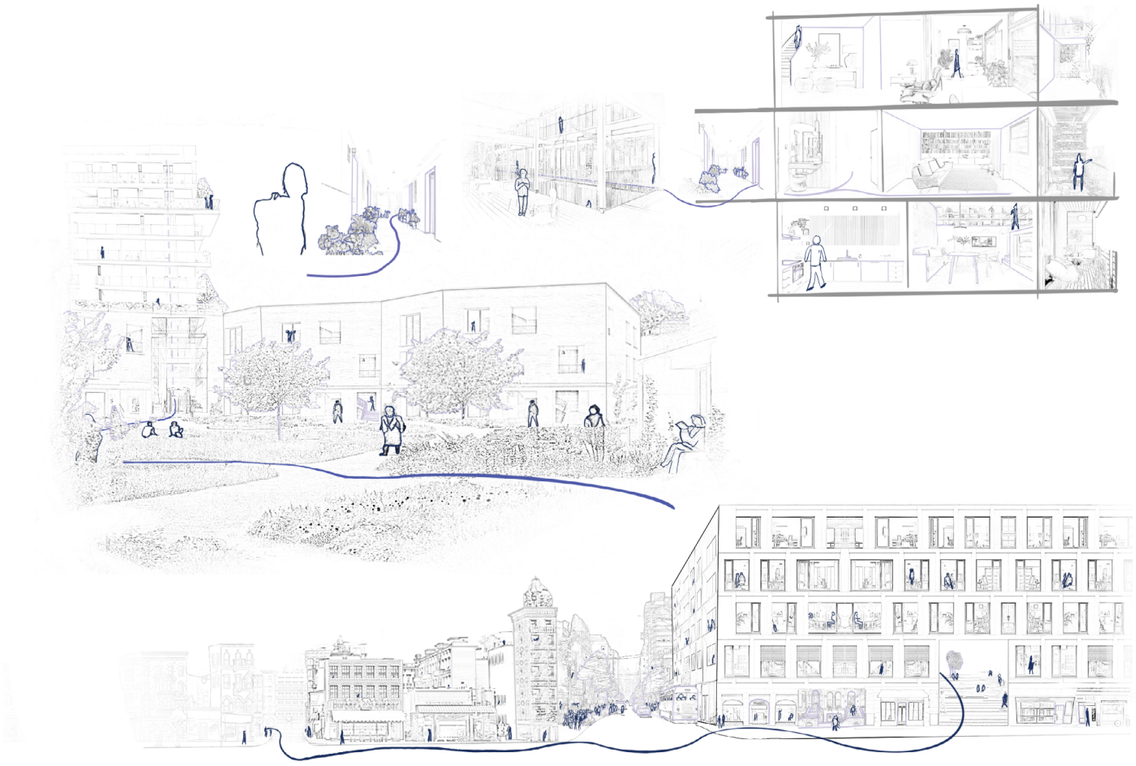
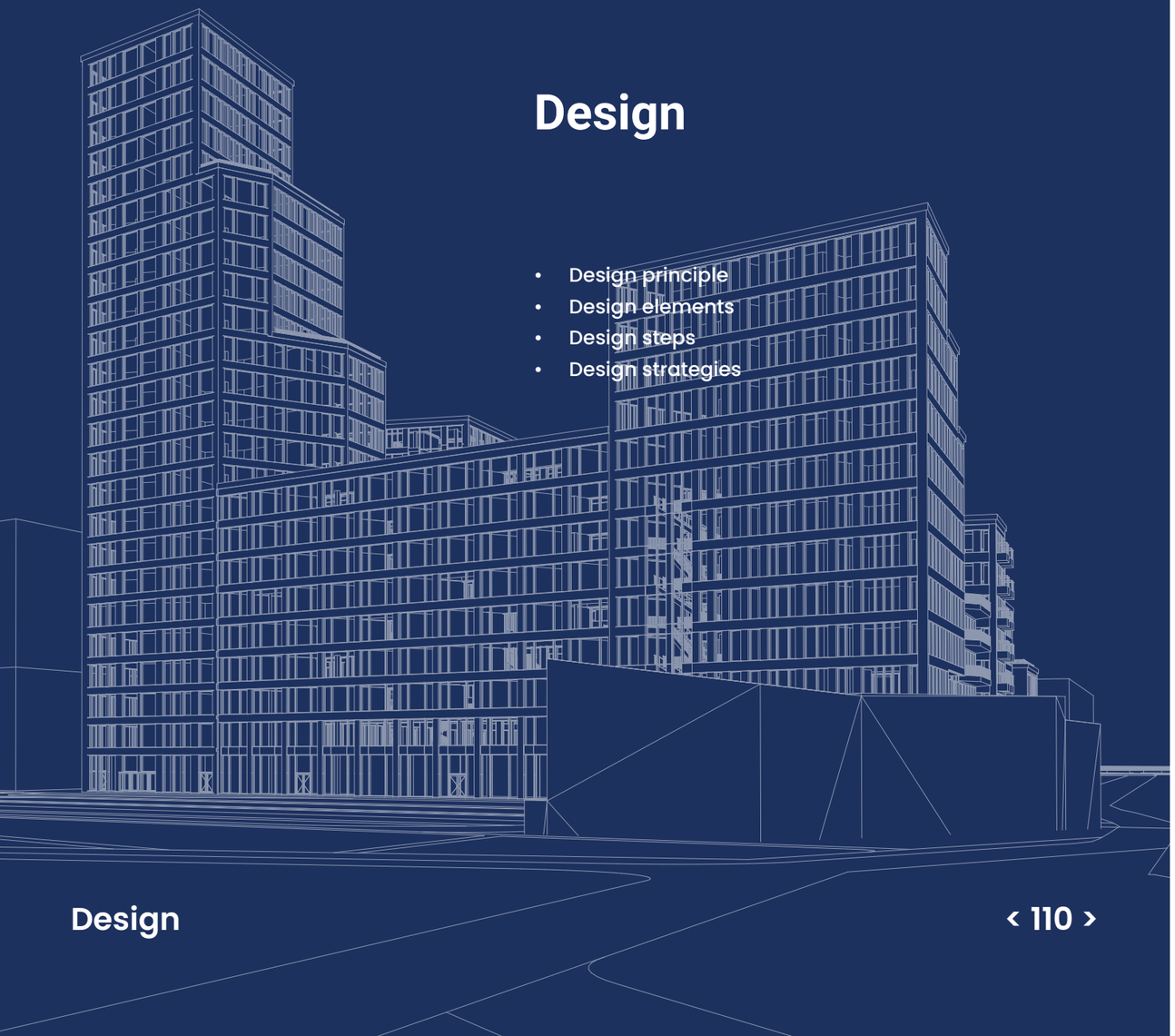


Fig. 6.13 - Conceptual vision drawing

07

Design



- Design principle
- Design elements
- Design steps
- Design strategies

After the initial research-by-design phase is concluded, the design begins to take shape based on the findings from earlier research. While research by design remains a part of the process, it no longer leads the way as it did in the conceptual phase; instead, the conclusions drawn from the research take precedence.

In this chapter, the key insights from the research are translated into design elements, ultimately leading to the formulation of design strategies that reflect and respond to the main research question.

Design Principles

In addition to the initial design principles derived from the research-by-design phase and the workshops conducted, the following principles represent an elaboration and refinement based on the research and insights gathered from the analysed case studies.

To highlight the various elements of privacy throughout the building and to create comfortable, socially sustainable spaces, the design principles are divided into different scales.

This begins at the city scale, focusing on the overall composition and placement of the building within its context. The neighbourhood scale, on the other hand, refers to the individual volumes within the building, applying overarching principles to the larger scale of the entire structure.

The collective scale shifts focus to the individual experience of residents, particularly concerning the routing and communal spaces that surround it. Finally, the particular scale delves into elements that directly relate to the dwellings themselves, addressing more intimate design details.

Across all these scales, the design principles aim to foster interactions while maintaining a focus on both individual comfort and social well-being.

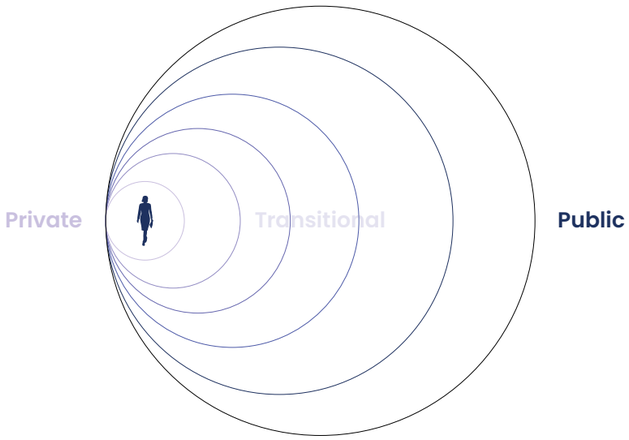


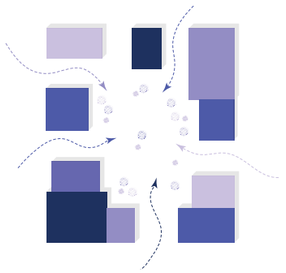
Fig. 7.1 - Public & Private domain



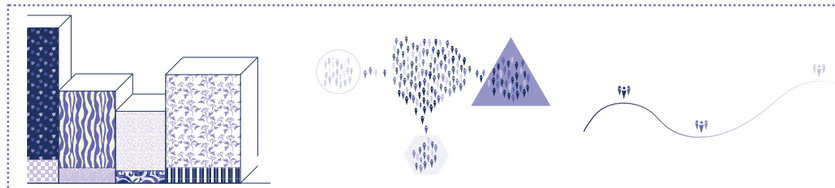
Dual Access



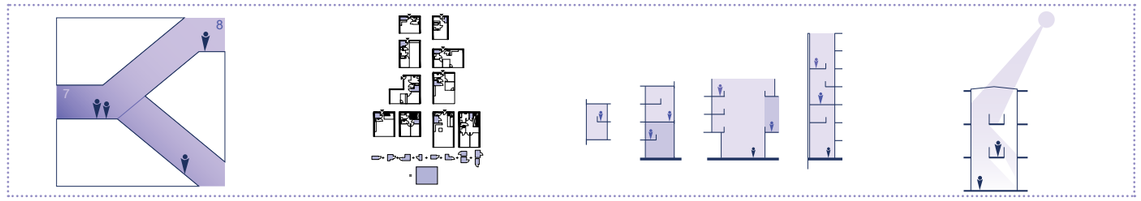
Keystone



Porous Boundaries



Expressive Volumes | Nested Communities | Communal Spine



Expressive Routes | Integrated Clusters | Layered Interaction | Daylit Spaces

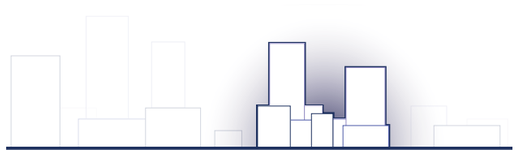


Engaged Routes | Cozy Living | Private Identity

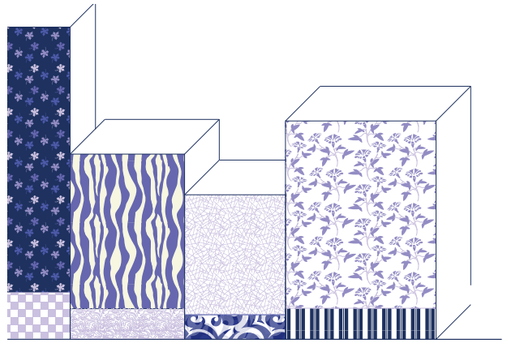
Fig. 7.2 - Design principles



Dual Access



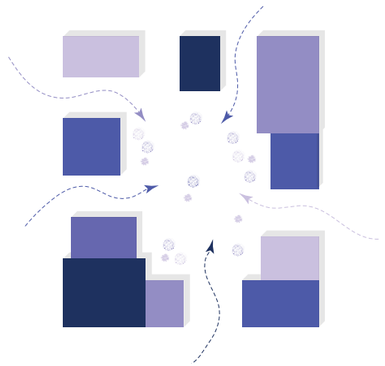
Keystone



Expressive Volumes



Nested Communities



Porous Boundaries



Communal Spine

City scale

Dual Access
Focusing on connecting the dwellings with the functions within the building while also providing access to public functions, integrating them with the surrounding context and creating a functional mix.

Keystone
Emphasizing designing a building that addresses the current housing crisis, balancing density and social aspects at both the programmatic and aesthetic levels.

Porous Boundaries
Maintaining access to the public realm while offering an interior courtyard not only for residents but also with functions connected to it, promotes a more open and shared space.

Fig. 7.2 - Design principles

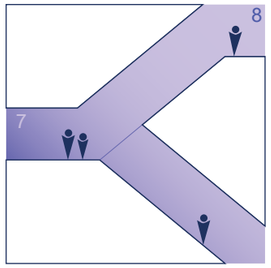
Neighbourhood scale

Expressive Volumes
Utilizing varying sizes, shapes, and materials for the building's volumes to emphasize the recognition of each dwelling's location, fostering a clear connection to the surrounding space.

Nested Communities
Creating smaller communities within the high-density building environment to enable these smaller groups to thrive, with a range of activities catering to the diverse needs and desires of the residents.

Communal Spine
Establishing a coherent routing system that connects the individual buildings, allowing the communities to exist within the larger collective while promoting social interaction through shared pathways.

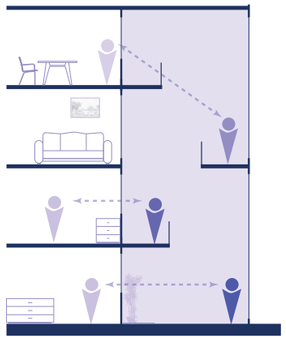
Fig. 7.2 - Design principles



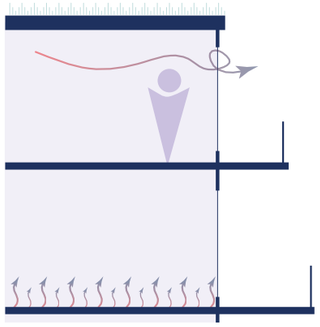
Expressive Routes



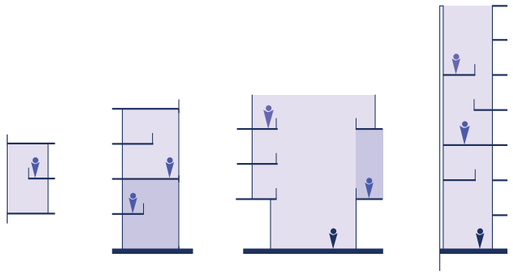
Integrated Clusters



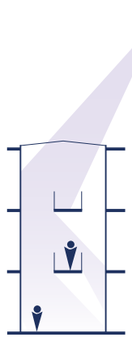
Engaged Routes



Cozy Living



Layered Interaction



Daylit Spaces



Private Identity

Collective scale

Expressive Routes & Daylit Spaces
Utilizing colour and materials along the routing to emphasize the path while creating a cohesive system, incorporating individual highlights for easier recognition.

Integrated Clusters
Clustering functions within the smaller dwellings to the exterior, providing more quality spaces, and grouping dwelling types with communal functions within the buildings for greater integration and usage of these spaces.

Layered Interaction
Combining different types of routing with dwellings and communal spaces to foster a sense of involvement and responsibility among residents.

Fig. 7.2 - Design principles

Individual scale

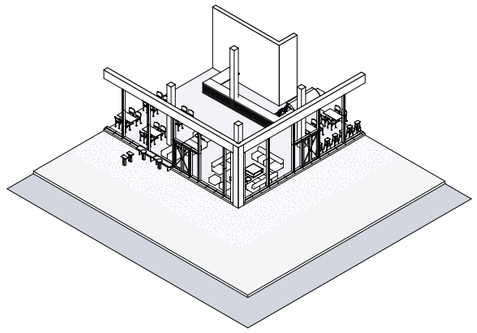
Engaged Routes
Establishing a direct connection between the dwelling and the routing, emphasizing involvement within these spaces, and allowing residents to manage their own social hierarchy.

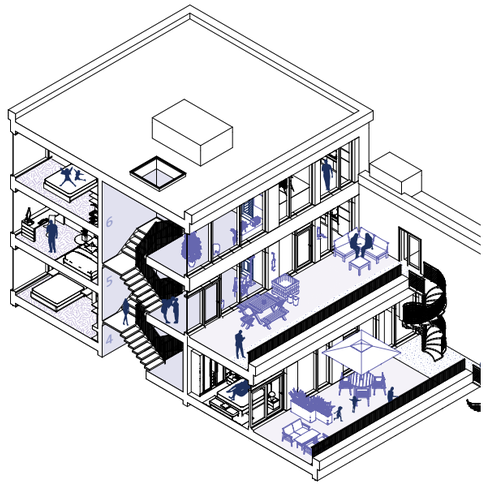
Cozy Living
Allowing residents to control their personal preferences, such as temperature, ventilation, and sustainability, to ensure a comfortable and tailored living environment.

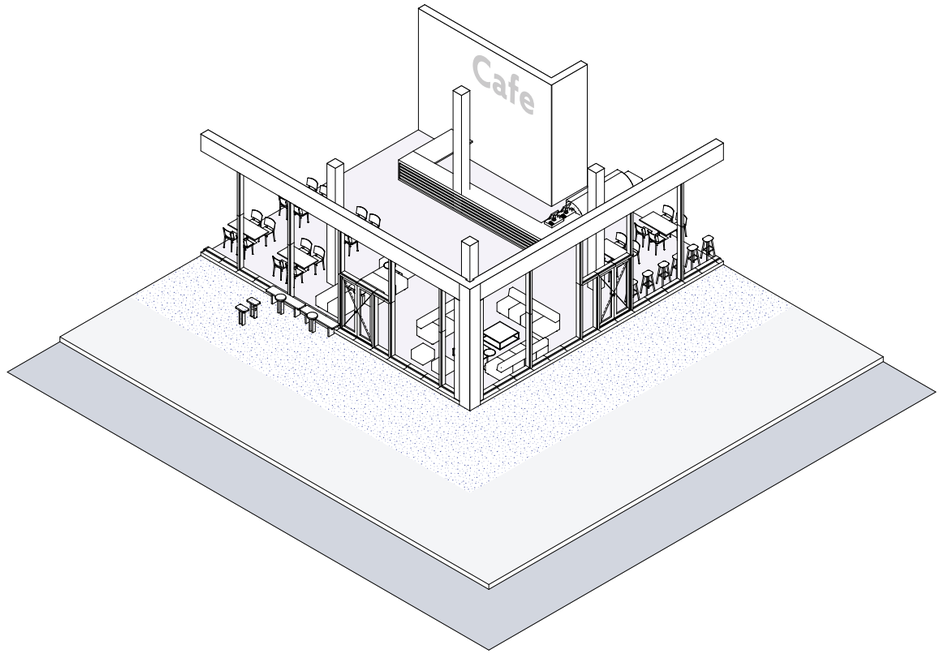
Private Identity
Offering residents the opportunity to personalize a space in front of their dwelling for personal items. This fosters a sense of ownership and participation in the collective spaces, strengthening their involvement and responsibility.

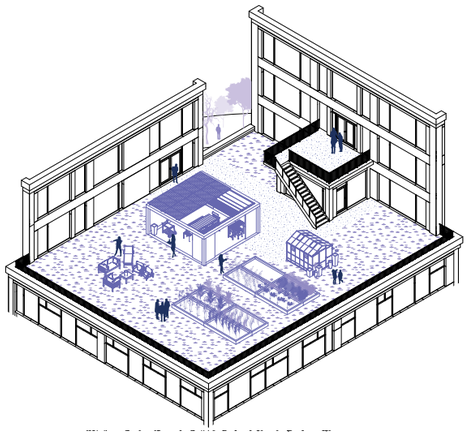
Fig. 7.2 - Design principles

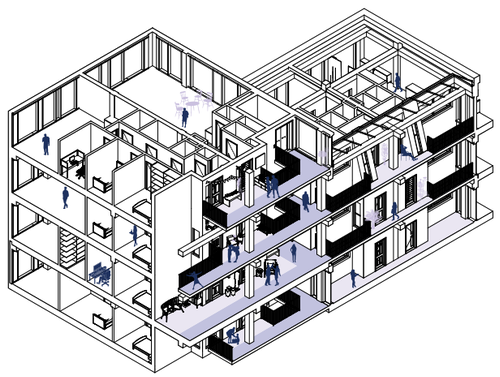
Design elements











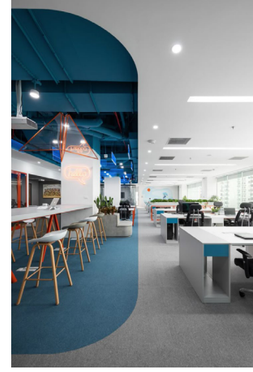
From the public to the private realm, the materials and functions of these spaces evolve. The drawings above represent various elements within the building, ranging from public functions to routing, communal spaces, and dwellings. Within these spaces, material choices and the activities they support are influenced by the level of privacy they provide.

Fig. 7.3 - Design elements

Public

The public functions within the building are designed to serve a diverse range of users, from the public and the surrounding context to the residents. Shared spaces such as the office and gym integrate both public and residential use, making them accessible from the public domain at street level as well as the semi-public courtyard.

Other functions, such as the day-care and repair café, are primarily aimed at residents' needs while still maintaining a public aspect. The materials used vary between functions, with colour playing a key role in highlighting their purpose and character.









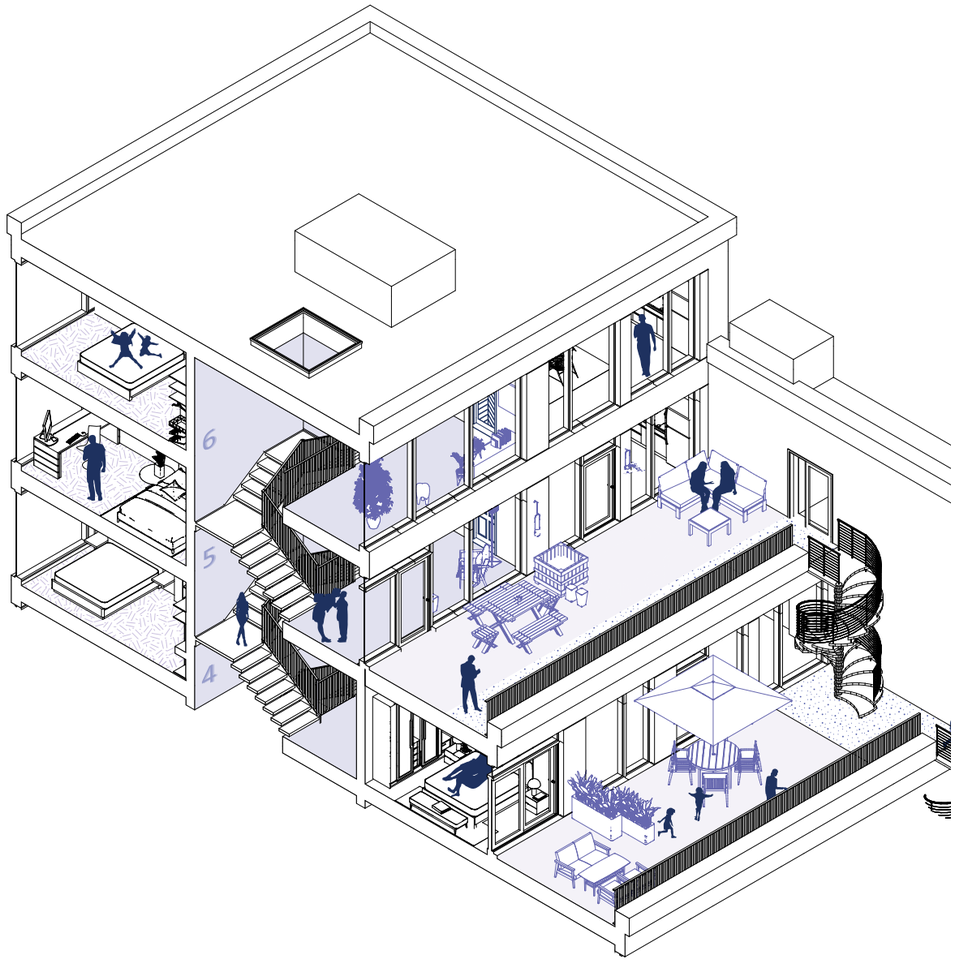
7.1 - Images - Pinterest - (Advanced Housing Layers, n.d.)

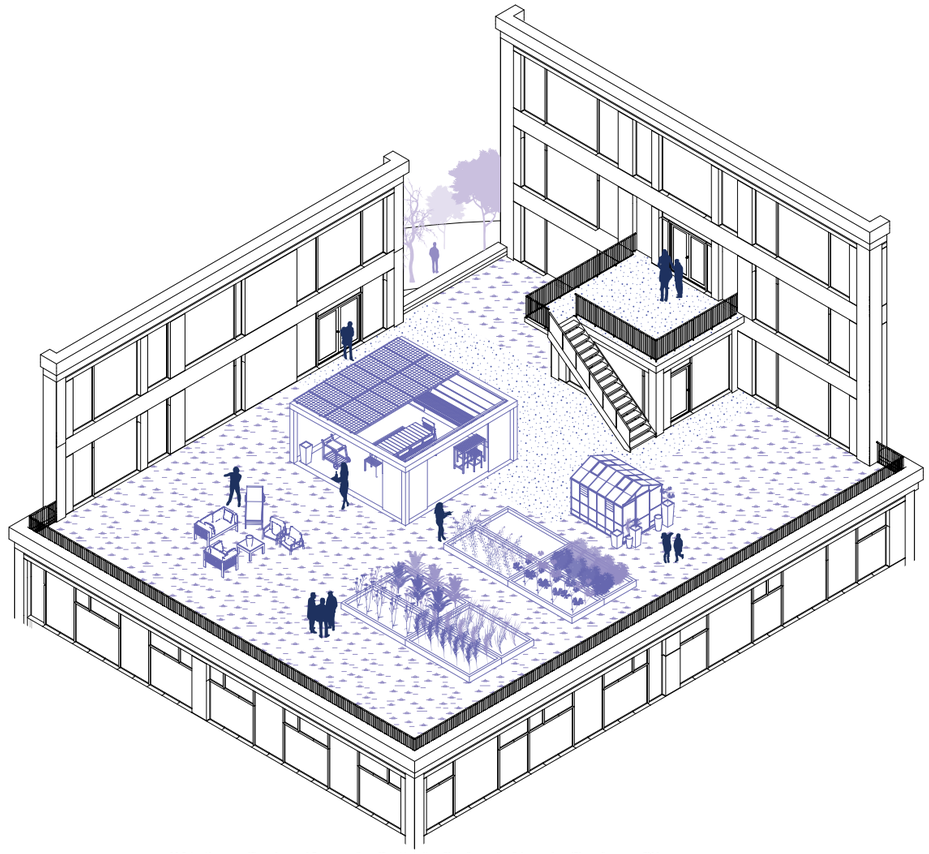


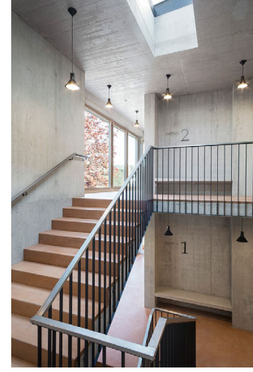




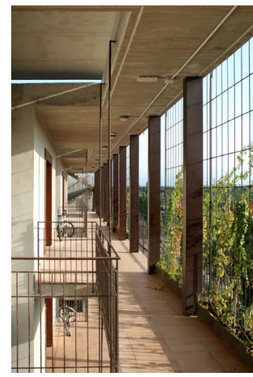














Transitional

The transitional spaces within this project are designed to facilitate and enhance social interaction. This begins at the interior courtyard and extends to the front doors of the residences. These spaces use colour and distinct materials to emphasize their location within the building, aiding in recognition. Additionally, daylight and semi-private areas foster a sense of ownership, encouraging residents to take responsibility for these shared spaces. Through these design elements, residents naturally develop a social management structure that they control.

Collective

The collective spaces are strategically placed along the routing and transitional areas, emphasizing participation and ownership.

Through community-driven experiences within these flexible spaces, residents can meet their neighbours throughout the building and engage in their hobbies, fostering and strengthening smaller communities.

The clustering of these spaces in relation to the number of dwellings is crucial to ensure optimal use while allowing residents to adapt them to their needs.

7.1 - Images - Pinterest - (Advanced Housing Layers, n.d.)

7.1 - Images - Pinterest - (Advanced Housing Layers, n.d.)











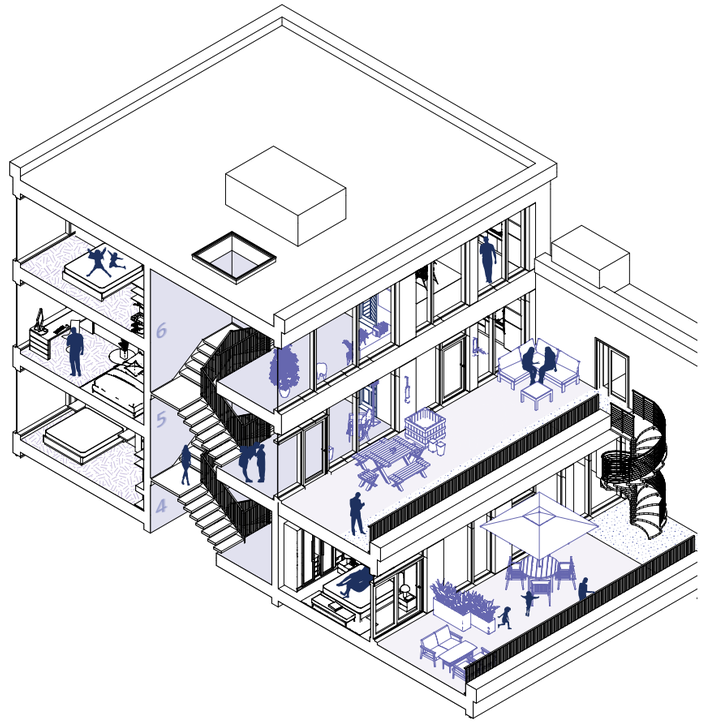
Private

The private realm extends beyond the dwellings through setbacks that provide residents with a personal space in front of their homes. These areas serve as private outdoor spaces where residents can place personal items or sit and relax. Additional windows further emphasize the connection between the dwelling and the transitional space, reinforcing a sense of ownership and responsibility for the social management of these areas. Such as the routing elements, these private spaces are highlighted through the material orientation of the flooring.

7.1 - Images - Pinterest - (Advanced Housing Layers, n.d.)

Ownership

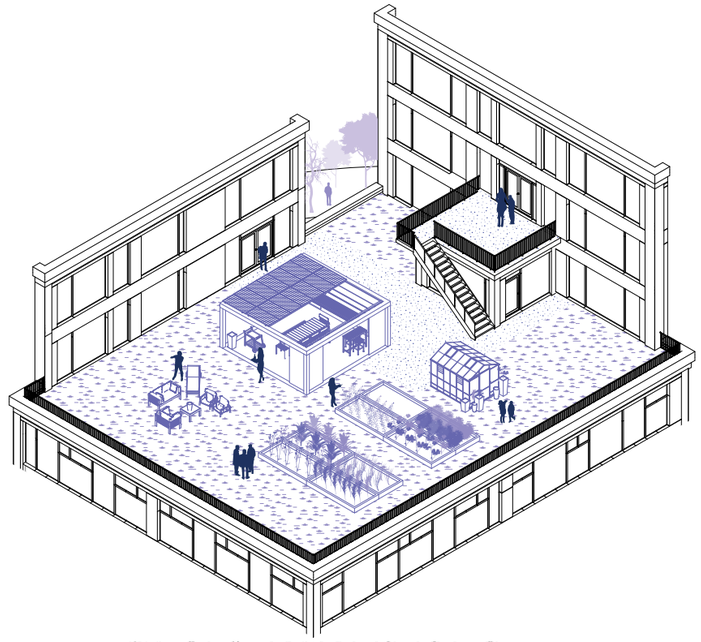
Private spaces outside the dwellings, combined with collective spaces along the transitional areas, allow residents to place personal items, fostering a sense of responsibility and ownership over these spaces. This integration of semi-private residential areas with transitional spaces also enhances social interaction, making these areas more dynamic and community-driven.



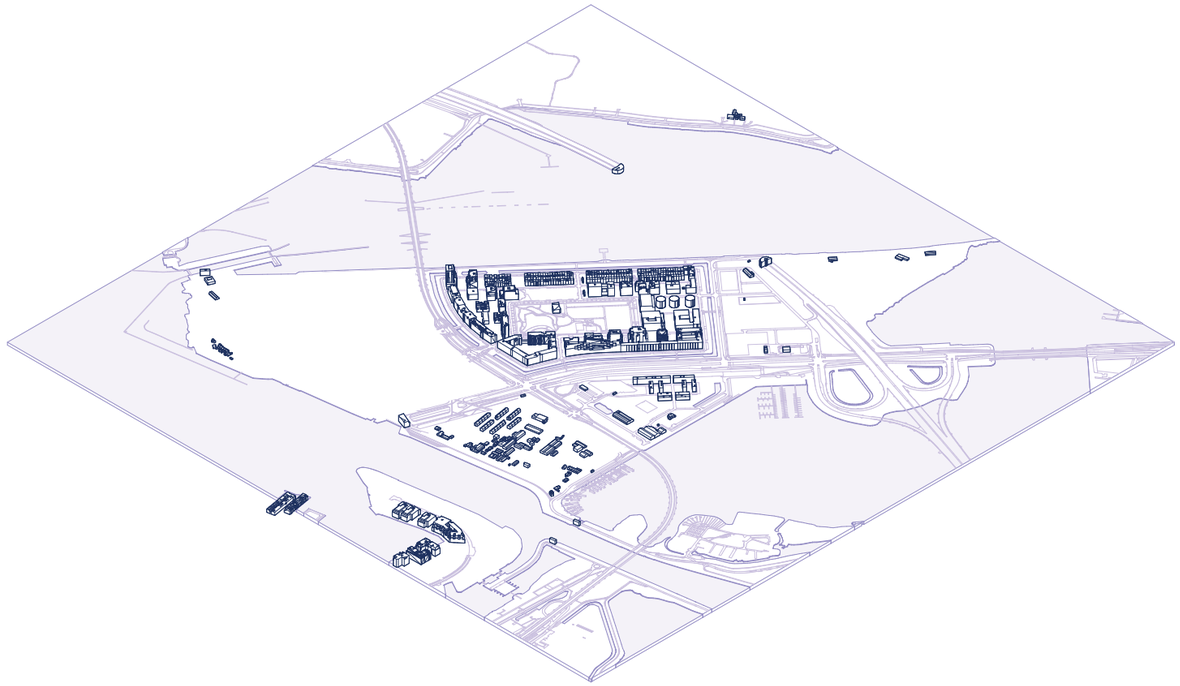
Participation

The collective spaces are designed to be flexible, accommodating various uses and events for communities and individuals. Participation plays a key role in strengthening connections both within and between communities.

For example, a collective space on the first floor overlooking the courtyard could serve as a relaxing area for studying, playing board games, or socializing. Meanwhile, a rooftop collective space would be better suited for different activities, such as gardening or hosting communal barbecues and dinners, encouraging active engagement among residents.



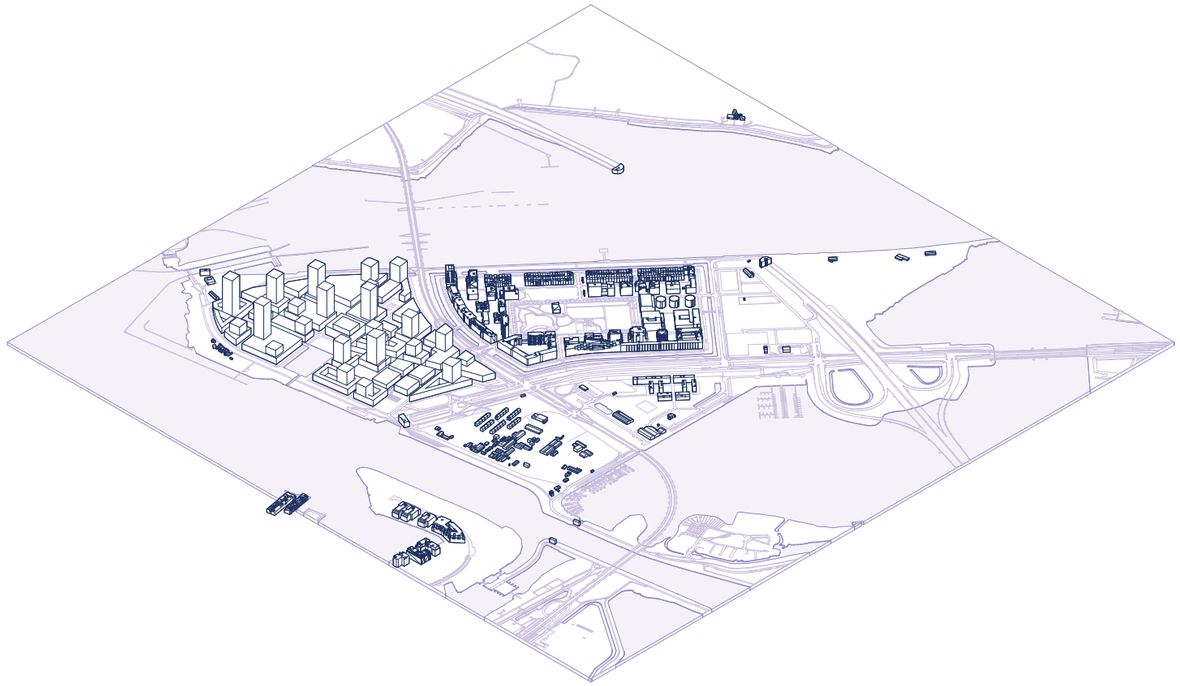
Design Steps



Zeeburgereiland

The current context of the Sluisbuurt development shows that Baaibuurt Oost and West are primarily hosting temporary functions, while Sportheldenbuurt is the only completed development. This area differs significantly both visually and functionally from the other proposed neighbourhoods.

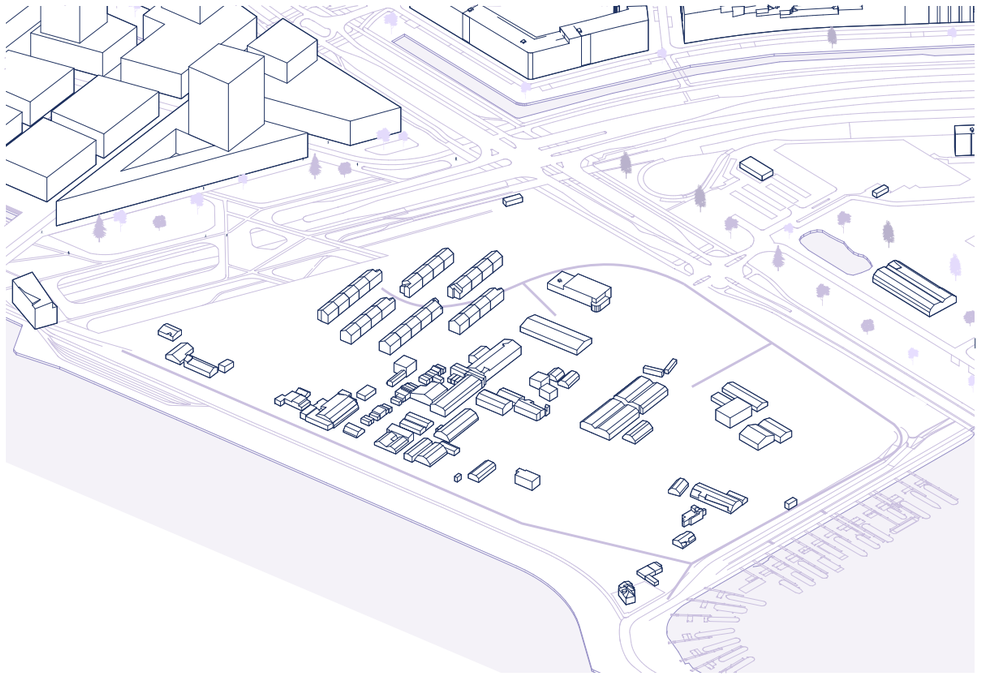
Fig. 7.4 - Design steps



Sluisbuurt

With the addition of Sluisbuurt, the island's density will increase significantly, becoming a representation of the municipality's future vision. Along with this increase in density, many new functions will be introduced to the island, thereby enhancing the quality of its surroundings.

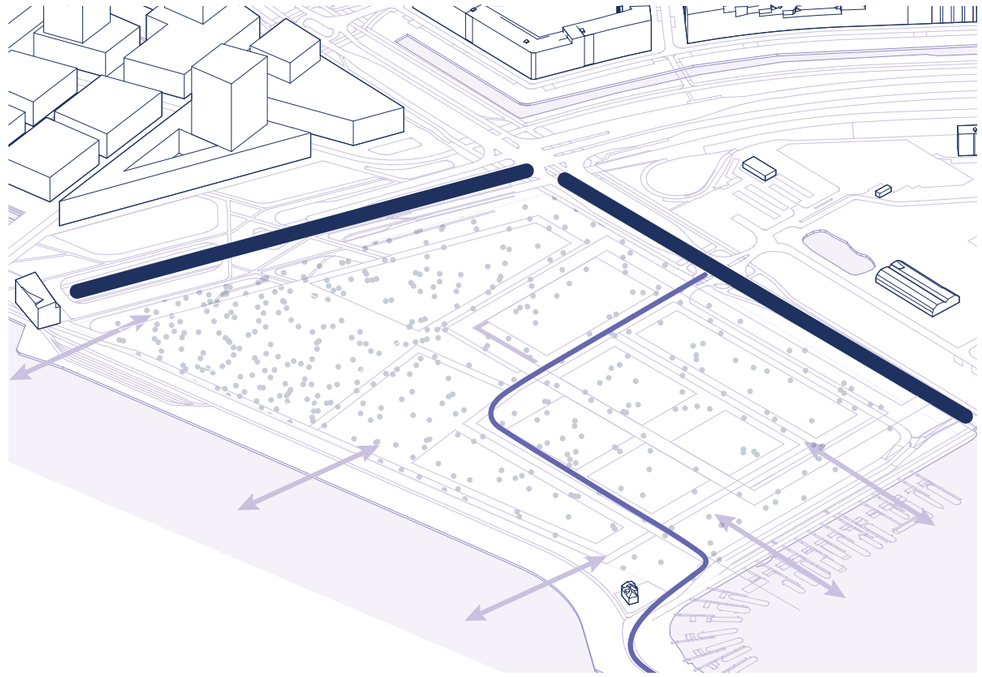
Fig. 7.4 - Design steps



Baaibuurt

Currently, Baaibuurt consists of a diverse range of programs and functions, with little overall composition. This area will eventually make way for a new proposal by the municipality, reflecting the evolving context of the island, Sluisbuurt, and Sporthelden-buurt.

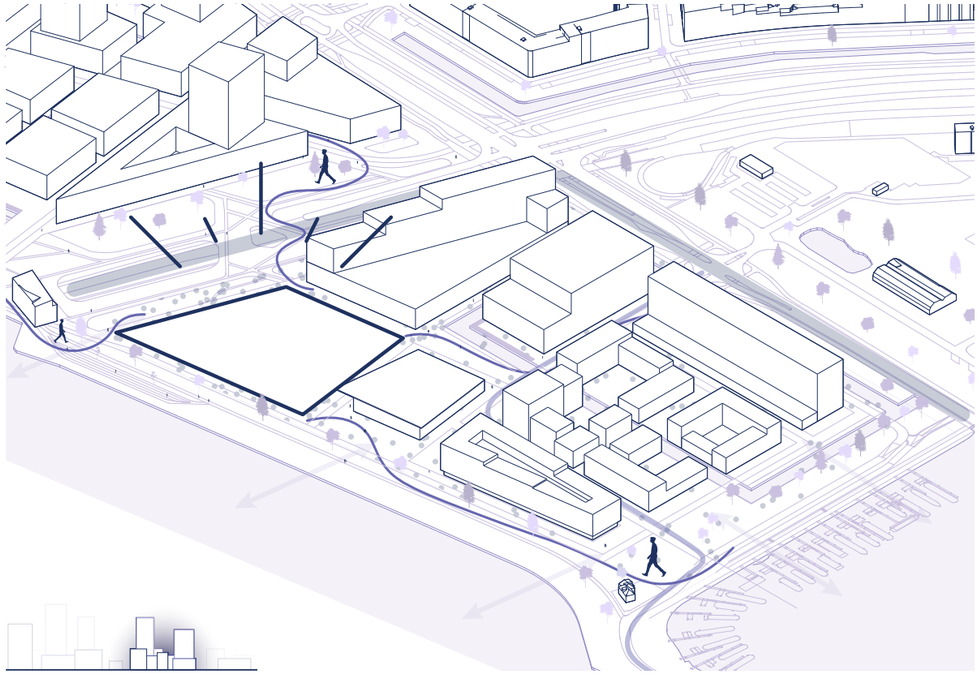
Fig. 7.4 - Design steps



Masterplan

My proposal utilizes the municipal guidelines and a similar grid to Sluisbuurt, while maintaining a connection to the southern part of the area. The key aspect of this design is to shield the area from the busy road to the north and east, reducing noise pollution and strengthening the connection with the water and surrounding greenery.

Fig. 7.4 - Design steps



Keystone

Located in a prominent position within the context of Baaibuurt, the building will serve as a keystone in terms of both its approach and the design strategies applied. This includes the social aspects and routing elements, aiming to set a representative standard for the area and the municipality's future vision.

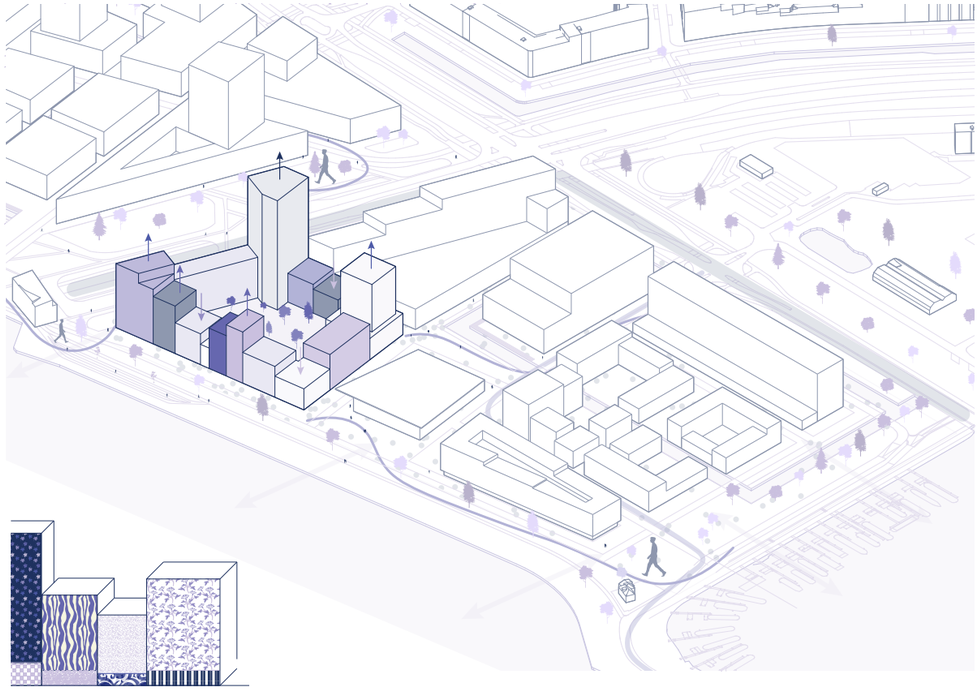
Fig. 7.4 - Design steps



Courtyard

Due to the size of the plot, a raised courtyard serves as a space for residents to relax, offering a more tranquil and shared interior atmosphere compared to the surrounding context. Additionally, this design allows for a parking structure to be placed beneath the courtyard.

Fig. 7.4 - Design steps



Expressive Volumes

Using the initial shape of the plot, the large volume is divided into smaller volumes to enhance recognition and familiarity. On the south and west sides, this is achieved by creating smaller volumes, while on the north and east sides, larger volumes are used to reflect elements of Sluisbuurt and create a buffer for the busy road.

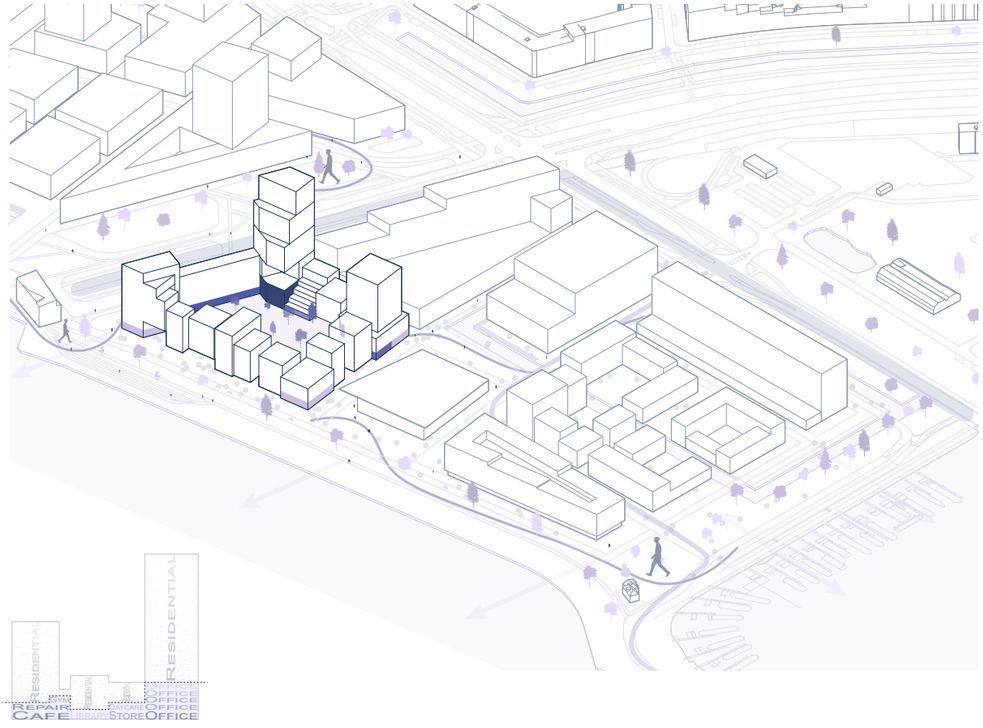
Fig. 7.4 - Design steps



Porous Boundaries

Finally, by splitting and staggering the volumes and providing entrances beneath them, access to the interior of the building is allowed for the public. This makes the interior a semi-public space, which is controlled by the residents.

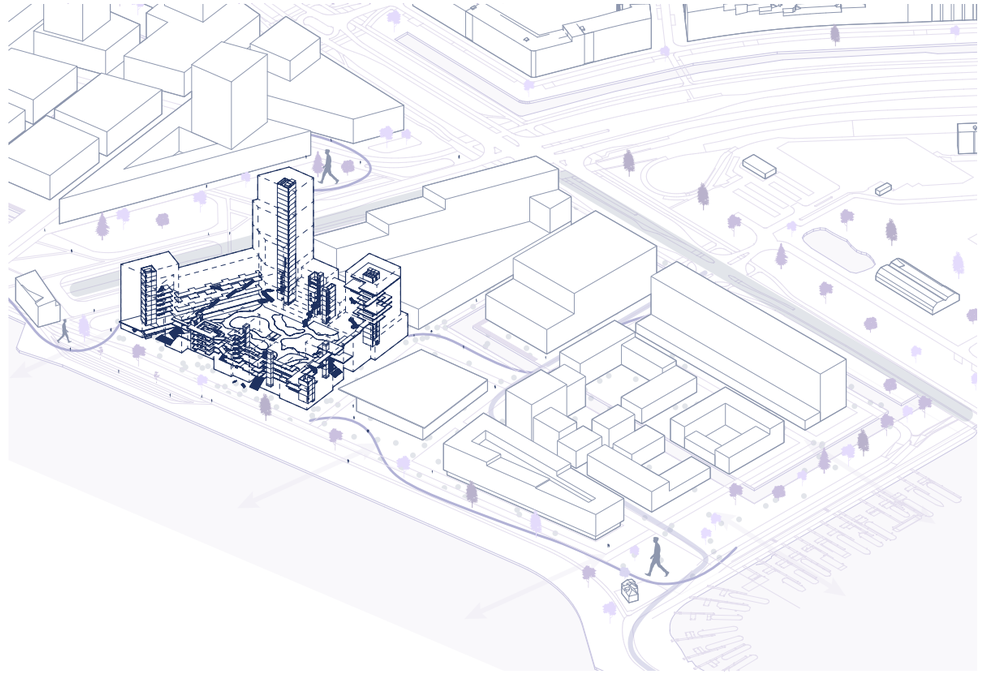
Fig. 7.4 - Design steps



Dual Access

In addition to the publicly accessible interior courtyard, the building's functions are placed at the corners, with some being accessible from the courtyard. Access to these functions depends on whether they are intended more for the residents or the public.

Fig. 7.4 - Design steps



Routing

The routing is primarily designed for the residents, with the public having access only for public functions. Overall, the routing connects all buildings through a cohesive system, with one main route that steps up or down depending on the functions. It branches off within the buildings to create varying levels of intimacy, while still ensuring access for everyone.

Fig. 7.4 - Design steps

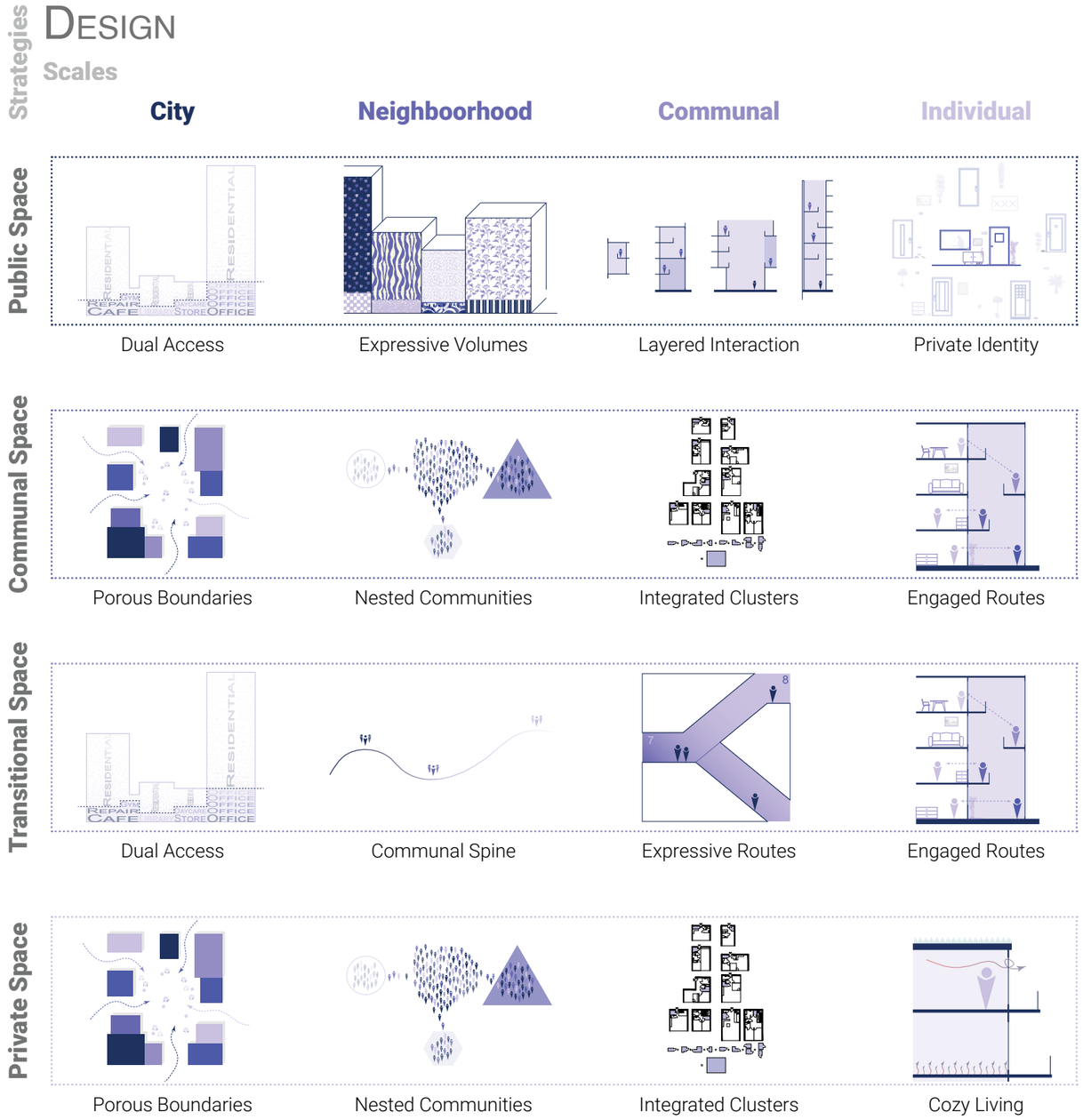
Design Strategies

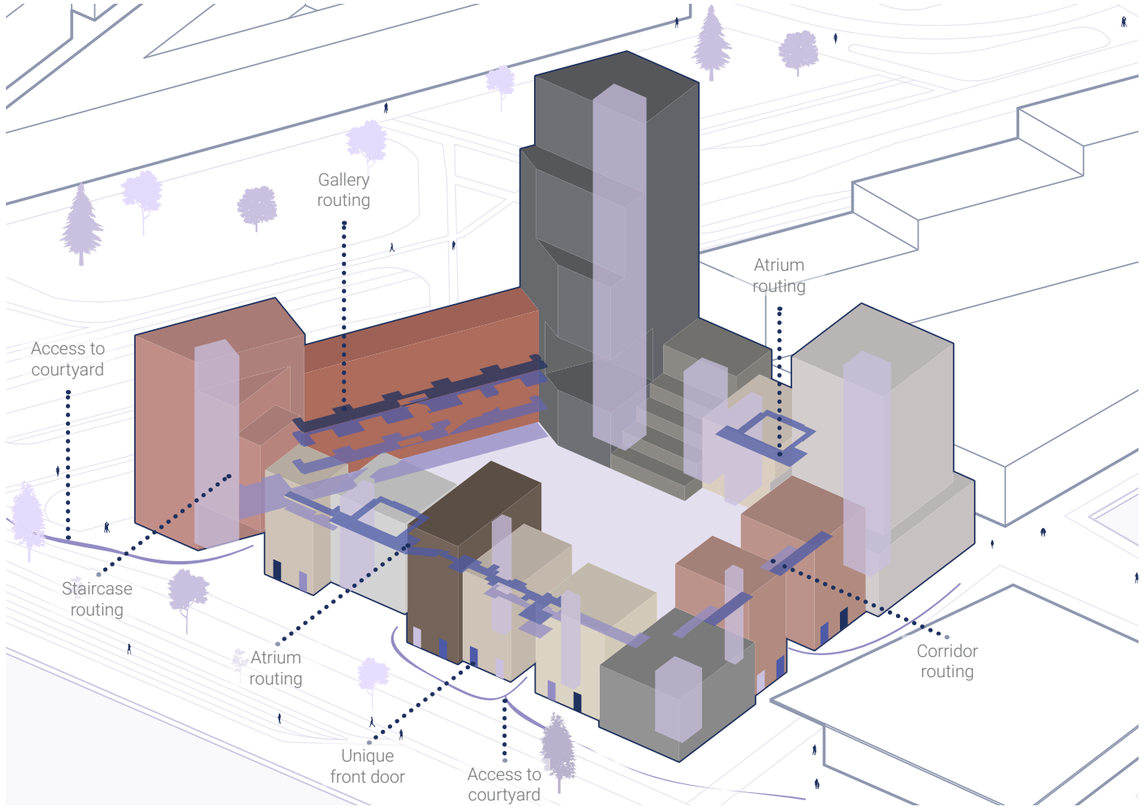
By applying the established design principles and reflecting on their spatial and social impact, specific design strategies can be developed to enhance how the building functions and how its users interact. These strategies highlight how spatial adjustments, such as shifts in routing, the clustering of dwellings, or the articulation of transitional zones, can influence behaviour and foster community engagement.

- **Ownership**: Encourage personalization and resident responsibility through semi-private spaces and adaptable layouts.
- **Participation**: Facilitate community-driven use of collective areas for events, hobbies, and daily activities.
- **Interaction**: Design for casual encounters through open sightlines, staying spaces, and clustered functions.
- **Recognition**: Use materials, colour, and detailing for wayfinding and identity within large-scale routing systems.
- **Access Diversity**: Provide multiple access points and routes to ensure inclusivity and different modes of use.
- **Clustering**: Group dwellings and shared functions to support the community while maintaining individual expression.
- **Privacy Management**: Allow users to control their boundaries between public and private through layout and façade articulation.
- **Staying Spaces**: Create small, functional in-between zones for informal use, social moments, and comfort.
- **Responsibility Through Design**: Shape spaces to encourage active use and care from residents, fostering a strong social structure.



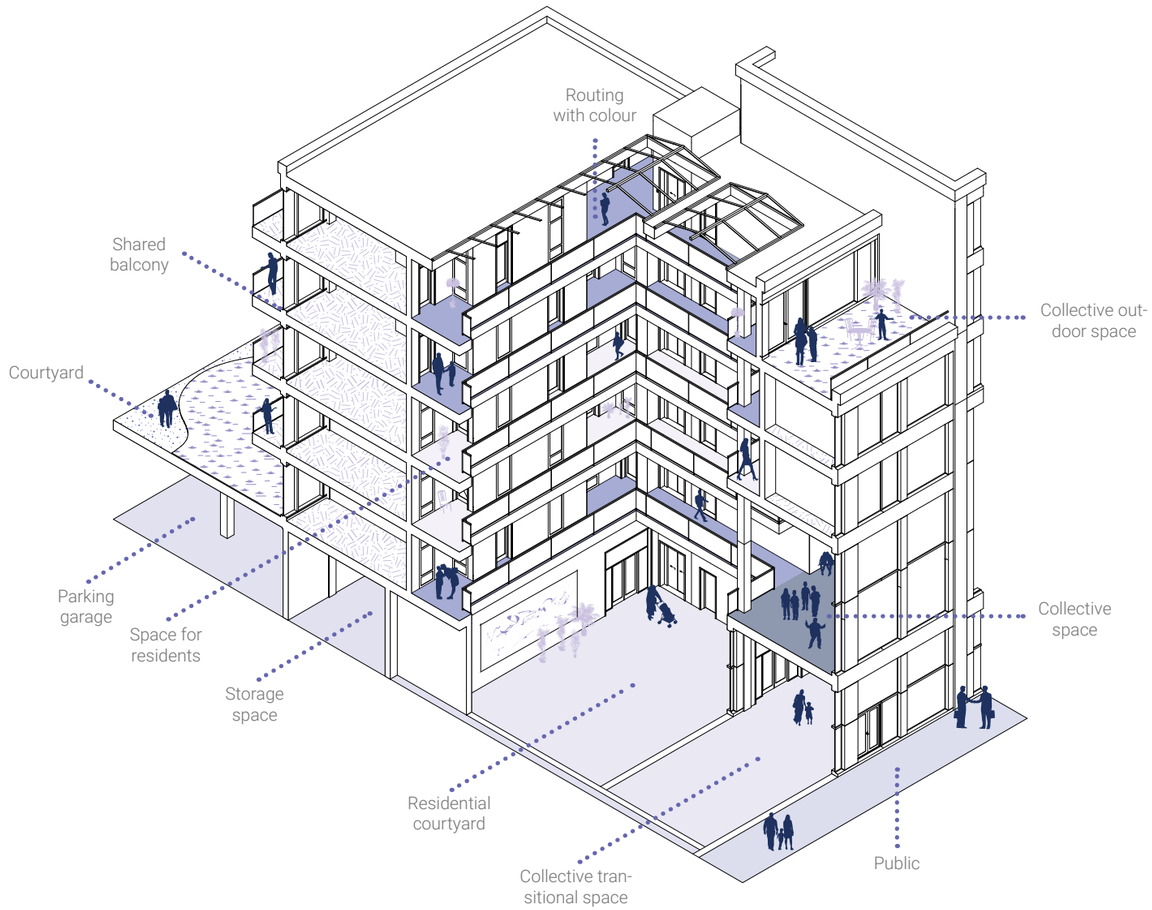
Fig. 7.5 - Design steps





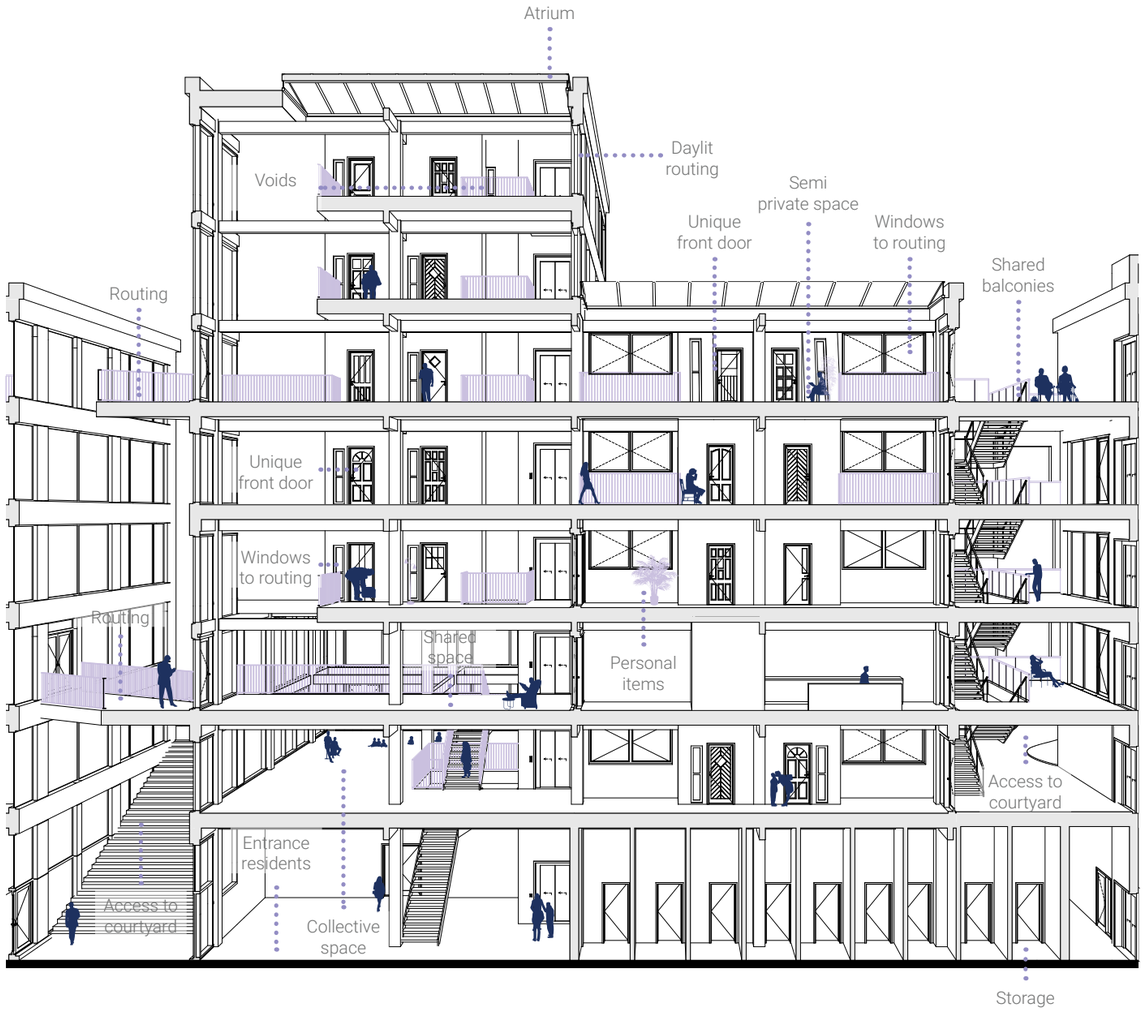
Public Space

Access to both public and residential functions strengthens the building's relationship with its context. Clear, defined entrances promote safety, inclusivity, and social management. **Movement** is supported by a mix of functions in the plinth, combining public programs and residential access to keep the building lively. Diverse routing and the placement of collective spaces foster interaction. **Recognition** enhances orientation and identity in the dense context, using expressive volumes, unique entrances, and interior details like colour and materials to support wayfinding and ownership.



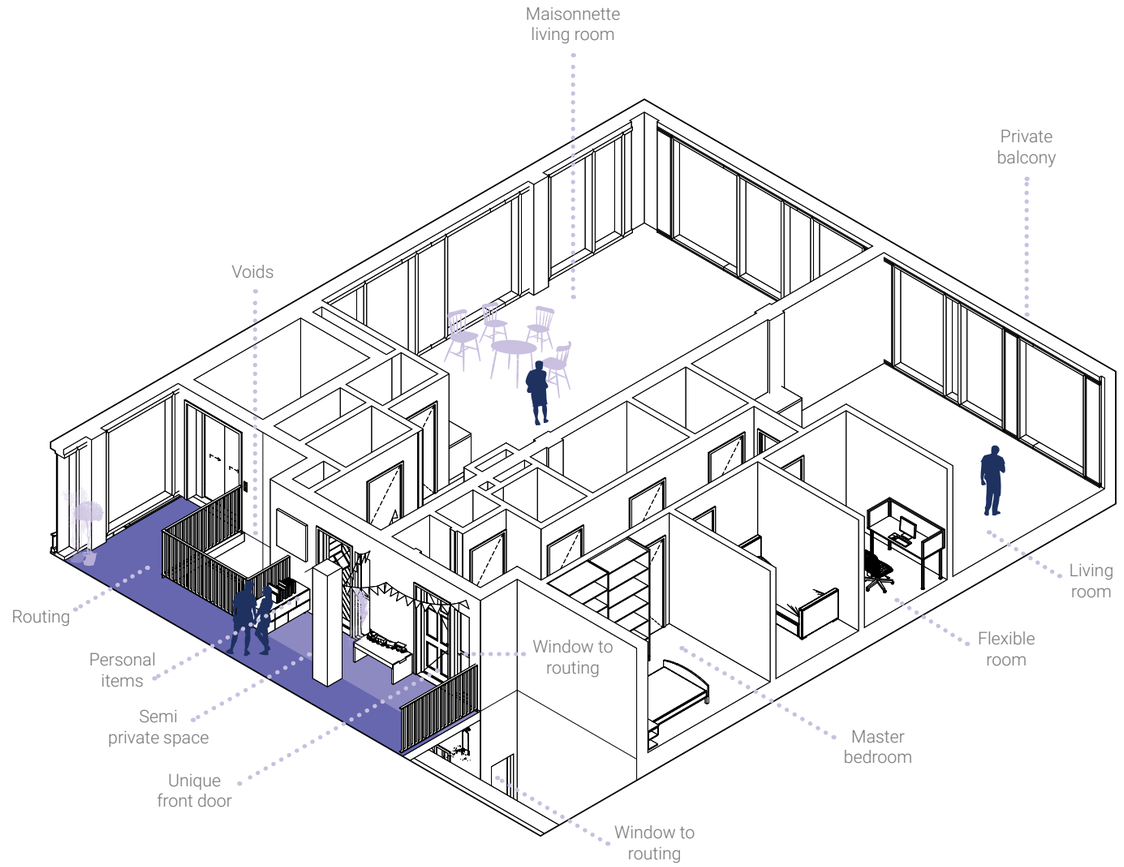
Communal Space

Access to communal spaces is shaped by diverse routing, offering multiple ways to reach and engage with shared areas. This variety supports spontaneous interaction. **Clustering** ensures communal spaces are appropriately scaled—small clusters of 4–8 dwellings foster intimacy, while larger spaces can serve 15–30 dwellings, depending on the activity and user group. **Interaction** is central, encouraged by proximity, flexible use, and visual connections. Together, these strategies promote a sense of ownership, strengthen social ties, and support a vibrant, community-driven environment.



Transitional Space

Colour and material identifiers aid way-finding and recognition within transitional spaces. Subtle shifts in texture and tone reinforce a sense of place. **Interaction** is fostered through a sense of ownership, encouraged by entrance setbacks that create semi-private zones. **Staying spaces**, like benches or decorated thresholds, support informal encounters and visual connections between dwellings and shared areas. These elements transform transitional zones into lively, social environments where spontaneous interaction and community bonds can naturally emerge and thrive.



Private Space

Privacy management is central to individual comfort, allowing residents to control their level of engagement. Studio apartments encourage openness through large windows facing the circulation space, while larger dwellings filter interaction via entrance hallways. Across all types, **semi-private spaces** in front of dwellings support personalization through seating, plants, or other belongings, acting as quiet social thresholds. Such spaces invite casual encounters while reinforcing ownership and identity, blending privacy with community in a natural and approachable way.

08

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- Literature Sources
- Illustrations Sources

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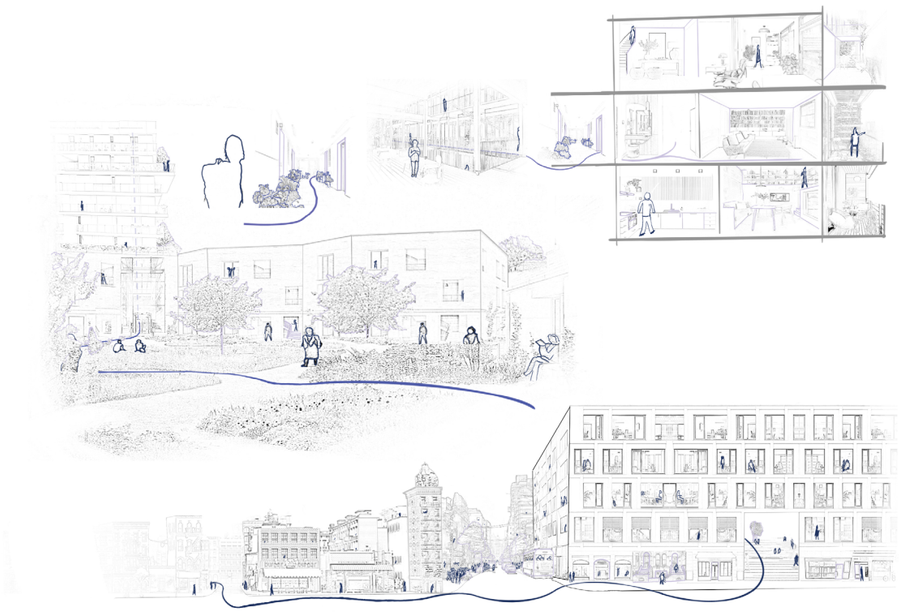
09

Attachments

- Reflection
- Model



Ryan Daun

Verticalization of density.

Exploring the Impact of Density on Social Quality of Life

Advanced Housing Design, Densifying Amsterdam - AR3AD100 Ryan Daun - 5709164

2025

Reflection P4

Student name: Ryan Daun
Student number: 5709164
Studio: Advanced Housing Design, Densifying Amsterdam
Teachers: Harald Mooij, Robbert Guis & Elina Karanastasi
Date: 6-04-2025

This reflection details the process and design journey undertaken during my graduation year. It provides an overview of the project's various phases and offers a comprehensive analysis of the entire experience. This includes the inspiration and rationale behind selecting the topic, a review of literature and case studies, and the application of research through design. Additionally, I will reflect on the research outcomes, methodologies used, overall approach, and the broader significance of embarking on a project of this nature.

How and Why

The planning for the graduation year can be divided into two distinct phases. The first phase, leading up to the P2 presentation, involved collective analysis followed by topic development. During this stage, I focused on researching the problem's context and establishing the relevance of the chosen topic. Simultaneously, I began formulating an initial design concept, which evolved further in the second phase. This latter phase emphasized design development while incorporating ongoing validation through research-by-design.

While identifying a topic of personal interest was relatively straightforward, the greater challenge lay in understanding the underlying problem and selecting the most effective way to address it. This led me to explore issues surrounding collective and communal spaces in high-density environments. My initial approach, which centered on human-focused design, was informed by case study literature. Although this research provided historical context for the design approach, it offered limited direct architectural solutions. Nevertheless, it laid the groundwork for further exploration.

Building upon this foundation, additional research into the interplay between public and private spaces particularly influenced by Blockland's work yielded valuable architectural insights. This, combined with character profiles for the target audience and further case study analysis, became central to my research. I analyzed five case studies, examining aspects such as the interplay between public and private realms, the functions of collective spaces, circulation patterns, and dwelling typologies. These case studies provided crucial perspectives on designing socially sustainable living environments.

The insights derived from this research were adaptable to specific design goals. For this project, the aim of fostering a socially sustainable living environment in a high-density context highlighted several key considerations. For example, the design incorporated internal circulation pathways to encourage social interaction while blurring the boundaries between public and private spaces. Additionally, the project's location Baaibuurt in Amsterdam presented unique challenges. Adjacent to Sluisbuurt, a high-rise, high-density development, Baaibuurt remains undeveloped. The design needed to bridge the two districts while mitigating the impact of the busy road that divides them, all while setting a foundation for future development in Baaibuurt.

At its core, the research guided many of the initial design decisions. Insights such as the relationship between target groups and collective spaces were applied to the project, albeit on a smaller scale due to its specific scope. Elements like stairways and circulation routes served as localized solutions. At the same time, the overarching design principle revolved around creating pathways and spaces that residents could identify with as unique to their building. While these individual architectural approaches varied, the foundational design principles remained consistent.

Reflection on the Approach

At the outset, my research centered on defining the "social" dimension of quality of life through literature and related studies, with particular focus on themes of participation and collectivity. Due to time constraints, I opted not to conduct surveys or interviews, relying instead on literature reviews and case study analyses, later complemented by research through design.

This approach was particularly effective in the early stages. Case study research illuminated how building configurations could adopt collective and communal strategies.

For example, it demonstrated how design elements such as staircases and walkways could transform into meaningful gathering spaces. While not all circulation areas could fulfill this role, the integration of collective spaces along these pathways enhanced by elements like texture, color, displays of ownership, and sightlines proved instrumental in elevating social quality.

The research methods employed were effective in developing the larger-scale composition and guiding principles of the building ensemble. However, they lacked depth in understanding how communal or collective spaces were experienced and how these experiences impacted the "social" quality of life. This limitation could be attributed to either insufficient depth in the research itself or difficulties in modeling the finer design details.

The relevance of the research to the studio became even clearer during an exhibition at ARCAM. For the P2 presentation, we created drawings that illustrated our project visions and intentions. Following discussions with instructors and the Amsterdam municipality, some of us combined our drawings to envision the city of the future. While this collaborative process was not directly tied to individual design development, it underscored the importance of designing collective spaces and exploring the boundaries between public and private realms.

Relation Between Research and Design

In the early stages, the research approach proved effective on a larger scale, supporting the development of distinct building blocks with unique characteristics, all within a cohesive circulation network. Case studies and Blockland's continua heavily influenced the composition and diversity of the buildings. However, as the design process became more detailed, the research struggled to keep pace.

This challenge arose from the project's dual objectives: creating a large, cohesive ensemble of buildings with intricate yet logical circulation, whilst addressing residents' needs on a personal scale. Balancing these priorities proved demanding. Articulating and demonstrating the quality of specific small-scale spaces, while ensuring the overall design reflected these qualities, was a persistent challenge.

Subsequent research focused on diverse architectural solutions, exploring social spaces, stair designs, circulation typologies, and dwelling types. While it's difficult to determine whether this research should have been conducted earlier, the situational approach fostered diversity that allowed residents to identify with their environment. The mix of functions enabled various groups to connect across different building levels, rather than being confined to individual structures.

Feedback and Reflection

Feedback played a pivotal role throughout the studio, shaping the project's structure and direction. Early on, I faced challenges with my research and approach, but guidance from my research mentor provided a new perspective on the project's social dimension. This shift influenced the research and methods presented during the P2 stage. Although I found the historical aspects of human-centered design fascinating, I struggled to incorporate them due to their emphasis on user participation.

Following the P2 stage, as the design evolved, feedback from my design mentor became central. The project advanced rapidly, transitioning from mass studies to a more refined concept. However, the absence of an urban vision for Baaibuurt presented challenges. Without a clear municipal plan, finalizing the urban layout was difficult, which slowed progress on the building design. Feedback during this period helped refine the urban framework, enabling progress on building floor plans.

While the initial floor plans aligned with the program of requirements, the project's scale sometimes made progress feel slow, largely due to time spent on modeling. This was likely caused by inefficient modeling techniques or frequent design revisions. Feedback encouraged me to streamline my approach, allowing me to better showcase the architectural principles driving the project. I ultimately selected two buildings and the internal circulation route for further development to illustrate the quality of these spaces and their contribution to the ensemble. Feedback on detailing was particularly valuable in defining communal areas.

Finally, feedback on presentation and storytelling proved critical. During the P3 presentation, I struggled to convey the project's potential due to underdeveloped principles for communal spaces. Over time, however, feedback enabled me to craft a project I thoroughly enjoyed, deepening my understanding of how spatial composition can enhance the "social" quality of life.

P4 retake

During my P4 presentation, I realized that I lacked sufficient drawings and detailed depictions of the intricate in-between spaces. Since these spaces play a crucial role in my project, this gap made it challenging to ef-

fectively convey its core ideas and demonstrate how my research shaped the design of these areas. Additionally, the project's large scale, combined with the absence of smaller-scale drawings, left essential aspects open to interpretation.

Following this, I revisited my research to better illustrate how findings from literature, target group analysis, and case studies were integrated into my architectural approach. By refining and clarifying my design principles while directly connecting them to the project, I have reinforced the research-by-design methodology.

Furthermore, the in-between spaces—across varying degrees of privacy and scale—have been further developed. These refinements emphasize the essential features derived from my research while demonstrating their function and significance within the larger collective framework.

Overall, these improvements bridge the gap between public and private spaces within the building, addressing previous shortcomings. The diverse opportunities for interaction and participation within these collective spaces now more effectively capture the true essence of the project.

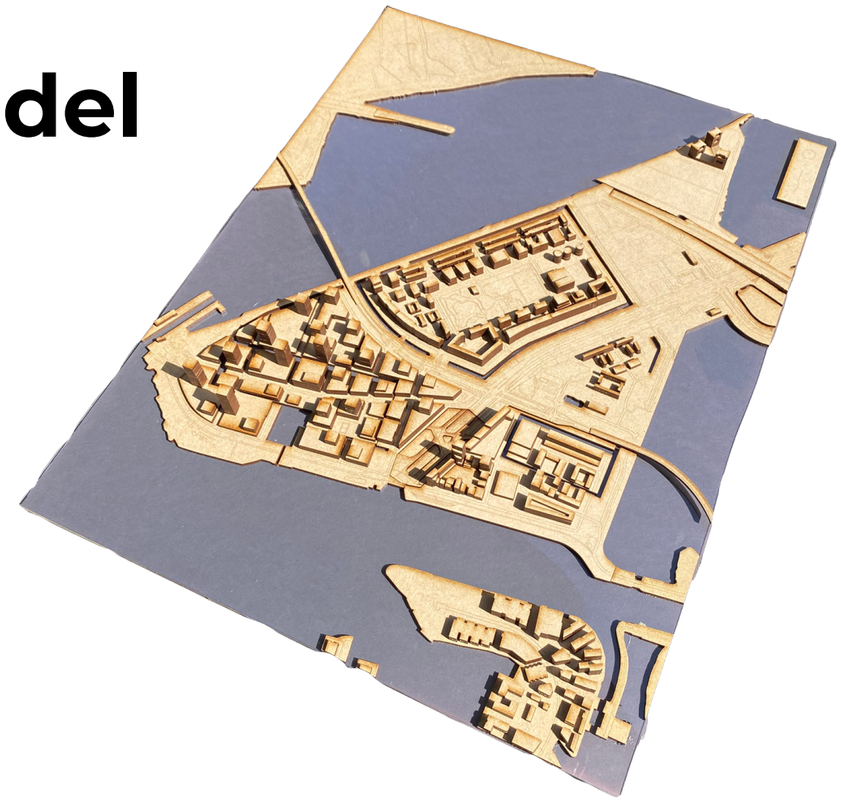
P5

As the final elements of the project come together, it is time to reflect on both the process and the final result. Overall, I am pleased with the outcome, particularly the refined elements that have significantly improved since the first P4 presentation. While my overall reflection on the process remains consistent with previous evaluations, the absence of new elements allows for a conclusive assessment of the project and any potential missing elements.

In general, I am satisfied with how the design principles are integrated into the project. However, some principles originating from the research-by-design phase could be further refined. For instance, the connection between the dwellings and the collective spaces in front of them could have been more effectively implemented. While improvements were made based on feedback, fully optimizing these connections proved challenging due to the significant design changes required, which were no longer feasible in the later stages.

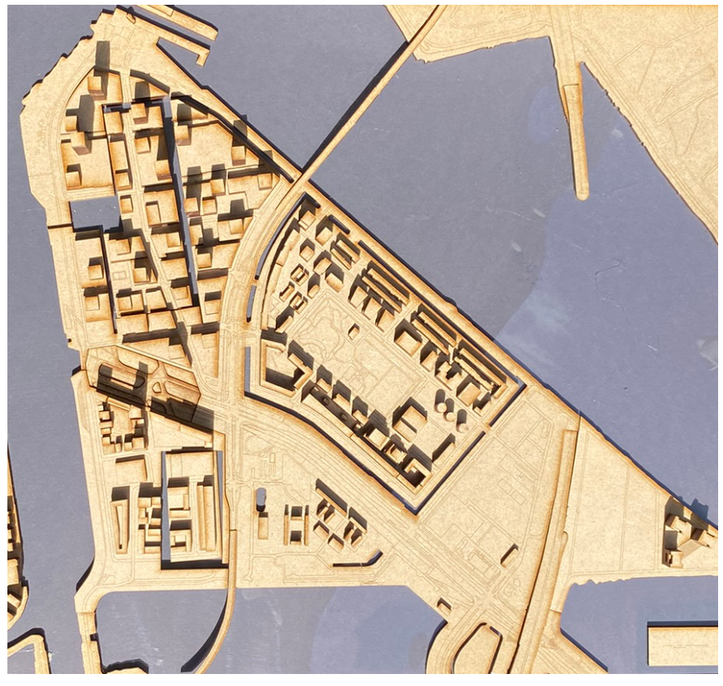
Defining the design strategy played a crucial role in finalizing, reflecting upon, and concluding the project. The result is a well-rounded research-driven design that emphasizes the social aspects of architecture.

Model









Advanced Housing

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