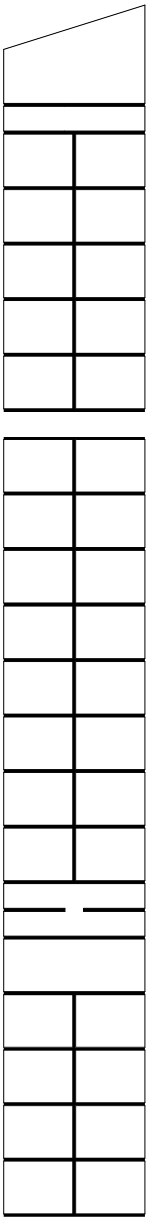

THE ARK

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COLOPHON

The open city: a home for nature; How the solo dweller can flourish in a nature-inclusive city.

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Between standards and ideals

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PREFACE

About a year ago, a friendly conversation with a roommate about the value of nature led to the the idea of an imaginary utopia: cities covered with interconnected green roofs, creating a second layer of urban life in which plants, animals and humans could coexist in harmony. Naively thinking we had found the recipe for world peace, the idea of this utopia stuck with me. The reason for this is, I now know, the dissatisfaction with the *natural* spaces I found in cities. Especially in Delft, my town of residence, there is a severe lack of true nature. Or so I thought.

Attending a screening of the documentary *Natura Urbana: the Brachen of Berlin* at the Architecture Film Festival of Rotterdam served as an introduction to the field of urban ecology. The documentary beautifully conveyed a message that I have secretly known for years, but have only recently become conscious of: *nature is everywhere*. Suddenly I can see every part of the city as *nature.* Moss between bricks, a crack in an asphalt road, moisture spots on walls: all signs of a continious cycle of creation and degradation. This realisation was the main cause for the wish to study urban ecology and assess its value to the field of architectural design.

The second main topic of this thesis, the solo dweller, has a less interesting backstory, but is instead the result of what I call *architectural arrogance:* thinking architecture can solve every issue in the world. From time to time, I suffer heavily from this condition. Not even having read research or newspaper articles, I thought to know for certain that people who lived alone suffered from loneliness and social isolation. I, architect, would step in and alleviate their assumed drag of everyday life. I was wrong.

As the result of the graduation studio Dutch Housing, in which we are expected to create a certain type of city for a certain target group (in my case: a nature-inclusive city for solo dwellers) this graduation booklet is the combination of research, design and reflection. The central theme is a re-interpretation of nature, as something that is left to be altered by time instead of being controlled by human intervention. The project is an exploration of what that implies for the way we construct and inhabit buildings. The design location is situated in Minervahaven, Amsterdam. The design is part of the 'one-million homes" iniative, an attempt to provide sufficient dwellings for the growing number of house seekers in The Netherlands.

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People need space to experiment. Our cities can become so dense and planned that there is no room for new and creative ways of behaviour and interaction. Open citeis need open spaces.

TOPIC RESEARCH - THE OPEN CITY: A HOME FOR NATURE

INTRODUCTION

Is it good to be alone? Historically, the general opinion has not been in favour of those who do not participate in society. In *Politics* Aristotle wrote: "The man who is isolated, who is unable to share in the benefits of political association, or has no need to share because he is already self-sufficient, is no part of the polis, and must therefore be either a beast or a god." It is only logical, considering the history of our species, that we tend to participate in groups, as for a long time we have been dependant of those groups for our survival. We built fortresses and castles, as groups, in order to be safe from the threats that nature posed. The ancient adage *'United we stand, divided we fall'* seems to resound throughout human history. Still, in our modern society, we often assume that someone who is alone is also lonely: someone unsuccessful in finding a partner. Admittedly, the original aim of this thesis was to study the problems that people who live alone supposedly had and to find ways to alleviate their assumed drag of everyday life. This incredibly biased approach is indicative of the cultural opinion about solo dwellers but could hold no ground in the research on the topic. As it turns out, people who live alone often do so by choice. They value their independence, freedom and ability to make their own choices. Klinenberg (2012, p. 4) writes: *"For the first time in human history, great numbers of people – at all ages, of every political persuasion – have begun settling down as singletons."* The rise of the solo dweller is part of a cultural shift in which the individual, rather than the collective, could flourish. This cultural shift entails the notion of an increased tolerance towards one another. We allow each other to develop, experiment and express our individuality. Urbanisation is a major factor in this social shift. In our modern world, especially in cities, solo dwellers can easily participate in a robust social life. Mass urbanisation has led to a booming subculture of singles who share similar values and ways of life. The German sociologist Georg Simmel (1903) wrote that *"The metropolis assures the individual of a type and degree of personal freedom to which there is no analogy in other circumstances".* Simmel claimed that a new metropolitan type of individual evolved from this new social landscape, with a *"rational and intellectual attitude to the world, a deep psychological life and a cool, blasé attitude"* (Klinenberg, 2012, p. 34). Richard Sennett (2018, pp. 1–4) divides the urban environment in two categories. The first

is the physical form of the city such as buildings and infrastructure, which Sennett calls the *ville*. The second is the life that takes place within that physical form, which Sennett calls the *cité*. The cité is evidently changing. What kind of ville does it need?
A growing notion of tolerance is one of the main factors behind the rise of the individual. Perhaps, an urban environment that is not excessively controlled but instead allowed to develop freely over time could provide the necessary conditions for the solo dweller to flourish. In recent decades, the field of urban ecology gained considerable interest, discovering and documenting the diversity of spontaneous nature. Spaces that were free of human control – created through neglect, geopolitical tensions or economic reasons – proved to be of great scientific and cultural interest. These ostensibly empty sites became spaces of respite from the city and opportunities for creativity, play and scientific excursions. Being embedded in the cultural and social fabric of the city, urban wastelands can serve as building blocks of what Sennett (2018) calls *the open city*. By means of a re-interpretation of nature, we can find ways in which cities can help to diminish the nature-culture dichotomy. Thriving on tolerance and suffering from control, both solo dwellers and urban nature can be part of a well-rounded cité.
In this thesis, an exploration of the connection between the increased freedom and tolerance of our modern society and the recent interest in urban ecology will be made. The aim is to find open urban forms that allow both solo dwellers and urban nature to dwell freely within them. Furthermore, by understanding ruination in a broader sense, as inherent aspect of the urban environment we inhabit, we can find a nature-inclusive design approach that can benefit the solo dweller. Subsequently, we can find an answer to the research question of this thesis: *What is the value of urban nature for solo dwellers?*

The research method of this thesis is a discourse analysis and can be classified as theory-led. Additionally, a small heuristic study into occurrences of spontaneous and ruderal vegetation will be used to introduce the topic of urban nature - using the agency of photography to show its aesthetic. The relevance of this thesis lies mainly in connecting sociological and ecological theories directly to the architectural field, as well as to each other. Additionally, Sennett's theory of the open city will be expanded on. This theory on building and dwelling is mainly focused on human inhabitants of cities. In this thesis, it will be argued that tolerance towards urban nature is a prerequisite for the open city.

In the first chapter, we will look into the reasons behind the rise of the solo dweller in order to get a good understanding of the conditions necessary for the solo dweller to flourish. In the second chapter, the advantages as well as the risks of dwelling solo will be explored. Hereafter, the role that nature can play in the open city will be discussed. A re-interpretation of what nature is, based on a historical analysis of the relation between nature and mankind as described in chapter three, will lead to a discussion of ways in which nature and mankind can coexist within cities. In the fourth chapter we

will explore ways in which architecture and design can result in spaces in which people as well as nature are free to develop and experiment. Consequently, we can establish what kind of urban environment would suit the needs of the solo dweller.

1. THE RISE OF THE SOLO DWELLER

Living alone is increasingly common across the globe. For some, this trend is symptomatic of current problems and spells further threats for the future, but for others it is a harbinger of new freedoms and opportunities (Jamieson & Simpson, 2013, p. 1). A set of stereotypes confuses knowledge about this trend. It is therefore necessary to clarify the reasons behind the trend to live alone. This chapter will provide an overview of the statistics around solo dwelling in order to get a grasp of the scale of the issue we are dealing with and subsequently the driving forces behind this shift will be discussed.
The public debate about solo dwelling is rather negative. A common depiction of a solo dweller is the sad, lonely, neglected and excluded person. It is seen as a symptom of what is called a dislocated society. Scholars have lamented the absence of traditions of independent civic engagement and a widespread tendency toward passive reliance on the state (Putnam, 1995, p. 2). It is seen as a social problem, a sign of fragmentation and a diminished public life. Another view of the solo dweller – the narcistic carefree self-absorbed person who is oblivious to the responsibilities of family, kin or community – is related to a negative understanding of individualism (Jamieson & Simpson, 2013, p. 2). Both stereotypes seem to stem from the concern that the primary focus of our society is shifting from the community towards the self and the deviance from traditional values, and the undesirable effects this might have. On the other hand, several studies that acknowledge this negative attitude towards living alone provide a thorough defence and portray the solo dweller as a person who is liberated from institutional demands and able to discover their purpose in life (Jamieson & Simpson, 2013, pp. 14–20; Klinenberg, 2012, pp. 17–18; Ronald, 2017, pp. 27–29). These contradictory views demand an answer to the question: *who is the solo dweller?*

In 1947, 5 percent of Dutch adults were single. 285 thousand lived alone, and they accounted for 3,4 percent of all households (Centraal Bureau voor de Statistiek, 2019). In those days, living alone was by far most common for widowers. After the second World War, sexual relations, marriage, living together and having children became disconnected from each other. Young adults valued the opportunity to gain experience and explore the labour market before they committed to a serious relationship and consider living together or having kids. This resulted in people marrying at a later age. Moreover, a more flexible regulation sparked a shift in the public opinion on divorce. It is not considered as the shame it used to be.


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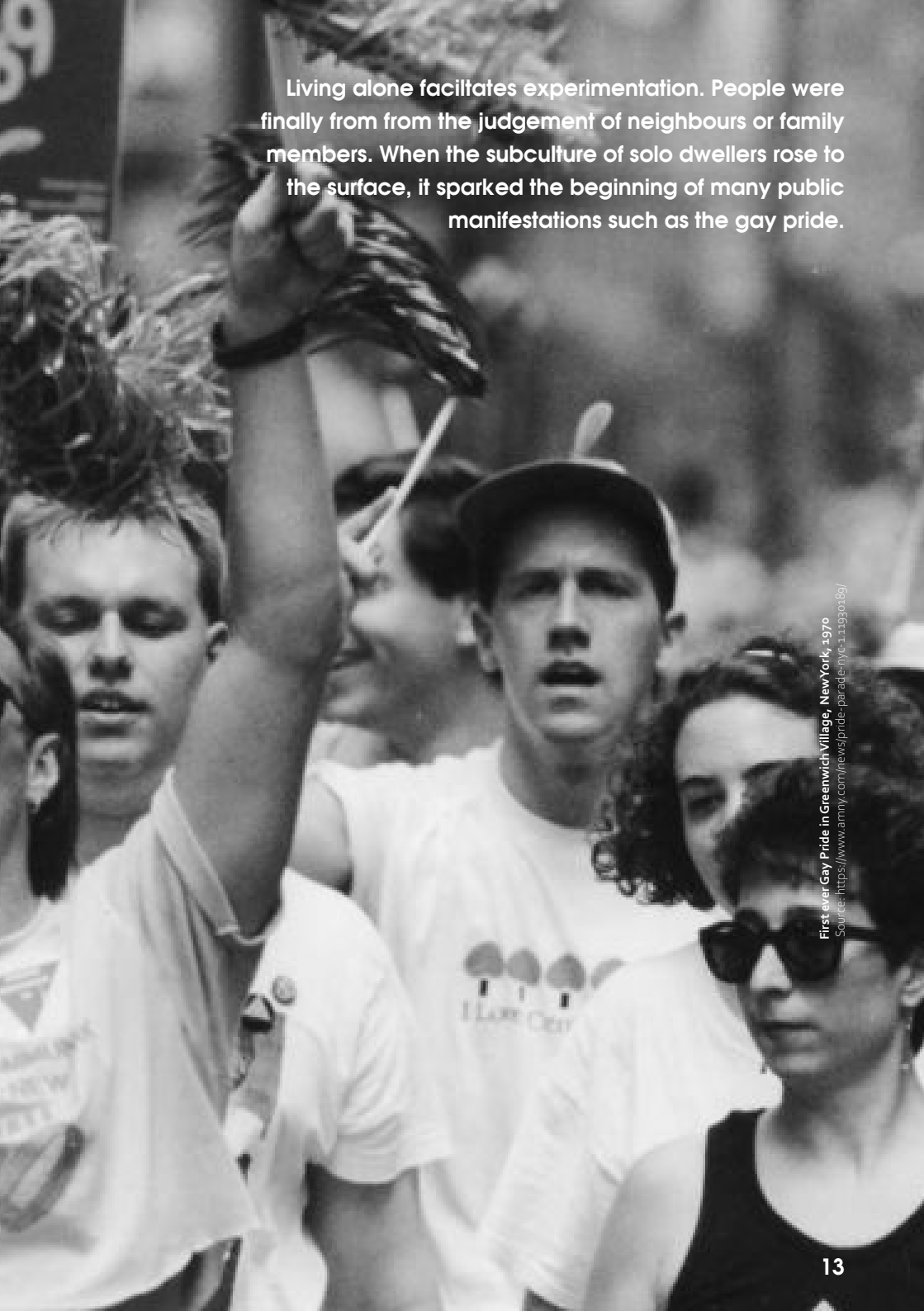
Living alone faciltates experimentation. People were finally from from the judgement of neighbours or family members. When the subculture of solo dwellers rose to the surface, it sparked the beginning of many public manifestations such as the gay pride.



First ever Gay Pride in Greenwich Village, NewYork, 1970
Source: https://www.amny.com/news/pride-parade-nyc-1.11930189/

Today, 22 percent of Dutch adults live alone, making up 38 percent of all households – over 3 million in total – making them the most common type of household in the Netherlands (compared to the nuclear family, multigenerational family, childless couples and the roommate or group home). The prognosis is that this number will grow to 3,5 million in 2030, making up a major part of the expected growth of the total of 550 thousand additional expected households. Contemporary solo dwellers are primarily women. This is largely due to the fact that, on average, women live longer than men and come to live alone at a later age. In the group between 25 and 65 years old, the majority of solo dwellers are men, mainly because children usually move in with their mother after a divorce (Centraal Bureau voor de Statistiek, 2019).
It is not necessarily true that solo dwellers are lonely. Loneliness is defined as a situation experienced by the individual as one where there is an unpleasant or inadmissible lack of (quality of) certain relationships. This includes situations, in which the number of existing relationships is smaller than is considered desirable or admissible, as well as situations where the intimacy one wishes for has not been realised (Gierveld, van Tilburg, & Dykstra, 2006). Central to this definition is that loneliness is a subjective and negative experience. Social isolation can lead to loneliness but is not the sole cause. People with extensive social networks can also suffer from loneliness (Van Campen et al., 2018). Chapter two will discuss the risk of loneliness for people who live alone more extensively.
There is also a substantial group of solo dwellers who are not forced into their residential situation by means of a deceased partner or a divorce. More than 50 percent of Dutch solo dwellers has never been married. However, there is no clear data that presents exactly how many people live alone voluntarily or involuntarily. What the numbers do tell us is that people tend to marry or live together at a later age than we used to. Apparently, there is an incentive or a necessity for people to start living alone more often. What are the driving forces behind this shift?

Unquestionably, increased wealth generated by economic development and social security provided by the modern welfare state have enabled the spike. In simpler words, we live alone more frequently because we can afford to. Although this is certainly a precondition for the shift, there are many things we can afford to do but choose not to. Economic prosperity is just one piece of the puzzle (Klinenberg, 2012, pp. 10–11). The real question is: why do the privileged citizens of developed nations use their unprecedented wealth to separate from each other?
Over roughly the past two centuries, but especially since the second half of the twentieth century, a gradual but global cultural shift occurred. Émile Durkheim, a founding figure of sociology, called this the "cult of the individual." According to Durkheim, the cult of the individual was a result of urbanisation: from the traditional rural community towards modern industrial cities. In these cities, a worldview called radical individualism was created. Figures such as Ayn Rand developed their own philosophy – famously described in novels like *The Fountainhead* or *Atlas Shrugged* - that would question and attack the deep cultural commitment to attachment. Instead of one's

primary obligation being to others, Rand believed that one's primary obligation was to oneself. According to her, true freedom could only be achieved through liberating oneself from the demands and expectations that others place upon a person. Durkheim was more cautious towards the notion of liberating individuals from the state. He argued that the modern division of labour would bind citizens organically. After all, individuals were dependant on the support of key modern social institutions for achieving liberty. Therefore, according to Durkheim, they had a clear self-interest in joining together to promote the common good. The Austrian economist Joseph Schumpeter did not share this view. He predicted that through the rationalization of modern life, incited by capitalism, men would learn that individual advantages can outweigh the heavy burdens and sacrifices that family life and parenthood entail. Freedom would prove more valuable and convenient. According to Schumpeter, this would lead to the disintegration of the family.
There are many voices concerning twentieth century individualism. It is not the aim of this paper to discuss them all, but these voices are indicative and representative of the cultural shift. They stemmed from and gave rise to a new appreciation of the individual. Not long ago, someone who was unhappily married had to justify the decision to divorce. Around the 1950s, someone was judged harshly if they "failed" to marry. They were viewed as sick, immoral or neurotic.
Today, the opposite is true. "*If you're not fulfilled by your marriage, you have to justify staying in it, because of the tremendous culture pressure to be good to one's self*" (Klinenberg, 2012, p. 13). Nowadays, we are more eager to explore possibilities in order to find the best one. Freedom, flexibility and personal choice rank high among our modern virtues. This rapid and immense shift in thinking sprouted especially in the West in the second half of the twentieth century.

Klinenberg (2012) distinguishes four social changes – the rising status of women, the communications revolution, mass urbanisation, and the longevity revolution – that created conditions in which the individual could flourish.
The first, the rising status of women, is the result of the emancipation of the twentieth century. Women gained more control over their own lives and bodies. This changed the terms of modern relationships, causing the aforementioned delayed marriage and increase in divorce, as well as a longer transition towards adulthood. Rather than settling down, young adults, both women and men, indulge in the opportunities provided by easy access to contraception and freedom from family supervision. Young adults tend to refrain from commitment, preferring to seek out new experiences and experiment sexually. This is an important feature of what is called the "age of independence". Living alone facilitates the discovery of the pleasure of being with others. Additionally, women asserted control over their professional lives as well. They are far more likely to work or to go to college than they used to. Therefore, the level of men's and women's participation in higher education and the paid workforce is more balanced than ever before.
The second driving force is the communications revolution, which allowed people to

experience the pleasures of social life even when they're home alone. The telephone has become standard in every household, especially after World War II (Klinenberg, 2012, p. 15), which allowed people to connect. Other major communications technologies, such as the television, radio and VCR gave people access to instant entertainment and a new way to spend free time. Putnam (2000, p. 16) discusses the relevance of the way in which we spend our free time for the state of our society. Around 1960, Americans faced a surplus of leisure. They had to discover how to take life easy. Putnam notes that the civic-minded World War II generation was actively joining together in associations. He dubbed these associations core blocks of American Community life. Only a few decades later, when modern technologies provided new ways of spending free time, the accretion of these associations halted and eventually led them to disband. Putnam expresses his concern of the decline of a vibrant and active civil society. Apparently, the new generation did not copy the behaviour of their parents and chose to find new ways of spending their free time. The Internet is perhaps the main contributor to this phenomenon. Not only can individual users communicate instantly with friends and strangers around the world, they can also express themselves through blogs, homemade videos, and social networking sites. The Internet combines the more passive features of the TV with the more active features of the telephone. It affords rich new ways to stay connected. The decline of active civil engagement is seemingly caused by a shift from associations and groups in the physical world to those in the digital world; from collective to individualised entertainment. More accurately, digital ways of connecting became a good alternative for face-to-face meetups but have in no way replaced them. The Internet has simply provided people with more opportunities.

The same is true for the third driving force behind the cult of the individual: mass urbanisation. Cities boast many subcultures and a diverse social life. Within the dense variety of urban life, you are always able to find like-minded people. The city delimits the individual as he is not constantly being watched and monitored by his family or peers. Urban life enables social evolution because one is free to choose to participate in an abundance of subcultures. A person living in the city is granted a chance to develop and become one with his inner characteristics which give form to the diversity of life. "*We follow the laws of our inner nature - and this is what freedom is"* (Klinenberg, 2012, p. 34). Simmel was one of the first scholars to acknowledge the freedom that an individual could find in a city. *"Small-town life,"* he argued, *"imposed such limits upon the movements of the individual in his relationship with the outside world and on his inner independence and differentiation that the modern person could not even breathe under such conditions"* (Simmel, 1903). In cities, on the other hand, we have learned to be more tolerant towards each other; to let each other be. It's often argued that modern urban culture helped usher in an era of great creativity and aesthetic experimentation, giving rise to avant-garde movements (Klinenberg, 2012, p. 35). Moreover, modern cities induced innovations in everyday techniques of living. Cities seemed to favour those who gave up old habits and constraints and acculturated to the new social scene. Urbanites learned new ways in which to dwell, essentially remaking them-

selves and their homes to suit their inner nature. Simmel called this a "metropolitan type" of individual: a person with a rational and intellectual orientation to the world, a deep psychological life and a blasé attitude. Although Klinenberg (2012) simply interprets Simmel's individual as someone who is liberated, Sennett (2018) holds a more nuanced view of Simmel's essay. Sennett states that the blasé attitude is the result of a sensory overload occurring in the hectic and fast-paced modern city. Simmel feared the intensity of urban life. He writes that *"The metropolitan type of man develops an organ protecting him against the threatening currents and discrepancies of his external environment (...) He reacts with his head instead of his heart."* In other words, in cities, people respond with a conscious non-reaction. People do notice what is going on around them but choose not to get involved. This calculating and rational attitude echoes Rand's philosophy: one stranger doesn't need to do anything for another, if he doesn't want to. We tend to keep to ourselves, unless there is a direct need; we are curious, but not intrusive. Both Sennett and Klinenberg would agree that this blasé attitude is vital for the rise of the solo dweller and an inevitable way of life within cities. Both authors acknowledge the potential downside of this type of behaviour, albeit to work out different arguments. The downside revolves around the distinction between doing and being - active and passive. If we are less likely to engage with others unless there is a direct need, who is looking out for those who are not expressing their need?

One sub-group of solo dwellers that are especially vulnerable to the potential downsides of living alone are elderly. The longevity revolution is the driving force to the substantial amount of elderly who dwell solo. People, usually women, outlive their partners more often and do so for decades rather than years. Therefore, aging alone has become an increasingly common experience. A popular view of aging alone is that it especially involves hardship. Growing old entails many challenges – managing illnesses, enduring frailty, adjusting to retirement, watching friends and family die (Klinenberg, 2012, p. 17) – which can be more difficult for those who live alone. However, conditions are not always as miserable as we tend to believe. A study by Petry (2003) presents several interviews with elderly women who live alone. The study shows that the women greatly value their independence. It is important for them not to feel bound to something, since *"to be alone also means freedom"* (Petry, 2003, p. 57). They felt they were able to do things when and how they wanted them done. Maintaining control over their own lives was essential. Even though help is necessary, independence strengthens their sense of self-esteem, self-identity, power and continuation in life. A recent government report (van Campen et al., 2018) states that people above sixty-five are less likely to be lonely than twenty years ago due to improved social conditions. In general, elderly have wider and more diverse social networks. Still, the loss of a spouse is one of the main indicators of loneliness. The next chapter will elaborate on the potential opportunities and risks of living alone, especially concerning elderly.
Jamieson and Simpson (2013) mention another major factor that gave rise to the cult of the individual: globalisation. This factor can be seen as an expanded version

of what Klinenberg calls "the communications revolution." The development of mobility, communication and mass consumerism due to capitalism has allowed us to connect with others in radical new ways. It is widely accepted that the dislocating changes fostered by globalisation, including unprecedented exposure to images of alternative lifestyles, competing established certainties such as lifelong marriage, enhance questioning self-reflexivity. Because we have access to and are confronted with countless examples of how people could live, we are learning to choose how we want to live, without it being based on a fixed precedent. Additionally, by means of the increased availability of mass-produced goods, people of all social classes can express themselves through a certain style. Globalisation has given rise to individualism (Jamieson & Simpson, 2013, p. 17). As a result of these factors, people who live alone do not see themselves as sad and lonely because they have been left behind, but as people who are exercising choice.

Perhaps a more critical outlook on the rise of the individual is voiced by Robert Putnam. Putnam's dissertations (1995, 2000) on the collapse of the community revolve around the discussion of (a lack of) political, civic and religious participation in groups, relating those factors to the decline of America's rich civil society. Putnam's studies, together with others, have led to interpreting the rise of the cult of the individual as a problem that had to be solved, rather than a neutral phenomenon. Putnam strives for more engaged citizens, preferably in institutionalised form. This ideal image resonates a more traditional suburban lifestyle: the average family who is friendly with their neighbours, including a mother who is part of a book club and hosts dinner parties. Although there is not necessarily any harm in this lifestyle, it seems questionable to wish to return to a form of society that has actively been challenged over the past decades. Even in pop culture, the commonly depicted image of the suburban dream is criticised. Popular Hollywood films of the late 90s and early 2000s, such as *Fight Club, The Matrix, Donnie Darko,* and *American Beauty*, which were made in a time of general peace and security, actively challenge the stable state of society. The uneventful decade preceding these movies fosters the debate around the drag of everyday life, boasting unexciting and unfulfilling jobs. The movies all revolve around protagonists dealing with some sort of anxiety that stems from the repetitiveness of their daily routine; who are unable to cope with the mundaneness of their lives. Perhaps this is indicative of people's willingness to engage in something less structured and less predictable. People stopped taking part in institutionalised associations but chose to participate in a thriving public culture – on their own terms.

To sum up, an increasing amount of people is choosing to live alone. A major cultural shift, as well as increased prosperity, has allowed individuals to live alone, without being stigmatised. Recent studies have shifted their focus from treating living alone as a problem and cause for loneliness and isolation, towards a more realistic interpretation that acknowledges the benefits of going solo. Solo dwellers can flourish due to the newly created conditions, in which they can actively participate in social life

in a way they see fit. Sennett (2018, p. 297) addresses the importance of active engagement in "the open city". He believes that life has to be continually remade and rebirthed. The open city is not a fixed form, but open in time. This type of open city is favourable to the solo dweller, who needs to have opportunities instead of obligations. The solo dweller, too, is continually reshaping his or her own life. The open city offers the opportunity to experiment and engage in a wide range of diverse activities. The more traditional institutionalised society is, at least for the solo dweller, unfavourable. In the past century, singletons have become a subculture in themselves and were able to rise to the surface because their numbers allowed them to be visible enough. Our understanding of this phenomenon has changed over the years. Despite the fact that we now acknowledge the potential benefits of solo dwelling, it doesn't take away that living alone can still lead to loneliness and social isolation. How can we design a city that provides space for those who want to live alone, without ignoring those who are forced to do so?

2. THE VALUE OF INDEPENDENCE - THE RISK OF LONELINESS

It has been suggested that people living alone can be usefully classified as two groups, those who elected to live alone and those forced to do so (Bennett & Dixon, 2006, p. 17). Research continually shows that among the multitude of factors that can contribute to a (dis)satisfaction in living alone, the division between choice and necessity is the most consistent indicator. *"Understanding the routes people take into living alone and the factors driving their move to this living situation is very important as these routes and drivers clearly impact on the experience of living alone"* (Jamieson & Simpson, 2013, p. 7). However, it can be difficult to classify people within either of these categories. 'Choice' in this sense is a misleading concept. For example, people setting-up home alone prior to partnering in early adulthood might use the word 'choice' but can simultaneously feel obliged to do so. This is not generally because they are being forced out of their home by their parents but because of normative understandings of being too old to live with one's parents within the cultural context. Such a division in two categories is usually an oversimplification. Experiences of living alone vary with resources, by age and stage in the life course, and the cultural context. In Asian contexts, for example, the risk of loneliness and depression, especially for elderly, is considerably higher than in Europe or America. This is contributable to vastly different traditional ways of inhabitation (Ronald, 2017; Torabi et al., 2015; Wong & Verbrugge, 2009; Yeung & Cheung, 2015). This chapter will begin by outlining the first ways of living alone in Western culture and from there consider what type of urban environment would suit the needs of the solo dweller. Subsequently, the risks and disadvantages of living alone will be discussed, especially related to elderly solo dwellers. This will lead to a discussion on the skills a solo dweller needs to acquire in order to live alone hap-

pily, and in what way the urban environment can contribute to that. This last notion will be expanded on in chapter four.

Perhaps the first organised form of 'solo dwelling' is the monastic tradition, which valorised asceticism as a path to knowledge and a meaningful life. Separating from society was considered the most powerful way to get closer to the divine and the self. In reality, however, few monks and nuns were truly solitary. They typically lived in settlements that they shared with others. This perspective has probably given rise to the idea that living alone is important for becoming an autonomous adult, but they also share an *"antiurban and antisocial bias, and are in many ways antithetical for the practice of living alone in the city"* (Klinenberg, 2012, p. 33). The monastic tradition is not where contemporary ways of solo dwelling stem from.
Instead, contemporary ways of settling down solo originate in the modern metropolis. Around the turn of the nineteenth to the twentieth century, people began to live in rooming houses. They were popular among people with a steady but modest income, who wanted to escape surveillance. Rooming houses rapidly became abundant and easily accessible. The life within rooming houses could be virtually untouched by social interactions and supervision: people could relish in anonymity (Klinenberg, 2012, p. 48). This caused great anxiety among social reformers, as they feared it would lead to isolation. The sociologist Harvey Zorbaugh (1929) noted that the typical rooming house had no dining room or any common meeting place at all. Few acquaintanceships spring up in a rooming house. Zorbaugh offered statistics that showed a concentration of suicides in areas where rooming houses were common. Many people living in rooming houses, both men and women, suffered from the lack of peers and social interaction. Zorbaugh saw this as one of the dangers of urbanisation.
Others were liberated by this anonymity, because the could live by their own "inner laws". In the early twentieth century, the first full-blown generation of American moderns moved to Greenwich Village so *"they could enjoy life without a father and forge a community of dissidents who prided themselves in living apart"* (Klinenberg, 2012, p. 37). In this vibrant neighbourhood, consisting of a great variety of political persuasions and opinions, solo dwellers could cast away their mask, unveiling their hidden identities and become more fully realized and complete individuals. Women's rising chances on the job market were an essential precondition for both their own chances of self-actualisation and the needed gender diversity within the Village.
A key difference between the rooming houses in Chicago that Zorbaugh described and the bohemian culture of the Village is the spatial arrangement of the neighbourhood. Chicago lacked proper spaces to meet and gather. The Village boasted intimate cafés and salons along its streets and a central gathering place, Washington Square Park, which provided both privacy for personal experimentation and a zone for self-expression and public display. This duality turns out to be vital for solo dwellers and proper city design should include opportunities for both. In 1917, the first all bachelor apartment-house was erected within the Village. The cult of the individual rose to the surface and before long, people went to New York's bohemian neighbour-

With the rise of subcultures in cities, people could choose to which group they wanted to belong
Source: https://massacultuurfontys.wordpress.com/kunst-en-religie-levensbeschouwing/jaren-60-en-70/

“Small-town life imposed such limits upon the movements of the individual in his relationship with the outside world and on his inner independence and differentiation that the modern person could not even breathe under such conditions”

Georg Simmel (1903)

hoods just to watch or participate in their distinctive subcultural scenes. The areas were transformed into theatres of a new, modern lifestyle. Here, a new idea of how to live sprouted. Being faced with new and divergent values, the imaginative limits of a person's consciousness are expanded (Sennett, 2003). The idea that one could live quite sociably while keeping a place of one's own resulted in the dominant practice among young adults to find a place of one's own before settling down. Cities have already been adapted to suit their needs with the implementation of bars, restaurants, entertainment zones, commercial street culture that encouraged singletons to comingle rather than hunker at home (Klinenberg, 2012, p. 20)
As the cult of the individual expanded, the service economy grew dramatically. Especially the onset of women on the labour market caused a surge in service facilities, such as home cleaning, child care, elderly care, food delivery and laundry (Klinenberg, 2012, p. 42). Access to these types of facilities helps solo dwellers to thrive, as they cannot bear the burden of working a regular job and maintaining a household. Nowadays, stores cater especially for solitaires. Convenience shops offer mini-meals for one person and sell single bananas and onions for the solo chef (Sennett, 2018, p. 294). Solo dwellers sprawl the streets and can be quite active and social during both day and night. Although the cité is made up of lone people, the city does by no means need to be desolate. The spatial arrangement of the ville is a major indicator whether or not the cité will be successful.

Thus, an unfitting urban or architectural environment can be a cause of problems, such as loneliness. If there's a lack of communal or open public space – spaces providing the opportunity to engage with others – solo dwellers are especially vulnerable to social isolation. Additionally, not everyone is capable of living alone. Some are too busy with their regular job to make time for social interactions, albeit with friends, family or strangers. Some are anxious to attend everyday events or activities, such as the movies, concerts or going to a bar, by themselves, because they are taught to believe these are typically places to go to with others. Some, especially people around their thirties, see their network of like-minded people crumbling as they age. Friends that they could usually meet up with at any time eventually get more serious relationships, get married or have children. This can cause a feeling of being left out and will lead solo dwellers to question their own lives, considering whether they would be happier if they coupled up. Approaching their forties, people who live alone might feel they lead an empty live, having focused mainly on their careers for too long. Especially women indicate that they face abundant social pressure. Whether single by choice or by chance, many women report that, after their twenties, concerns about finding a partner and having children became an inescapable part of their lives (Klinenberg, 2012, pp. 67–80). Men, on the other hand, are often forced into living alone by means of divorce and become estranged from their children. Their ability to engage in the upbringing of their children may be hindered by their low priority for housing and social welfare (Bennett & Dixon, 2006, p. 5).
One of the most commonly mentioned issues of living alone is dining alone, especially

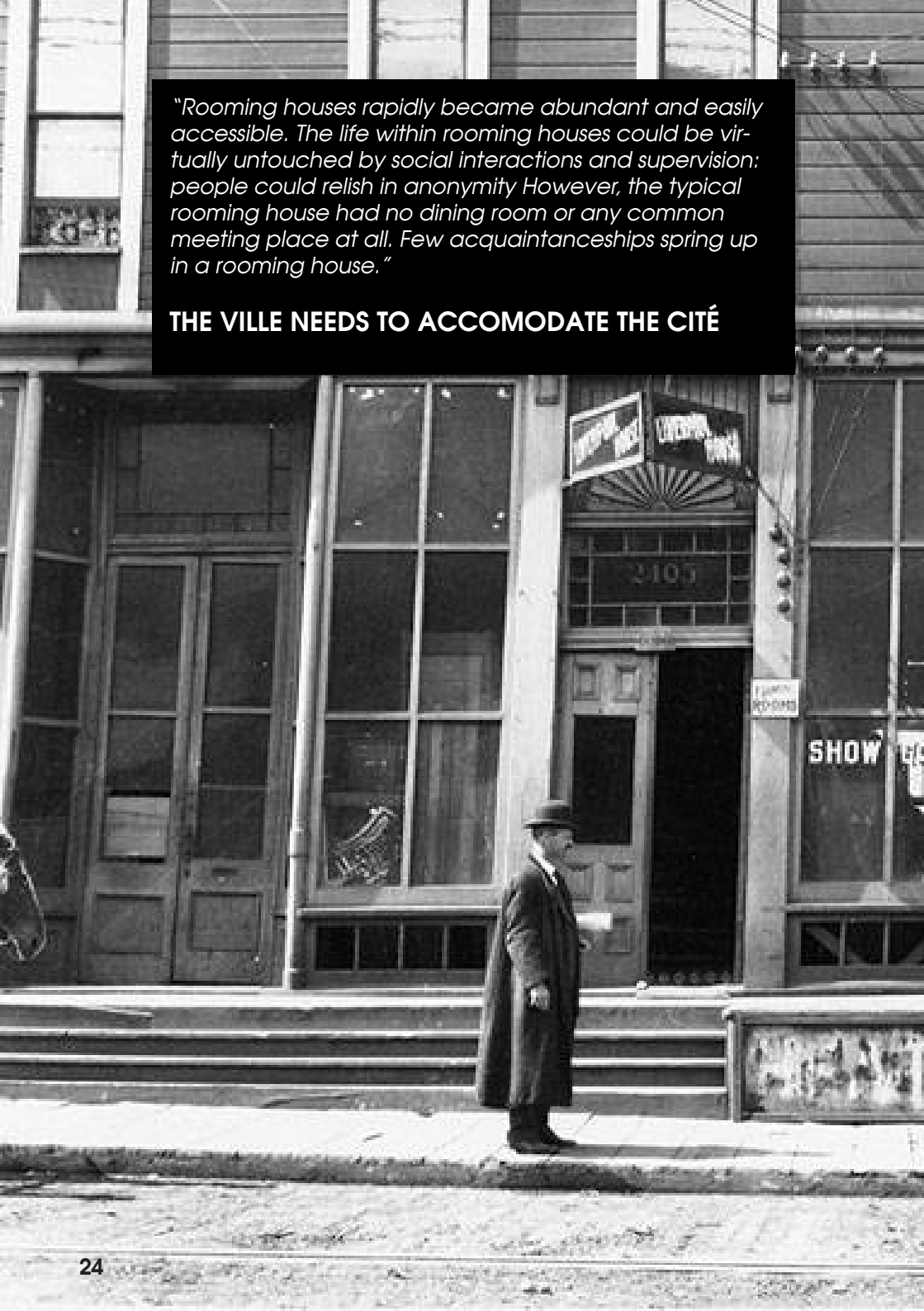
related to aging. Elderly solo dwellers share the condition that they simultaneously have to face challenges of aging as well as dining alone. This may pose a number of demands, including those related to food insecurity such as the availability, accessibility, and affordability to food, as well as the availability of social support, material aid, feelings of loneliness, and social isolation (Reyes Uribe, 2019, p. 171). Living alone does not always equal eating alone. Studies reveal that solo dwellers regularly eat out with friends or have standing arrangements with family members. But living alone typically involves eating alone at least some of and often much of the time. Some find joy in cooking for themselves, others consider it a necessary chore or even a lost cause (Hafford-Letchfield et al., 2017, p. 331; Jamieson & Simpson, 2013, p. 125). This can lead to the development of unhealthy habits, such as eating fast-food or ready-made frozen meals. Besides the utilitarian value of food, eating has a meaningful social value too. Eating together is a is a fundamental necessity for nurturing the self and is used to sustain and celebrate relationships (Jamieson & Simpson, 2013, p. 122). Elderly women, far more than men, attach a certain meaning to dining together and cooking for others. Occasionally cooking for family members can have a profound importance because meals prepared by those women were a gift for the family, an expression of care and love. Cooking, for them, is an emotional activity. It brings up memories of the lost friends or deceased parents. It is important for elderly to have a sense of continuation of the past (Reyes Uribe, 2019, pp. 173–177).

Aging alone is in many ways difficult, and perhaps unsurprisingly, it is the subgroup of solo dwellers who most often experience loneliness. Having a partner forms a sort of barrier against susceptibility of loneliness (Gierveld et al., 2006). However, to put this in context, being in an unhappy relationship can lead to the same feelings of loneliness. This illustrates the complex factors that contribute to loneliness. Every situation is different, and people want different things out of their lives. In general, there are six main factors behind loneliness and social isolation, in descending importance: personal contact, possibilities of meeting others, the ability to shape one's own life, health, living conditions, and demographic and social characteristics (van Campen et al., 2018). Additionally, people who are forced to live alone are on average lonelier than those who elected to do so (Bennett & Dixon, 2006; Klinenberg, 2012; van Campen et al., 2018). Research by Petry (2003, pp. 58–62) shows that elderly women who have come to live alone at a later age mention 'the ability to shape their own lives' as a crucial part of aging alone happily. Independence is framed as having freedom of choice as well as freedom from restrictions. Even though help is necessary, independence strengthens one's sense of self-esteem, self-identity, power and continuation in life. A major restriction is the feeling of vulnerability, causing fear of going out after dark. Therefore, there is a demand for a safe passage towards home from public transport points.

Fortunately, some of those aspects can be improved by architectural and urban design. By providing communal spaces, people have the possibility to meet. Even small, daily interactions contribute to battling loneliness. These interactions can result in more personal relationships and extensions of social networks. Many relationships

"Rooming houses rapidly became abundant and easily accessible. The life within rooming houses could be virtually untouched by social interactions and supervision: people could relish in anonymity However, the typical rooming house had no dining room or any common meeting place at all. Few acquaintanceships spring up in a rooming house."

THE VILLE NEEDS TO ACCOMODATE THE CITÉ



Exterior of a rooming house in Seattle, 1909
Source: https://en.wikipedia.org/wiki/Rooming_house

begin while doing an activity together, either in an informal or institutional context (Gierveld et al., 2006; Putnam, 2000; van Campen et al., 2018). The urban environment therefore needs to offer spaces where these activities can take place. Additionally, the urban environment needs to delimit restrictions. In chapter four, possible design solutions that can help to reduce feelings of loneliness will be discussed.

Combatting loneliness is not solely a task of professionals, but rather a joint venture between outsiders and people themselves. Not much older than a century, living alone is a relatively new phenomenon. It is a skill people need to develop. Institutions, governments and solo dwellers themselves are still experimenting and finding out how to manage this new way of inhabitation. Research shows that elderly, when coming to live alone at a later age, are teaching themselves how to use mobile phones and profit from the rich opportunities for connectivity they provide (van Campen et al., 2018). Older men are teaching themselves how to cook in order to stay independent (Reyes Uribe, 2019; Wong & Verbrugge, 2009). Young workers who live alone are often facing additional tasks at their office, because they have no kids or partner they absolutely need to get home to. They too are learning how to fight and stand up for themselves in order to not consistently be burdened with working weekends (Klinenberg, 2012, p. 93). People are adapting. Being able to adapt is perhaps the most essential skill of the solo dweller. Either coming to terms with a certain situation or putting in the effort to change it is necessary for achieving satisfaction in life.
Another example that illustrates the adaptability of solo dwellers and the institutions surrounding them can be found in the statistics around a regularly occurring natural phenomenon: a heatwave. An article in *De Volkskrant* (Keulemans, 2019) mentions that the heatwave that scourged Europe in 2003 cost over fifteen thousand lives in France alone. In contrast, the record-breaking heatwave of July this year caused 868 fatalities, roughly 95 percent less. In fact, Klinenberg's study *Going Solo: The Extraordinary Rise and Surprising Appeal of Living Alone* was a continuation of his previous study *Heat Wave*, concerning the lethal heatwave of Chicago in 1995. He found that *"hundreds of people had died alone and at home, out of touch with friends, family and neighbours, and out of touch with the social safety net. They died not only because of bad weather, but also because they had become dangerously isolated."* His morbid introduction to the theme of solo dwelling still resulted in a positive outlook. Apparently, over the last few decades, we have adapted and improved the ways in which we treat people who live alone. Statistics reveal that despite an enormous increase in the amount of elderly who live alone – more than twice as much people aged above 70 live alone than two decades ago (CBS, 2019) – levels of loneliness have remained stable and are even slightly reduced over that same period (van Campen et al., 2018).

On a final note, being alone is still heavily stigmatised. In virtually all research that includes interviews, recipients complain about the way others generally think of them. Women seem to suffer from this patronisation more than men, having to deal with prejudicial terms as "old spinster" or "mad old cat lady". Solo women often get asked

why they are childless or unmarried and it can be difficult and frustrating for them to constantly have to justify their life choices (Hafford-Letchfield et al., 2017, p. 326). Moreover, tax systems have not evolved yet to easily accommodate the solo dweller. Expenses for a single person household are on average higher per person than for a family household (Gierveld et al., 2006, p. 493; Jamieson & Simpson, 2013, p. 95; Klinenberg, 2012, p. 75). The same is true for the current state of the housing market, in which it is cheaper to share a household, and to a lesser extent the supply of supermarkets, where buying in bulk is usually cheaper (Bennett & Dixon, 2006; Klinenberg, 2012, p. 77). However, over the past decade or so, supermarkets have adapted their stock and offer a variety of single-person meals and packaging.

In other words, in spite of the tolerant attitude towards the solo dweller, other, more traditional, ways of inhabitation are still considered to be the norm. "The family" is deeply rooted into our cultural idea of what life should be like. It is easier to live by that norm since all kinds of institutions have specifically evolved to accommodate the standard way of living. On the other hand, it can be liberating and empowering to know you are not becoming the standard; to not do what is expected of you.

The fear that people who live alone are particularly disengaged from social ties makes assumptions about engagement in civic life, community and locality; it suggests inhabitants are merely passing through, with no need for meaningful connection to people living locally or to the place itself. However, as we have seen, this fear is not entirely justified. The historical shift that took place over the past century has led to a new type of social solidarity, described as 'networked individuals' (Jamieson & Simpson, 2013, pp. 20–21). Networked individualism is gradually taking over prior forms of social solidarity – being embedded in close-knit groups or neighbourhood-based local ties with well-known others. The reduced relevance of residential arrangements to social connections has resulted in a society where *"the individual – and not the household, kinship group, or work group – is the primary unit of connectivity . . . people must actively network to thrive or even to survive comfortably. More passive or unskilled people may lose out, as the group (village, neighbourhood, household) is no longer taking care of things for them"* (Wellman et al., 2006, pp. 164–165). An emphasis on networks as the key social unit of an individual's life is particularly appropriate in the period following the Internet and mobile phone revolutions (Jamieson & Simpson, 2013, p. 21; Klinenberg, 2012). In an era of networked individualism, new interaction opportunities are extended to the rural community and the difference between the urban and rural diminishes.

In conclusion, the solo dweller, as a relatively new type of household, is still finding a proper way of inhabitation. Solo dwellers themselves, as well as institutions and our culture in general need to adapt to the needs of this growing group. Living alone is a skill, people need to be capable of doing so. If done properly, combined with a well-adapted urban environment, it can lead to high levels of independence and freedom. However, precedents have proven that living alone in a ville that is unsuited for the practice of living alone will lead to social isolation and loneliness. Cities must offer

solutions for several everyday activities which are difficult or considered painful to perform alone, most prominently eating and cooking. Reasons for living alone vary and are highly personal, just as reasons for becoming lonely. It is important to keep in mind that this thesis focuses solely on the solo dweller, and the benefits or problems that occur within this group could become exaggerated. Obviously, people living in families have problems too. The inescapable obligation to take care of one's children may lead one to dream of a life full of adventure and freedom, while a solo dweller may long for a traditional life with a partner and a family. *"The truth is, eliminating the pain related to living alone is no more possible than eliminating the pain related to living"* (Klinenberg, 2012, p. 82).

It is important to provide opportunities and allow the solo dweller to shape his or her own life, while also accommodating ways to delimit restrictions. Throughout history, solo dwellers have been early adapters. They found ways in which to thrive and do not wish to be belittled or pitied. A growing notion of tolerance towards this alternative lifestyle is the main factor behind the rise of the individual. We allow each other to become who we aspire to be. Therefore, a central theme to designing buildings for solo dwellers should be allowing the cité to develop, resulting in a city that is adaptable and open towards the influence time inevitably has. One aspect of the city that could provide in these needs is urban nature. Nature within cities is diverse, versatile and dynamic. It matches the pace of the rapidly changing city. If the solo dweller was able to flourish due to increased tolerance, he might need an urban environment that is not excessively controlled but allowed to develop freely. The next two chapters will explore the way in which humans relate to (urban) nature and how nature, too, can flourish in an open city.

3. ALPINISM AND THE BIRTH OF SCIENCE - NATURE AS *THE OTHER*

As with the public debate about the solo dweller, the contemporary debate about nature is rather negative and even grim. Recent awareness of climate change has spelled threats for our future, and the debate on reducing greenhouse gas emissions overshadows the nature right in front of our eyes – the poppy flower and crocuses that bloom in spring, the chirping birds high up in trees or the raindrops that pour from clouds above. Admittedly, the devastating effects of global warming have made their impact on the entirety of the natural world. However, the focus of this thesis does not lie on climate change. Instead, it is concerned with reinterpreting the term 'nature' in order to get a more fruitful understanding of its potential influence on the *ville* and *cité*. The spontaneous character and the everyday qualities of nature will prove vital. Similar to the solo dweller, nature thrives with tolerance. First, we need to

get a grasp of our historical relationship with nature in order to evaluate what it could mean to us today. Subsequently, a definition of nature will be provided. Thus, in this chapter we will try to answer the question: *what is nature?*

In European cultural history, Franceso Petrarca is continually celebrated as the first 'modern man'. He was the first to climb a high mountain in order to enjoy its view. The famed ascent of the Mont Ventoux in 1336 is considered to be the start of the shift from the old Christian world into the new, modern world: a reorientation of Europe (Lemaire, 1970). But why is this ascent so relevant for the way we see and understand ourselves?
Put simply, the answer is that it was indicative of the new way in which humans would relate to the world around them – from an inward-turned view, aimed at exploring one's own soul, towards an outward-turned view, aimed at exploring the physical world around us. Petrarca, when he stood on Mont Ventoux, got overwhelmed by feelings of fear and nostalgia, longing for the safety of the world he knew. He mourns his mentality and writes that "*nihil praeter animum esse mirabile*": nothing outside of the soul is worth to be admired. In this moment, the spirit of the Middle Ages and the spirit of the modern world meet, forecasting the birth of the individual and a radical broadening of the Christian worldview, eventually leading to its downfall. Petrarca observed the world from a high point, thus broadening his horizon (Lemaire, 1970, pp. 17–19). This embodies the modern man: not taking one's own limited view for granted but urging to discover and understand the world.
This new worldview developed gradually, becoming visible in the discipline of painting – a discipline which is generally indicative of the zeitgeist – where painters began to portray the landscape as protagonist of the work instead of using it as a background for biblical events. The natural world slowly became an interesting field of study. Later, during the 18th century, under the influence of the Enlightenment, the interest in 'seeing' arose. It is a period in which the scientific method – seeing objectively – blossomed. People aspired to explore and document the world to literally 'broaden their horizon'. An excerpt from Goethe's autobiography *Dichtung and Wahrheit* poses as an example of the way the world was seen by a growing group of intellectuals in that time. Oetermann (1997, pp. 11–13) summarises a passage in the book that describes Goethe's approach of the cathedral of Strasbourg as follows: "*It was his "most earnest desire" to climb the tower in order to enjoy "a fresh glance into a new land" that was "like a new paradise."* (Oettermann, 1997, p. 11). It is significant that not a single word is devoted to the building's religious function. This typifies the shift in thinking. The church no longer directed the gaze of the faithful heavenward; instead, human beings themselves become godlike, looking down from towers that served their need to see the world. Men started to build observation platforms throughout Europe in order to "*satisfy their craving to experience the horizon"* (Oettermann, 1997, p. 11). Again, a reaction could be found in the discipline of painting, with the invention of a new artform: the panorama. It provided in the growing urge of the people to see the world. It allowed spectators to experience the horizon assembled as if in a laboratory - and under ideal

conditions. The panorama is part of the development of the natural sciences. It was an attempt to view and portray the world objectively, and thus instruct its viewers how to see in this manner (Oettermann, 1997, p. 12; Verbiest, 2019, pp. 5–6).

The increasing interest in seeing, discovering and documenting the landscape resulted in the ongoing trend of controlling the world around us. Because of this, the earth has been treated as an inexhaustible resource that could be used to sustain our human culture. Mumford argues that with the coming of civilisation, the land is supposed to diminish in importance. *"Nature as a system of interests and activities is one of the chief creations of the civilised man"* (Mumford, 1931, p. 32). As man has learned how to control his environment, his relationship with the land becomes more complicated: the plough and the axe leave their marks on the landscape, the river bank is straightened, the natural vegetation is improved or altered by new importations: the whole aspect of the earth is changed. This is not necessarily a bad thing. If done intelligently, civilisations can thrive, and the landscape can prosper. The reciprocity between land and culture is the mark of high civilisation. However, the past centuries have revealed a rather one-sided relationship between the two. As early as 1864, when the geographer George Perkins Marsh's Man and Nature was published, the gradual destruction of the landscape was perceived. The aim of Marsh's book was to point out *"the dangers of imprudence and the necessity of caution in all operations, which, on a large scale, interfere with the spontaneous arrangements of the organic and inorganic world"* (Mumford, 1931, p. 33). He writes that we should try to restore the forests to its normal proportions and *"devise means for maintaining the permanence of its relation the fields, the meadows, and the pastures, to the rain and the dews of heaven, to the springs and rivulets with which it waters the earth"* (Mumford, 1931, p. 34).
In similar fashion as Petrarca, Henry Thoreau observed the landscape around him for the mere reason to enjoy it. Opposed to Petrarca's sudden discovery, Thoreau devoted himself to the natural world systematically. He *"knew when the wild flowers would bloom; he dallied with the fish in the river and boated slowly up the quiet waters; (...) he explored the seashore and waded through the sands of Cape Cod, in short, he tasted the land"* (Mumford, 1931, p. 30). He pointed out the necessity of publicly preserving the wild places of the earth in order to enjoy them.
Petrarca, Goethe, Marsh and Thoreau, being overwhelmed by natural beauty, could not prevent the growing undercurrent of the machine age that led to the relentless spread of industrial civilisation, altering the wild landscapes into unrecognisable patchworks of rectangles, aimed at making profit. Their respective discoveries and attitude towards nature indicate a shifting position of mankind within the world. As a result of the appreciation of the landscape, we have learned how to study it, how to benefit from it, how to exploit it and how to control it. More recently, due to upscaling of agriculture, construction of residential districts, industrial estates and infrastructure, and the urbanisation of the countryside, the Dutch landscape has been changed nearly beyond recognition (Lemaire, 1970, p. 8).
Lemaire calls this the *dehistorisation* of the landscape (1970, p. 7). Not only natural

landscapes were being destroyed, cultural landmarks such as church towers, water towers, and train stations, were demolished in order to make way for progress. Modern technologyy made it possible to flatten out; to make similar; to change the landscape. Place and space could be standardised, which resulted in a loss of complexity and openness.

Because of the potential destructive power of civilisation, historians have created a so-called declensionist narrative, forming a barrier between the natural world and the city. Humans are treated as agents of harmful physical change. But creating this barrier between the two is not a viable way to look at the topic (Melosi, 2010, p. 7-8). Suburban sprawl, promising to create homes 'within nature' has destroyed the thing it came to find. Jacobs (1961, p. 445) argued that sentimentalising nature would create semi-suburbanized and suburbanized messes that become despised by their own inhabitants tomorrow. A sentimentalised view of nature, according to Jacobs, usually consists of grass, fresh air, and little else. Such an outlook does injustice to humans *and* nature. She writes that *"human beings are, of course, a part of nature, as much so as grizzly bears or bees or whales or sorghum cane. The cities of human beings are as natural, being a product of one form of nature as are the colonies of prairie dogs or the beds of oysters"* (Jacobs, 1961, p. 446). This view was, of course, not original with her but echoed in other disciplines. To biologists and others in the life sciences, *"Man is clearly an animal. If you cut a specimen open, you find that the parts – heart, intestines, liver, lungs – differ little from the corresponding organs of dogs, cats, or monkeys . . ."* (Melosi, 2010, p. 8) Humans, therefore, must rely on their physical environment for survival. Humans create urban ecosystems that provide habitat for nonhuman populations, but these urban ecosystems comprise only a small portion of the total area required to support human populations. Thus, in understanding urban ecology – especially from a human-centered perspective – it is important to recognize how ecological processes vary within cities, but also how cities utilize material and energy that comes from beyond their borders (Melosi, 2010, pp. 10–11). The focus of this thesis will primarily lie on the former aspect. In cities, as places where humans and nature coexist, natural processes can be much more dynamic because they are influenced by human activities. When spaces or surfaces are not controlled by humans, spontaneous vegetation will occur. Humans travel around the world and they unconsciously bring seeds from exotic plants with them; humans build surfaces that are not found in premodern landscapes; humans create conditions that influence the chances of a species' survival. Because of this reciprocity between humans and nature in cities, the urban environment has become a place of great ecological interest.

In this thesis the following definition of nature will be used: *something that is left to be altered by time*[1] *rather than being controlled by means of human intervention.* Thus, the notion of time comes into play. According to this definition, perhaps surprisingly, a garden can be less natural than the first patches of moss on a cobblestone road. It is a matter of allowing something to develop instead of designing and controlling.


KOTZ
KÖLN

nature - *something that is left to be altered by time rather than being controlled by means of human intervention.*

nature-inclusive city - *An urban area that allows spaces to be altered over time without human control.*

This implies that a 'nature-inclusive city' is a city which allows spaces to be altered over time without human control. Instead of bracing the city against the influence of time, desperately denying the inevitable effects it will have on the design, we can try to find ways in which time will improve our cities. In this way, the built environment can become to some extent natural and help to counter the declensionist narrative that we have created.
The geographer Matthew Gandy has recently become more involved in the field of urban ecology, and tries *"to build a conception of urban nature that is sensitive to the social and historical contexts that produce the built environment and imbue places with cultural meaning"* (Gandy, 2002, p. 11). Klingle (2007, p. 7) adds that *"By juxtaposing nature and culture as pure categories, environmental historians have demonstrated the independence of nature as well as the consequences of human actions."* This often yields stereotypical stories of decline. Klingle would rather see humans and nature tangled together and avoid a dualism that asks if elements in cities are natural or unnatural, or if cities themselves are one or the other.

In short, we are inside rather than outside nature. Humans haven't degraded the land but rather transformed it. In the spirit of Petrarca, Goethe and Thoreau, we can enjoy the natural world around us – within cities. The question remains, how can this reinterpretation of nature lead to an urban environment in which the solo dweller can flourish?

4. URBAN NATURE - A PREREQUISITE FOR THE OPEN CITY

"It is not the parks but the railway sidings that are filled with flowers." (Mabey, 1973, p. 12). Mabey was one of the first urban ecologists to notice the versatility and dynamic character of urban nature that is not managed by humans. Many ostensibly empty or abandoned sites within cities are in fact the untamed ecological locations of biodiverse habitats (Lawton et al., 2019, p. 215). In recent decades, scholars have become increasingly aware of the omnipresence and dynamic character of nature within cities. Especially those spaces which are free of human control are *"aesthetically and scientifically much more interesting than the closely managed parks"* (Gandy, 2011, p. 151). Before the 1970's cities were seen as anti-life. The field of urban ecology gained legitimacy after that. Viewing cities as ecosystems helps to connect urban places to the rest of the physical world, not isolating them as inherently artificial (Melosi, 2010, pp. 10–11). In this chapter, we will consider the ramifications of redefining nature in cities, and through a literature study find potent urban forms in which nature as well as solo dwellers can flourish. Hereafter, it will be argued that tolerance towards urban nature is a prerequisite for an open city.

First, however, the results of a small heuristic study by the author will be presented (page 22). Over the past months, I have photographed and documented many different artificial surfaces within cities on which 'nature', as defined in this thesis, was visible. The aim was to be able to prove that nature is omnipresent and will spontaneously occur. A more tolerant attitude towards what is commonly seen as degradation of materials can in fact contribute to a richer and more complex urban biotope (Melosi, 2010, pp. 11–13). Moreover, the research helped to identify on which types of surfaces and materials vegetation grows most commonly. Without drawing any conclusions out of the research, it serves as an introduction to the subject of urban nature.

Many studies on urban ecology mention the destruction of the urban fabric of Berlin in World War II as a moment in which the city emerged as more than human habitat, abundant with unexpected neighbours, spontaneous life and illegal squatters (both human and nonhuman). "*This rupture gave rise to a view of the city in which nature is not simply out there to be managed and incorporated into anthropogenic landscapes via human infrastructures, but an unwieldy and integral part of the city—a ruderal city in which humans and nonhumans have coexisted (however violently) all along"* (Stoetzer, 2018, p. 300). If we understand ruination and rubble in a broad sense, not as separate from but inherent to the urban environment we inhabit, the ruderal can serve as a guide to explore the lives that arise in its midst.
In his recent documentary *Natura Urbana: The Brachen of Berlin*, Gandy (2017) explores the spontaneous diversity of plants in Berlin's *Brachen* to illuminate the city's complex history through the post-war period until the contemporary era. For example, many of Berlin's green areas are formed on rubble landscapes – large amounts of rubble that were shoved on a pile by thousands of workers to erase the traces of war and genocide – and are now part of an interconnected, unofficial park system. The German word *brache* is best translated as an urban wasteland, although it loses a certain agricultural connotation in the translation. A *brache* refers to untilled soil, a field that lies fallow, and implies future harvest. Urban wastelands are spaces that offer a new way of seeing nature in the city that challenge our widely held and often utilitarian renderings of wastelands as empty, uncultivated, and unproductive (Lawton et al., 2019, p. 218). Mainly because urban wastelands offer space, to both humans and nature, they facilitate creativity, experimentation, and communal life. They allow us to move beyond the dichotomy of nature and culture but instead feature plants, insects and humans as equal protagonists of the city.
Many new species of plants grew in Berlin's urban wastelands, carried in by the soldiers during World War II or via trade routes. Thus, the plants tell part of the city's history. These new species are generally known as *neophytes* (new species), but some botanists prefer the term *adventive plants*, simply: plants that arrive (Gandy, 2013, p. 1303, 2017). Over time, in any given space that is not controlled by humans, spontaneous vegetation will grow. There are no restrictions for which plants can or cannot grow within urban wastelands. They are resilient and capable of self-organisation. In similar fashion, human inhabitants of the city usually arrive in urban wastelands spon-

A typical urban wasteland (now lost) at Chausseestrasse in Berlin, where the wall once stood Source: Gandy (2013)

“It is not the parks but the railway sidings that are filled with flowers”

Richard Mabey (1973)

taneously. There are no restrictions of behaviour, so people are free to experiment and play within these spaces. Because of this, urban wastelands are especially suitable for solo dwellers, a group that thrives on freedom and tolerance and the continuous possibility of reinventing the self. Urban wastelands are exotic features within an otherwise strictly organised landscape.
The marooned and heterogeneous enclave of West-Berlin formed a distinctive metropolitan culture. *"The mix of cheap housing and limited economic opportunities fostered an alternative culture and political atmosphere"* (Gandy, 2017). Many different subcultures could blossom because of the absence of political and social control. The brachen of Berlin formed a system of spaces that could be appropriated for games, festivals and communal life. As such, they have become a part of the collective memory of the city. Resembling conditions of The Village of the 1920s, many subcultures formed that were eventually able to rise to the surface, forming institutionalised facilities such as clubs and galleries, now typical of Berlin's culture.

Urban wastelands exist because their original urban use (industrial, commercial, traffic or residential) was given up. The combination of wild vegetation and the relics of former use often impart a peculiar appearance to these sites. If people use these sites, they normally leave behind visible traces which will be erased by nature, and the process of use can start afresh. This successful partnership seems to show that urban wastelands aesthetically work like a symbol for a world in which man and nature are reconciled with one another. Users of urban wastelands leave behind traces of inhabitation. Children build bold tree-houses, dog-keepers beat secret paths and so on. The need for *home* can be met here, too. Users often arrange familiar settings by bringing in tables, chairs, blankets or towels, indicating a home situation, a secure territory (Breuste, Feldmann, & Uhlmann, 1998, pp. 270–271). In other words, people are free to appropriate the space, however briefly. Urban wastelands can be classified as '*commons*'. Avermaete (2015, p. 36) defines a common as a resource belonging to or affecting a community. Illich (Illich, 1983) writes that *"An oak tree might be in the commons. Its shade, in summer, is reserved for the shepherd and his flock; its acorns are reserved for the pigs of the neighbouring peasants; its dry branches serve as fuel for the widows of the village; some of its fresh twigs in springtime are cut as ornaments for the church - and at sunset it might be the place for the village assembly."* Urban wastelands, too, can serve as commons, and add complexity and richness to the city. They allow people to behave as they please, and therefore contribute to the development of the *cité*. If the lawn or the garden is the typical family space, orderly and safe (Marzluff, 2008, p. 196), perhaps the urban wasteland is the typical solo dweller space.
However, politicians and developers are not always in favour of these types of spaces. They have an image of being troublesome and unattractive. Instead, they prefer "high-quality" spaces that are well-defined, but arguably less open. These types of projects are good for property owners (rents van be raised), but not always for the larger community or the cité. With recently increasing population densities within Berlin, brachen are quickly disappearing. This thesis aims to raise awareness on the

undeniable qualities of urban wastelands and their potential as building block of an open city.

Of course, nature in cities is not exclusively limited to urban wastelands. Every surface in a city is a potential for spontaneous or ruderal nature. Scientific attention for the distinctiveness of urban nature dates back to the nineteenth century. For example, Richard Deakin (1855) compiled *The Flora of the Colosseum*, recording some 420 species of plants growing on the 2,000-year-old ruin, including some plants so rare in western Europe that they may have arrived as seeds caught in the fur of gladiatorial animals from North Africa (Gandy, 2013). More recently, Robert Francis (2011) has studied the diversity of vegetation found on walls. Walls are an unlikely type of ecological interest, but they contribute to the surfaces of the city. They make up a major amount of space on which a biotope could develop. *"If techniques can be found to utilize walls more effectively as ecological habitat,"* Francis (2011, p. 44) argues *"the potential to increase the surface area of such habitat via ecologically sympathetic building design may, in a perhaps necessary world of greater ecological engineering, allow for more substantial reconciliation between humans and other species."* Generally, walls are somewhat hostile to most organisms because of their limited capacity to accumulate soil or sediment. The most potent places of walls are their tops, bases, and cracks and crevices. If we construct our buildings in a way that allows them to degrade over time, cracks will eventually form on their walls and facades. This opens up the path for ruderals and establishes nature as a co-inhabitant of cities.
Sennett's (2018) idea of the open city includes the notion of *place over space*. Although not explicitly mentioned, part of Sennett's idea seems to be based on phenomenologist thought. He continually refers to the tiniest details of the city or in other people's behaviour and appearance. It is important how these details appear to us, and how they are experienced by our own body. The core of both Sennett's idea and phenomenologist thought is that we learn and experience through our bodily movement. According to Sennett, in order to be a competent urbanite, one needs to be engaged with the urban environment and be willing to learn about it. Therefore, an open city must not be clear at first sight, but instead be rich and complex. However, increased standardisation and simplification have resulted in a deterioration of the urban landscape. Many places are alike and lack a distinctive character. This can be devastating for life happening at lower speed. Absence of detail does not allow for engagement with the built environment. However, due to the economic advantages that standardisation provide it is an inevitable part of the way we construct our buildings. The notion of ruination and rubble can prove vital in creating details on otherwise blank surfaces. By designing our buildings with the intent to let nature flourish, ruderal vegetation can serve as the detailing of our modern cities. This type of environment is especially fit for solo dwellers, who suffer under excessive control, similar to spontaneous vegetation. If we strive for reconciliation between humans and nature, we must allow both to appropriate spaces; to leave their marks of inhabitation; to dwell within the city. It is a matter of allowing something to be, just as Sennett proposes in his book. An open

attitude; open building forms – these are the core blocks of an open city.

Largely due to spontaneous and adventive vegetation, either in wastelands or walls, cities boast a higher biodiversity than its neighbouring lands (Gandy, 2017; Lawton et al., 2019; Stoetzer, 2018). Urban ecosystems are conceived as *"complex coupled human-natural systems where people are the dominant modifiers of ecosystems, thus producing hybrid social-ecological landscape patterns and processes"* (Steiner, 2014, p. 345). Urban ecosystems—which affect the quality of life for the majority of the planet's residents—are characterized by complexity, heterogeneity, and hybridity. As a result, urban ecology has significant consequences for environmental design and city and regional planning. Often unrecognised or undervalued in economic assessments, the value of urban nature can be expressed in ecosystem services. This includes the production of clean water and air, seed dispersal, recreation and reducing urban heat stress (Stoetzer, 2018, p. 349). In this sense, urban wastelands, as healthy biotopes, can give to humans freely. City life does not diminish the relations between humans and nature, it rather adds new ones (Mumford, 1931, p. 27).
However, urban wastelands are usually the result of abandonment or destruction, typical of cities with a low pressure on its density. It is difficult to implement these sites in cities with an increasing population. Therefore, instead of on ground level, these spaces can be implemented on what is already the largest wasteland within cities: rooftops. This distinctive urban habitat mimics natural features: green roofs may resemble flower-rich meadows. Ecological *striation* (see images on page 26) can combine the spontaneous agency of nature with elements of conservation-oriented design (Gandy, 2013, p. 1306). Green roofs and roof gardens have been known since ancient times and can host self-established vegetation (Marzluff, 2008, p. 81). Adventive plants are common to settle on roofs, as seeds are eaten and spread by birds.
Another function of roofs can be to allow the possibility of urban farming. Although strictly not considered *nature* within the boundaries of the definition, its potential use to the solo dweller should be mentioned. Without diving into the specifics of urban farming, which is a study in itself, we can assess the potential social benefits of urban farming. Alkon (2013) describes what is called the *socio-nature* of local organic food. This asserts that social relations are inherently ecological and that ecological relations are inherently social. Food and eating, as a primary human need, are capable of connecting humans to their ecological environment. It is simultaneously social and the product of human labour. This more controlled form of vegetation can benefit the more vulnerable type of solo dweller in two ways. Firstly, farming can serve as an activity to do together, forming new social relations in the process. Secondly, the food that is produced can be cooked and eaten together, celebrating the achievement of having successfully grown food.

In conclusion, both urban nature and solo dwellers thrive on freedom and tolerance. A well-rounded *ville* must include spaces that allow for spontaneity and experimentation. However, not every solo dweller is able to shape his or her own life adequately.
















Left to right and top to bottom - Delft, Essen (Germany), Duisburg (Germany), Essen, Brussels (Belgium), Madrid (Spain), Delft, Delft, Nijmegen, Duisburg, Delft, Arnhem.

The pictures show a diverse array of spontaneous vegetation and eroding materials across Europe. Urban nature adds detail to the artificial surfaces of the city, and can be used as a strategy in design and planning.

For them, a more controlled type of urban vegetation in the form of urban farming might be beneficial. The city as a whole can benefit from the ecological networks that are formed by ruderal and managed vegetation. Open city forms must be open in time, and therefore include a consideration of what nature will do to such a space. Instead of bracing the design against these influences, desperately denying the inevitable effects time will have on the it, we can try to find ways in which time will improve our design. In this way, the built environment can become to some extent natural and diminish the culture-nature dichotomy. A nature-inclusive design can be as simple as a small strip of open ground besides a pavement This small strip should then be left open, allowing time to decide its fate. Perhaps the wind will carry seeds of wild flowers and weeds to this open piece of land. Within a few years, those plants will have grown and attract insects, birds and other small animals. If designed properly, those plants can provide a natural partition between, for example, a private and communal piece of land. Combined with spontaneous human activities, such a design attitude will result in a rich and engaging *cité*.

CONCLUSION

The solo dweller is someone who lives alone. This group can be divided into two categories: people who choose to live alone and people who are forced to do so. The former group thrives on the opportunities that the urban environment provides. An increasing amount of people is choosing to live alone as the result of a major cultural shift. Solo dwellers can flourish due to the newly created conditions, in which they can actively participate in the city's robust social life in a way they see fit. The latter group, however, is generally more vulnerable to feelings of loneliness and social isolation. Suddenly forced into a new living situation, people find it difficult to adapt to this alternate lifestyle. They are not capable (yet) to live alone. Cooking and eating alone are commonly mentioned as the most isolating and difficult aspect of living alone. Additionally, an urban environment that does not include communal, institutional or public spaces in which it is possible to meet others can increase feelings of loneliness. The solo dweller, as a relatively new type of household, is still finding a proper way of inhabitation. Solo dwellers themselves, as well as institutions and our culture in general, are still adapting to the needs of this growing group. It is important that the urban environment provides opportunities and allows the solo dweller to shape his or her own life, also accommodating ways to delimit restrictions.
Re-interpreting nature as *"something that is left to be altered by time rather than being controlled by means of human intervention"* can strengthen the idea of the open city as introduced by Richard Sennett. The open city is favourable to the solo dweller, who needs to have opportunities instead of obligations. The open city consists of open forms, that create conditions in which ville and cité continually reshape and redefine each other. Urban wastelands can serve as one of these open forms. They are

Tempelhof, Berlin. The former airfield is now used as a site for human spontaneous human activities, as well as a breeding ground for the skylark.
Source: Gandy (2017)

undefined spaces in which spontaneous activities can take place. These sites, in which there are no clear rules of behaviour, allows the solo dweller the opportunity of personal experimentation as well as public display. Moreover, understanding ruination as inherent part of the urban environment we inhabit can change our attitude towards urban nature. Open cities are not fixed forms, but rather open in time. This type of environment is especially fit for solo dwellers, who suffer under excessive control, similar to spontaneous and ruderal vegetation. If we strive for reconciliation between humans and nature, we must allow both to appropriate spaces; to leave their marks of inhabitation; to dwell within the city. A nature-inclusive building design must strive to let nature flourish on its walls, roof and in its direct vicinity.

The short answer to the research question of this thesis, *"What is the value of urban nature for solo dwellers?"*, is that spontaneous and open forms of urban nature seem to be suitable for the networked individual, the solo dweller who is capable of living alone. Urban wastelands provide them the opportunity to experiment, and spontaneous vegetation can transform our urban environment into spaces that aesthetically match the main reasons behind the rise of the cult of the individual: increased tolerance and freedom, rich opportunities and decreased control. Ruderals and spontaneous vegetation, too, can flourish due to those reasons. This can help to diminish the culture-nature dichotomy.
A nuance in this answer is that this re-interpretation of nature does not provide a sufficient method to include solo dwellers who are lonely and socially isolated. Although independence strengthens one's sense of self-esteem, self-identity, power and continuation in life, sometimes help is necessary. Increased tolerance by itself is no direct solution to their issues. Apparently, more managed forms of urban nature are more suitable for those in need. If we equate the solo dweller in need to managed forms of nature – as we did with the networked individual and spontaneous nature – we can conclude that both the solo dweller in need and managed forms of nature need a hand in order to flourish.

Abandoned industrial landscapes rapidly become spaces where nature thrives in a self-organising and resilient ecosystem.

"If we strive for reconciliation between humans and nature, we must allow both to appropriate spaces; to leave their marks of inhabitation; to dwell within the city. A nature-inclusive building design must strive to let nature flourish on its walls, roof and in its direct vicinity."

Urban wasteland on the roof of a former water treatment facility.
Source: Gandy (2013)

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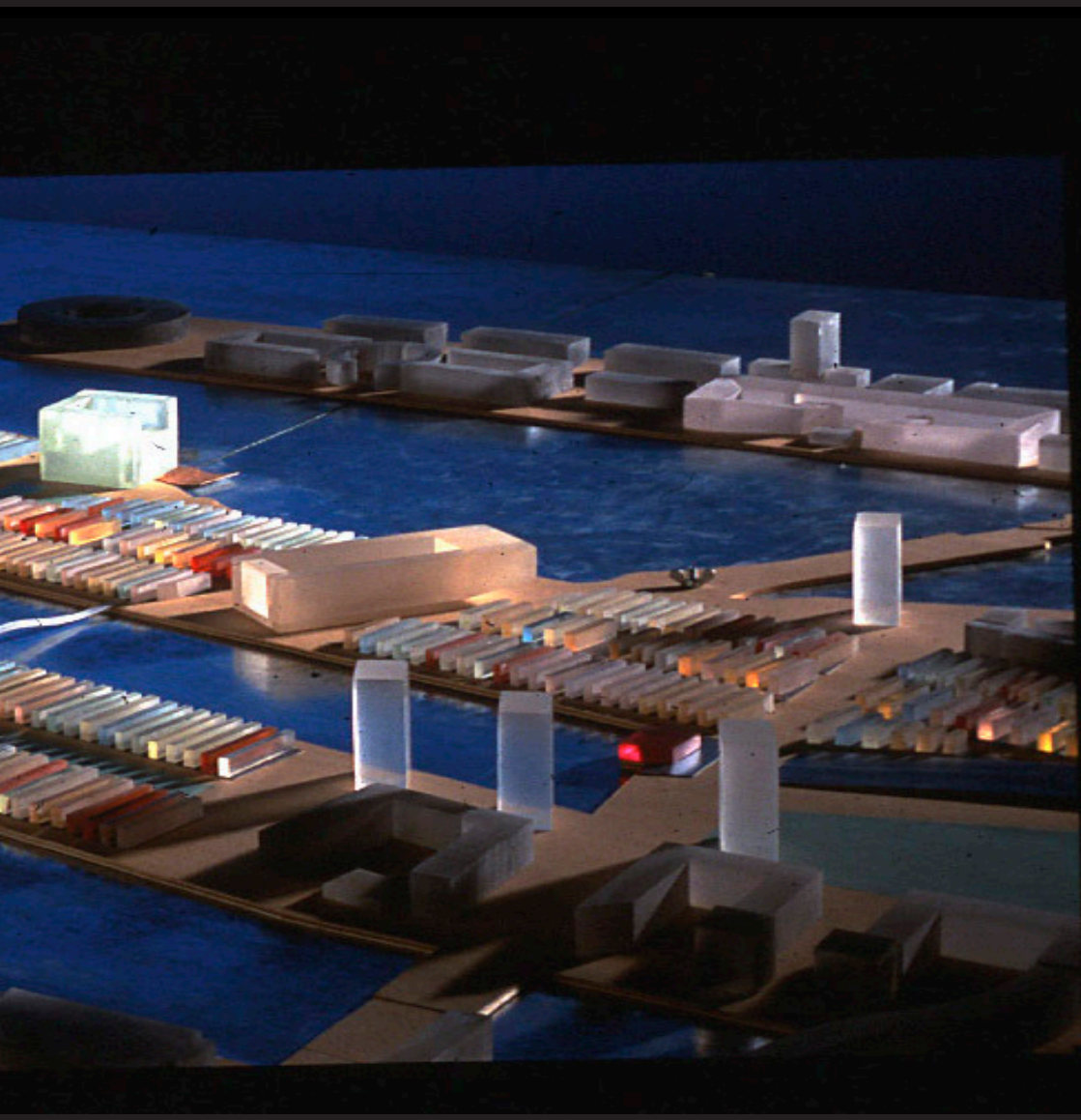
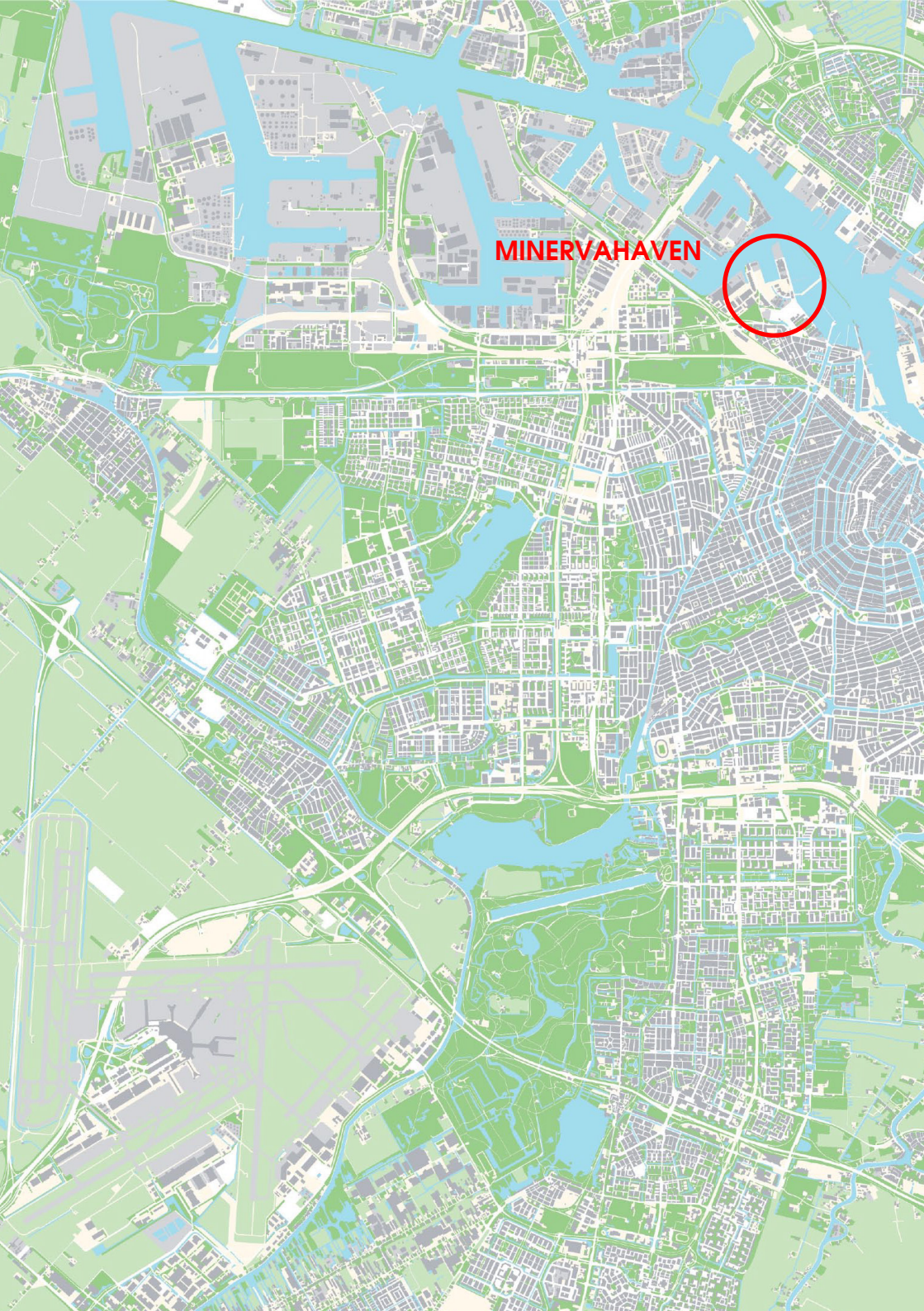
B

URBAN PLAN




MINERVAHAVEN


BORNEO-SPORENBURG

URBAN MASTER PLAN - LOW-RISE/HIGH DENSITY: IMPLEMENTING BORNEO-SPORENBURG ON MINERVAHAVEN

The design assignment for the studio is part of the 'one million homes' initiative, an urgent task which should result in providing proper dwellings for the growing amount of people who are looking for a new home. The design site, Minervahaven, is located in Amsterdam within the former Western harbour area. In total, this area should provide at least 40.000 new homes.
During the fisrt weeks of the project, we were divided into groups based on a preference for a certain urban configuration. The options were the perimeter block, the campus model, 'Manhattan' and low-rise/high density. Our group, consisting of Sjoerd Rijpkema, Marta Kaniuk, Emelie Swart and myself chose the last option. We soon discovered we were all fascinated by the way in which the low-rise/high density concept - represented by the urban plan for Borneo-Sporenburg in Amsterdam designed by West 8 - combined a rather traditional and typically Dutch street image with modern construction techniques and landscape concepts. Without compromising on standardisation, Borneo-Sporenburg displays a relatively high level of individuality. We have visited and analysed Borneo-Sporenburg in order to discover its key design principles, and translated those into an urban design for Minervahaven.
Firstly, these design principles behind Borneo-Sporenburg will be presented, from an urban to an architectural scale. Hereafter, our own design for Minervahaven will be shown and discussed. Its main qualities and its differences with the original Borneo-Sporenburg plan will be highlighted. Finally, the choice for a building block to design in detail in the following semester will be presented and argued for. Why is this block especially suitable for solo dwellers? What opportunities does or can it provide?

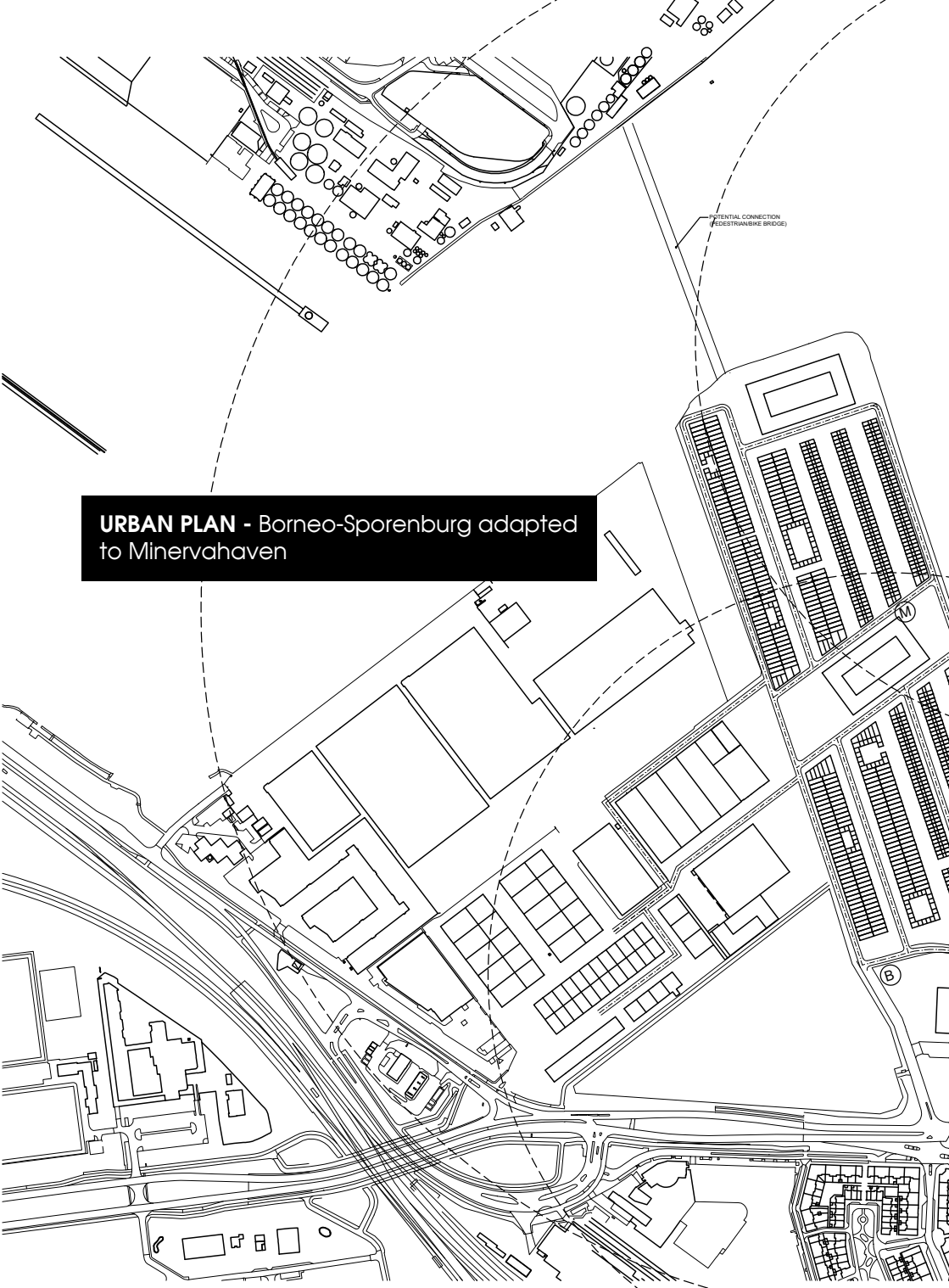
Borneo-Sporenburg is the starting point for our urban design. By implementing the characteristic canal stripes to the Minervahaven it forms a relation with the existing urban plan of Borneo-Sporenburg that we also can find in the Amsterdam Harbour area. Designed by West 8, the system enhances a certain freedom of the varying familiy houses which are all designed by different architects. The DNA of the project consists of a rigid grid, alomost like a barcode, that is interrupted by the placement of „icons" which each give a special character to the plan. Therefore, the plan shows a contrast between the high-density/low-rise dwelling strips and the larger ‚iconic' buildings. We tried to implement the system of Borneo on the site of Minervahaven and translate it towards the specific location characteristics. The new Urban Design has been developed within the system of the same rigid low-rise grid and the cut-outs with the icons. Our plan consists of 4 larger icons, each with a characteristic identity, that have a contextual relation with the Minervahaven.
This grid results in a densely packed area that seemingly does not have enough public space. How did West 8 solve this? Firstly, they treated the large bodies of water as public space that provided a very distinct open character to the area. However, this

poses a new problem: water is not easily accesible. Instead of providing large amounts of public outer space, West 8 set a rule that every house must include a 30-50 per cent void within its mass. Thus, inhabitants gained large amounts of private outdoor space which they could naturally appropriate. The different ways in which people use their private gardens or courtyards adds to the level of individuality that is displayed on the site. The ville has allowed the cité to alter it. Additionally, it solved the issue of light admittance into the deep back-to-back row houses, which would have otherwise had only one open facade.

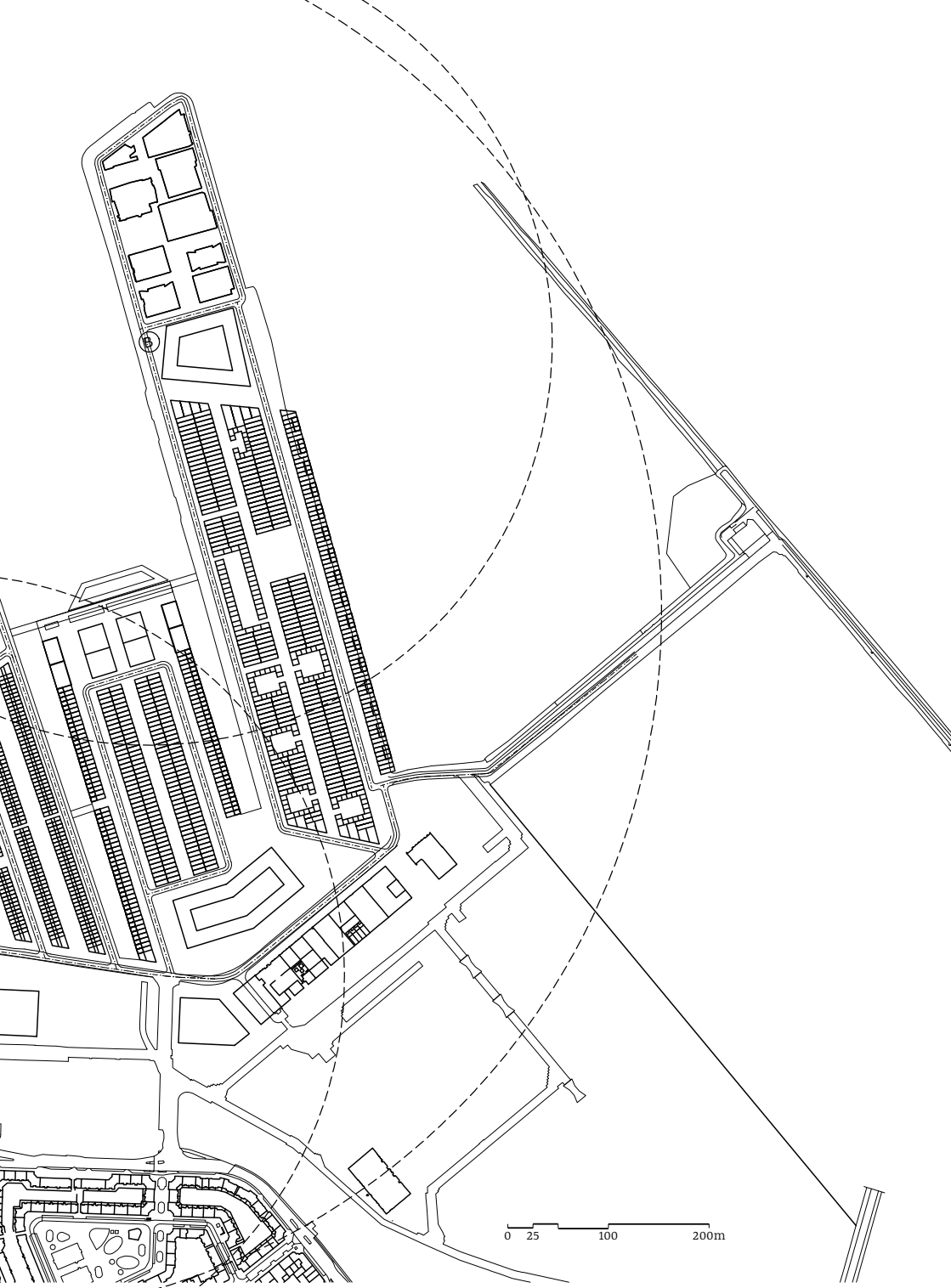
In our plan, water provides some necessary openness to the area, but in contrast with West 8's proposal, we do include (more) public outdoor space. Upon visiting Borneo-Sporenburg, we noticed that the streets were virtually empty. Even its park and playground were unused, and this led us to believe that within a dense urban area, people need space to meet and do activities outside. Private outdoor space simply isn't enough. Many of the streets in the Minervahaven plan are not accesible by car, and can be made into pedestrian friendly, public spaces.

Another notable improvement is related to the geography of the Minervahaven site, which allowed us to orient the long buildings from North to South, instead of the original plan which had an East-West orientation.

Moreover, Borneo-Sporenburg received some criticism for being too rigid. Within its rules, it was impossible to make alterations. The ville was set, the cité would have to deal with it, unable to change it. Instead, our proposal contains various typologies to



URBAN PLAN - Borneo-Sporenburg adapted to Minervahaven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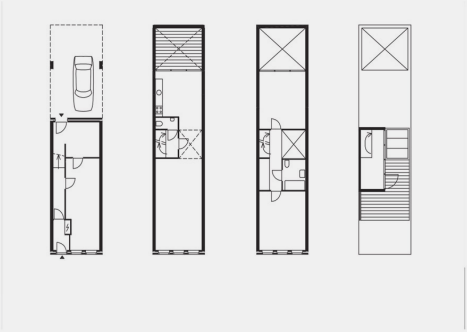
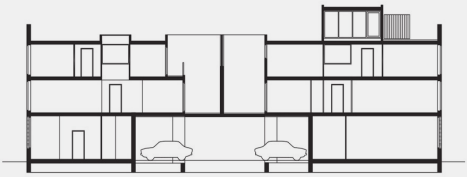
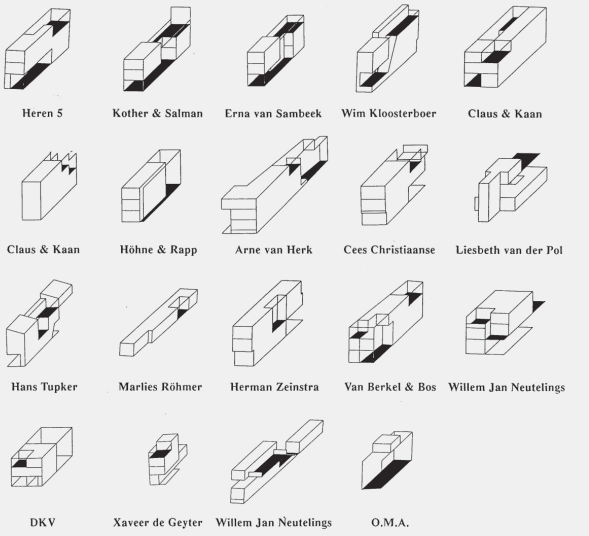


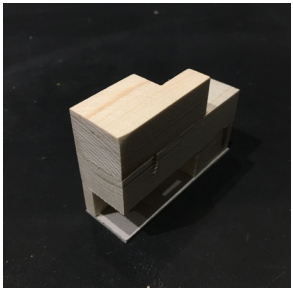


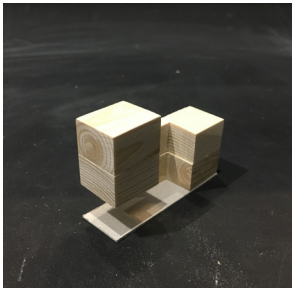


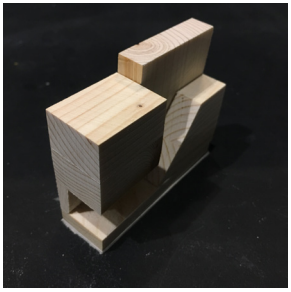
Top - Building plans and section for a typical row-house by Klaus & Kaan.

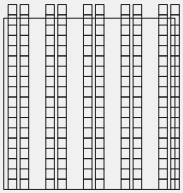
Right - Several design variants solving the 30-50 percent void on dwelling scale. The design had to be made within strict boundaries, but architects were free to cut, shave and pull out parts of the box.
Source: http://www.west8.com/projects/borneo_sporenburg/

Bottom - Documentation of conceptual model studies. Recreating several variants helped to get a grasp of ways to deal with the 30-50 percent void.



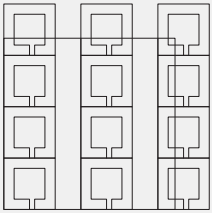






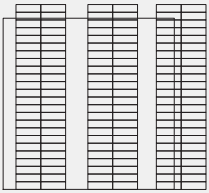
STUDIOS
ground surface 30 m2
dwelling surface 30 m2

dwellings/hectare
3 floors **459**
4 floors **612**



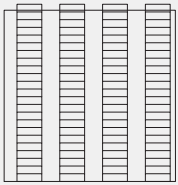
COURTYARDS
ground surface 30-40 m2
dwelling surface 30-120 m2
dwellings per courtyard 30-42

dwellings/hectare **280**



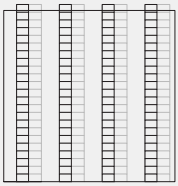
ROW HOUSES back to back
ground surface 65 m2
dwelling surface 140 m2

dwellings/hectare **110**



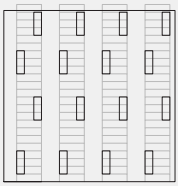
ROW HOUSES
ground surface 65 m2
dwelling surface 195 m2

dwellings/hectare **88**



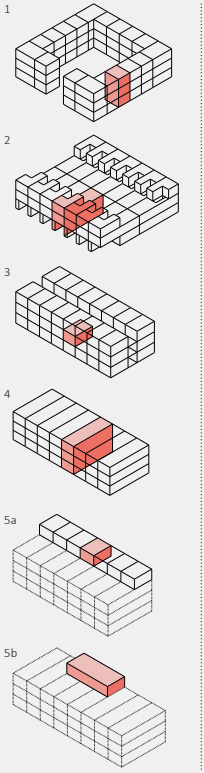
ROOFSCAPE social housing
ground surface 35 m2
dwelling surface 35 m2

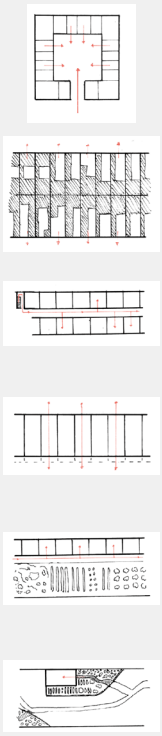
dwellings/hectare **88**



ROOFSCAPE luxury dwellings
ground surface 70 m2
dwelling surface 70 m2

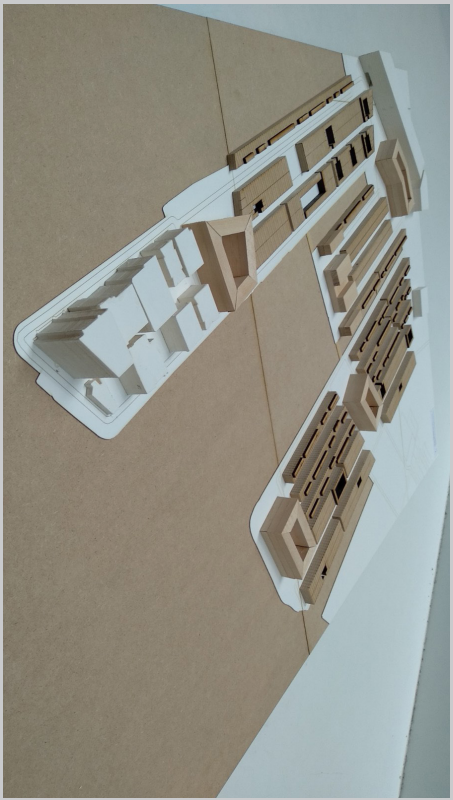
dwellings/hectare **16**



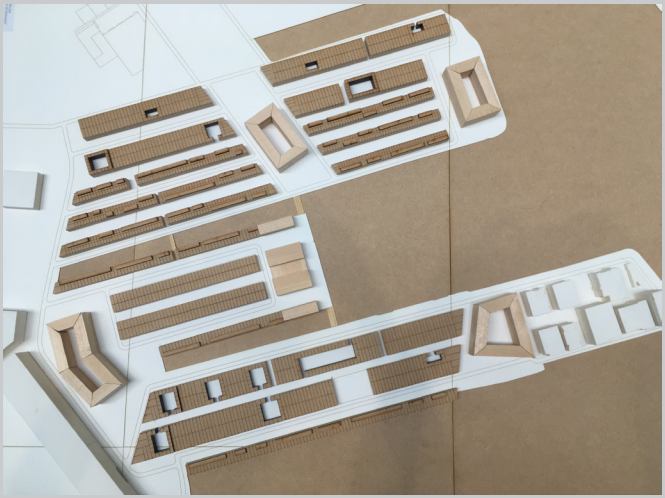


Several different typologies are introduced to Minervahaven. A courtyard structure, studios and rooftop houses should result in a more diverse urban environment than the original plan by West 8. Additionally, they were necessary in order to achieve the desired density of two hundred dwellings per hectare.

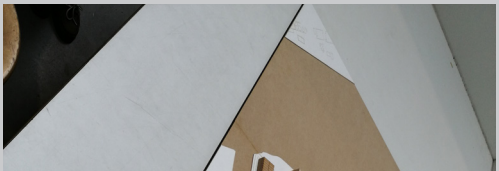
The existing fashion pier (in white) remains as an icon in our plan.



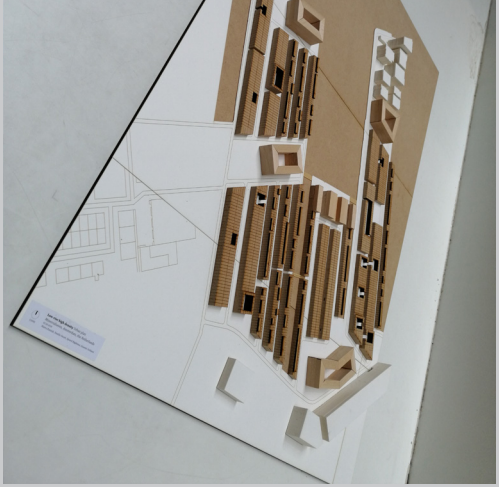
The basis is a rigid linear structure, almost like a barcode.



The barcode is broken up by architectural icons.



Water still serves as public space, but there is also collective space within courtyards and ground-bound public space around the icons.

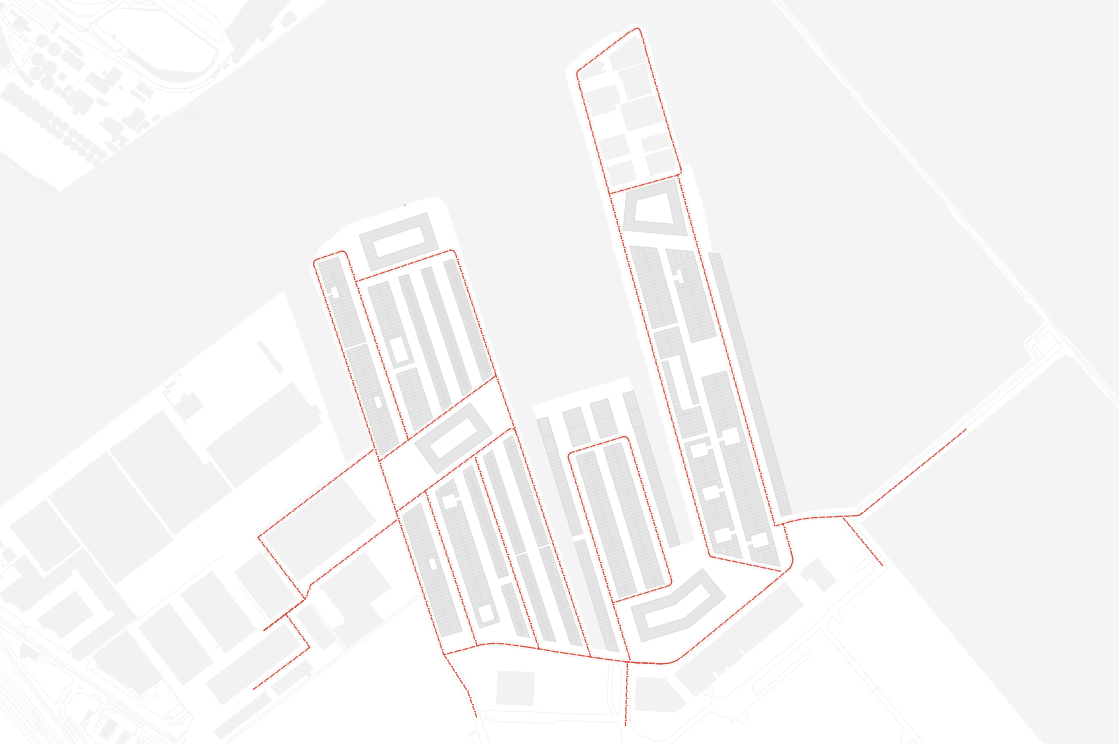


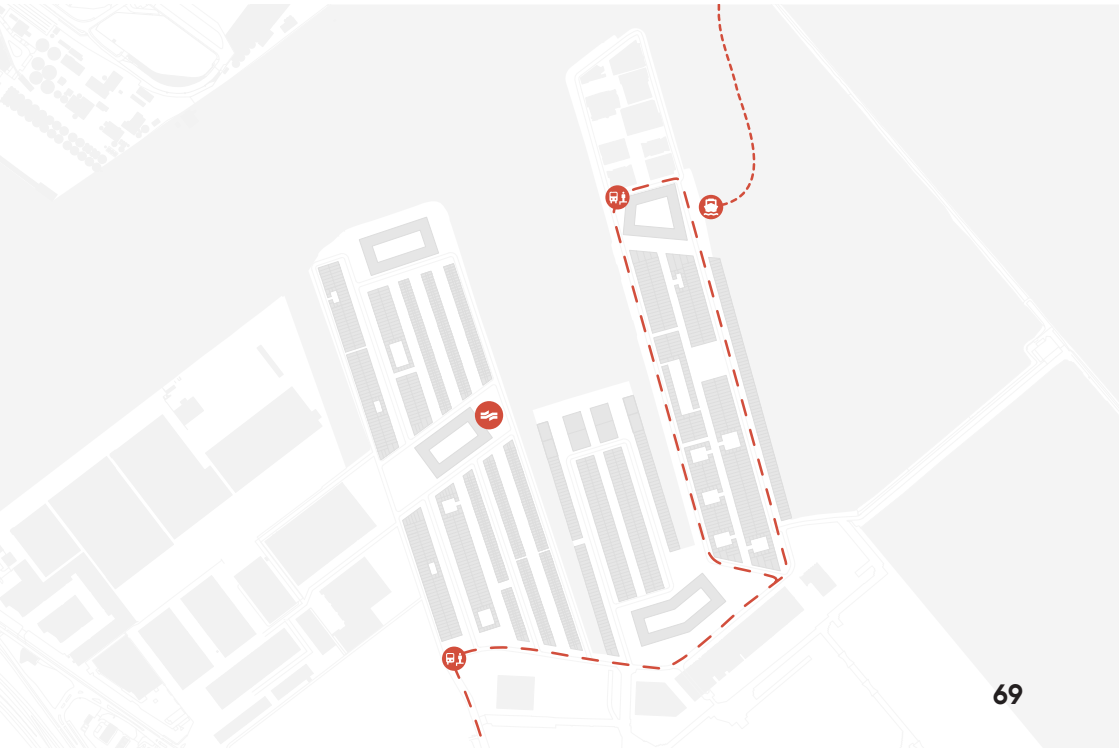
Two extra canals are constructed to create three distinct areas within the neigbourhood. These areas serve different functions and target groups.

ensure a diverse group of inhabitants. Architects are free to use any of them, which will result in varying building heights, widths and facades. Attempting to create an *open* city, these variations were, to us, crucial. The city will be less monotonous, and instead more rich and complex.

The choice for the building block is based on several aspects. Firstly, it is designed with the intent to contain studios, a well-adapted building type for solo dwellers. Secondly, one of the adjacent streets is car-free, which allows liberty in its design. For example, new ways of incorporating urban nature or meeting spaces can be experimented on. Thirdly, research has shown that elderly solo dwellers are afraid to go out after dark, unless there is a well-route towards a nearby public transport facility nearby. The square directly above the chosen block hosts a metro station and several late-night facilites such as bars and restaurants, which provide in this need. Moreover, the block is quite typical within the plan. I wanted to work on something common rather than the exception, because in the end it helps to prove the viability of the design strategy. Finally, it is one of the blocks that has been appointed to have an accessible rooftop. I believe that rooftops can provide great opportunities for both solo dwellers - rooftops are spaces without clear rules of behaviour, they are perhaps the largest surface of urban wasteland in our cities - and for urban nature. Perhaps a proper design of this mundane block can inspire other architects to make use of rooftops as well in order to create a greater interconnected roofscape for both humans and nature to live on.

Now. we have a clear starting point. The elevation shown below is a simplistic representation of what the block is at this stage of research. After every part of this report, an updated version of this elevation will be presented, that includes new aspects of the building that have been discovered or studied in that part of the research. This first elevation is a result of the rules and recommendations of the urban plan. Besides a vage outline, it does not yet say much about architectural aspects such as dwelling size or accessibilty, nor about public spaces or rooftop usage. It is still a blank canvas to be filled in.





RESEARCH SEMINAR

RESEARCH SEMINAR - NATURE AND THE OPEN CITY - TAKING POSITION

In the Research Seminar, we were challenged to take position in relation to Richard Sennett's idea of 'the open city'. By means of weekly discussions, reflections, in-depth analyses and related case studies we were able to comprehend Sennett's complex line of thought. Put in its most basic definition, the open city is a city in which the built environment (ville) is adapted to the people who dwell within it (cité) and vice-versa. It is a city that is allowed to develop gradually and bears the marks of inhabitation, adding to its complexity.
During the course, especially by writing the weekly refelctions, it became clear that my own architectural position and Sennett's ideas of the open city resonated quite well. Being faced with the challenge of developing a personal social ideology, I adpoted many of Sennett's proposals. To be precise, Sennett implies that a city should be open towards the influence of time. He argues that a city should be rich and complex instead of clear. The cité can add endless layers of complexity to a city. Therefore, the ville must allow the cité to develop. A ville that has never been dwelt in is like a smooth white box. A ville with a well-functioning cité is like a white box with a corner broken off, several dents on its ribs, and multicoloured smudges on its sides. A competent urbanite, upon seeing that shabby box, then says to himself: *I wonder how those got there.* The interplay between ville and cité is crucial.
However, Sennett solely considers people, and fails to mention that (urban) nature can 'inhabit' a city too. Nature, too, can add complexity to to the ville; can add details to a white stucco wall. After a while, in any place that is not controlled by mankind, nature will reclaim its habitat. Even in very small instances, such as a seam between two bricks or a crack in the asphalt, small plants will grow. If we choose to increase our tolerance towards this type of urban nature, this can pose as exactly the type of details that transform blank surfaces into engaging ones. A wall can suddenly tell a story about its own age, its materiality and even about the city (for example if a non-native plant grows on a wall, researchers could trace back when it arrived, from what country, and via which trading routes). It is a matter of allowing something to be, being open towards the influence of time, just as Sennett proposes in his book. An open attitude; open building forms – these are the core blocks of an open city.

I present here the final reflection I wrote for the course, in which the relation between the design studio and the Research Seminar will be elaborated. The earliest stages of the design process coincided with the Seminar. The attentive reader will undoubtedly find that some of the ideas discussed in the topic research as well as several aspects from the conceptual design stem from the ideas that are introduced here.

1. INTRODUCTION

Several days ago, I found myself in desperate need of a haircut. Naturally, I called my local barbershop to make an appointment. While I sat in the chair, I saw the barber use several methods to provide me a new coiffure based on the demands I had told him. Being an expert, the simple remarks – 'it can still be rather long, especially on top but I'd like the ears to remain free' – were enough for the barber to make something out of it. He clipped, combed and trimmed in order to shape my excessively long hair into a new form. After the customary question: *"Is everything to your satisfaction?"* I told him yes, paid him and left.

During this whole endeavour, I became increasingly aware of the relation between something as simple as getting a haircut and the design of a city. First, a problem arises. Some part of the city has become outdated; an outworn synthesis. It is in need of change – an urbanist can assess the problems and make certain interventions in order for this part of the city to function well again. Similarly, a certain hairstyle can look good for weeks or even months but will eventually be outgrown. A barber can intervene in this process by cutting it. Thus, the *ville* is made. An expert has assessed the issues at hand, talked to the citizens involved, and intervened in the way he saw fit. Hereafter, this ville has time to develop. In a city, citizens can adjust the ville and start to appropriate spaces. As for my hair, I have the freedom to comb it in a certain way or apply hair gel or wax to it. The straight lines that were designed gradually transform into softer transitions. As time progresses, the city or hairstyle will become more natural, under the influence of the *cité*. This process will continue up to a certain point, when the initial design has become unrecognisable and a planner or barber has to intervene once again to reintroduce a certain order to the ville. The cycle that represents a healthy, open process is now completed.

Of course, one can easily imagine a hairstyle which has to be trimmed and restyled every other day. Although this hairstyle can look good, it will tend to appear artificial. In the same manner, a ville that is rebuilt every other year does not allow a gradual development of the cité. It does seem slightly odd to devote so much attention to the aesthetics of one's hairstyle. It doesn't seem to be a character trait of an open person, but rather someone who prefers control and values style over looseness. However, as someone who rarely goes to a barber and never uses any type of hair gel, this opinion might be a bit biased. A more extreme case will serve as a more objective or at least inter-subjective example. Imagine a barber who obligates his customers to return to his shop every day in order to restyle their hair. Customers would not be allowed to change anything about their hairstyles themselves. This top-down working barber would probably lose his customers astonishingly fast. An urbanist who would not provide citizens with opportunities but controls the way people should live can be regarded equally incompetent as the top-down operating barber. A building whose inhabitants are only allowed to have white curtains, because the architect wants to project a certain image, is a harsh blow for the cité. A square that has its surrounding walls repainted every week (to cover up the graffiti); the cracks between its paving

blazed (to get rid of small patches of grass and moss); the statue that stands in the middle of it fenced off (so that people cannot touch it and it will not get dirty) – that is the cité's destruction. An urban designer cannot decide the way in which people must dwell. It is crucial to acknowledge that a ville will be altered over time. A great urbanist would explore in what way time[1] will inevitably change the ville and adapt his design to allow for those changes. This approach reminds me of the elusive notion of the *Genius Loci*; as a way of rooting a building in time and place. The example of the haircut was a way to illustrate that this notion is present in multiple disciplines. Time will change us and the world around us. It is silly to try to fight that. By accepting and allowing this notion, a design can transform from an artificial intervention towards a natural phenomenon. It is a way to let mankind and nature operate in the same realm.

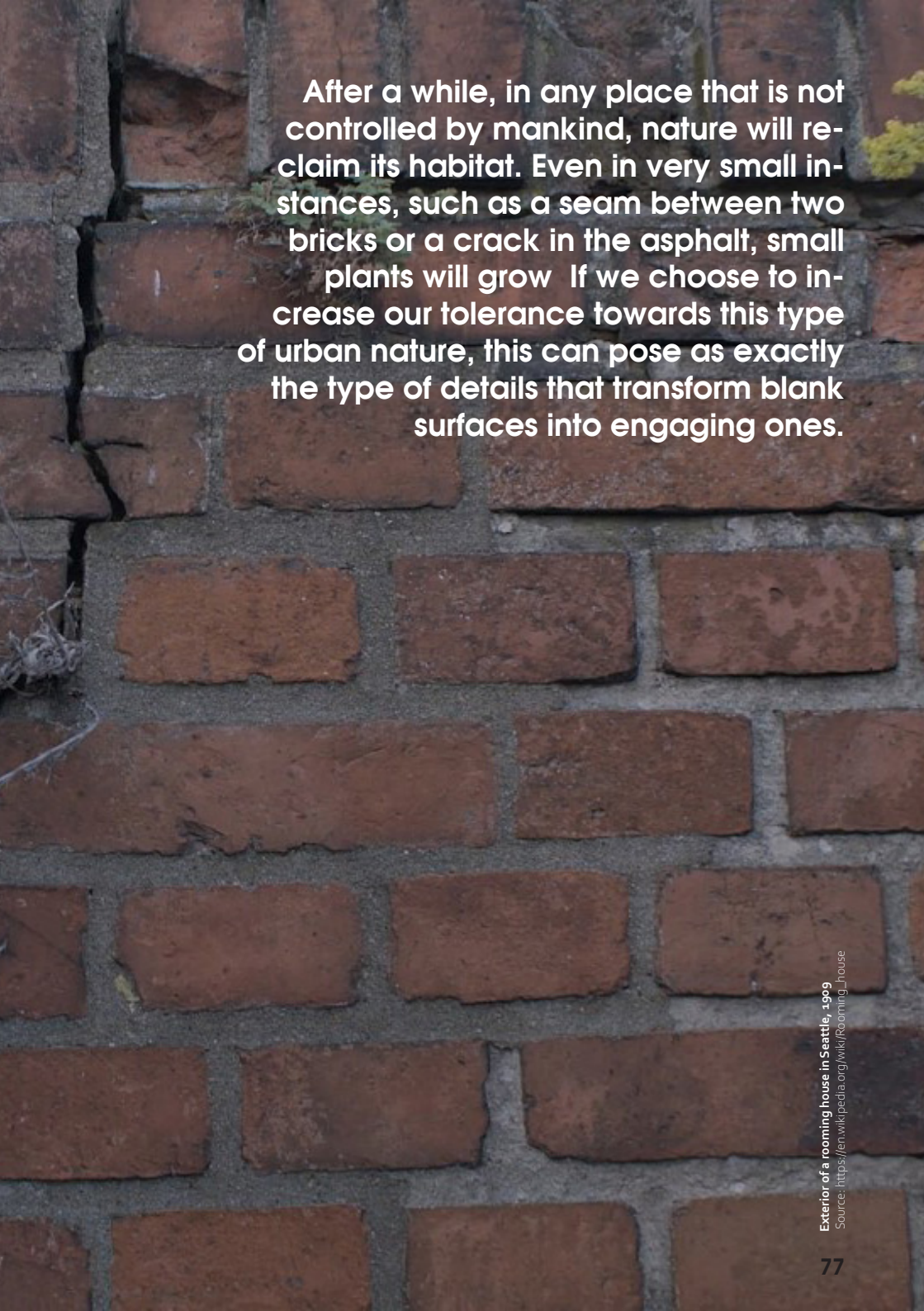
This reflection will primarily be concerned with the way in which I translate Richard Sennett's thought into a general design approach. This approach revolves around the notion of tolerance and accepting, or even embracing, the influence time inevitably has on built forms. A certain way of coming to terms with the inherent nature of things, in the sense that they aren't fixed forms but rather dependant of other things, as introduced in the first part of this reflection, will be explored. Secondly, possible design solutions will be discussed and will subsequently be linked to Sennett's five open forms. Finally, we will briefly discuss the importance of open design methods for an open design.

2. NATURE AND THE NATURAL

The seminar meetings have revolved around the book *Building and Dwelling: Ethics for the city* by Richard Sennett. This chapter will provide a reaction to the ideas we have discussed and ultimately, I will take my own position. This position can be seen as an addition to what Sennett has written. To me, Sennett's main goal is to convince the reader that ville and cité are inherently linked with each other and give insight in the complexity of their relation. He advocates open forms that provide for its users rather than control them. His idea of giving opportunities is what I translate to 'letting something be'. As mentioned, I believe the notion of time to be crucial in this matter. Let us first consider the target group for which I will design: the solo dweller. According to Klinenberg (2012) this group, consisting of people who live alone, was able to flourish due to four sweeping social changes: the rising status of women, the communications revolution, mass urbanization and the longevity revolution. These social changes took place alongside a cultural shift in the previous century. Freedom, flexibility and personal choice began to rank higher among our modern values. Philosophers' thought amidst the 20th century characterised this shift. For example, the main idea of Ayn Rand's novel *The Fountainhead* seems to be that one's primary obligation is to oneself. It is in this modern world, especially in cities, where solo dwellers can easily participate in a robust social life. Mass urbanization has led to a booming subculture

of singles who share similar values and ways of life. Subcultures thrive in cities. Within its density there is always 'someone like you'. In other words, the cité is changing. Why? Living alone allows us to do what we want, when we want, on our own terms. It liberates us from constraints and helps us to discover what gives us meaning and purpose. Evidence suggests that singles compensate by becoming more socially active, so not lonely or isolated. The question then is: what kind of ville do they need?
Sennett's idea of an open city seems to be especially relevant for solo dwellers. A city needs to provide places where they can meet and interact and, most importantly, allow them their freedom. They need places in which there are no rules for behaviour, so that they can experiment and explore. Sennett already addresses the importance of the unplanned city. Metaphorically speaking, he prefers to implement a seed in order to see what it becomes, rather than implementing a fully matured tree. In my view, this notion of freedom is applicable not only to urban dwellers but also to urban nature. Sennett does not specifically mention nature in his book, but I believe it plays a vital part in an open city. The alternative I propose is the nature-inclusive city. Furthermore, by incorporating nature in an open city we can think about solutions for the pressing current climate challenge. Perhaps, we can collectively reconnect with nature and cease to see it as something essentially different from ourselves. By allowing nature and humans to coexist in a city we can reclaim our habitat as a natural environment and hopefully develop the acquired freedom of the 20th century further. This is a lot to strive for, and it cannot be achieved in a single effort, but hopefully this natural approach can be a first step towards reaching that ideal.
For the studio, I have defined *nature* as follows: *Something that is left to be altered by time rather than being controlled by means of human intervention.* According to this definition, perhaps surprisingly, a garden can be less natural than the first patches of moss on a cobblestone road. It is a matter of letting be instead of designing and controlling. Of course, this poses new design challenges. Where and how can we apply *non-design*? A nature-inclusive city then becomes a city that allows spaces to be altered over time without human control. As is described in the reflection of chapter 7, nature can serve as a way of 'finishing' a surface. In a design for the ville, we must design for the possibility of erosion, of becoming a sort of ruin. Materials will always decay over time. In this approach that is something we must embrace instead of resist. Let the city be a breeding place for biodiversity. A city is, more than anything, a place in which people of various cultures can meet, discuss and exchange ideas. It is this openness and complexity that Sennett strives for. Additionally, cities can be incredibly rich in plant biodiversity. Spaces that are free of human control become what we call urban wastelands, which are higher in biodiversity than the meadows, parks and forests surrounding a city. It is this openness and complexity that I'd like to add to Sennett's ideas.

This will hopefully result in a city that is a home for nature as well as people. Both are allowed to leave their marks on the ville. Both are subject to time and are essentially free. We must not cover up these marks of inhabitation but instead let them be shown



After a while, in any place that is not controlled by mankind, nature will reclaim its habitat. Even in very small instances, such as a seam between two bricks or a crack in the asphalt, small plants will grow If we choose to increase our tolerance towards this type of urban nature, this can pose as exactly the type of details that transform blank surfaces into engaging ones.

Exterior of a rooming house in Seattle, 1909
Source: https://en.wikipedia.org/wiki/Rooming_house

and make them into the details that transform the straight lines and surfaces of the ville into softer and more engaging borders. The approach in itself can be called innovative, but the means to the end are rather basic. Architectural innovation is not necessarily about high-tech, but rather about using known methods in a new way. This approach can be a huge experiment, that challenges the unsustainable ways in which we build and dwell. Still, the question remains: how will this manifest in the ville?

3. A NATURE-INCLUSIVE DESIGN

In the previous chapters I have introduced an addition to Sennett's idea of an open city. The final part of this reflection will present in what way the proposed approach can lead to specific design interventions and in what way they relate to some of Sennett's open forms. This will be done by considering the assignment for the design studio as a case study. The result of this part is by no means a conclusive answer to the question posed in the previous chapter, but rather a preliminary sketch of how this approach could result in a certain ville. It presents several possibilities and the outline of a trajectory that will be followed throughout the graduation project. This chapter is a continuation of the weekly reflections on Sennett's book and builds upon some of the argumentation provided in those texts.

One form that allows nature and humans to dwell freely within is the urban wasteland. Common in cities like Berlin, which has been destroyed and rebuilt without a high pressure on its density, these ostensibly empty sites became places of respite from the city and opportunities for creativity and play. They're spaces of spontaneous nature; marvels of non-design; an exotic landscape within an otherwise strictly organised landscape, carrying the promise of happiness. The (urban) vegetation on these sites is much more dynamic than other vegetation, because it is influenced, but not controlled, by human activities. The possibilty of coexistence and exchange between humans and nature can improve the connection between them – they can operate in the same realm. These urban wastelands are synchronous spaces. Multiple things can happen there but are in no way obliged to take place. Additionally, they are the quotation marks of the city. People are challenged to find their own manner of behaving within such spaces. They are 'parks', without fixed roads or a monthly visit from the Park Department. The space is not fixed and will continually have to be reinterpreted and redefined. In the design for the studio I will make an effort to consciously incorporate an urban wasteland into the built environment. The main challenge is to design a place that is not-designed by definition. Hopefully, the urban wasteland can serve as a building block of an open, inclusive and free city.
Another form that treats the ville as a home for nature is found on the scale of the building and serves as Sennett's idea of an exclamation mark. In order for nature to feel truly at home in the city, it needs its own landmarks. Therefore, I propose a tower, slightly higher than the building itself (six floors instead of four), atop of which trees

can grow. The trees will rise above the roofscape of the city and claim their status as essential lifeforms within the urban environment. The two upper floors of the tower can become, for example, a publicly accessible education centre or an art gallery. The church towers that celebrated human culture will be joined by towers that celebrate nature. Together, they can serve as the landmarks of an ideal society in which nature and mankind coexist. It is important that the tower will not be an isolated biotope. Instead, it needs connections with its direct environment.
This leads to the implementation of a third open form. The building itself needs to be treated as a membrane; a soft border between public and private life rather than a strict boundary. Therefore, its roof will be made accesible via stairs. Moreover, the entire roof will be treated as a space for nature. This asks for certain design interventions, including an overdimensioned construction to allow soil, water and vegetation on the roof. This will result in a biotope in which the tower is essentially connected with the urban wasteland. Although the design assignment prescribes the elaboration of a single building, this open form will function better if it is applied on a larger scale.

Proper implementation of these open forms will result in a building that can quickly transform from an artificial and slightly awkward new haircut to one that has grown to a more natural form. The building can quickly be embedded within its urban landscape because it wears the marks of time. Inhabitants, both people and nature, are free to explore the opportunities it provides and experiment with its form. The nature-inclusive design approach will be leading throughout the graduation project. Already, it provided me with a clear image of what it can lead to. I'd like to refer to the final few lines of text of the reflection on chapter three.[2] I feel that these ideas are a result of an escape from personality; that they have become known through me. The design approach feels natural. Finally, I'd like to remark that an open design can only be achieved through open design methods. I have elaborated on this in the reflection on chapter 6. I will have to remember not to fixate solely on the described design approach. It would inevitably become a prescribed highway from A to B. As Sennett writes: *On the highway, you are making a journey, but you are not learning much about others during the course of your journey."* I could blindly follow the idea I have now and start drawing floor plans next week, but it would result in a closed design method. I need to continually learn and improve the ideology I present.

In conclusion, I agree with Sennett's ideas of the city. However, I feel his open forms are not fully adequate to achieve an open city. Therefore, I have reinterpreted and elaborated on Sennett's ideas in order to incorporate nature within an open city. The notion of tolerance towards the influence of time is crucial in this approach. I have proposed several examples of open forms that allow people as well as nature to dwell within the city. By allowing nature and humans to coexist in a city we can hopefully reclaim our habitat as a natural environment and develop the acquired freedom of the 20th century further.

Sennet's book *Building and Dwelling: Ethics for the City* treats a wide range of ideas on urban planning and analysis. During the Seminar's, it was our task to make an analysis of Tietgen Dormitory based on these ideas. In 1925, Burgess published a chapter in a volume titled The City (which he also edited with Robert Park). The chapter, "The Growth of the City: An Introduction to a Research Project," outlines what would become known as the Concentric Zone Model. In this essay, Burgess attempts to complicate (or sophisticate) previous models of urban expansion which overlook the "process," instead equating expansion to mere aggregation. Within the "general process of expansion" he first outlines two components: extension and succession. Regarding the first, Burgess argues that cities do not just expand, but rather extend radially from some epicenter of economic activity. As this extension takes place, however, distinct areas emerge defined both demographically and by what activities take place - furthermore, these distinct zones "invade" other zones. Despite holding stark differences with the work of Herbert Spencer, or other prominent evolutionary sociologists - who arged that the whole of society is an organism, Burgess has an organismic model in mind when discussing this process of expansion - using strong metaphorical language of expansion, growth, metabolism, mobility etc. **Our intent was to recreate such a map of the relatively new quarter in Copenhagen, with Tietgen Dormitory as its center. This excercise thus revolves around looking at the building through new eyes by applying a new analytical methodology on it.**

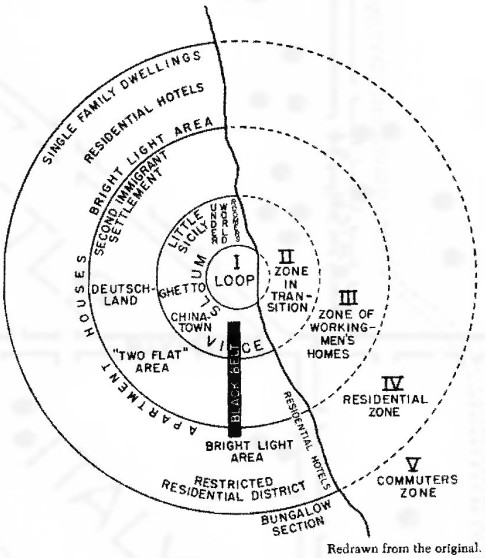


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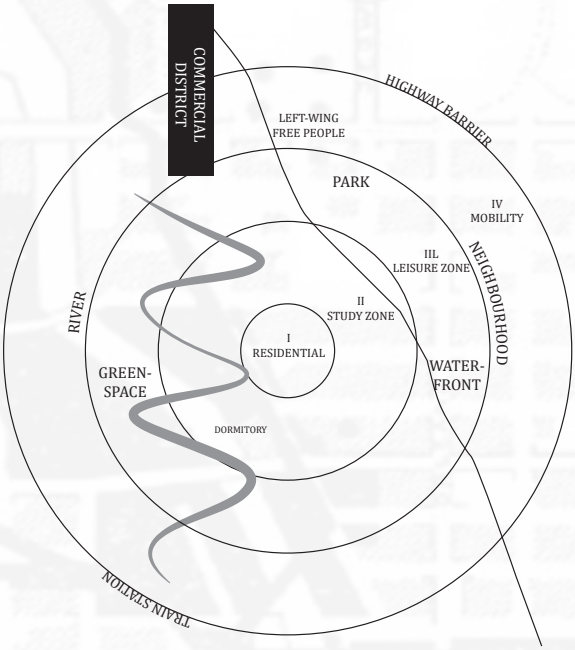
Chart 2—Urban areas.



Another document that provided us with analyitcal methods to apply on Tietgen Dormitory was the *Habitat Bill of Rights*. We divided the area around Tietgen in four interconnected zones. The distinction between these zones was based on the speed at which a person would travel through it: from pedestrian precinct to high-speed traffic. This provided us with a clear idea of the area which inhabitants would consider their neighbourhood, which is usually the area which is within walking distance. We could also form a theory on the way different areas of the city should be designed. When you're travelling by foot, you have much more time to experience your environment. Therefore, details and activities become much more important. On the contrary, a highway doesn't necessarily ask for much detail, because the speed at which you're travelling doesn't allow you to no even notice them. The speed at which one is travelling determines the level of detail that can be perceived, thus asking for a different design approach. ***'The prescribed highway from A to B may well avoid a slower street on where there is a shuttered factory, a wonderfully crowded market or a woeful slum settlement. On the highway, you are making a journey, but you are not learning much about others during the course of your journey. You are moving through space rather than experiencing place."***


16

REFLECTIONS ON *BUILDING AND DWELLING: ETHICS FOR THE CITY*

CHAPTER 3 – CITÉ AND VILLE DIVORCE

Abstract
Sennett states that people and place, although inherently connected, were separated by urbanists after World War II. The Chicago School thoroughly researched community life, and thus the cité, but oversimplified the odd-shaped rhomboids of the ville. Being theoretical by heart, the Chicagoans had no real interest in design and therefore did not know what kind of ville matched their cité. Meanwhile in Paris, members of CIAM imagined the city as a living machine. A generic approach of the design of the ville, lacking social imagination, caused a brutally simplified form of experience. In CIAM's radical liquid modernity, past time was erased. Sennett comments on Corbusier's architecture that it "could actually do the work of de-sensitizing" by becoming a blasé architecture. If this were true (and properly designed) it would give the cité the freedom to develop according to its own specific needs. It would reduce the influence the 'master architect' has on experience. A simple, yet carefully designed, ville does not force ideals upon people but it provides space for life to happen. This notion positions itself between Jacobs' and Mumford's idea of opening the city. It can be both top-down and bottom-up.

Reflection
Sennett seems to advocate a modest approach that acknowledges the limited power of the designer yet burdens him with certain responsibilities (e.g. creating an open, inclusive ville). Concerning the cité, Sennett means to say that an architect can give opportunities, not the recipe for life. It is crucial to keep in mind that there is not a single solution for architectural problems; the target group, the location, time (zeitgeist), available materials and technology et cetera tend to differ in each project. Therefore, it is relevant to approach a design assignment with a certain ideology and integrity. What kind of world do you envision? The answer is incredibly nuanced. A designer should not envision a world merely because it seems cool, but through his life, through his experience as an architect develop an informed vision. For this reason, Sennett does not simply state that he wants an open, inclusive city, but devotes a book to the topic that deals with countless historic examples and analyses. The inevitable differences between the visions of designers, due to personality, are to be embraced for they create the richness of the ville, which allows for a rich and diverse cité.
This text has become something else than a reflection on the chapter, but rather zooms out to take a wider viewpoint. The relevance of these words relates to positioning yourself as an architect. I'd like to end by including a few lines I wrote during the MSc1 that happen to deal with the modesty of the architect and the notion of a blasé architecture.
"Maybe it's about this: making basic things, which leaves room open for interpretation. Let the people use it in whatever they see fit. I've always felt that an architect should operate in service of the people. This can conflict with my own ego thinking that my ideas are always great, thus I should be the one deciding how a place should be used. I like T.S. Elliot's thought on this: great architecture is an escape from personality instead of an expression. As long as I listen and feel and present myself in service of others, my ideas can truly be great. But not because I made them up, but because they become known through me."

Proposition
Healthy, thriving communities are the building blocks of a well-functioning society.

CHAPTER 6 – TOCQUEVILLE IN TECHNOPOLIS

Abstract

Alexis de Tocqueville defines and warns us for a new kind of individual; one that is comfort-driven and inward-looking; one that is happy in his own small and familiar world. Sennett uses this description of the individual to make an argument against user-friendly technology – technology that apparently dumbs us down. He seems to value a certain kind of struggle, or sacrifice even, when it comes to learning a new skill. User-friendliness, however, makes things available to everyone, which consequently makes it nothing special. Sennett writes:

"The prescribed highway from A to B may well avoid a slower street on where there is a shuttered factory, a wonderfully crowded market or a woeful slum settlement. On the highway, you are making a journey, but you are not learning much about others during the course of your journey. You are moving through space rather than experiencing place.

The easiest way is not always the most rewarding or interesting. Thus, accessibility for all comes at a cost. Not everything has to be self-evident from the start. However, Sennett fails to address the positive effects of user-friendliness. Firstly, it can free up time for other things. Secondly, if more people have access to a certain skill there will be more opportunity for cross-over.

Reflection

Let us consider a metaphor for user-friendliness or the 'easy skill'. Say there would be a pill that would allow anyone to run 100 metres in under ten seconds. The whole discipline of sprinting would not be of interest anymore. The reason for the awe that is evoked if somebody can sprint so fast is that someone has worked for it; has made sacrifices; has overcome obstacles. Taking a pill is a very shallow road towards the destination.

This metaphor can pose as an argument for my preference of physical, hand-made scale models over digital ones. Physical models are made by the body, the same body that moves and interacts with the world. Making one requires skill, a bright mind, and knowledge of material, scale and representation. The crookedness and minor inconsistencies of hand-made models and sketches have a relation with the crookedness of the ville and cité. Being in the world is translated through the body into designing the world.

On the other hand, digital modelling tends to create straight and unambiguous lines, surfaces and volumes. What does this mean for a design that is made by through digital methods? Sennett's criticism on the Googleplex can clarify this matter. He seems to ask how one can deal with the world if he is not in it. Since the Googleplex is in the city but not of it, it poses a questionable authority of those designers that seek to improve our lives. The safe and comfortable bubble in which Google's employees work and spend most of their time in, is something different than the rugged and complex world 'out there'. How can someone design, program or build for something with which he is not familiar? In similar fashion one could argue to what extent digital modelling, which is done merely by movement of the wrist and fingers, can deal with every aspect of the real world for which the model is made. The representation of brick in a physical model is a personal choice informed by scale, texture, colour and thickness of the material, and the level of abstraction. Whereas in a digital model it is a simple click, informing the computer to render a surface as brick. The simplicity of this action can lead to a severe lack of engagement with the design and its connotations with reality. Consequently, Sennett's idea of a complex way of life rather than a simplified and dumbed-down version can be potent for architects not only in their designs but even in their own work and practice.

Proposition

Hand-made drawings and models lead to a more engaged design than digital counterfeits.

CHAPTER 7 – THE COMPETENT URBANITE

Abstract
Sennett advocates an engagement between urbanites and the built environment and engagement between urbanites themselves throughout the chapter. This engagement means taking the time to get to know one another as well as our environment. Although not explicitly mentioned, part of Sennett's idea seems to be based on phenomenologist thought. Especially in his description of what it means to be street-smart, he continually refers to very small details of the city or in other people's behaviour and appearance. It is important how these details appear to us, and how they are experienced by our own body. The core of both Sennett's chapter and phenomenologist thought is that we learn and experience through our bodily movement. In order to be a competent urbanite, one needs to be engaged with the urban environment and be willing to learn about it. Therefore, the city must not be clear at first sight. Instead, it needs to be rich and complex. Learning about the city must be a skill that can be developed. The cité can add this layer of endless complexity to a ville, but in order for that to happen the ville needs to allow the cité to develop. A ville that has never been dwelt in is like a smooth white box. A ville with a well-functioning cité is like a white box with a corner broken off, several dents on its ribs, and multicoloured smudges on its sides. A competent urbanite, upon seeing that shabby box, then says to himself: I wonder how those got there.

Reflection
This chapter gives a scientific basis for the importance of the detail. Increased standardisation and simplification have resulted in a deterioration of the urban landscape. Many places are alike and lack a distinctive character. It is surprising to be able to conclude that on roads made for cars this development can be positive. Travelling with more speed forces a different relation with one's surroundings – preferably calm – thus a simple and standardised environment helps the driver to focus. However, it can be devastating for life happening at lower speed. An asphalt surface does not contain many distinct details. It does not allow a thorough engagement. The same goes for a white stucco wall. Still, some extent of standardisation is inevitable and certainly has some very positive aspects to it. It is however crucial not to forget about the importance of the detail. Some red bricks peeking out the surface of a white stucco wall can arouse interest. The asphalt surface itself is more difficult to address. Of course, it could be replaced by cobblestone pavement, or even by what West 8 calls an urban carpet, but that wouldn't solve the problem of other asphalt roads. What kind of design approach is needed to allow monotonous, dull and unattractive surfaces to become more engaging? Fortunately, the design approach I propose is entirely free. The economic advantages of repetition will not be negated. It is a design approach that is open to the influence of time. After a while, in any place that is not controlled by mankind, nature will reclaim its habitat. Even in very small instances, such as a seam between two bricks or a crack in the asphalt, small plants will grow If we choose to increase our tolerance towards this type of urban nature, this can pose as exactly the type of details that transform blank surfaces into engaging ones. A wall can suddenly tell a story about its own age, its materiality and even about the city (for example if a non-native plant grows on a wall, researchers could trace back when it arrived, from what country, and via which trading routes). It is a matter of allowing something to be, just as Sennett proposes in his book. An open attitude; open building forms – these are the core blocks of an open city.

Proposition
Tolerance towards urban nature is a prerequisite for an open city.

D

RESEARCH TUTORIAL

RESEARCH TUTORIAL - HOW DO PEOPLE BEHAVE IN AN URBAN WASTELAND?

While developing a position in relation to the open city for the Research Seminar, it became clear that several ideas were relatively new experimental forms. Especially the urban wasteland, which would serve as a space in which there were no set rules of behaviour, was an urban form that demanded further study. Firstly, I needed to discover how to design an urban wasteland. How can a place be non-designed? What are the limitations or restrictions? Is it possible to create an urban wasteland in a dense environment? Secondly, it would be beneficial to know how a person behaves in such a space. Do people actually feel free in an urban wasteland? Do they experiment? What kind of opportunities do they need? The use of virtual reality (VR) made it possible to conduct a small experiment in order to research both aspects. With the help of digital modelling tools an urban wasteland could be designed. VR gave the possibility to experience the space and see if it had the potential to fulfill its promise within a high-density environment. Furthermore, I have asked fellow students to walk around in the model so I could monitor their behaviour and subsequently ask them about their experience. Finally, it would be possible to give an answer to the research question of Research Tutorial: *How do people behave in an urban wasteland?*

The design and the digital model were made, tested and improved within three weeks (phase 1). The behavioural experiments were conducted in the week after the model was finished (phase 2). Early in phase 1, it became clear that the most basic form of an urban wasteland, an empty rectangle, did not seem to have the capacity to be a space that facilitates social experimentation. Surely it could become a place where plants could develop, but it was not secluded enough to discard the notion of social control. The simple reason was that within realistic dimensions, the urban wasteland proved to be too small. Two solutions were introduced. The first comprised a set of design interventions in order to provide more opportunities for interaction with the environment, for both nature and people, as well as increasing the feeling of seclusion. These interventions consisted of basic architectural elements such as wall, gate, tree, column and slab. The second solution was part of re-interpreting the urban wasteland. While testing with Sven, we discovered that it was essential to provide possibilities instead of present restrictions. Therefore, Sven proposed the possibility to use the roofscape as a second of urban wasteland - an appropriate solution since roofs can be considered the largest wasteland within the urban environment. Sven deliberately used the wasteland as a sort of playground, and tried to find a way up the wall to the roof by jumping from edge to edge. The more conformist solution that was introduced was the stairs, of which several were wrapped around the building and permitted access to the roof. This meant that the roof would become a public space. This intervention was in fact the initial cause for making the building a membrane, as is described in the previous section.

Hereafter, phase 2 could start. The results of these small behavioural experiments are presented on the next spread. First, a part of the reflection on the course itself is included in this section. It addresses certain issues that arose while working in VR. Discussing these issues helps to get an understanding of the value of the research and to what extent the conclusions we can draw from them are valid.

1. VIRTUAL REALITY AND ITS RELATION TO THE ARCHITECTURAL FIELD

(...) A model can become a sort of external thought that allows the designer to critically look at several aspects such as the size and proportions of his design. He can interact with or change the model and establish a conversation with the externalised thought. Additionally, an architect can show a model to a client in order to visualize his ideas for a building.

A core difference between physical and digital modelling is found in the way the externalised thought is made. Physical models are made by the body, the same body that moves and interacts with the world. Making one requires skill, a bright mind, and knowledge of material, scale and representation. The crookedness and minor inconsistencies of hand-made models and sketches have a relation with the crookedness of what Richard Sennett calls the ville and cité. Being in the world is translated through the body into designing the world. On the other hand, digital modelling tends to create straight and unambiguous lines, surfaces and volumes. What does this mean for a design that is made through digital methods? One could argue to what extent digital modelling, which is done merely by movement of the wrist and fingers, can deal with every aspect of the real world for which the model is made. The representation of brick in a physical model is a personal choice informed by scale, texture, colour and thickness of the material, and the level of abstraction. Whereas in a digital model it is a simple click, informing the computer to render a surface as brick. The simplicity of this action can lead to a severe lack of engagement with the design and its connotations with reality. Can working in VR be a way to create ambiguous lines? Can it add detail to the superficially rendered surfaces of CAD models?
In the way we have used VR during the course, it could not convince me of its added value over conventional digital modelling. This was mainly because VR couldn't be truly used as a design tool, but instead more as a way of experiencing the design. Had it been possible to make changes and add details to the design while being in the virtual world, it might have been more useful as a tool. For now, the issues described above are still present in the design process.

There are several aspects of working in VR that I'd like to discuss. Firstly, the obvious advantage that VR provides: it can show the design on eye level. It allows you to experience the building heights, volumes, and even the atmosphere of the design. We

can see what the effects of design interventions are on a 1:1 scale and thus it seems to solve the issue of scale that is present in physical models. In this way VR transcends the models of Brunelleschi and his contemporaries. It is hard to grasp the actual effect of a grand entrance hall by looking at something that is a hundred times smaller than reality. However, one could argue that an architect, by becoming familiar with the world around him, is able to translate things he sees into scale. It is a more indirect relation to reality, a skill that is unique to the architect. VR makes this skill accessible for all. Sennett might call this 'user-friendly tech'. If all architects would start using VR, an important learning curve about scale, dimensions and proportions might be lost. On the other hand, because this skill becomes more widely accessible, there are more people that can work with it which could lead to a more diverse mix of ideas.
Secondly, the fact that movement in VR is mainly based on clicking instead of actually moving seems to be a flaw in the experience. There's no true experience of distance and height besides a visual reference. For example, there were four sequential stairs in my own model that would lead to the roof. This seems like a lot, but in VR you do not experience this. VR is a technology that centralises the eye. Pre-recorded sound can be added but this has its limits. There is no actual mass; no textures to feel. Bodily movement is essentially different than how it would be the real world. In VR, you are protected, it's safe and comfortable. We'd need a whole new set of psychological studies that address the differences of how one behaves in a virtual environment as opposed to reality. This is in itself no problem, but we need to be aware of the fact that VR provides something that resembles 'real' experience but still is very different. Therefore, we need to be careful with the conclusions we draw from it.
Thirdly, a lot of time is spent on 'dressing up' the model in order to make it feel realistic. Yet you are still quite confined within a given set of options (asset library). Of course, there is the opportunity to download more or to create your own assets, and professional users of VR will surely have a wide range of options available. But is this an architectural task? Is it within the realm of architecture to spend countless hours placing different types of bushes, altering the length of the grass and making sure not every tree looks identical? VR seems to be a different field of expertise. One that is useful for architecture but has its limitations too. It can soon turn into a gimmick instead of something architectural. I'd like to briefly discuss Jelle's VR presentation, which arguably made the best use of the possibilities that VR provides. He showed several design choices and proved their quality by alternately showing a 'standard' design solution and his own proposed solution. He showed that a setback of the top floors would greatly increase daylight access to the ground level. Furthermore, he showed that a chamfered corner of a building, such as in Barcelona, would increase the visual relation with the street around the corner and provide more space for a square on the crossroads. Although this was a very clear way of showing it and a valid topic to investigate in VR, it wasn't something new. I'm sure that our group of architecture students were all aware of the effects of a setback and a chamfered corner. What then is the added value of showing it in VR? Aren't we just showing things we already know in a virtual world? This perfectly illustrates the mixed feelings I have

towards VR. On the one hand, I recognise and am amazed by its potential to show a design in a unique way. On the other hand, I remain extremely cautious towards its potential as a design tool. The former opinion would be that of the client inside me, the latter of the architect. To me, VR is a good method of communication; of showing a design to a client. However, in it's current form it is not a design tool that I see myself using too often. This is mainly due to the fact that it remains a visual rendering and therefore deals mainly with appearance. I want to become an architect, not a VR expert. However, I do see the potential of collaboration between the two. Within due time, VR can be developed into a valuable research tool.

To conclude, I propose a way of working that has always been at the heart of architectural practice: the way of acquiring general knowledge. We do not calculate the constructions we design by ourselves, but cooperate with people who are experts in doing exactly that. We do not lay the bricks; we do not calculate ventilation capacity. In the same manner we shouldn't try to become experts in the world of digital modelling and virtual reality, but stay true to the essence of architectural practice.

2. THE EXPERIMENT - PASSIVE AND ACTIVE

The respondents 'entered' the virtual world standing on a balcony with an overview of the urban wasteland. They could then turn around, descend a set of stairs, walk a small length of street and enter the urban wasteland. The space itself has an intimate character because of the use of walls, blind facades and trees (an image of the urban wasteland is included in the section on *conceptual design*). The first conclusion can be drawn from the way people enter the space: all respondents went in through a small opening in the low wall. It could have been easily stepped over, but yet people still chose to take the beaten track. Apparently, every part of the design influences people's behaviour, even in a space that is supposedly free of any rules of how to behave. Once inside, the respondents all participated in the activities that were offered, but in different chronological order. They performed passive activities such as sitting, standing and looking around, as well as more active ones, such as kicking a ball around, waving to other people, feeding birds, and climbing walls and objects. The second conclusion that can be drawn is that people spent different amounts of time on each activity, supporting the claim that people can be free to do what they want within an urban wasteland. However, as stated in the first chapter, the virtual environment merely resembles a real one. It was not possible to truly interact with objects, nor persons and animals. Some people only spent a few minutes within the space, but stated they got nauseous because of the glasses. Others had already seen the way Sven Volkers had moved around, and tended to copy his behaviour. In other words, no real conclusions can be drawn from this experiment. However, the preliminary design of the urban wasteland has thaught me about its spatial qualities and risks, which will prove useful in the upcoming semester.

PLAN ANALYSIS - RELATING TO NATURE

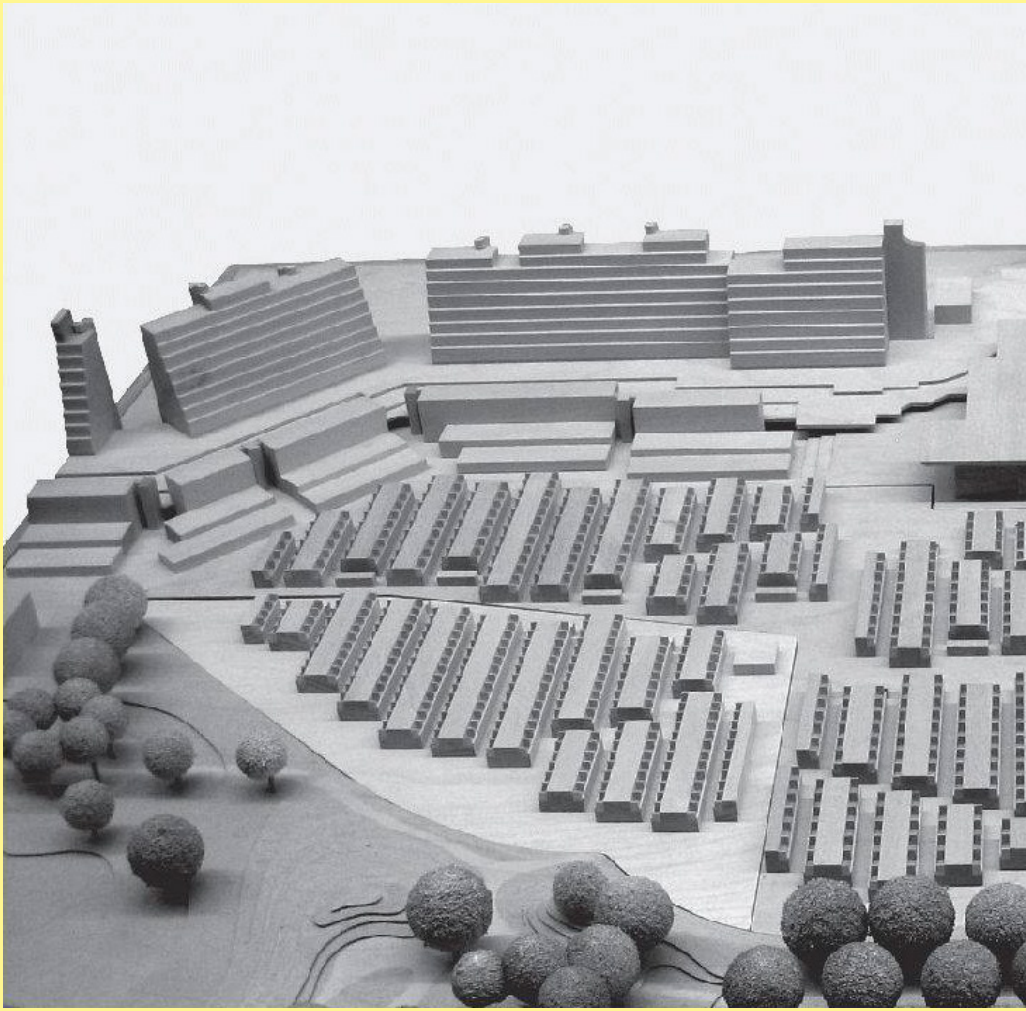
This experiment was conducted in order to find ways in which buildings can relate to nature. The conclusions of this experiment can be summarised visually by means of the diagrams on page 143. An important feature of nature is that it is accesible or alterable by humans. Similarly, an important feature of buildings is that it is accesible or alterable by nature. This relation implies a building filled with life and a rich cité. Architecture influences the way nature is perceived by its inhabitants. It can be something that facilitates space, providing opportunities for all kinds of activities. It can be merely visual, strictly protected from human interference. It can be a connecting feature, solidifying the community. Or, finally, it can be an inherent part of the architecture, as a way of rooting the building in time and space.

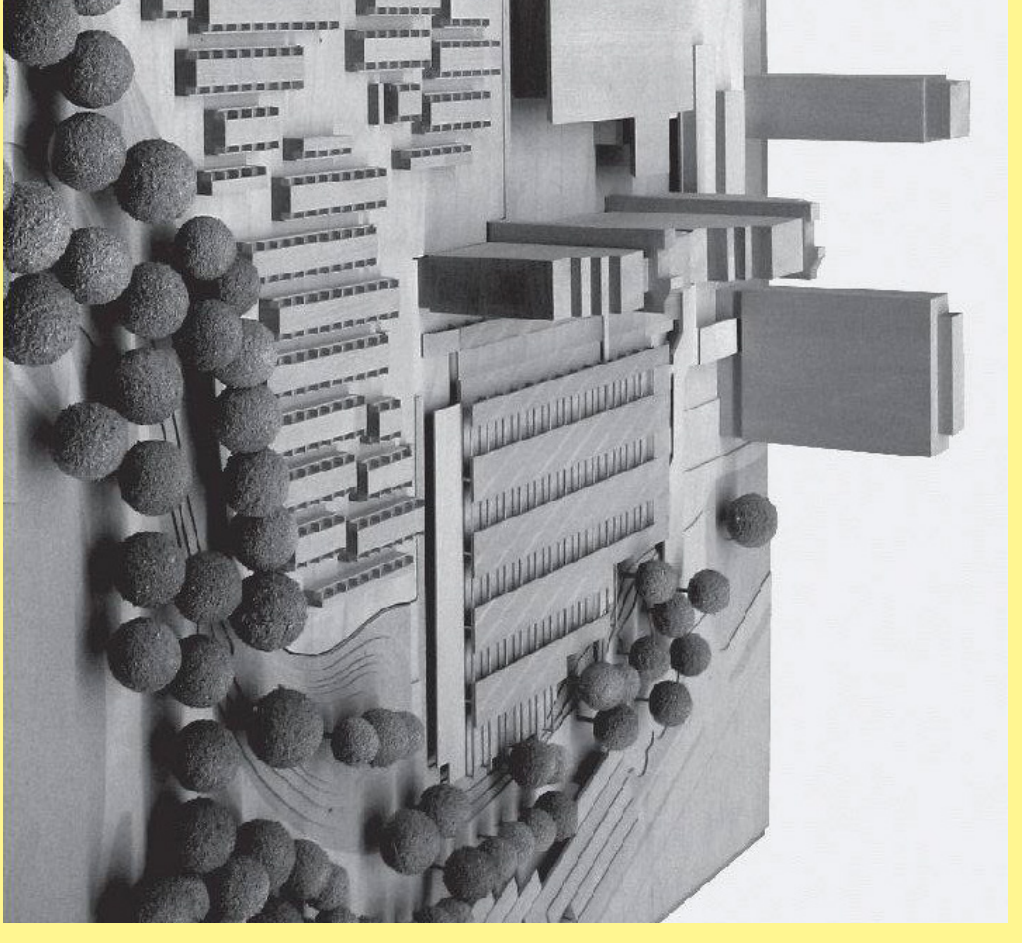
Furthermore, since all buildings were (partially) designed for different kinds of solo dwellers, redrawing the floor plans was a method to study ways in which the life of the solo dweller can be organised. Additionally, it gave insight in configuration and dimensioning. Especially the dwelling types of La Tourette an the Student Olympic Village were interesting for their relationship between dwelling type and way of living. The former allows for total freedom and independence, while the latter assumes a more communal way of life that includes sharing and equality. A combination of these types can form a building that is suitable for both the solo dweller by choice and the solo dweller in need.

E

CASE STUDIES

OLYMPIC VILLAGE STUDENT HOUSING





Model of the area. The contrast between the rigid blocks and the more organically shaped surrounding green area is evident. The low-rise buildings and the abundance of green give the settlement a village character, contrasted by the highly urban towers around it.

OLYMPIC VILLAGE STUDENT HOUSING

Architect: arge werner wirsing bogevichs buero hoffman ritzer
Landscape architect: Keller Landschaftarchitekten
Country: Germany
City: Munich
Date of construction: Mid 2007 until end of 2009
Plot size: 24 428 m^2
Gross Floor Area: 29 162 m^2
Cubic contents: 67 460 m^3
Construction costs: 40 982 417 Euro

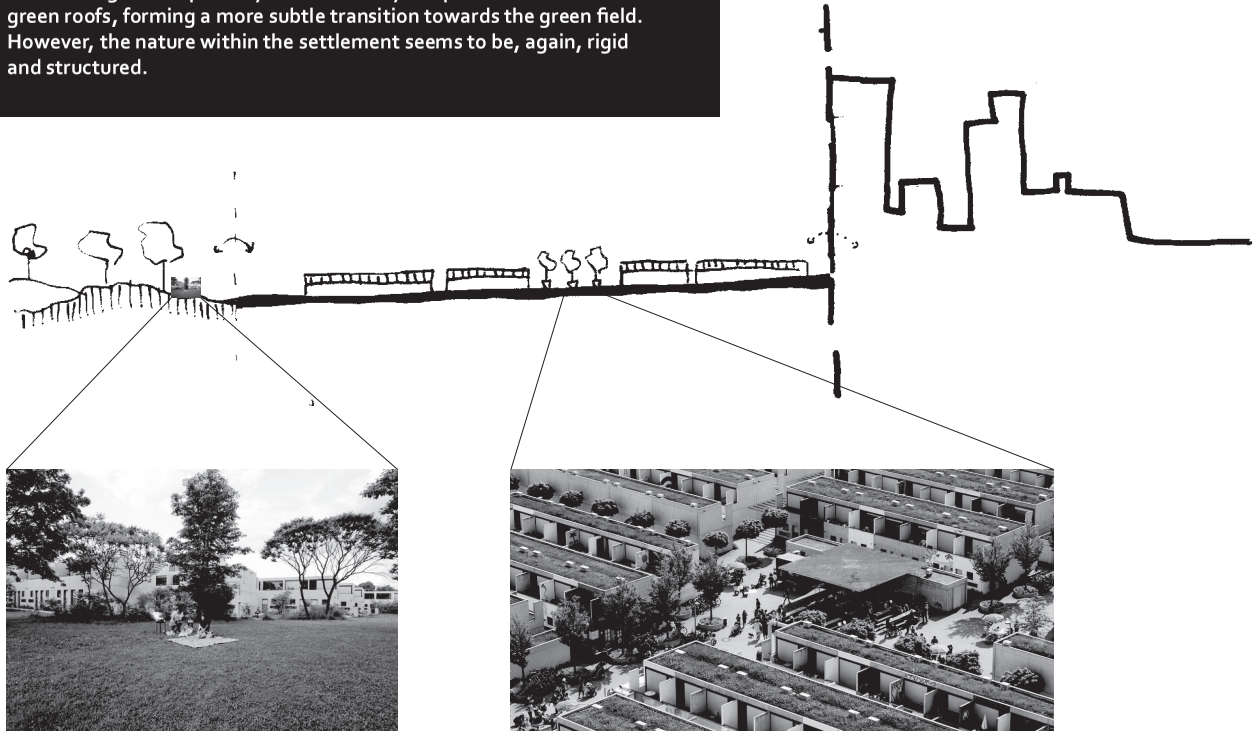
INFORMATION ABOUT THE DWELLINGS

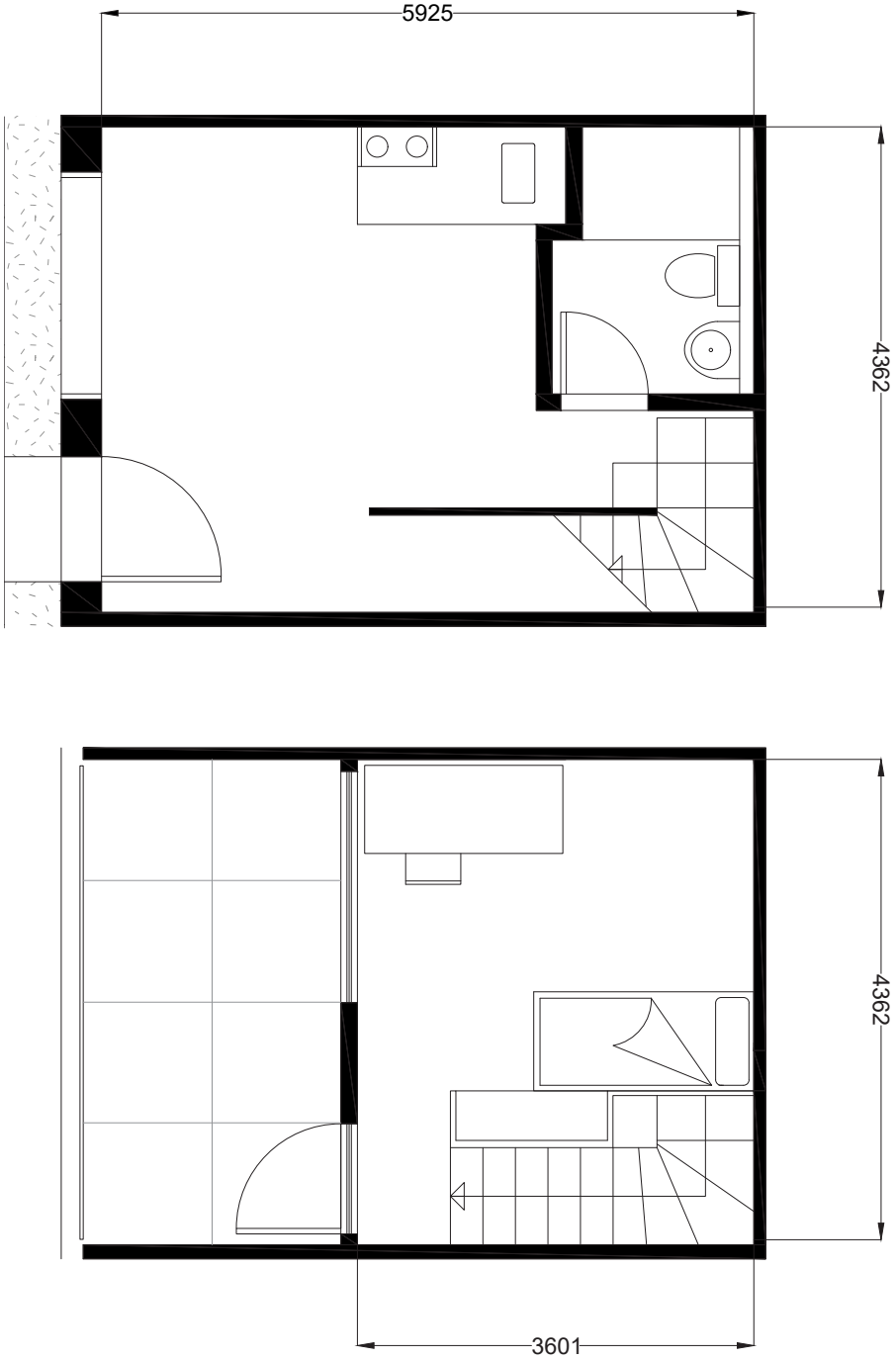
Number of dwellings: 1 052
Dwelling size: 18 m^2 to 20,42 m^2
Dwelling type: Bungalow
Current function: Student housing

The buildings are strictly organised in a barcode-like grid. Vegetation is brought into the settlement in the form of potted trees and green roofs. Exceptions or openings within the grid can be used as communal space.

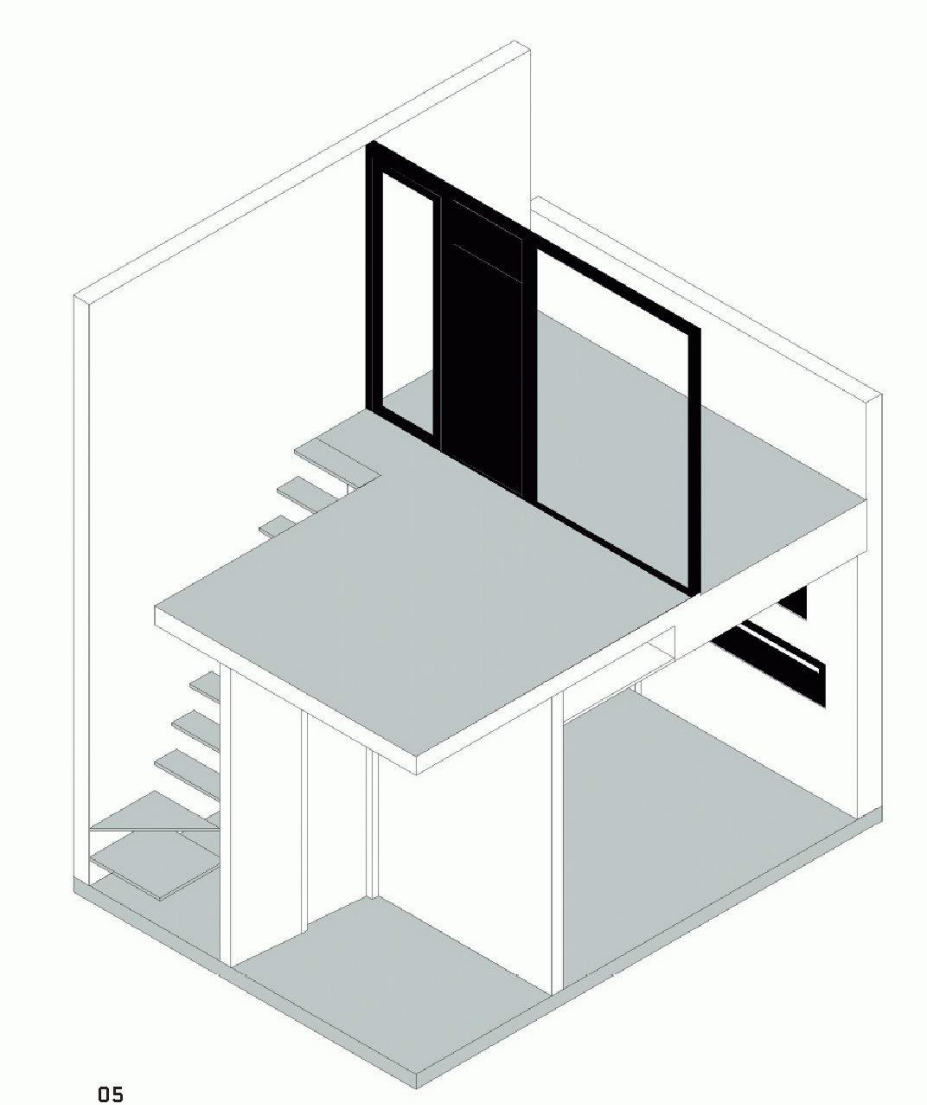
Facades can be appropriated by humans and nature. Because of the freedom, inhabitants can express their individuality. This is an important feature for the solo dweller. Additionally, spontaneous vegetation is allowed to grow, diminishing the strict character of the urban grid.

Section and pictures indicating the hard boundary between the city and the student settlement, and the porous border between the green area surrounding it. This porosity is increased by the potted trees and the green roofs, forming a more subtle transition towards the green field. However, the nature within the settlement seems to be, again, rigid and structured.





floor plans



05

In the game of life life, particpiants often go back to the start. The situation is similar with the Munich student housing of Oberweisenfield. Home to the athletes that particapated in the Summer Olympics of 1972, this site had been vacant for several years. In 1980, because of a surge in the amount of students, they could provide necessary dwelling space. Then, around the turn of the millenium, plans were made to refurbish the former Olympic village. Instead of using the existing dwellings, which were made to house two athletes, the whole village was demolished. However, the dwellings that returned were almost identical to their predecessors. Only their size and configuration had been slightly altered. Now, together with a high rise tower, the area is a home for over 1000 students. The design portrays a distinct relation with its surrounding green area. Moreover, nature plays a role in the direct vicinity of the dwellings too. How do the buildings relate to nature?

RIGID AND ORGANIC

The layout of the settlement was aimed at creating a village character. The 2.4 metre wide streets between the rows of houses create an intimate atmosphere. The rigid grid of the long blocks has been broken up by several diagonal axes and an open square. The building system made use of exposed concrete facades. Afraid of becoming "barracks", where individual houses were lost in the mass, the housing corporation decided to provide free paint and brushes to the residents, so that they could alter their own facades. The ville allowed the cité to develop. This theme is central to *nature* as well. Between the buildings and the paved corridors, a small strip of ground is left open which allows spontaneous vegetation to grow and add even more distinctiveness to the facades. The surrounding area of the settlement is a wide, open and green. This field allows the inhabitants to play games, relax, gather, eat, and so on. Thus, the ville allows nature to develop and allows the cité to develop within nature.

SAINTE-MARIE DE LA TOURETTE

Picture of the building showing the open ground floor and the wide view of the nearby valley. The wall above the indiviual cells surrounds the rooftop, atop of which is a brache, filled with spontaneous vegetation. The building is surrounded and covered by nature.

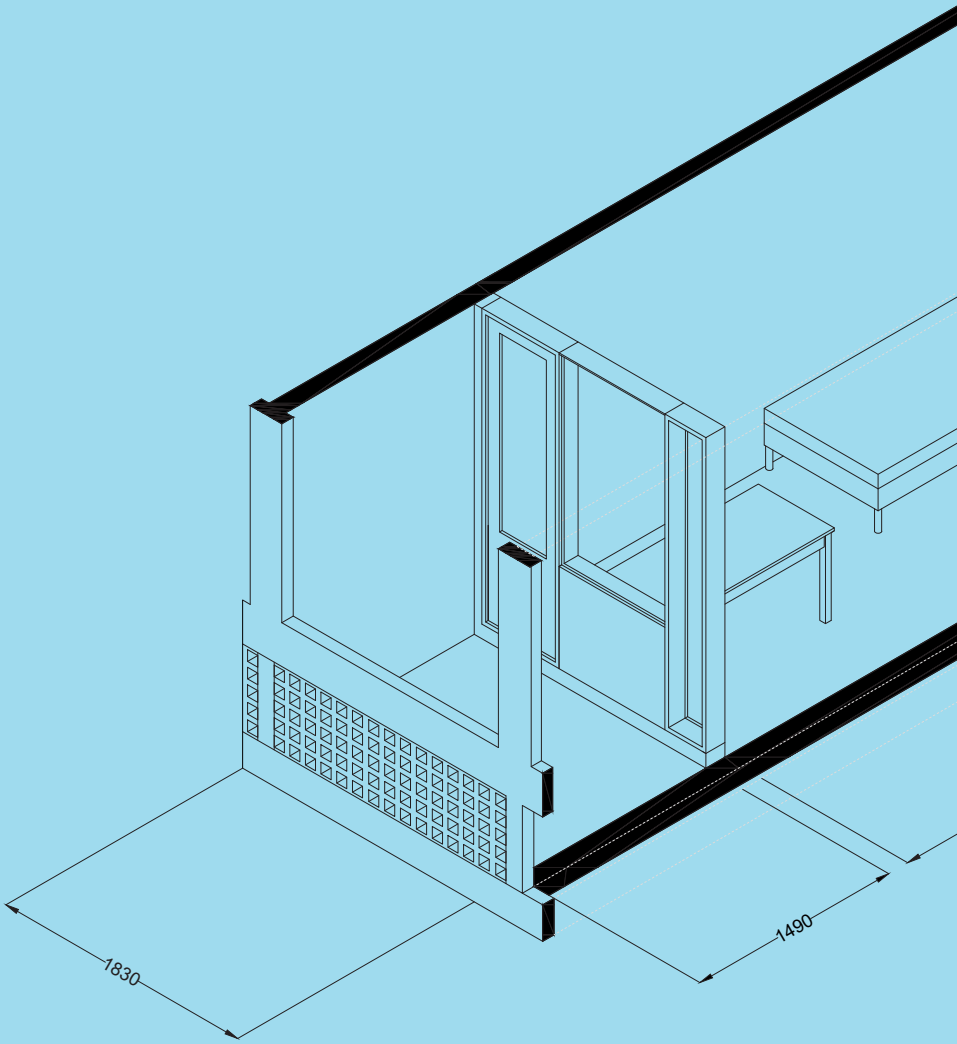
As Francis's study (2011) on wall vegetation shows, concrete is not an appropriate surface for ruderals. However, the slight degradation of the walls due to rain and frost can be considered nature too. Horizontal surfaces such as roofs are more likely to host a biotope.

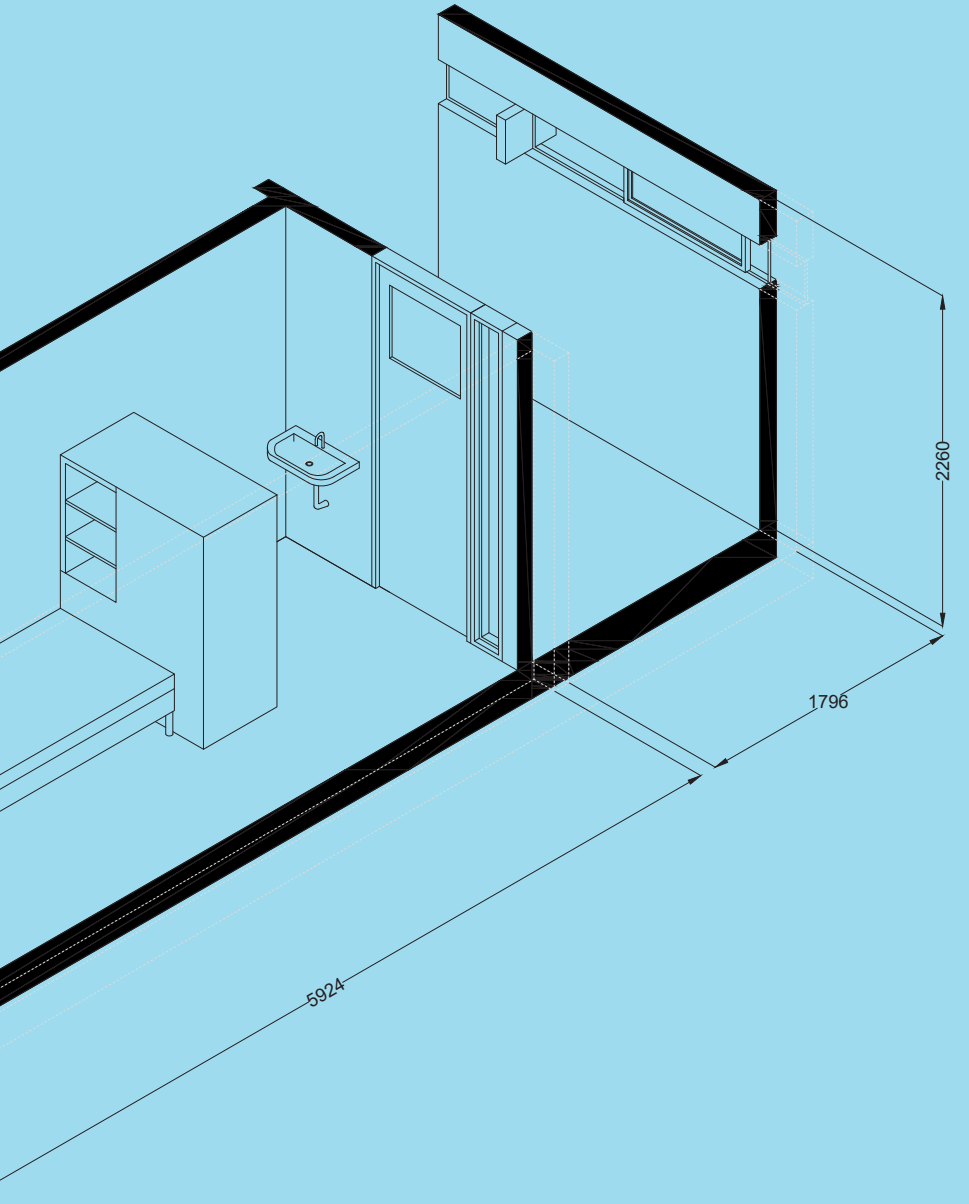
SAINTE-MARIE DE LA TOURETTE

Architect: Le Corbusier
Country: France
City: Éveux
Date of construction: 1956 to 1960
Plot size: 1 095 m^2
Gross Floor Area: 3 700 m^2
Cubic contents: 8 600 m^3
Construction costs: unknown

INFORMATION ABOUT THE DWELLINGS

Number of dwellings: 98
Dwelling size: 10,4 m^2
Dwelling type: Monastic cell
Current function: Monastery / Hotel


1830
1490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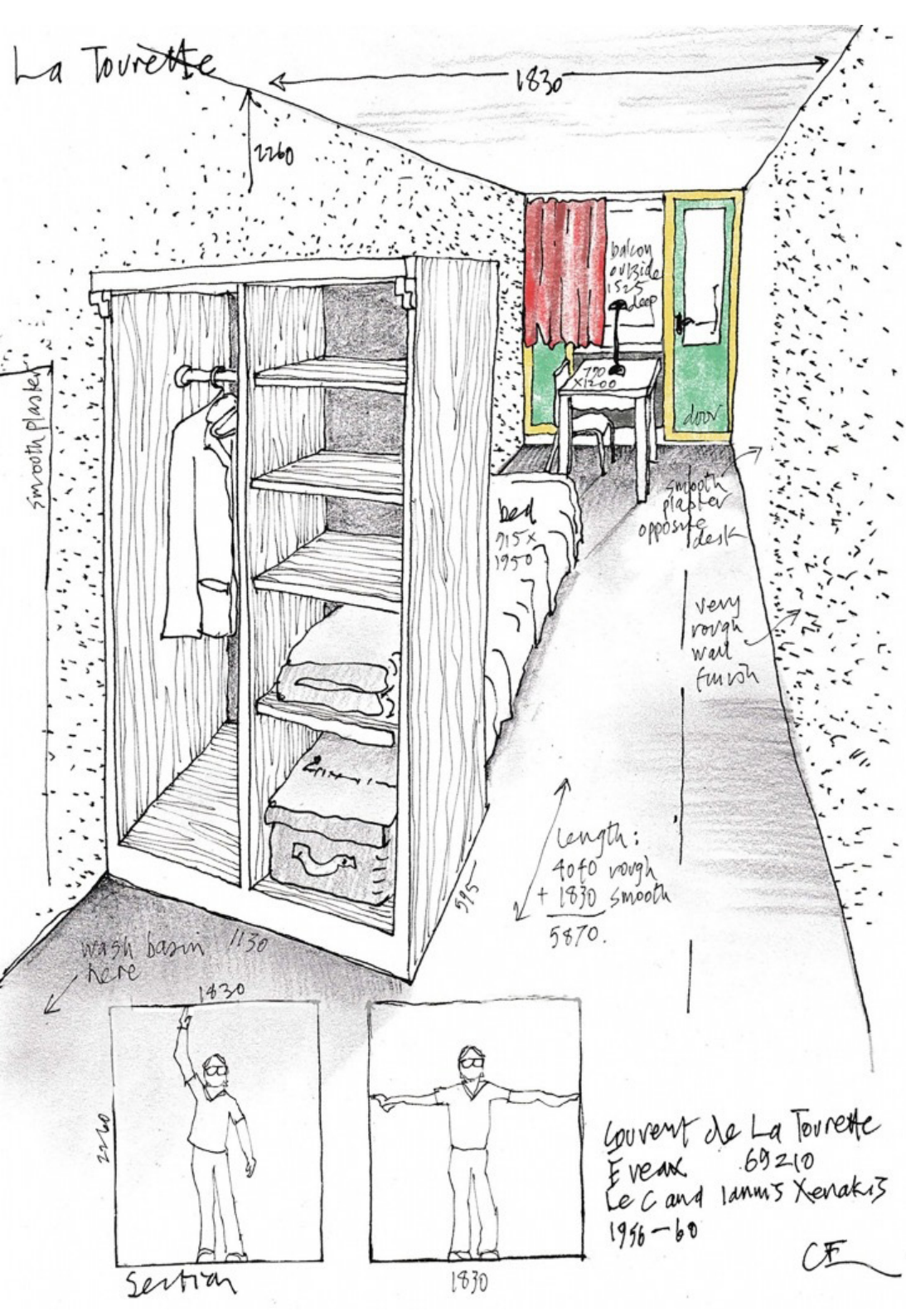
1796
5924

"On the 19th of October, 1960, the monastery St. Marie de la Tourette was officially opened. After the first brothers have settled here, Le Corbusier writes: "L'architecture est un vase. Ma récompense de huit années de travail c'est d'avoir vu les choses les plus hautes d'évelloper a l'aise dans ce vase." (Architecture is a vase. My reward for eight years of work is to have seen the highest things developing at ease in this vase.) What he intended was now realised; a place of silence and peace to enable the brothers to meet God." This is what de Soeten and Edelkort write in their 1985 study of La Tourette. They interpreted 'the highest things' as a connection to God. However, after less than 25 years, La Tourette's monastic function disappeared. What remains within the vase, however, is nature.

AN OBJECT WITHIN NATURE

The architectonic play of rule and exception, of clarity and mystery and of freedom and restriction is typical for Le Corbusiers work. The building appears as a monolithic object, landed within the green fields near Éveux. But a closer look reveals that the central part of the building is open, allowing nature to roam freely within its walls. Gradually, all roofs of the building have been taken over by ruderal vegetation, making the building part of the natural world that surrounds it. The upper two floors are filled with the cells for the monks, where the individual life takes place. Crucial to the design is a private outdoor space, which allows the monks to enjoy the scenery. Collective life takes place on the lower floors, where the monks could eat in the dining room or pray in the church.


La Tourette
1830
2260
balcon outside 15-5 deep
790 x 1200
door
smooth plaster
smooth plaster opposite desk
bed 715 x 1950
very rough wall finish
length: 4040 rough + 1830 smooth 5870.
595
wash basin here
1130
1430
2260
Section
1830
Couvent de La Tourette
Eveux 69210
Le C and Iannis Xenakis
1956-60
CF

EDEN BIO

View of the diversity of houses within the Eden Bio complex. The central part is surrounded by a wooden framework. Within three years, this bare skeleton had been transformed into a thriving biotope.

EDEN BIO

Architect: Maison Édourd François
Landscape architect: Sophie Barbaux
Country: France
City: Paris
Date of construction: 2008
Plot size: 7700 m^2
Gross Floor Area: 13 200 m^2
Cubic contents: 41 300 m^3
Construction costs: 10 721 000 Euro

INFORMATION ABOUT THE DWELLINGS

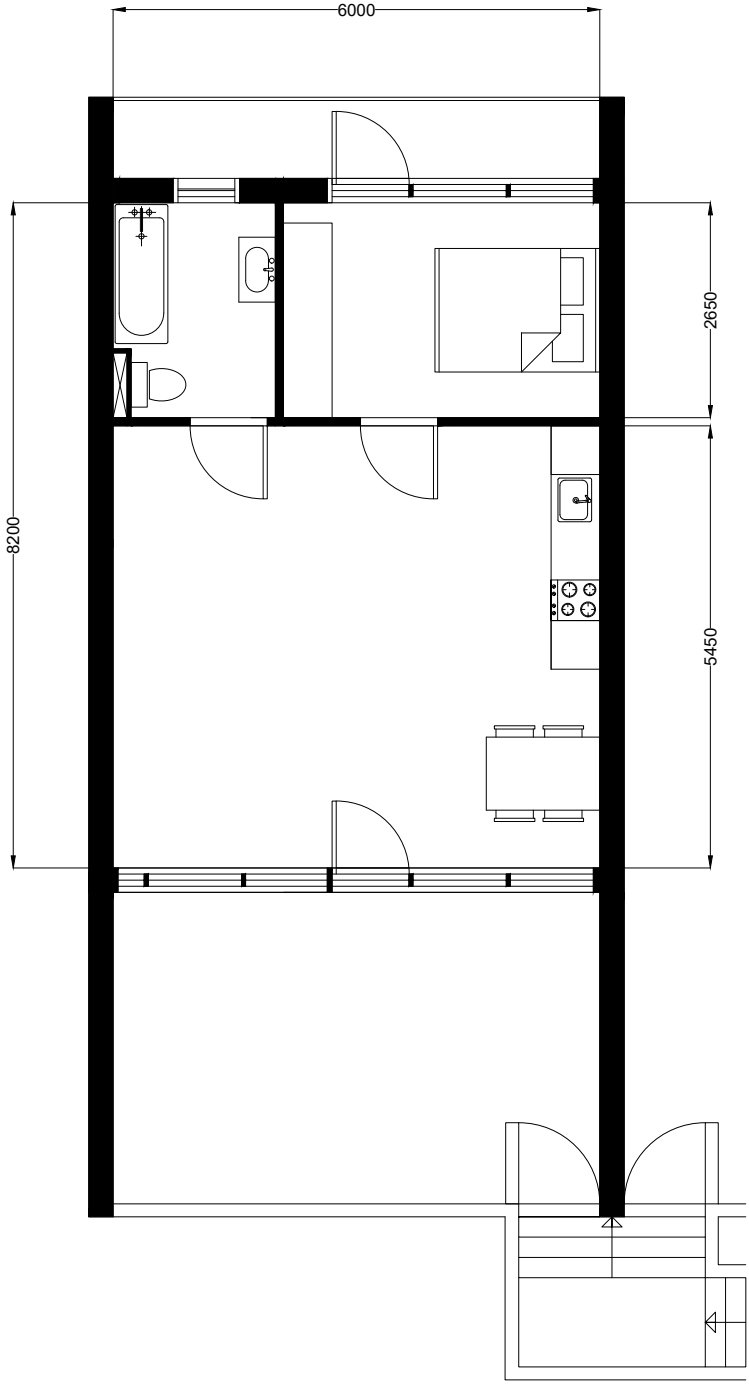
Number of dwellings: 98 residences + 23 studios
Dwelling size: 36 m^2 to 48 m^2
Dwelling type: Apartments + studios for artists
Current function: Social housing

The common method for greening up a construction site before it goes on the market is to blast Monsanto chemicals onto shallow soil. This results in a quick burst of green and, in a few years when the chemicals have gone elsewhere, the plants grow stagnant and brittle. Francois preferred a more organic scene—drawing elements from permaculture and slow design. Deep beds of soil form the foundation where he planted small, organic plants based on their ability to thrive without pesticides or regular care. In time, leaves from the trees will coat the ground, decomposing into natural fertilizer for the ground plants creating a wild, self sustaining landscae. This landscape forms a porous border between private and public life.

The building is situated between existing building blocks in Paris, in a typical unpretentious and lively suburban neighbourhood. Surrounded by many different building styles, heights, materials and colours, Édouard Francois wanted to reflect the urban wilderness within the plot. Long and narrow alleyways that are remnant of the area's agricultural history interrupt the street alignment and spatially define the plot, while vegetation-filled corridors lead the eye into the sun-filled core of the block. The design distances itself from Haussmannian Paris, which is about order and repetition. Instead, Eden Bio is designed on principles of irregularity and diversity. In what way is nature implemented in this urban wilderness?

NATURE AS TRANSITION

Virtually every public part of Eden Bio is surrounded by vegetation. However, most of this vegetation is inaccesible to its inhabitants. 1.5 metre high and nontransparent fences surround every patch of vegetation. The soil and the plants have been specifically chosen to be self-regulating. The building is surrounded by a wooden framework. Upper levels of the building are reached via timber staircases and gantries. Wisteria plants will climb over trellises surrounding the building and the ground around the houses. The only buildings that face the street are two small greenhouses, that provide fresh fruit and vegetables and host mailboxes. "The tenants get their mail there between banana crates and climbing vines, making bad news seem less bad." The nature within Eden Bio is used as a porous border, carefully managed from the start, but becoming more wild as time progresses.



floor plan

VAN BRIENENHOFJE

The vegetation within Hofje van Brienen is the result of human interventions. The vegetation in the garden and the pots is all planted. However, this does provide the opportunity for insects and other small animals to live within the courtyard. 'Hofjes' are mentioned as vital parts of the ecosystems of Amsterdam. Its biotopes are part of a network of green oases within Amsterdam's dense city fabric.

The courtyard has become an extension of individual life. Throughout the years, it has been appropriated by its inhabitants.
1: Private bench in front of the house
2: The stairs provide a subtle transition between the individual house and the communal courtyard.
3: Flower pots in front of the house, adding to the diversity of the vegetation. Moreover, it expresses individuality within the otherwise repetitive housing blocks.


2
3

HOFJE VAN BRIENEN

Architect: Abraham van der Hart
Country: The Netherlands
City: Amsterdam
Date of construction: 1804
Plot size: 1 095 m^2
Gross Floor Area: 2 556 m^2
Cubic contents: 8 179 m^3
Construction costs: Unknown

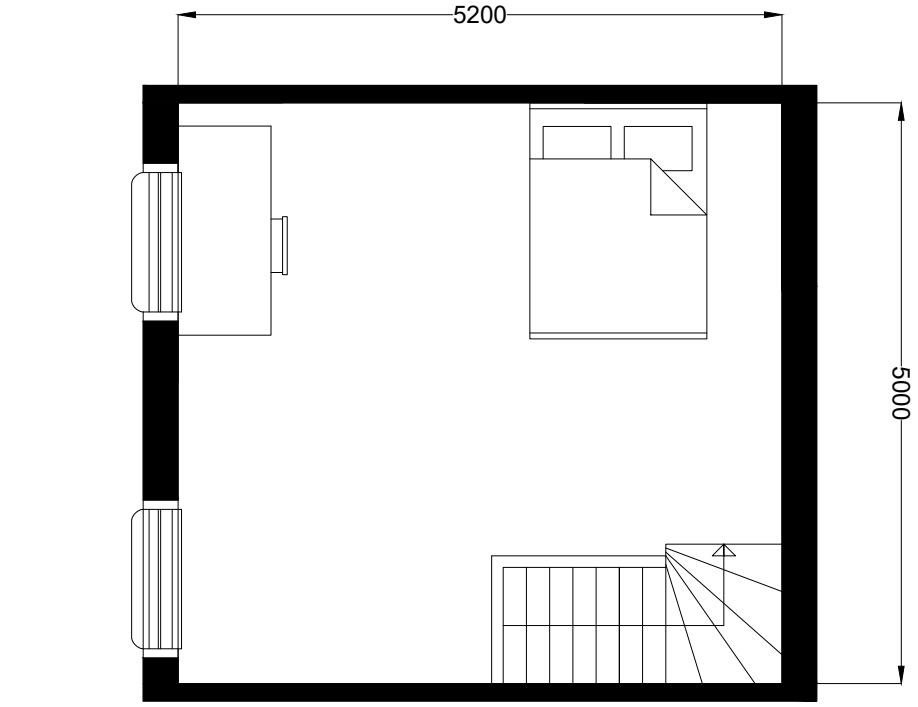
INFORMATION ABOUT THE DWELLINGS

Number of dwellings: 26
Dwelling size: 26 m^2 to 76 m^2
Dwelling type: Apartment
Current function: Social housing

'Het hofje' or the the tiny courtyard is a building block of Dutch cities. In the Middle Ages they were widely used as charital gesture to provide housing for the poorest of society, usually widows or unmarried women. Their typical configuration, turned inward, serves as a base for community creation. The qualities of the tiny courtyard are still relevant for today's cities. The houses act as a wall that seperates community life from the crowded and noisy public life in cities. Generally, tiny courtyards contain a communal garden in their centre. This makes the tiny courtyards places of respite from the city: a silent oasis where life takes on a lower speed. What role does nature play in the life between walls?

NATURE WITHIN AN OBJECT

Hofje van Brienen consits of three housing blocks and a regent's room, all facing away from the city. All houses look out on the central courtyard, while their back facades are blind walls. The buildings have a monumental character, based on repetition and symmetry. The inner garden too seems to be rather organised. However, by means of appropriation of space and human interventions, the neat structure of the courtyard is diminished. Potted plants, benches and watering pants are stored outside, creating a highly informal character. The courtyard is an extension of the individual life within the dwellings, thus forming a true community. Residents take care of the maintenance of the garden, which in turn becomes a social activity. For solo dwellers, the courtyard archetype can help to reduce feelings of loneliness and social isolation. Hofje van Brienen's nature was structured by design, but became more informal by its vibrant *cité*.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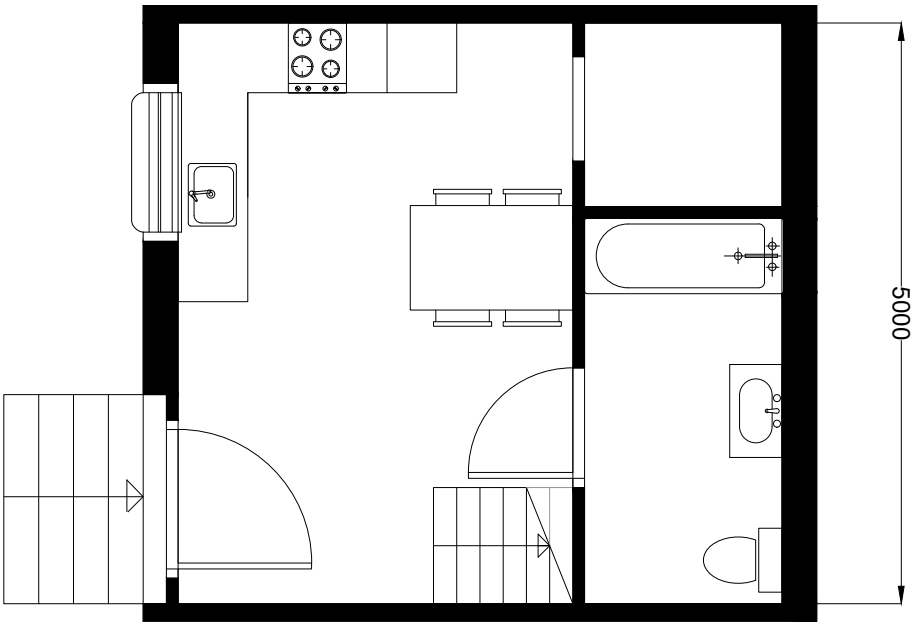
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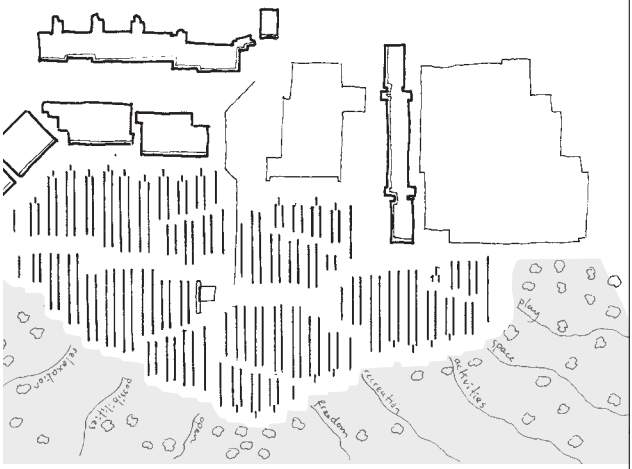
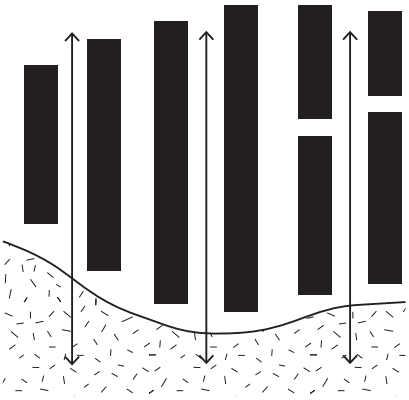
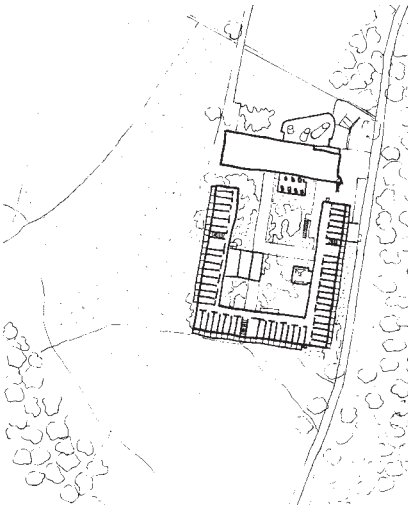
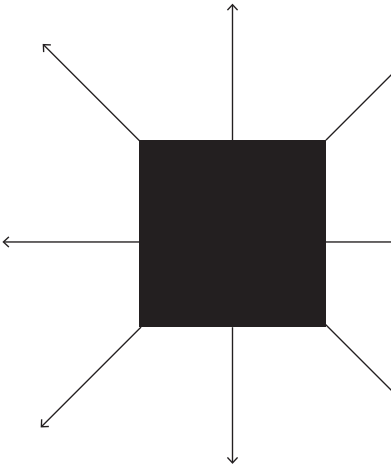
OLYMPIC VILLAGE STUDENT HOUSING





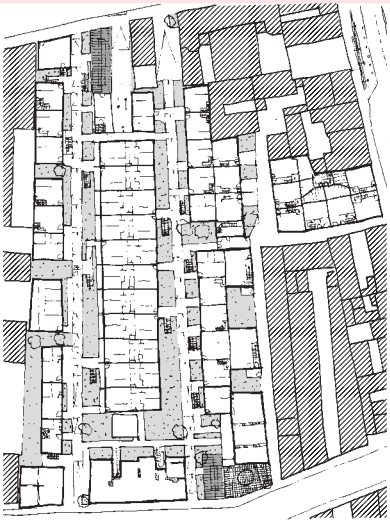
LA TOURETTE

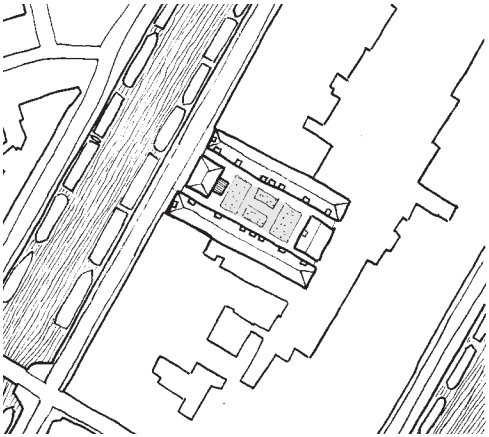


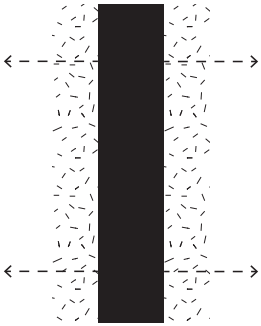


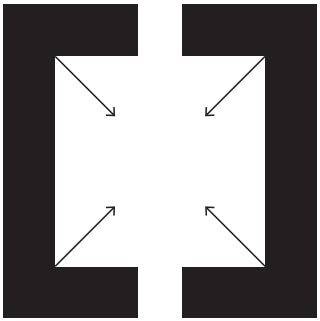
EDEN BIO

HOFJE VAN BRIENEN









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REFLECTION REPORT

PREFACE

This report is a collection of reflections on the different types of research I have conducted throughout my graduation. The aim of this report is to discover the benefits and deficits of the various research methods that have been used to inform the design.

I discovered early on, right at the beginning of writing this set of reflections, that the research had been very useful to find out why we should build for solo-dwellers in this particular way that includes nature. I had done research on different ways of living as a solo dweller and on the cultural shifsts that had made those types of life possible. I had done research on a historical and philosophical view of what nature is and what it means to us as people, and looked at modern examples of a new way of seeing nature: something that is left unaltered my man. But, not before long, I discovered I was partaking in a dwelling studio, and in spite of all the best intentions, I was left with the basic unit of dwelling: the house. How then would I realise the big ambitions I had set for myself in something as basic as a house? The initial realisation was that I was working on quite standard housing design, except the houses were little smaller (because of the target group) and the facades were a little greener (because of the topic). Was this what I intended? I felt like more needed to be done, and I knew why. But I was left with that same question: How?

Part of this reflection is a more personal review of the different types of research I had already done, in order to find an answer to how I could design a nature-inclusive building for solo dwellers. I found along the way that there were more than a few hints and solutions within the research that could help me design and construct the building. The reflection report as a whole helped me to distill a guiding theme, which proved to be useful in making design choices.

For each strand of research, the same six questions will be asked. The aim is to discover the qualities and deficits of my way of doing research. One method that is used is zooming out in order to classify and compare the research within a broader research field. Finally, we zoom in again and look what impact the research had on the final design. The six questions are as follows:

Reflections on... Research

1. WHAT TYPE OF RESEARCH HAS BEEN CONDUCTED?

2. WHICH METHODS HAVE BEEN USED?

3. WERE THESE METHODS APPROPRIATE?

4. WHAT WERE THE RESULTS OF THIS PART OF THE RESEARCH?

5. HOW DID THOSE RESULTS INFORM THE GENERAL DESIGN APPROACH?

6. WHERE IN THE DESIGN CAN WE FIND THESE INFLUENCES?

Reflection on... Literature Review

1. If we make the distinction between *how* and *why*, we might link several other sets of antonyms to that distinction. For example, I would link theory to *why* and practice to *how*. Similarly, doing research belongs to *why*, whereas simply looking up relates more (although not fully) to *how*. I would say that I have conducted *theory-led research* in order to find out *why* we (or I) should build in a certain way for a certain target group. Finding out *how* I should do this only came in a later stage, when I started looking up examples from within architectural practice. Lucas describes theory as *"an overarching philosophy governing certain aspects of practice. The objective of theory is to establish something fundamental about how we act in the world, a result of considerable analysis and rationale."* In other words, a theory provides a framework for a certain way of practicing; it tells you in which direction to look. A straightforward example is that after I knew why I wanted to build nature-inclusive, I could simply google or do a library search on "nature-inclusive building". Within my design process, *why* can be seen as a set of shelves and *how* can be seen as the objects on those shelves. one is the framework, the other the infill.

The topic research is by far the most academic piece of research within the broader graduation research. It is not focused on my building, Minervahaven or Amsterdam specifically, but rather remains more generally applicable. This might add to the credibility of the research, as it is not something only I would benefit from, but therefore fails to be a direct support for *my* design.

Further reflections on the research have already been discussed within the P2 report, specifically the Graduation Plan, so I will refer the reader there for further classification of the type of research.

2. I have approached this research differently than other assignments within my education. Usually, I would find a topic that interests me, read some available literature and finally sort of summarise that literature. This would always result in something that was very helpful to me – I had done the reading and the writing and therefore had become a little more knowledgeable on a certain topic – but not especially interesting for other readers. They could have found the same information in the existing literature; my paper did not add new theories to it. This thesis differs from this usual way as I have not simply summarised what I have read but applied the acquired knowledge to the field of architecture. To be more specific, the available research on solo dwellers was written mainly from a sociological point of view, and the available research on urban nature was written mainly from an ecological point of view. I don't believe I specifically set out to connect these fields, it is rather something that developed naturally. As I got deeper into literature on solo dwellers/urban nature, I inevitably stumbled across sociology/ecology, and being a student of architecture I would have always had to bring that back to the field of architecture in order to make it useful for myself. Perhaps the only other research that I have done which isn't just a summary is the History Thesis, in which I studied signs of

industrial technology (such as a water tower, a lighthouse or a steam tram) on Panorama Mesdag. It was about revealing the networks behind those structures and discovering the historical, architectural and technological advancements that led to the 'coming into being' of these structures. The main difference between the History Thesis and this Graduation Thesis is that I never had to make the former useful for myself. It was an investigation into what had happened, why it had happened, and what of that was still visible on the Panorama. Once I discovered that, the research was done. The latter, on the contrary, was not done until I could make it applicable to my Graduation Design. There was a gap between the sociology and ecology on one hand and architecture on the other hand that had to be filled in. I had to write something original. Therefore, because I had to make the research useful for my own purposes, it became interesting for other readers as well. They would not have necessarily found the same information or made the same connections in the existing literature.

3. The basic method of finding and reading literature was appropriate; it needed to be done to find an answer to the research question. I had found some sources on urban nature – which sparked my interest in the topic to begin with – before I started the graduation track that steered me in the right direction. Often when you have one good source, you can assess the literature the author has used and from there the field of research is wide open; Matthew Gandy's documentary *Natura Urbana* was that first source for me. Without it, I might not have discovered the field of urban ecology, as it is not something you get in touch with easily as an architecture student. I believe I asked the right research question and have used the right literature to come to an answer, but the theoretical nature of the research leaves a gap in its applicability to the design. Something that could have solved that issue is an experiment. We do not often conduct practical experiments at our faculty, but I imagine that a simple set-up could have taught me how to deal with topics of *erosion* and *letting the design be altered by time.* For example, by ordering a sample of several façade materials (bricks, concrete, metal, plastic), simply putting them outside and monitoring what effects nature has on them I could have gained some valuable basic insight in proper materialisation. Fortunately, similar research has been conducted so I could use those conclusions. Moreover, the built environment itself already is a testing ground for those topics and the photo study filled in some of the gaps in my knowledge of materials. Still, materialisation and detailing proved to be the most difficult part of designing a nature-inclusive building over and over again (accordingly, the 1:5 drawings are the only thing that need to be finished, while the larger floor plans and sections have been done for a while). During the design process I have come to see the building itself as the experiment. I chose to design custom façade panels that hang freely on a self-supporting façade system of columns and beams. Therefore, the panels can erode and deteriorate freely without negatively impacting the lifespan

or R-value of the building. The outer façade is a stone shell in which ruderals can grow, birds can nest and insects can find shelter without impacting the insulating and water-tight inner façade. Additionally, the façade panels are also the borders of the urban wasteland. This border is the control group of the experiment: what would happen to the panels without any heat radiation form the building and without maintenance?

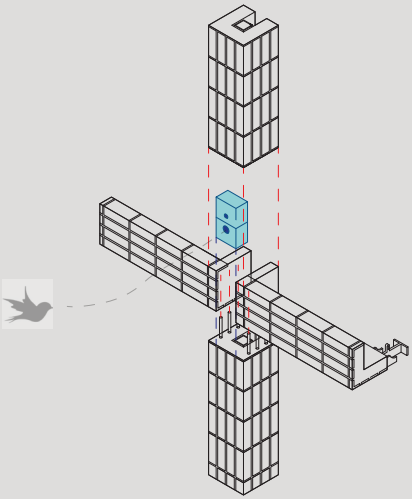
4. I do not want to reiterate the actual conclusions here, but rather zoom out and briefly look at the influence the literature review had on the remainder of the graduation track and me as an architect. The literature review was the first domino. Every other part of the research was founded on the topic and the conclusions of the literature review. It showed me both the relevance and the potential of dealing with urban nature in a certain way. Right now, I see it as a beginning to life's work; it is a direction I would like to keep following in my professional career – but ask me again in five years – both as a researcher (theory/why) and as an architect (practice/how). To return to the metaphor in the answer to question 1: the shelves have been built, now I need to fill it in with tools.

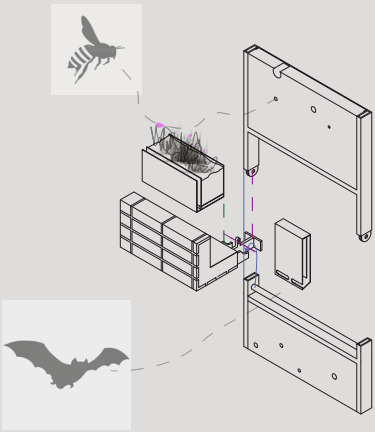
5. The first that that I wrote down to answer this question was "in fact it is the design approach", but I do need to correct myself. The main guiding theme – designing a home for people and nature – is a direct result of the literature review and echoes in the choices I have made from the largest to the smallest scale. But that home for nature and people consists of a mix of spaces where nature, people, or both can flourish. Within a dwelling, a space assigned for people, this guiding theme loses its value as it its goal is already reached. I think the design approach for this final step in making choices is informed by the idea of open forms of Sennett complemented by suggestions of my tutors. For example, the floor plans are deliberately quite open, so that people can inhabit their homes in a way they see fit. This is not inspired by the guiding theme, designing a home for people and nature, but rather by an investigation in what *home* means, or what it means to dwell. This final step, that revolves around facilitating rather than imposing, is discussed more thoroughly in the reflection on the Research Seminar, as well as in the chapter on the Research Seminar in the P2 report.

6. It is difficult to pinpoint, because this part of the research is so all-encompassing in my graduation. There are few things that aren't (indirectly) a part of this part of the research.

But I want to try to be precise. The guiding theme has obviously affected the building on a larger scale, but perhaps it is best illustrated by choices made in the detailing. I was trying to make a building that was time-resilient, which could grow into an urban biotope. A vital decision that made this possible was constructing a seperate facade structure that could erode, deteriorate and age without negatively impacting the technical qualities of the building.

By making these two seperate skins, many nooks and gaps appeared. These could be filled in with spaces for animals and vegetation.





WHY HOW

1. This part of the research is a clear example of fieldwork and can be classified as 'the experiment'. Moreover, it has heuristic nature. There was no clear indication of what the potential use or outcome would be. The aim was simply to record certain phenomena (small instances of urban nature) and thereupon portraying part of my view on reality. The choice to use photography was based on the belief that, in this case, it was a more appropriate way of documenting than a verbal description.

Nonetheless, this small photography study is non-scientific. Although a clear method has been used, there was never a clear question to be answered. Moreover, the study was not truly objective. In fact, part of its aim was to convince others of my personal judgement on the aesthetics of deterioration of materials. If we consider the research method itself, however, it can be called objective. Collecting data (photographs) of ruderal vegetation on different sites across Europe can in itself become a scientific way of doing research. If the data would have been collected more methodically and had there been additional data (e.g. materials or moisture levels), it would have become possible to draw scientific conclusions out of this strand of research. In fact, the geographer Robert Francis has conducted such a research. Based on precedent studies on wall ecology, he has constructed a framework of wall characteristics that influence the capacity of walls to function as habitat. Among these characteristics are construction materials, microclimate, exposure, wall age, pH and accessibility. Even though my own study cannot be classified as scientific, it can go hand-in-hand with research papers that are.

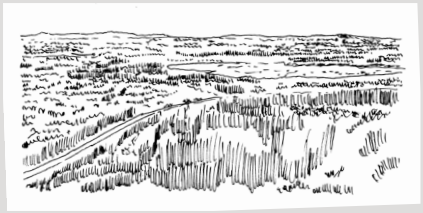
The fact that the research is not scientific does not mean it is not useful. On the contrary, in the final paper for the course Research Methods I have reflected on this particular part of the research and wrote: *"I have always been very hesitant to see any value of this everyday research in writing scientific articles. However, during the span of this course, I have become increasingly aware of the validity of various approaches. I have come to see the meaning of the term scientific not to be merely a set of restricting rules but rather as an attitude of integrity and honesty. This reinterpretation has allowed me to dare to submit this 'everyday' research as valid research. (...) In any case, I was able take a step towards a more personal research method, because of which the persistent frustration with the scientific method is alleviated."* The fact that I used this small heuristic study in the topic research (which I strived to make scientific) was a big step for me. Even though it is far from being perfectly integrated in the main research, I believe it led me to finally dare to take my own opinion on the topic seriously instead of merely repeating what other authors have said. For example, the part in the topic research on the films that criticised the so-called suburban dream was entirely my own and even though I doubted many times to include it, I am glad it is in. It makes the research a reflection of me and not just a reflection of what other authors have written.

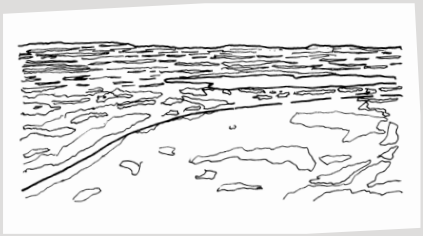
2. The sole method that was used is photography. Out of these photographs I have formed a theory, or rather a goal: the photos showed what I wanted to facilitate in the building. In that sense the method was used in an inductive way. Later on, as stated, it turned out the photos could be used to check whether Francis' theory on wall ecology was correct, thus making the method deductive as well.

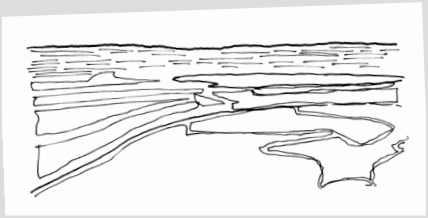
3. For the aim I think it was an appropriate method. However, it always remained a side-project; no real conclusion could be drawn. There was no urgency to finish anything. No questions were asked, thus nothing had to be answered. If I were to do it again I would set up a clearer framework in order to move beyond "pretty images", or instead clearly define it as an artistic project, but then develop it further. Perhaps analyse the photographs in order to derive some hidden layers or deeper meaning. Now it are merely images.

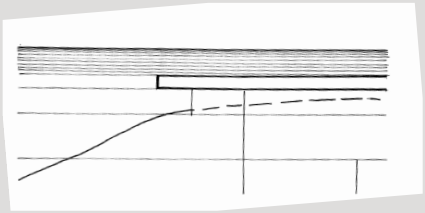
One way I have tried to do this in the past is by retracing photos several times until a certain geometric pattern appears. This was done in the course *The Delta Shelter* in which we had to make a design for an artist residence on Terschelling. By tracing photographs of the environment and stripping them down to their essential lines and shapes, a sort of architectural language could be formed that served as a base for the project.

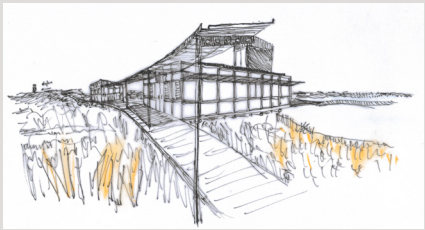
Photography is a method that is used











by ecologists and botanists more often, for various reasons. It is worthwile to quickly reflect on the way other researchers have used photography in their work in order to gain a better understanding of the role that it can play.

One example is the recent documentary *Natura Urbana: the Brachen of Berlin*, in which Matthew Gandy explores the agency of film in scientific research. According to him *"film can express the versatility of nature in a way that a text cannot achieve"*. His goal was to make the vast amount of research on urban ecology more accessible and appealing for a broader audience. Indeed, the aesthetically pleasing scenes that are accompanied by the sound of wind in the trees, chirping birds and buzzing insects tell a much more engaging story that any scientific article can do. Additionally, interviews with passionate botanists and ecologists include an emotional value, and modern electronic music accentuates the fast-paced adaptability and diversity of urban nature. In this sense, scientific research becomes a tool to make a plea and results in a more subjective outcome. No hard data was presented, but rather the qualitative aspects of this data.

Another example comes from the French artist Paul-Armand Gette, who was invited by Berlin's artist in residency project in 1997 to carry out a project on the spontaneous vegetation of the city. His exhibition of photographs marked an ironic critique of earlier forms of botanical science that tended to ignore non-native plants or regard them as a threat to

Robinia pseudo-acacia L. (Nordamerika) Askanischer Platz, Berlin-Kreuzberg

Ailanthus altissima Swingle (China) Voltastraße, Berlin-Wedding

Robinia pseudo-acacia L. (Nordamerika) Burgstraße, Berlin-Mitte

Ailanthus altissima Swingle (China) Oranienburger Straße, Berlin-Mitte

Galinsoga ciliata Blake (Südamerika) Steinplatz, Berlin-Charlottenburg

Left page and top - Photographs of the 1980 exhibition *Exotik als Banalität* in the Daadgalerie in Berlin by Paul-Armand Gette.

Above - Image of the Steinplatz in 2017. The adventive plants have been replaced by native species.

narrowly defined cultural landscapes. It's interesting that the field of art, capable of showing a different view on reality through images, convinced the public of the value of non-native plants. Photography has the capacity to effectuate change and is a powerful tool to accompany any scientific article.

A final example was shown to me by Theo. Apparently, something called 'botanical chalking' has become trending during the Corona crisis. With the help of an app, that can determine a plant species by simply taking a picture, people walk around their neighbourhoods as if it were an exploration, marking the newly determined species with a text in chalk. Jasper Enklaar writes in NRC that "the strict whittling regime is something of the past. Whether it's due to ecologic maintenance or budget cuts, it results in more attractive streets. The genie's out of the bottle, as the plants and herbs will sow themselves and will grow and expand relentlessly." Several wild species, which are known to be critically endangered, have been found in our urban wilderness. Cities turn out to be an ideal biotope for bewilderment. In this case, photography is the tool that facilitates a hobby; a hobby that brings people closer to the natural world around them and makes people realise that nature is in fact right at their doorstep. This way of documenting would have been beneficial to my own research, as it adds another layer of data to the photographs.

4. It seems that my own research has marginally answered both

Top and above - Botanic chalking.

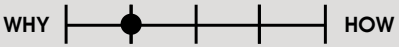
Enklaar, J. (2020, May 28). Op de stoep groeit meer dan onkruid. *NRC,* Retrieved from: https://www.nrc.nl/nieuws/2020/05/28/op-de-stoep-groeit-meer-dan-onkruid-a4001066

why and how we should make a building into an urban biotope. The former can be answered by simply showing some of the photographs and figuratively exclaiming "Don't you want this too?" or "Isn't this beautiful?". The photographs are part of an argument. They portray the diversification of urban environments as a result of nature, as well as the inevitability of it. With the pictures, I could (hopefully) convince the audience of the aesthetic value of urban nature. The latter (how) can be answered by the entire set of photographs, which promptly reveals the types of materials that plants prefer. Ruderals mostly grow on stone surfaces (besides, of course, soil). The reason for this is that stone tends to crack as it ages. Within these cracks, nutrients and soil will accumulate and serve as an ideal base for a plant seed that is carried by the wind or dropped with animal feces. It is worthwhile to note that the vegetation is just one part of a larger natural process. The cracks in the stone don't appear by themselves, but are made by, for example, moisture within the stone which expands when it freezes. In a similar fashion, the soil doesn't appear in the cracks by itself but is brought there by the wind. It is the entirety of natural processes that constitutes the possibility for ruderal vegetation to grow. This is where the definition of nature posed in the research report truly falls into place.

5. The main consequence of this study is that it showed me what I wanted to facilitate: spaces for nature to develop which become details or ornaments of the building, thus making the surfaces of the building more engaging. The study led me to think of the building as a large rock that should be robust, durable and time resilient. I felt the need to provide horizontal stone surfaces for ruderals to grow on, as well as the need to design the building in such a way that it would not break down if it would ever 'crumble'.

I still remember one of my first lectures I attended as an architecture student at the faculty. The lecturer was Herman Prast and he spoke about Carlo Scarpa's Brion Cemetery, of which Scarpa supposedly had said that it would become even more beautiful as time would pass. This has made such a deep impact on me that I remember it until this day and for the first time in my architecture career I think I say the same words Scarpa did about a design of my own. Although the small photo study did not produce results with any scientific value, I don't want to underestimate the influence it had on the way I have come to perceive the urban environment.

6. The only tangible impact that this study has had on the building is found in the choice for the materialisation. Most of the facade is covered in brick and concrete, because the photography study has revealed that they age well. Especially brick, due to its rough surface and capacity to retain moisture, is an ideal breeding ground for ruderals.



1. Within our broader research for P2, the case studies were dubbed as being *the experiment*, referring to a typical research structure in which a hypothesis is tested by, for example, conducting field research. Van Der Voordt defines the experiment in academic research as *"a type of research in which one takes measurements and subsequently makes changes to the original situation, after which new measurements are taken."* The goal of an experiment within a research setting is, as mentioned, to prove or falsify a given hypothesis: how does my theory hold up in the real world? In our case, or at least in my case, I believe the experiment did not take such a central position in the research. Instead, it was a strand of research that could stand on its own. What then, was the aim and the value of this experiment?

I believe that the aim of the case studies was not so much to test a theory, but rather to find examples of projects that revolved around a similar theme and/or target group. We did not conduct the experiment in order to optimise the results but were rather looking around at what was already there. Through analyses of several buildings, we were confronted with new aspects of our themes and target groups: creative solutions, flaws and deficits, and some sense of the appropriate sizes of, for example, dwellings, circulation space and public space. This immersed us in a pool of possible solutions and pitfalls, allowing us to copy, adjust or reject precedents.

If we come back to the point posed in the first paragraph, the notion that the experiment serves the purpose of proving or falsifying a hypothesis, we will find that this is not the whole truth. The experiment can also be used as something from which a more general theory can be derived from, thus being inductive (instead of deductive). Using case studies for theory building is not uncommon within architectural research (which we will see in the answer to question three). Were my case studies an example of an inductive experiment? Not entirely. I believe it has characteristics of both deductive and inductive research. Because they were analysed at the same time as the topic research was conducted, there was not yet a full fletched theory to be tested, nor a blank gap that needed to be filled in. Instead, there was an outline of a theory, still open to adaptations, but not so undeveloped that the case studies could be a starting point.

2. Groat & Wang define case study research within the architectural field as: *"an empirical inquiry that investigates a phenomenon or setting."* They argue that case studies, like experiments, can be explanatory and suggest that they can also be descriptive and exploratory. Whether a particular case study is one (or more) of the three, depends on the nature of the research question. Following their argument, my case studies are mainly descriptive, but show characteristics of the other two aspects too. My efforts to describe a certain aspect of a building were eventually aimed at exploring its qualities and explaining why it was there. In the end, I could assess whether I wanted to implement a similar aspect into my own design. In hindsight – had I been aware

of this structure – this could have been beneficial to structure the four subchapters of the case study.

The primary method to find an answer to the question that was posed in the case study research – *In what way do other buildings that are meant for solo dwellers relate to nature?* – was making analytic drawings. I typically made a few drawings for each building on an urban scale (around 1:500) until a certain relation between nature and the housing project was revealed. This drawing was the base for further inquiry. Some buildings demanded an analysis on the scale of the dwelling (1:50), others were more interesting on the scale of the 'community' (1:200), yet others absolutely required an elevation rather than only floor plans. In addition to these analytical drawings, photographs were used. Not only did they serve as an important data source for my own research, they could also convey certain information far better than any drawing could. Besides that, it was a very fast method as it required little work from me. Thirdly, every building was introduced by a piece of text, familiarising the reader to topics as historical context, intentions of the architect, and the reason for my own interest in the building. Finally, I gathered and calculated some generic key figures on the building: date of construction, plot size, typical dwelling size, number of dwellings, et cetera. In the conclusion, the buildings and their relation to nature were portrayed as diagrams, giving a simple overview of the basic strategy on how to incorporate nature (or vegetation) in the design. To return to the previous paragraph: this structure is rather unorganised. It is a pile of ideas instead of a clear, progressive line.

3. Given the limited amount of time that was reserved for the case studies I think the methods were appropriate. I would not change a lot if I were to do it again (besides the aforementioned improvements to the structure). However, I am also aware that I have focussed on one specific quality of the buildings (their relation to nature), disregarding topics like circulation or daylight access in the process. I would have liked to make sketch-models of all four housing projects, in which I could have researched other topics more adequately. But, in essence, I have gathered the information I wanted to gather back then.

In order to find out what a more extensive case study can mean to a research, we will very briefly go over a famous example: Jane Jacobs' book *The Death and Life of Great American Cities.* Her insights about how to maintain and foster the vitality of cities are derived almost entirely from vignettes of life in New York City. In her introduction she writes: *"In setting forth different principles, I shall mainly be writing about common, ordinary things. (...) The way to get at what goes on in the seemingly mysterious and perverse behaviour of cities is, I think, to look closely, and with as little expectation as is possible, at the most ordinary scenes and events, and attempt to see what they mean and whether any threads of principle emerge among them. (...) I use a preponderance of examples from New York because that is where I live. But*

most of the basic ideas in this book come from things I first noticed or was told in other cities." Jacobs' study is a preeminent example of the case study strategy; she uses the example of New York City – as a particular case – to explore the multiple socio-physical dynamics that contribute to the vitality of urban life. This bottom-up approach has led to an inductive type of research, with the particular case of New York City as the heart and soul of her study. Jacobs' research surely transcends any of the case studies we are required to do during our education at the faculty – not only because of her obvious advantages of having more time and experience – because her investigation is substantially linked to a multitude of contextual factors and phenomena: from the rise of the automobile culture, to federal funding policies, to trends in planning theory. In other words, a case study acquires more academic legitimacy as it becomes rooted in its larger context.

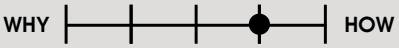
For my case studies, I have investigated urban context, but largely skipped, for example, social, cultural, economic or political context. One way in which I can imagine that the case studies could have been more valuable, is to have spent some time studying the meaning of a case study and look at examples: a small case study of case studies. Although we are ought to know how to conduct a proper case study, I believe this type of research is very subject to 'cherry picking' – deliberately choosing the aspects that are most valuable and might make your research seem excessively positive. As a result, more negative aspects may be overlooked or deliberately neglected. In my case - although I would hesitate to say I have done it on purpose – one aspect that is overlooked is the increased cost of constructing and installing nature-inclusive parts of the design. I remember that Édouard François, the architect of Eden Bio, wrote that the particular soil that was needed for the vegetation on the plot was several times more expensive as regular soil. He proclaimed that it had paid of its investment (which, of course, he would say as the architect) because the plants were growing very fast which made the building more attractive. I have not considered construction cost as a main aspect of my graduation project. It is not where my interests lie and I believe (perhaps as naively as Edouard François) that an investment in the quality of a building will pay itself off. Still, the case studies could have been a warning or a reality check if I had pursued the topic of construction costs instead of cherry picking my way through.

4. The case studies were particularly helpful in answering *how* to make a nature-inclusive design, although they could not provide a solution on how to make *my* nature-inclusive design. They served as examples and inspiration, but I stumbled across completely different issues and challenges than I have found in any of the case studies. In the end, the case studies were more of a catalogue of solutions and examples to browse in rather than an instruction manual of how to construct such a solution.

The second common denominator of the case studies, the fact that they were all meant for solo dwellers, leaned a bit more towards being the instruction manual. The sizes and configurations of dwellings and the way they were linked and stacked were initially simply copied in the design workshop. Especially the dwelling plans of the Olympic Village Student Housing project and the general structure of Sainte-Marie de la Tourette have had major impact on early design choices, which are still found in the building (see question 6).

5. Based on Le Corbusier's monastery La Tourette I started to design a simple building structure that could be filled in with basic units. One of these units resembled the monk's cells of La Tourette, which were altered and enlarged later on, another was the duplex house of the Olympic Village Student Housing project, which is still quite recognisably present in the final project. I believe that the strength of such an approach is that the building becomes quite simple and comprehensible, thus allowing more freedom in the design at a later stage. An exception or a highlight can easily be added to a simple grid, but is much more difficult to implement in a structure that is chaotic from itself – how would you even recognise an exception in a structure that is made up of exceptions? Starting with a simple building structure also creates order and hierarchy. First there are the construction walls and floors, in between them are the dwelling units, and in between those are the circulation spaces and common spaces to serve the dwellings. These dwelling units can easily be altered later without changing the basic structure of the design, which would require you to rethink the complete project.

6. There are many things that made it into the design. From hofje van Brienen I've learned the value of a semi-private space in front of the house which people can use to put a bench. From Eden Bio I have learned how vegetation can be used on the facade and as infill for 'streets'. The car-free street is a good example of that, although the vegetation I envision is more wild and far more accessible that that of Eden Bio. From Le Corbusier's monastery in Eveux I was inspired by the simple structure and the large communal spaces, but rejected the monastic monk's cells. My dwellings needed to be bigger to offer the solo dweller a life of freedom, not restrictions. The floor plans of Munich's student housing are quite recognisably present in my design, because they were open and optimised for a single-person household.



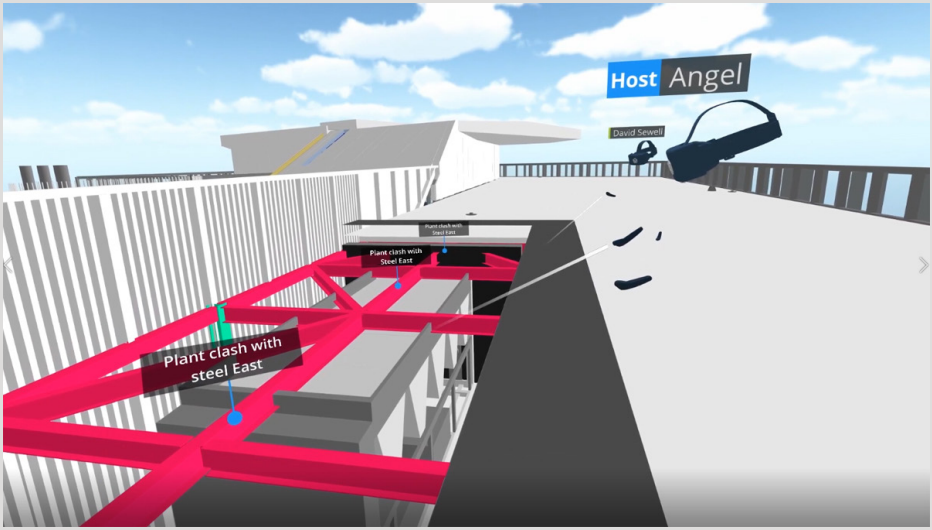
1. The course *Research Tutorial*, of which working with Virtual Reality (VR) was a part, can be divided into two parts, each using a different kind of research. The first revolves around creating the virtual environment, in which I have researched how certain spaces, planes and volumes are experienced from bird's eye view and eye level perspective. Within the faculty, it relates best to the chair of Formstudies. In a broader sense, this research belongs to the field of phenomenology, as I wanted to discover in what way certain spaces appeared to a potential user of the building. Nonetheless, as is discussed in the P2 research report, I believe research within a virtual environment must be treated fundamentally different than research within the 'real' world. Phenomenologists could easily refute the notion of VR research being part of their field, as there is no way to actually touch or smell the virtual world, aspects that are at the core of a sensory experience.

A more appropriate way of classifying this research is found in the work of Groat & Wang. Within their framework of architectural research methods, research which uses a virtual environment matches what they call simulation research. In essence, simulation research revolves around the idea of modelling specific scenarios, either with the aid of a computer, or a scenario played out in real life (for example, using actors to test the evacuation time in a building).

The second part of this research is more of a behavioural study. People could wear a VR headset and walk around in the virtual environment I had created. I could watch their movements and facial expression, as well as their view of the virtual environment. The intention was to find out whether people would move and behave freely in a space that offered many options, or if all people would eventually perform the same activities and take the same route. As discussed in the P2 research report, no real conclusions could be drawn from this study. But what is interesting to note is that both parts of the research are an example of simulation research. My own input as a designer and the input from the way people behaved in and responded to the design could have been an interplay that followed a simple cycle: test design > improve design > test > improve > and so forth. I believe this is a research method that should have been pursued, as it could have strengthened the design of the urban wasteland in a much earlier stage.

2. The virtual environment was modelled in ArchiCAD and rendered in Enscape. It was altered and improved by my own assessment with the help of the tutor Sven Volkers, who took on the role of respondent during the tutoring sessions. The behavioural study was done by means of filming some of the respondents and taking notes as they were immersed in VR.

3. I believe that if the two parts of the research would have been more intertwined, the results would have been far more interesting. One of the major problems was the fact that most of the



Above - Integrated use of VR by Perkins + WIll

Say, A.. (2018, October 1). How Perkins+Will London is Using VR to Improve Coordination Meetings. Retrieved from: https://blog.insitevr.com/how-perkins-will-london-is-using-vr-to-improve-coordination-meetings-964148a51e-cdan-onkruid-a4001066

respondents had already seen one or two other respondents within the virtual model. Therefore, they knew what to expect. It should have been a more gradual process, however it would have been difficult to do this within the short time of the course.

At some point during the course, I felt a lot of frustration since I was spending a lot of time to dress up the virtual model to make it feel more real. In my opinion, it did not feel like the work an architect should be doing. In order to answer the question I posed for this research (How do people behave in urban wasteland?) I might have gotten more reliable data output by visiting a real wasteland while methodically writing down what kind of activities were taking place. Perhaps the core method/task of the research (investigate something while using VR) was unfit to answer this question.

I could reflect on the way fellow students have used VR in order to find out how I could have used it in a more appropriate way, but I feel I might be biased and start repeating the same criticism. Instead, I'd like to reflect briefly on two examples. The first is from a student architectural studio at the University of Washington, where researchers studied the use of virtual reality imaging technology. Early design ideas were programmed so the spaces could be experienced virtually. Interestingly, one result was a return of interior design as a primary architectural task: *"The use of VR early in the design process forced the detailed development of the interior space as much as the exterior. By having the opportunity to "go inside" the design and see it from within, the designer*

was forced to solve complex connections and details which would not have been apparent with other media." Curiously, I remember nearly everyone in our group to have used VR for the (design of) the exterior of the building. Maybe this is a result of the stage in which the course was offered, but we might have missed out on one of the major benefits of VR.

A second example comes from professional practice at the firm Perkins + Will. They use VR as a multidisciplinary platform in which all different building experts can collaborate in order to come to optimal and integrated solutions. This way of working could have been very beneficial to my own project, as it is difficult to imagine the location of all building systems spatially. I have had several instances in which I discovered flaws in the building: shafts going right through the elevator or something as thoughtless as a stair landing on the façade instead of the corridor. A virtual walk through the building would reveal these mistakes instantly but they can be easy to overlook on 2D drawings.

4. The behavioural study produced no real results. However, the spatial study did have some impact on the project. As I'm writing this, I'm in Berlin, seeing some of the *brache* out of the documentary in reality. It strikes me that although the green spaces are very nice, they are typical of Berlin, not of Amsterdam. Perhaps that's what I've felt when designing the building in VR. The first idea (barely more than an empty rectangle) just did not match my view of a highly urban residential area in Amsterdam. The VR workshop did change some essential aspects of the design of the wasteland, making it more a part of the building rather than a leftover space. As such, designing the wasteland with the aid of VR imaging technology helped me to translate what I've seen in the documentary towards a slightly classier space. The wastelands should have never been a 1:1 copy, because the causes which constitute their presence are vastly different. In hindsight, the VR workshop was a first step towards answering the question as to how I could design an urban wasteland. Perhaps, due to the limited capacity of Enscape to show a bewildered landscape, working in VR required me to search for alternative solutions.

5. It shifted the projected design of the wasteland as a non-brainer to something that had to be designed with the building. At first, I thought I had created a 'get out of jail card', gifting myself a sort of *anything goes* approach (because by heart it's a leftover space, why should I have to do anything about it?). It quickly became evident that this position could not be defended; it was too simple. This shift can be illustrated by the way the rooftop was initially intended and the way it developed during the VR workshop. In short, I believed that a wide-open rooftop could do miracles for the building (anything goes, just see what it will become). But once I got on top of it within a VR environment it felt dull. Why would anyone want to climb four stairs to be there? Should the inhabitants alone be responsible for the liveability of the roof?

This was too simple. In all honesty, if I truly look back on the reasons behind altering the design of the rooftop, I think I added things to the roof just to get the VR exercise done. The rooftop was a bit dull, especially in VR where surfaces are rendered quite flat. In order to solve this, I just started adding some things. A few volumes, a dwelling, a staircase to the tower: just to make the whole route more interesting. In the end I found that many things came to stay, and I believe it has been a good thing. I'm only just discovering this as I'm writing this down, and I think it has had quite some impact on the general design approach. I would not have gotten away with the *anything goes* technique. Even ideas that revolve around natural development need to be, in a way, designed.

6. The main result of the VR workshop is discovering the validity of the urban wasteland and how to connect it to the building. This resulted in the stairs that lead to the rooftop. There needed to be a fire escape on that side of the building, but instead of incorporating inside the building, I made the fire escape publicly accessible so that it provides an extra 'option' for visitors of the wasteland.

A second and perhaps more important feature of the building that finds it roots in the VR workshop is the rooftop village. Because of the choice to make the rooftop accessible (also a result of the VR workshop), the rooftop needed to be designed. The simple fact that our tutor Sven Volkers, who would test my VR model, needed to see something interesting once he followed the route to the rooftop made me add a few houses on the roof. This was the conceptual base for the Type D typology that form the small rooftop village.

1. The course revolved around the book *Building and Dwelling: Ethics for the City* by Richard Sennett. It is difficult to pinpoint what type of research we have conducted exactly (maybe a critical discourse analysis, with the book as a case study), but to me the central idea or goal of the course was about positioning oneself. Reading Sennett was a way to become familiar with one position – a position that holds special significance within the Dwelling studio – but more than that it showed me how to build up my own position. Scientific research, generated by various disciplines, could be used to formulate and strengthen personal ambitions. The course allowed me to write and think more feely. My position as an architect shifted, from something that had to be found and copied from within academic literature towards something that is more personal and can be backed up by academic literature. It is the combination between a wide range of academic literature and a sort of 'gut-feeling' that can become something powerful and has the capacity to bring change or progress. I feel like I have not always taken my own gut-feeling or position seriously when it came to writing academic papers during the BSc or MSc, but I realise now that my position has been formed while studying in an academic institute for several years and, therefore, has value, too.

2. During the span of the course, we have had weekly discussions, made several case study analyses, and have written several reflections. This was done to fully grasp the extent of Sennet's position and argumentation on city planning. Hereafter, we had to accept, adjust, add to or decline Sennett's position and subsequently formulate our own.

3. Yes, I feel like I've gotten a lot out of this course. The way I speak, write and present has changed. I have become more precise, more free, more in line with my own thoughts and beliefs – trusting that they have value too. The main portion of the course was about understanding *why* Sennett's view of the city was an appropriate view (or not), but we have also spent some time to understand *how* this should be accomplished by analysing Sennett's solutions and generating our own.

4. The course informed the approach for the topic research, and to a lesser extent the way I approached the design. In general terms, the course introduced a sense of experimentation in both processes. I think that the open forms I conceived which included nature in Sennett's idea of the open city are the clearest example of this. Put simply, I (1.) had a preliminary idea of my position (making cities open for people and nature), therefore I (2.) needed to have specific design ideas (the open forms, e.g. the urban wasteland), but instead of simply implementing them they (3.) needed to be researched. In this way, a position can equal a sort of guiding theme within the entire graduation process which provides a specific goal for both the research and the design.

5. Besides the aforementioned aspects, I started to add more value to the openness of the design: creating spaces that people could use and alter. Homes had to become distinguishable, bearing traces of inhabitation. The main structure of the building is quite rigid, but by implementing what Sennett calls borders (not boundaries), the opportunity occurs for people, and nature, to claim and appropriate space. In this way the specific details of the building are bred and grow over time. The building is not done when construction is finished. Instead, it is in constant state of change and becomes part of the organic growth of the city. The building is a micro-ville that allows for an open cité.

6. This part of the research stands out for going 'full circle' from why to how. Perhaps because the course was so inherently linked with the book of Richard Sennett. Sennett also spent a lot of time investigating why, but finally proposes solutions. In his own way, he tells us how. What helped even more is that our tutor, Mo Sedighi, thaught us to be very critical of what Sennett wrote. Mo and I agreed that the solutions that were suggested in the book were quite marginal, vague and too conceptual to use as hands-on tools. Mo challenged us to come up with our own solutions, that suited our own position. I refer the reader to the chapter on the Research Seminar in the P2 report, where all exact solutions or *open forms* are described. The most impactful part was including nature in what Sennett calls the Cité. Understanding nature as an inhabitant of the city, one who leaves its own marks and traces, made me approach the building in another way. Nature got its own place within the building.

Below - Render of the building, showing how nature has its place in the car-free street as well as on the facade and on the rooftop.

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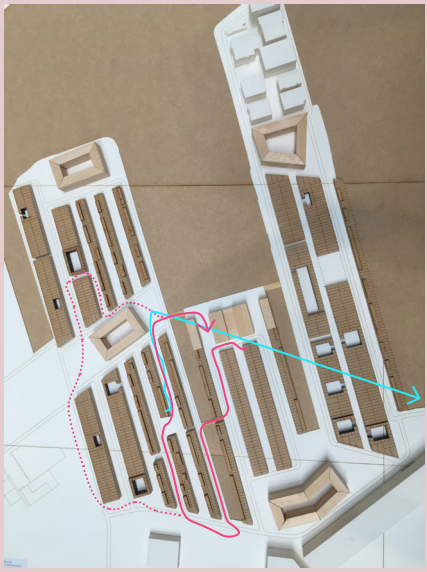
Reflection on... Design by writing

This chapter is the odd one out in this booklet. *Design by writing* is something that I have previously used and explored in the Methods & Analysis MSc1 Studio and intended to use in my graduation project, but due to other more pressing obligations I never finished the work. The idea was to write four short stories about people who live in or nearby the building, or interact with it in some kind of way. The premise is that the stories are not particularly about the building, but rather about people who happen to interact with the building in a certain way. In this way, we can discover specific ways of living that the building might facilitate.

Design by writing is not just about exploring and describing things that might happen, but also about giving feedback to the design. This is best illustrated by an example. Say, a character is wonderfully joyful and wants to run out os the front door to dance on the street, there would need to be a street that is safe for pedestrians to walk or dance on. What of the building would be surrounded by busy streets? Would that be a design flaw? Would I rob the character of such a joyous act? By exploring what *might* happen, a design can become more well-rounded and more suitable for various situations.

Unfortunately, the stories are incomplete. The intention was to write about characters whose storylines would connect in minor or major ways. As of now, only two of these stories are done. The first is about an inhabitant of the building, Sufyan. The second is about Jos, who lives a few blocks away.



Jos' route
Jos' usual route
Sufyans route

THE TALE OF SUFYAN

Sufyan Aloui was woken up from a deep slumber by a barking dog at exactly 7:26 A.M. It was his day off. He was agitated. Daylight had already seeped through the opening between his curtains, creating a sluggishly descending stroke of light that was just moments away from reaching his desk. It was a simple and well-organised desk. In fact, Sufyan's whole room was simple and well-organised. He took pride in this, as it was so different from the disorderly home he grew up in. He took pride in this, because he felt he had achieved this all by himself. It was his own subtle way of rebellion against his parents, whom he loved very much but, in his eyes, never achieved something noteworthy. He had. After obtaining a master's degree in civil law, Sufyan had worked tirelessly and was recently awarded an executive function at a law firm at the age of twenty-nine: something that was unprecedented at his firm. He took pride in this and arrived thirty minutes early, at 8 A.M. sharp, every single morning. But not today. Today was his day off. And he was agitated because he was awoken by a barking dog.

There was no point in trying to get back to sleep. Sufyan was wide awake. Right as the stroke of daylight was about to touch the wooden surface of the desk, Sufyan lifted his covers and opened the curtains, transforming the stroke into four separate rectangles, one for each of his windows. He opened the door to his balcony in order to smoke a cigarette and noticed a smiling middle-aged man with his dog heading towards Minervaplein. Sufyan watched as they passed the wooden benches and the flowerbeds of his neighbours, which divided the public realm of the street and the private homes of his neighbours. Sufyan was the only person in his block who did not have a bench in front of his house. He would rather sit at what he called his *garden*. This garden was in fact a tiny patch of public greenspace, intentionally left to be unaltered by park-keepers. The space was bordered by two high building walls on opposite sides and several panels constructed out of metal and stone on the other sides. These panels also hung on the façade of his ground floor, seemingly making the greenspace part of his building, therefore he called it his garden. Last summer, someone had placed a picknick table in it, which Sufyan used regularly. On a warm and sunny summer evening he had invited his family over for dinner, which they had enjoyed together at that picknick table. Sufyan's mother had made her famous chicken tajine. Sufyan too had wanted to contribute and spent some time trying to make charmilla. His mother, who had arrived early to make the tajine, had swiftly pushed him aside because he had *"obviously thrown in the red peppers too early"*. Sufyan was not allowed to come near the stove for the remainder of the afternoon. Instead, Sufyan had patiently waited until his younger brother Yassine arrived. Yassine was a scrawny boy who, despite the example his big brother had set for him, preferred to spend his time hanging around aimlessly (at least in Sufyan's eyes) with friends. Yassine had

brought some cans of graffiti and before meeting up with his brother sprayed one of the walls surrounding the greenspace. Just as Sufyan excelled in the work he did, Yassine excelled in artistry. But unlike Sufyan, Yassine had not proven himself yet. Yassine was afraid to tell his brother about his work, because he knew Sufyan would think it was useless. Sufyan would never make time for anything that was not valuable for his career. When Sufyan asked what had taken Yassine so long, he answered: "I was with friends", reaffirming Sufyan's belief that Yassine wasted most of his time. Later that day, however, when the family enjoyed a fragrant lunch in the garden, Sufyan had noted the new mural on one of the walls. He felt great admiration for the painting, which was clearly made by someone talented and hard-working. Just as he was about to express his admiration for it, he was interrupted by his uncle Mounir, who had just picked a light blue flower from in between the grass and recognised as a native Moroccan species. Mounir, or Uncle Mo, still lived in Morocco but visited Sufyan's parents every year since they had moved to the Netherlands. Sufyan had come to know him quite well over the years. Sufyan knew that Mounir could never be still, neither his body nor his mind ever appeared to be resting. When Sufyan was young he used to sneak down the stairs to the living room at night to secretly eat the crumbs off the plate of baklava that his parents kept in the fridge. During Mounir's visits he slept on the couch and Sufyan had to be extra careful not to wake him. One night, Sufyan accidentally tipped over one of Uncle Mo's suitcases and instantly looked at him to see whether he was still asleep. In that moment, Sufyan heard a soft, low, humming sound. Unable to determine its source, young Sufyan was sure it must be coming from Uncle Mo, whose head was apparently still grinding thoughts in his sleep. It had made such an impression on Sufyan that he promised himself that he too would be working both days and nights, if that was what it took to become successful.

Sufyan had held up to his promise. In fact, it was not the barking dog that kept him out of his sleep, but his own mind that needed just a nudge to arise from its usually light slumber. Once Sufyan finished his cigarette and had repeated his day schedule to himself – get coffee at café, take metro to pick up Uncle Mo and drop him off at parents, don't be late to help cooking – he decided there was no more time to waste and got out the door. Sufyan could have noticed that his street was still empty at this time of day and the only proof of time not having frozen was the buzzing of insects, the rustling of leaves in the soft summer breeze and the swift-paced shadows of the birds above him in the trees. At the edge of this scene, a light went on which illuminated the living room of a woman dressed in robes, who was on her way to the coffee machine. This woman was the only person in her circle of friends that wasn't either a mother or soon-to-be a mother or even thinking of becoming a soon-to-be mother. This had made her feel isolated, and she had made a conscious choice to put more effort into meeting a partner. Her house was lifted half a floor height above street level, which allowed her valued privacy, but she suddenly felt she needed to walk

to her window and look outside. She saw a handsome, North- African man on his way towards Minervaplein. Sufyan could have looked to his left and looked in the eyes of this woman, which could have made him want to get to know her. But Sufyan didn't notice her. Sufyan didn't notice anything. He was compulsively repeating the recipe – remember to steam the courgettes first, then add a handful of cilantro.... – for tonight's dinner in his head. After his mom had criticised his cooking skills, he decided to be better. He couldn't stand to not be the best at something. He discovered that there were bi-weekly dinners in the common room of his building. These dinners always attracted many elderly women who lived in the smaller studio apartments on the higher floors of the building. They would usually help Sufyan picking fresh vegetables on the rooftop greenhouse, and afterwards criticise his cooking skills. But not tonight, Sufyan thought. He would make the perfect chicken tajine. If only he could remember his mother's recipe exactly – add whole peppers to a hot pan, stir and fry for three minutes, then add chives... – Sufyan was determined not to fail. Sufyan could have been startled by the sound of an opening door, in which a woman in robes appeared who hoped to catch a glance of Sufyan. Sufyan could have been warned by the fact that the café wasn't open yet – and wouldn't be for another two hours. Something about the absence of sounds and movement on Minervaplein could have made Sufyan realise he was not yet supposed to be there. But Sufyan did not notice anything. Only when he arrived at Schiphol, after repeating the recipe over fifty times, he noticed Uncle Mo wouldn't arrive for another two and a half hours. Sufyan felt angry and sad, sad to know he would have to waste two and a half hours in a place with nothing to do but repeat a recipe; sad to have wasted his day off. He decided to take a rest and sat down on a bench. Next to him was a man, who briefly looked up, smiled, and continued to read his paper. Only moments later he looked up again, trying to determine the source of a soft, low, humming sound.

THE TALE OF JOS

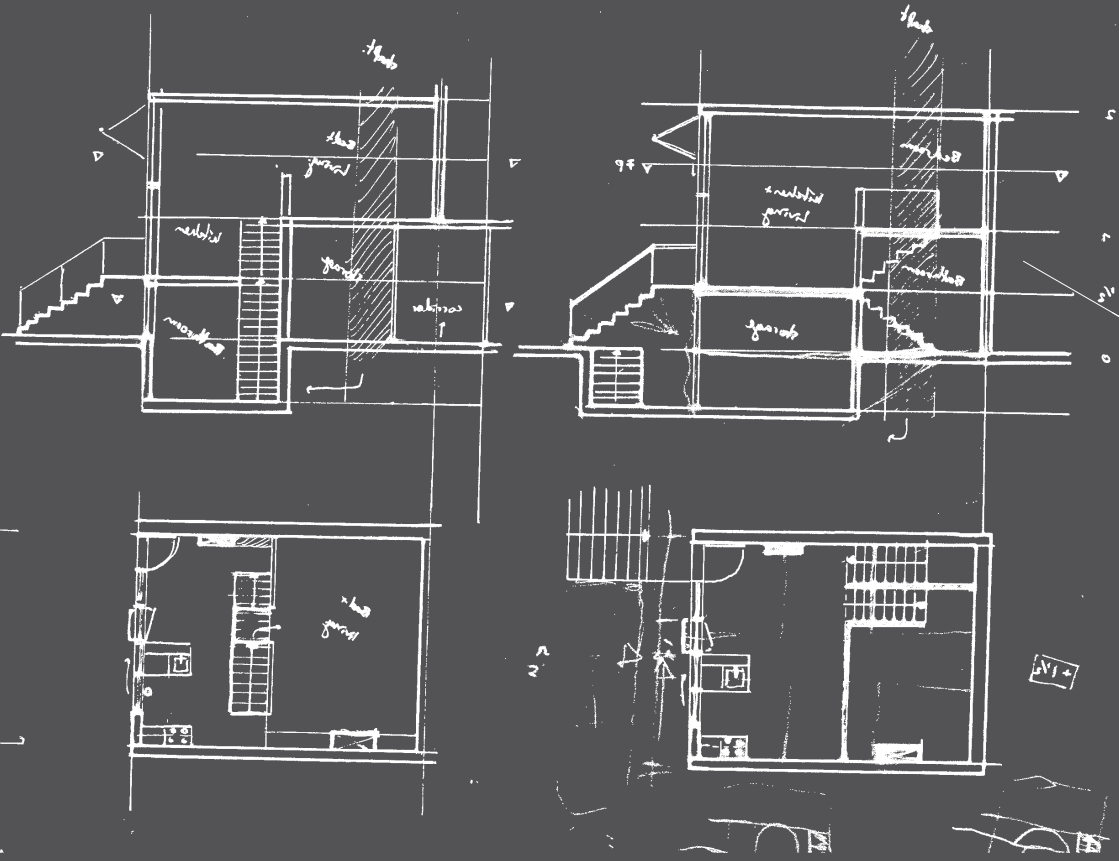
"Not again." **Jos didn't move.** *"Maybe it's a dream. A few more minutes."* He heard his wife groan, a sound she would make every morning; her way of saying he needs to get out of bed. He deactivated the alarm and quickly put on his trousers and a plain white shirt, his usual outfit. He could already hear the whirring sound of the coffee machine downstairs. Jos was so satisfied with his new machine. The salesclerk told him about the timer on the machine, so his cup of coffee would be ready right after he woke up, 7 am, every morning. Jos even bought a special

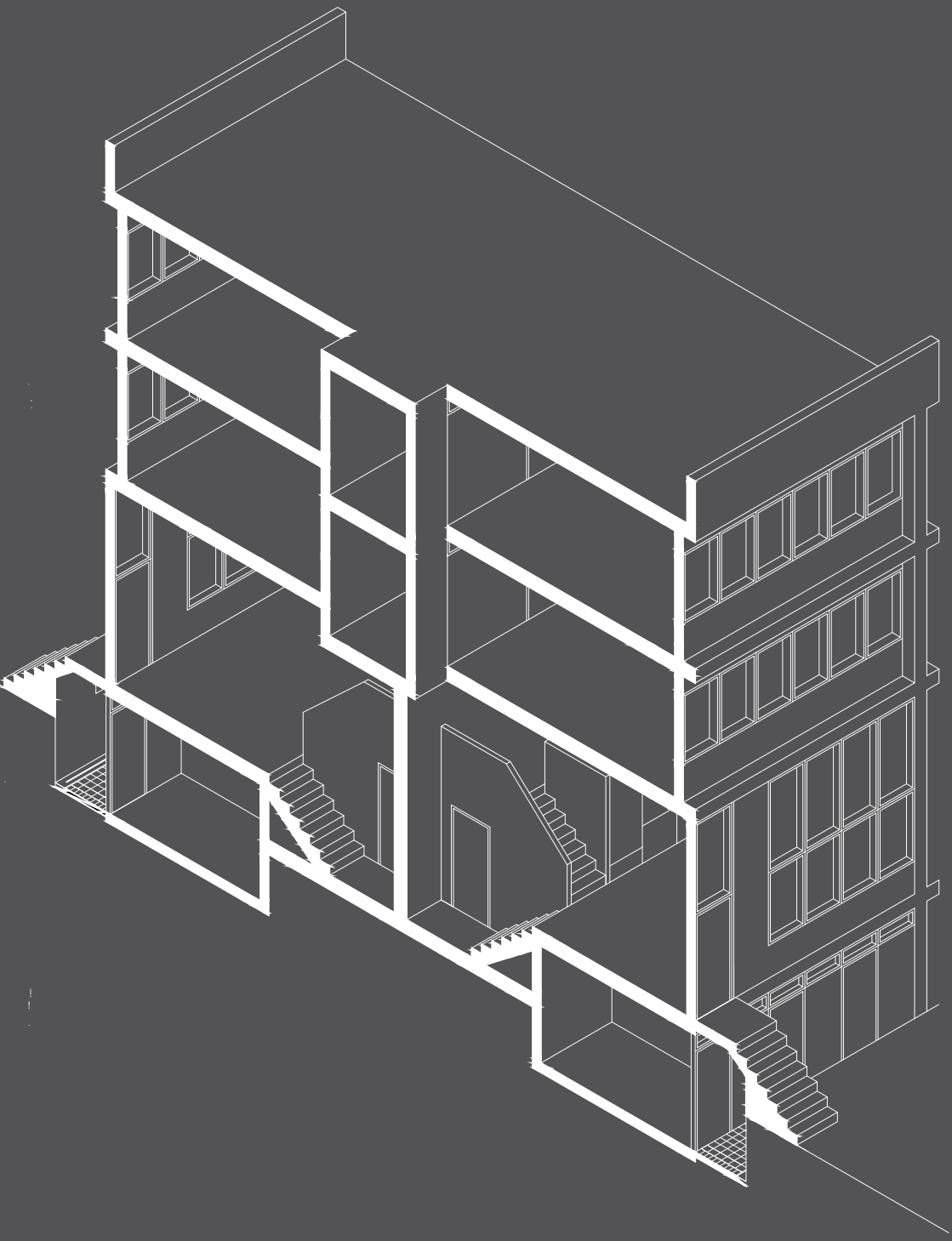
kind of beans (imported from Venezuela) which made every morning a little more extraordinary.
What Jos didn't know was that his neurotic need for routine was the very reason he felt as if he was going in circles. The patterns he had set out for himself, intended to give stability to his life, had instead become like a steel-fibre diver's suit. The thing that was meant to protect him was slowly dragging him down into an abyss where life could take no shape. Jos didn't realise that drinking the same special coffee every morning would gradually make it a very regular coffee, and the exciting novelty it had at the moment would cease to exist.
Jos had barely noticed that Max, had already been jumping and running around the living room for several minutes. It was time for his morning walk. Jos took the leash out of the kitchen drawer, strapped it on Max and walked out the front door. As Jos closed the door behind him, his neighbour Gerard spotted him and wished him 'a very special day'. *"Who does that? Who in their right mind wishes someone a very special day?"*
"A special day to you too neighbour!"
"Stupid. Why did I do that?"
Jos quickly mumbled an inaudible goodbye to Gerard and set on along his usual route. Jos had divided his route into smaller sections, leading from one landmark to another. The first part would lead to the small pedestrian bridge from which he could look out over the canal, where large steel cranes and partially deconstructed warehouses appeared as tiny specks on the horizon. The site's former harbour function was still visible. Jos took a left turn and continued past the canal.
"Neighbour!" He heard from behind him. It was Willem with his dog, a chihuahua. Something about this dog always made Jos feel uneasy. Maybe it was the fact that the chihuahua always seemed to stare right at Jos. Maybe it was the fact that it was so obviously a women's dog and poor Willem was forced to take it out every morning. Jos smiled and quickly said something about the weather. *"Stupid. Stupid conversation. Stupid dog. God damn it."*
Jos continued past the canal as Max happily ran through the grass beside him. Jos could see through the living room windows of the houses across the canal and saw how people prepared their breakfast and got their children ready for school. *"How do they do it? How do they get up every morning with a smile do the exact same thing?"* He couldn't find a satisfying answer. Jos took a right turn at the end of the street, but never failed to quickly glance at the theatre first. The brightly coloured posters that announced which plays would be performed appealed to him, although the distance to the theatre prevented him from actually reading the name of any of them. Jos imagined what the plays would be about for a brief moment and committed himself to seeing one soon but remembered that it was a Tuesday (Jos would always play squash on Tuesdays). *"Maybe tomorrow."* (Jos would always pick up his kids from soccer-practice on Wednesdays and would thus not go on Wednesday). Jos continued walking and saw the trees towering above the roofs in the distance.

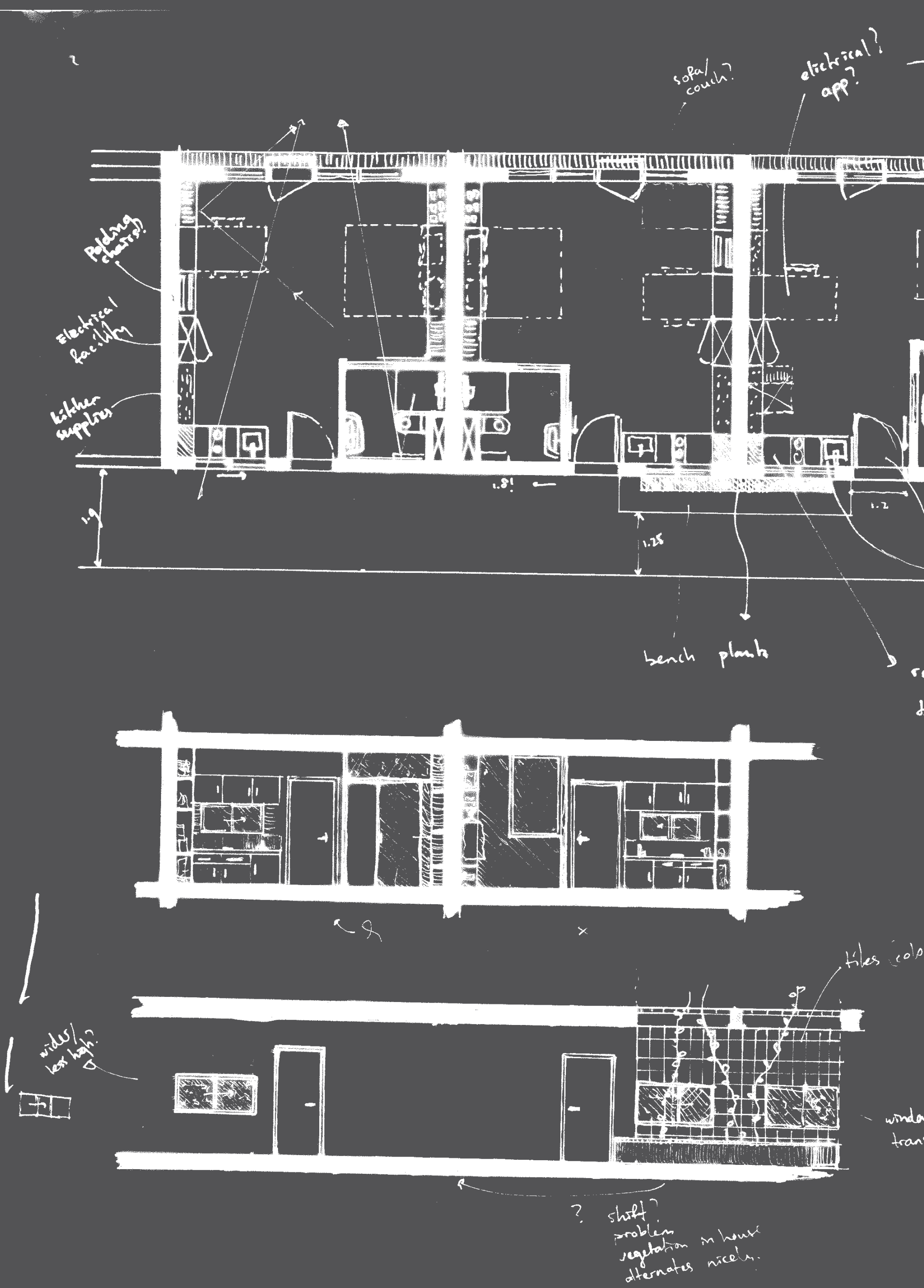
He remembered when they were nothing but small twigs, unable to impress. As time passed, however, they had become tall and wide, seemingly having grown a noticeable amount every day. As spring covered Amsterdam under a green blanket, these trees, too, had sprouted leaves and seeds. Gazing upon the trees, Jos caught the sound of all-too familiar laughter in the distance; a sound that would make his shoulders tighten up and run his mouth dry. He had heard that specific laugh so often. He could picture the man who had produced it, Jeroen, so vividly, as could he picture the woman who had caused Jeroen to laugh, Agaath. They always walked their dogs together, which Jos thought was horrible. The turn that Jos would make every morning would lead him straight to them.
And then he saw it. The forced smile on his face while walking towards them; the conversation about nothing in particular; the awful joke Agaath would make (that would make Jeroen produce that all-too familiar laughter, which would cause Jos's shoulders to tighten up and run his mouth dry); the excuse he would make to move on. He saw it all. But today, he couldn't do it. He couldn't bring it up anymore. Suddenly he stopped and called Max. His legs started taking him in another direction, a new path, as far away from Thom and Agaath as possible. This path lead him towards the towering trees. Jos remembered how he had been here just days after the first residents moved into this part of Minervahaven. He remembered a small patch of barren land right next to the building with the towering trees. He looked at Max who gazed back at him with a sort of questioning expression. Somehow Jos found this reassuring. They walked fast, almost ran along this new route, both oblivious as to why they were heading towards this strange direction, but happy to explore it. Jos had quickly found the once barren patch of land somewhat hidden behind a wall and noticed how it had changed. He sat down on a concrete slab and absorbed these new surroundings. He unleashed Max and watched as the dog chased a butterfly in the tall grass. Max followed it eagerly towards a brick stair, ultimately dodging a picknick table to keep track of the insect. Jos lost sight of them both but didn't bother chasing them. He felt something important had just happened. Suddenly Max reappeared above a wall that was painted with bright graffiti and looked down at Jos while holding a butterfly in his mouth. "How did you get there?" shouted Jos, "Come on down boy." Jos stood up as Max ran back towards him. Jos put his dog back on the leash and smiled while they found their way back home. *"Tomorrow, I should check how Max got up that wall."*

DESIGN

EXPLORING & SKETCHING






sofa/ couch?
electrical? app?
Folding chairs?
Electrical facility
kitchen supplies
1.9
1.8
1.25
1.2
bench plants
wider/ less high?
? shift? problem vegetation in house alternates nicely.

Q: built-in drawers?
Bed especially.

Q: Wheelchair accessible
→ throughout bld.!
→ high kitchen cabinets?
→ include dishwasher.

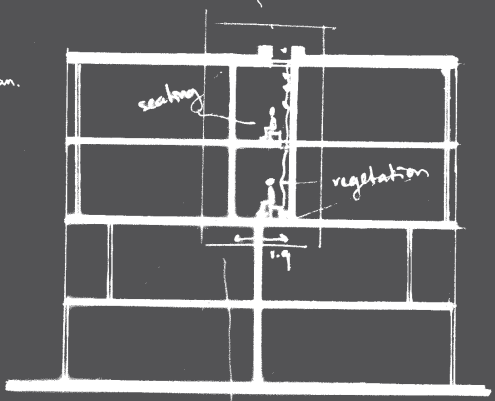
foldable bo?
↓
rollable!

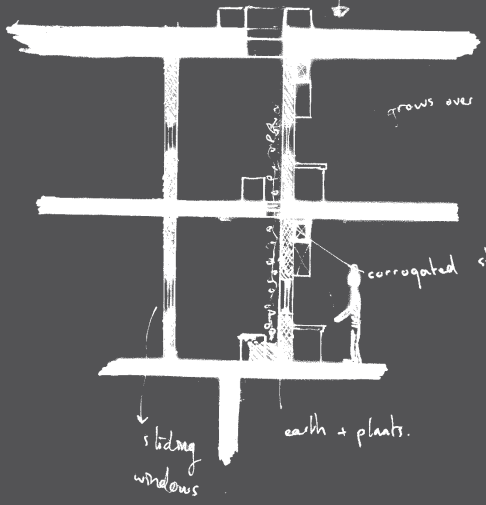
Ed Bijman

automatic opening from inside.
wheelchair accessible

redesign configuration
o include dishwasher!?

sunlight






make seperate drawings or axos for facades, explaining what slides and why.
"Internal facades elevations.
door on rails outside bathroom.
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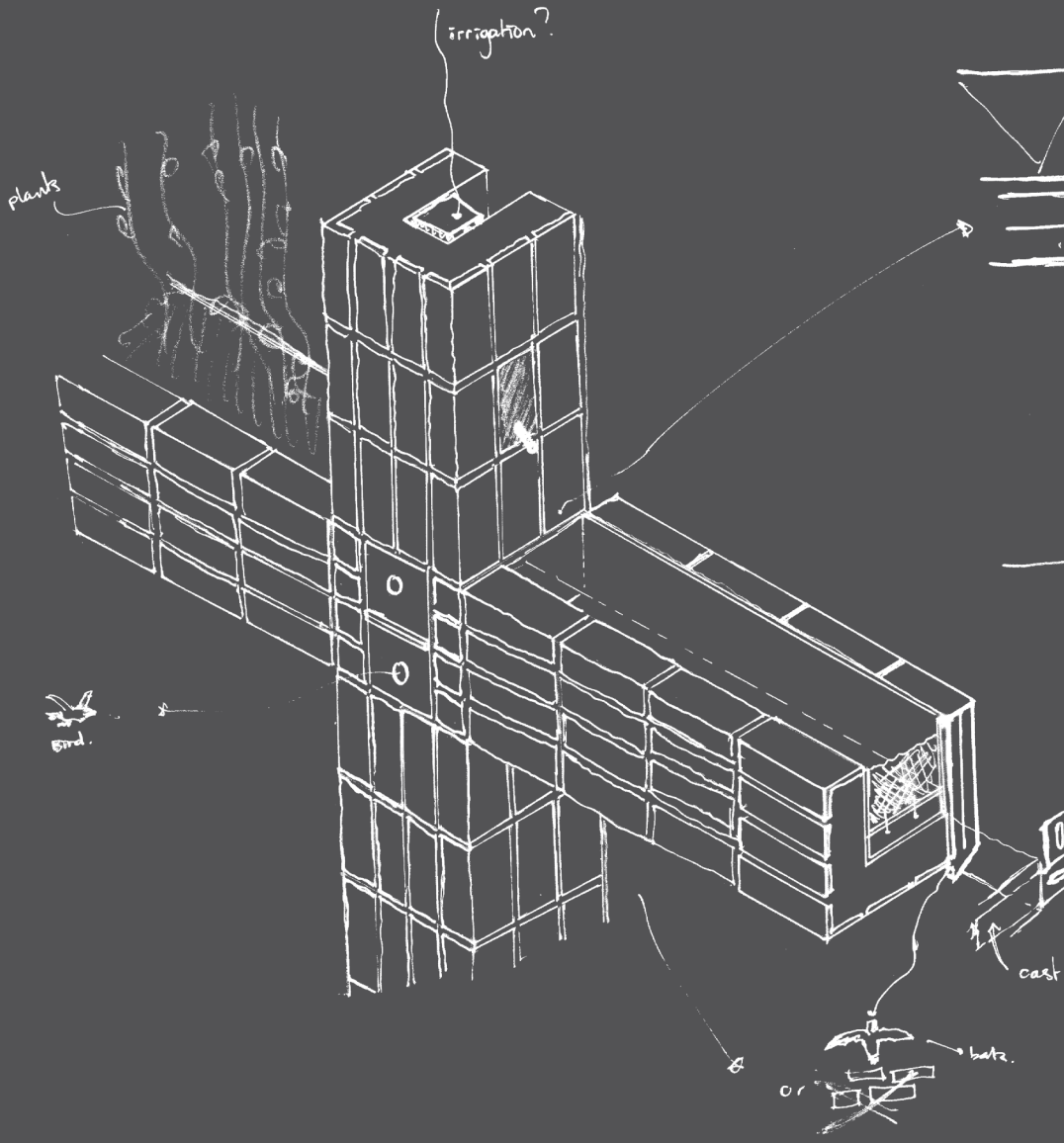
irrigation?
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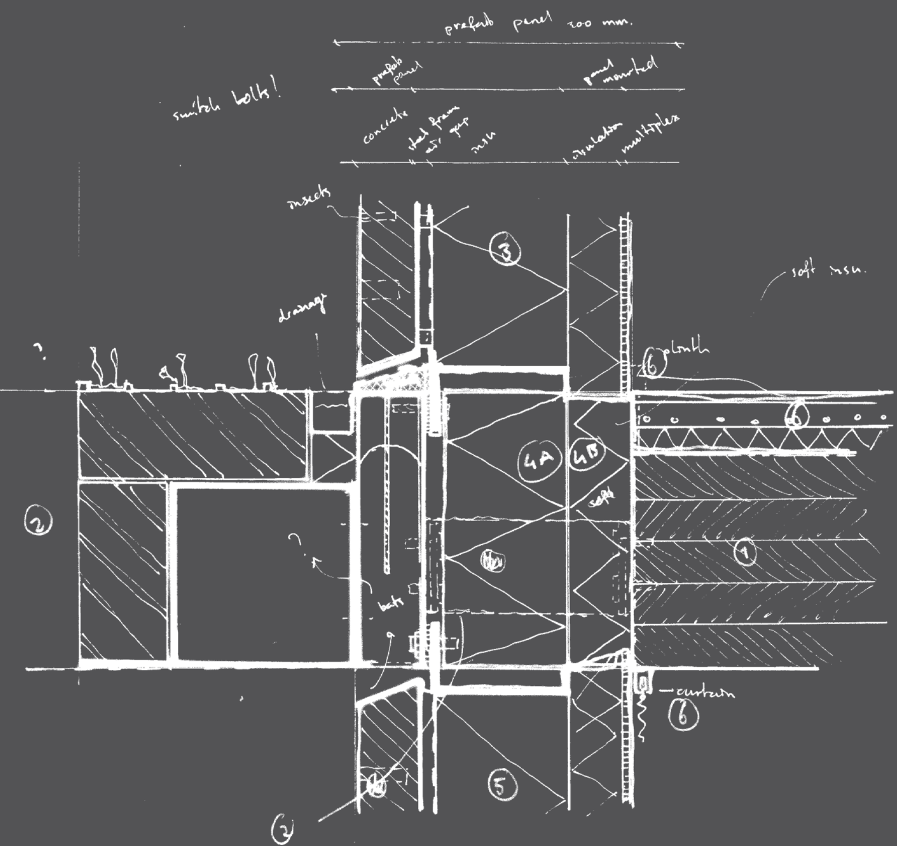
bats.


prefab panel 200 mm.
prefab panel
panel mounted
switch bolts!
concrete
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soft insu.
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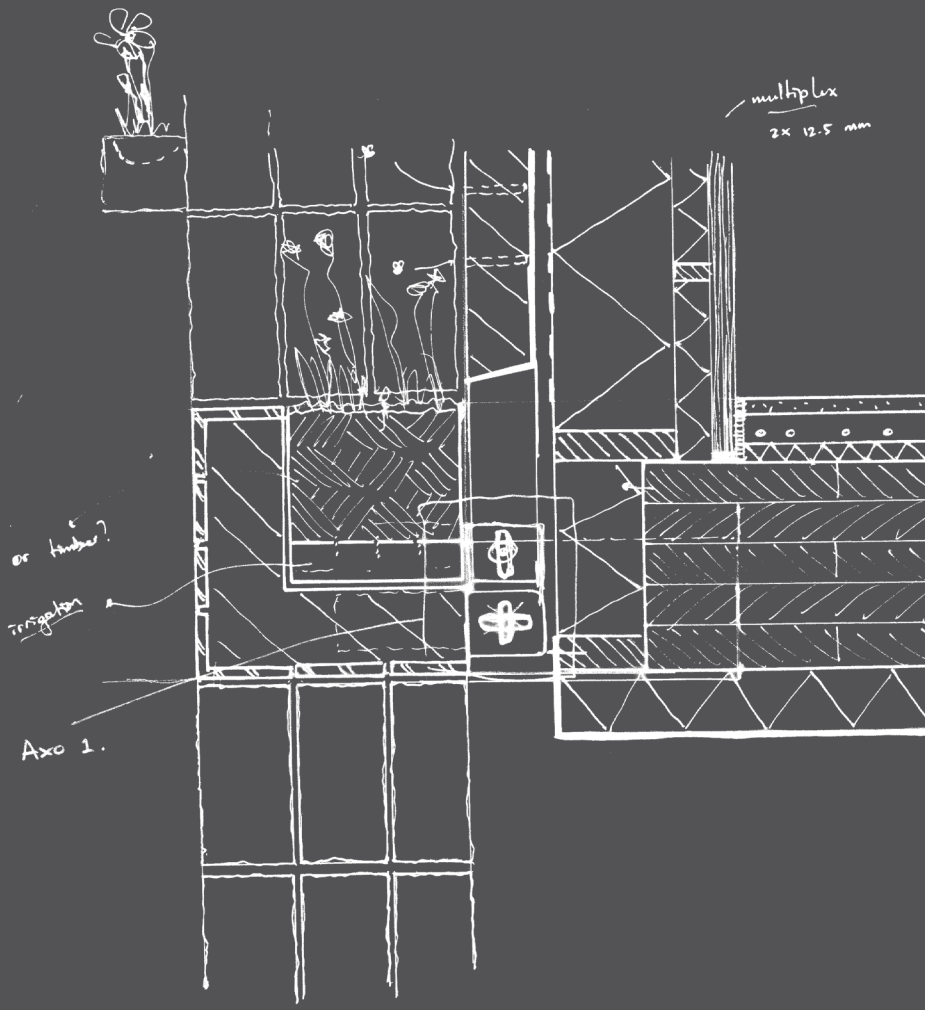
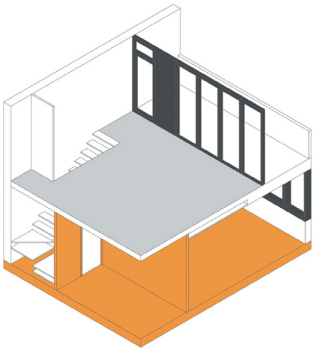
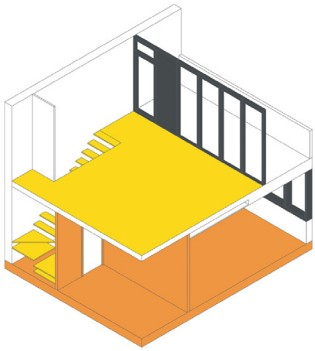
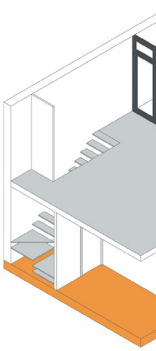
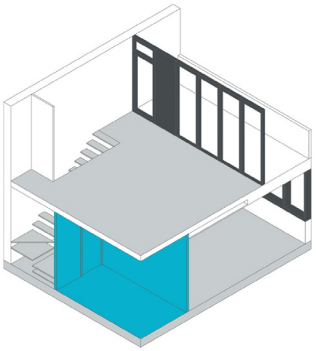
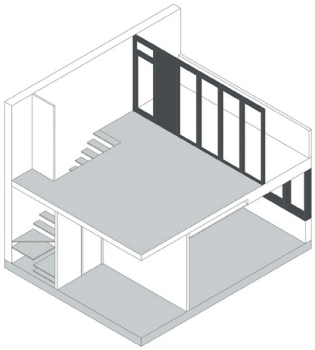
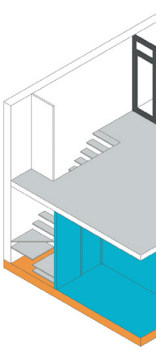
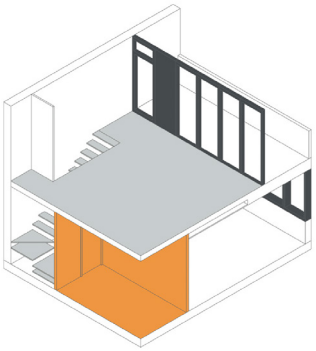
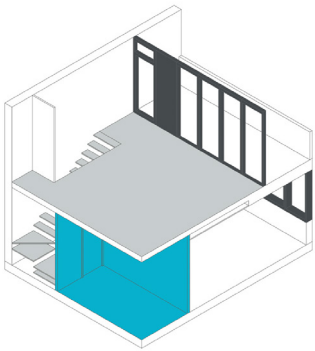
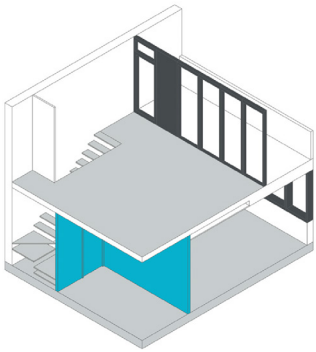
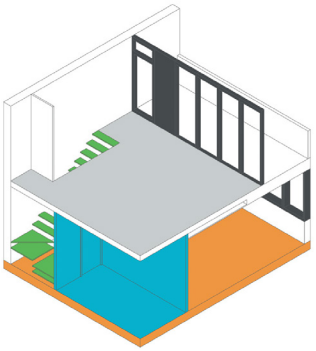
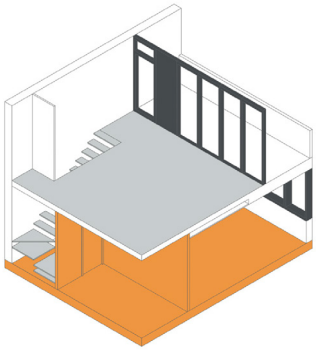
4A
4B
soft
curtain

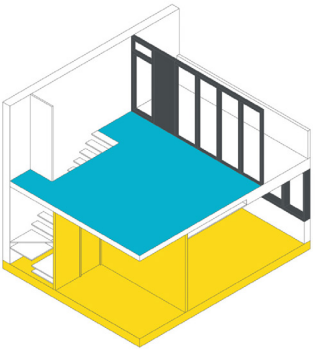
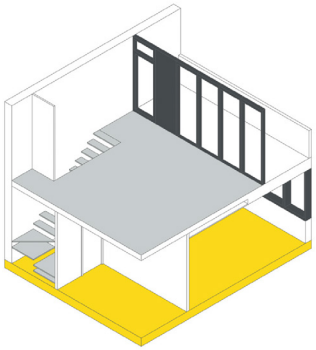

multiplex
2x 12.5 mm
or timber?
Axo 1.

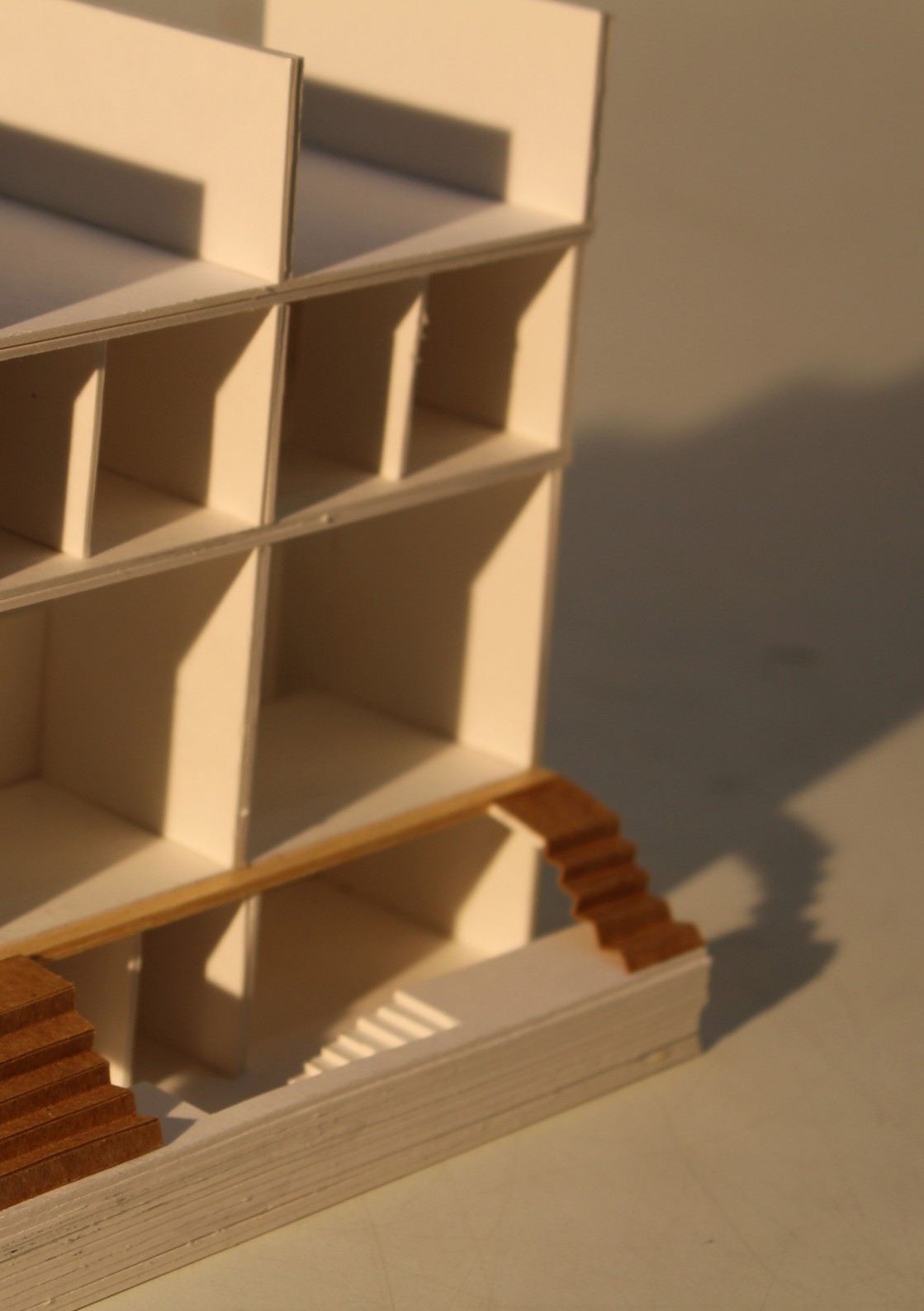









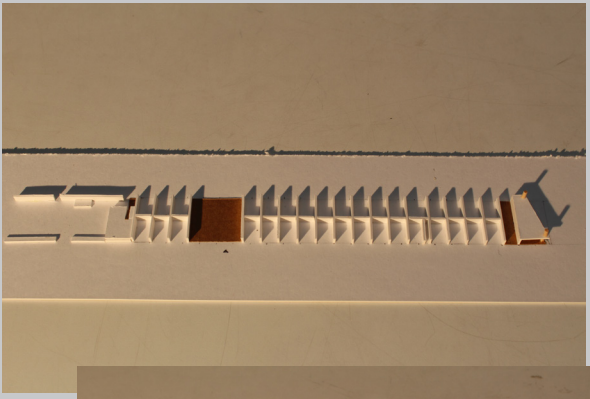


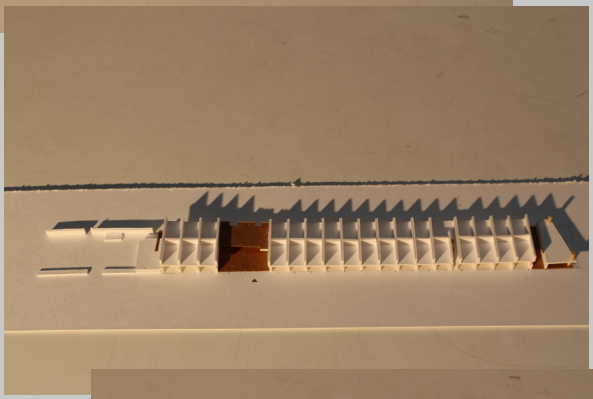



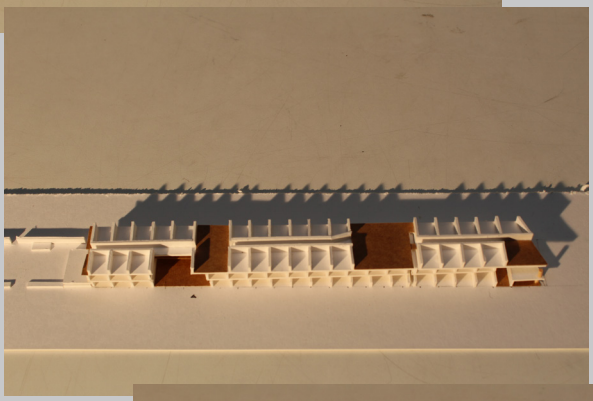



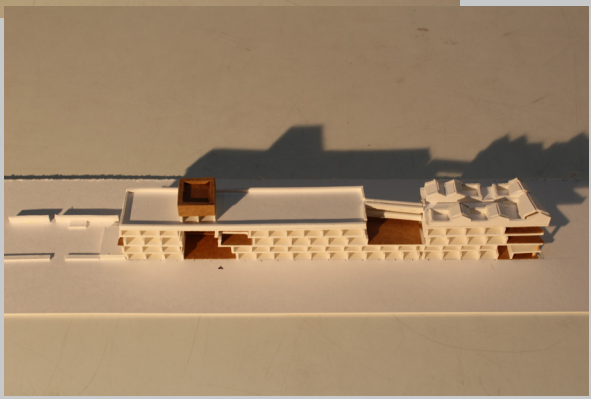



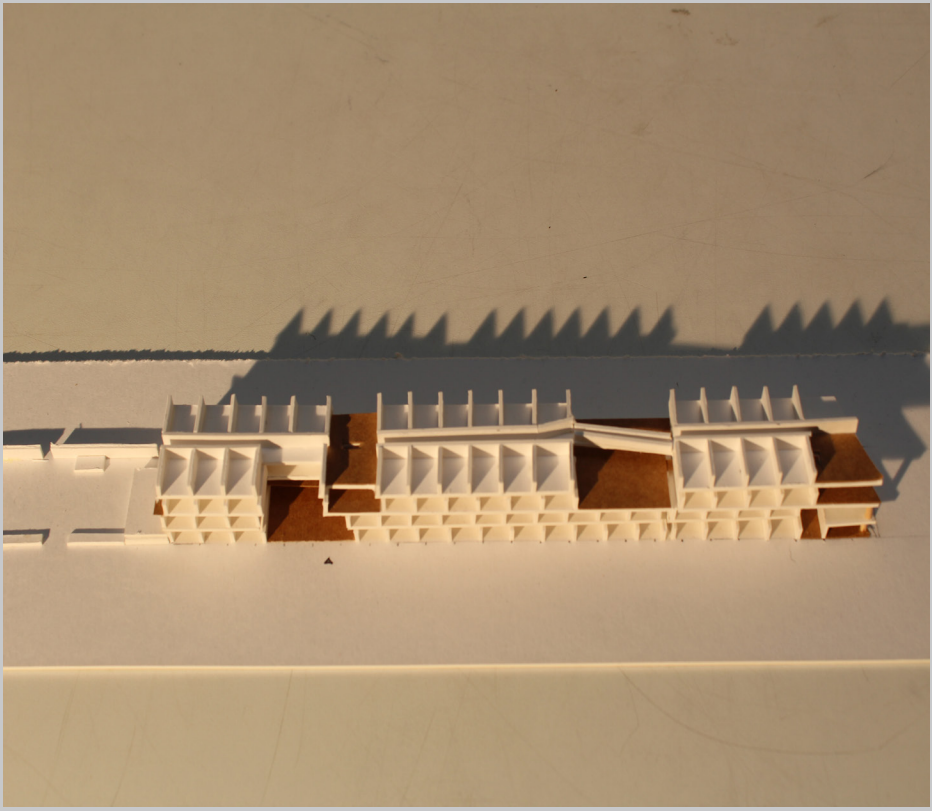




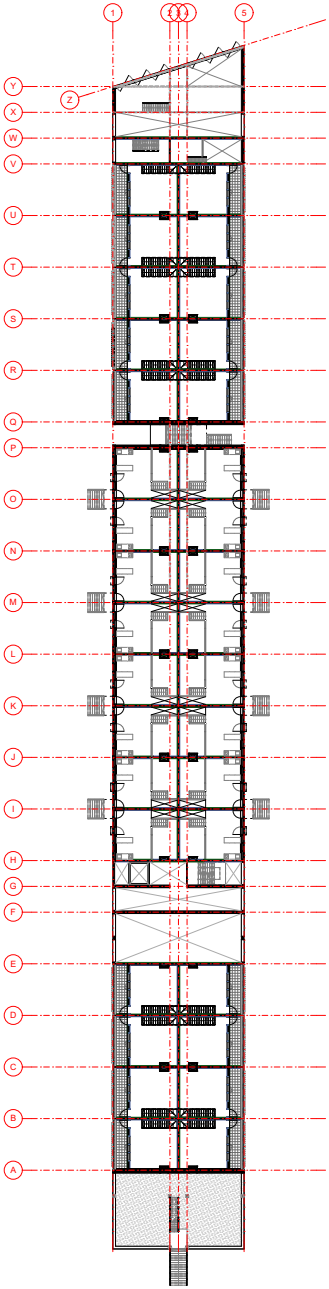








FLOOR PLANS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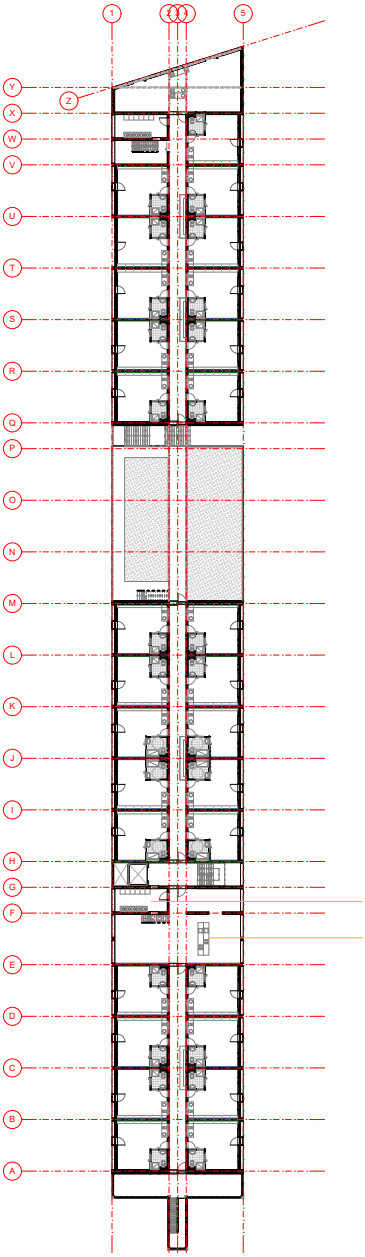
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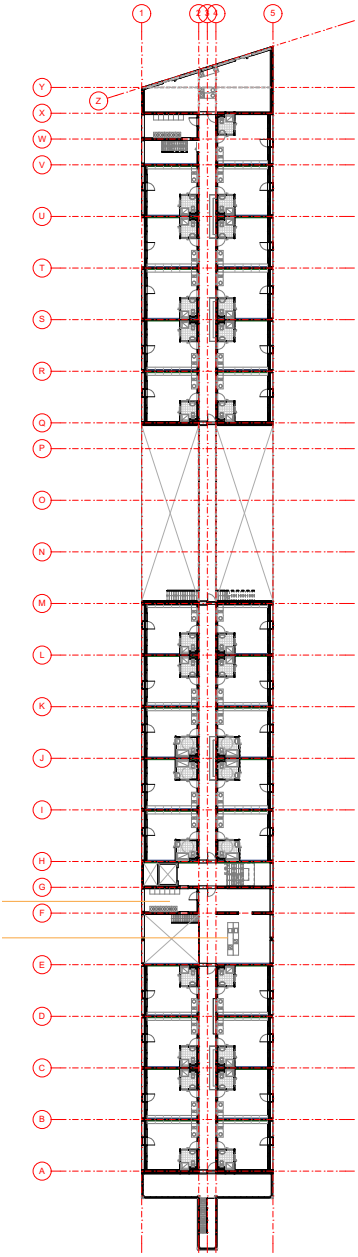
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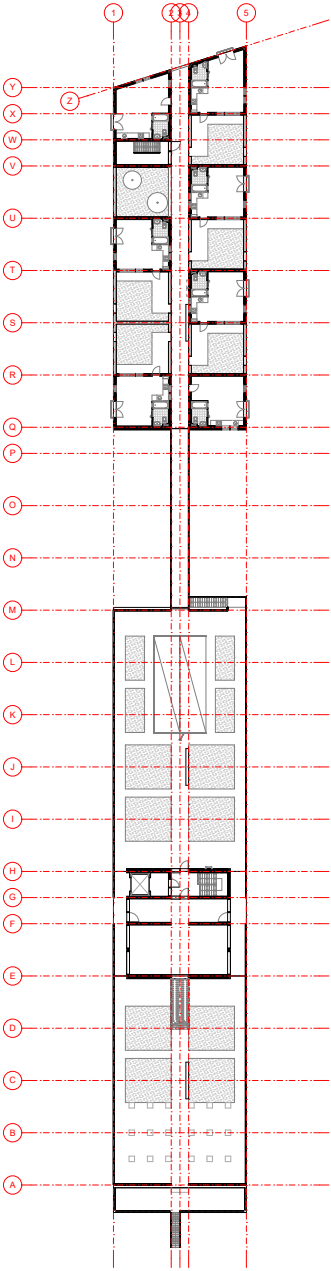
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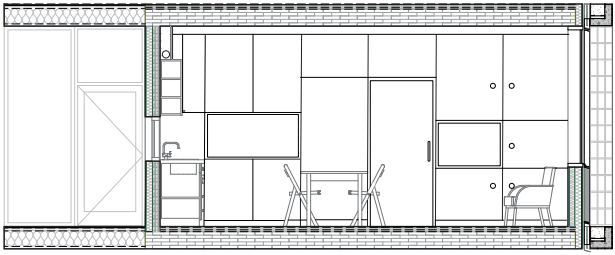
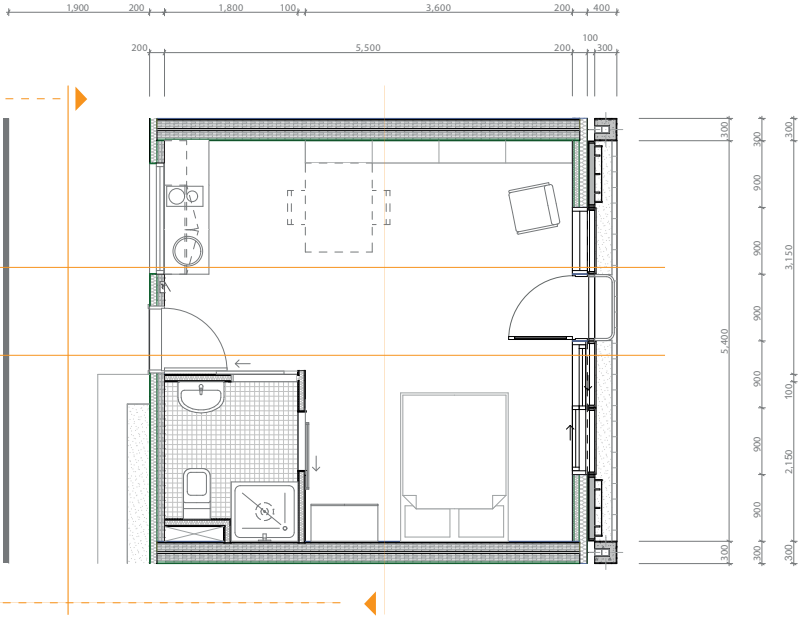
Type C
Interior Elevation North
1:50

Corridor Elevation Type C
1:50

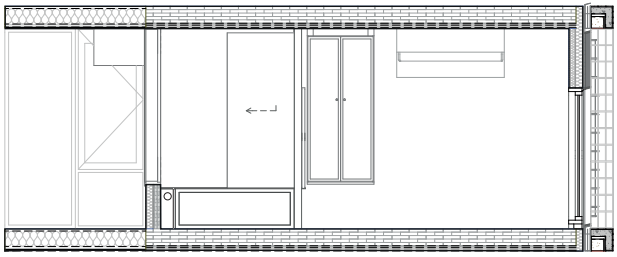
Type C
Interior Elevation West
1:50

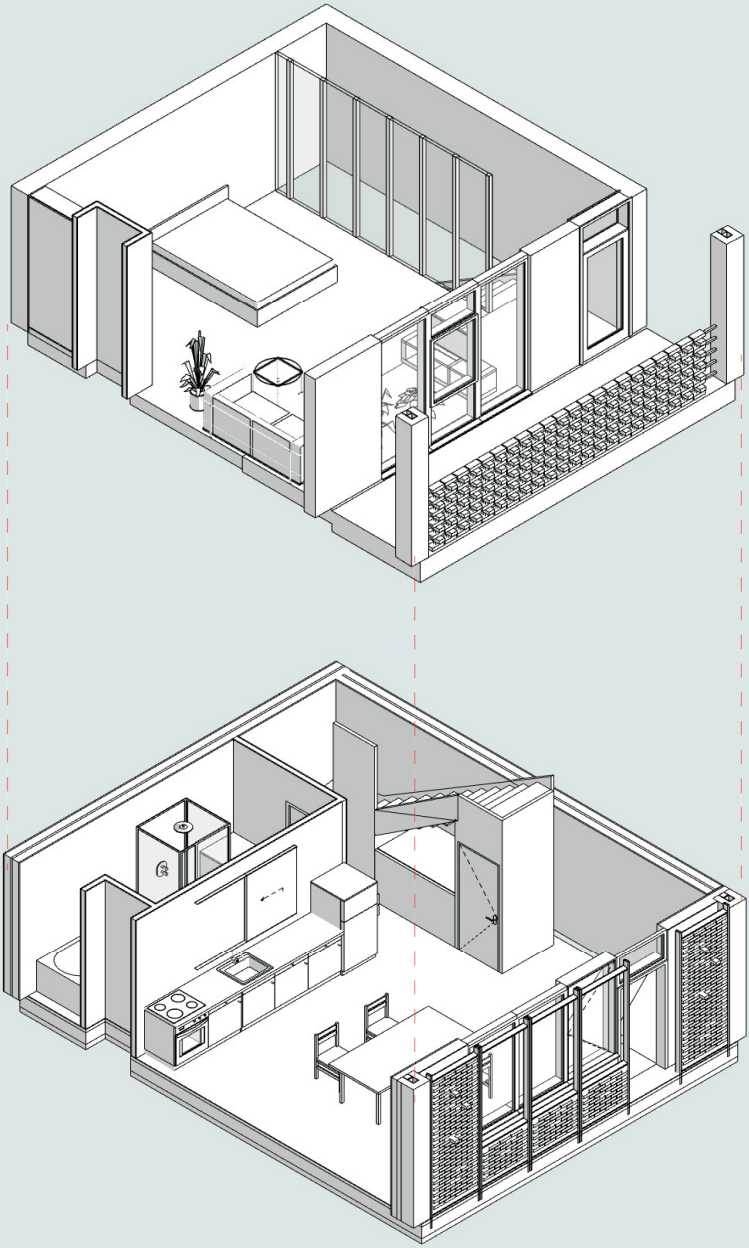
Type C
Interior Elevation South
1:50

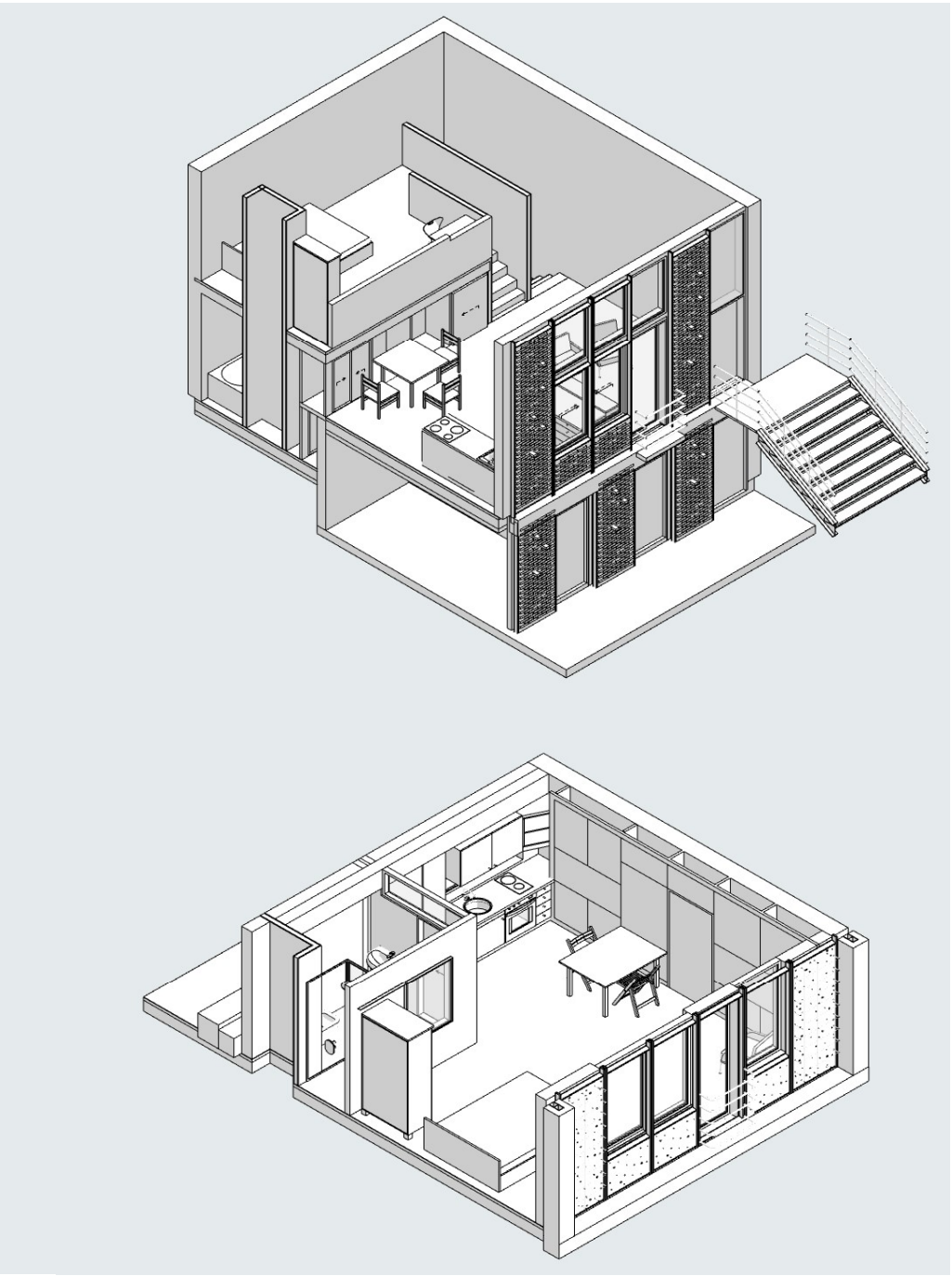


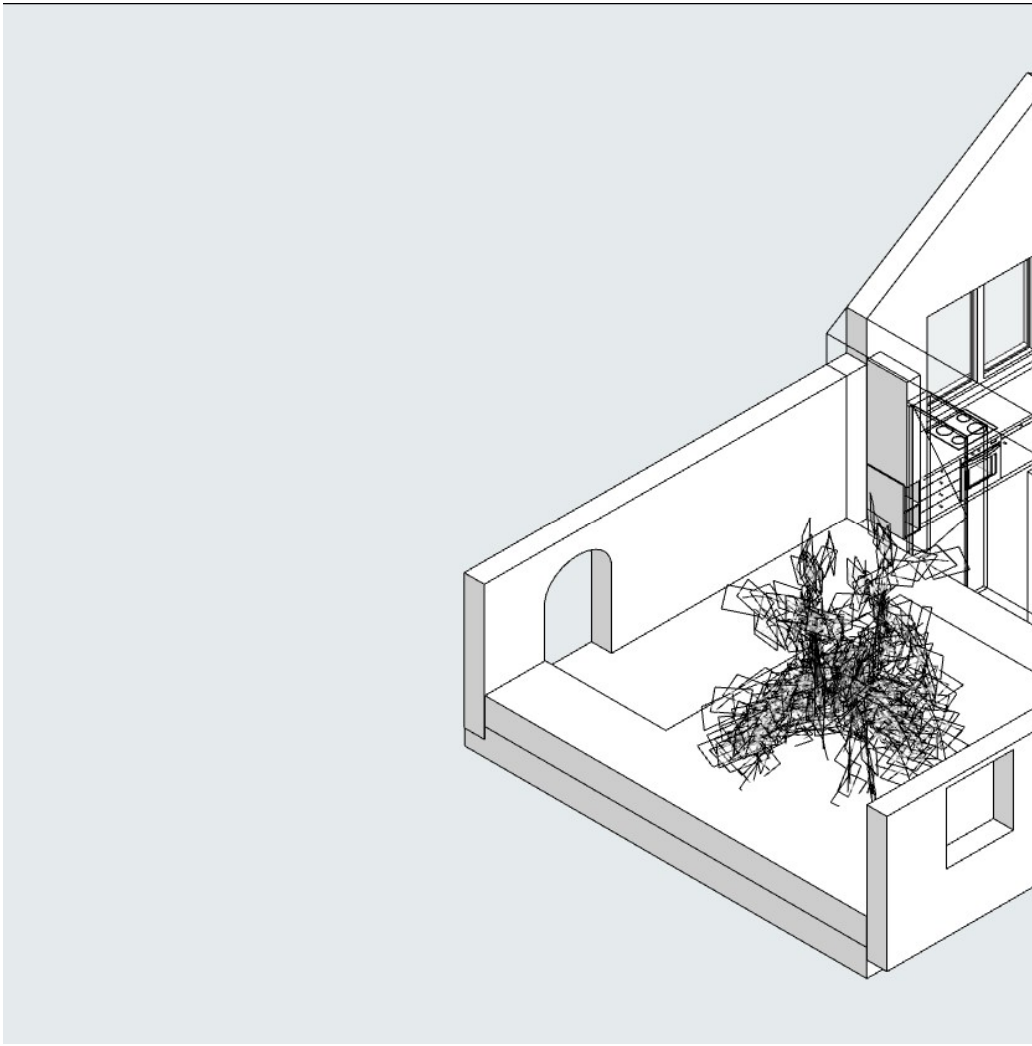


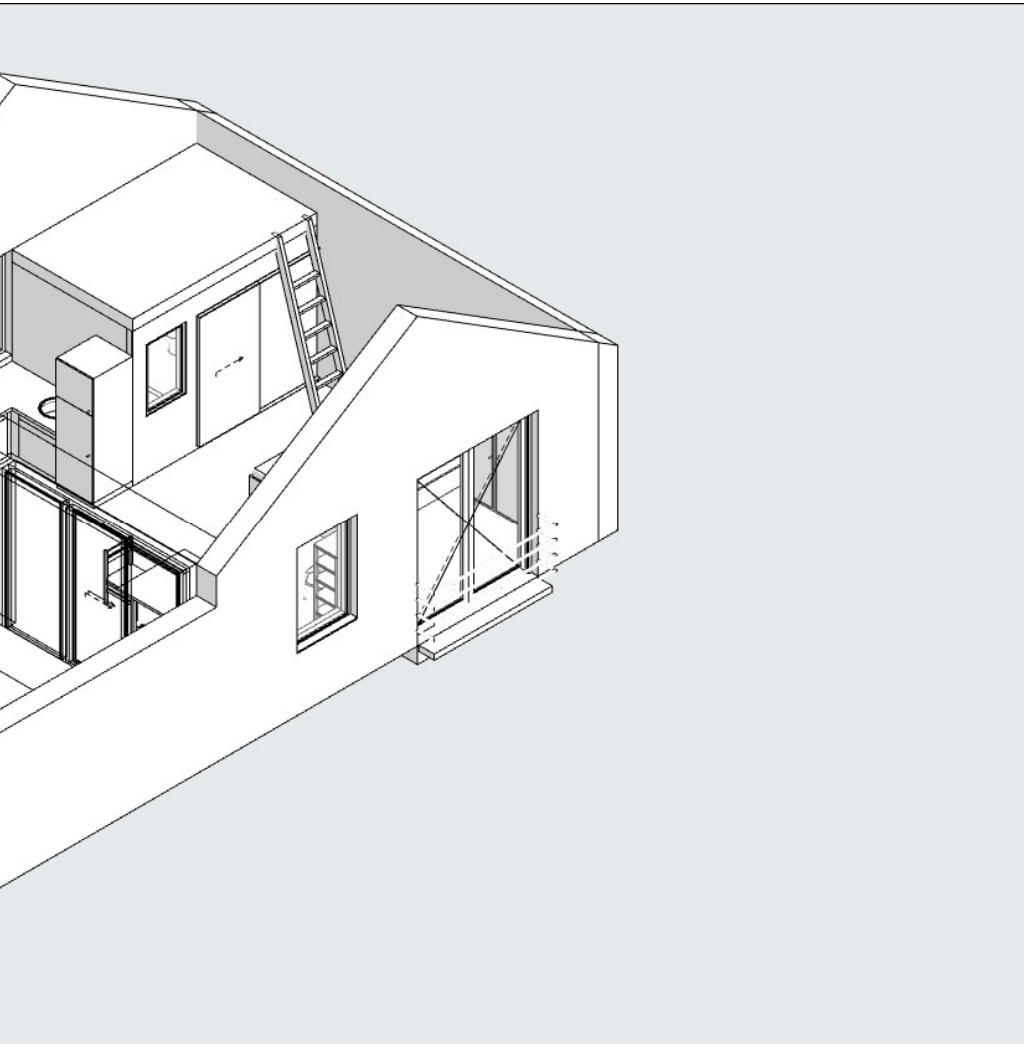
Type C
Floor Plan 1:50
29.7 m2
58 Units (including 12 wheelchair-friendly units)

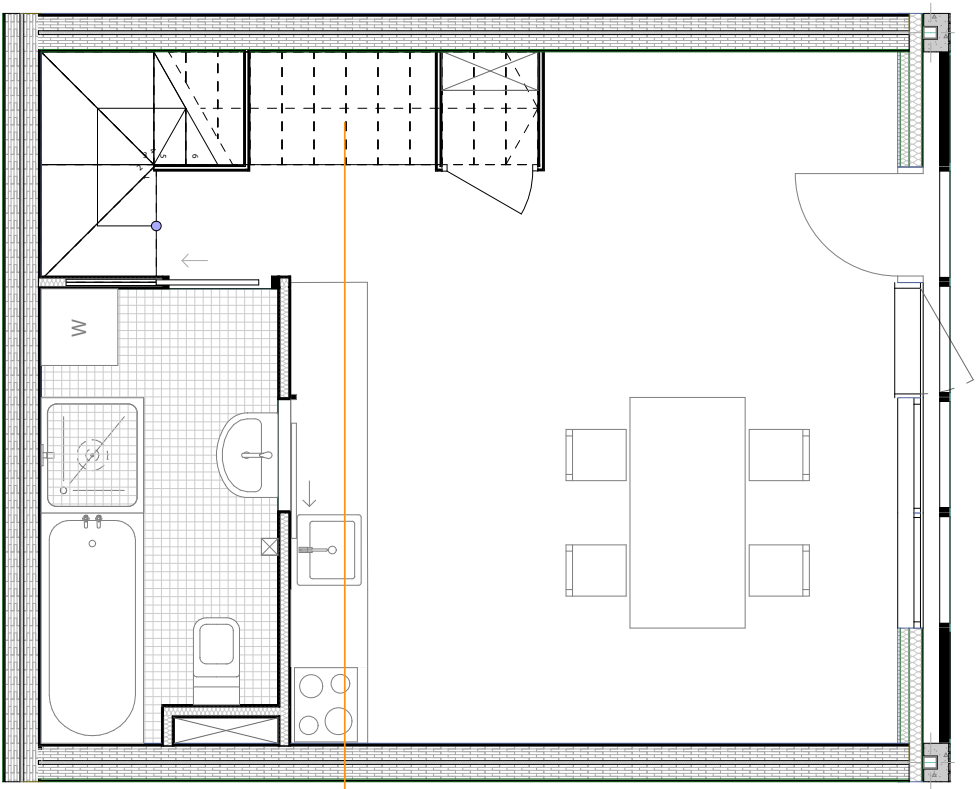








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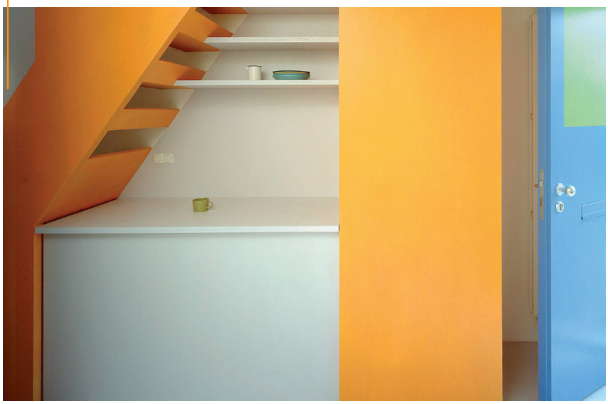
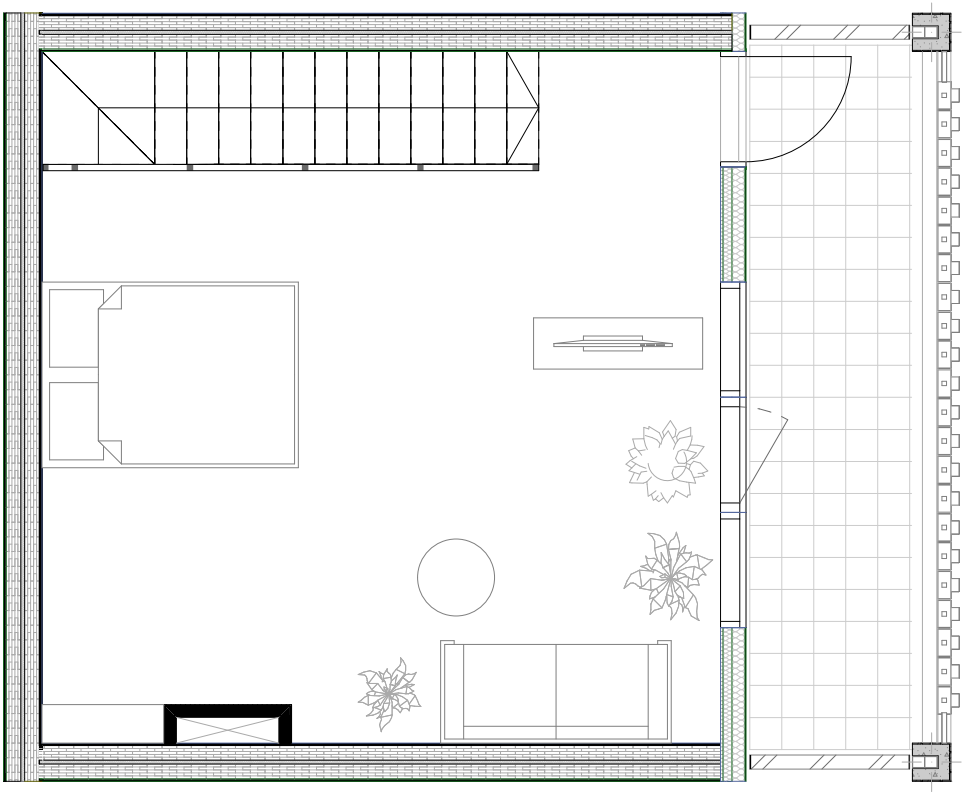
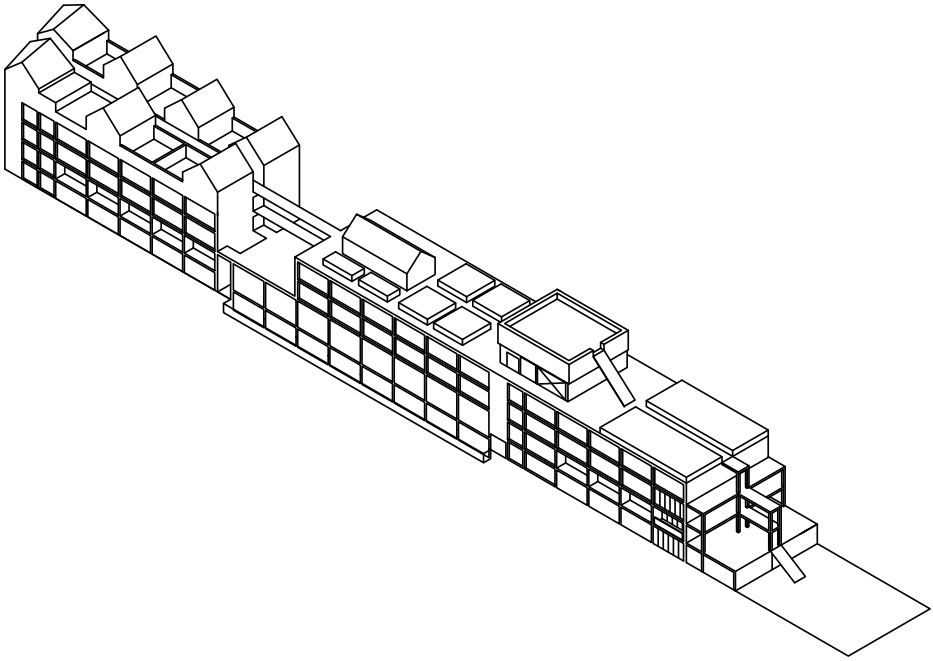
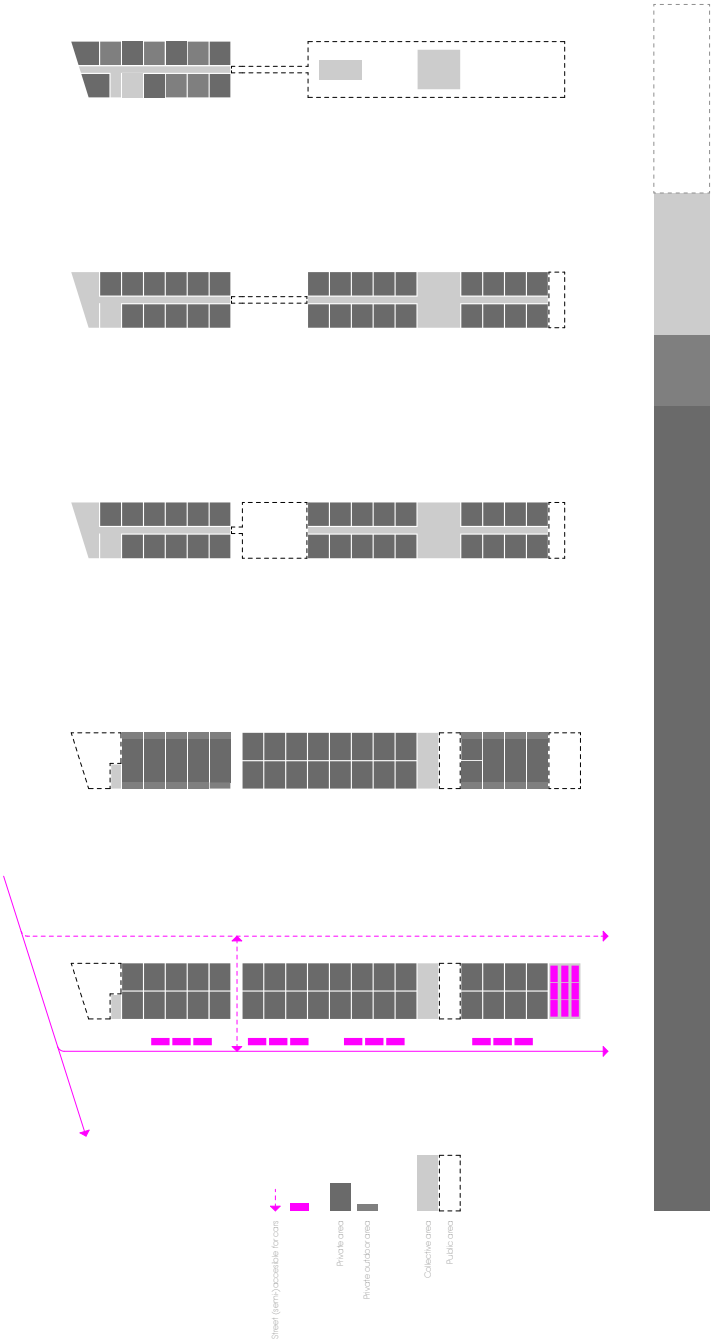
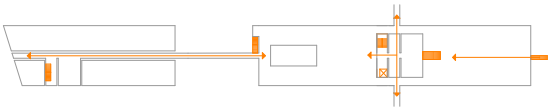


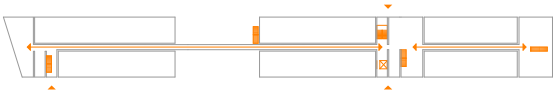


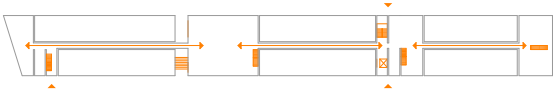
DIAGRAMS

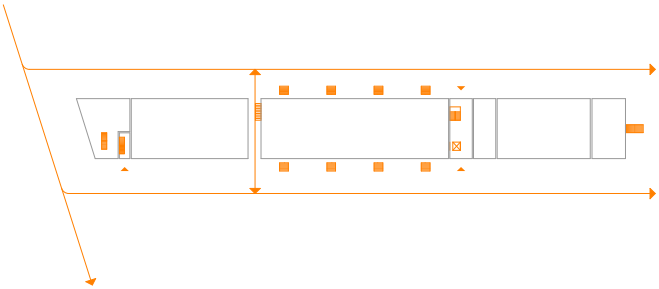


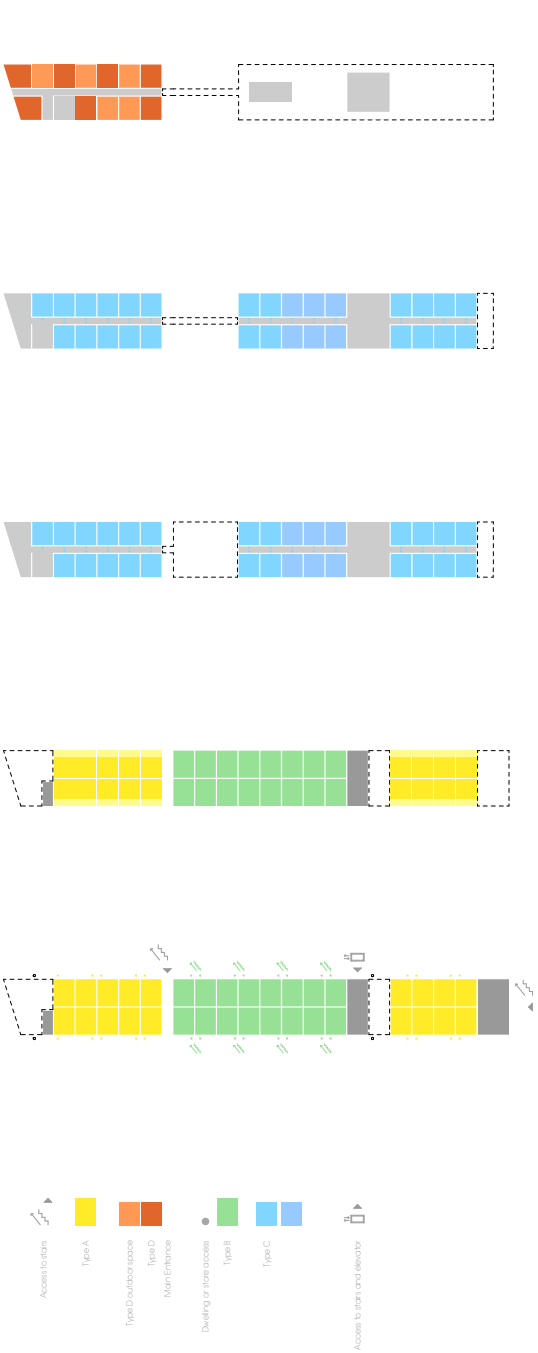

Street (semi) accesible for cars
Private area
Private outdoor area
Collective area
Public area

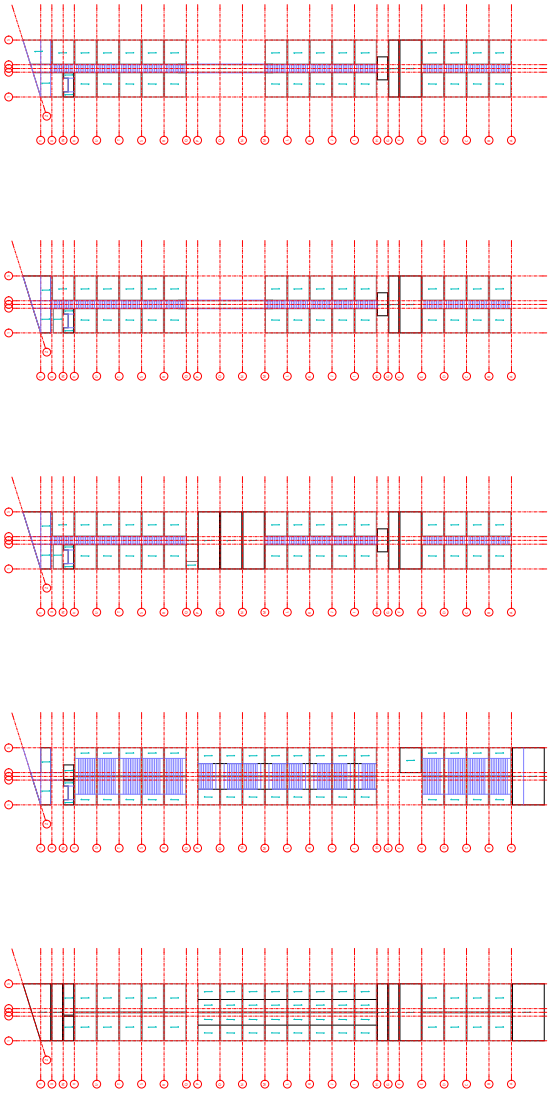


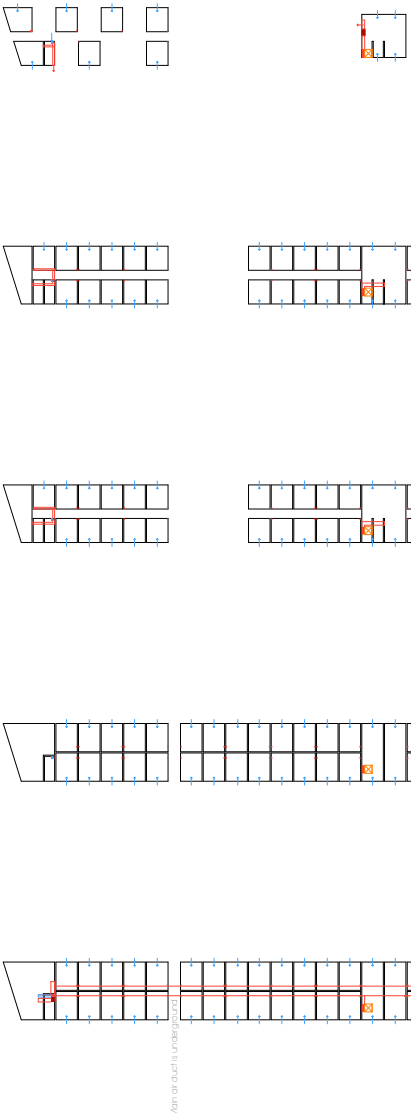




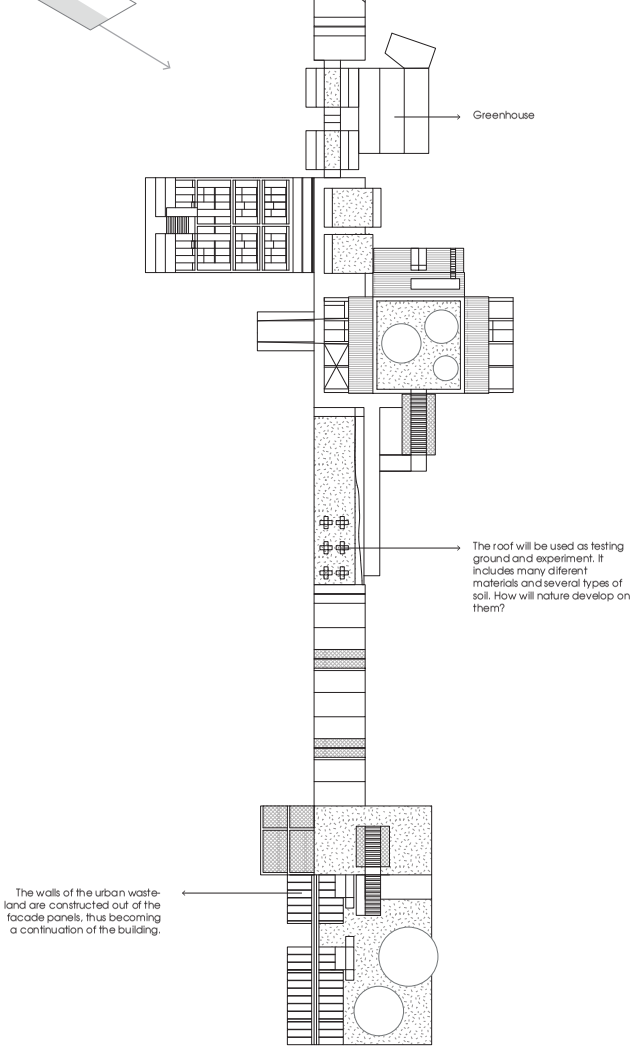

Stairs
Intended route
Main entrance
Elevator

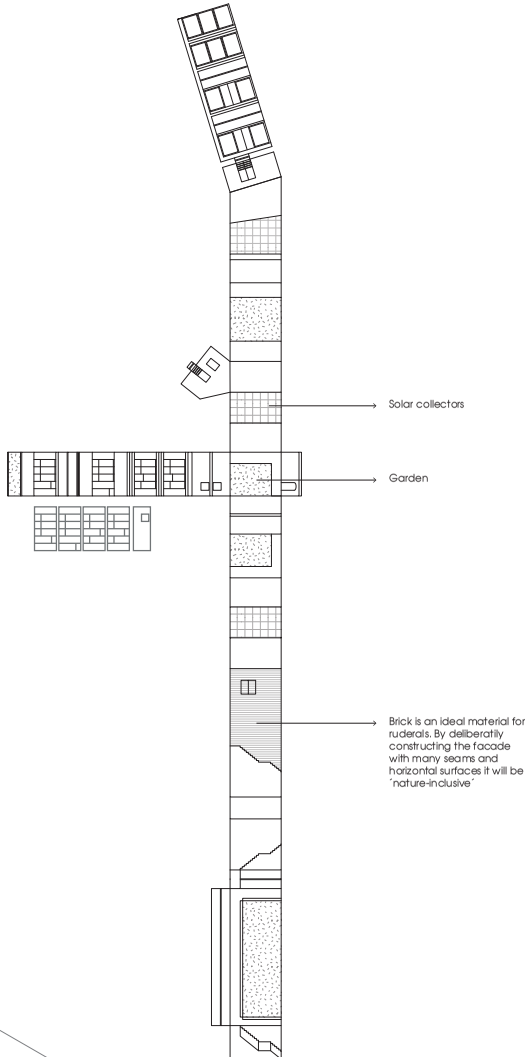

Access to stairs
Type A
Type D outdoor space
Type D
Main Entrance
Dwelling or store access
Type B
Type C
Access to stairs and elevator

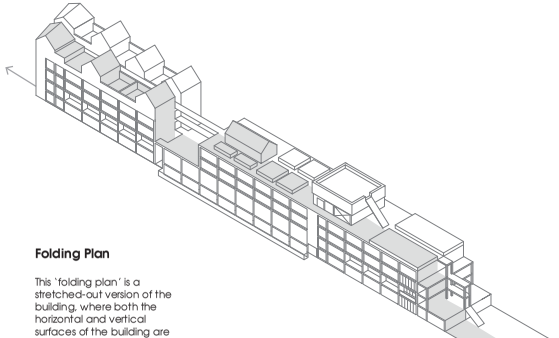

Extra Supporting Wall
Gridline
Direction of Span
Beam
Column
Floor


Air Handling Unit
Natural Air Inlet
(Except for the restaurant, which is mechanical)
Shaft for air intake
Air duct
(The ducts for individual rooms are not drawn here. They should be shown on the 1:50 mechanical drawings. See Type C for example)
Main air duct is underground
Elevator (only relevant for location reference)

shown flat on the paper, almost like a folding template. The aim is to show the large amount of additional surface that a building provides.



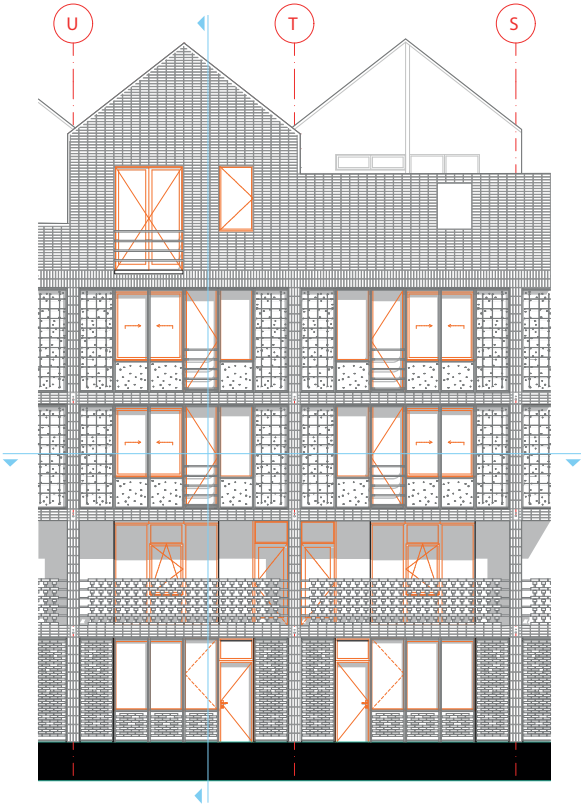




Folding Plan

This 'folding plan' is a stretched-out version of the building, where both the horizontal and vertical surfaces of the building are

DETAILING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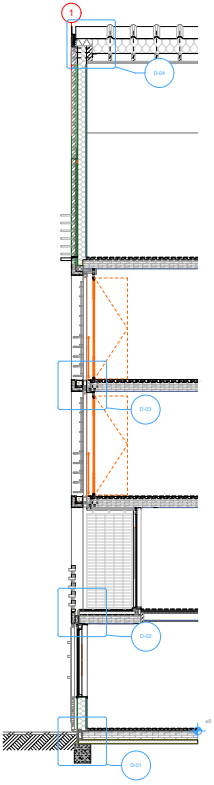
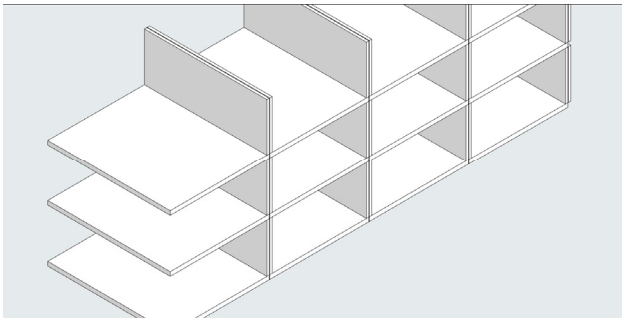
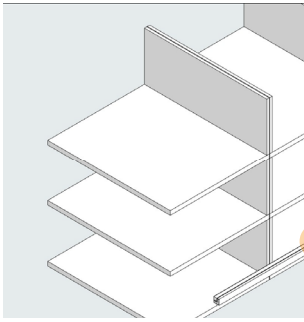

1
D-04
D-03
D-02
D-01

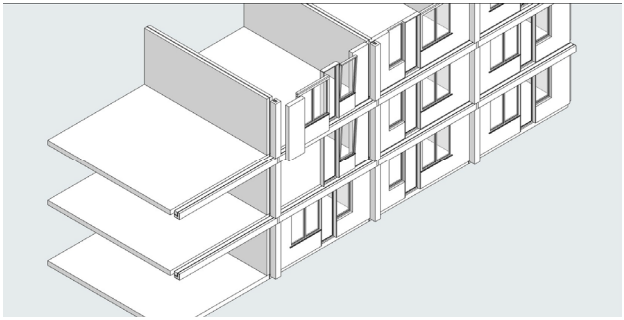
Assembly Order



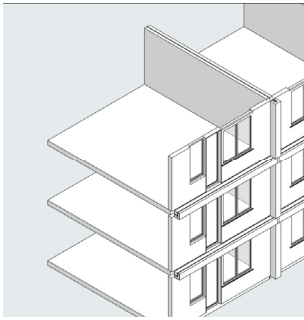
1: Assembling main CLT construction



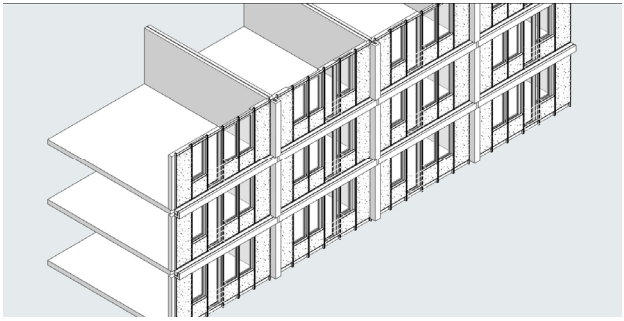
2: Assembling precast concrete facade columns and beams. Birds nests are also added in this stage.



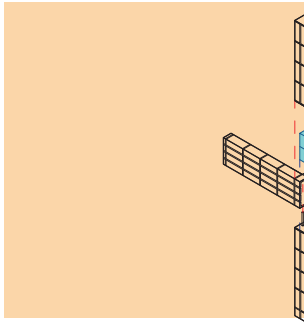
4: Assembling sandwich panels, windows and doors. This part of the facade is insulating, water- and airtight. It is attached to the main CLT construction.



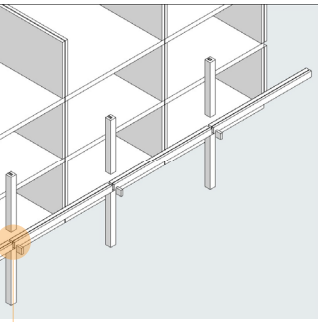
4: Finishing the inner facade. Making the building 'weatherproof'. Workers can begin with placing interior walls etc.

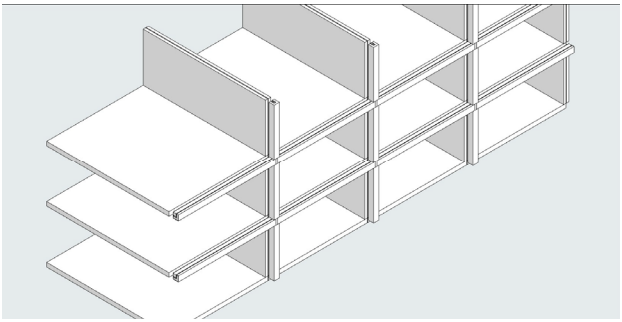


7: Bolting the panels into position. Finally, the planters can be put in their position on the beam and filled with earth and seeds.

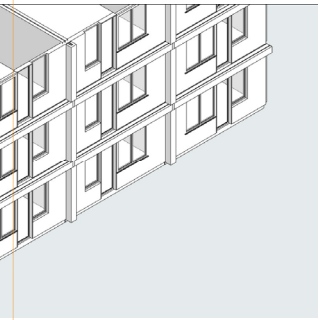


8: Close up of assembly of facade structure. See next page for a larger drawing.

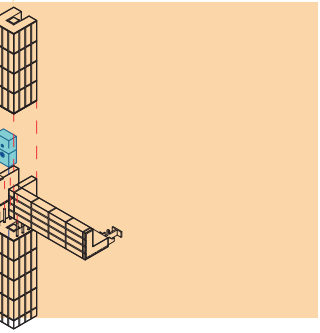


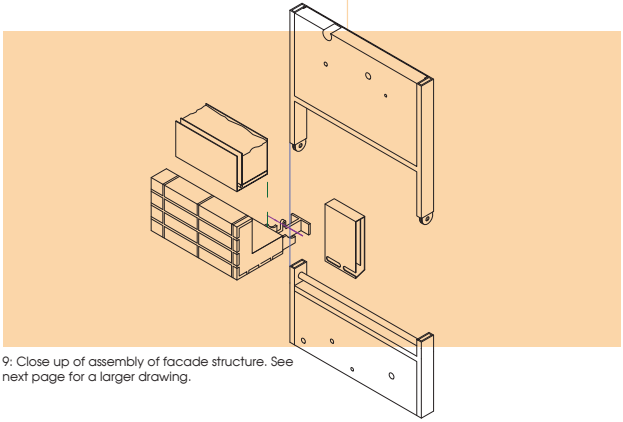


3: Attaching facade structure to main construction to prevent toppling. The facade structure bears its own load.

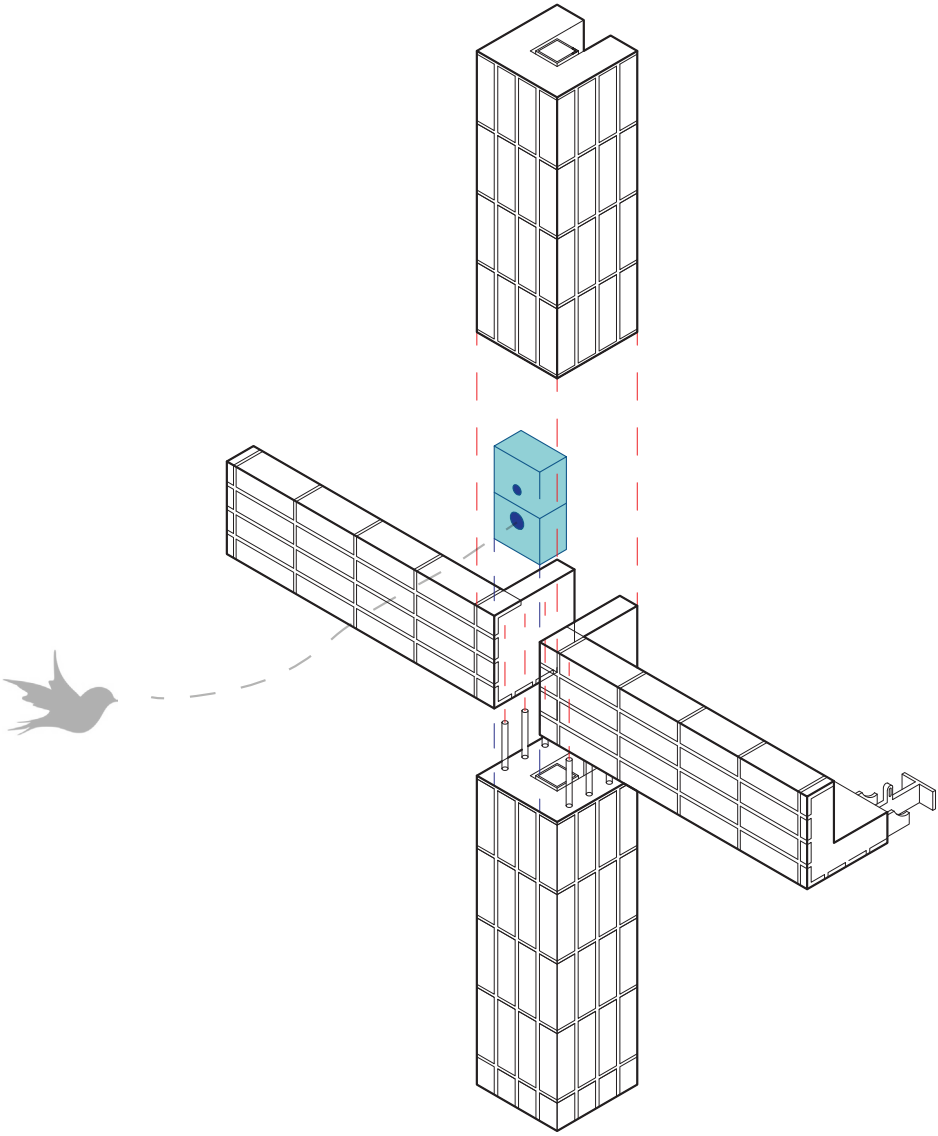


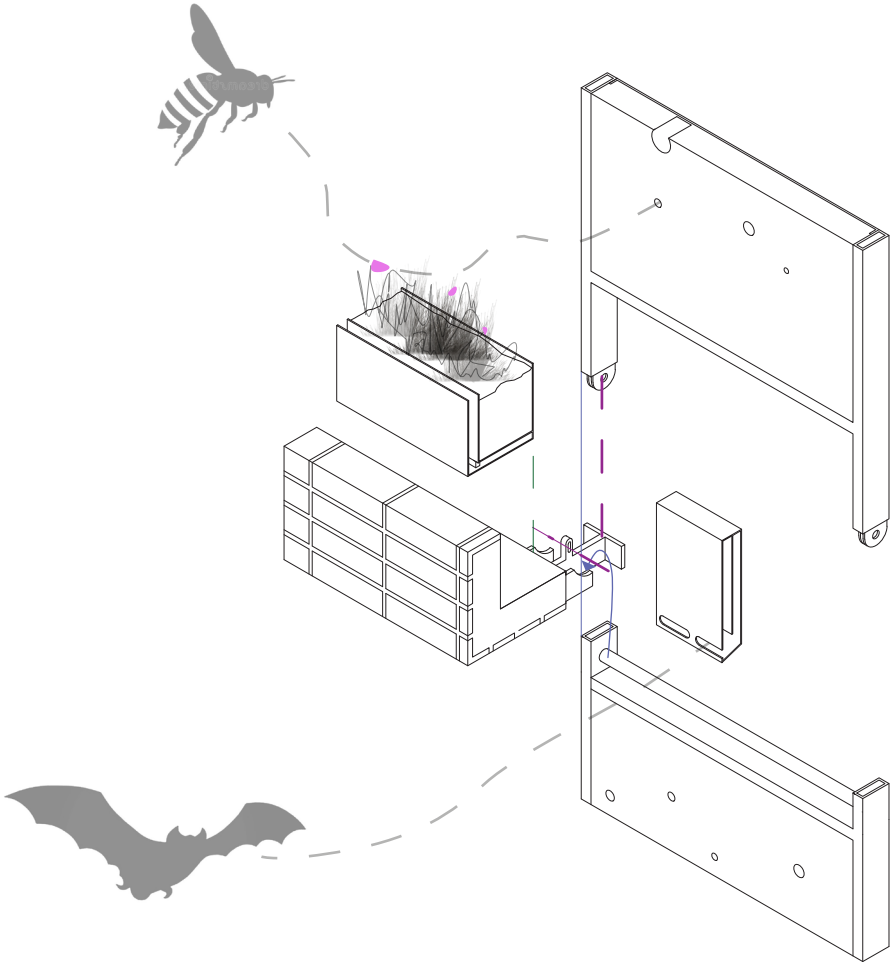
6: Attaching the outer facade panels to the facade structure. Bat cages should also be placed in this stage, above the panels.

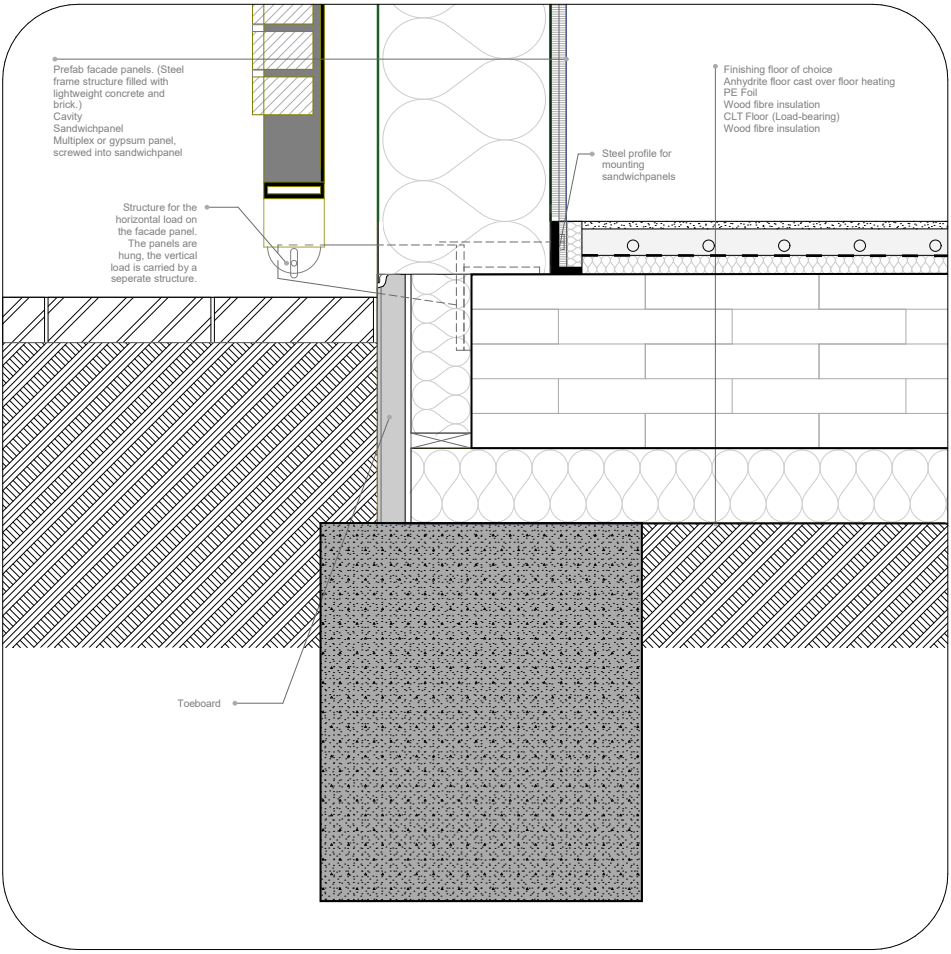


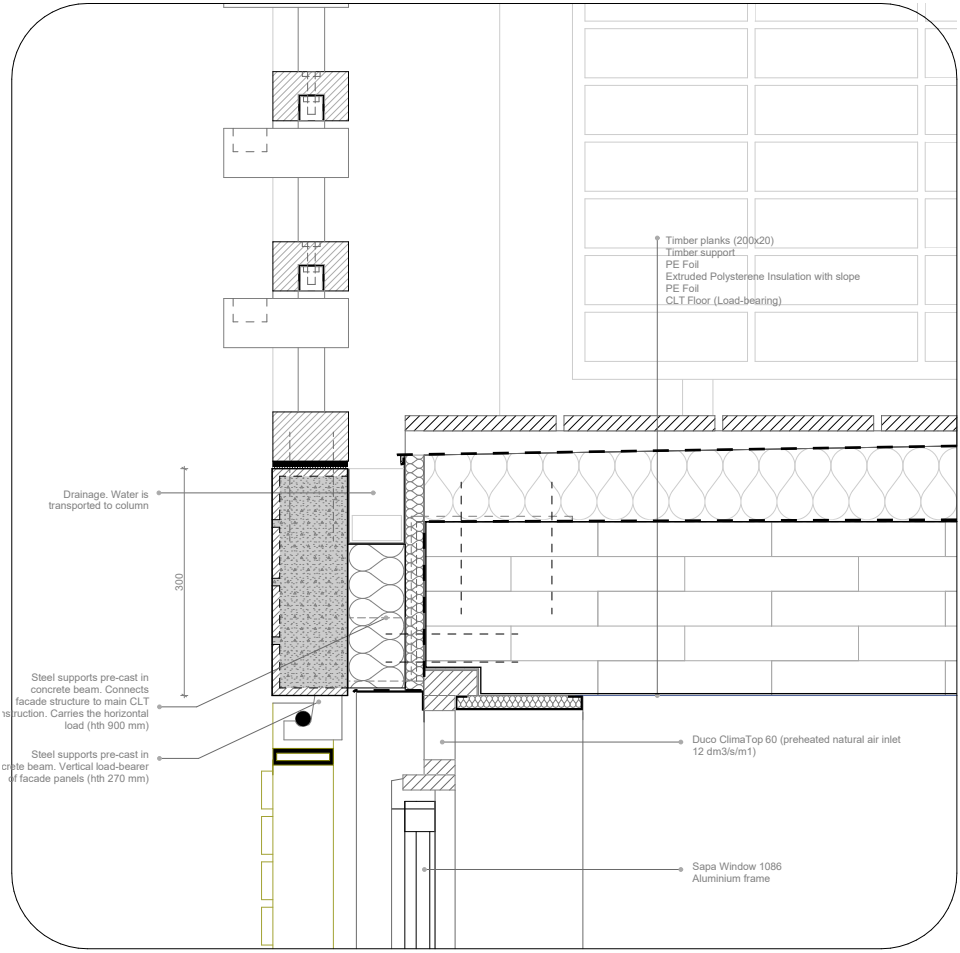


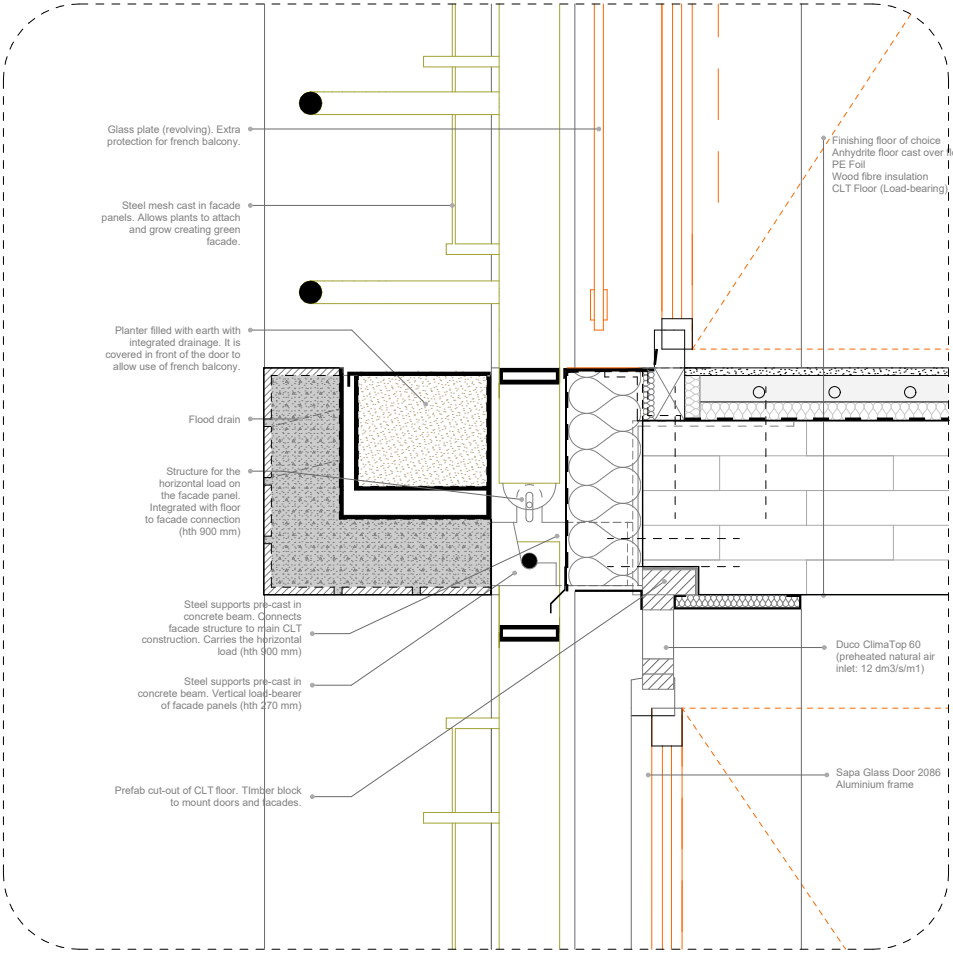
9: Close up of assembly of facade structure. See next page for a larger drawing.

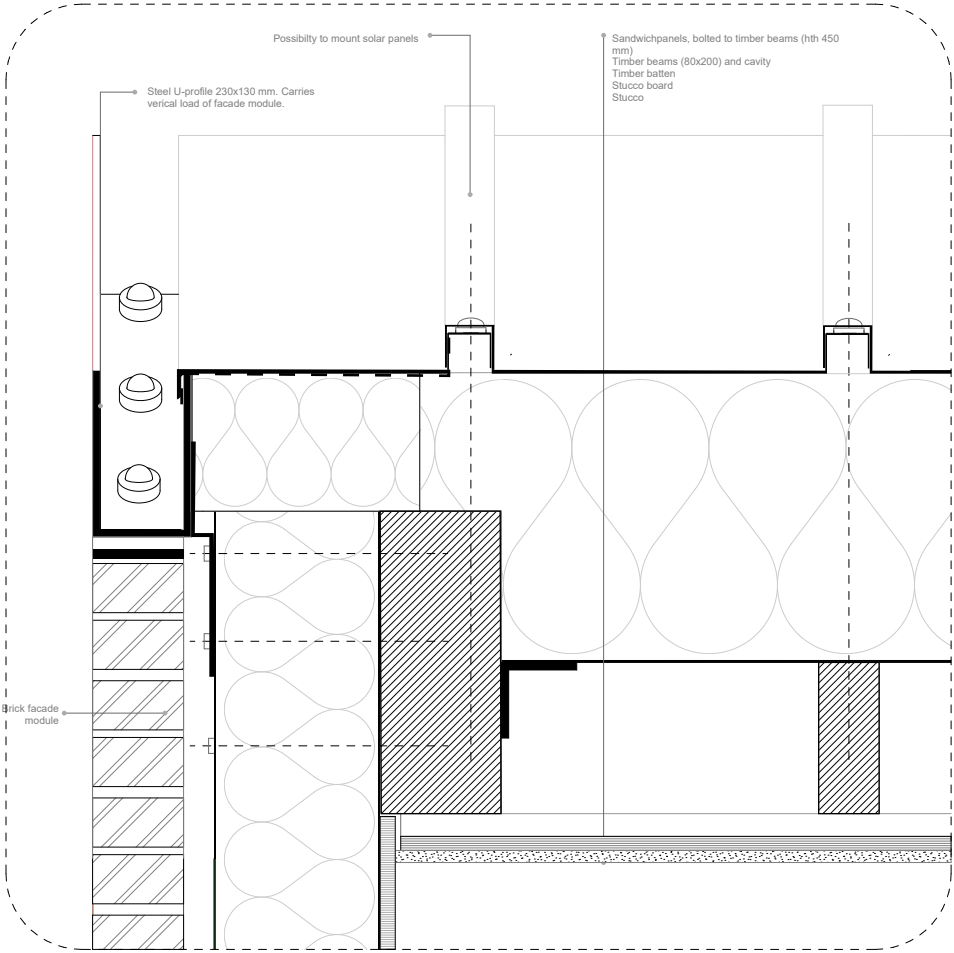




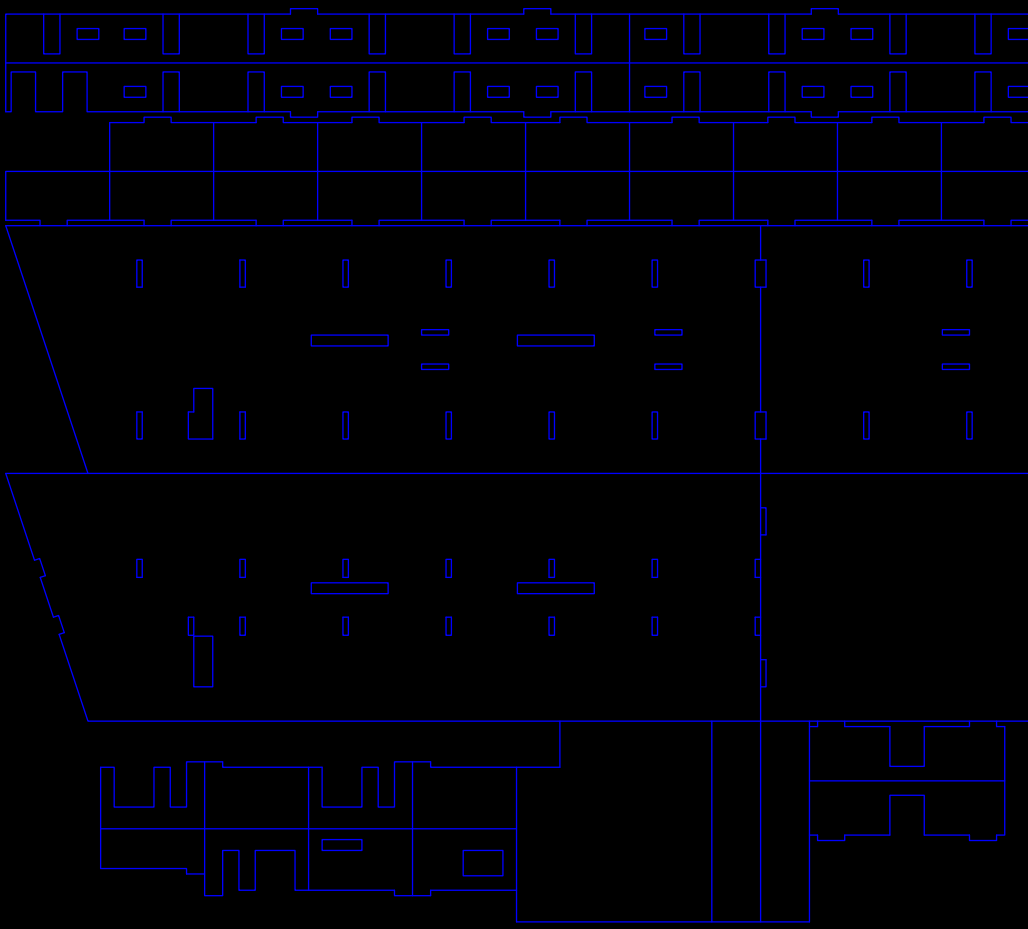

Prefab facade panels. (Steel frame structure filled with lightweight concrete and brick.)
Cavity
Sandwichpanel
Multiplex or gypsum panel, screwed into sandwichpanel
Structure for the horizontal load on the facade panel. The panels are hung, the vertical load is carried by a seperate structure.
Steel profile for mounting sandwichpanels
Finishing floor of choice
Anhydrite floor cast over floor heating
PE Foil
Wood fibre insulation
CLT Floor (Load-bearing)
Wood fibre insulation
Toeboard


Timber planks (200x20)
Timber support
PE Foil
Extruded Polysterene Insulation with slope
PE Foil
CLT Floor (Load-bearing)
Drainage. Water is transported to column
300
Steel supports pre-cast in concrete beam. Connects facade structure to main CLT
ısruction. Carries the horizontal load (hth 900 mm)
Steel supports pre-cast in
crete beam. Vertical load-bearer
of facade panels (hth 270 mm)
Duco ClimaTop 60 (preheated natural air inlet 12 dm3/s/m1)
Sapa Window 1086
Aluminium frame

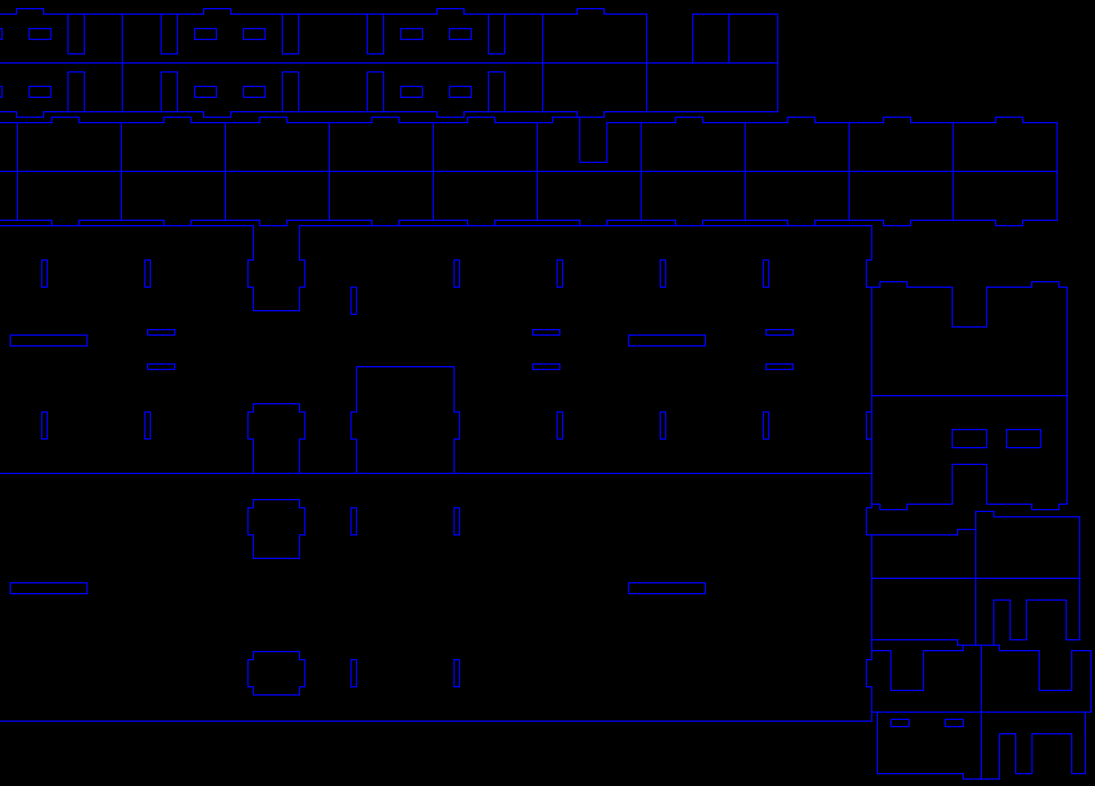

Glass plate (revolving). Extra protection for french balcony.
Steel mesh cast in facade panels. Allows plants to attach and grow creating green facade.
Planter filled with earth with integrated drainage. It is covered in front of the door to allow use of french balcony.
Flood drain
Structure for the horizontal load on the facade panel. Integrated with floor to facade connection (hth 900 mm)
Steel supports pre-cast in concrete beam. Connects facade structure to main CLT construction. Carries the horizontal load (hth 900 mm)
Steel supports pre-cast in concrete beam. Vertical load-bearer of facade panels (hth 270 mm)
Prefab cut-out of CLT floor. TImber block to mount doors and facades.
Finishing floor of choice
Anhydrite floor cast over floor heating
PE Foil
Wood fibre insulation
CLT Floor (Load-bearing)
Duco ClimaTop 60 (preheated natural air inlet: 12 dm3/s/m1)
Sapa Glass Door 2086 Aluminium frame

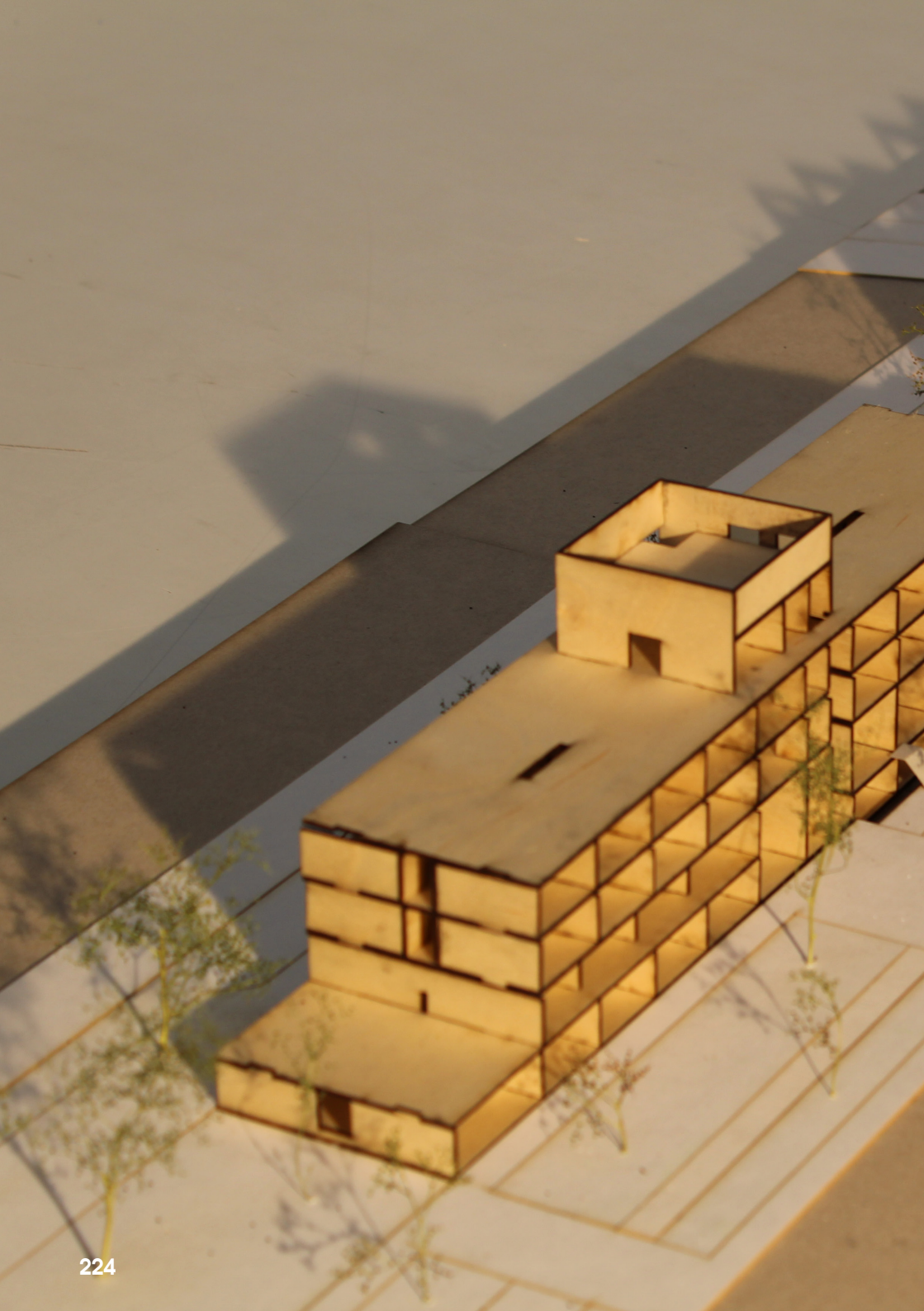

Possibilty to mount solar panels
Sandwichpanels, bolted to timber beams (hth 450 mm)
Timber beams (80x200) and cavity
Timber batten
Stucco board
Stucco
Steel U-profile 230x130 mm. Carries verical load of facade module.
Brick facade module

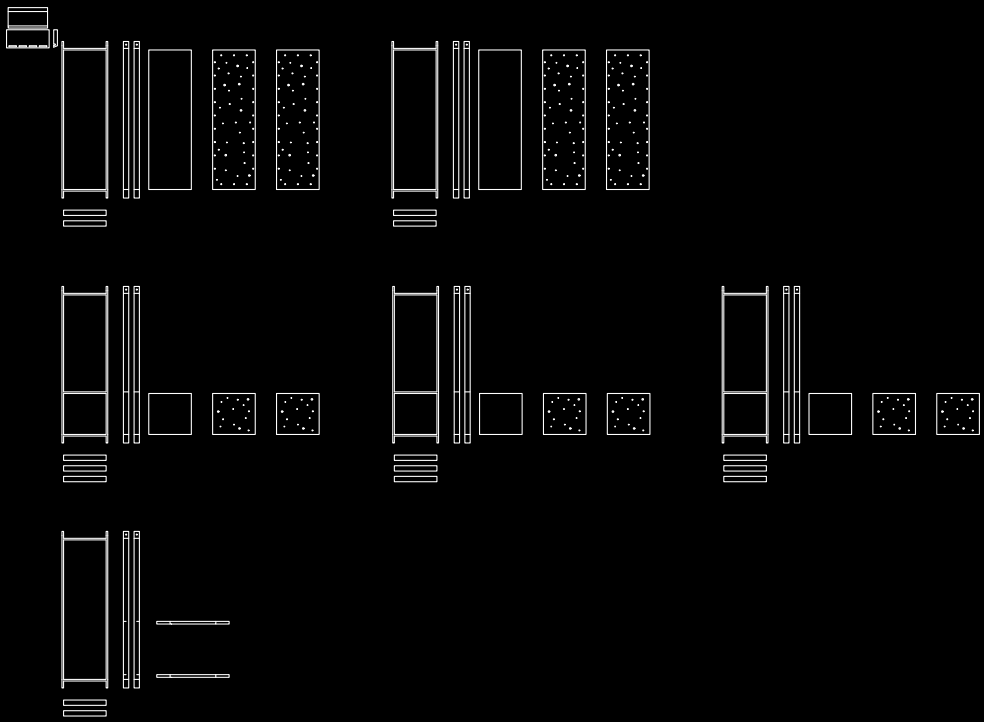
P5 PRODUCTS



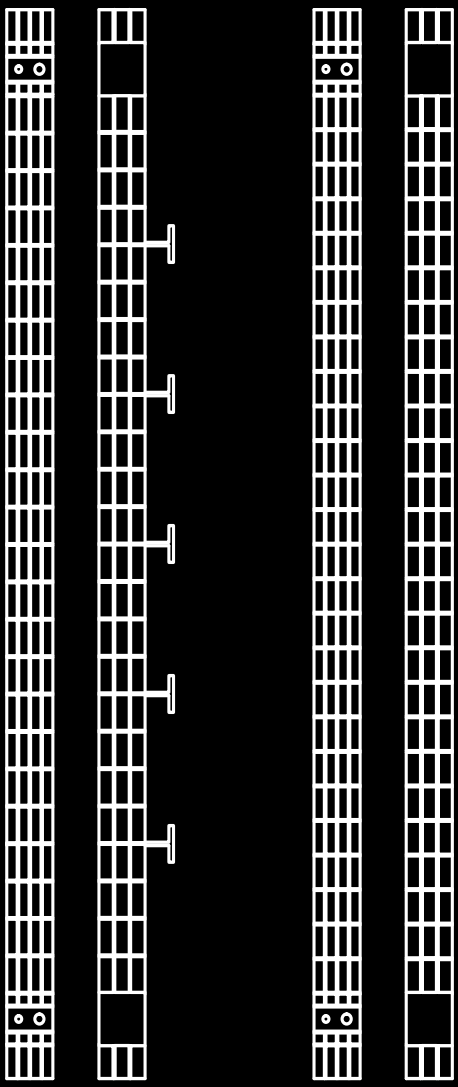
CAD File for 1:200 CLT casco model

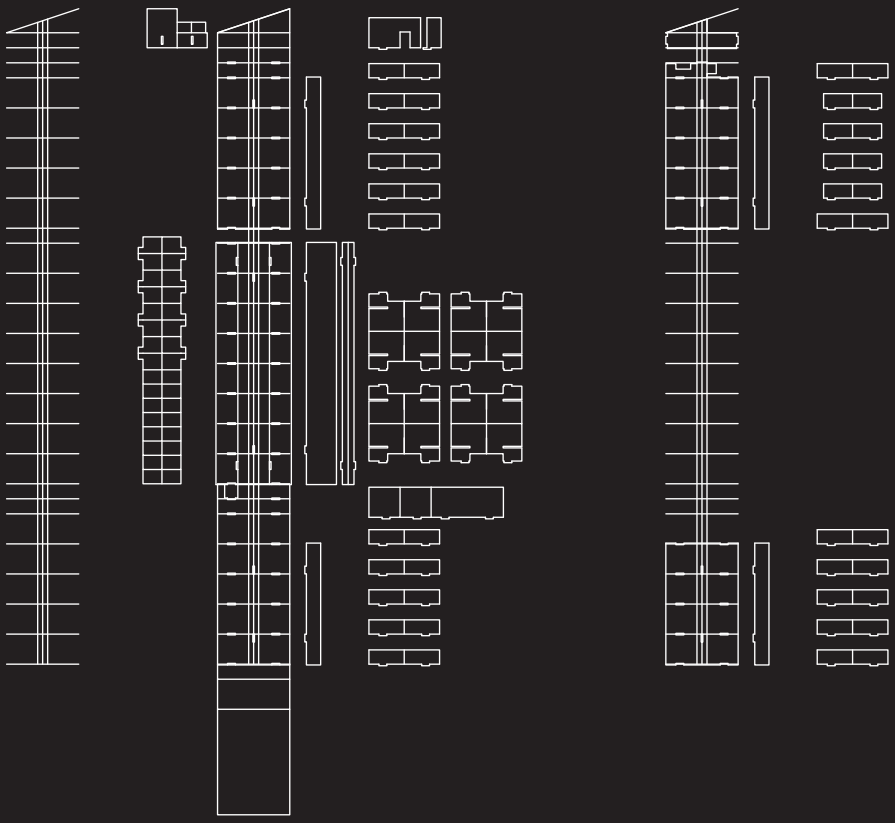




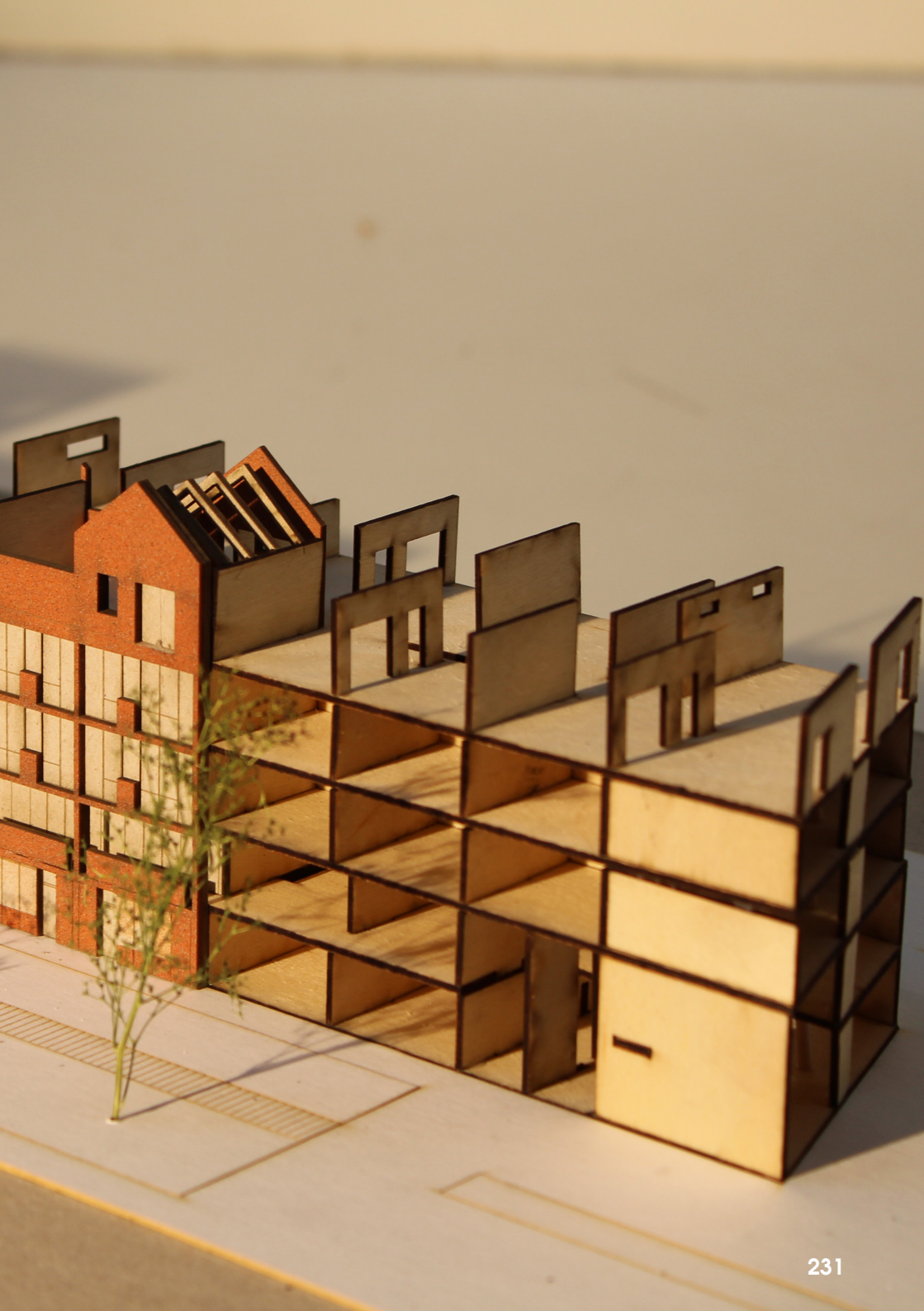


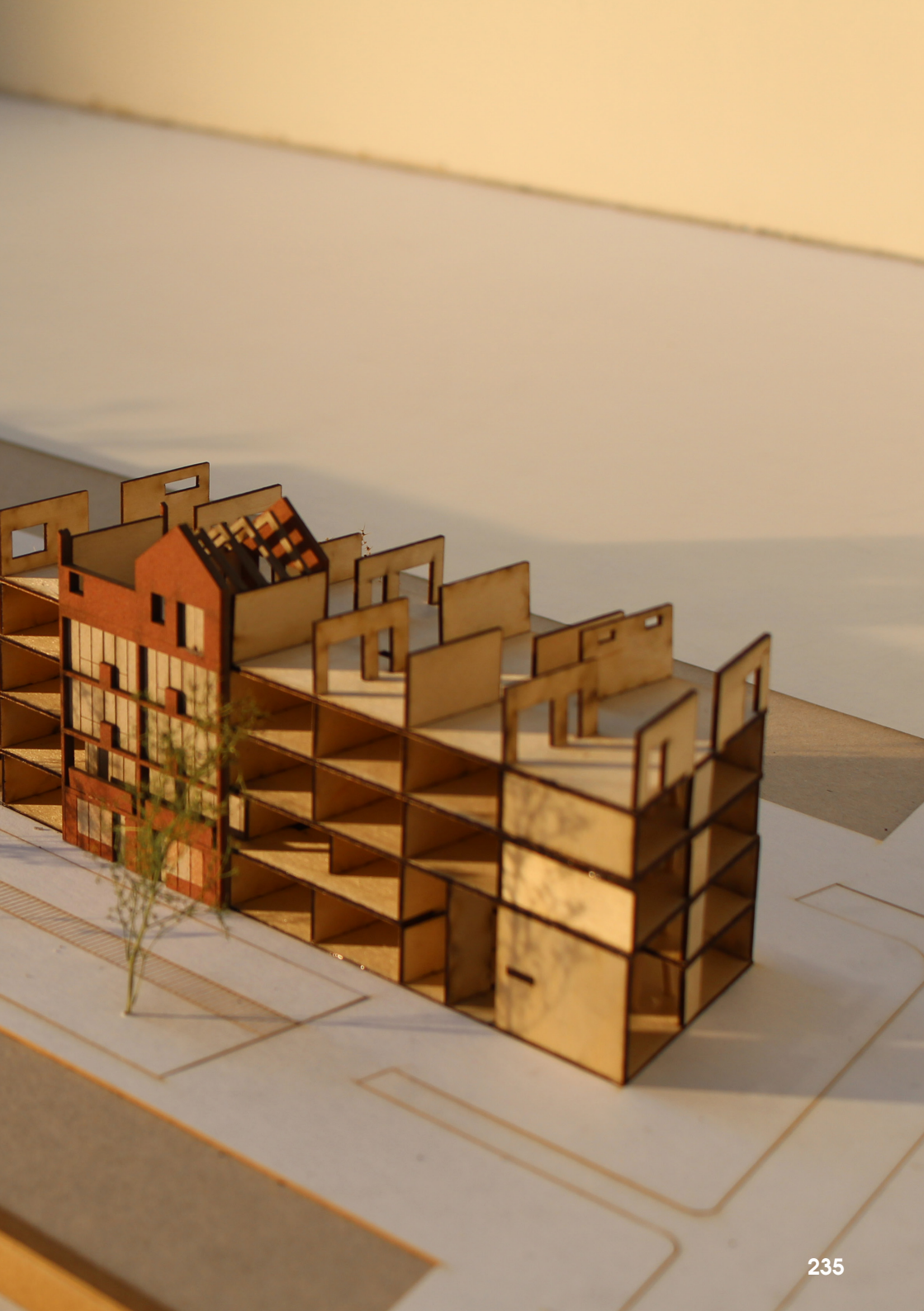
CAD File for 1:20 facade model

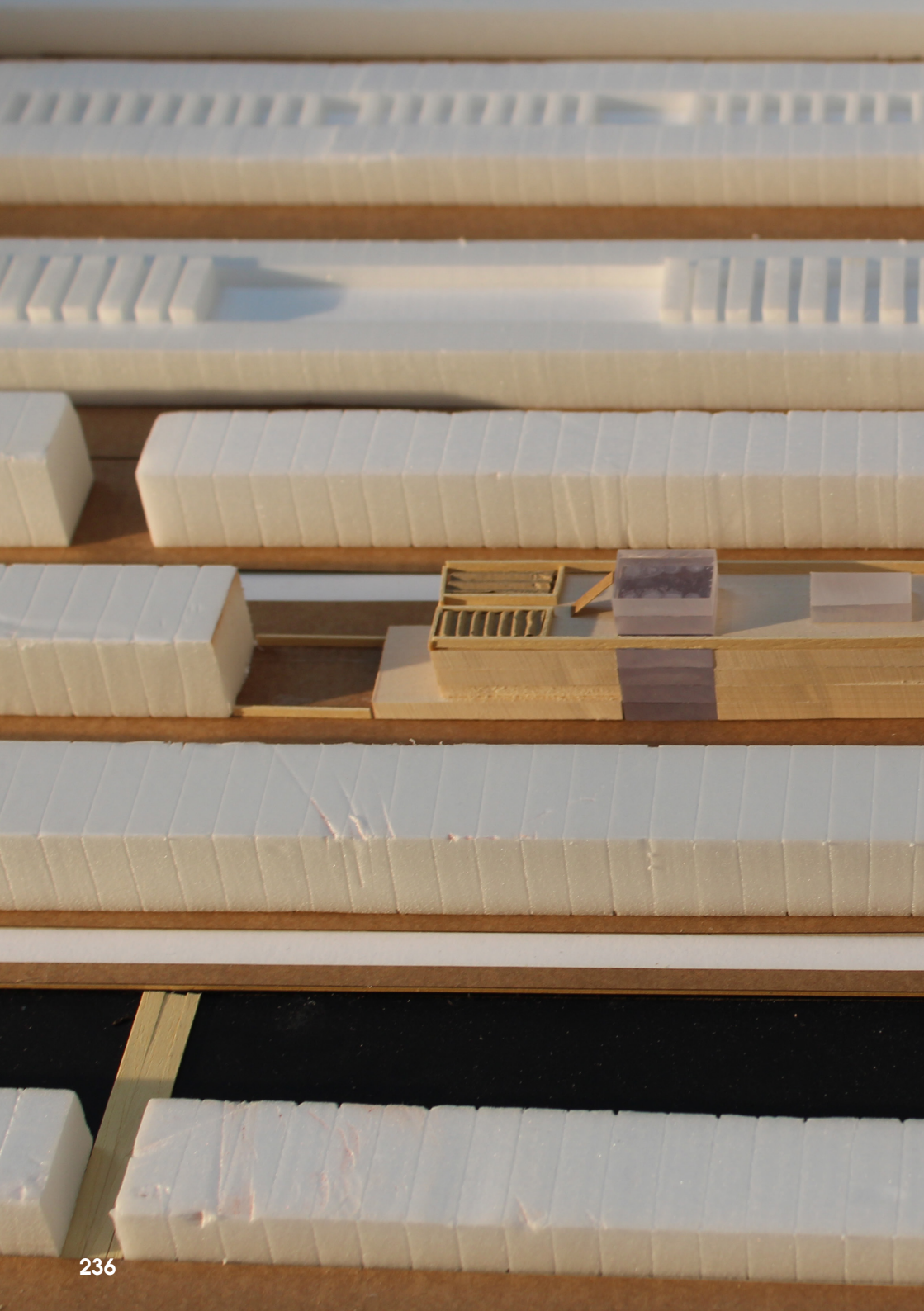


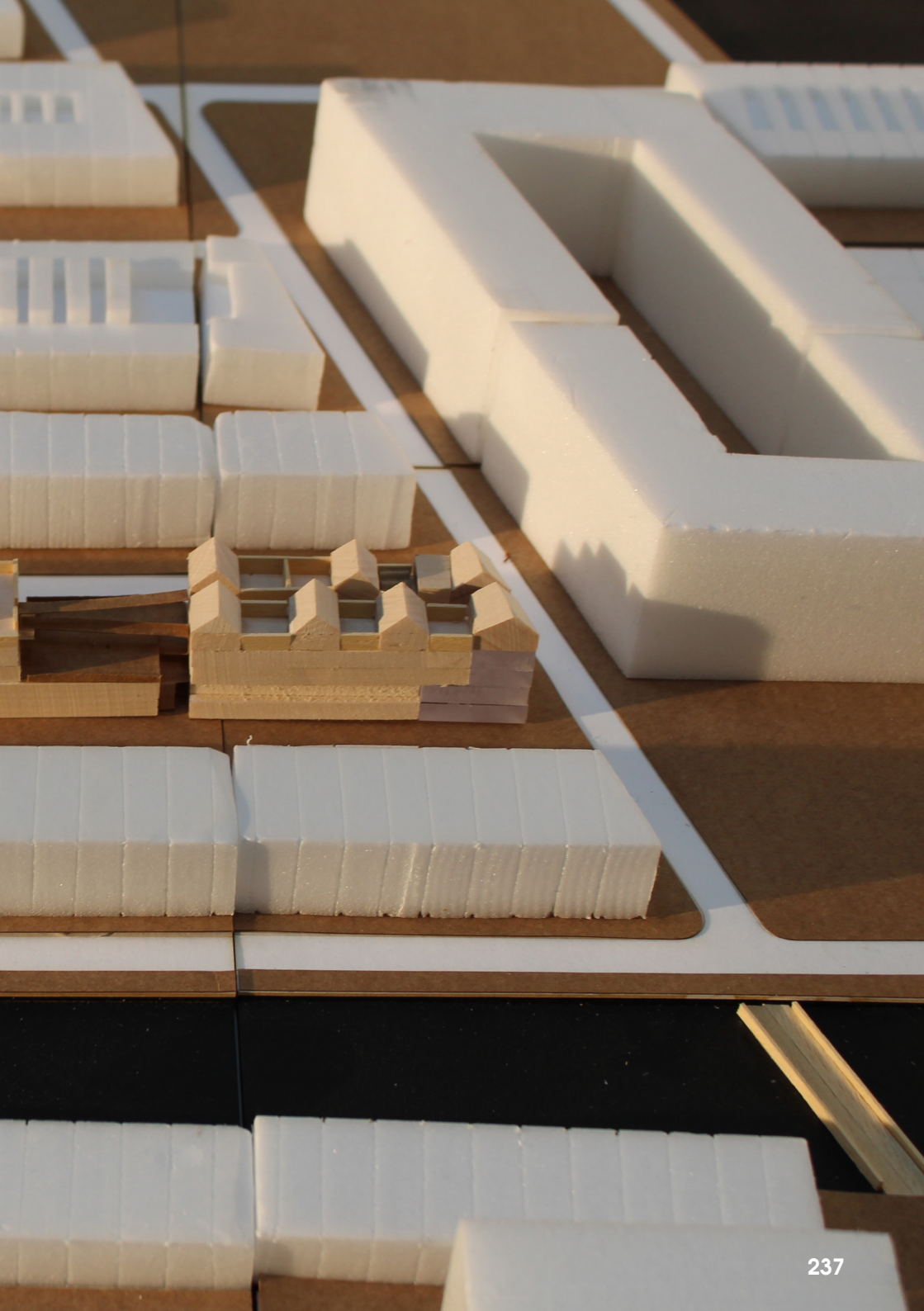


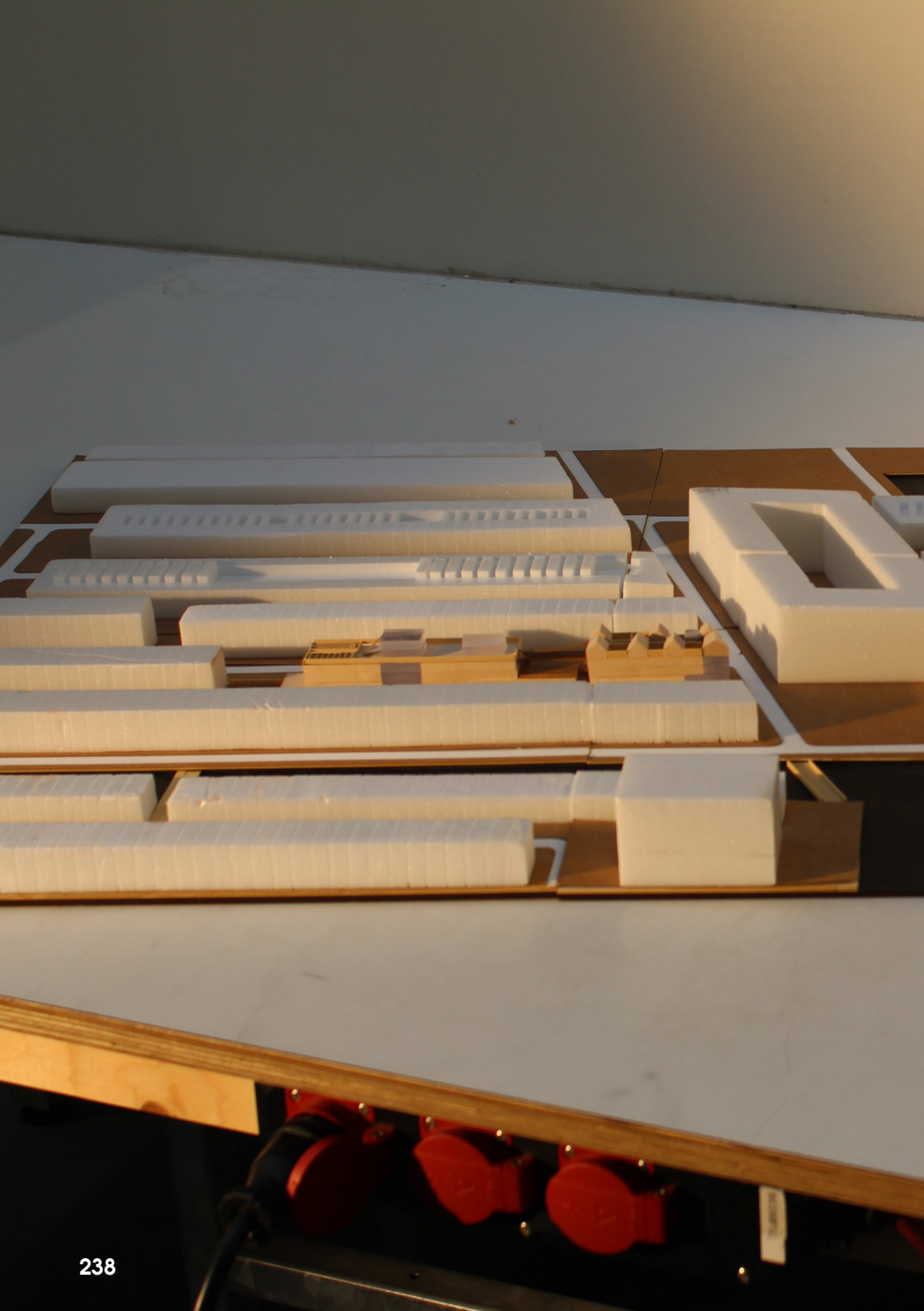
CAD File for 1:200 CLT casco model

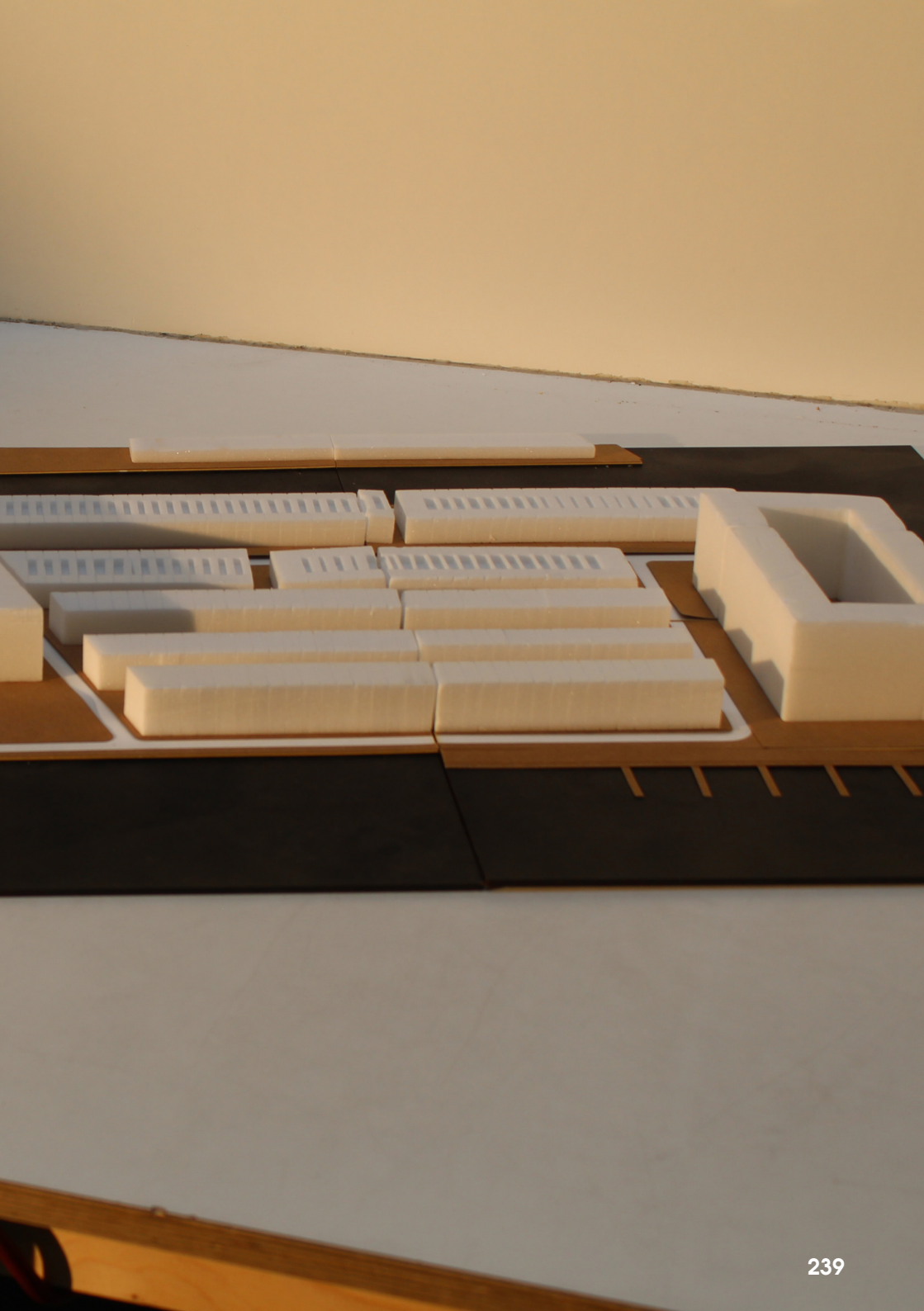


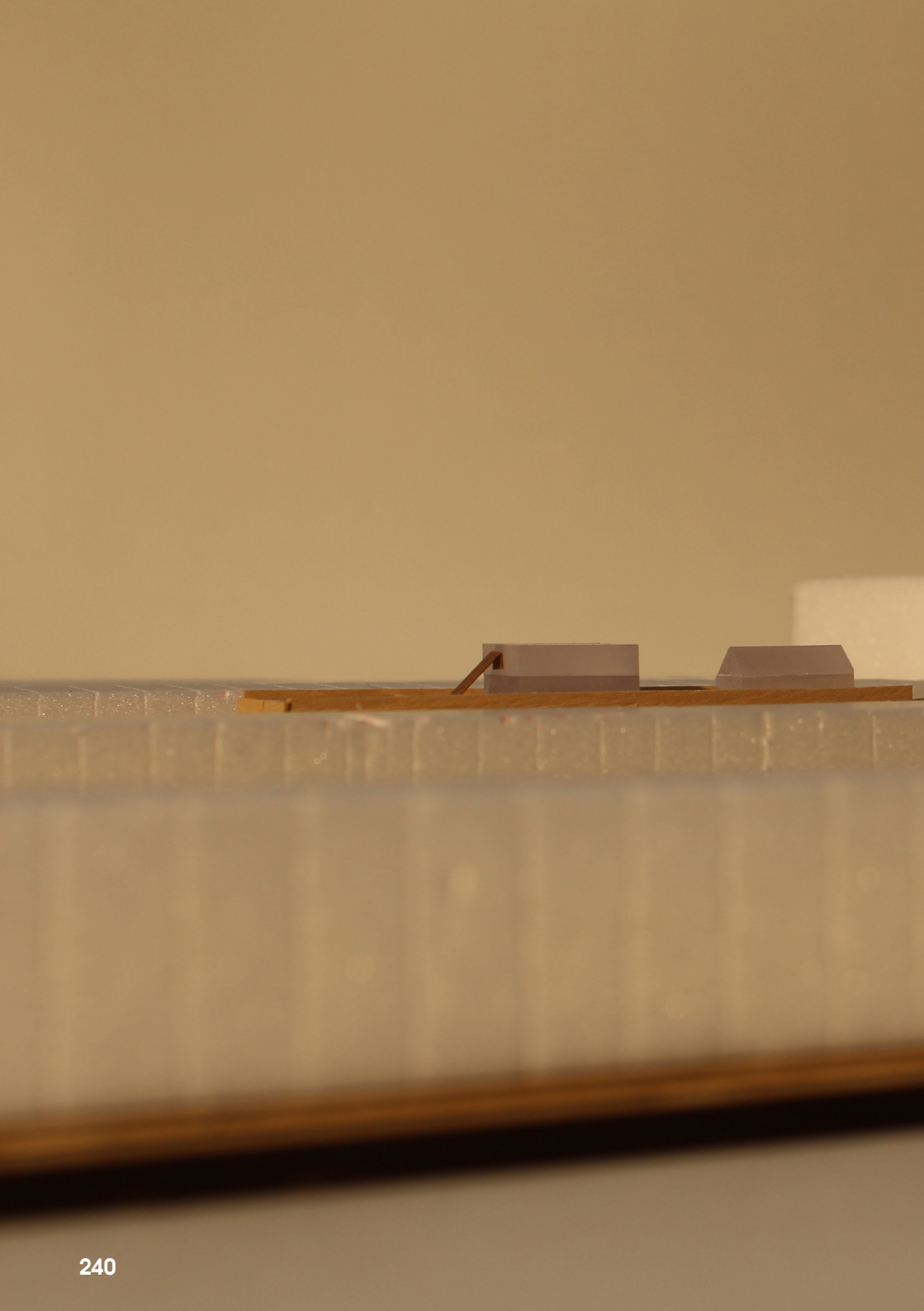


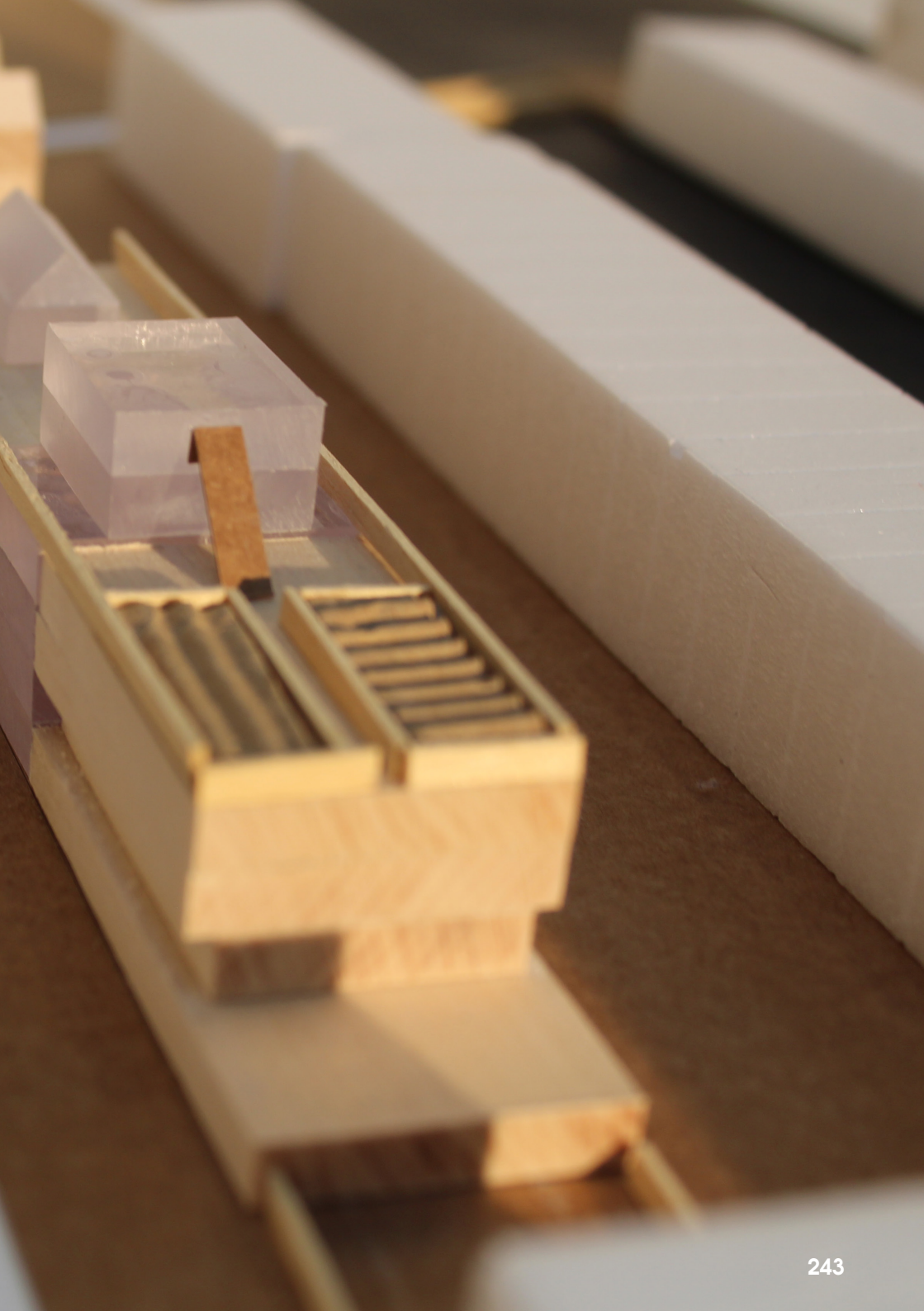


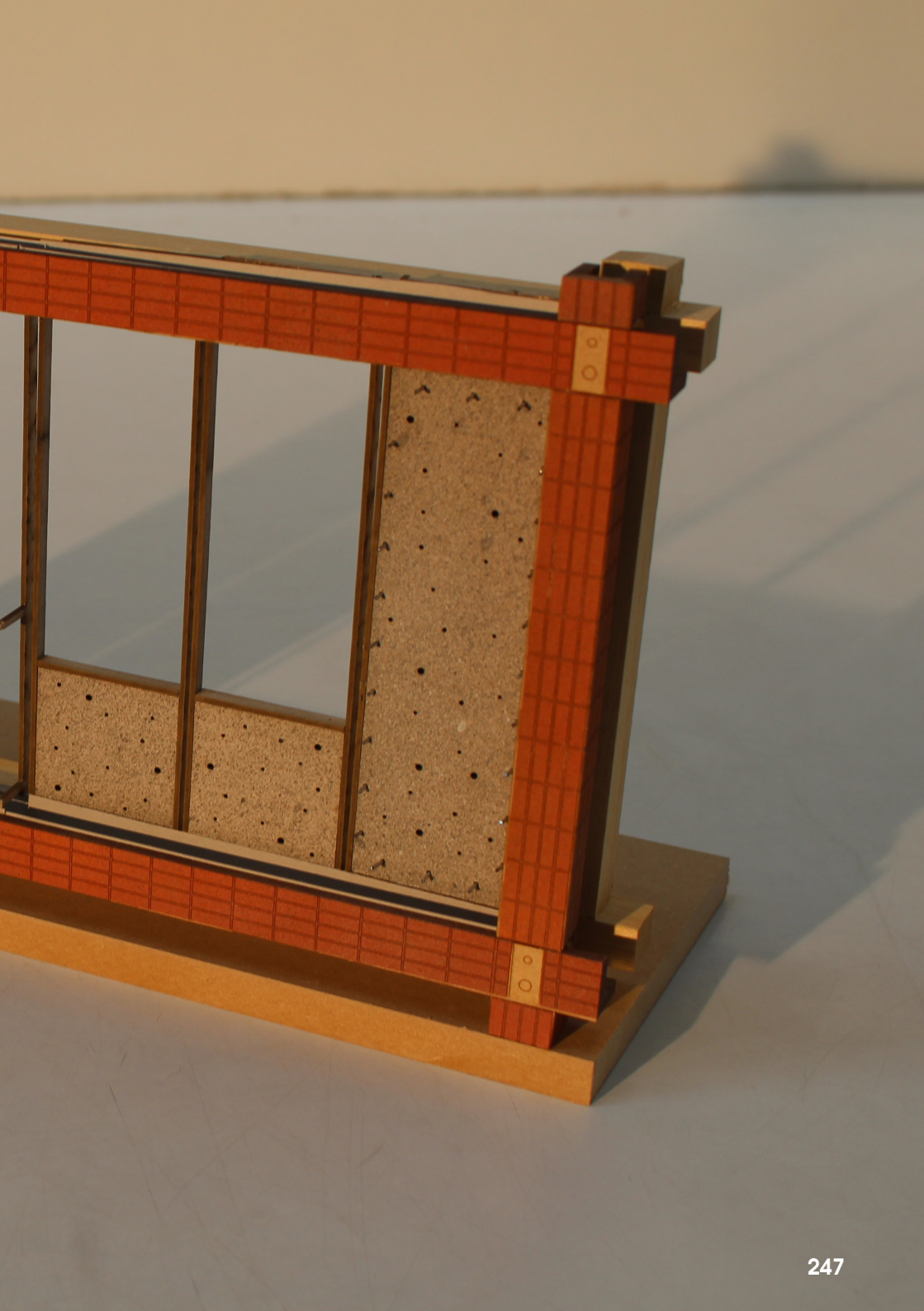




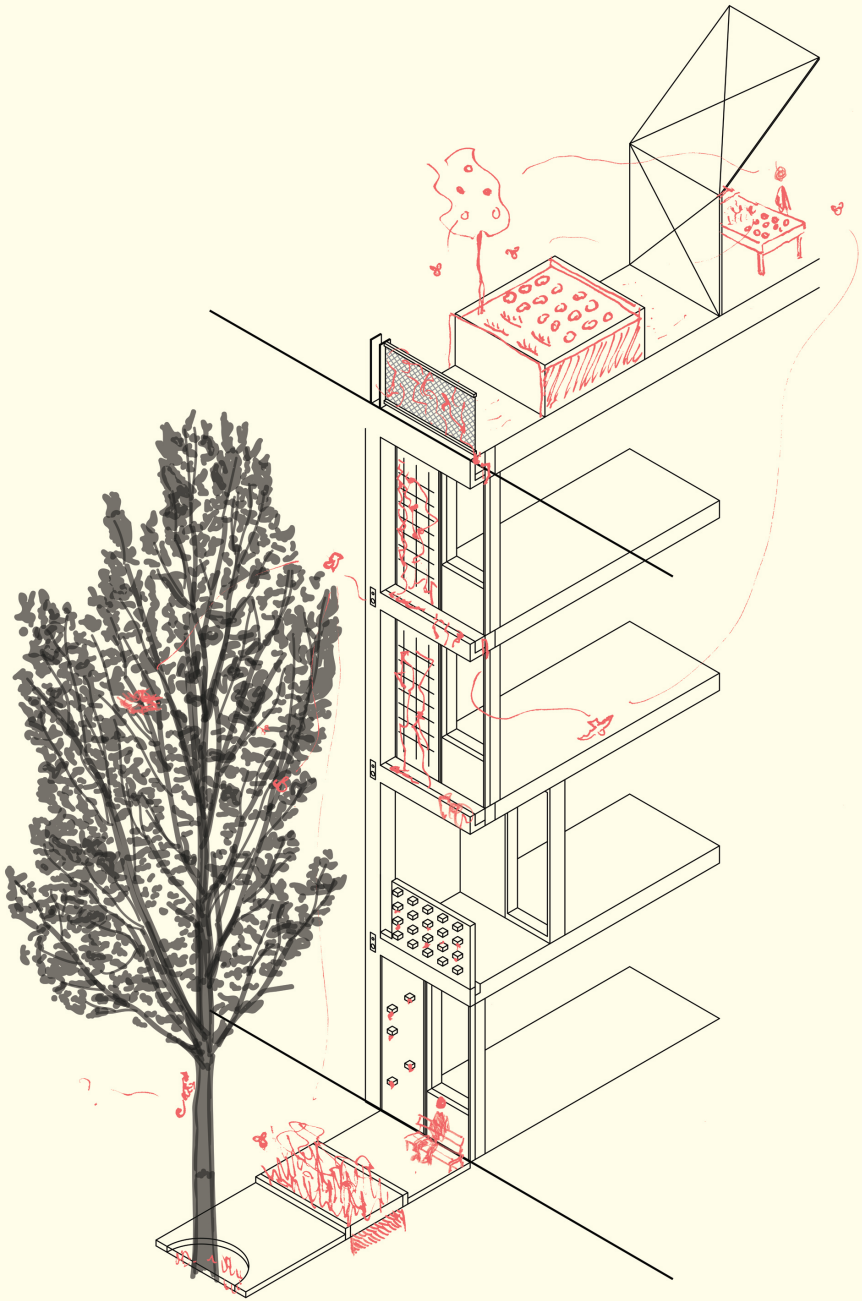


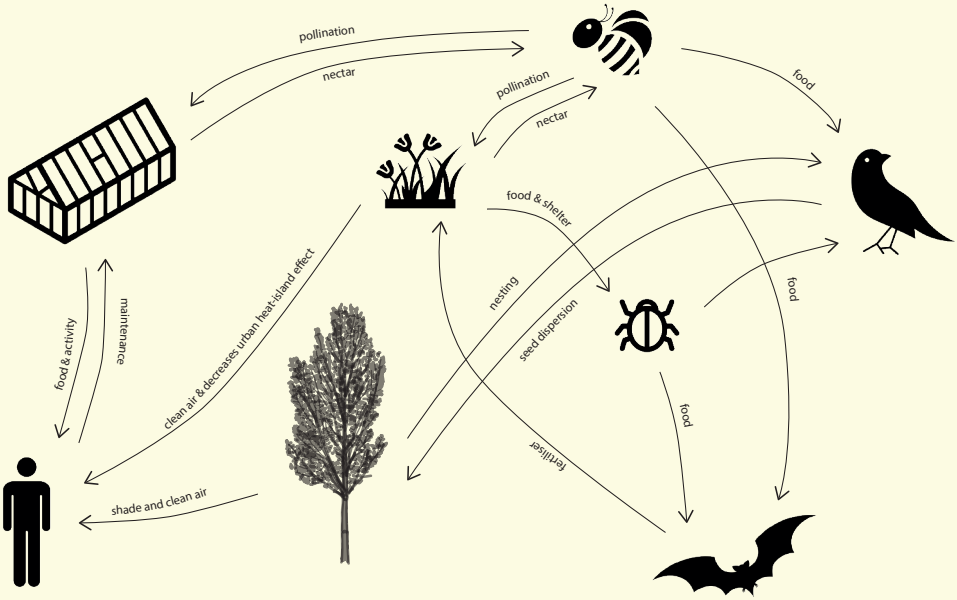


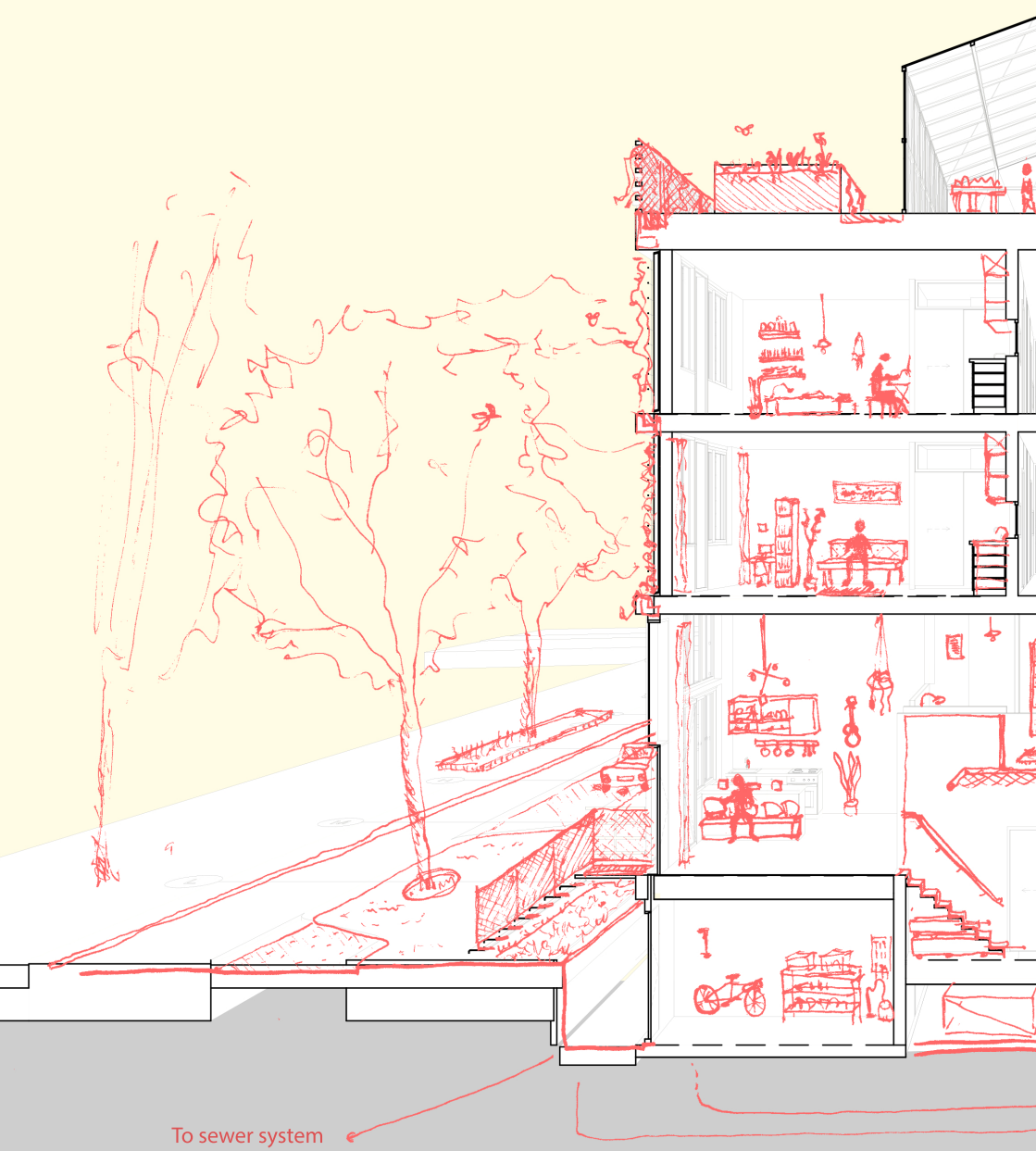


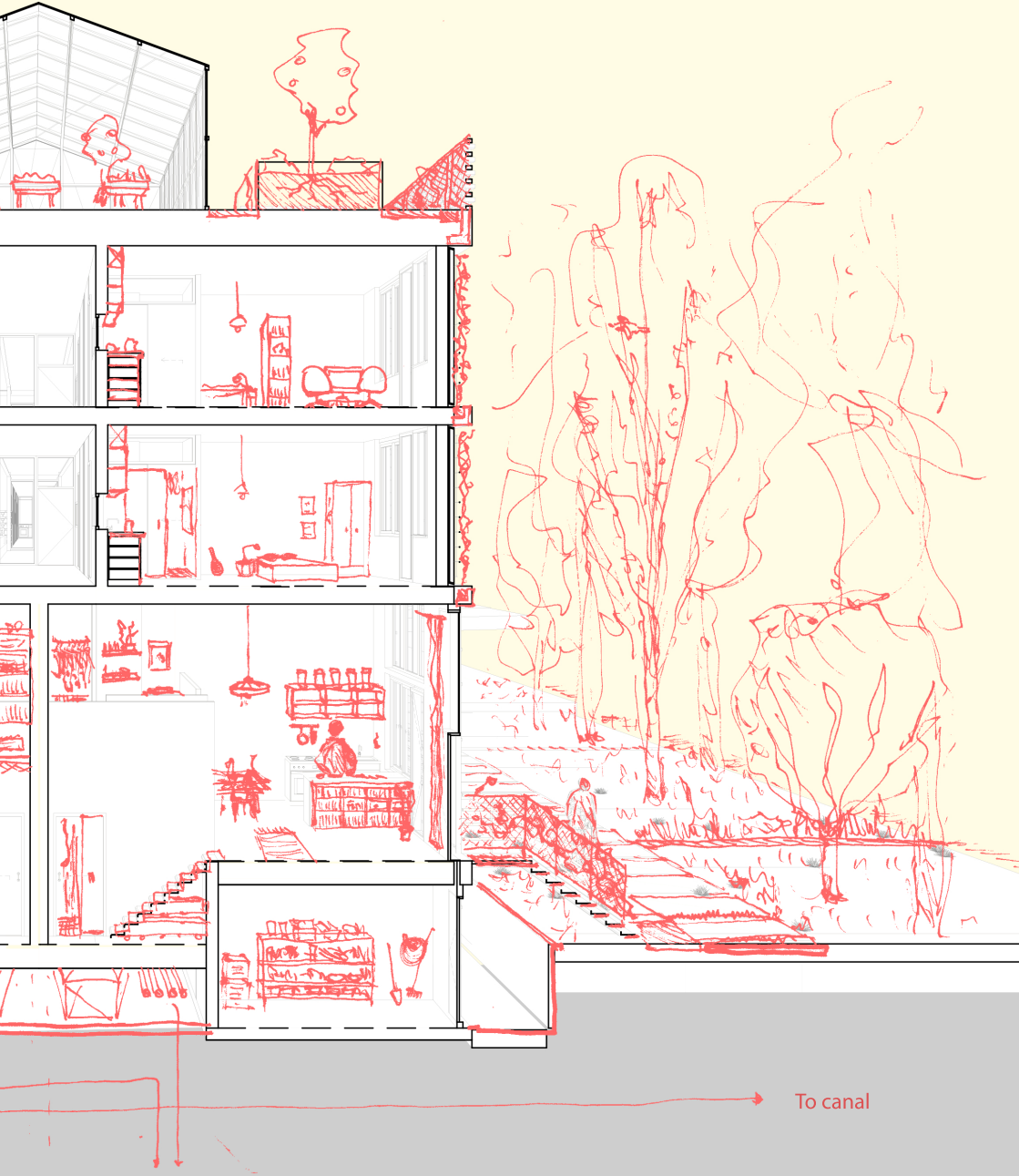



De
Ark
Garvein
Terbiest




pollination
nectar
pollination
nectar
food
food & shelter
food & activity
maintenance
clean air & decreases urban heat-island effect
nesting
seed dispersion
food
food
fertilise
shade and clean air


To sewer system


To canal
To underground warm
water storage