THE ENLIGHTENMENT OF DUTCH NEIGHBORHOODS


Hoveniersbedrijf
Koen Huisman
Voetbalveld Aziëlaan
Lil Banks
Temporarily closed
Bantulaan
Namibiëstraat
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RESEARCH

CENTRAL SPARK

THE ENLIGHTENMENT OF DUTCH NEIGHBORHOODS

DESIGN

A MANUAL TO THE BOOKLET

The booklet you are holding enholds the graduation project of Jolie Nena Tops. The project was conducted within the studio of Advanced Housing Design. From the booklet two stories unfold; physically separated from one another, but contentwise interwoven and interdependent. From the frontpage, you can either decide to follow the path of '***the research***' or '***the design***'.

The story of the research starts by presenting the initial research proposal that was conducted at the start of the research. Thereafter, it continues in a different format. Throughout the project I have encountered many ideas, concepts, references, images, drawings, thoughts, quotes, case studies and inspirations. I bundeld these in a separate booklet, in which they can be experienced as all different contents about which you can think and philosophize as you scroll through it. However, I also captured them chronologically in a conceptual timeline presented as a catalog - an assembly of - that guides you through the progress of the research and design. The assembly can be more deeply understood by reading the overlaying textual explanation - which is embodied with notifications that came to mind throughout the research - at particular points in time, at particular stages within the research, particularly important for that moment of time and stage. Like a flash back in history, these reveal the different pahts that have been explored through time.

The story of the design on the other hand guides you through the development of the design. It unfolds from notice of spatial challenges, wherefrom the possibilities of design as a solution are explored. The research forms a foundation for design ambitions, principles and strategies, from which the building concept originates. Finally, the building concept responds to the initial spatial challenges. Choose your own way of travelling through the project, I hope you enjoy it! :)

THE RESEARCH

RESEARCH PROPOSAL

The initial research proposal, titled "Beyond the Boundary," was written in October 2023. The title hints at the content of the proposal. It starts with a story from my daily life that inspired me to research this field. A broadly oriented research initially helped me to define the problem statement in alignment with my personal observations. Gradually, my focus narrowed, directing my research specifically towards the field of architecture. I discovered that the issues I was investigating were mainly discussed within the realm of social architecture.

I therefore delved deeper into this field, studying works by from authors such as Jan Gehl, Aldo van Eyck, and Richard Sennett. This enabled me to situate my research within a theoretical framework, leading to the formulation of the following research question:

"What are the differences between boundaries and borders within the framework of human and non-human relations?"

This research question has remained central to my graduation project. The theme of boundaries and borders, initially a somewhat abstract concept to me, has been a constant thread throughout my research proposal, research, and design phases. Through my academic journey, I have developed understanding of these concepts. This process clarified the problem statement, while the design phase allowed me to design a tangible and concrete solution. This booklet chronicles my journey, sharing the insights and developments I have gained along the way.

BEYOND THE BOUNDARY

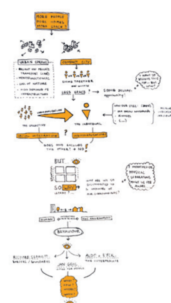
There is a reason I don't talk to my neighbors.

There is no need. The only time I really think about talking to my neighbors is when I've forgotten the key to my front door and locked myself out of the house. Or when my package is delivered next door because I wasn't home. In such situations, I'm immediately confronted with this awkward feeling of guilt. I wonder why I never talk to them. I would probably not even recognize them in the street. How can we physically spend most of our lives living 10 meters apart from each other and yet not even know each other's names?

BRIEF SUMMARY

With the increasing population, more and more people are in need of a home. The expansion of urban environments will lead to increased urban sprawl, with all its negative consequences. Therefore, we are compelled to densify within existing urban areas. With this comes the challegne of 'living together' within less space, addressing both human and non-human interactions. In a society that has become increasingly individualistic, the issue of coexisting in smaller living spaces has become a legitimate concern. However, the trend of individualization should not be interpreted as opposing social integration, as if these processes exclude one another. In fact, societal development has thrived on the differentiation of originally symbiotic relationships. Nonetheless, based on the observations I describe in chapter 2, I concluded we are mostly focused on our individual selves and appear to be closed off from our surroundings. As I realized in each of the observed situations, physical boundaries play a role. This led me to question whether the existence of physical boundaries could influence human behavior. This question was explored in existing theories and arguments on this topic, providing me with a deeper understanding of how I could research this relation.

CONCEPTUAL RESEARCH DIAGRAM



With an increasing population in the Netherlands, there is also a rising demand for suitable urban planning and housing forms. According to the regional forecast by PBL (2013), a significant concentration of population growth is expected especially in and around major cities. More people will require more homes.

Nearly three-quarters of the Dutch population lives in urban regions. At the same time, the proportion of residents living in large urban regions (with more than 500,000 inhabitants) is remarkably low: half of the urban population lives in small urban regions. Over the twentieth century, the clear distinction between cities and the countryside has become increasingly blurred (PBL, 2015).
Cities have transformed into urban regions. Urban residents move according to more complex patterns than before, not only for work but also during their leisure time. The increase of complexity in daily patterns of behavior has increased the reliability on and use of mobility networks. However, too many movements result in congestion and delays within urban regions. According to research on mobility in the Netherlands, traveling within highly urbanized regions is relatively more time consuming. Whereas 21% of car traffic took place within cities, 39% of travel time by car took place within cities (PBL, 2015).

Though the population in cities will increase, within existing urban context, widening roads or constructing new connections is often not feasible. According to Jan Gehl, architect and urban planner, this would also not contribute to solving traffic congestion in urban areas. In his book 'Cities for People,' he argues how more roads only lead to more traffic (Gehl, 2010). We are therefore compelled to think about different, more integrated solutions.

URBAN SPRAWL

The most traditional and conservative housing typology in the Netherlands is the family home. Of the nearly 8 million dwellings in the Netherlands, 42% are rowhouses, which are houses joined to neighboring houses by shared walls (Cambridge dictionary, 2023). While the family home is beloved in the Netherlands, it also occupies significant space in relation to the number of people living there. As a result, expanding urban areas in this manner contributes to increased urban sprawl.

Examples from around the world have demonstrated the negative impact of urban sprawl. Low-density development requires more infrastructure than a compact city, leading to a higher reliance on private transport and more travel kilometers per inhabitant. Additionally, urban sprawl promotes monofunctional urban design and threatens the preservation of natural habitats, as areas with ecological significance are erased by the rise of new housing projects (Michael Mehaffy, TU Delft). To prevent urban sprawl, we are challenged to consider different and more compact forms of densification."

DENSIFICATION

A solution opposing urban sprawl would be to densify within urban environments, towards a more compact city. According to Sophie Delhay, architect in collective housing, the task densification is more of a natural obligation, a 'new condition'. She raises the question of how density can become an opportunity for new communities, within the building envelope of the house and outside (Delhay, 2022).

LIVING TOGETHER?

With this 'new condition' in the field of urban design comes the challenge of living together – humans and non-humans – within less space. The sense of concern I experienced in this realization triggered my desire to research this challenge. I questioned myself: "Are we even capable of 'living together'?"

Individualization, as a social development, can be objectively identified. Developments such as the decrease in the number of marriages, the increase in one-person households, and the rising number of divorces in Dutch society are among the indicators of increasing individualization. In the 1970s and 1980s, individualization was still understood in the context of emancipation and was therefore seen as a positive development. However, today, individualization is mostly associated with the alleged negative social consequences, particularly the risk of a loss of social cohesion (Van der Stel, 2004).

Van der Stel, Dutch sociologist and researcher known for his work in the field of social and behavioral sciences, addresses questions that are in line with my personal interest concerning the relation between individualization and social integration:

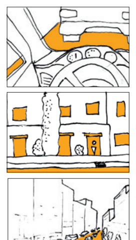
"Doesn't individualization run counter to the willingness to integrate oneself into social networks?

Aren't people collectively moving towards a state in which they are becoming more 'individual' and less 'social'?

Is the 'sociality' of human nature perhaps just ideology, and has humanity always been inclined to behave as individual nomads?"

Refuting these questions, van der Stel states individualization should not be interpreted as opposed to social integration, as if these processes exclude one another. If that would be the case, he states, at a certain point we would face end of society – the act of living together socially. In his opinion, individualization is a prerequisite for social integration. He questions the term 'social cohesion' as this suggests a society characterized by the extent to which individuals 'live closely' together, without any conflicts or escalations. According to Van der Stel, the term "social cohesion" implies consolidation, whereas societal development has actually thrived on the differentiation of originally symbiotic relationships (van der Stel, 2004). In other terms, individualization benefits societal development rather than it impedes this. Research on the number of social contacts and social participation of citizens substantiates this statement, as the number of social contacts and social participation of citizens has in fact remained stable. This demonstrates that 'individualistic' doesn't necessarily mean 'every person for themselves.' (CBS, 2017).

The increasing prominence or importance of 'the individual' should therefore not distance us from our surroundings. However, through personal observations I experienced this differently.



i. car
This observation got to me while I was crossing the street in Rotterdam. Looking at a traffic jam of cars, I realized the absurdity of it. Every person behind the wheel, most of the time alone, is completely closed of from the world around them. When we're in our car, we don't have to encounter anyone or anything. There is a distinction between inside and outside, between yourself and 'the other'.

ii. house
This observation relates back to the anecdote at the start of this proposal. Though me and my neighbors are physically living within a distance of ten meters apart from each other, we don't know anything about each other. We don't have to share anything and don't directly need one another. Again, there is a distinction between inside and outside, between myself and 'the other'.

iii. city
This observation struck me while visiting my dad in Arnhem. Living in Rotterdam, I didn't notice it was turning autumn. Only when I visited by dad who lives close by a forest, I was surprised to see how the season was changing. This illustrates how distanced I am from natural surroundings in my daily life. Living in the city, I exist in my own bubble. Again, I don't interact with 'the other', in this case nature.

illustration of observations

As concluded before, "individualistic doesn't necessarily imply 'everyone for themselves'", but these examples show we are actually distanced from our surroundings.
However, I noticed a common factor in these observations: in each, the individual is distanced from 'the other' by physical limitations. In the first observation, the car forms a harsh distinction between the human and the environment. In the second, the closed building envelope encourages separation. In the third, the buildings in the city create a physical distance to natural habitat. This realisation inspired me to research the relation between human behaviour and the physical environment.

III. THEORETHICAL FRAMEWORK

Richard Sennett
The relation between social and material practices has been extensively studied by Richard Sennett, sociologist, author, and urbanist known for his work on the dynamics of cities, urban planning, and the effects of urban life on individuals and communities.
In his theory on the relation between social skills and the physical Architecture of Cooperation, he distinguishes two different kinds of edge: 'the boundary' from 'the border'. In this, he applies the following definitions:

The boundary - *"The boundary is a guarded territory, as established by prides of lions or packs of wolves. The boundary establishes closure through inactivity, by things petering out, not happening." (Sennett, 2012)*

The border - *"The border is a place where interaction between different species increases, where differences need to be negotiated, where there has to be exchange." (Sennett, 2012)*

Sennett illustrates the difference between the boundary and the border by making the parallel to the differences between a cell wall and a cell membrane. The cell wall is characterized by its rigid structure, while the membrane is characterized by its porous and resistant condition. In temporary urban environments, Sennett states, the boundary dominates the border. Sennett explains the translation of his theory to architecture through three scales. In the first scale he distinguishes dialectic and dialogic interchange. In the second scale, he addresses declarative versus subjunctive expression, and in the third scale he addresses identification in the other in terms of sympathy or empathy. In conclusion, he states architecture of cooperation is better served by spaces that enable dialogic, subjunctive and empathic social exchange. Through this theory, Sennett links the physical environment to human behaviour. Relating back to the observations, I will use Sennett's theory on edges to explain what illustrated as 'inside and outside', between 'yourself and the other'.

Aldo van Eyck
This paragraph discusses the understanding of the relation between human behaviour and the physical environment in the context of Aldo van Eyck's argument.
Van Eyck was inspired by theories which are related to 'the inbetween', to place and identity and human-centered design. He also believed that architecture plays a crucial role in shaping social interactions.

In 'The Child, the City, and the Artist', he advocates that there is no such differentiation of spaces into non-intermediate and intermediate spaces. As described by Campos in 'La imaginación, lo intermedio y la deriva': *"...for Van Eyck every space, if it is a place, is a between, a place between this and that, between this and the next moment"* (Campos, 2021). According to van Eyck, the role of architecture is *"...to provide this Realm of the Intermediate through construction; facilitate, a set of real places for real people and things, from the domestic scale of the house to that of the city"* (Van Eyck, 1962).
In the argument of Van Eyck, the place is a lived space, with someone inside being the someone between things (Campos, 2021). Relating back to my observations, Van Eyck illustration of the realm of the intermediate inspired me to reimagine what boundaries and borders could become, by looking at them through the perspective of Van Eyck. More than Sennett's interpretation, Van Eyck's interpretation of the intermediate implies a sense of movement.

Jan Gehl
Lastly, the relation between the built environment and human behaviour is approached in the context of Jan Gehl's argument. In his books 'Life Between Buildings' and 'Cities for People', Gehl explores the relationship between people and the built environment in urban areas. Gehl emphasizes the importance of designing cities that are human-centered and promote social interaction.

Gehl's understanding of the connection between human behavior and the physical environment is more practical than the perspectives previously discussed. In his book 'Cities for People' he illustrates the relation between urban structures and human behaviour by citing historical examples of urban planning. For example, the fixed and ordered layout of the main streets, public building and barracks in the colony towns of the Roman empire served their military role. In medieval cities on the other hand, the compact and dense structure with short walking distances, squares and marketplaces reinforced their function as centers of trade and craftsmanship. These examples support his argument that physical planning significantly influence how individual areas are used. Relating back to my observations, I imagine to use Gehl's practical approach towards relating human behaviour to physical design in understanding the relation between both. (Gehl, 2010)

IV. QUESTIONS OF INTEREST + RESEARCH METHODS

The shift towards densification in established urban areas, aimed at creating a compact city, significantly impacts the concept of 'living together', incorporating both human and non-human interactions. In a society that has become increasingly individualistic, the issue of coexisting in smaller living spaces has become a legitimate concern. However, the trend of individualization should not be interpreted as opposing social integration, as if these processes exclude one another. In fact, societal development has thrived on the differentiation of originally symbiotic relationships. However, based on my observations, I concluded we are mostly focused on our individual self and appear to be closed off from our surroundings, as visualized in the figure. I therefore questioned whether the existence of physical boundaries could influence human behavior. This led to the following research question:

What are the differences between boundaries and borders within the framework of human and non-humans relations?

The terminology of the boundary and the border is defined as stated in Sennett's theory on the Architecture of Coorperation. To clarify the terminology, both definitions are repeated below:

The boundary - *"The boundary is a guarded territory, as established by prides of lions or packs of wolves. The boundary establishes closure through inactivity, by things petering out, not happening." (Sennett, 2012)*
The border - *"The border is a place where interaction between different species increases, where differences need to be negotiated, where there has to be exchange." (Sennett, 2012)*

By mentioning the framework of human and non-human relations, I focus my research beyond the human perspective. I interpret Sennett's definition of 'the border' in a broader context: the interaction between different species can also imply the interaction between a human and an animal, or between a human and a tree. Rather than focusing solely on the physical interpretation, I interpret the boundary versus the border as a philosophical concept as well. In relation to the observations; it describes the inside and 'outside of your bubble', it addresses the 'you and the other'. It extends beyond just the human perspective.

The main research question raises a lot of other questions, which cannot all be addressed in this research proposal. However, the most relevant sub-questions I intend to address in my research are stated below. Following the question, I explain the methodology or methodologies I will use.

1. How can boundaries and borders be identified within the framework of human and non-human relations?
In an attempt to understand the differences between borders and boundaries within the framework of human and non-human relations, these distinctions initially need to be identified.
In his book "Cities for People", Gehl illustrates a very practical method concerning the distiguishment of hard edges and soft edges (Gehl, 2010). He mentions six scales through which the hardness or softness of an edge can be analysed: Scale and Rhythm, Transparency, Appeal to Many Senses, Texture and Details, Mixed Functions and Vertical Facade Rhythms. Through (1) Analysis of the site based on these scales, I inted to identify boundaries and borders within the framework of human and non-human relations. This first step in the methodology provides a clearly outlined base for the research.

2. What is the relation between human behaviour and boundaries and borders within the framework of human and non-human relations?
Having examined the use of space and identified the borders and boundaries, the relation between these can be explored. The border and the boundary as defined in Sennett's definition, are places that can be identified by inactivity and activity. Therefore, the study of human behaviour, praxeology, can be used to 'read' physical space, as human behaviour can in fact be interpreted as the visible effect of physical space. This qualitative research method can inform us on the existence of borders and boundaries by studying the use of space.
I intend to apply this research method in the method of (2) Bordering, as explained in the publication of '49 Methods and Assignments for Writing Urban Places'. This reasearch method allows me to identify the potentialities and dynamics that edge zones establish (Bernal et al., 2023).
(3) Collaging allows me to assemble what appear to be unrelated elements together into a new composition. By using this research method I intend to gain understanding of the patterns of human behaviour in relation to borders and boundaries within the framework of human and non-human relations.

V. REFLECTION

With the increasing demand of densification within existing urban areas, the issue of coexisting in smaller living spaces has become a legitimate concern. Through my research, which will eventually be applied in architectural design, I intend to reimagine this challenge as an opportunity for new relations extending beyond the human perspective. The definition of Richard Sennett, the imagination of Aldo van Eyck and the practical methodology of Jan Gehl will hereby serve as a framework to address the contemporary society is facing. Major issues concerning social challenges like caretaking of elderly, and environmental challenges like climate change inspired me to reimagine relations within the context of dwelling. By studying the relation between human behaviour and spatial design, I intend to create a design that stimulates human consciousness, to catalyze a symbiose of human and non-human relations.

A. APPENDIX

THOUGHTS THROUGH THE PROCESS

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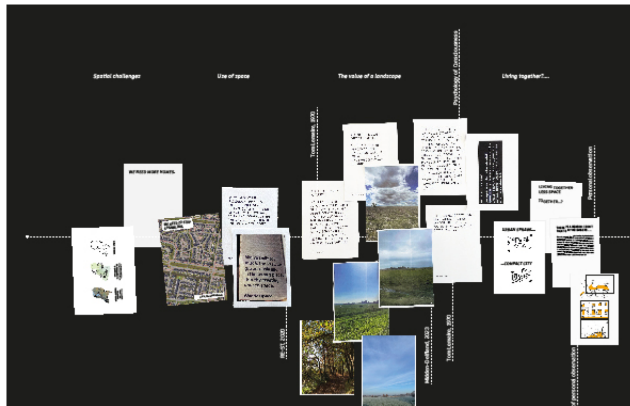
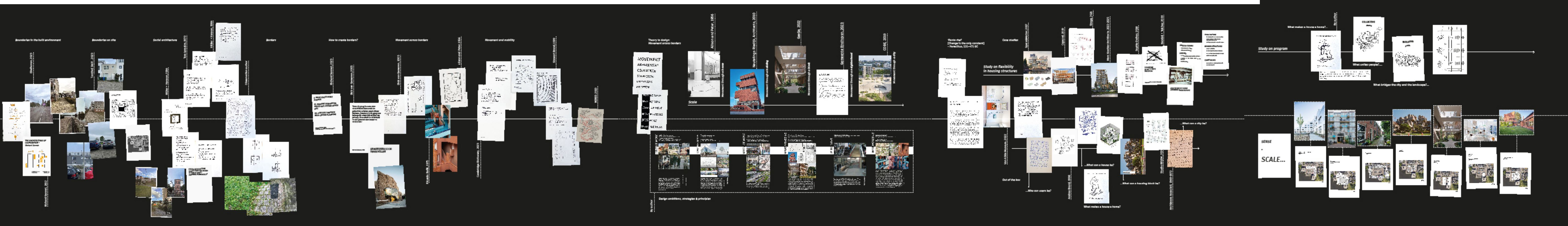
THE ASSEMBLY

Sometimes, an idea cannot be immediately grasped. It requires time to land, to be processed, reconsidered, understood and eventually applied. Ideas saved earlier can fade into the background, becoming forgotten very silently. However, occasionally, life subtly guides you back to those initial ideas. Without you realizing, ideas that were lingering in the back of your head before, find their way to the surface of your consciousness again. Ideas that appear not to have any substantial meaning by themselves - but once related to each other start to reveal their actual significance. A narrative originates.

In this assembly I've collected the ideas, theories and references - which I will from hereon refer to as prints - that I've encountered throughout my research. The methodology of the creation of a catalog, an assembly, has allowed me to connect different contents to one another. From there, a narrative encompassing both research and design has emerged. As mentioned in the manual, the prints can be experienced as separate images, about which one can think and philosophize as one scrolls through them. However their relevance within the greater context of the research can be understood through the conceptual timeline presented as a catalog - the assembly - that guides you chronologically through the progress of the research and design. The additional text elaborates on the images presented. It is choronologically structured - from September to June - and embodied with notifications that came to mind throughout the research.

The methodology of creating a catalog has allowed me to categorise different concepts. By doing so I could discover links between at first sight seemingly different contents. The methodology has thereby been very helpful in the conduction of the research. The assembly unfolds from the next page.





THE DESIGN

switch sides booklet

THE ABSENCE OF EDGES

Deltas worldwide are struggling with the challenges of climate change, increasing urbanization and spatial pressure on rural areas. In the Dutch Delta we are facing three main challenges. Though these differ in subject, they overlap in one theme: all three have become ***spatial questions***.
Firstly, the gradual sinking of land along with rising of sea levels form a major threat, which leads to a smaller amount of locations that are safe to inhabit. Aside of this, we aim to mitigate climate change by transitioning to renewable energy and by increasing biodiversity, which each require space. In addition to this, the shortage of suitable housing acquires space for development.

We need to design our cities in favor of tackling the major challenges to create a sustainable living environment in the Netherlands. Therefore, the way we *use our space* is becoming increasingly important. Urban sprawl in the Netherlands has lead to continuous expansion of our cities without borders. Of the nearly 8 million dwellings in the Netherlands, 42% are rowhouses. This typology occupies a significant amount space - also including connection to infrastructure, electricity, sewage and facilities - in relation to the amount of people living there. With the spatial questions of our time we can no longer justify this way of building. This means we will have to halt the continuous expansion of our cities by imposing an expansion limit - a constraint for urban development, a border between the urban and the non-urban environment.

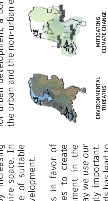


figure 1: visualisation of challenges in the Dutch Delta

THE AREA OF MIDDEN-DELFLAND

The office of ZUS has researched a design approach tackling the major challenges in the Netherlands, and studied the area of Midden Delfland. The area of Midden Delfland is a large open peat meadow landscape surrounded by the cities of Rotterdam, The Hague and Delft. This area is currently one of the most densely populated areas in the Netherlands which leaves the remains of the open territory under high pressure. The proposal of ZUS envisions a future for Midden-Delfland in 100 years. With the expectation there will be times of excess precipitation and times of drought, ZUS proposes to divide the open landscape into several zones with floodable areas, whereby the open landscape can the function as a water buffer. At the same time, the population growth within the surrounding cities which will raise the necessity for surrounding nature, water and clean air. ZUS envisions Midden-Delfland to become a green lung, securing the livability of surrounding cities. They propose a dike around the area of Midden-Delfland, protecting the surrounding cities from flooding and creating an expansion limit for the surrounding cities. In their plan however, they don't elaborate on how to design this dike, neither do they define the space between the urban and the non-urban environment. Through research and design, I explored and constructed my vison on how this edge could exist and operate.

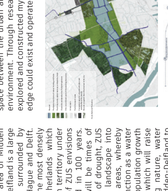


figure 2: Plan of ZUS (Redesigning Deltas, 2022)

EDGES NEED TO BE DESIGNED

From the current situation it appears we don't know yet ***how*** to design edges. The edges in urban expansion that are proposed are commonly overriden and relocated as soon as a site for a new project is needed. Apparently, the value of the space as an edge is minor to the value of the space as a site for new development. In order to justify the existence of edges in the built environment, this space has to become a space of value. Therefore, edges need to be designed.

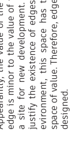


figure 3: visualisation of urban development

An edge in principle can only exist from from a contrast between two identities, as pictured in *figure 4*. Thereby the design of an edge starts by identifying a contrast: what is happening on one hand of an edge and what is happening on the other? From this distinction between one identity and another, an edge emerges.

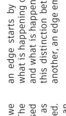


figure 4: the existence of an edge

In case of the limitation of urban expansion, the contrast between the urban environment [*the city*] and the non-urban environment [*the landscape*] defines the edge: 'what is happening inside the city, and what is happening inside the landscape?' To make these questions more applicable I broke them down into activities, transportation modes and facilities. The concluding illustration is displayed in *figure 5*.

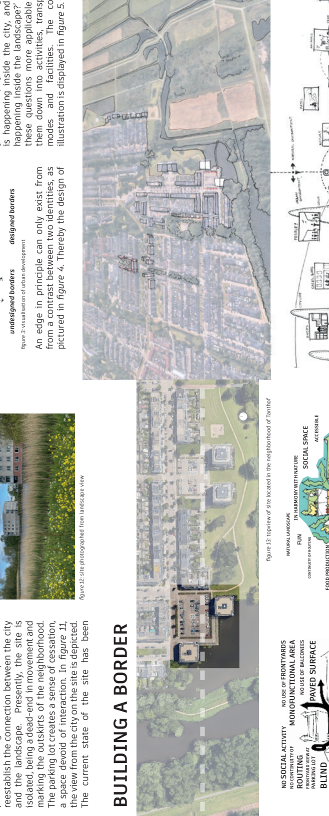


figure 13: topview of site located in the neighborhood of Tanthof

LIVING ON THE EDGE!

The constraint on urban expansion and the resulting creation of designed edges present a significant *opportunity* to reestablish the connection between the city and the landscape. I designed a building on a site located within the plan of ZUS that was discussed at page two of THE DESIGN which addresses these opportunites. The building is a combination of public functions and dwelling, a highly concentrated core of spatial value in a monofunctional environment: a ***Central Spark***. By implementing Central Sparks in Dutch neighborhoods we can enlighten them, and boost their value. From the larger scale of the neighbourhood, to the smaller scale of the building I will guide you through the design.

In the plan of ZUS, the Midden Delfland area was envisioned to evolve into a 'National Productive Park', as depicted in *figure 10*. Their vision was organized around five themes: *water, food, recreation, nature*, and *production*. Building upon this framework and considering the edge condition resulting from the sharp contrast between the busy environment of the city and the resilient environment of the landscape, I introduced a sixth theme to the ZUS vision: *well-being*. I envision the Midden-Delfland area to not only facilitate physical interaction with the city, but also to contribute to the mental well-being of its inhabitants. This ambition is addressed in the sixth theme.

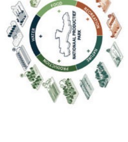


figure 10: operational system section city + landscape

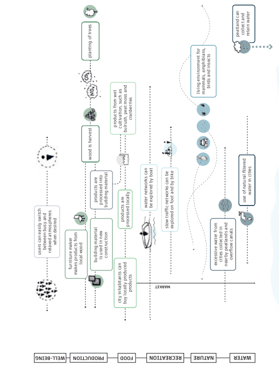


figure 9: operational system section city + landscape

In the operational system section in *figure 9*, I combined the vision of ZUS with my personal vision on the area of Midden Delfland. The section evidently displays the vision of a symbiotic relationship between the city and the landscape. In this way, they will benefit one another - they cooperate - which creates a sustainable and future proof environment.

figure 11: site photographed from city view

figure 12: site photographed from landscape view

The building site is situated on a parking lot within the Thanthof neighborhood. As visible in *figure 13*, the site is located exactly on the current edge between the urban outskirts of Delft and the landscape of Midden Delfland. The location of this site therefore perfectly suits my ambition of reimaginening the potential of edges of urban expansion to reestablish the connection between the city and the landscape. Presently, the site is isolated, being a dead-end in movement and marking the outskirts of the neighborhood. The parking lot creates a sense of cessation, a space devoid of interaction. In *figure 11*, the view from the city on the site is depicted. The current state of the site has been analyzed and summarized as shown in *figure 14*. Especially the function of a parking lot, the blind plinths of the towers, the cessation of routing and the harsh strong south-west wind create a very unpleasant atmosphere on site. Simultaneously, the site shares a direct border with the beautiful area of Midden Delfland. In *figure 12*, the opposite view from the landscape to the site is shown. In *figure 13* I've illustrated my vision on what the site could become. With the increase of the Dutch population a location like this, directly bordering a natural environment, is becoming increasingly extraordinary in the Netherlands. However, this connection remains hidden when approaching the site from the city, deterring visitors from exploring the landscape area. As a result, users currently perceive a ***boundary*** between the city and the landscape.

BUILDING A BORDER

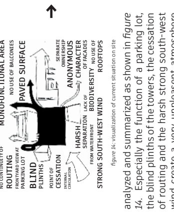


figure 14: visualization of current situation on site

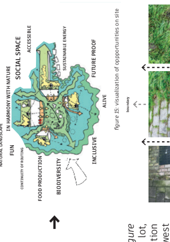


figure 15: visualization of opportunities on site

figure 16: abstraction of transformation from boundary to border

The constraint on urban expansion and the resulting creation of designed edges present a significant *opportunity* to reestablish the connection between the city and the landscape. In order to reestablish the connection between the city and the landscape and thereby create and fulfill the opportunities of designed edges, the boundary edge condition has to be transformed into a border edge condition. In *figure 16*, an abstraction of this transformation is pictured. The building I designed is supporting this transformation. Envisioning the area as a border zone means the space becomes a space of transition between the city and the landscape.

EDGES THAT *DISCONNECT*

As illustrated conceptually in figure 6, I imagine the activities, transportation modes and facilities in the city to differ strongly from those in the landscape. I imagine the environment in the city to be a busy, vibrant, high-end environment, in which connections are quick and facilities are closeby. I imagine the environment in the landscape on the other hand to be more quiet, raw and relaxing, whereby the pace of movement and its corresponding infrastructure is slow. Creating these differences results in a stronger character of both the city and the landscape; their qualities are enhanced. Where both identities touch, an edge forms.

As is evident in the outskirts of Dutch neighborhoods, this edge poses a significant challenge. The harsh separation between the city and the surrounding landscape often causes us to overlook its presence in our daily lives. It's not that we lack interest in experiencing the landscape; rather, it simply doesn't register on our radar due to its absence from our immediate surroundings. Consequently, we remain unaware of its proximity and are unlikely to explore it. This oversight means that the valuable qualities of the nearby environment remain hidden from the public eye, tough it's offering benefits that many might need. Motivated by this observation, I began to question why this connection has been lost, and how it could be reestablished to create a mutual relationship between the city and the landscape, fostered by automatic awareness of one another. Through my research, I discovered **how** to bridge the gap between these contrasting identities.

To illustrate my findings, I broke them down into a very simple example: The crossing of a busy street. One side of the street is one identity - is this case *the city* - and the other side is another - in this case *the landscape*. What is the only way of getting from one side to the other? Exactly, by crossing. *Movement* over an edge is the only way to pass it.

EDGES THAT *CONNECT*

However, we are unlikely to do so if we are not aware of *'what's behind'*. The spaces in between the city and the landscape have most commonly not been defined or designed - the urban environment just abruptly stops, and there is no defined connection to the landscape. This has caused edges to become places of cessation and inactivity, also defined by Richard Sennet[1] as ***boundaries***. Back to the example: Imagine the space between the city and the landscape as a lively boulevard instead of a busy street. Would people then feel more invited to cross it? Quite likely, yes. In case of the edge between the city and the landscape this means that if we are naturally made aware of the landscape while still in our urban environment, we are more likely to access it. This is because we recognize its presence, its closeness, and its accessibility. We should envision the area between the city and the landscape as a space of transition. Movement acts as the adhesive linking these two identities. Through movement between them, interaction and connection are fostered. Therefore, transitioning from one environment to the other should be simple and natural. The edge becomes an 'extended treshold' in which differences blur, also defined as a ***border***. This principle is illustrated in *figure 6*.

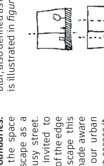


figure 6: the edge as a boundary (top) and the edge as a border (bottom)

1. Sennet, R. (2012). *The Architecture of Cooperation*. [P1 paper]

MOVEMENT CREATES BORDERS (and vice versa...)

Movement between the city and the landscape initiates connection and interaction, blurring differences and giving rise to a border zone. Conversely, a border zone encourages movement across the edge. The relationship between the design of *movement* and the design of *borders* is thus self-fulfilling and symbiotic: one cannot exist without the other, and enhancing one improves the other. Recognizing this, I realized that to design one, I must also consider the other, and vice versa.

MOVEMENT ⟷ BORDERS

figure 7: the mutual relationship between movement and borders

By organising movement, I can facilitate interaction and connection among differences, thereby shaping border zones. Through the design of border zones, I can orchestrate the desired interaction and connection, thereby promoting movement. This concept reaches beyond the difference between the city and the landscape - it concerns the mitigation of differences between people and planet in admiration of a sustainable and resilient living environment in which everything collaborates as one ecosystem.

This revelation formed the foundation of my design approach. I outlined eleven design ambitions, principles, and strategies from translating movement to *spatial solutions*. Through understanding how we move, why we move, when we move, what moves us, if we move and whom moves us, I envision a spatial reality dominated by borderzones. In *figure 8* on the following pages, this foundation is displayed. The design ambitions, principles, and strategies are listed at the top of each page. The subsequent reference projects serve as examples demonstrating how these ambitions are already being realized today, confirming their feasibility. I imagine the design to become an integrated collage of the applied ambitions.

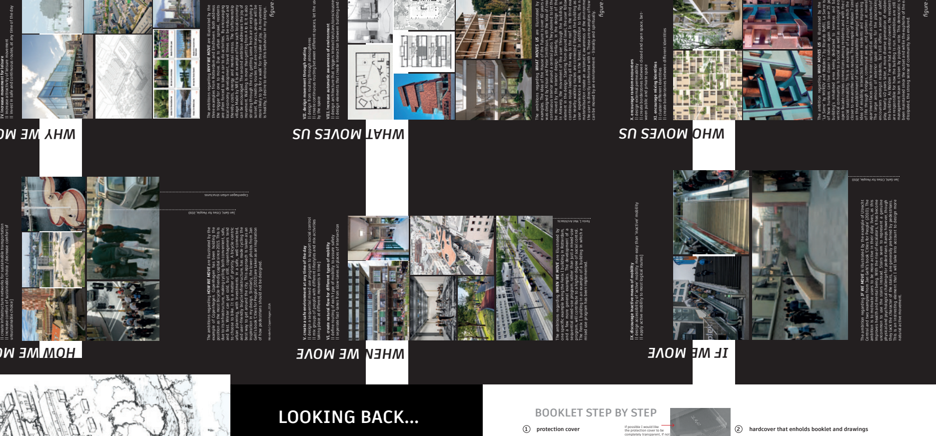


figure 8: exploration of movement

BUILDING CONCEPT

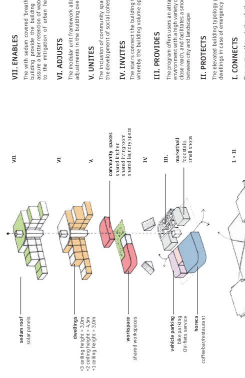


figure 17: layers of the building concept

movement between them, interaction and connection are fostered. Therefore, transitioning from one environment to the other should be simple and natural, in which the building can facilitate, support and guide users. The fulfillment of this ambition in the design is shown in the first bullet (**I.**) in *figure 17*. Furthermore, the dwellings have been raised from ground level to assure safety in case of an emergency flood (**II.**). The plinth can thereby facilitate a programmatic cooperation between the city and the landscape, and at the same time offer a high variety of functions to residents which contributes to a more locally organized economy. Goods from the land can be sold in the market hall, the vehicle parking space facilitates the transition between different transportation types, and the coffeebar creates a perfect meeting hub for people to meet in between city and landscape - when going for a walk together for example (**III.**). On the first level, the dwellings are centered around a communal courtyard. The stairs connecting the courtyard to ground level create a smooth transition between 'outside' and 'inside', and at the same time invite the public to enter the courtyard (**IV.**). The highly qualitative community spaces are situated along the common walking routes which contributes to automatic awareness of one another amongst residents, and offers them a space to spend time together (**V.**). Furthermore, the dwellings have been executed in a wooden skeleton construction to assure flexibility of the structure towards the future (**VI.**). Finally, the with sedum covered 'breathing roofs' of the building provide the building of solar energy, assure a better retention of water and contribute to the mitigation of urban heat in the direct surroundings. In addition to this, the solar chimney assures a passive flow of fresh air through the dwellings (**VII.**). Through these seven steps, I created a volume being a direct response to the posed challenges and to its location on site. *Figure 18* illustrates how the volume blends in with its surroundings.

figure 18: a Central Spark in its surroundings

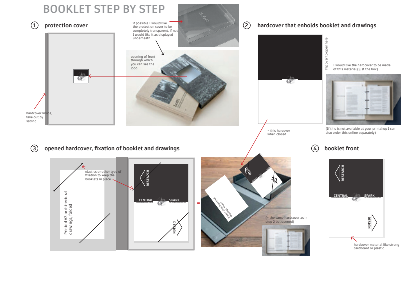
LOOKING BACK...

Reflecting on the graduation, I see the project as a journey marked by various experiences, as I visualized in Figure A. Together, these experiences have shaped the position I'm currently at.

The booklet I created reveals a strongly interwoven connection between research and design. Physically, the booklet doesn't have a front or back but is unfoldable as a whole. The 'story of the design' is explained on one side of the booklet, and the 'story of the research' on the other. This format of presenting the content enhances their interdependence; what I researched on one hand was applied in the design, and what I discovered while designing enriched the research on the other. They are thus standing back to back—conceptually and in the booklet, literally.

My research finds its origin in a personal observation of isolation among humans, from which a fascination for social architecture developed. This initiated research on the relation between architecture and human behavior: anthropology in architecture. Through this, I explored how physical boundaries within architecture can influence human behavior. At the same time, I started exploring the area of Midden Delfland and Tanthof as part of the design challenge. Within the plan of ZUS envisioning a future within 100 years for the area of Midden Delfland, a constraint on urban expansion was proposed. From this, an 'edge' between the city and the landscape would emerge, creating a new

BOOKLET STEP BY STEP



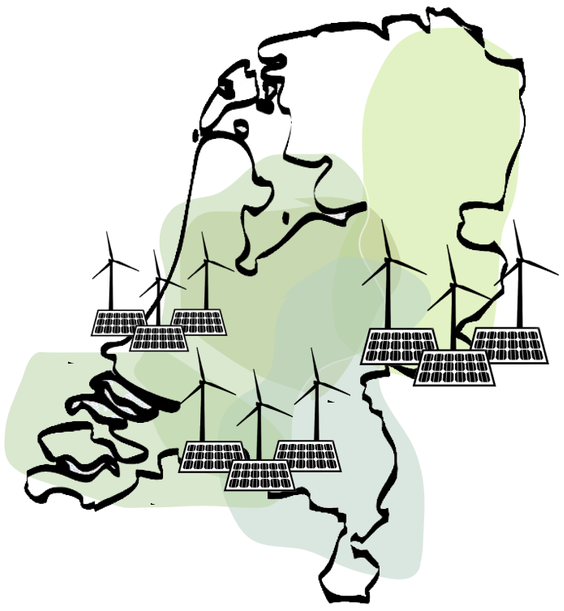
DESIGN ASSIGNMENT

THE RESEARCH

THE DESIGN

SPATIAL CHALLENGES

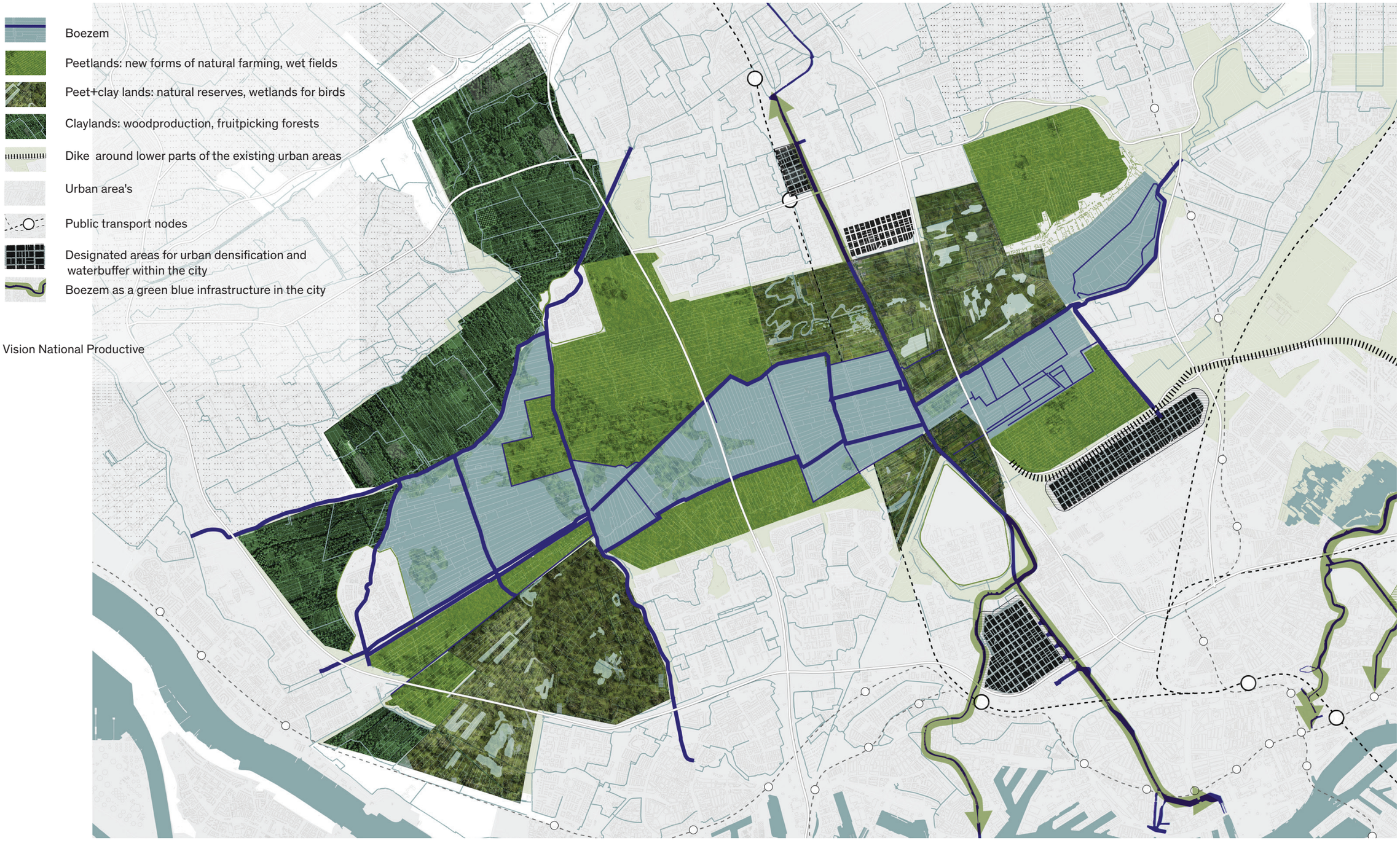
ENVIRONMENTAL THREATHS



RENEWABLE ENERGY SOURCES

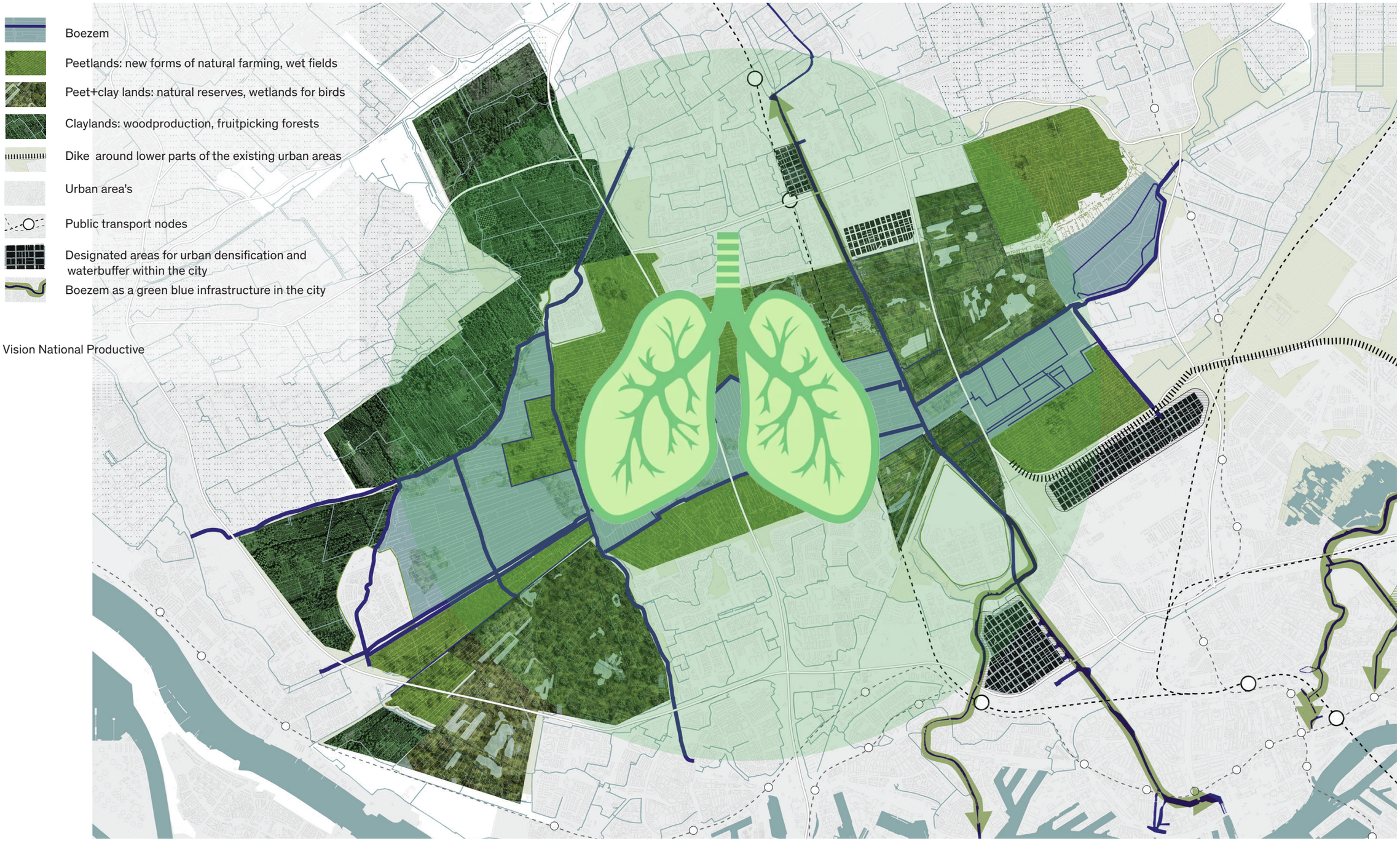
HOUSING CRISIS

THE AREA OF MIDDEN-DELFLAND



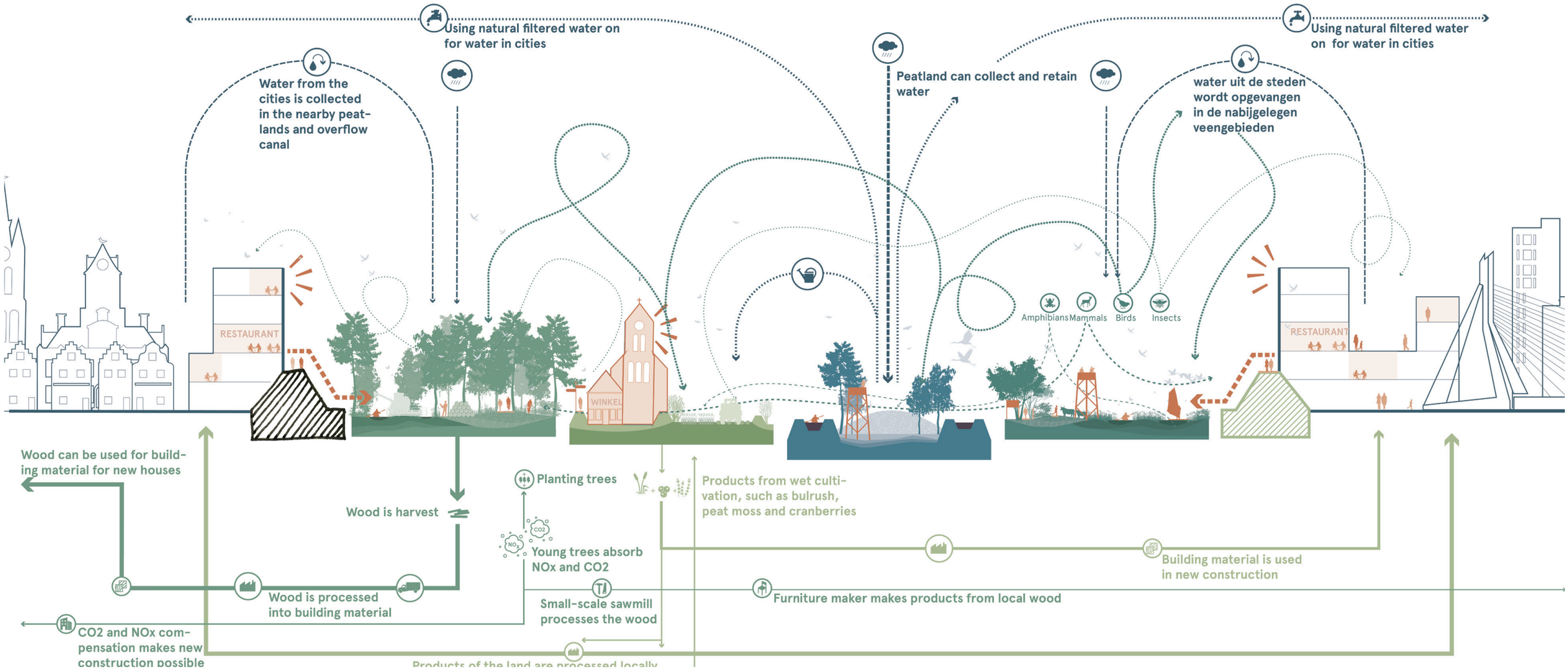
Vision National Productive

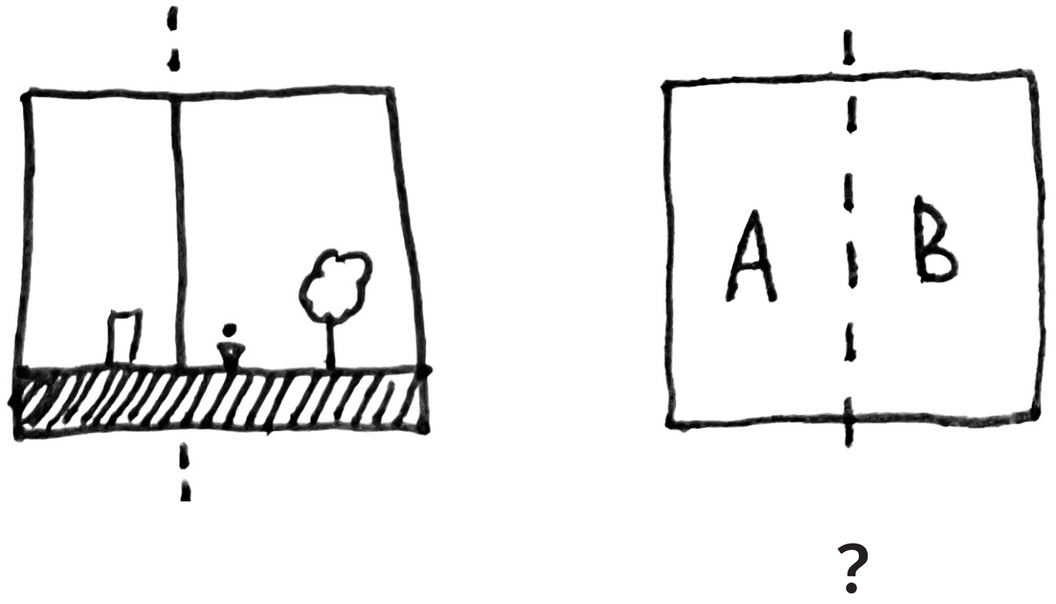
THE AREA OF MIDDEN-DELFLAND



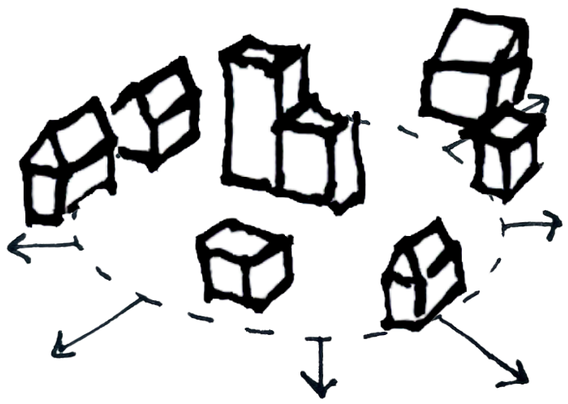
Vision National Productive

THE AREA OF MIDDEN-DELFLAND

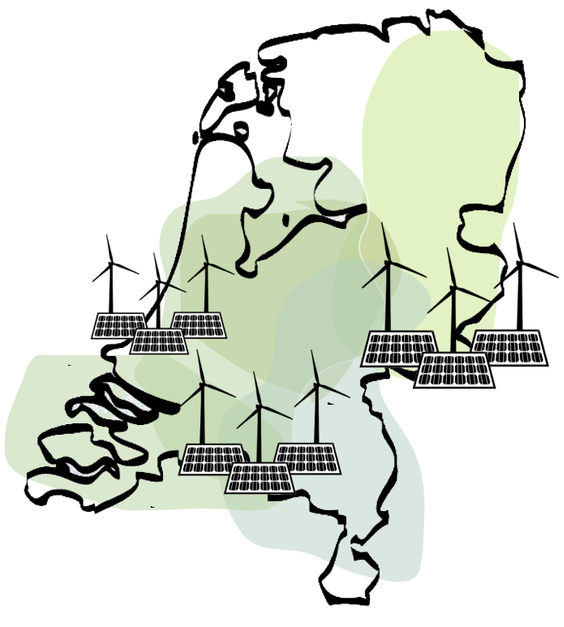



A
B
?

undesigned borders



ENVIRONMENTAL THREATHS



MITIGATING CLIMATE CHANGE

HOUSING CRISIS

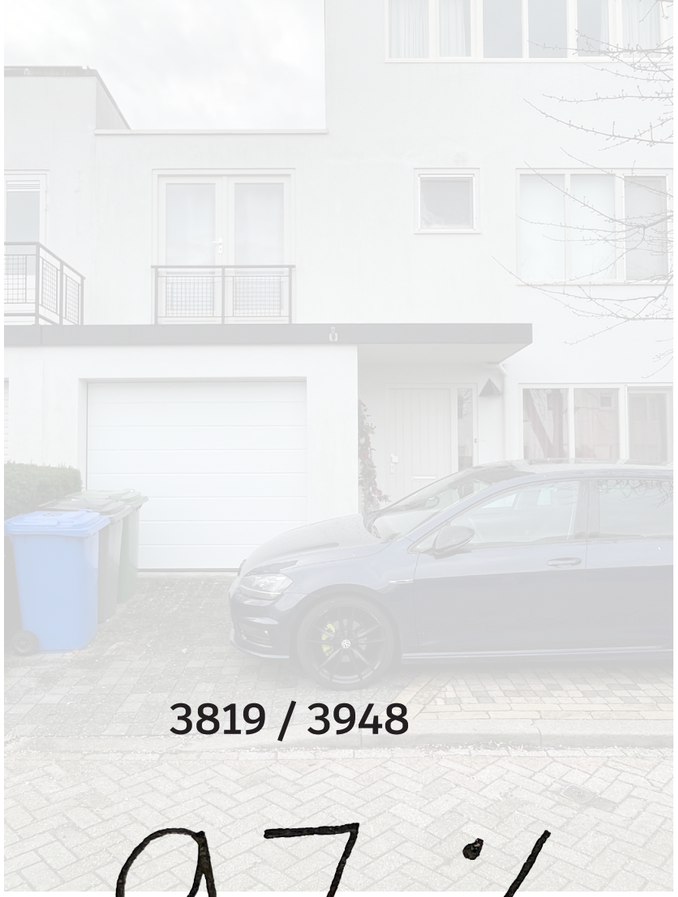
SPACE = SCARCE

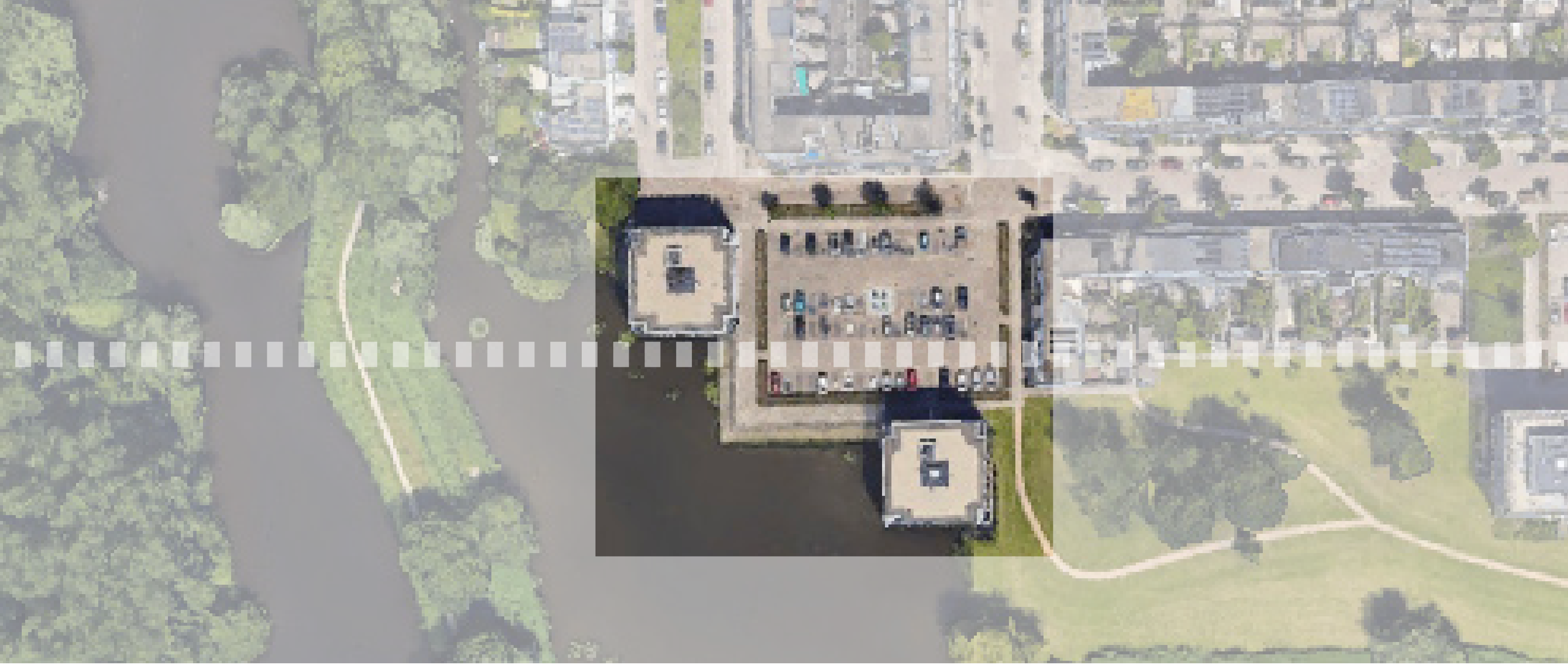
STOP THE SPRAWL :  **!**

Delft Station

Midden Delfland

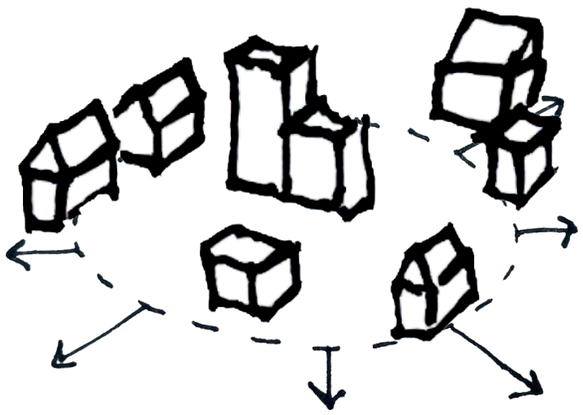
Tanthof

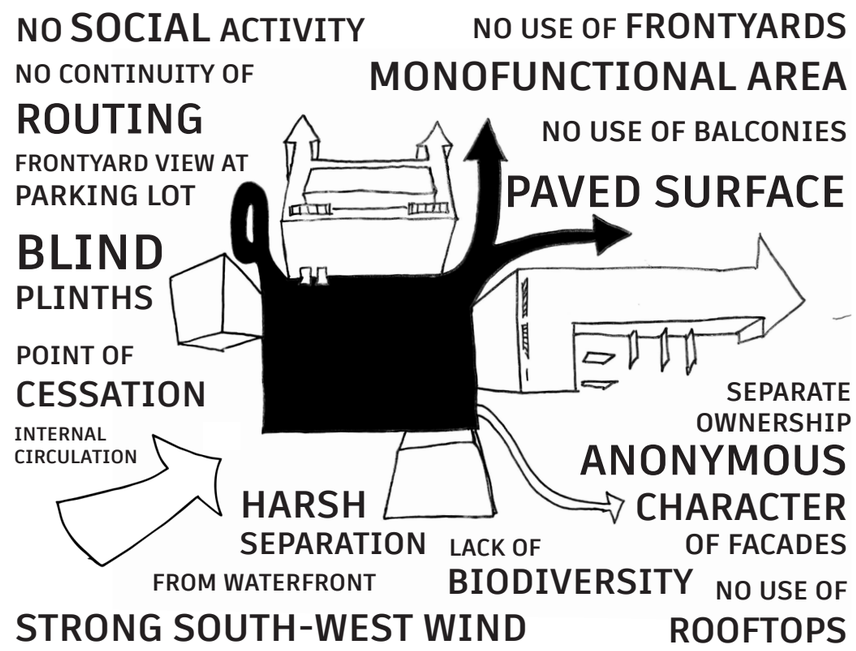

3819 / 3948
97%

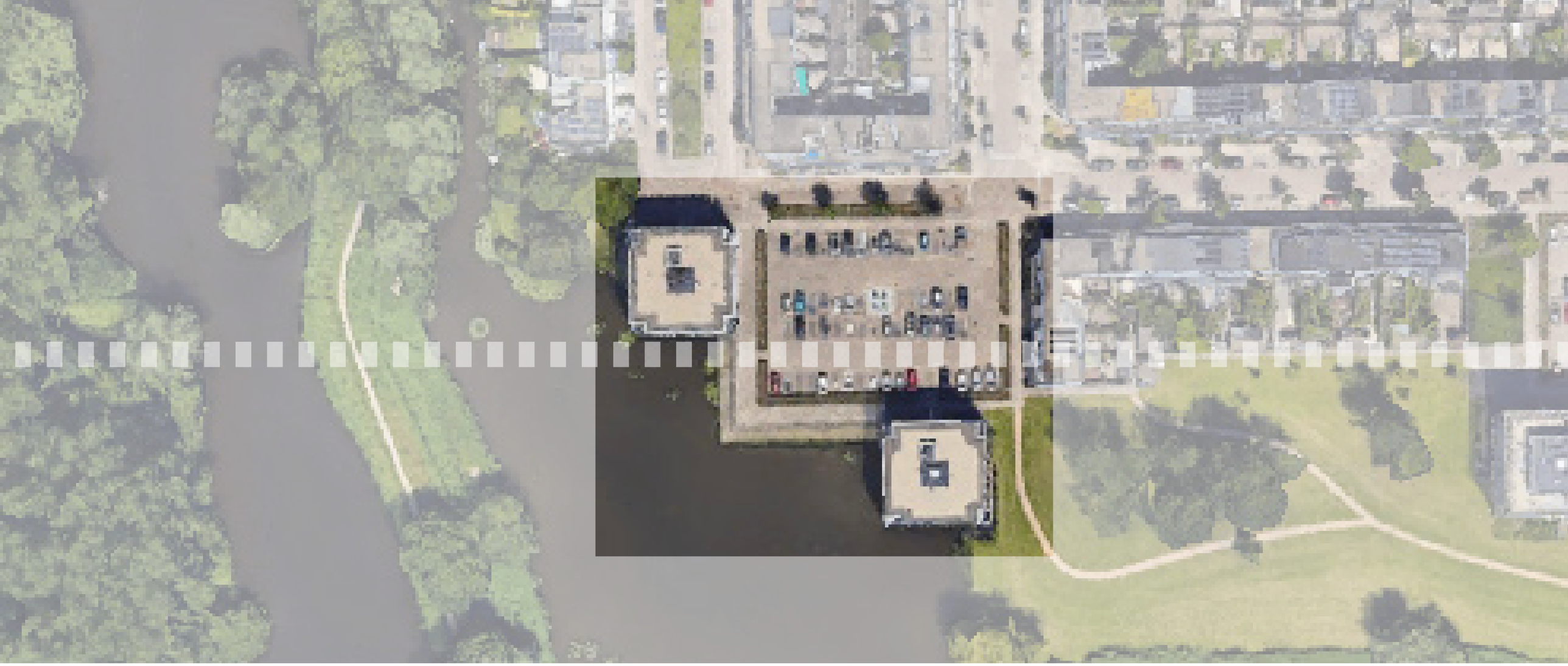



Christen

undesigned border

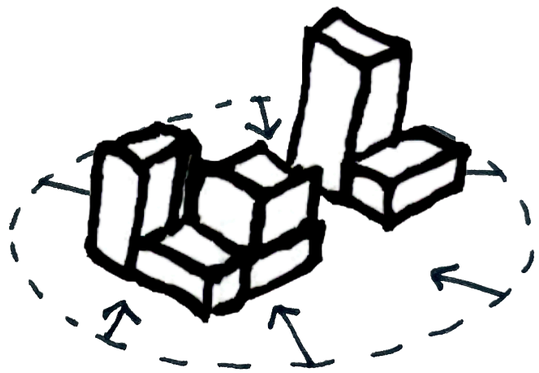


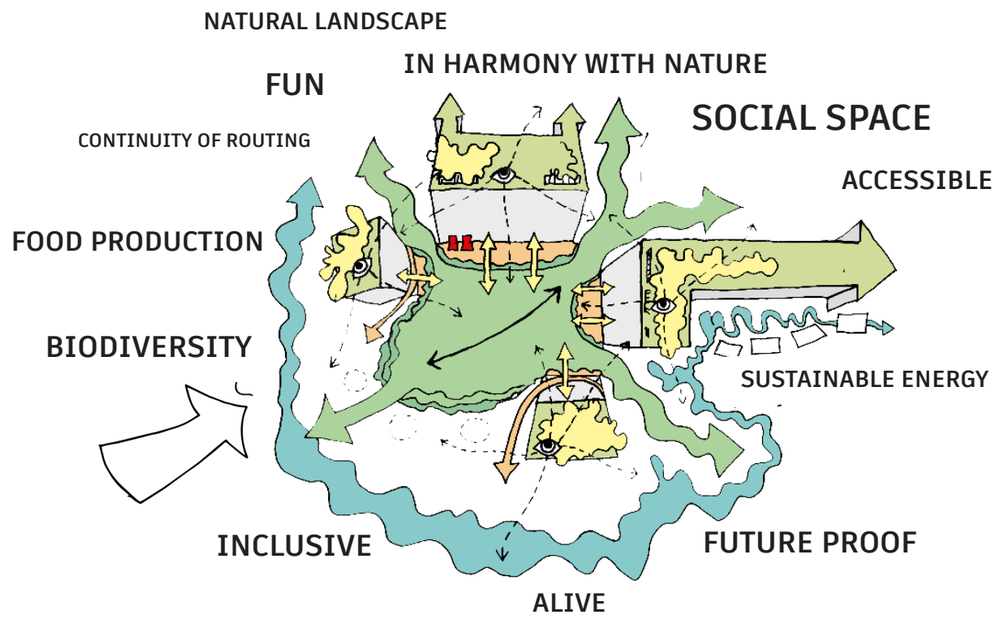


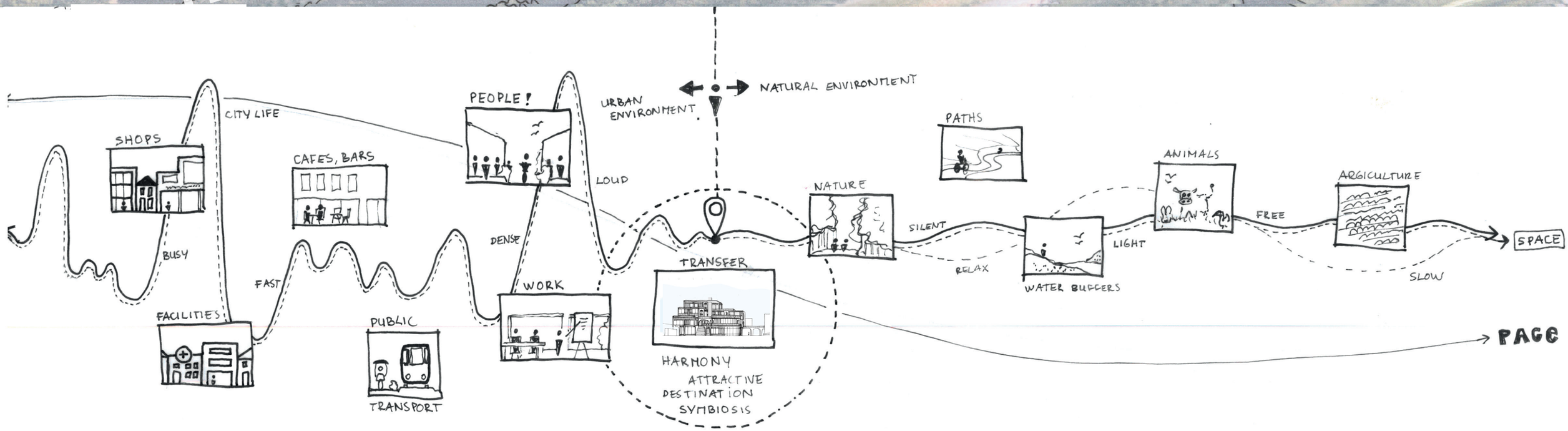



INVISIBLE!

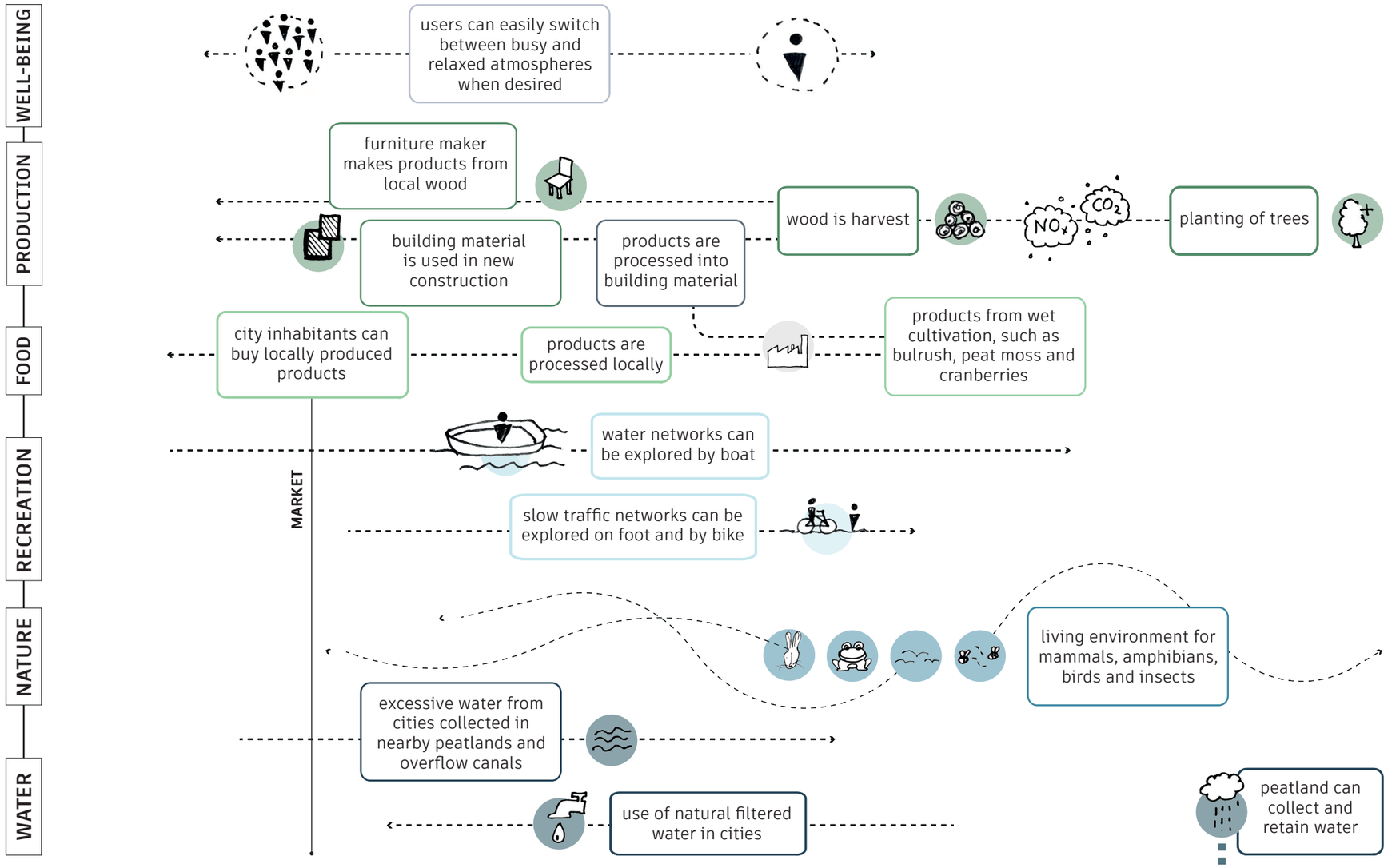
designed border

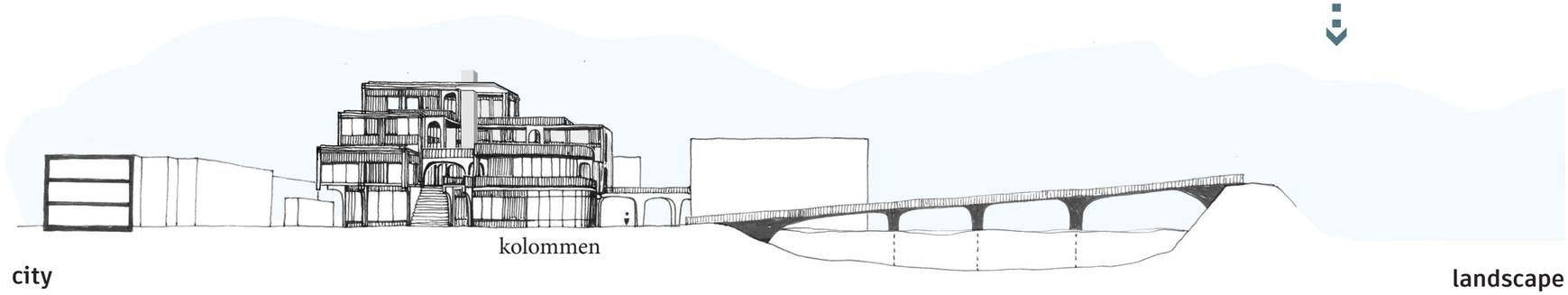





CITY LIFE
SHOPS
BUSY
FACILITIES
CAFES, BARS
FAST
PUBLIC
TRANSPORT
PEOPLE!
DENSE
WORK
URBAN ENVIRONMENT
NATURAL ENVIRONMENT
LOUD
TRANSFER
HARMONY
ATTRACTIVE DESTINATION
SYMBIOSIS
NATURE
PATHS
SILENT
RELAX
WATER BUFFERS
LIGHT
ANIMALS
FREE
ARGICULTURE
SLOW
SPACE
PACE

INTERACTION *CITY - LANDSCAPE*

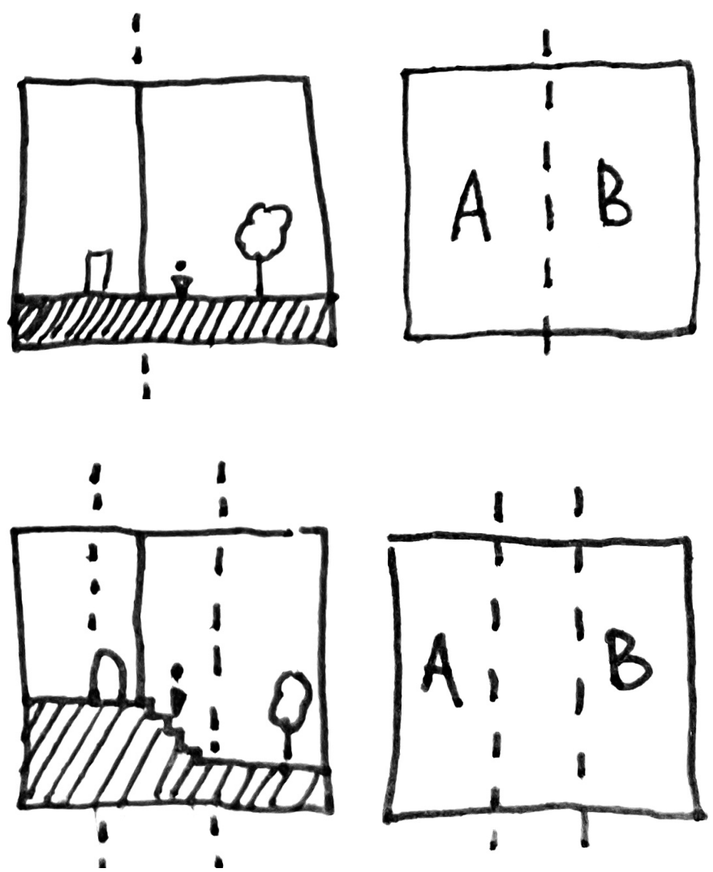




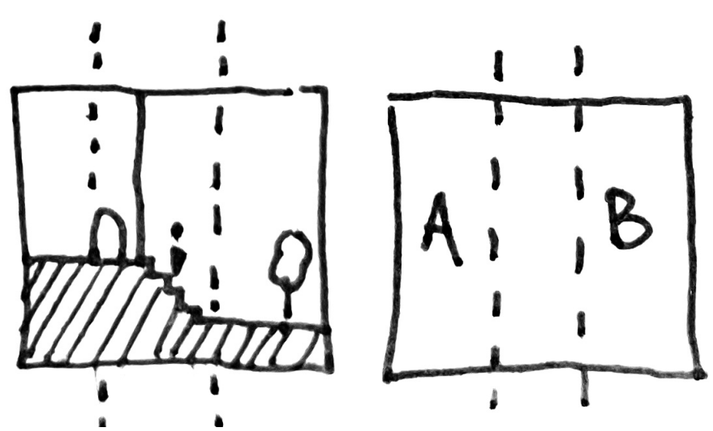
city

landscape

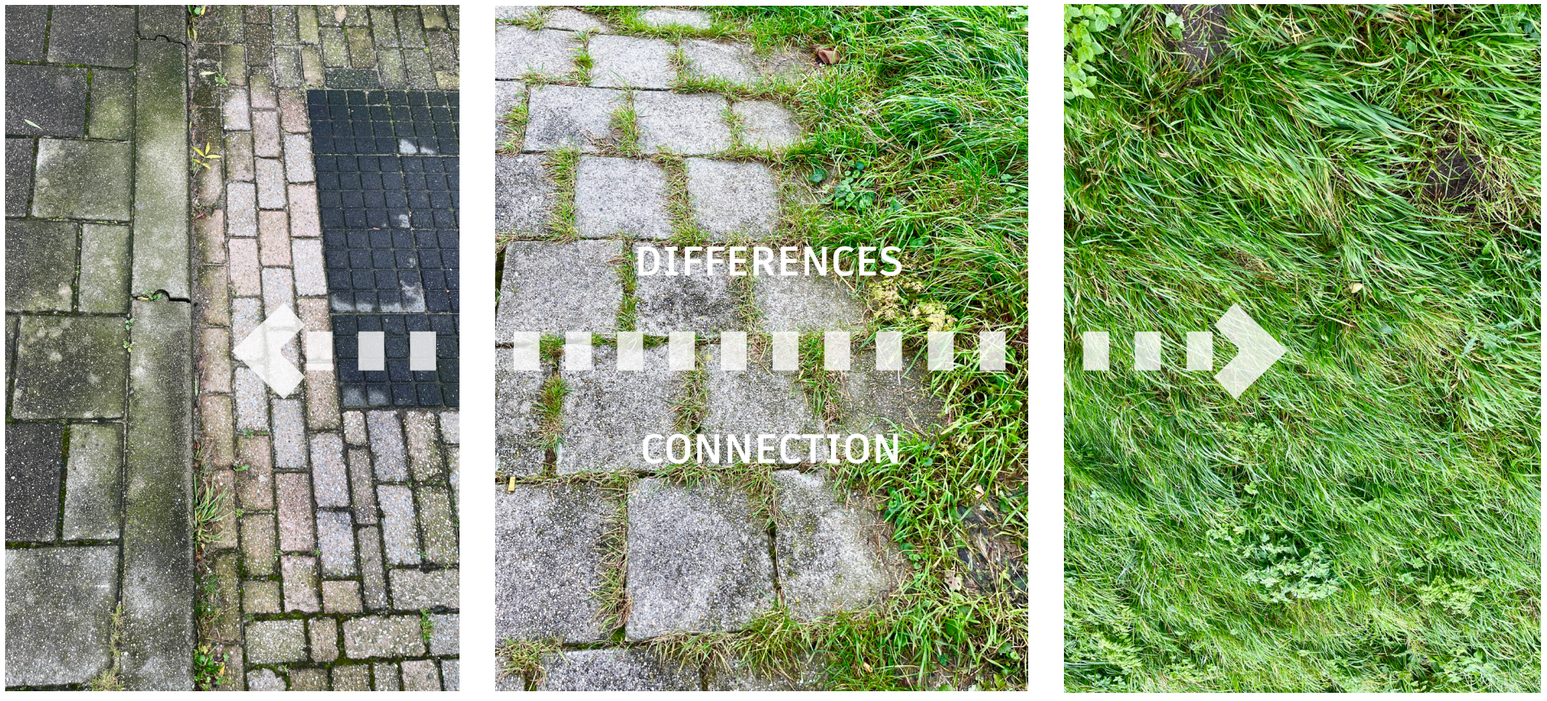
boundary



b o r d e r



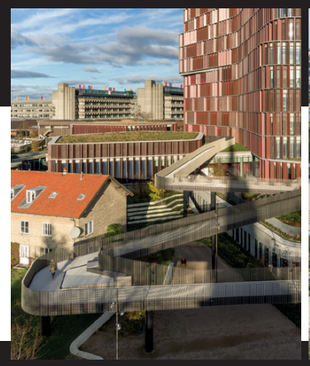
MOVEMENT ⟷ BORDERS

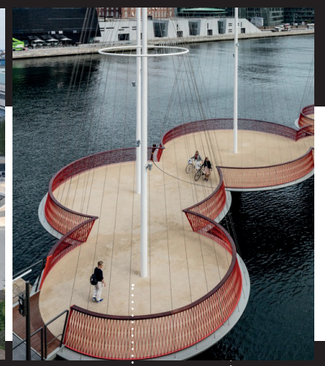

DIFFERENCES
CONNECTION

HOW WE MOVE

I. equal acces to mobility -
|| prioritize affordable means of mobility
|| invest in mobility by foot, by bike and by public transport

II. support sustainable means of mobility
|| create infrastructure networks for sustainable transportation
|| increase comfort of sustainable choice / decrease comfort of unsustainable choice]





Jan Gehl, Cities for People, 2010

Copenhagen urban structures

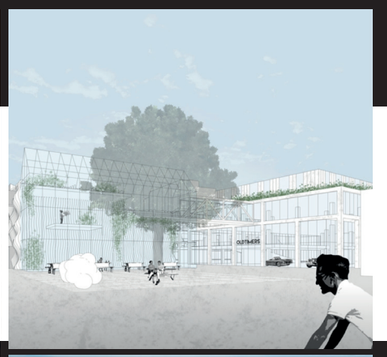
The ambitions regarding ***HOW WE MOVE*** are illustrated by the example of Copenhagen. Copenhagen has been holding the position as the most bicycle-friendly capital since 2015. This is due to its infrastructure, making cycling both convenient, safe, and fast. Winter can get cold, but still, copenhageners tend to choose to bike. It is a matter of priority. A bicycle-centric urban planning, with investments in a safe, well-connected, and user-friendly bicycle infrastructure, has made cycling the best way to get around the city. This approach is taken as an inspiration in my design. Similarly, the lower photos from Jan Gehl's book 'Cities for People' (2010) are taken as an inspiration of how pedestrians should *not* be designed.

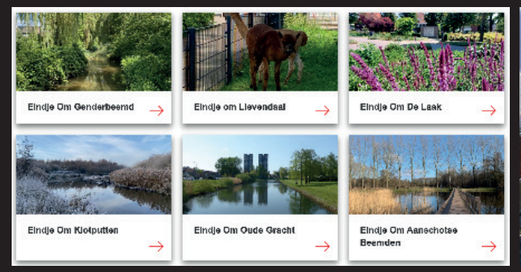
Wonderful Copenhagen, 2024

WHY WE MOVE

III. encourage local economies
|| minimize travel time to primary needs
|| design space for local initiatives

IV. increase movement for leisure
|| increase attractivity of leisure movement
|| invest in safe and continuous routes, at any time of the day

'Rondje Rijnhaven, MVVA

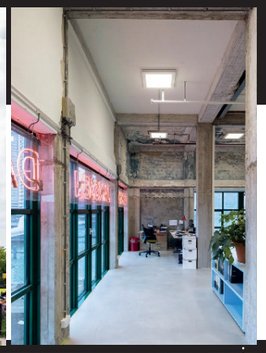
Craftmenship village Made by NRE, Eindhoven

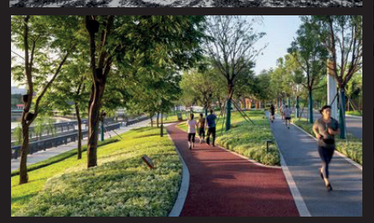
The ambitions regarding ***WHY WE MOVE*** are illustrated by the three examples from Rotterdam and Eindhoven. Both address the trigger for one to move. Due to urban sprawl, residents are often forced to take a car to do activities. By encouraging local economy development, travel times can be reduced and thereby costs, energy and mental stress. The Craftsmenship village Made by NRE is an example of how such local economy can be encouraged. The second ambition addresses the joy of movement. Walking is more than getting from A to B; it is also strolling through the city, getting some fresh air or enjoying a sunset. By creating routes that are continuous, people will be more likely to 'go for a walk' for the sake of joy. As movement is healthy, I desire to encourage this behaviour in my design.

WHEN WE MOVE

V. create a safe environment at any time of the day
|| design a sequential mixed use program to support social control
|| mix groups of people with different lifestyles and mix activities taking place at different moments in time]

VI. create natural flow for different types of mobility
|| define routing of each type of mobility to assure safety
|| seperate fast-lanes from slow-lanes at places of intersection

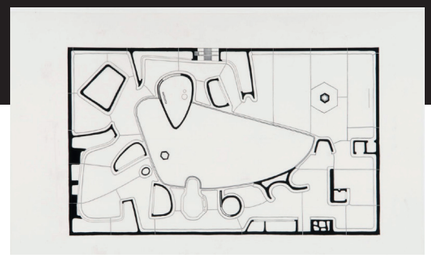

The ambitions regarding ***WHEN WE MOVE*** are illustrated by one specific example being the Fenix I building in Rotterdam, and a few more general examples. The development of a sequential mixed-use program, rather than just a mixed-use program, will contribute to a higher degree of social control. The Fenix I building in an example of a building in which a mised use program has been implemented.

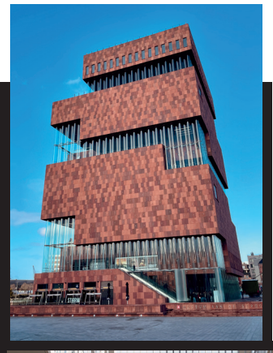
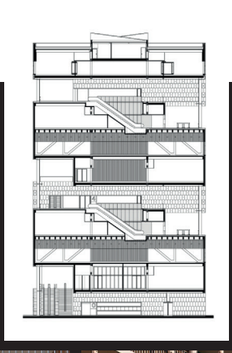
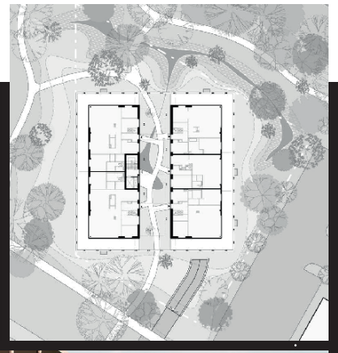
Fenix I, Mei Architects

WHAT MOVES US

VII. design movement through routing
|| design from routing through atmospheres
|| create continuous routing between different spaces, let the user be moved by the space

VIII. increase automatic awareness of environment
|| design architecture that triggers interaction/care/consciousness
|| design elements that create interaction between building and user



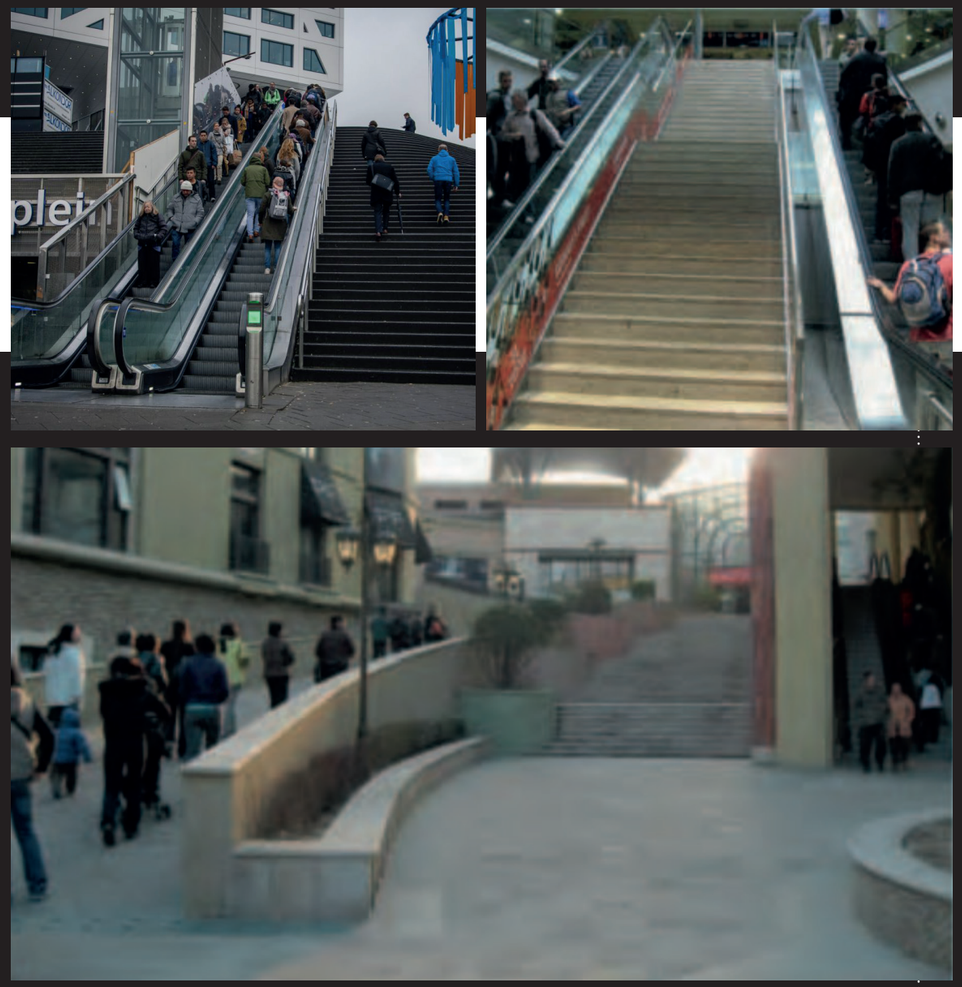




The ambitions regarding ***WHAT MOVES US*** are illustrated by three examples. The idea of the House of the Future is over 60 years old. It was designed by Alison and Peter Smithson, with the idea of creating a continuous interior around a central patio. They desired to let the user be moved by the interior design. Similarly, in the design of the MAS in Antwerp, the movement of the user through the building is a key element in the design. Starting from ground level, the user follows the continious route leading all the way to the roof. In the third example, the nearby walking routes are connected through the building as if the user experiences a walk in the forest. In addition to this, the natural materialisation create an automatic awareness of the environment, as the user is directly confronted with it. These are examples of how users can be moved by an environement - literally and spiritually.

Het Bospad, Gaaga, 2022

IF WE MOVE

IX. discourage inactive means of mobility
|| design accessibility of 'active' mobility more easy than 'inactive' mobility
|| apply active mobility to most logical routes]



Jan Gehl, Cities for People, 2010

The ambition regarding ***IF WE MOVE*** is illustrated by the example of Utrecht Central and two examples from Jan Gehl's book 'Cities for People' (2010). The ambition is to motivate users to be more active in their daily lives, as this improves health and mental being. With the rise of escalators, it has become uncommon to use the stairs instead. Stairs seem to represent a genuine physical and psychological challenge for pedestrians. Ramps however, though they lack the character of the stairs, are generally preferred by pedestrians. This is an instresting element that I will take into account to design more natural active movement.

WHO MOVES US

X. encourage random encounters
|| design external permeability
|| create borderzones between closed and open space, between public and private space

XI. encourage mixing identities
|| cluster different identities
|| create borderzones between different identities

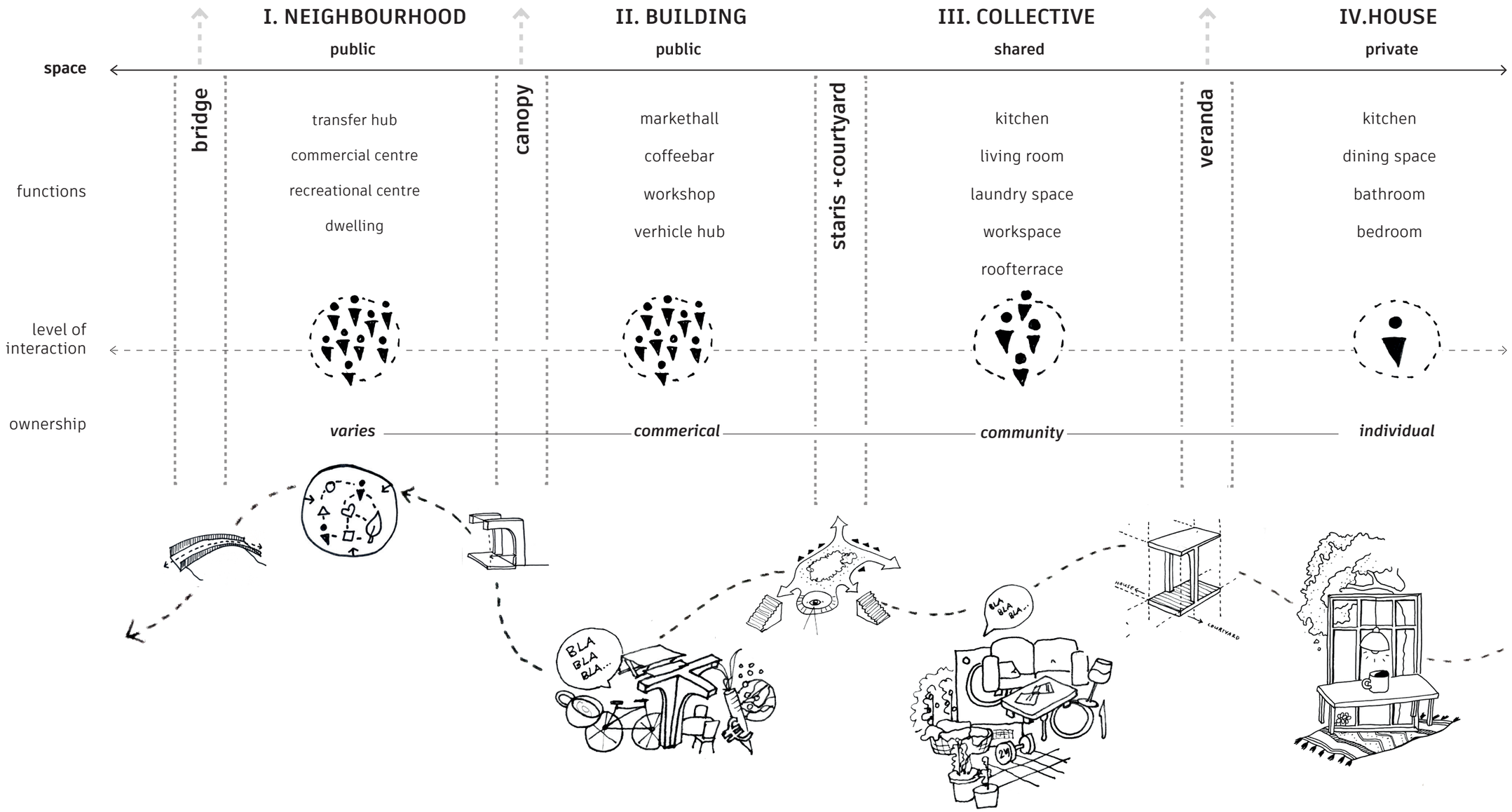
Walden 7, Ricardo Bofill, 1975

The ambition regarding ***WHO MOVES US*** is illustrated by the examples of 'La Serre' by MVRDV and Walden 7 by Ricardo Bofill. La Serre is an example of how humans can live closer to nature again. With over 25 percent of the building's inhabited area being dedicated to terraces and balconies, the vertical community is home to a social as well as an ecological ecosystem. The open facade creates connections among residents and with the city, fostering social sustainability. This is an example of a project in which the user can live closer to one another and to nature. The example of Walden 7 similarly focuses on the establishment of social sustainability amongst residents. Bofill had an idea of enabling interaction between residents and improving their quality of life through bridges, communal areas, and gardens at several levels. Each apartment faces both the inner courtyard as well as the exterior of the building. The large amount of exterior space allows for the placetaking of random encounters amongst residents, but still offers a sense of safety for kids to play. Nearly 40 years later, a more diverse generation of residents populates the building. As Walden 7 never had a central owner, the residents themselves are responsible for how the building is run. Assemblies are still held and the management team is chosen by popular vote. This democratic structure has been maintained since the outset and while the euphoria of the early days has dissipated, the strong sense of community has endured.

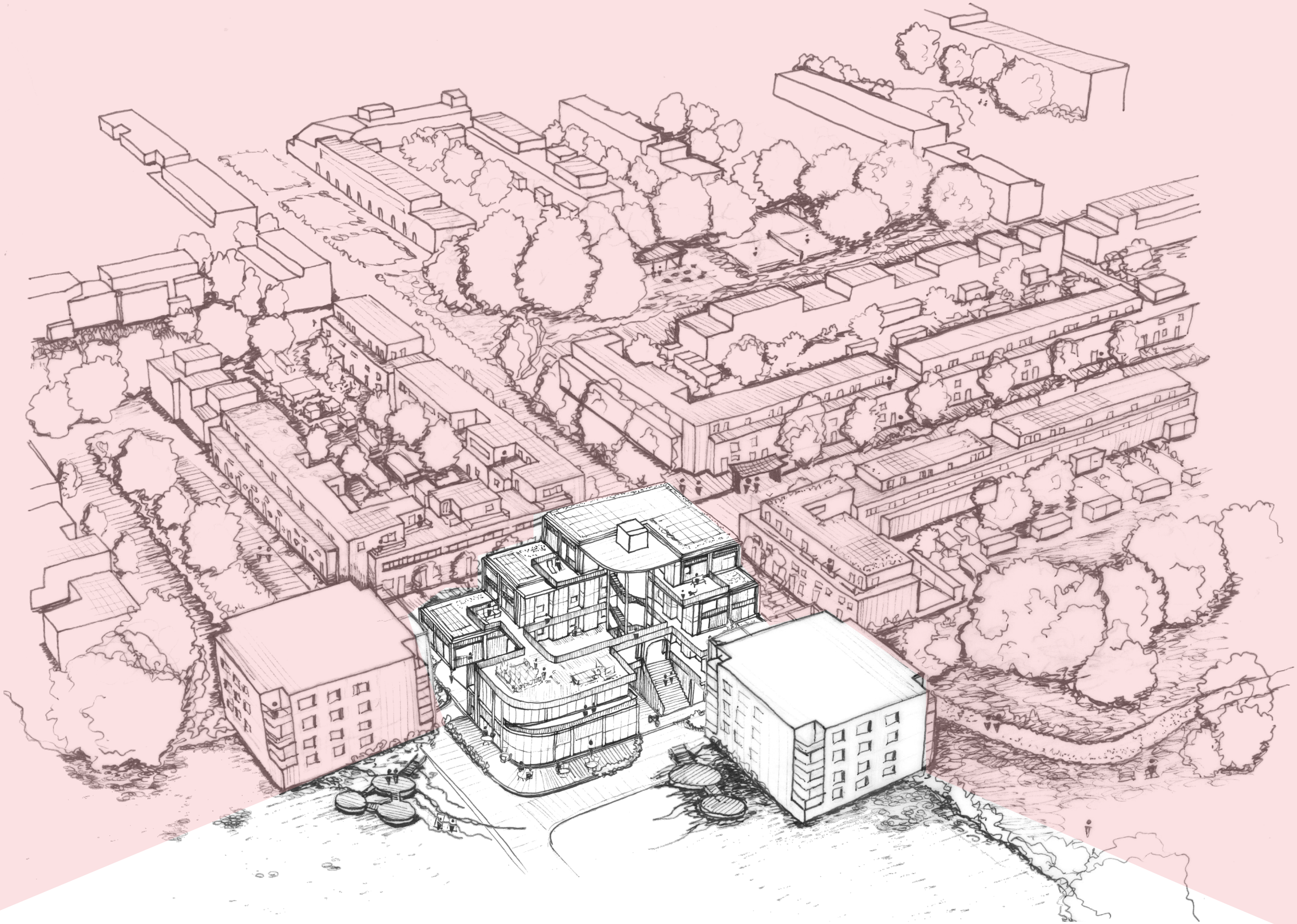

TANTHOF-WEST
Hoveniersbedrijf
Koen Huisman
Voetbalveld Aziëlaan
Lil Banks
Temporarily closed
Comorensingel
Bantulaan
Lusakastraat
Azikalaan
Himalayapad
Tibetstraat
Aziëlaan
Chinalaan
Namibiastraat
Google

MOVEMENT THROUGH SCALES...

spaces of transition



SCALE I: NEIGHBOURHOOD



SCALE I: NEIGHBOURHOOD

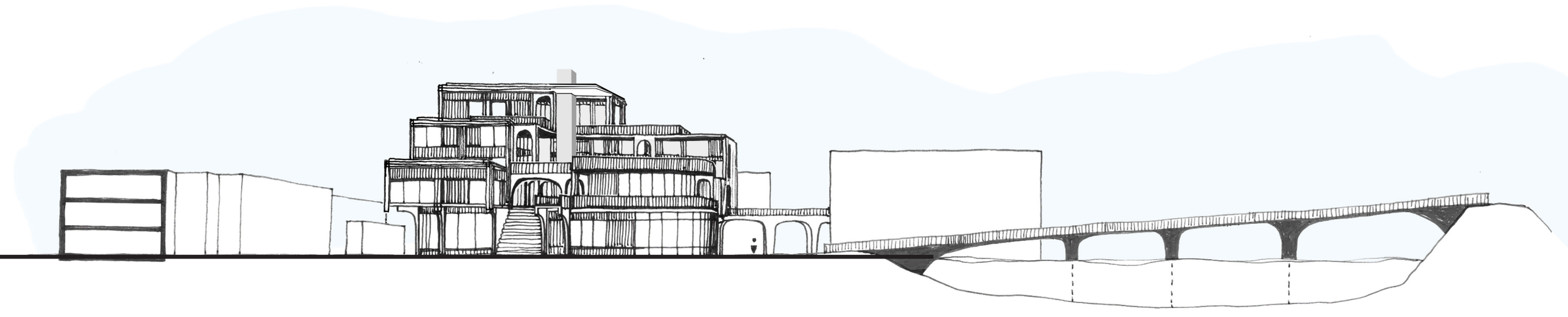
fast traffic networks - slow traffic networks

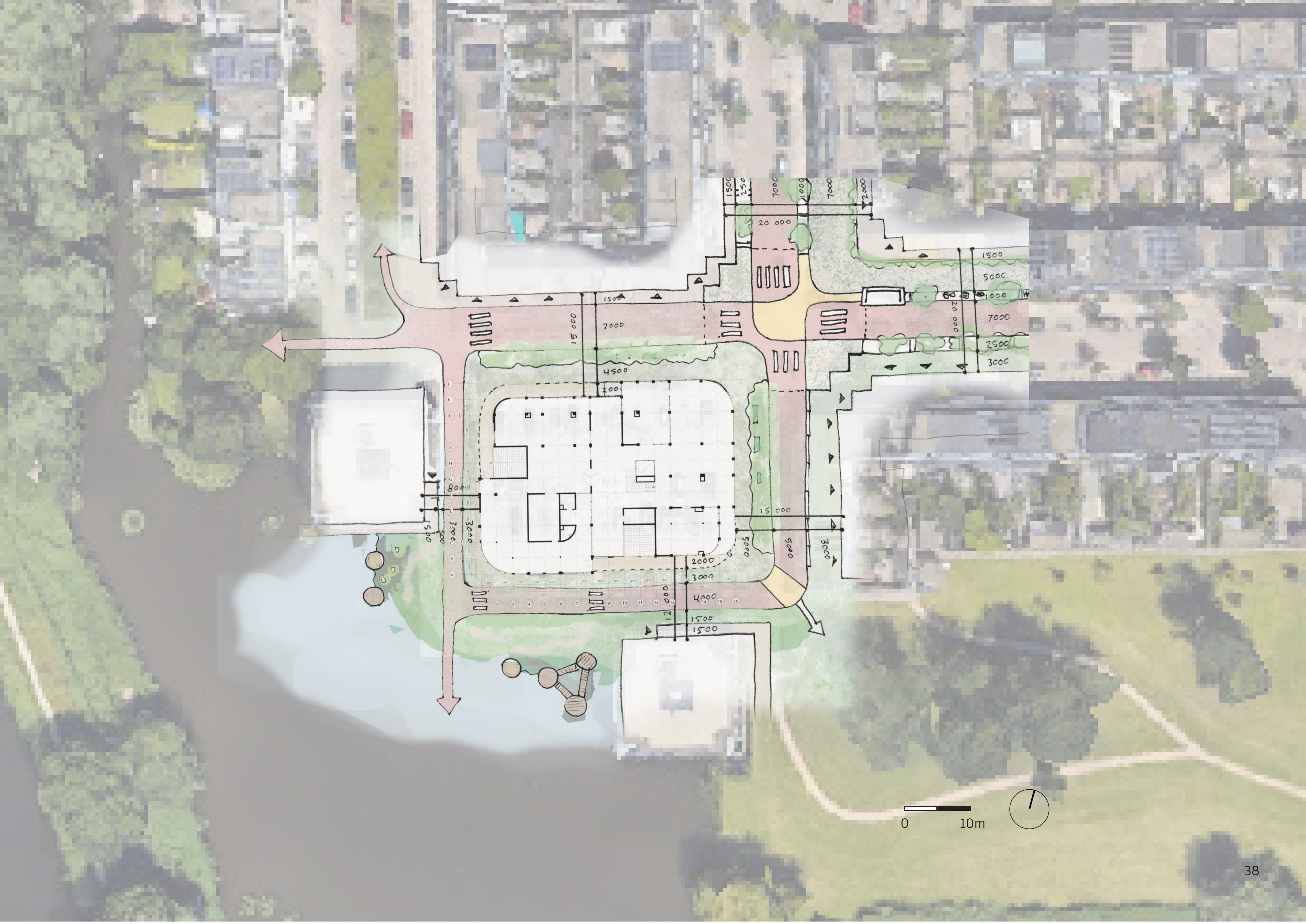
0 50m

SCALE I: NEIGHBOURHOOD

0 50m

SCALE I: NEIGHBOURHOOD





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4000
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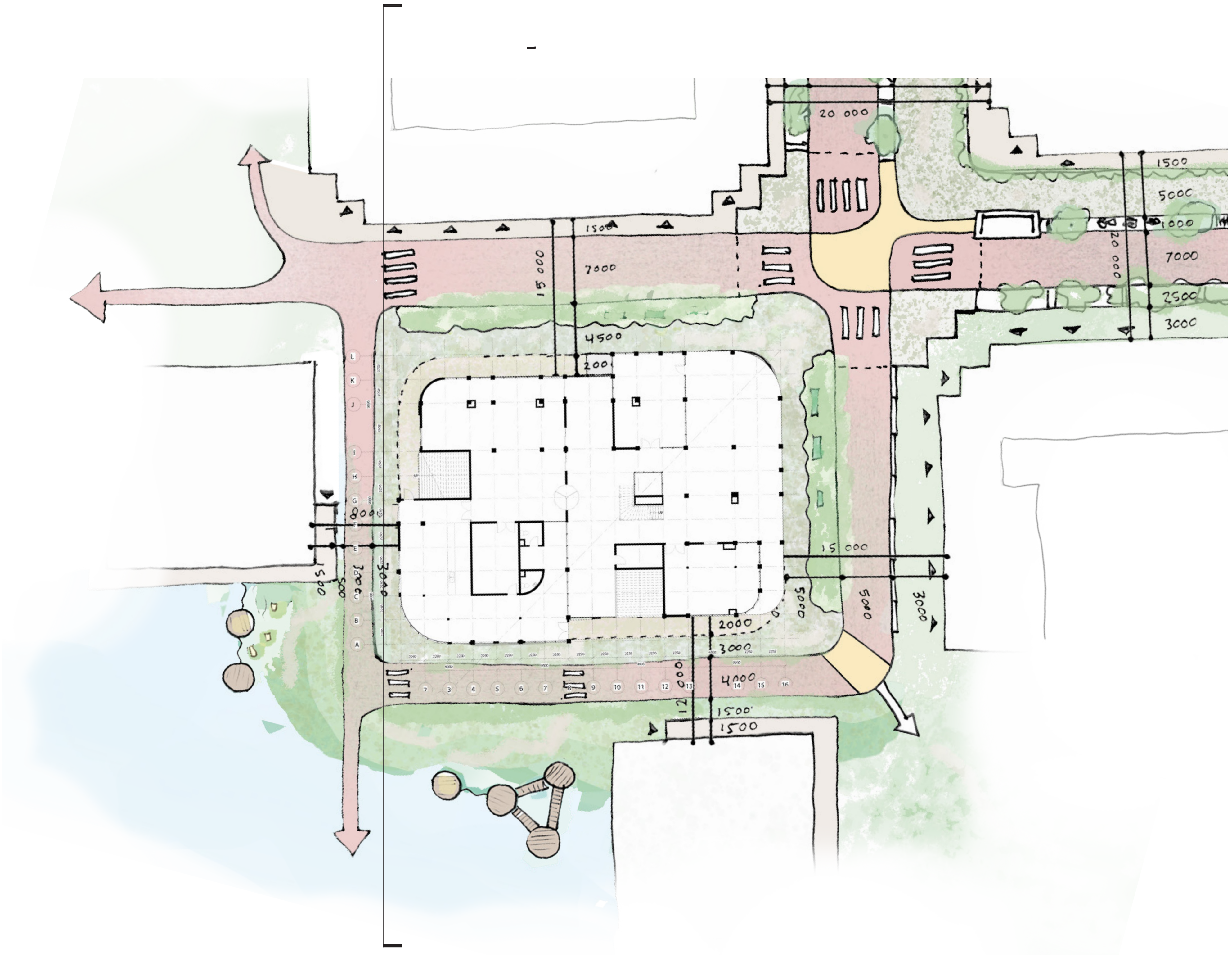
10m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4500
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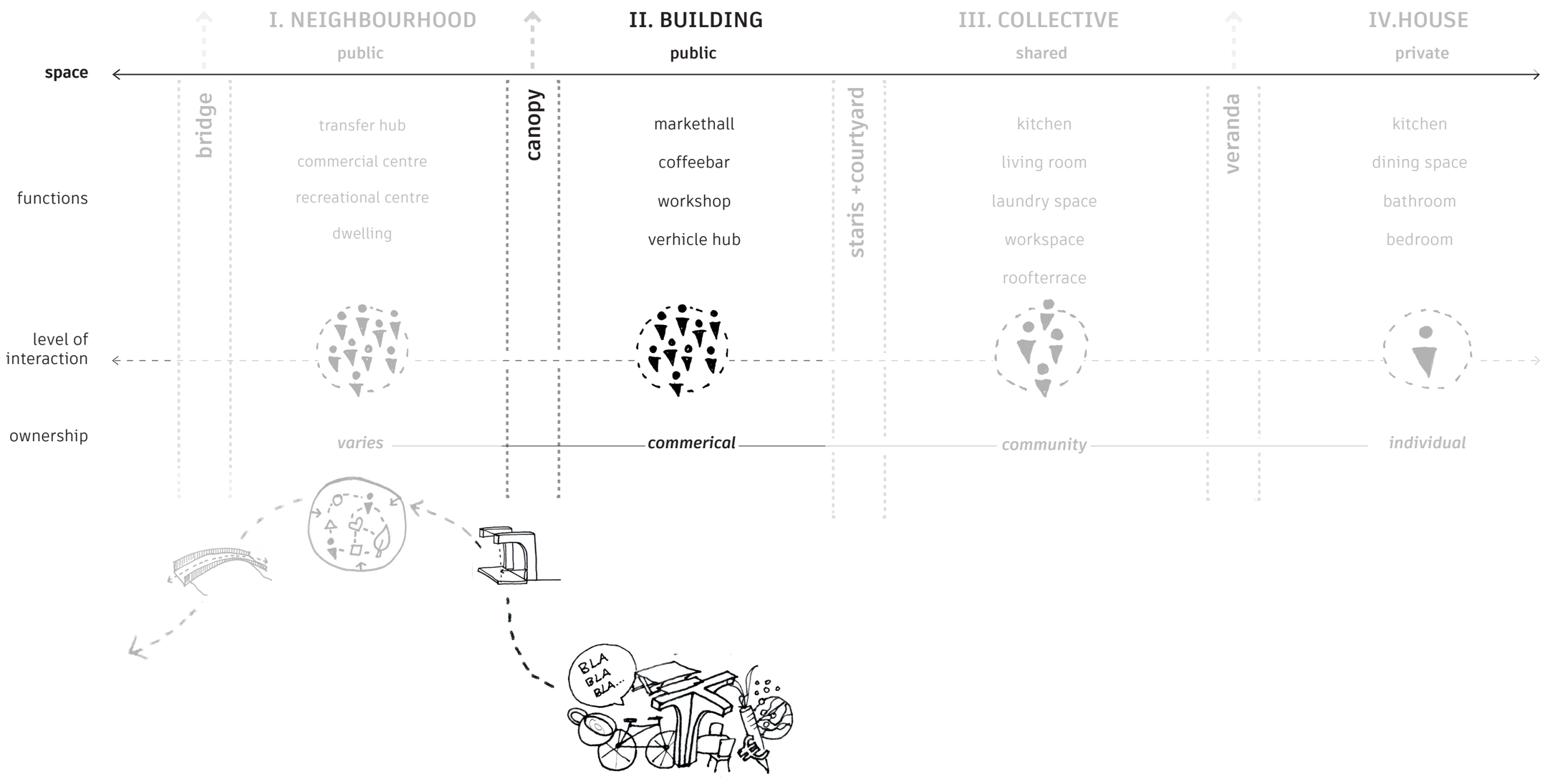
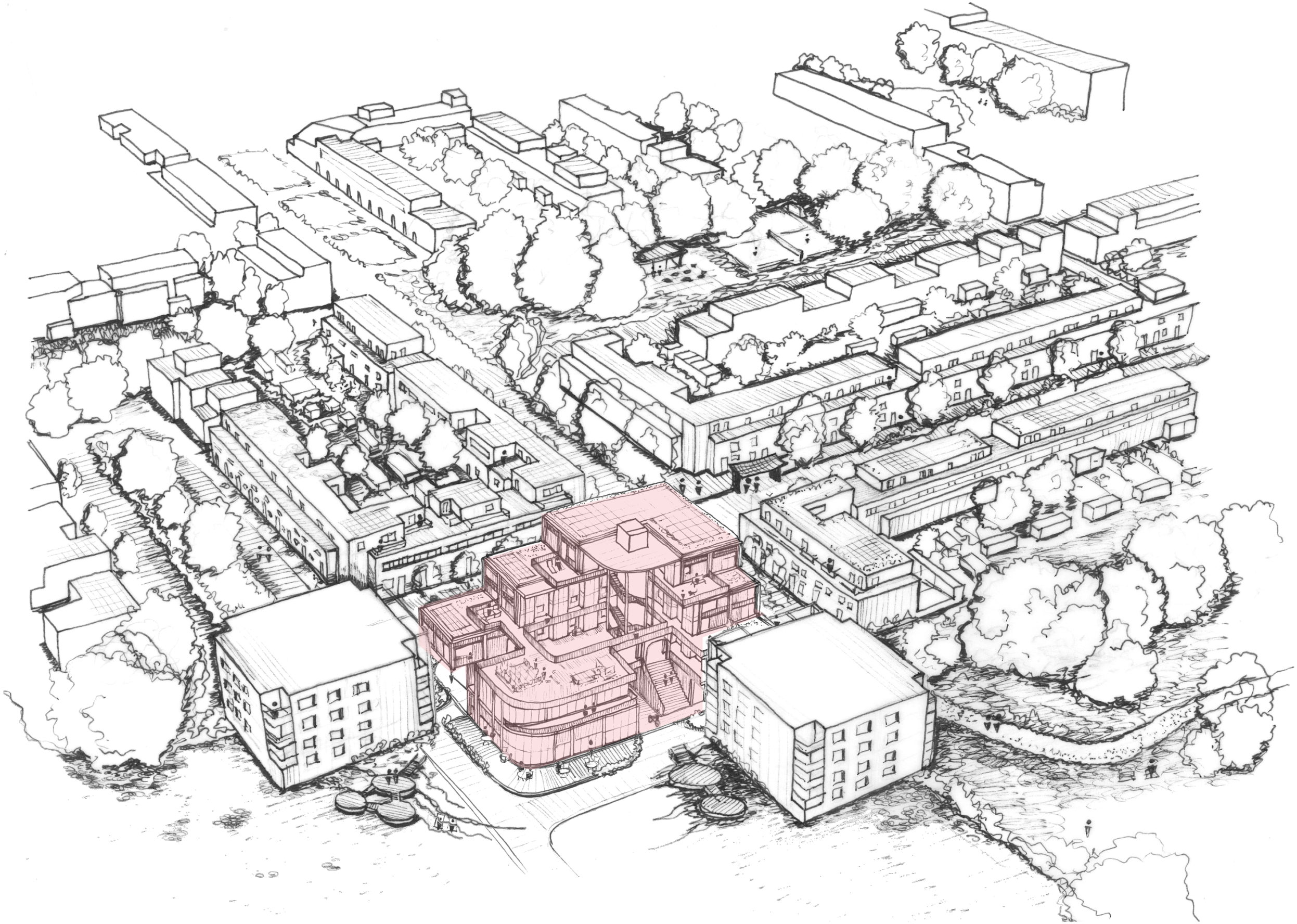
4000
1500
12 000
800
5000
3000

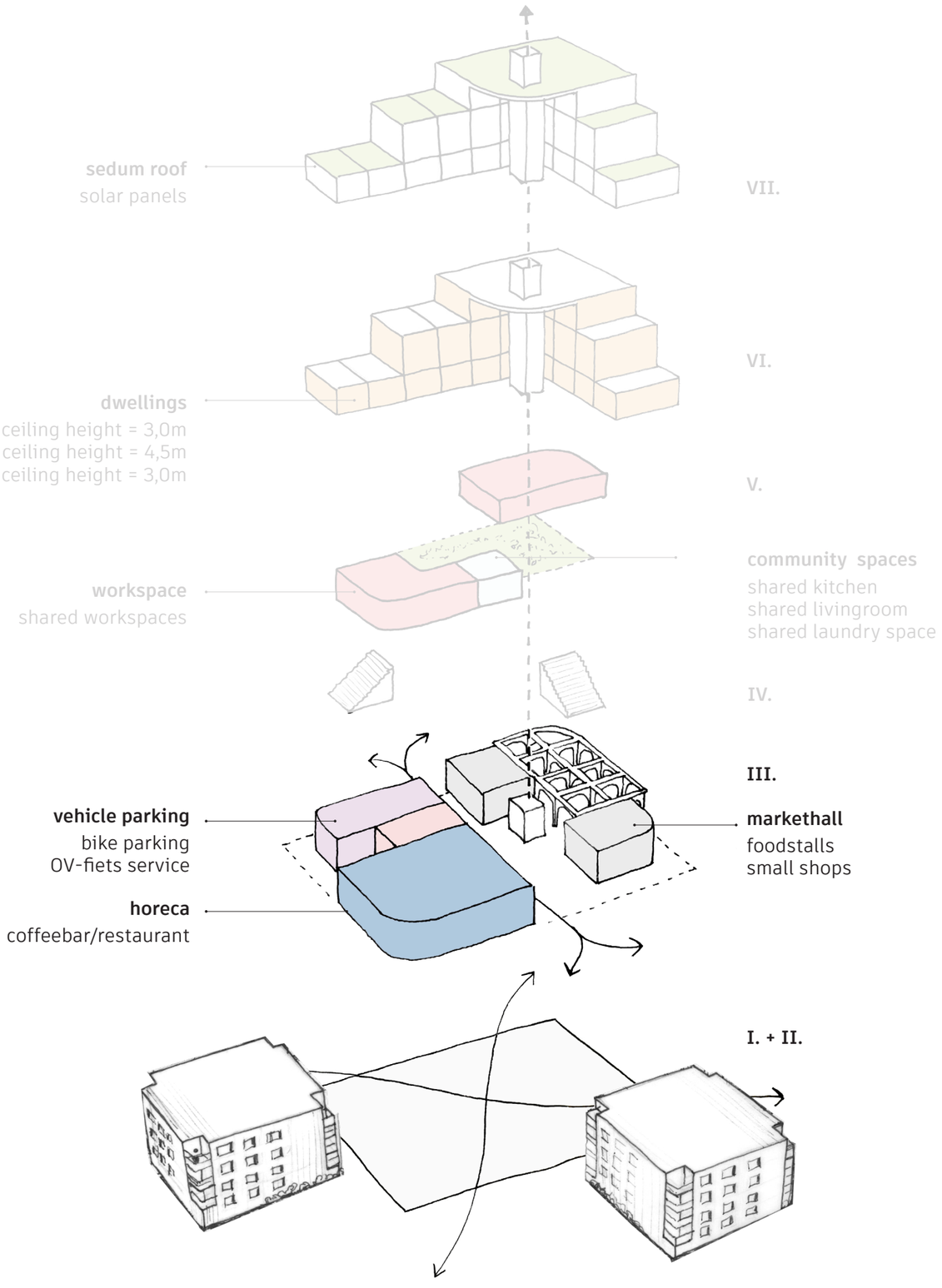

0
10m

SCALE II: BUILDING





BUILDING VOLUME



VII. OPERATES

Building materials
Construction
Climate design
Life-cycle

VI. ADJUSTS

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V. UNITES

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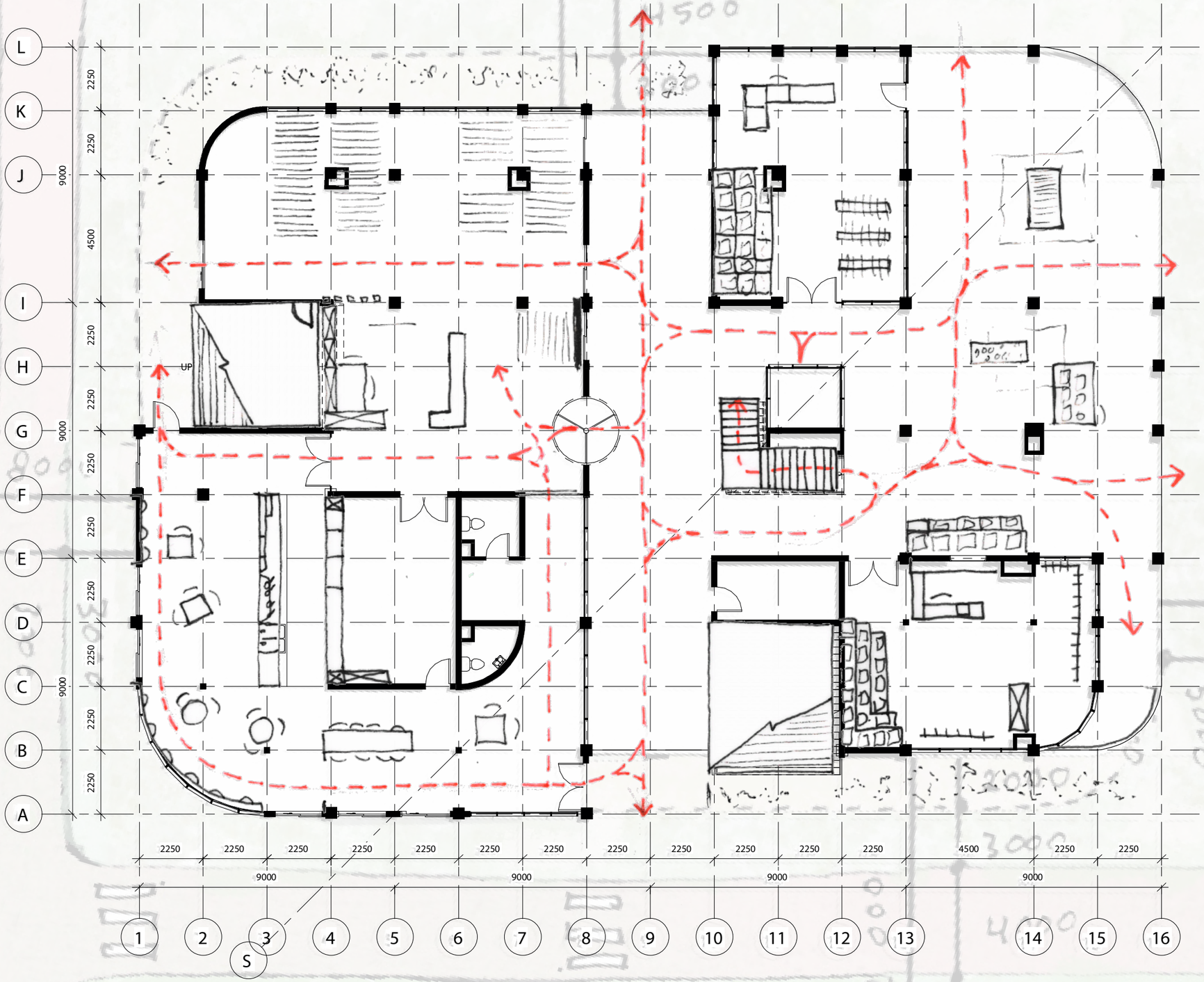
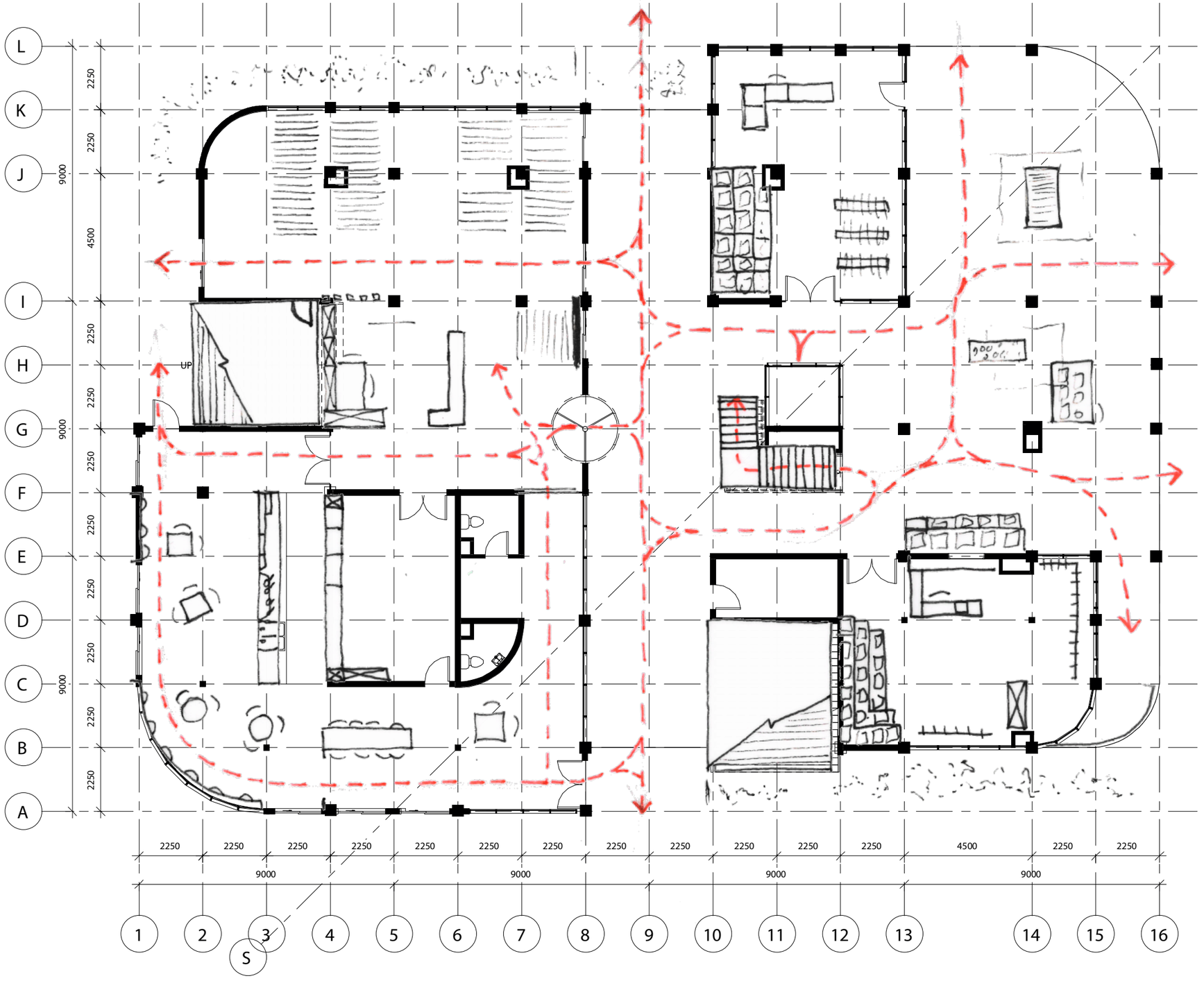
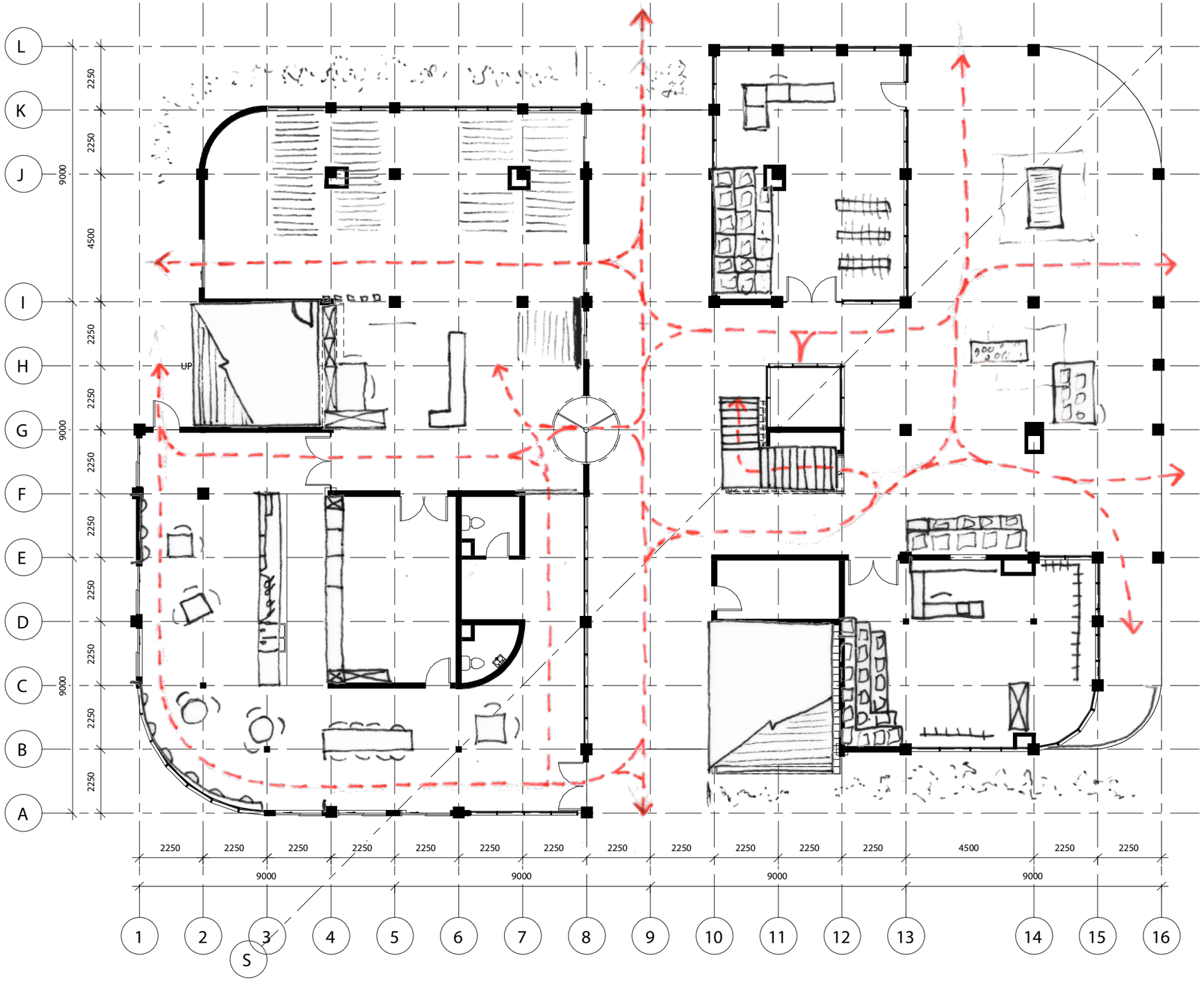
cafe · parking · sedum roof



GROUND FLOOR 1:150

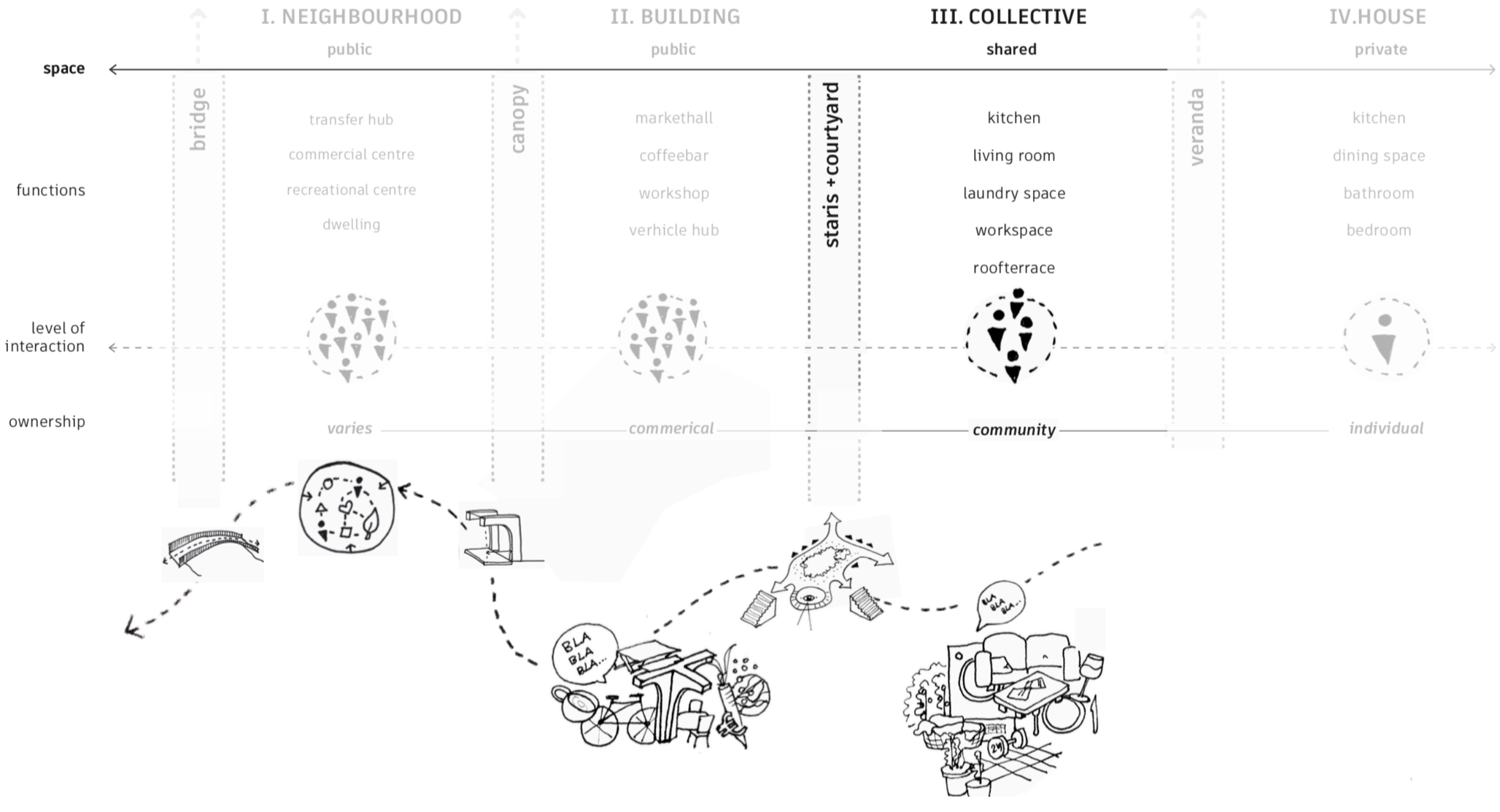


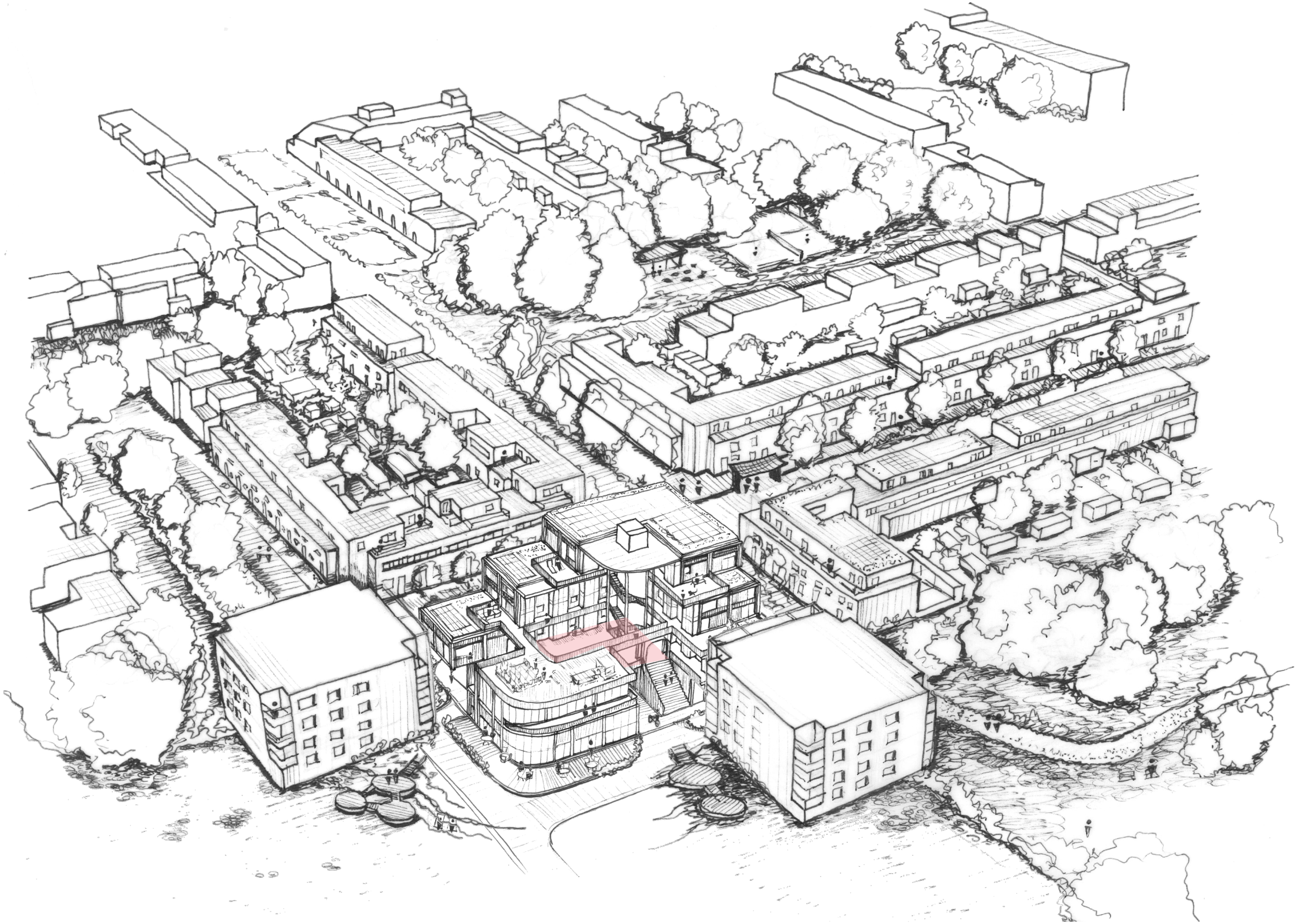
GROUND FLOOR 1:150



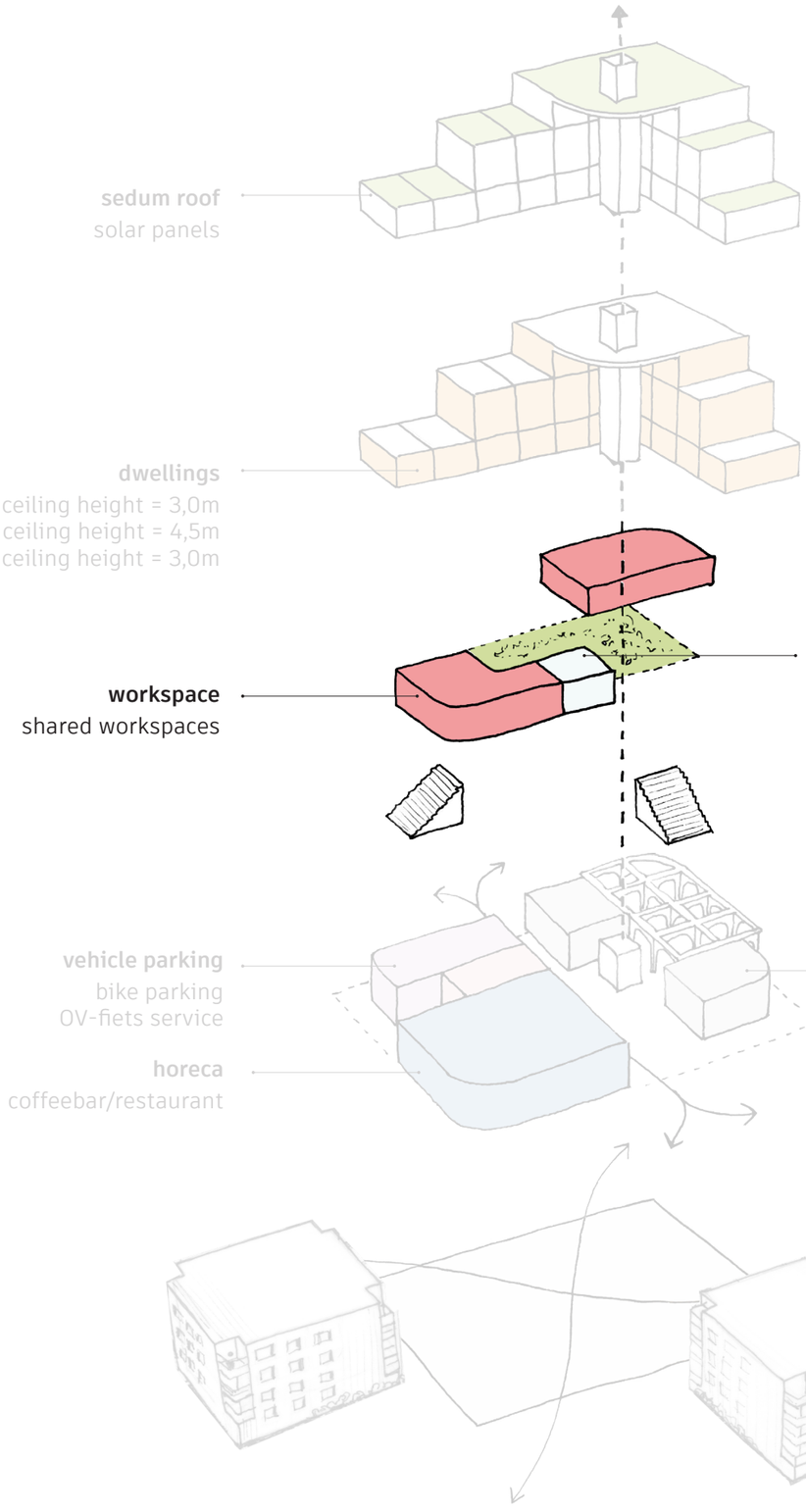
GROUND FLOOR 1:150

SCALE III: COLLECTIVE





BUILDING VOLUME



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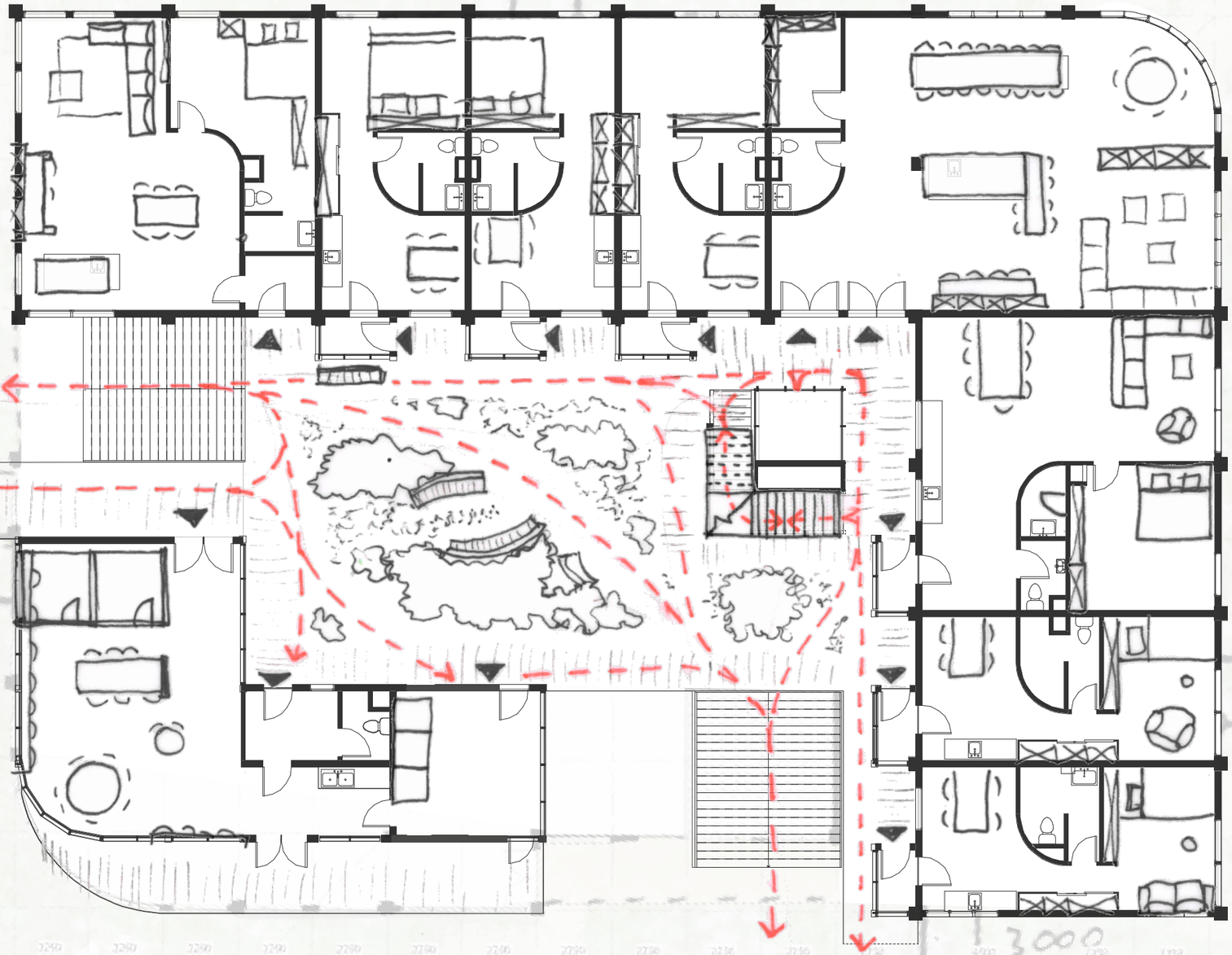
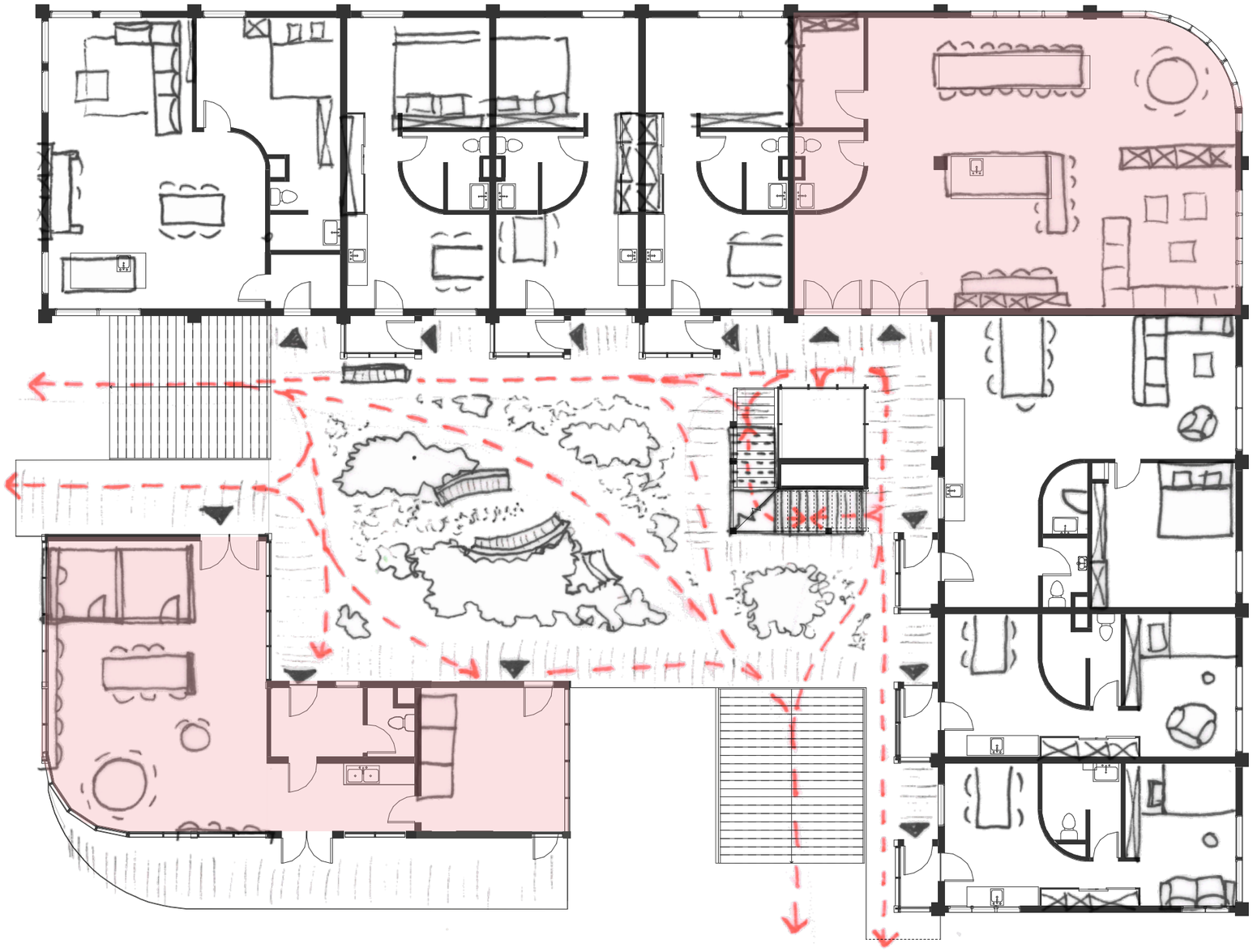
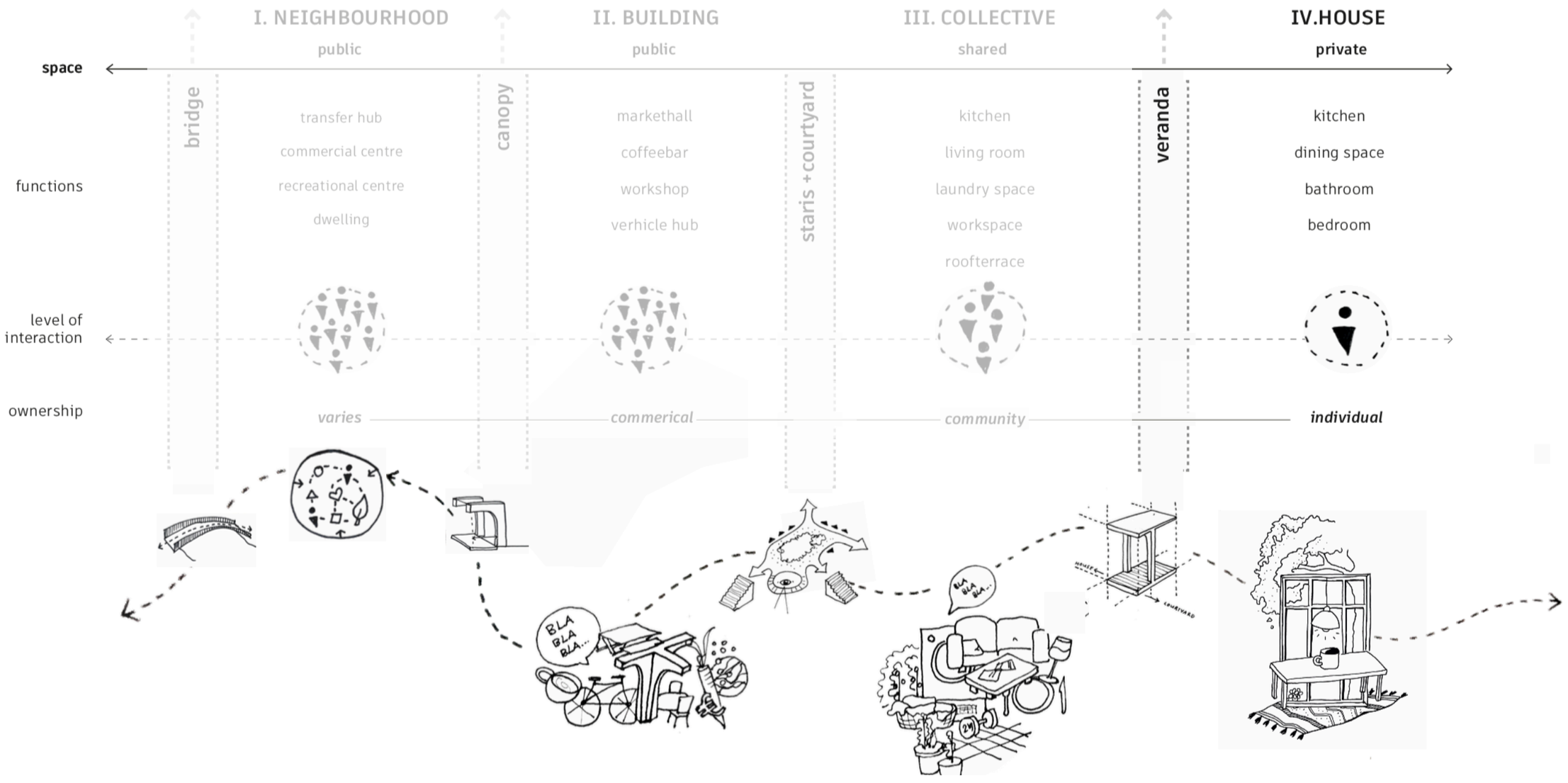


LEVEL ONE 1:150

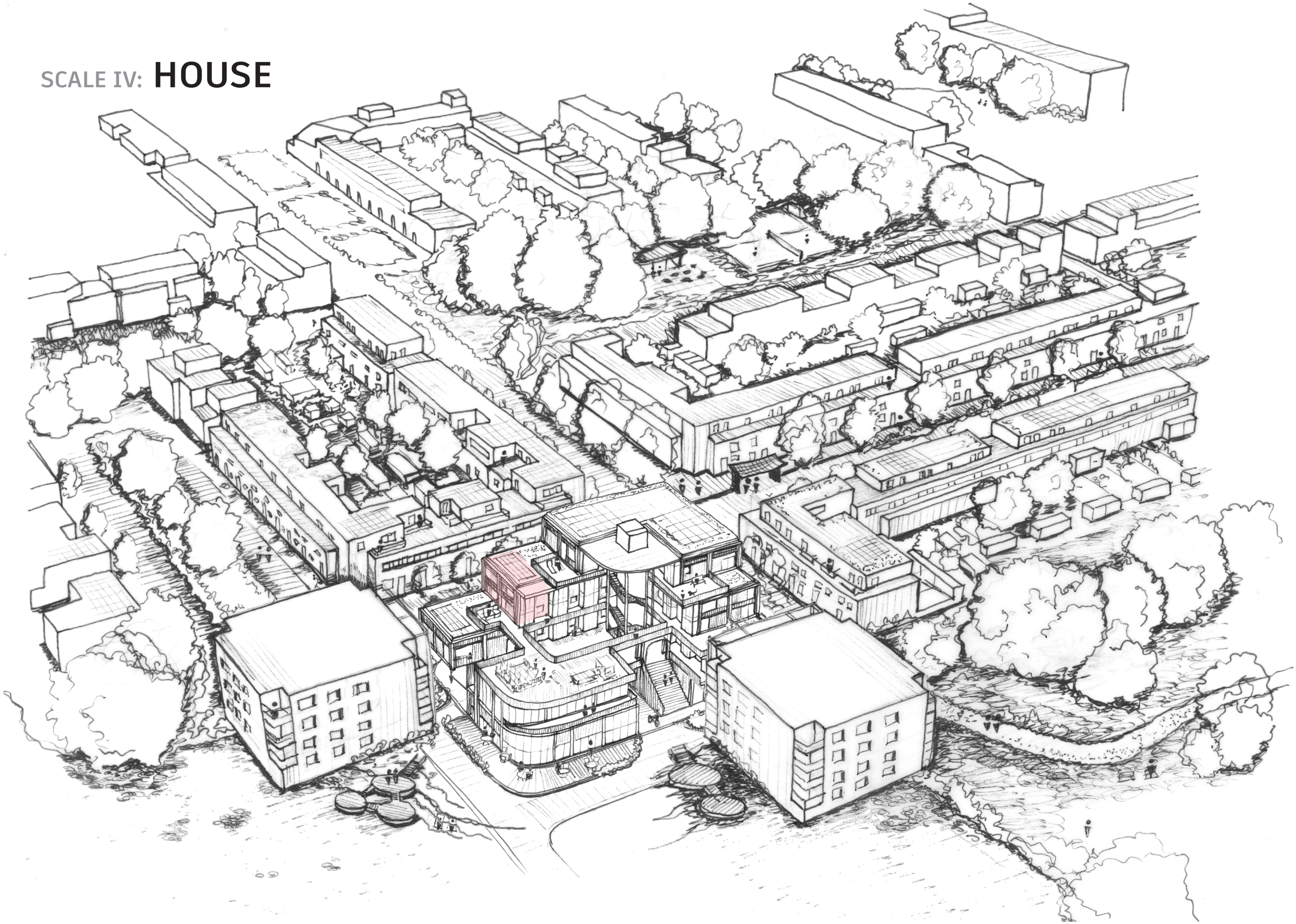


LEVEL ONE 1:150

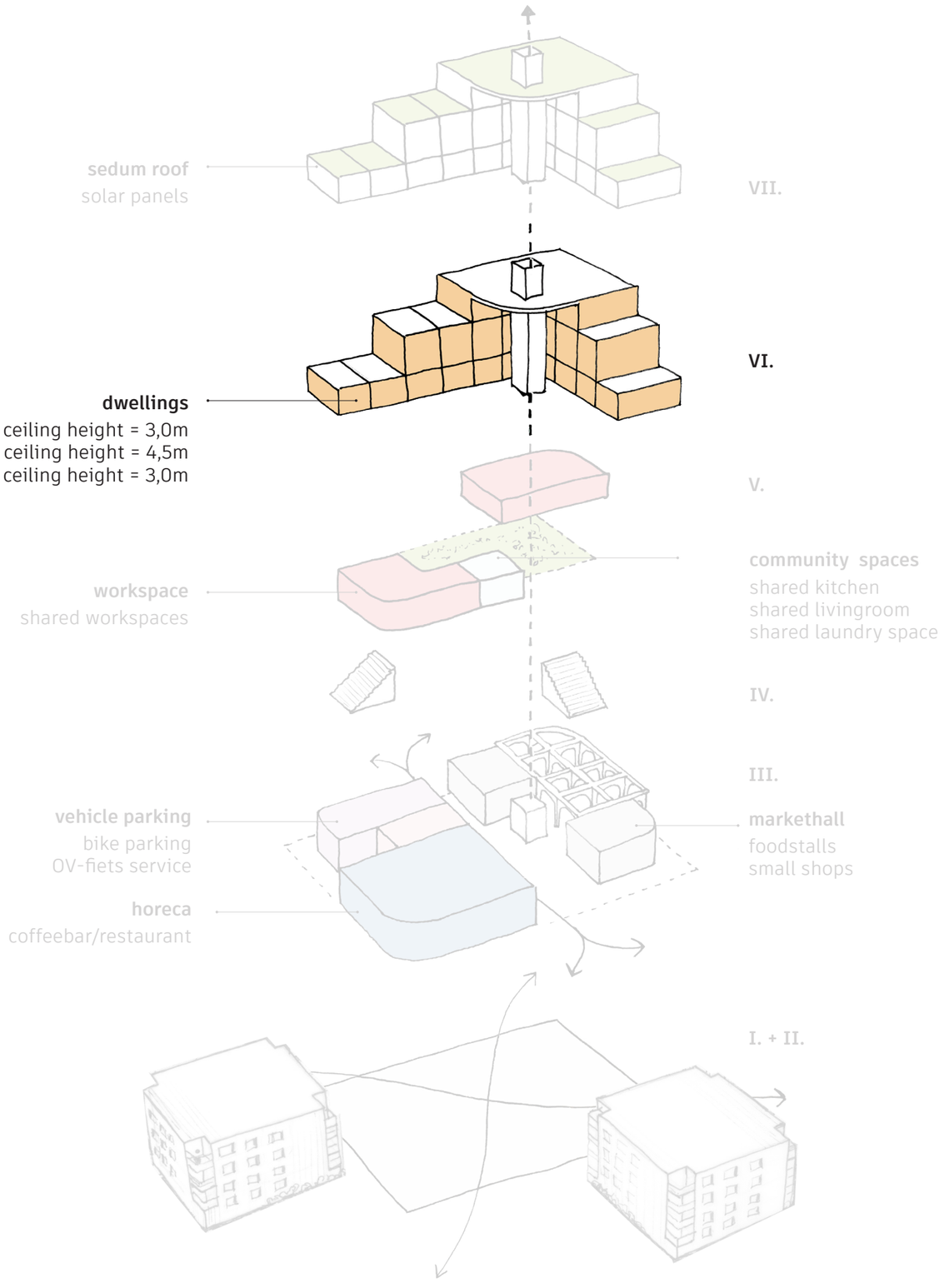
SCALE IV: HOUSE



SCALE IV: HOUSE



BUILDING VOLUME



VII. ENABLES

The with sedum covered ‘breathing roofs’ of the building provide the building of solar energy, assure a better retention of water and contribute to the mitigation of urban heat in the direct surroundings.

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DWELLING TYPES

roofscape

total amount of dwellings: **18**
total amount of squared m²: **964 m²**

+3

1 x **72 m²**
1 x 72 m²
2 x 36 m²

+2

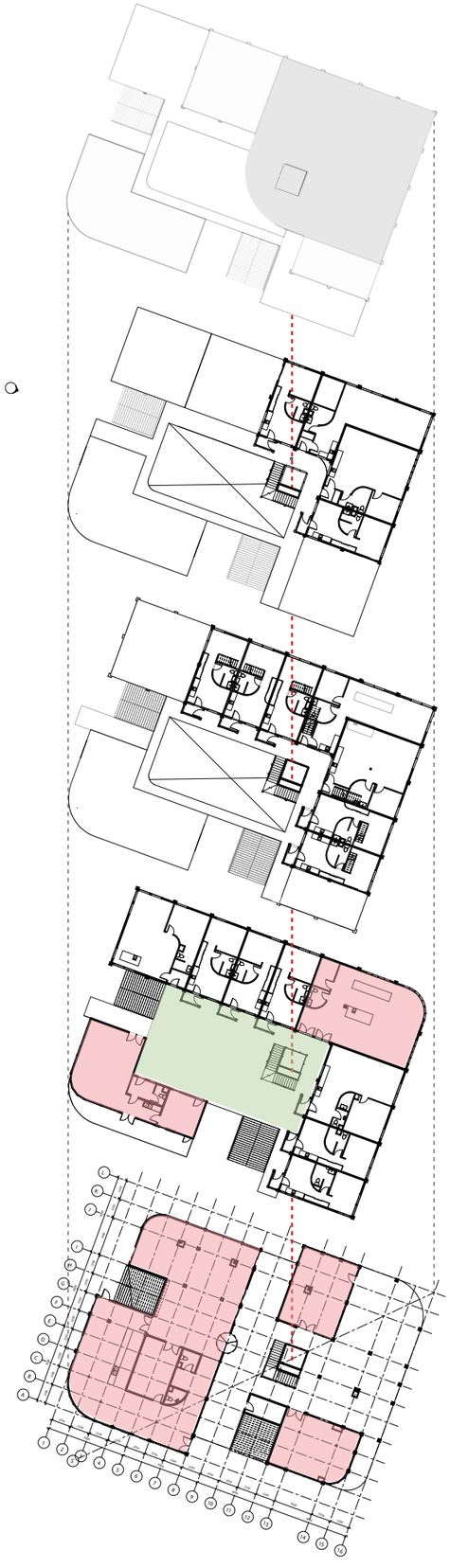
1 x 96 m²
1 x **88 m²**
5 x 48 m²

+1

2 x 72 m²
5 x 36 m²

0.

PUBLIC/COMMUNAL SPACES



roofscape

+3

+2

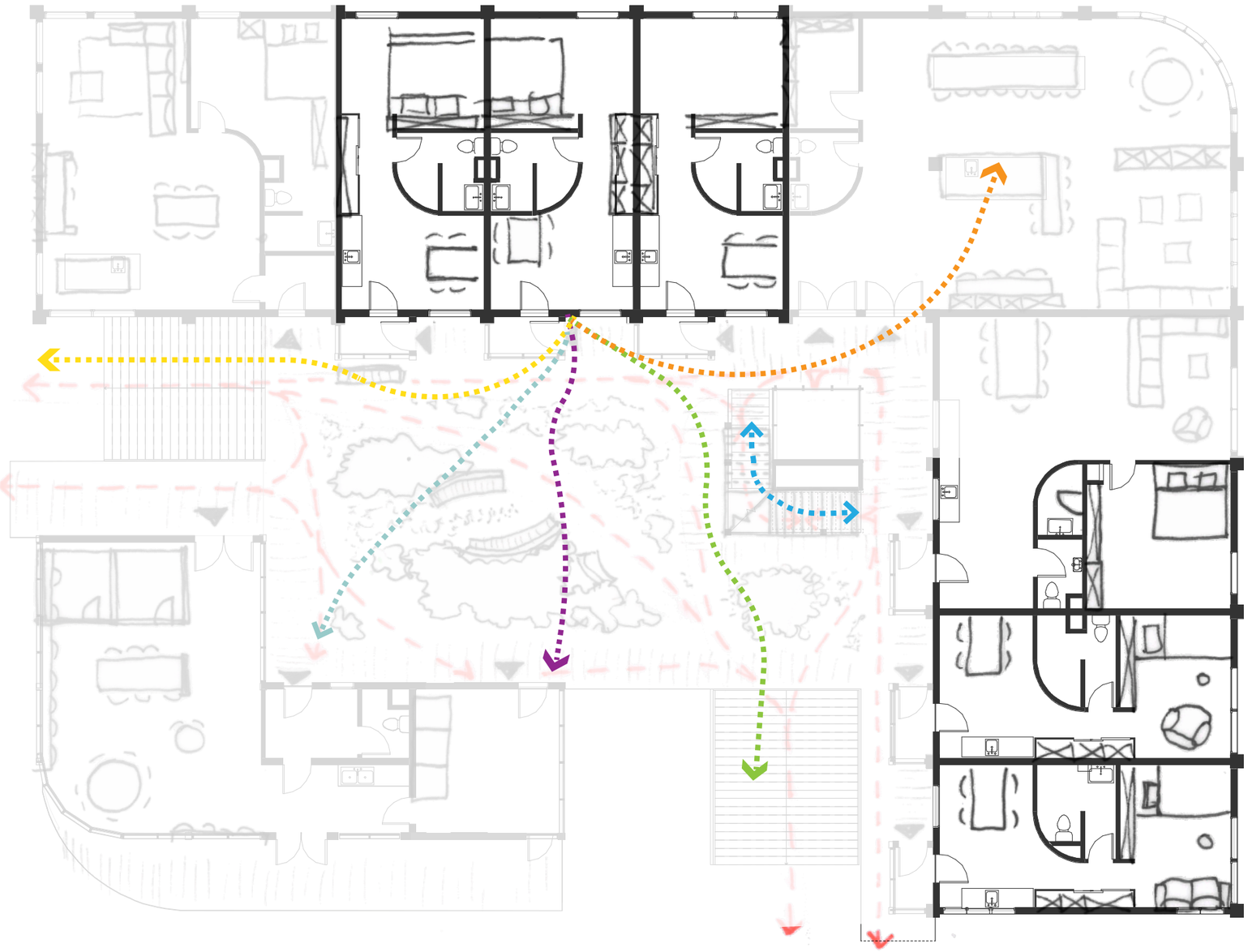
+1

194 m²

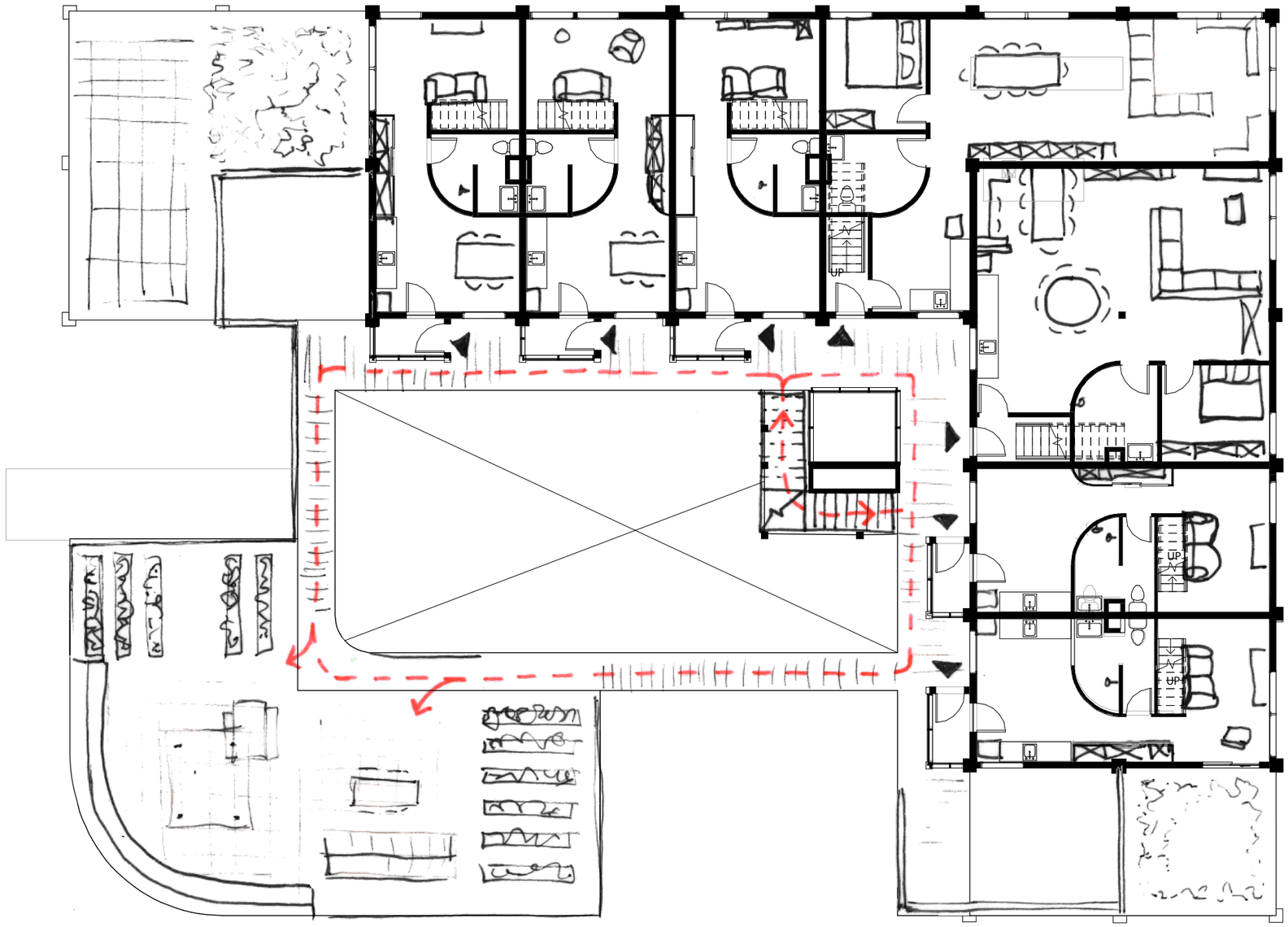
0.

485 m²

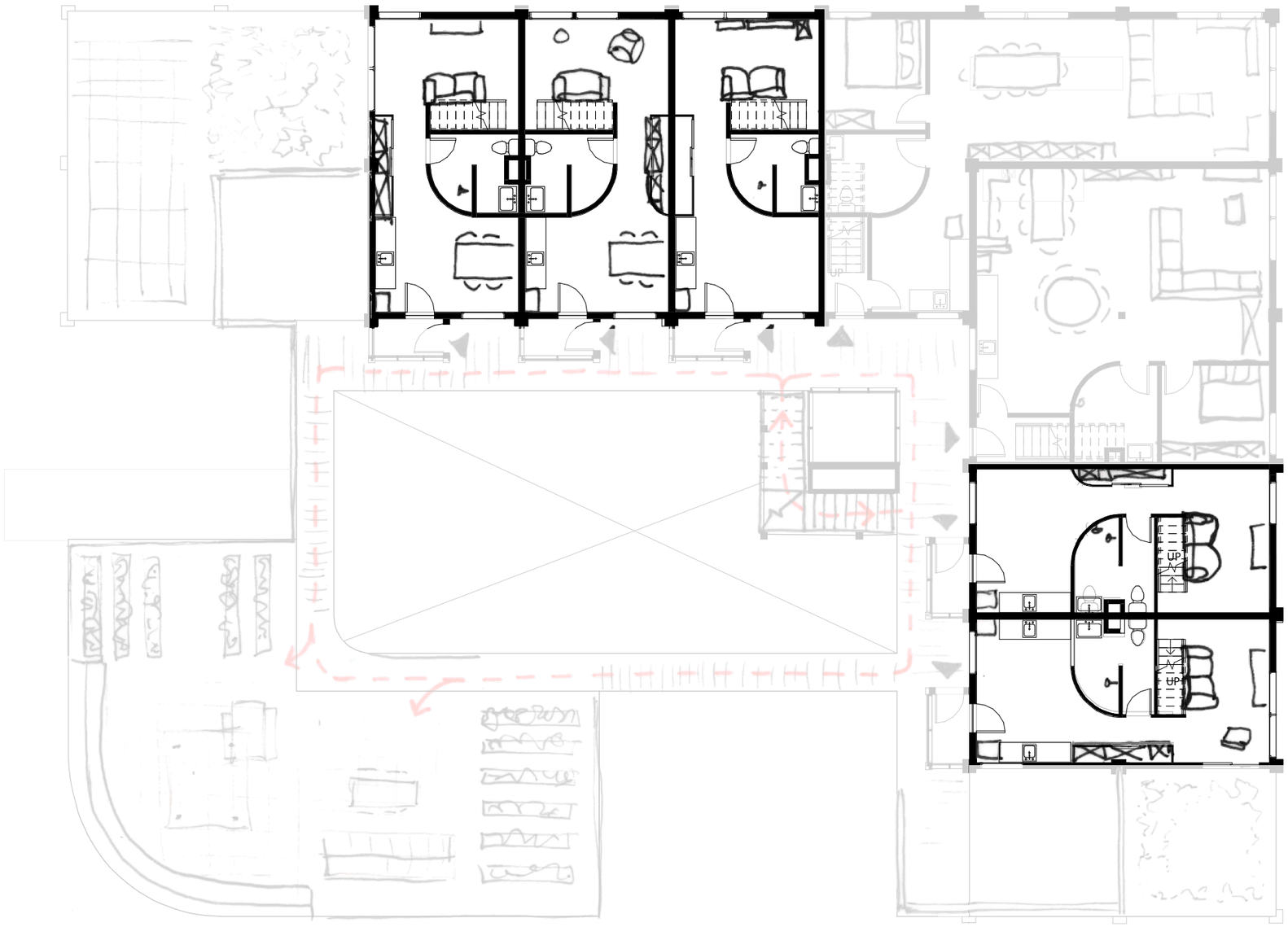
total amount of public/communal spaces: **8**
total amount of squared m²: **679 m²**



LEVEL ONE 1:150

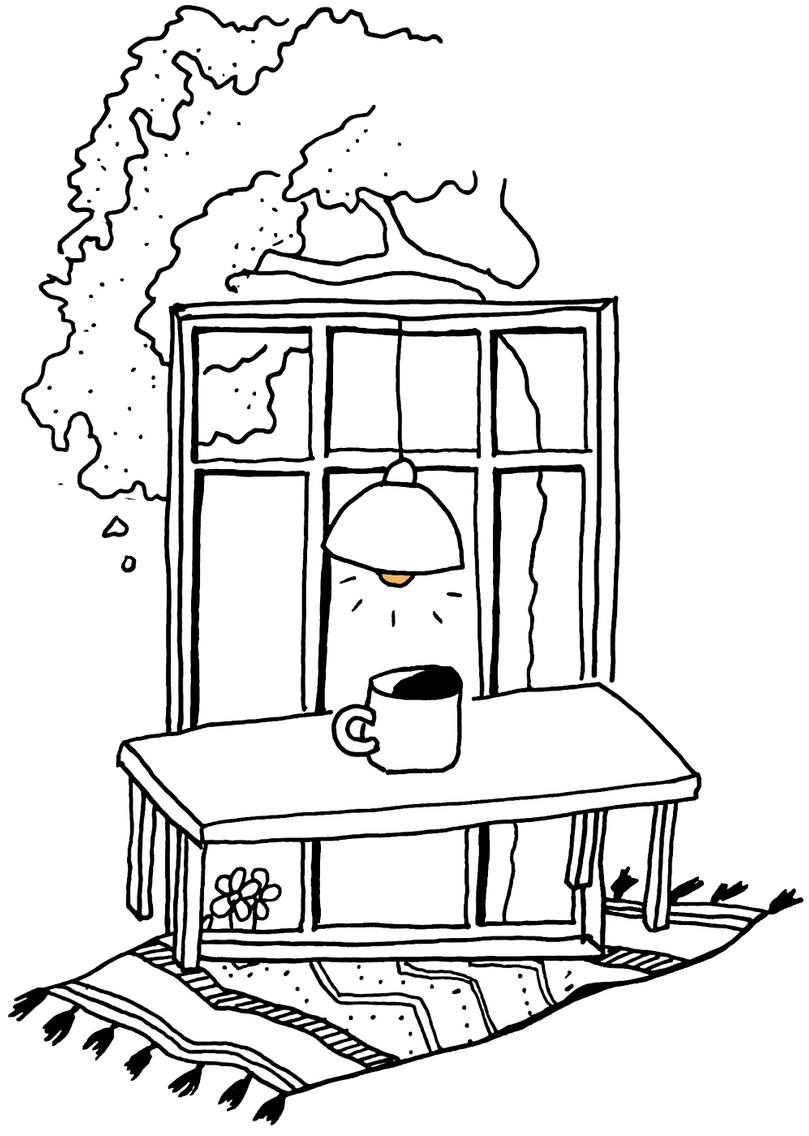


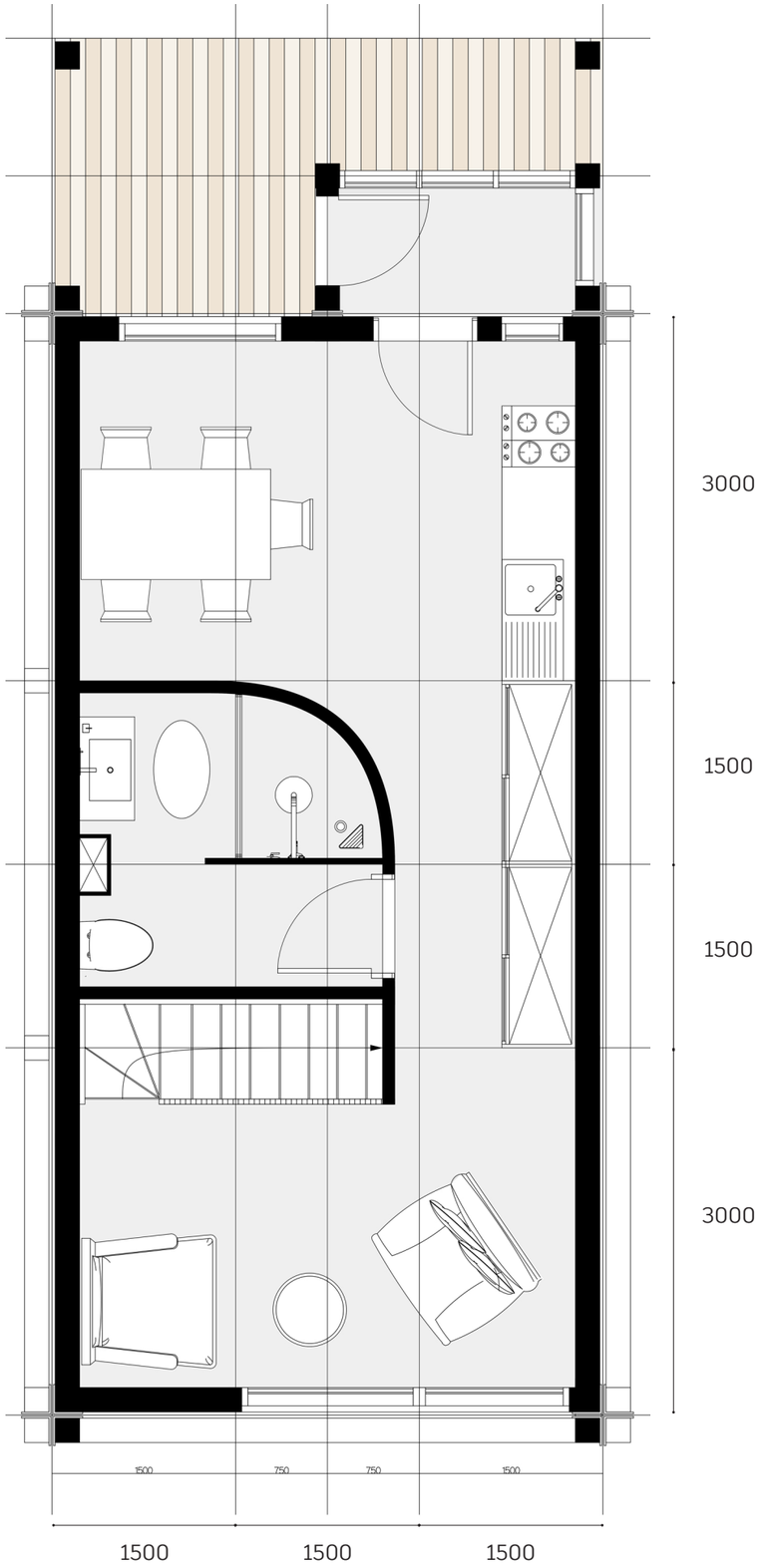
LEVEL TWO 1:150



LEVEL TWO 1:150

SCALE IV: HOUSE

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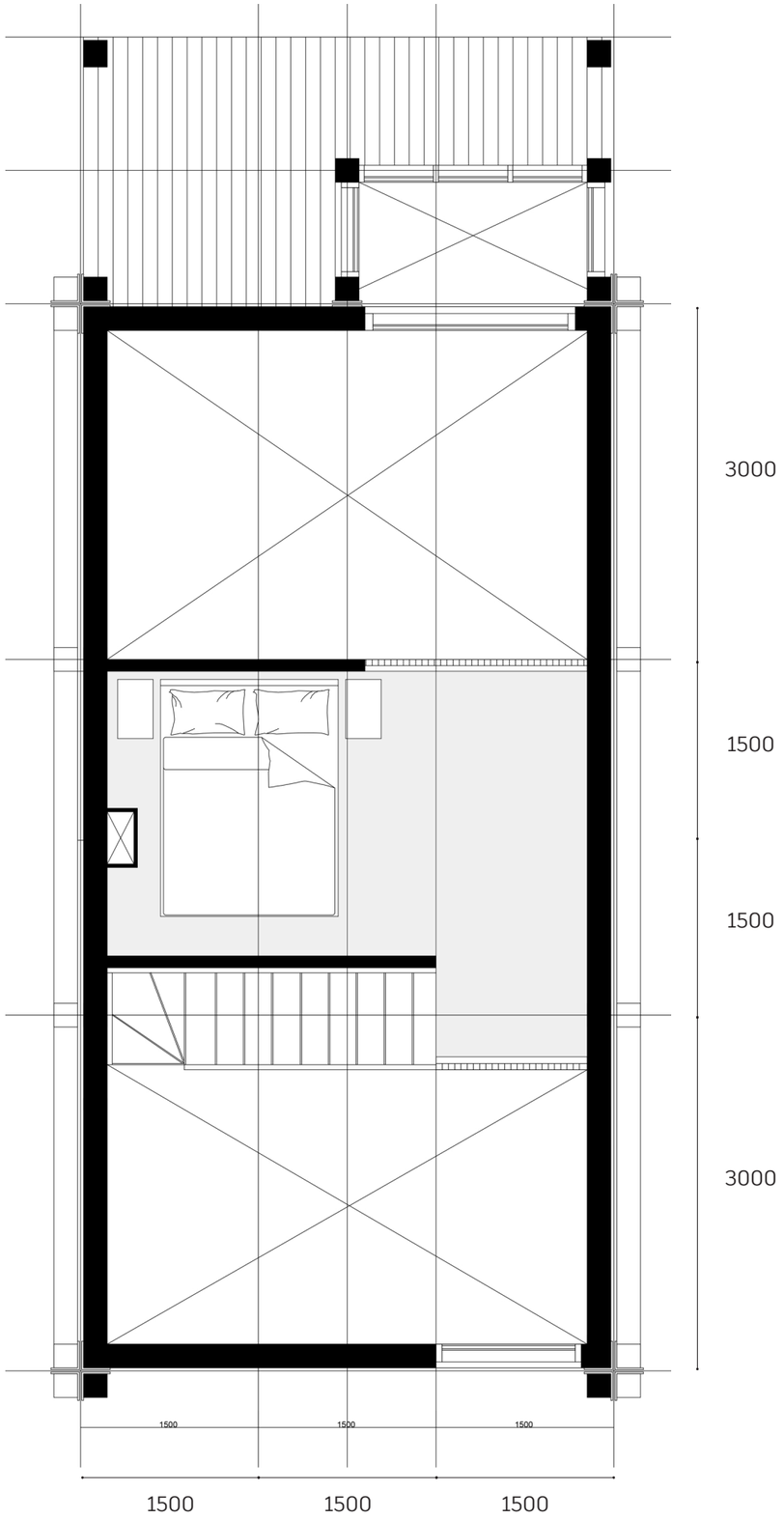
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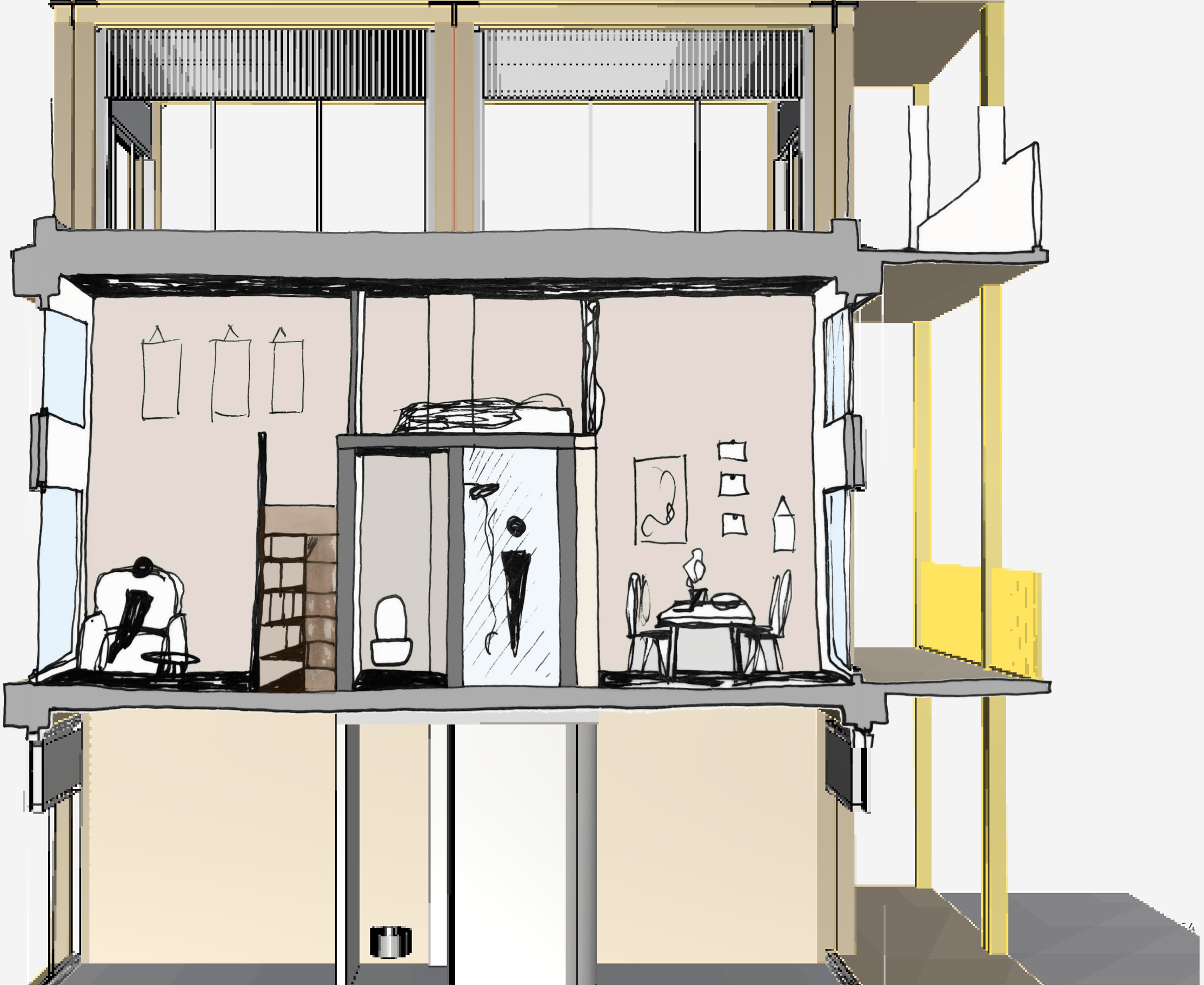
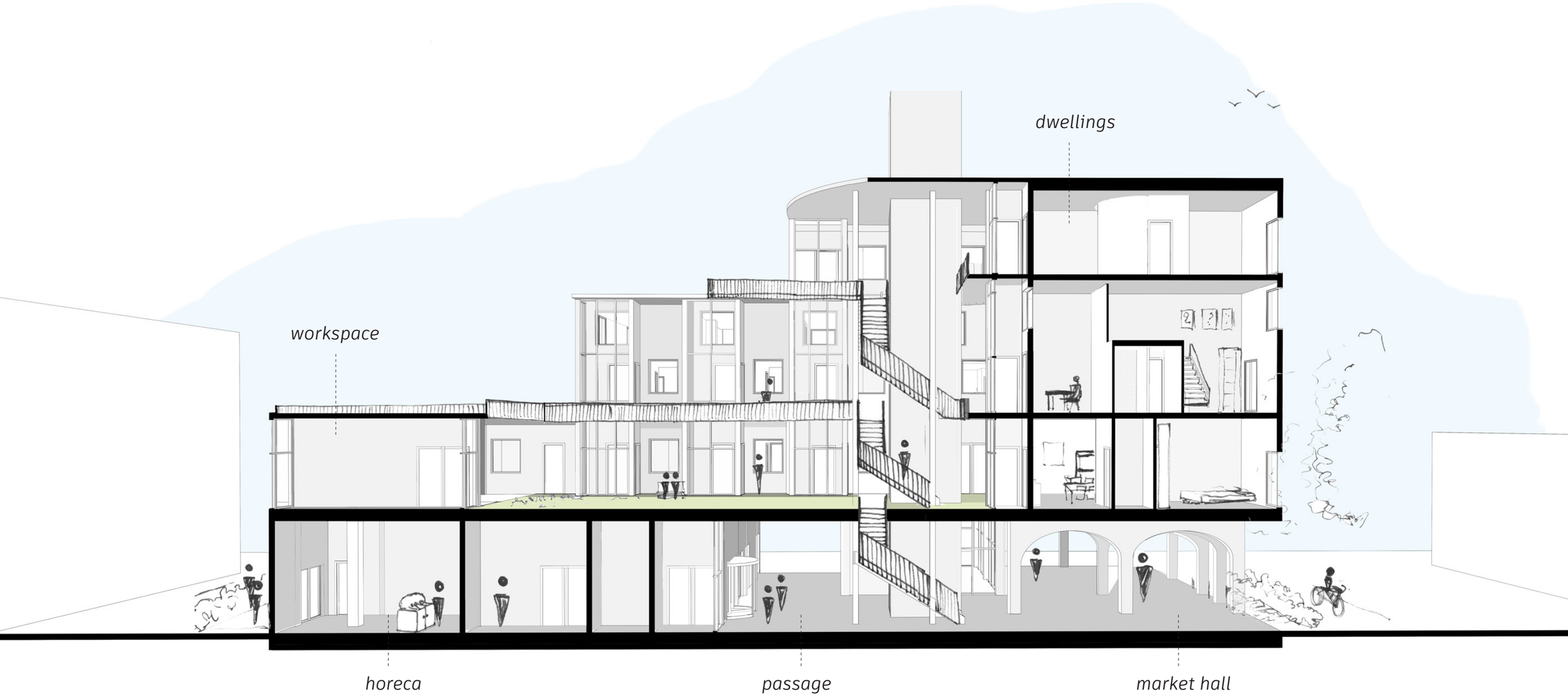
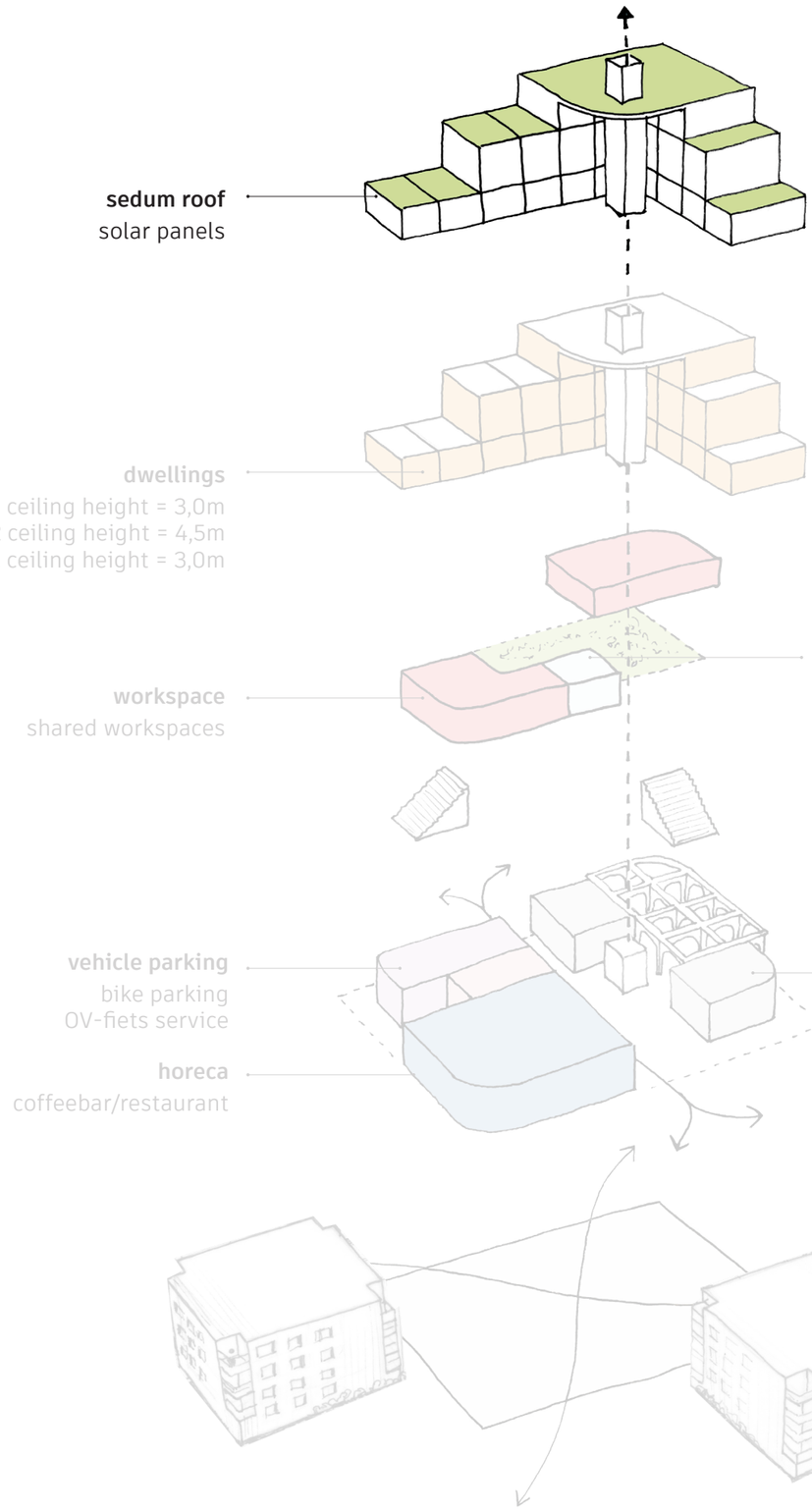



dwellings
workspace
horeca
passage
market hall

BUILDING VOLUME



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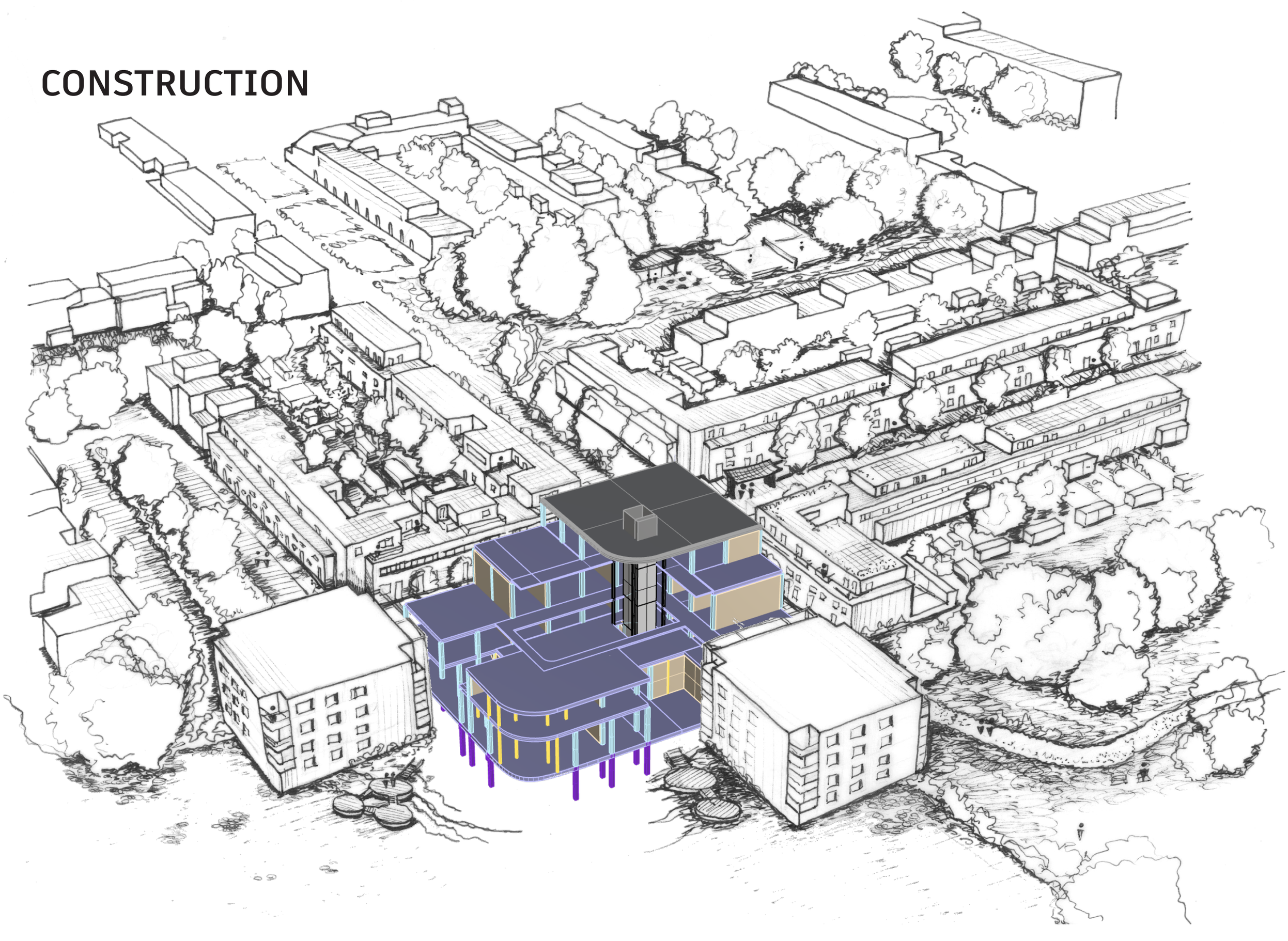
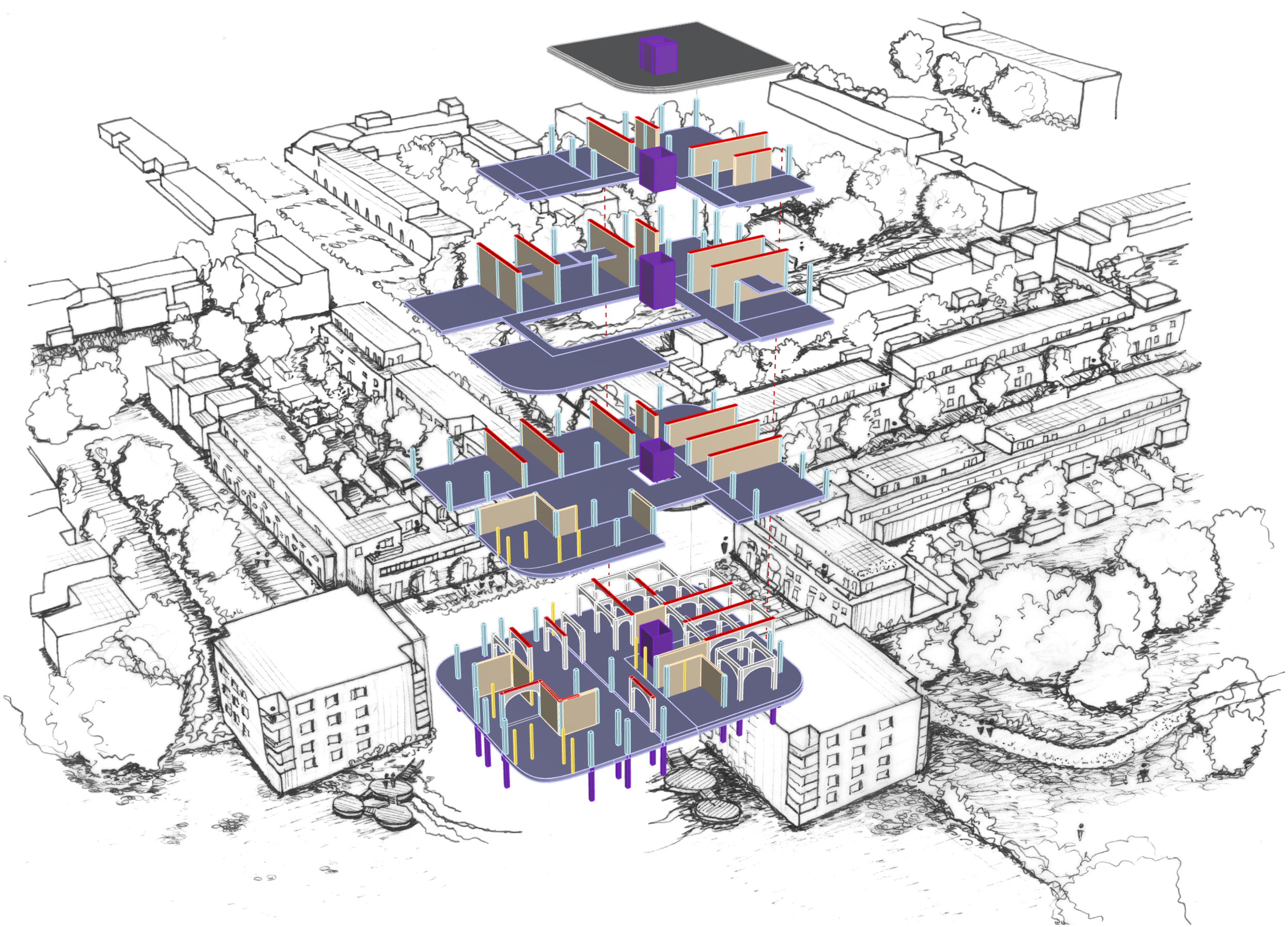
CONSTRUCTION

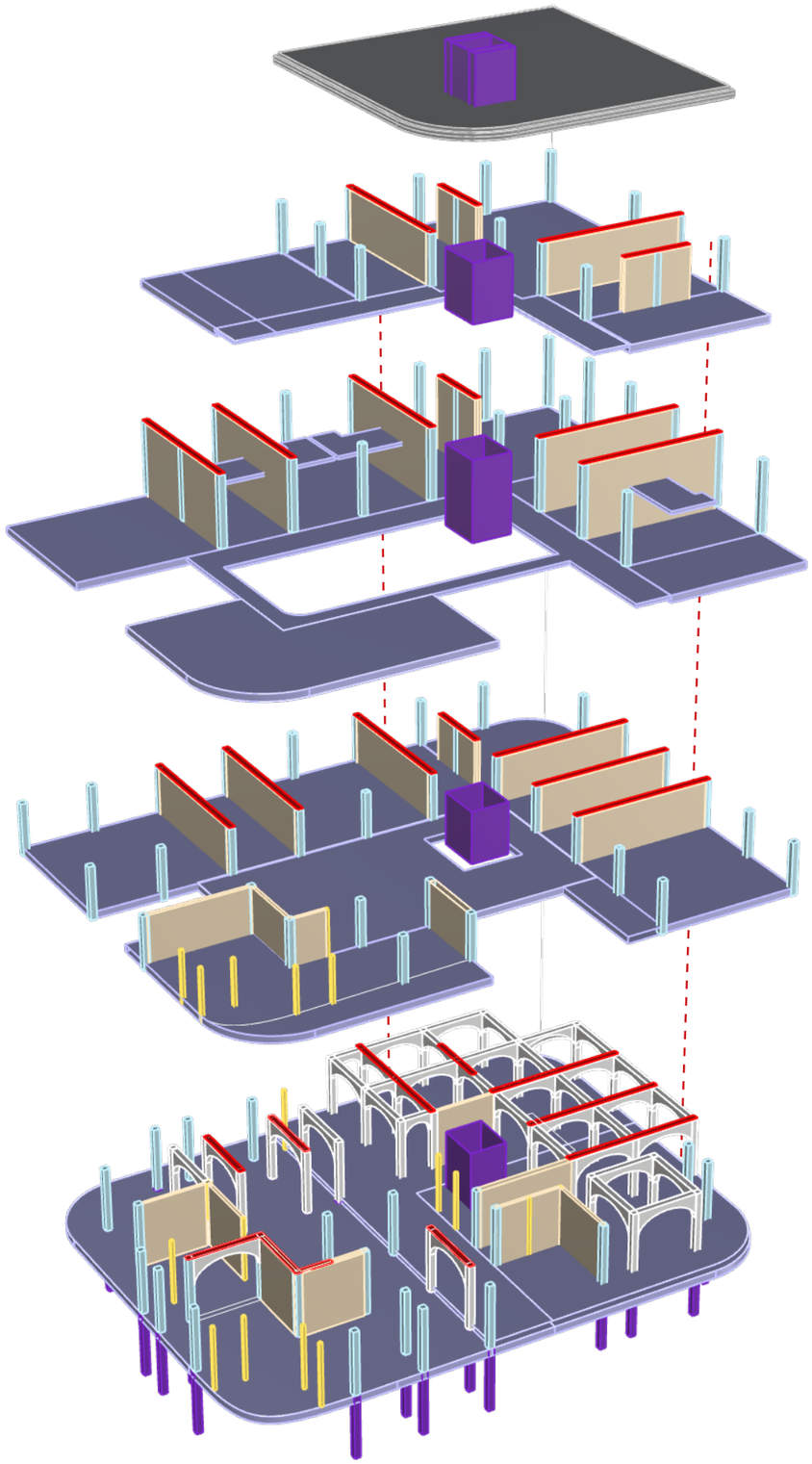




vuren skeleton construction

cross laminated timber floor and wall elements

cross laminated timber columns



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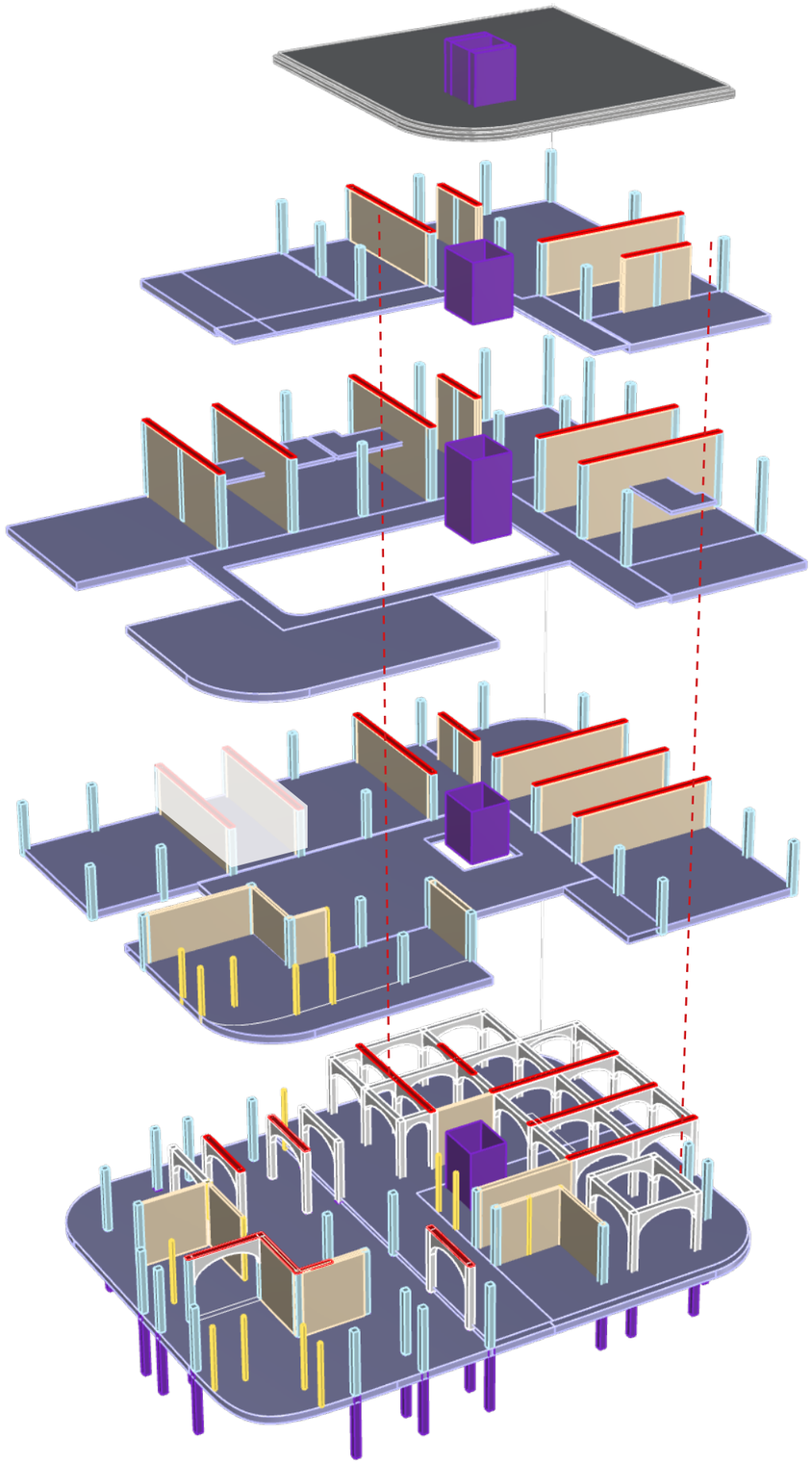
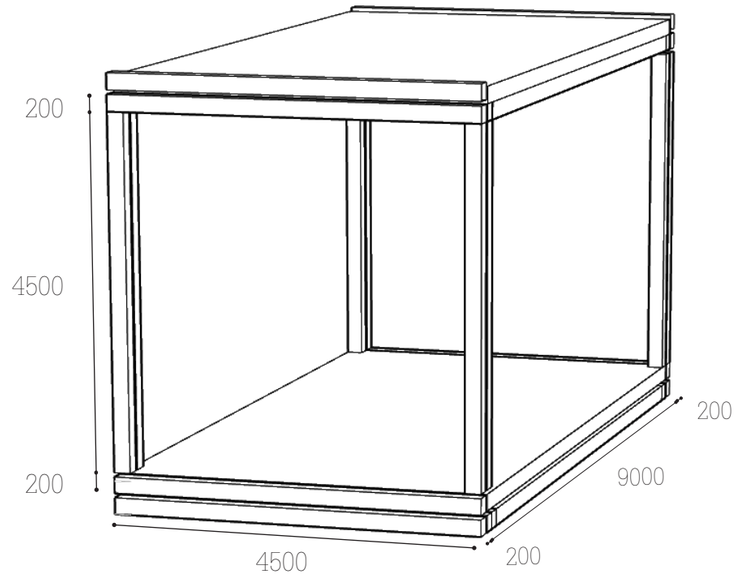
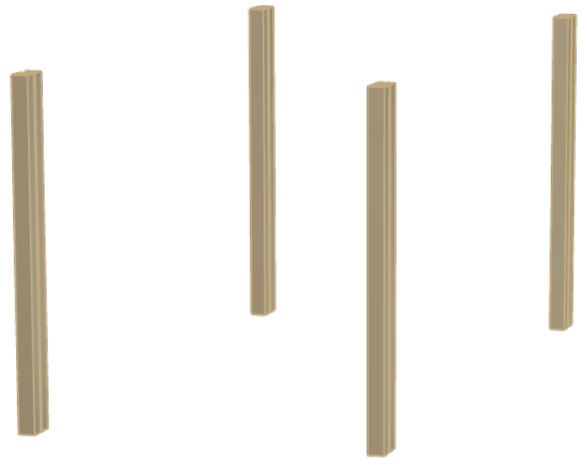
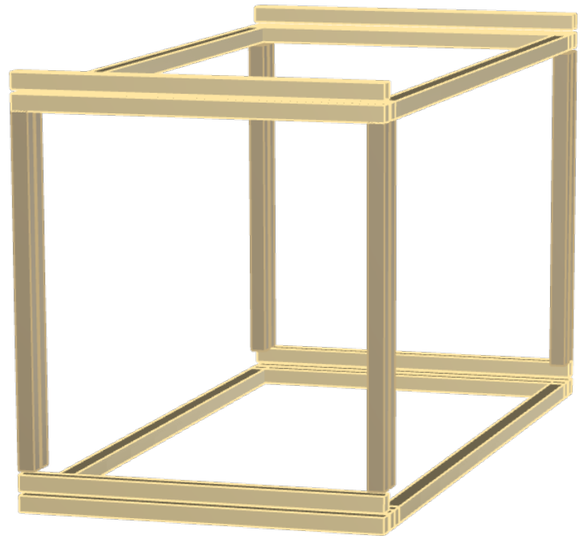
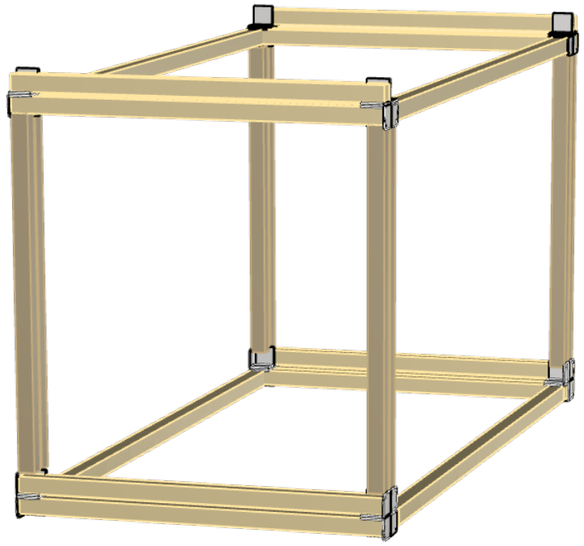


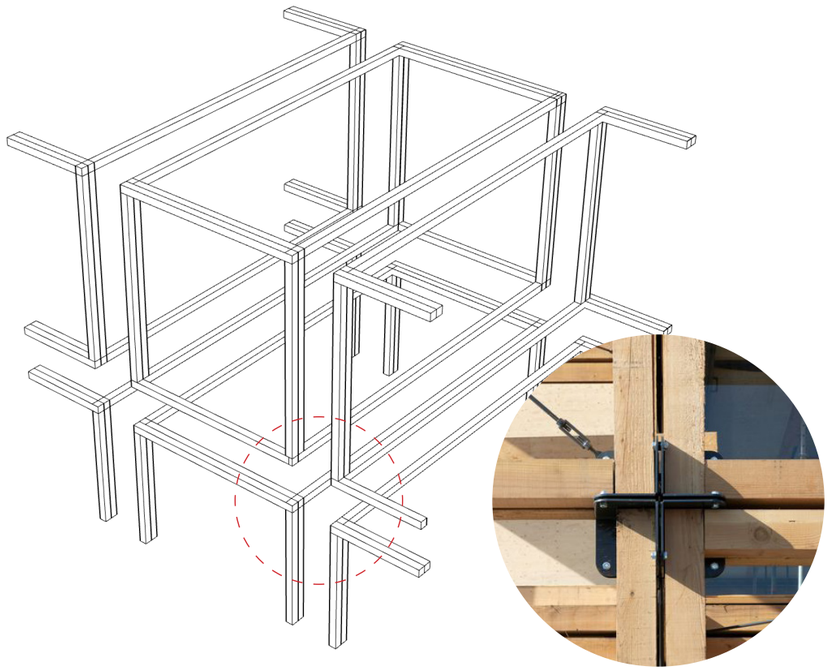
BUILDING ASSEMBLY

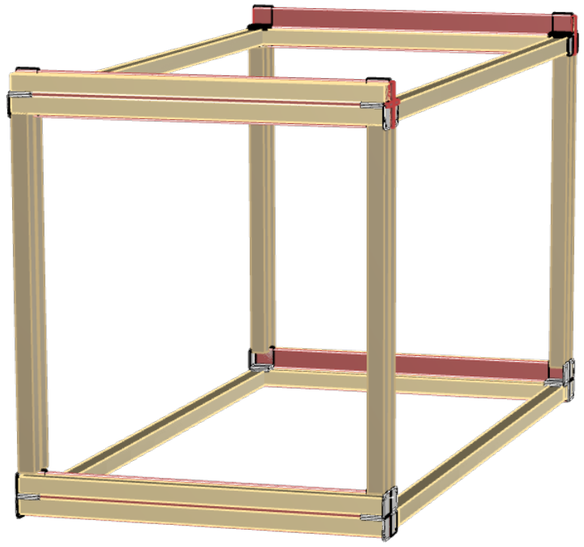


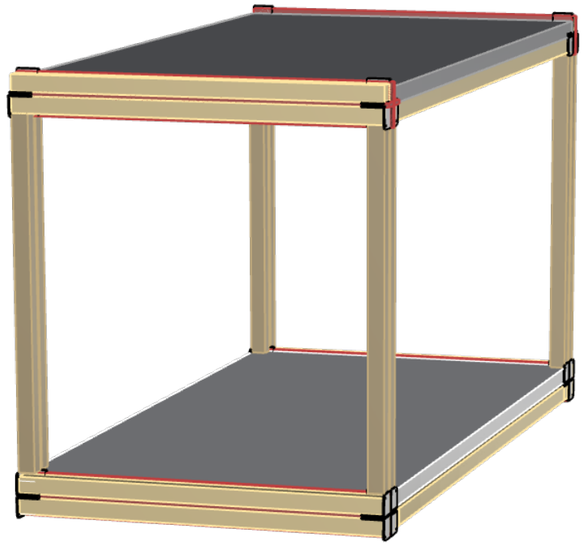


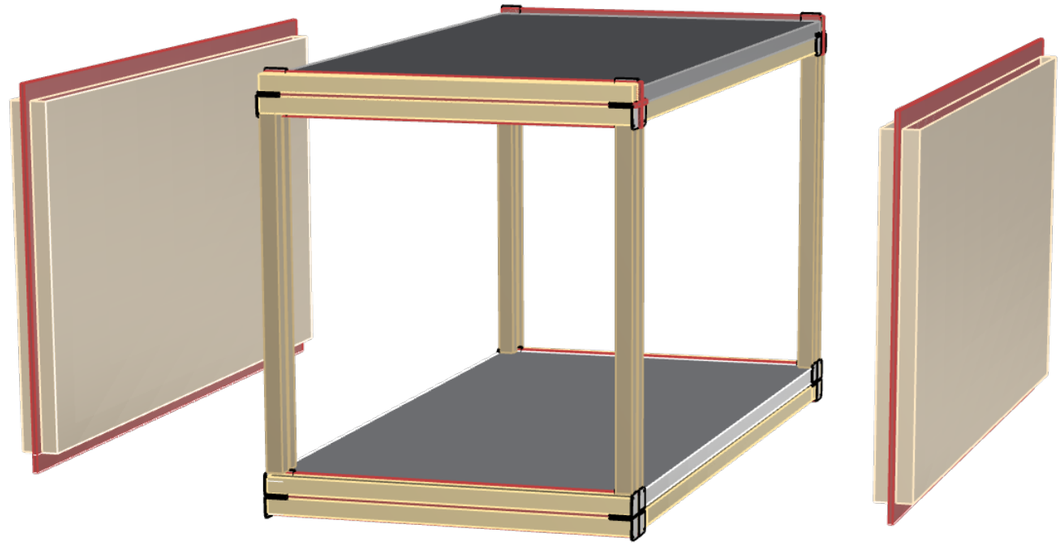


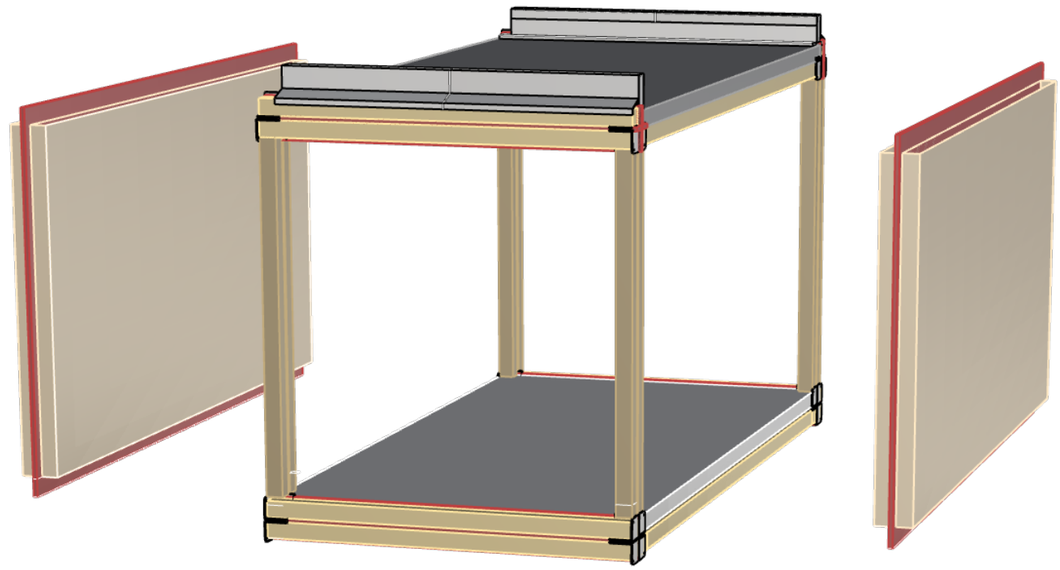


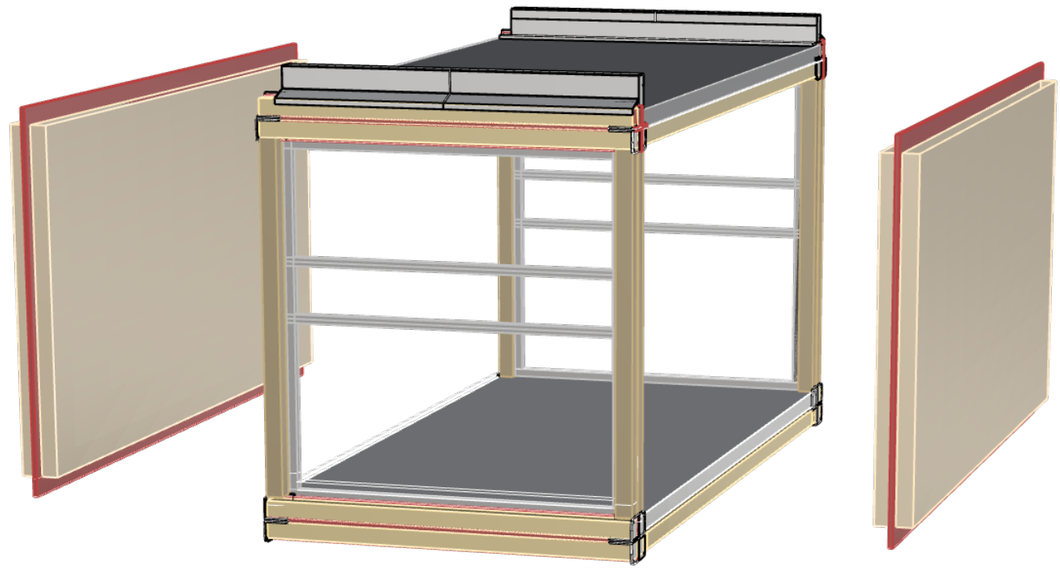


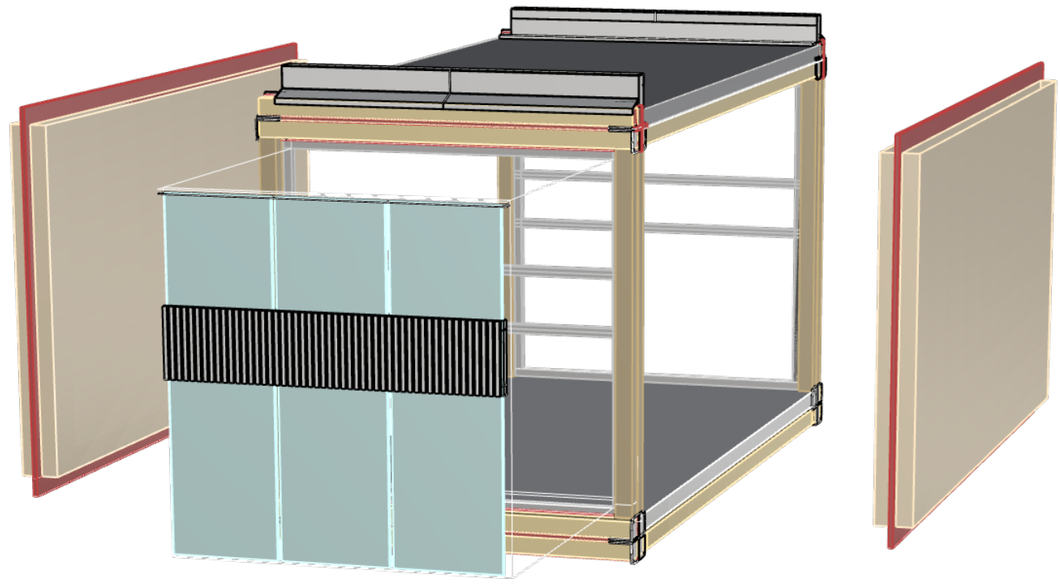


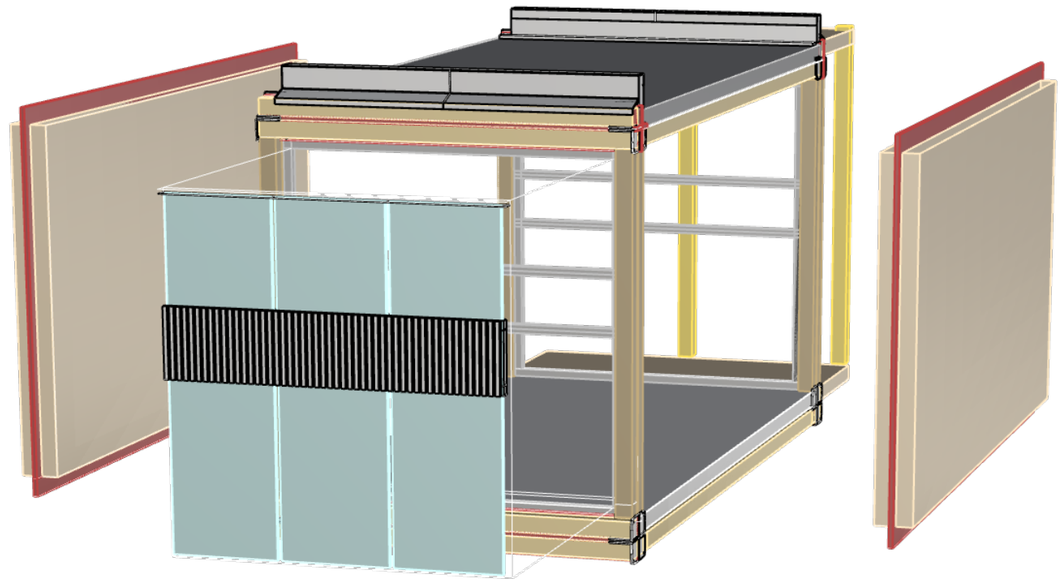


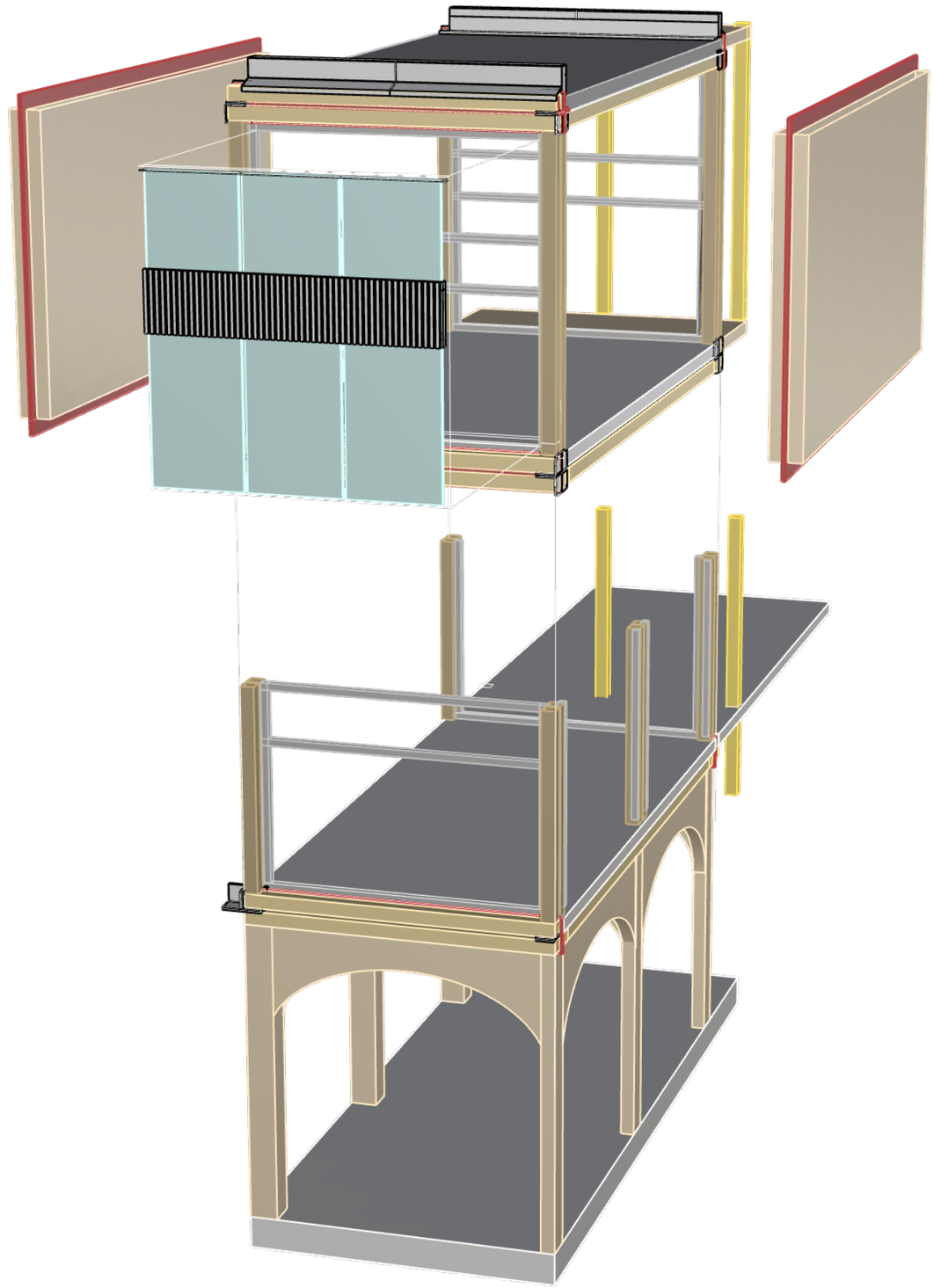


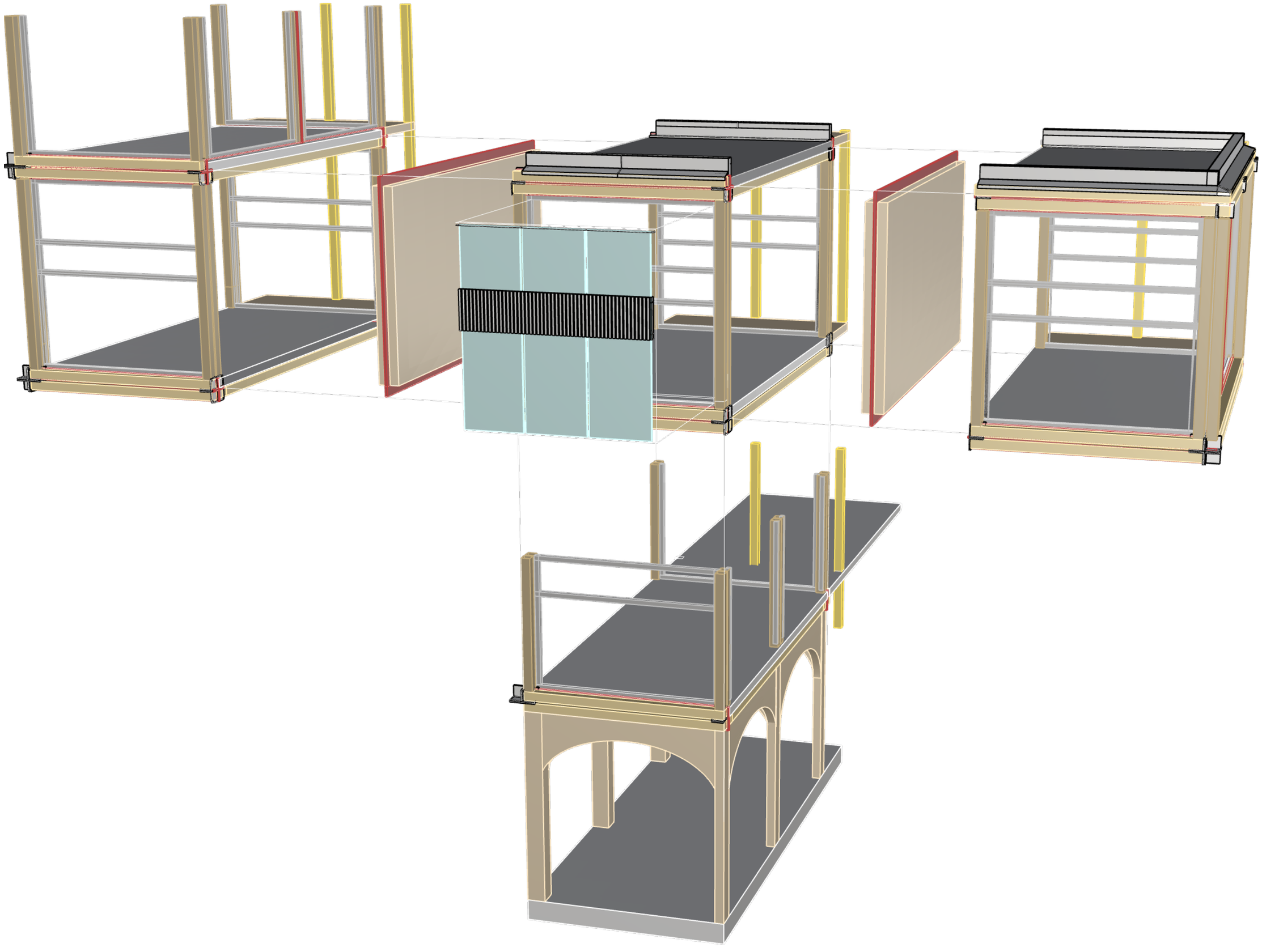










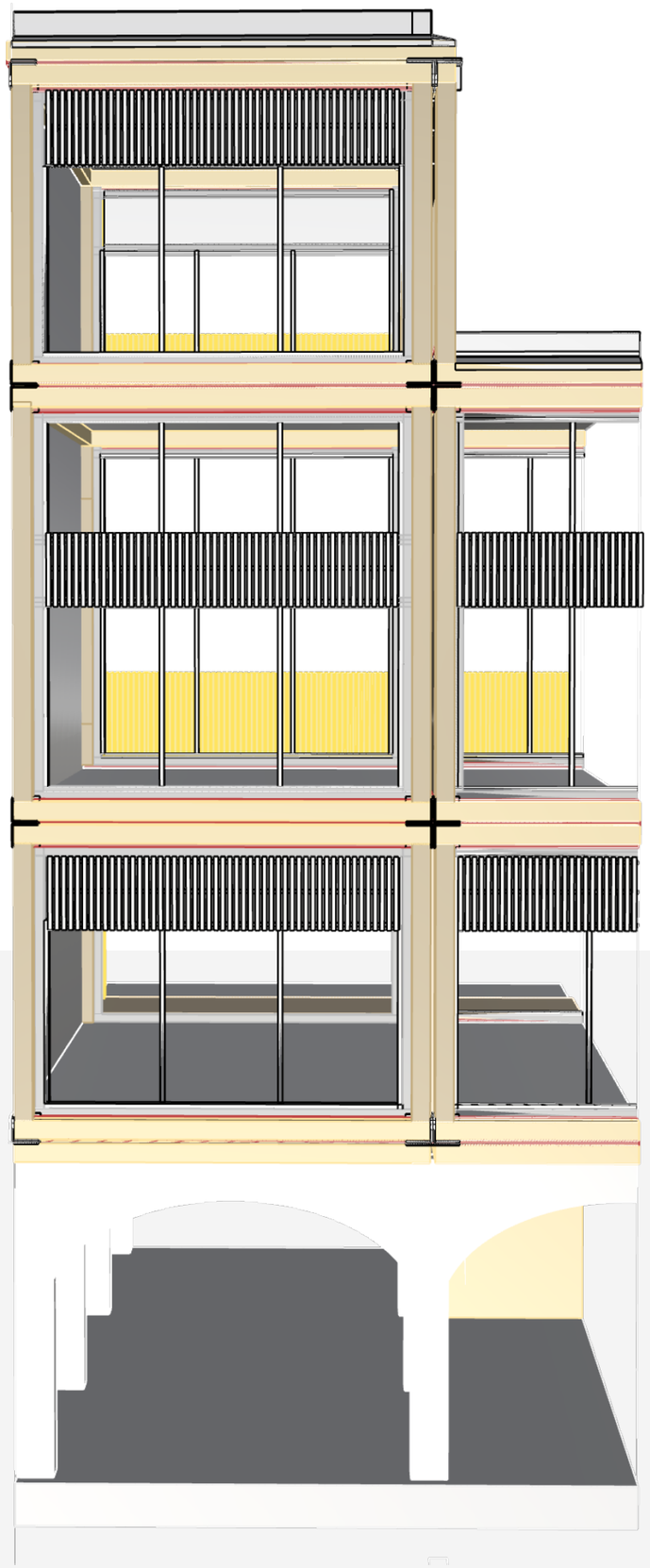


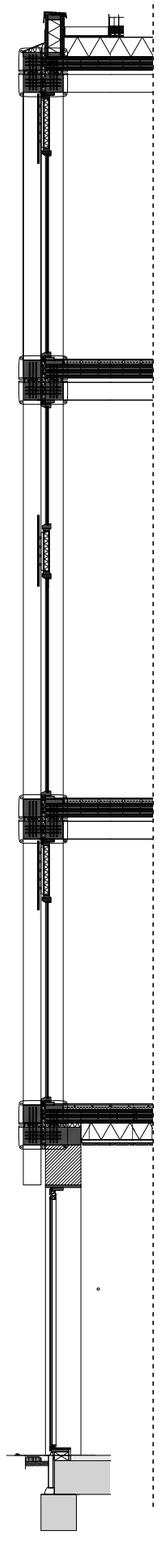
GUTEX Thermoflat

Rc value roof = 6,3 m²K/W,

GUTEX Thermosafe-nf

Rc value floor = 3,7 m2K/W

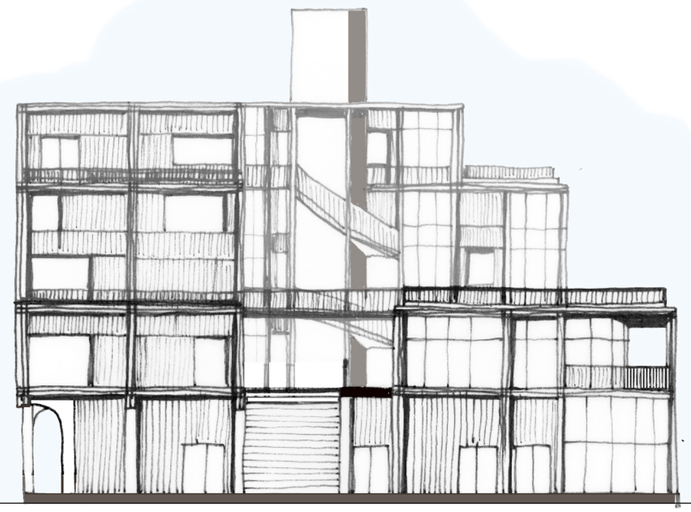




NORTH ELEVATION

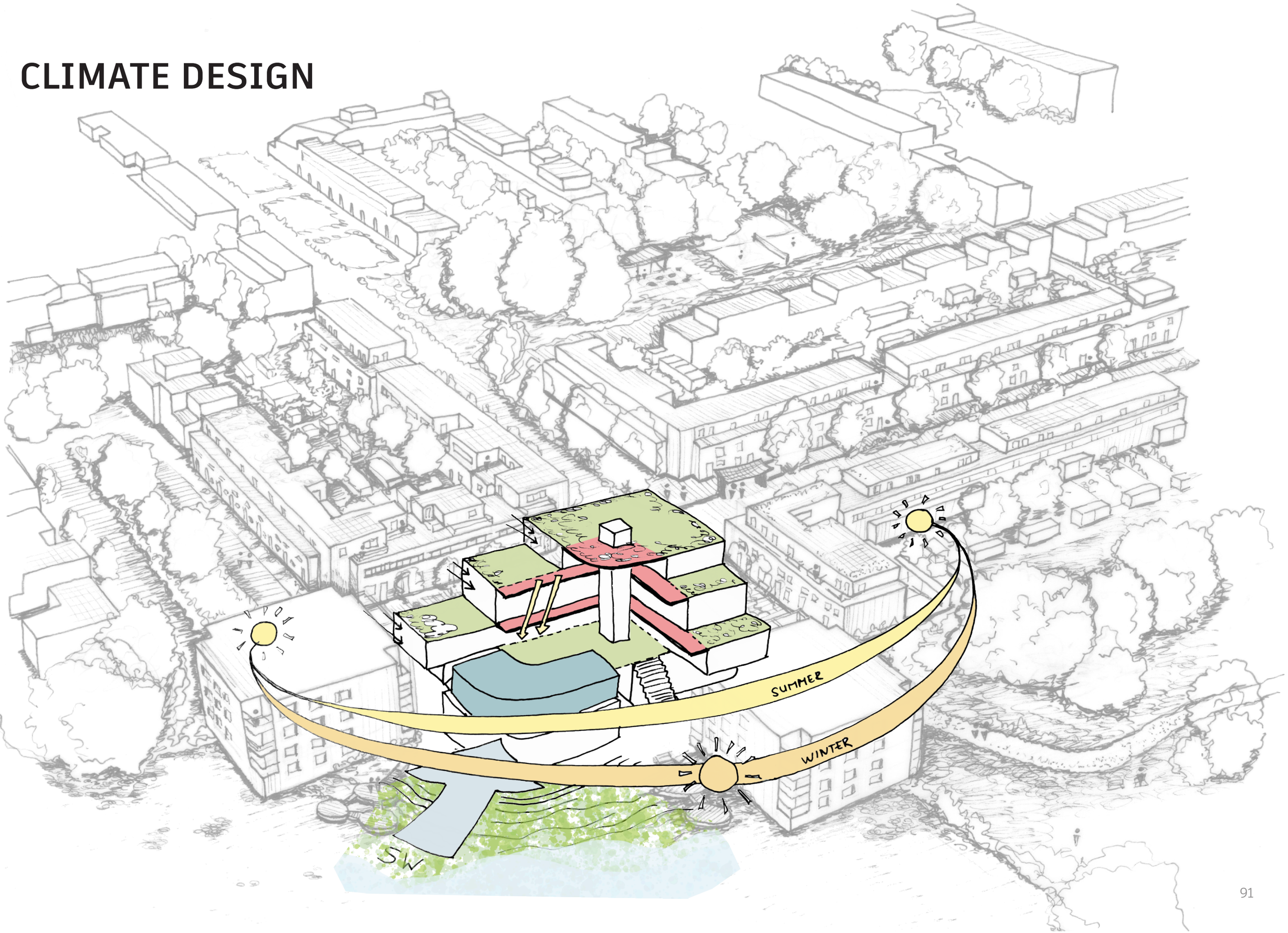
EAST ELEVATION

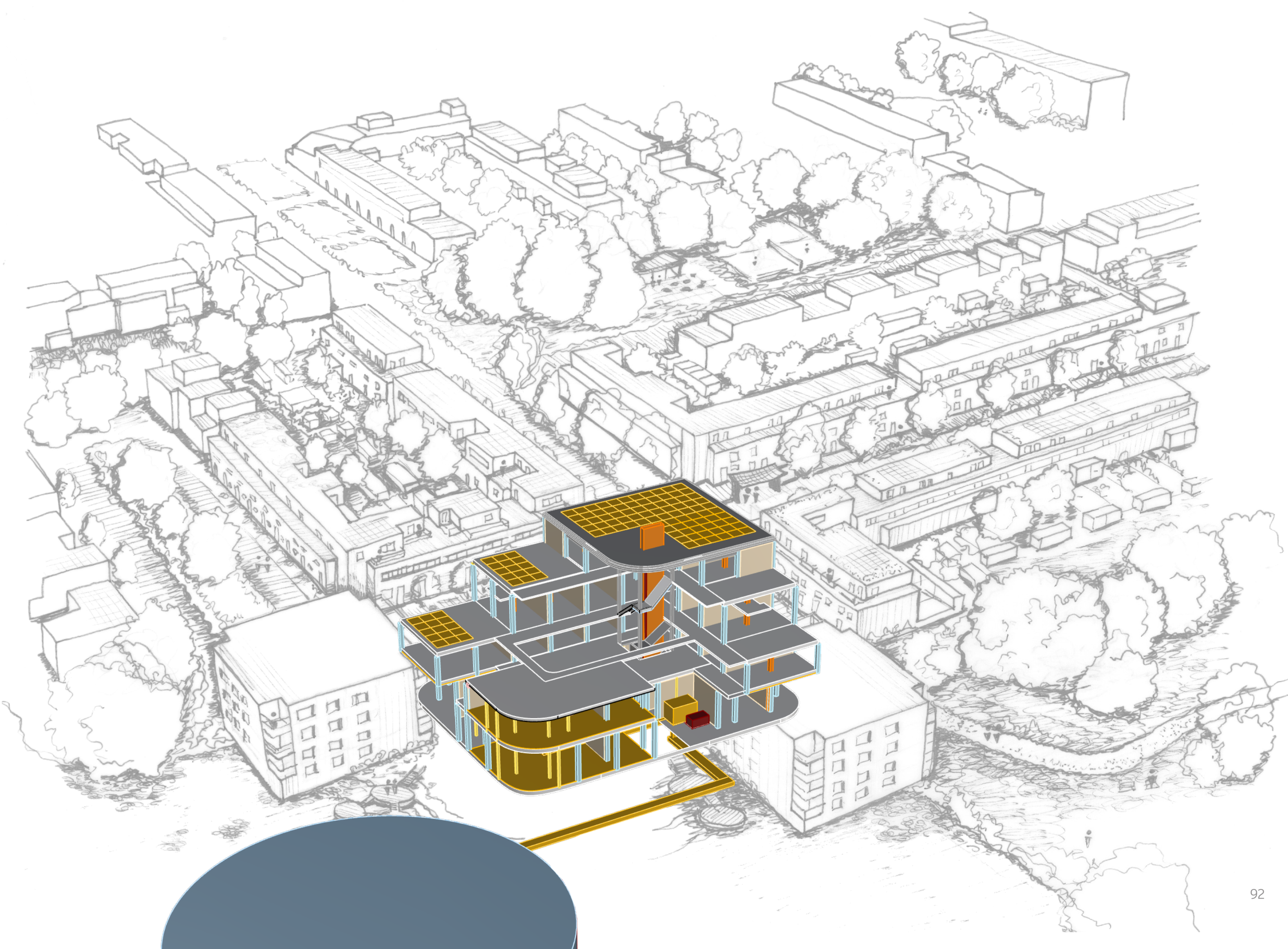
SOUTH ELEVATION



WEST ELEVATION

CLIMATE DESIGN





BUILDING IN OPERATION

VENTILATION

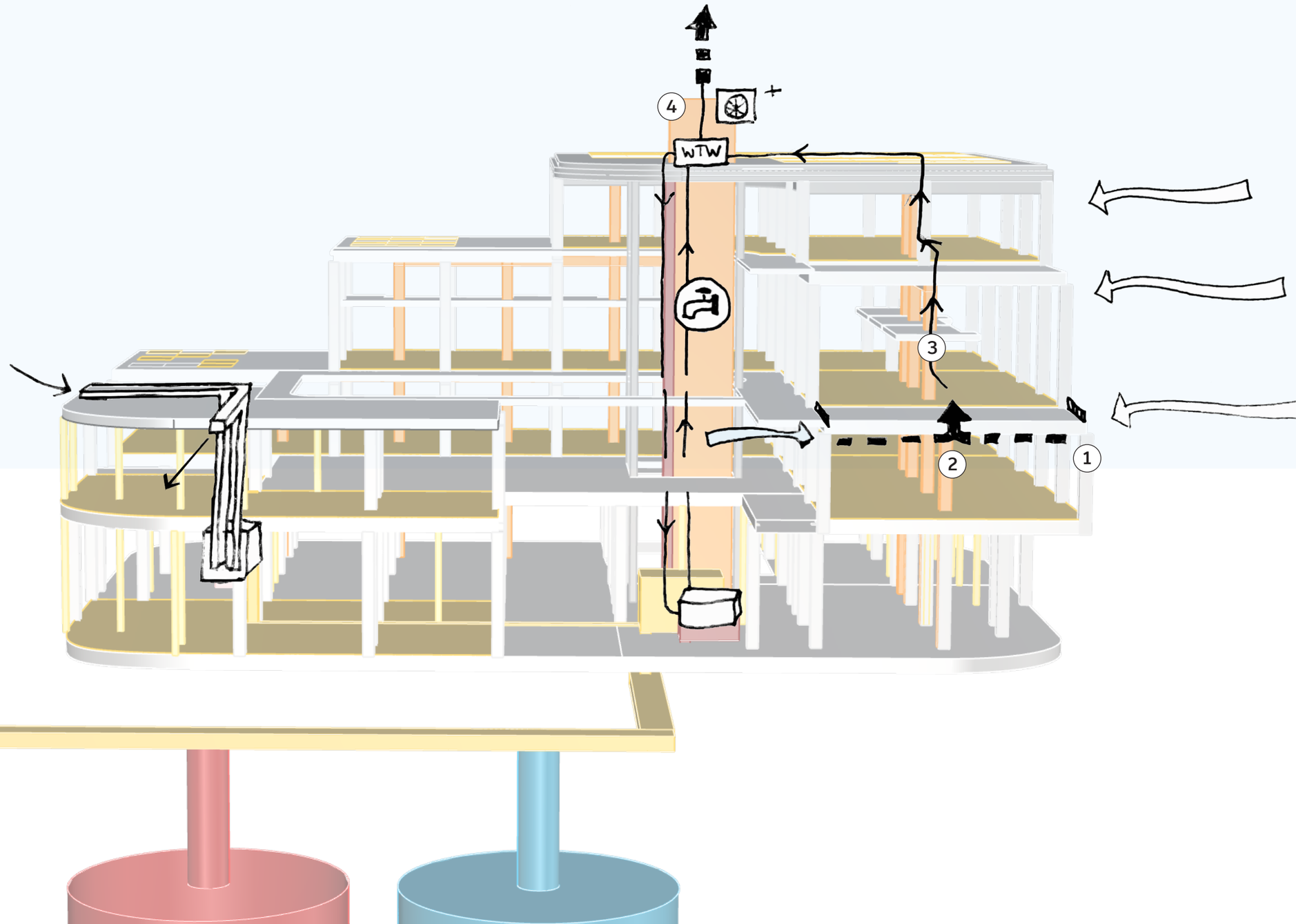
1. Balanced inlet of fresh air through ventilation grilles placed in the upper part of the facade

2. Warming up of air by floorheating. Extraction of air from dwellings through centrally located **shafts**

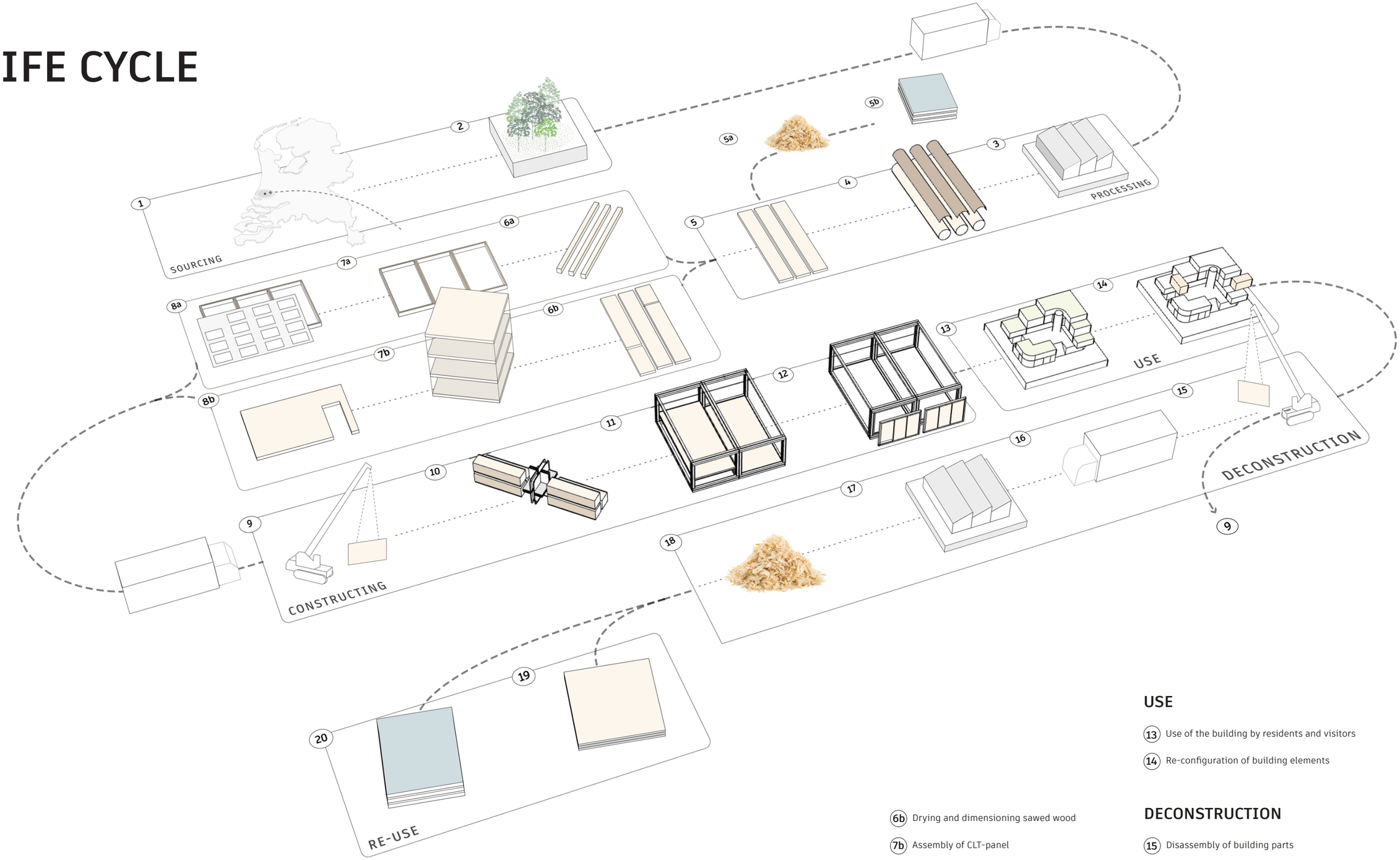
3. Hybrid system of natural and mechanical ventilation. A natural airflow is created by **solar chimney**. In addition to this **ventilators** located in the top of the solar chimney are regulated on basis of **CO2-level** in the dwellings.

4. Retrieval of heat by WTW-system placed in top of the solar chimney. Heat used to warm tapwater by use of a heatpumpboiler.

5. Separate ventilation system type D to ventilate the horeca space. Air inlet and outlet place high in the facade and in different directions.



LIFE CYCLE



SOURCING

1 Import of wood from German woodproduction forests

2 Additional local forest production

PROCESSING

3 Transport to and arrival at wood processing factory

4 Debarking of tree trunks

5 Sawing from tree trunk to constructive wood

5a Woodfibres as byproduct of sawing

5b Fabrication of woodfibres into woodfibre insulation

6a Processing of wood into desired dimensions

7a Construction of facade carrier

8a Design of facade infill through catalog

6b Drying and dimensioning sawed wood

7b Assembly of CLT-panel

8c Processing of CLT-panel into desired dimensions

CONSTRUCTING

9 Assembly of prefab building elements

10 Mounting of constructive joints

11 Placement of CLT floor and wall elements

12 Placement of facade elements

USE

13 Use of the building by residents and visitors

14 Re-configuration of building elements

DECONSTRUCTION

15 Disassembly of building parts

16 Transportation to factory or to new building site

17 Processing at wood processing factory

18 Breakdown of wood to woodfibres

RE-USE

19 Fabrication of CLT into MDF

14 Fabrication of CLT into woodfibre insulation


TANTHOF-WEST
Hoveniersbedrijf
Koen Huisman
Voetbalveld Aziëlaan
Lil Banks
Temporarily closed
Comorenstraat
Bantulaan
Lusakastraat
Azikalaan
Himalayapad
Tibetstraat
Namibiastraat
Aziëlaan
Chinalaan
Google

LET'S CREATE A

CENTRAL SPARK

THAT WILL

ENLIGHTEN DUTCH NEIGHBORHOODS

!!!!

thank you for listening.

CLIMATE DESIGN

HEATING + COOLING

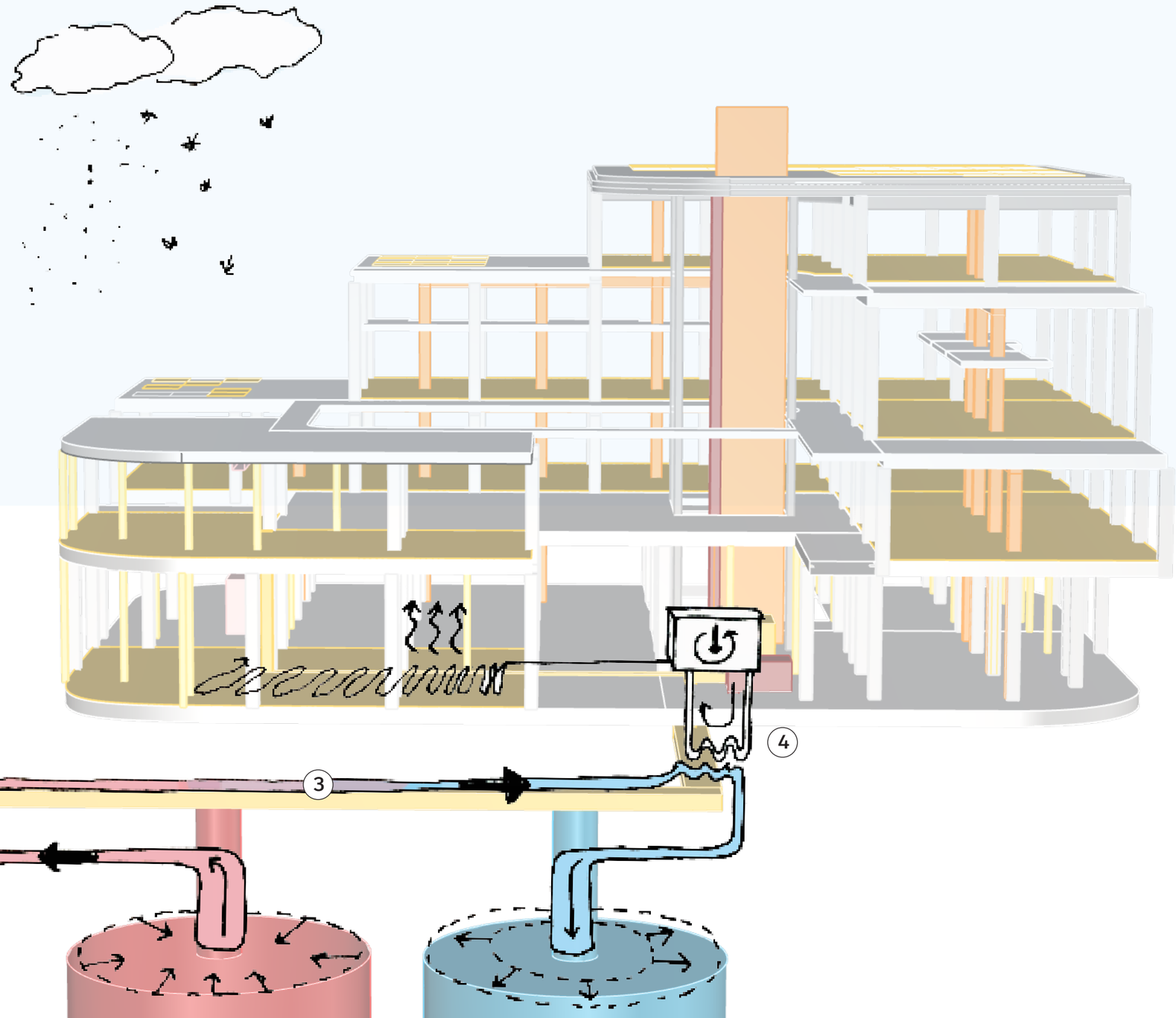
1. Thermal energy from the summer sun heats up the waterbody

2. In the TEO-installation the heat from the water is transferred to the WKO-system

2. In the TEO-installation the heat from the water is transferred to the WKO-system

3. The heat that was stored in the WKO-system in summer is taken out in winter. The heat is transferred to a heatpump in the building. The cooled down water is stored in the WKO-system to be used as cooling in summer.

4. The heatpump transfers a higher temperature to the distribution system of floor heating whereby the system is complete. In winter the same system operates in the opposite direction.



CLIMATE DESIGN

ELECTRICITY

1. Solar energy radiates on solar panels. The electricity consumption for a single-person household is 2000 kWh per year. With a correction factor of 0.85, the output per solar panel is 306 kWh per year, which equates to a need of 6.3 panels per household. Including common areas, a total of 9 panels of 1.7m^2 per household. Counting 18 households this is 162 solar panels. Including the energy demand for recharging shared vehicles, I implemented the minimal need + 68 additional solar panels = **230** in total. This amount is spread over 4 roof surfaces as illustrated in the figure.

2. Solar energy is converted to **electrical energy** whereby the buildings' electrical demand and the shared vehicles' electrical demand is provided. Excess solar energy can be converted and stored in the buildings battery, placed in the technical room.